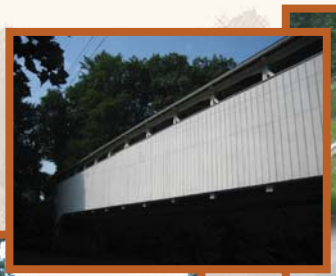
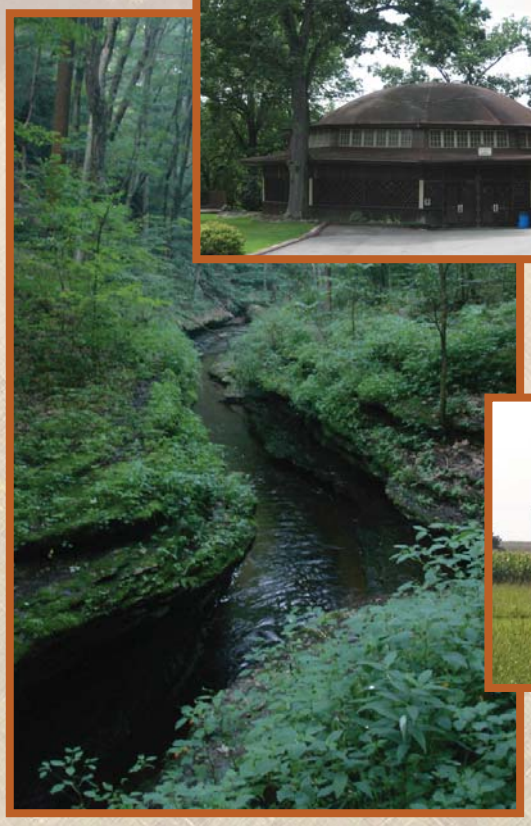
Connections

Linking Lawrence County's Resources Through Greenways

DCNR Project #BRC-TAG-11.5-24





June 2008

Pashek Associates

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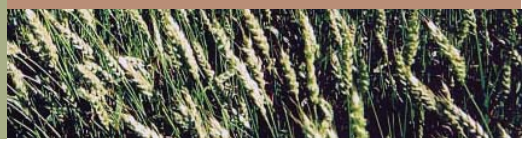

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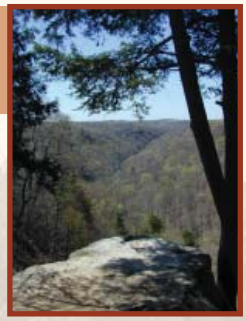

Contributions by the following groups and individuals were essential to the development of a greenways vision for Lawrence County. Their time, knowledge, decision-making, and dedication throughout the planning process made the Lawrence County Greenways Plan possible.

Lawrence County Commissioners

Dan Vogler, Chairman Steve Craig Ed Fosnaught

Lawrence County Planning Commission

Lawrence County Planning Department and Staff

Greenways Project Study Committee

Nancy Bergey - Friends of McConnell's Mill, League of Women Voters
Joyce Cuff - Shenango River Watchers
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JoAnn McCready - Lawrence County Conservation District
Amy McKinney - Lawrence County Planning Director
Carl Petrus - Lawrence County Cycling Club
Amy Reeher - Penn/Ohio Watershed Association
Janet Verone - Lawrence County Planning Commission,
Friends of McConnell's Mill, League of Women's Voters
Jerry Zona - Lawrence County Recycling / Solid Waste Department,
PA Cleanways of Butler / Lawrence Counties

Key Person Interviewees

Focus Group Organizations

Audubon Pennsylvania
Friends of McConnell's Mill
Wild Waterways Conservancy
Bartramian Audubon Society
Western Pennsylvania Conservancy

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Introduction

WHAT IS A GREENWAY?

The term "Greenway" was first coined in the 19th century, and since that time has been defined in several ways. Some people think of greenways as primarily recreational, namely trails for hiking, jogging, biking, or canoeing/kayaking (often called water trails or "blueways"). For them, greenways are places that offer opportunities to experience the outdoors. For others, the purpose of greenways is primarily for conservation of undeveloped land containing important natural resources like forests, wetlands, and stream banks, along with the plants and animals that live there. Still others see greenways in aesthetic terms, preserving the pastoral countryside setting in rural areas, protecting outstanding natural features such as cliffs, overlooks, or river ravines, or establishing green landscapes in urban areas.

All three of these ideas are embraced by the following all-encompassing definition, which is adapted from the Commonwealth of Pennsylvania's Greenways Plan: ***Pennsylvania Greenways - An Action Plan for Creating Connections***, and is embraced by this Greenways Plan:

> *A greenway is a corridor of open space, varying greatly in scale, and incorporating or linking diverse natural, cultural, and scenic resources. Some greenways are recreational corridors or scenic byways accommodating pedestrian and non-motorized vehicle traffic on both land and water; while others function almost exclusively for environmental protection and are not designed for human passage.*

The movement to establish greenways was given a significant boost in 1987 when the President's Commission on American Outdoors recommended that an interconnected greenways network be established throughout the nation. Many states, including the Commonwealth of Pennsylvania, took up the task of promoting greenways. *Pennsylvania's Greenways – An Action Plan for Creating Connections* was published in 2001. This report established a strategy for creating a comprehensive, statewide greenway network by the year 2020. The Governor appointed the Department of Conservation and Natural Resources (DCNR) to oversee the Commonwealth's

greenways program. DCNR partners with County and municipal officials to support greenways planning and implementation through education, technical assistance, and grant making programs.

WHY A GREENWAYS PLAN FOR LAWRENCE COUNTY?

Wherever greenways are developed, they provide numerous and diverse benefits to local municipalities and their residents. This section of the plan focuses on those benefits that are especially applicable to greenways development in Lawrence County. Such benefits include:

Economic Benefits

- Increase value of adjacent properties;
- Foster new and expanded business opportunities related to greenway use;
- Increase tourism expenditures on dining, lodging, and other services

Recreation Benefits

- Provide public opportunities to walk, jog, hike, bike, ride horses, canoe or kayak, picnic, fish, hunt, observe wildlife, or pursue other outdoor activities;
- Provides connections between parks, existing trails, and other recreation resources;

Social Benefits

- Promote awareness of historical and cultural features;
- Increase awareness of natural resources;
- Improve general health and wellness;

Transportation Benefits

- Provide safe alternative transportation opportunities for pedestrians and bicyclists;
- Reduce roadway congestion through redistribution of would-be motorists to alternative transportation routes

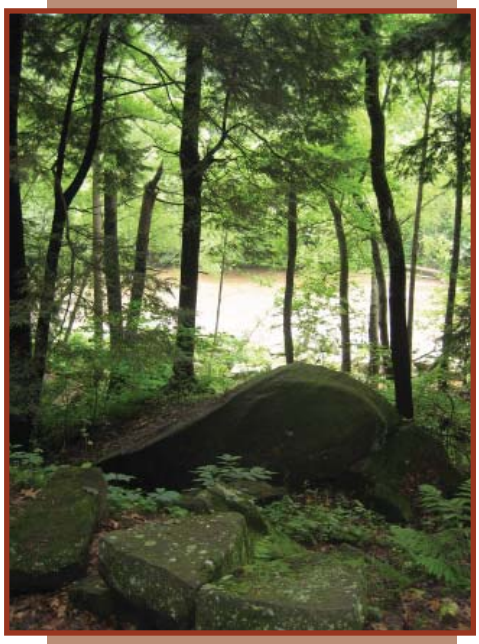
Ecological Benefits

- Protect wildlife habitat;
- Absorb and filter flood waters;

- Protect air and water quality

Environmental Education Benefits

- Fosters an awareness of and appreciation for the surrounding environment;
- Explains environmental issues and best management practices (possible solutions) to the public;



Preserving Lawrence County's Defining Characteristics

As we move into the 21st century, the importance of the protection of our open spaces and natural resources is greater than ever. Preservation of these assets plays a large role in determining quality of life for ourselves and future generations. Residents enjoy the features that set their community or region apart from every other place. Boulder-strewn hillsides of river gorges, pastoral Amish farmsteads, rolling forested hills, quiet country villages, historic Victorian mansions, traditional urban neighborhoods, and celebrated remnants of an industrial past are all part of the unique character of Lawrence County. Visitors to the area are often charmed by the quaint country village of Volant, fed by locally-grown produce sold at roadside farm stands, struck by the beauty and power of the Slippery Rock Creek as it continues carving its gorge beneath the historic covered bridge at McConnell's Mill, or entertained by the performances at the Scottish Rite Cathedral or New Castle Playhouse.

Lawrence County has many recreational assets, including a portion of the North Country Trail, McConnell's Mill State Park, West Park (the only County Park), several local municipal parks, trout fishing streams and lakes, and State Game Lands. These places together provide a variety of opportunities for biking, hiking, hunting, fishing, boating, wildlife viewing, and other pastimes.

In addition to its abundant natural and recreational assets, Lawrence County has a rich history that is well-preserved. Several significant historic sites such as the Lawrence County Courthouse, New Castle Armory, Scottish Rite Cathedral, and the McConnell's Mill and Banks Covered Bridges provide opportunities for increasing tourism to the county. The City of New Castle also boasts the nationally-

registered North Hill Historic District in addition to restaurants, shops, entertainment, and lodging. Other municipalities containing nationally-registered sites are the Boroughs of New Wilmington, Enon Valley, and Bessemer, along with Slippery Rock Township. A greenway network linking historic resources with the County's recreational amenities will increase their accessibility and attract more tourists.

The Lawrence County Planning Department (LCPD) would like to promote the importance of preserving these special places and resources, which will enhance the quality of life for County residents while supporting economic growth and prosperity, thus adhering to their departmental mission:

> *. . . to systematically organize, lead, direct, educate, and administer planning, as required by the Pennsylvania Municipalities Planning Code, so as to maximize the economic, environmental and social development of Lawrence County and the Commonwealth of Pennsylvania. (Source: Lawrence County Planning Department website - www.co.lawrence.pa.us/planning)*

Expanding the Economy

Economic growth is of special importance in Lawrence County. Once an industrial center, the County experienced an economic decline since the collapse of Western Pennsylvania's steel industry. The County is still recovering from the aforementioned economic downturn and attempting to mirror the national economic transition from heavy industry to technology and service-related employment. Along with the LCPD, the Lawrence County Economic Development Corporation (www.lawrencecounty.com), Lawrence County Tourist Promotion Agency (www.visitlawrencecounty.com), and Lawrence County Chamber of Commerce (www.lawrencecountychamber.com) have launched a coordinated effort to draw businesses, residents, and visitors to Lawrence County.

The County's accessibility from major highways and surrounding population centers, such as Pittsburgh, Erie, Cleveland, and Youngstown, makes it a logical place for development in one of the fastest-growing sectors in Pennsylvania's economy: Recreational and

Eco-Tourism. According to DCNR, tourism is the second largest industry in the Commonwealth and nearly one-fifth of Pennsylvania's tourists travel to enjoy its outdoor amenities. Lawrence County's various natural and recreational resources are important assets that provide potential for substantial growth in the travel and tourism industries.

The economic benefits of greenway development are well-documented. In 2002, York County published a study of the Heritage Rail Trail, which had been in operation for three years. The study, *Heritage Rail Trail County Park 2001 User Survey and Economic Impact Analysis*, concluded that trail users were having a measurable, positive impact on the York County economy. Specifically, the report stated:

- In terms of economic impact, 72% of the respondents indicated they had purchased "hard goods", mostly bicycles and related accessories, in the past year in conjunction with their use of the trail. The average purchase amount was $367.12. While these types of purchases are not annually recurring, even with the most conservative usage estimate they amount to millions of dollars in sales.

- Even more significant is the purchase of "soft goods" (water, soda, candy, ice cream, lunches, etc.). 65.6% of the respondents indicated that they purchased these types of items on their most recent trip to the trail. The average purchase amount per person was $8.33. Considering that the average user makes several trips to the trail on an annual basis, at the minimum these types of purchases are contributing several hundred thousand dollars to the York County economy. And, these types of purchases are recurring year after year. Only 15% of the respondents indicated that they did not make a purchase in conjunction with their use of the trail.

A similar study done in the Western Pennsylvania region, the *Economic Impact of Ghost Town Trail in the Indiana and Cambria Counties Region* (completed in October 1996), returned similar results with a trail user survey and infrared counters spaced at trail entrances. When the results of the user survey were assumed to

represent all trail users, the study concluded that:

- Average daily local purchases for Ghost Town Trail users was $4.33 per day for Indiana or Cambria County residents, and $9.28 for non-residents. Typical purchases included food, transportation, and other items.

- The total economic impact, when multiplied by the estimated 66,253 people that used the trail during 1996, was approximately $362,000 -- $221,000 from residents' expenditures and $140,000 from non-residents' expenditures. Over 77% of trail users were residents of either Indiana or Cambria County.

The Allegheny Trail Alliance also conducted a user survey for their trail system, including 100 of the 150 continuous miles of the Great Allegheny Passage, between Pittsburgh, PA and Cumberland, MD, as well as the Montour Trail near Pittsburgh International Airport.

Their study, the *2002 User Survey for the Pennsylvania Allegheny Trail Alliance*, asked information on trail use, distances traveled, spending in local communities, and spending on bikes and equipment. Highlights of the survey results include:

- 59% of trail users made some type of small item purchase, such as food, clothing, and gas, at businesses in local trail-related communities.

- The average person spent $8.84 per trip on small purchases.

- Per-trip spending varied at different trailheads surveyed, ranging from $2.87 per person at the Montour Trail to $15.61 at the Confluence trailhead of the Great Allegheny Passage.

- Spending varied substantially with distances traveled, ranging from $4.03 per person per trip for those traveling less than 10 miles (one way) to a trailhead; to $15.44 per person per trip for those traveling more than 60 miles.

- 13.3% of trail users stayed overnight during their trail visit,

and the average number of nights stayed among those users was 2.4 nights.

To cater to the needs of recreational users, new service businesses such as bike shops, canoe & kayak rentals, outdoor equipment stores, restaurants, campsites, and bed and breakfasts often spring up around recreational greenways. These new businesses bring new jobs and additional tax dollars to the host municipalities.

In *Benefits of Greenways*, DCNR noted that in 2002, recreational tourism accounted for 459,000 jobs statewide, an increase of 100,000 from 1998. Moreover, the report noted that "there is also evidence to demonstrate that communities with recreational greenways have witnessed significant increases in real estate values."

Beyond these direct economic benefits of greenways, other less-tangible but very important fiscal impacts may be attributed to greenway development. For example, when looking for places to relocate or expand their businesses, employers look at a variety of factors including amenities for their employees. Workers, particularly young people, are attracted to places that provide opportunities for easy access to outdoor recreation. Greenways and trails provide such accessibility since they connect employment centers to parks and other natural amenities.

Protecting Sensitive Habitats

Lawrence County contains a variety of forests, wetlands, rivers and streams that provide habitat for a wide array of plants and animals. The Pennsylvania Audubon Society has identified one (1) Important Bird Areas (IBAs), or area essential to sustaining wild bird populations, in Lawrence County. In addition, in the Lawrence County Natural Heritage Inventory (NHI), the Western Pennsylvania Conservancy has identified natural areas that serve as critical habitat for species of special concern, or that host a variety of habitats and landscape features warranting conservation. The NHI pinpoints two (2) Landscape Conservation Areas (LCA's), which are pieces of the landscape with higher ecological

quality than their surroundings. Other natural areas identified include six (6) exceptional-value and ten (10) high-value Bio-Diversity Areas (BDA's), which are of special importance to the ecological integrity of the County and the surrounding region.

A greenway network will help to protect these sensitive environmental areas from development and to restrict uses that would threaten their conservation.

Sound Land Use and Sustainable Growth

In the push to bring new residential, commercial, and industrial development into Lawrence County, planning is needed to assure that such development is implemented in a manner that respects the County's sensitive environmental areas, along with the aforementioned cultural, historic, and scenic resources.

One method of responsible land use is the in-fill development of land in existing areas of urban or suburban development. For instance, developing land in an existing business park rather than previously-undisturbed land provides easier access to utilities and resources, while preserving an additional area of open space. According to the Lawrence County Comprehensive Plan, 58% of the land in eight (8) surveyed industrial parks was still available to developers when the Neshannock Business Park opened in December 2001.

The Comprehensive Plan also recommends progressive land use planning, such as Development Models that include in-fill development, compact building forms, pedestrian-oriented transportation improvements, mixed land uses, and the provision of open space in order to preserve the County's rural character. This effort is consistent with the state-wide Growing Greener program ideals.

It is important to note that a thoughtfully-developed Greenway Plan does not oppose development, but rather identifies ways to integrate it with conservation practices. Thus, economic growth will occur in planned areas and will result in healthier communities, economically, socially, and environmentally.

How is a Greenway Plan Developed?

Three-Step Process

Sound Greenways Planning uses a three-step process that answers the following questions:

Where Are We Now? - This is the inventory phase, during which information about the County's natural, cultural, historical, and scenic assets is gathered, forming the building blocks of conservation and/or recreation corridors. For example, it is important to note critical habitat areas, as well as abandoned rail lines that have potential for conversion into recreational trails.

Where Do We Want to Be? - In this phase, the "Vision" for the greenways system is developed. Specifically, the plan synthesizes information gathered in the inventory phase into a proposed network of greenways and trails linking important destinations throughout the County.

How Do We Get There? - This phase provides information and recommendations on the implementing the Greenways Plan. It includes concrete tools such as recommended management structure, prioritized trail and greenway segments, potential funding sources, and suggestions for pilot / demonstration projects.

Public Participation

Greenway planning also involves an intensive public participation process that solicits knowledge and expertise from local residents and officials - those who know Lawrence County best. During this process, input is obtained by the following methods:

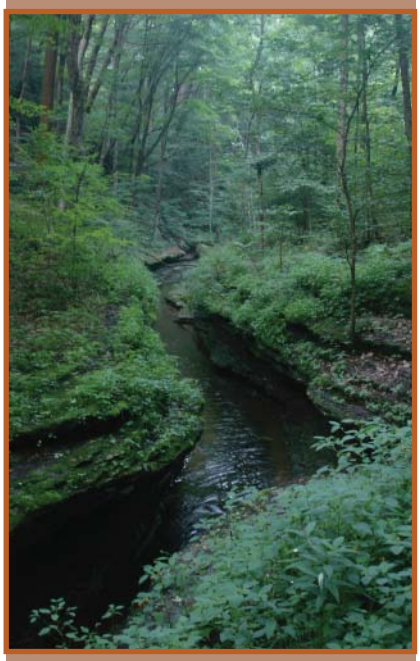
- ***Study Committee Meetings*** - A Project Study Committee was assembled to help guide the planning process. Members included representatives of County Government, local school districts, and non-profit organizations having expertise in planning, recreation, agriculture, and conservation. The Study Committee reviewed and commented on all aspects

of the Greenways Plan as it was developed. Minutes from the several meetings of the Study Committee are included in Appendix A.

- ***Public Meetings*** - Two meetings were held to obtain feedback on the plan from the general public. The first meeting was held in November 2006 to introduce the planning process and solicit information about significant County destinations, natural areas worth conserving, and potential trail opportunities. The second meeting was held in July 2007. At this session, the draft Greenways Plan was presented and the public was asked to comment on the recommendations. Significant comments were addressed in the final plan. Public Meeting minutes are also included in Appendix A.

- ***Key Person Interviews*** - Using a contact list developed by the Study Committee, as well as contacts with local organizations made during the planning process, twenty interviews were conducted with individuals and organizations knowledgeable on local issues, including conservation, development, economic impact, recreation, and tourism. Transcripts from these interviews are included in Appendix B.

- ***Focus Groups*** - In addition, Pashek Associates held meetings with focus groups, or local organizations interested in various aspects of the Greenways Plan. An example is the Slippery Rock Creek Gorge Focus Group meeting held in August 2007. The focus of such meetings was concentration on each group's interests that may parallel ideals of greenway planning. Minutes from all Focus Group Meetings can be found in Appendix A.



Purpose of the Greenways Plan

With the aforementioned benefits and planning process in mind, this Plan examines the various methods by which Lawrence County can develop a greenway network that will help to preserve its essential natural resources and, in turn, its unique character and quality of life.

The purpose of this project is to develop a network of connections between the County's diverse natural areas, its various cultural,

historic, and recreational resources, and local population centers. These connections will help to preserve the County's natural resources and open spaces while providing valuable recreational opportunities for local residents.

Goals and Objectives

Preserving and enhancing Lawrence County's character and quality of life is the main goal of the Greenway Plan, and these specific objectives support this main goal:

- Protect existing natural areas primarily for ecological health and preservation of wildlife habitat;
- Promote the preservation of agricultural land;
- Provide recreational opportunities for County residents through preservation and connection of existing open spaces;
- Promote economic growth via recreational or eco-tourism;
- Encourage local municipalities to work in unison to help protect their various resources by adopting open-space and land-use regulations;
- Educate County residents on the aspects and benefits of Greenways Planning, including the benefits of implementation of the goals listed above.

The Greenway Plan As a Decision-Making Tool

Once finalized and approved by the Lawrence County Commissioners and adopted as part of the County's recent Comprehensive Plan (2004), the Greenway Plan will serve as a flexible tool for making decisions regarding the protection of its natural, cultural, historic, and scenic resources. By encompassing a variety of issues pertinent to these resources, the Plan will lay the foundation for the continued success of open space conservation and increased quality of life in Lawrence County. Specific policy details and greenway locations may be adjusted as needed throughout the planning process and implementation.

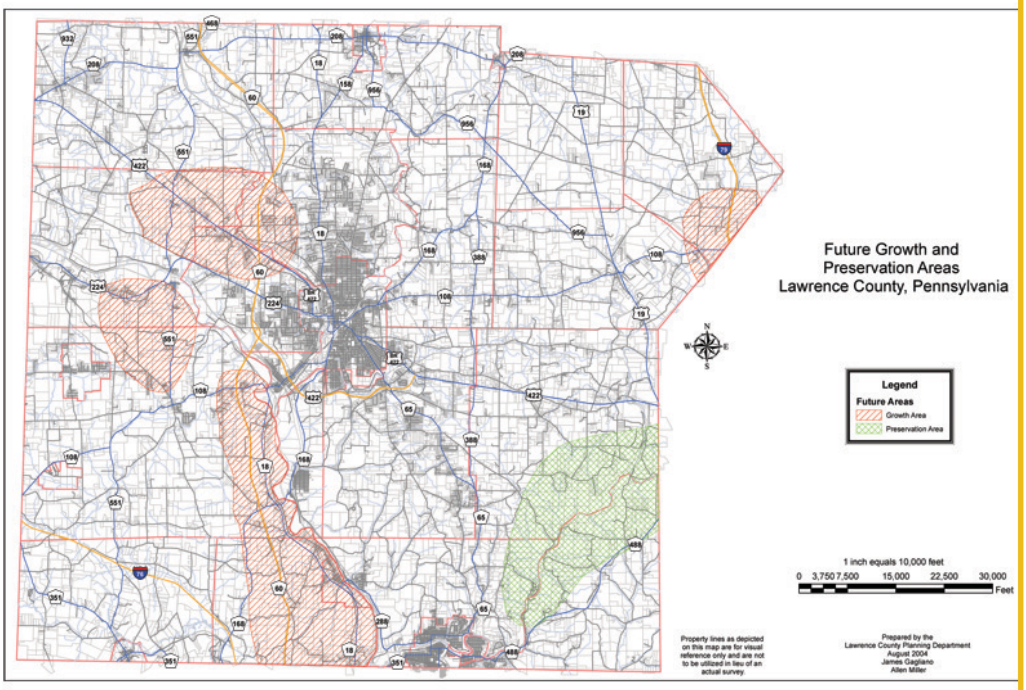
Sound Greenway Planning includes inventory and analysis of natural features, cultural and historic sites, and open spaces

such as parks or nature reserves; along with collaboration with local government agencies, private groups, and interested citizens to form policies for development and/or conservation. This multi-layered approach, involving Lawrence County and its decision-makers, yields short-, medium-, and long-term strategies for natural resource conservation and greenway development in harmony with any potential economic development.

Chapter 1
Lawrence County's Resources

GATHERING THE DATA

Most of the background information needed to support the Greenways Plan was gathered through project-specific independent research. With the help of the Lawrence County Planning Department (LCPD), Pashek Associates obtained and reviewed several studies and reports, including county and Municipal planning documents and other natural resource-related materials. Other information was gathered through the public participation process described in the Introduction section of this report, as well as through field observation. In this section, the Plan will describe the county's resources and the sources of information we consulted, referring to relevant sections of the various existing planning documents, where appropriate.



EXISTING PLANNING EFFORTS

Thoughtful Greenway Planning will allow Lawrence County to address issues and follow recommendations set forth in existing planning efforts such as the county's Comprehensive Plan (completed by Olsen & Associates, 2004). For example, the Greenway Plan will provide an opportunity for the county to assume a direct role in conserving natural resources and providing recreational opportunities, possibly attracting residents and businesses which will in turn stimulate economic activity. Some of the specific Comprehensive

Plan objectives and recommendations that may be at least *partially* fulfilled through sound Greenway Planning include:

- Acquisition of permanent easements on agricultural land in "prime farm areas"
- The county should seek new development and employment opportunities within each of its planning units (throughout the county)
- Continuing support of tourism and visitor events at key locations
- Development of a county-wide rural recreation plan for municipalities with little or no access to recreational facilities
- Conservation subdivisions should be considered in areas of the county with significant sensitive environmental characteristics or large tracts of undisturbed land.
- Information from the Lawrence County Natural Heritage Inventory should be provided to developers to assure the preservation of environmentally-sensitive areas
- The principles of smart growth should substantiate revisions to local land use regulations.
- Aquifer recharge areas, municipal water wells, and syphon points from local waterways should be identified and mapped using the county's Geographical Information System (GIS)
- Drinking water resources should be protected from the impacts of development through the creation of "non-build" buffer zones
- A comprehensive open space plan using a series of greenways, linear paths, and parks should be developed in order to maintain rural character and to increase connections between different parts of the county. (This was an underlying principle of utilizing land-use models in the Comprehensive Plan)

In addition to the aforementioned Comprehensive Plan, Pashek Associates studied and considered several other related planning efforts during the Greenway Planning process. Some of these are described in this section.

Lawrence County Natural Heritage Inventory

The 2002 *Lawrence County Natural Heritage Inventory* (NHI) report

provides maps and information on the known outstanding floral, faunal, geologic, and scenic features in Lawrence County. These sites may be examples of the county's best natural communities and/or the locations of animal and plant species of concern, which are endangered, threatened, or rare on a county-, state-, or nation-wide level.

Because natural resource conservation is an essential facet of any Greenway Plan, the information provided in the NHI is extremely important. The natural areas that contribute to the heritage of Lawrence County can be easily lost without careful planning of growth and development. Planning for long-term sustainability can maintain open space, including natural environments and plants and animals associated with them. Using the NHI as a conservation tool can steer development away from environmentally sensitive areas, creating a balance between growth and the conservation of scenic and natural resources. This balance is one of the fundamental reasons for greenways planning.

Economic Studies

Several economic reports and studies have been conducted for Lawrence County in recent years to help identify possible areas of economic growth and promote methods of expediting development and immigration into the county. None of these planning efforts are directly focused on greenways planning, but some share goals and objectives that parallel the objectives of this Greenways Plan.

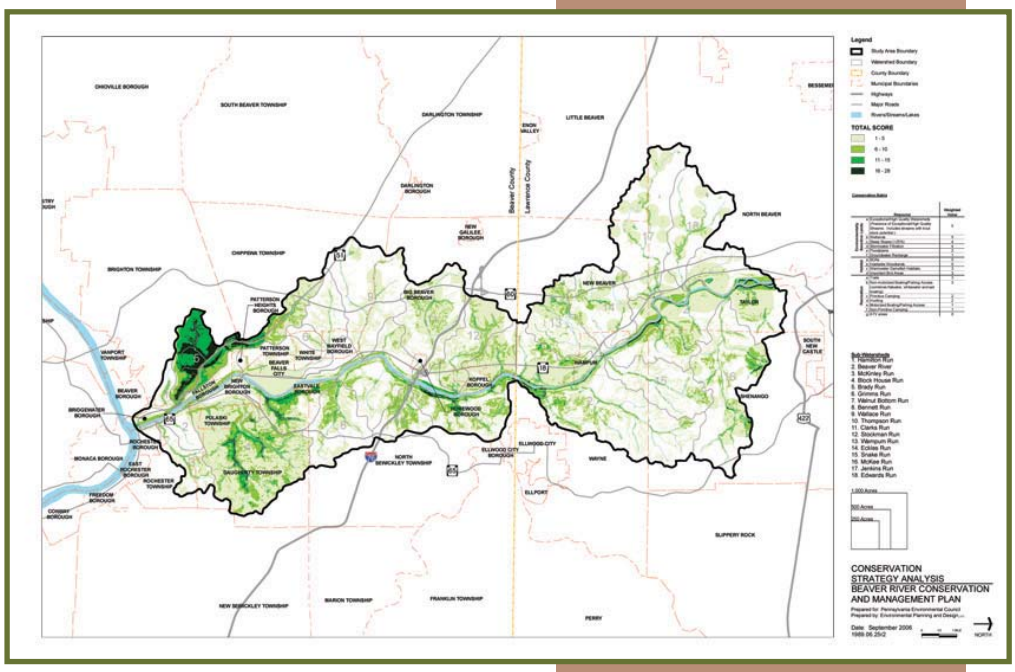
One such plan is the *Lawrence County Strategic Plan* (2000), which is an initiative to improve the county's economy and quality of life by addressing issues regarding economic development, land use, work force development, housing, health care, human services, tourism development, transportation, recreation & wellness, and intergovernmental cooperation. For this study, 55 action initiatives related to the aforementioned issues in Lawrence were adopted by the county, and the county's Chamber of Commerce volunteered to facilitate the initiatives. Of these initiatives, two broad ideas that relate to ideals of greenways planning are:

- Tourism & Development Objective #1 - Target marketing

strategies. (Eco-tourism and greenways are ways that Lawrence County can present itself as an exciting destination and a progressive community)

- Vision Statement for Recreation & Wellness initiatives: "Lawrence County will have a physical and social environment that enables its residents to improve their well-being and quality of life." (improving quality of life is one the of the underlying themes of all greenways planning)

Watershed Management Plans / Water Quality Studies



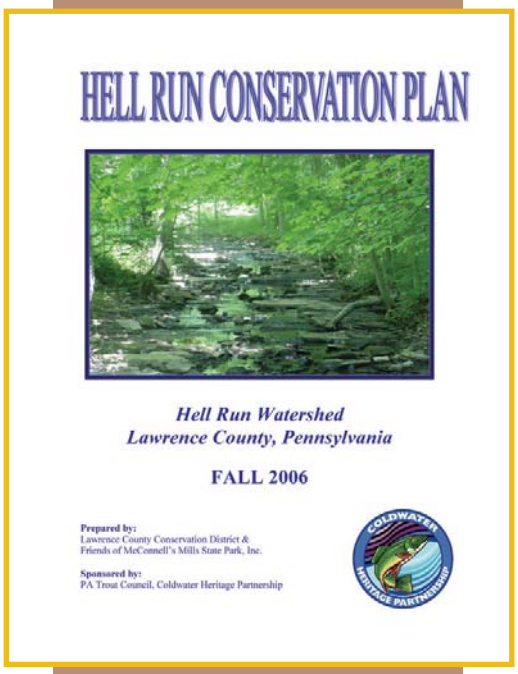
Lawrence County lies in several small watersheds that ultimately drain into the Ohio River. These watersheds include the Beaver River, Connoquenessing Creek, Hickory Run, Mahoning River, Shenango River, Slippery Rock Creek, and North Fork of Little Beaver Creek. Residents in each watershed, whether within county boundaries or elsewhere, have worked to form organizations whose basic goals are very similar: to assess and monitor land use impacts on their respective streams and deter negative impacts through community education and activism. The Shenango River Watchers, Shenango Conservancy, Slippery Rock Watershed Coalition, Slippery Rock Streamkeepers, Friends of McConnell's Mill State Park, and Mahoning River Consortium each recommend various actions based on identified problems and opportunities of water resource management in their respective watershed areas.

Other state and federal governmental entities and non-profit organizations also perform various watershed and water quality

studies and aid in stream restoration or cleanup. These entities include the Pennsylvania Fish & Boat Commission (PFBC), the Western Pennsylvania Conservancy Watershed Assistance Center, PA Cleanways, Pennsylvania Department of Environmental Protection (DEP), the U.S. Army Corps of Engineers,tthe Lawrence County Conservation District, Trout Unlimited, and Ducks Unlimited.

Because some of these organizations' recommended management actions encourage proper land use planning, they have potential to parallel the county's conservation interests, namely those that are part of this Greenway Plan. For example, the various recommendations given by the watershed associations account for development pressures in each watershed, as well as the water quality issues that may arise due to such pressures.

One example of watershed conservation planning in Lawrence County is the *Beaver River Conservation & Management Plan* (PA Environmental Council and Environmental Planning & Design, LLC, 2006). This document summarizes existing information about river-related resources, uses public and municipal input, and analyzes the Beaver River watershed in order to suggest projects or strategies that will restore, enhance, or conserve Beaver River resources.


HELL RUN CONSERVATION PLAN

Hell Run Watershed
Lawrence County, Pennsylvania

FALL 2006

Prepared by:
Lawrence County Conservation District &
Friends of McConnell's Mills State Park, Inc.

Sponsored by:
PA Trout Council, Coldwater Heritage Partnership

Another example is the *Hell Run Conservation Plan* prepared by the Lawrence County Conservation District (LCCD) and Friends of McConnell's Mill State Park (FOMMSP) in Fall of 2006. This report references other DCNR, DEP, and PFBC studies completed in the area, and is meant to be a further reference for watershed protection efforts. It addresses water quality, forest stands, soils, surrounding land use and development, and possible pollutants in and around Hell Run. The plan's recommendations are non-regulatory and are suggested for use by any resident, group, or agency. Among the plan's recommendations are:

- Protecting possible old growth (never cut) forest remnants;
- Educating landowners and officials about correct septic system operation and maintenance;
- Working with Slippery Rock Township officials to enact land use regulations guiding sound land use development in the watershed and protecting water quality;

- Removing invasive species from McConnell's Mill State Park; and
- Opening sections of the park to hunting in order to control deer populations (which, if too large, may decimate native plant populations).

In addition to the two examples above, similar watershed planning efforts for the Shenango River, Connoquenessing Creek, and Slippery Rock Creek are currently underway.

Several steps have already been taken towards implementation of local watershed planning efforts including those mentioned above. The Lawrence Conservation District is currently working on several projects to implement best management practices (BMP's) in the Shenango River Watershed. The Lawrence County Commissioners have designated $220,000 of funding toward improving the Hickory Run Watershed. Watershed management plans for the Connoquenessing Creek and Beaver River are currently in draft form thus no implementation of their respective rcommendations has yet taken place.

The status of other watershed planning efforts mentioned above was unknown at the time of this study.

Agricultural Land Preservation Program

The Pennsylvania Agricultural Conservation Easement Program was started in 1988 to help slow the loss of prime farmland to non-agricultural uses. Lawrence County participates in this program, which enables local and county governments to purchase conservation easements (development rights) from landowners for a price per acre of easement. The county partners with the Commonwealth of Pennsylvania to purchase these easements, which are placed on the farm in perpetuity. Lawrence County has 14 farms, totaling 1,354 acres preserved under this program as of April 2006 (ranked 34th among 53 Pennsylvania Counties).

Farmers may apply to the program only if 1) their farm is part of an Agricultural Security Area established by the Township in which it is located, 2) their farm has an active conservation plan in place or uses

best management practices for nutrient management and soil erosion and sedimentation control, and 3) their farmland is of high quality when compared to other eligible parcels. Applications are ranked using a system that awards points according to soil value, distance from public water supplies and sewers, and proximity to development or other conservation easements.

Given the importance of agriculture to Lawrence County, and the amount of farms located on high-quality agricultural soils within Lawrence County, increased agricultural preservation is a perfect fit. Strengthening of the county's agricultural preservation program would provide economic, aesthetic, and natural resource preservation-based benefits to the county. The conservation easements placed on these agricultural lands help to control development and preserve open space, both of which are important aspects of Greenway Planning. Thus, agricultural preservation lands are considered during the various aspects of the planning process.

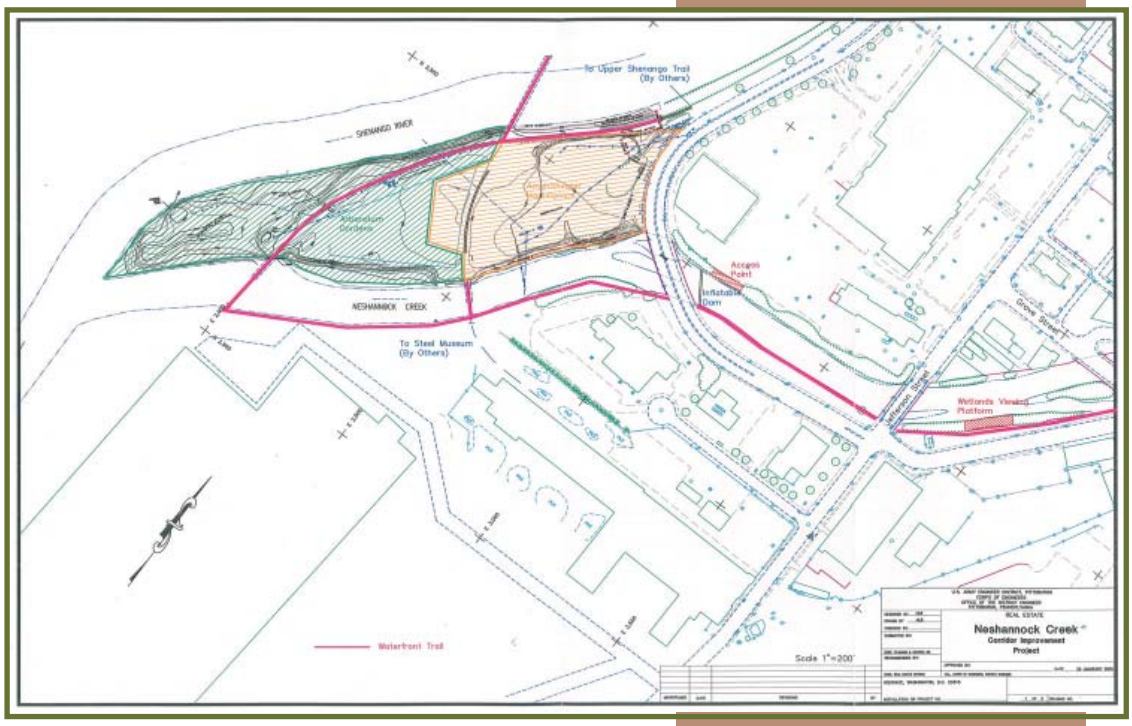
The County Commissioners recently designated $100,000 toward the Agricultural Land Preservation Program.

Neshannock Creek Corridor Improvement Project

In 2003, the U.S. Army Corps of Engineers (USACE) completed a feasibility study entitled the *Neshannock Creek Corridor Improvement Project - Renaissance Report.* This report summarizes USACE's investigation of the Neshannock Creek Corridor in New Castle and the development of a conceptual action plan for improvement. The purpose of the plan was to accompany New Castle's downtown revitalization by providing a footprint for stream corridor revitalization within the City.

The plan proposes a pedestrian trail following the Neshannock Creek corridor from the southern end of the proposed Neshannock Creek rail-trail (stretching from New Castle to Volant) to the confluence of the Neshannock Creek and Shenango River. Revitalization of a 10+ acre parcel of land at the confluence of the two streams into a park / arboretum is also proposed. Three existing railroad bridges span the adjacent streams into this parcel, and the plan proposes trail use of

these bridges as well as existing road bridges. The completion of the trail would link a planned regional rail-trail to the downtown district in the City of New Castle, and to two abandoned rail alignments on either side of the Shenango River.



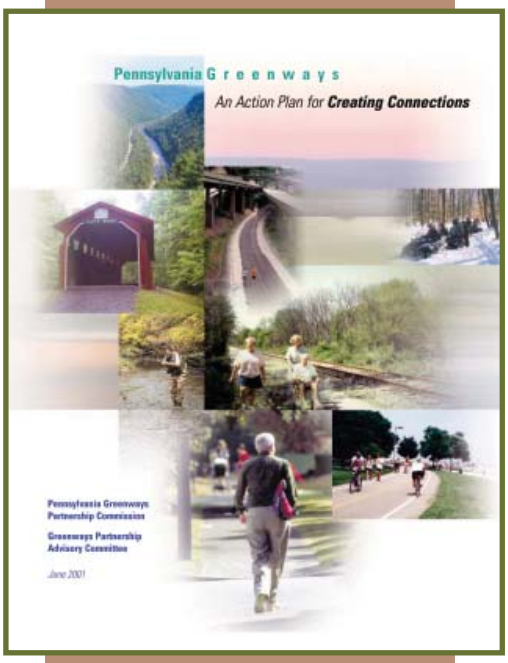
No implementation of this plan has yet taken place, possibly due to a shift in USACE funding priorities following Hurricane Katrina.

Municipal Comprehensive Plans

Several municipalities in Lawrence County have adopted their own Comprehensive Plans, within which they outline various community objectives related to current and future land use, natural resource preservation, recreation, and community growth. Some of these objectives were considered during the Greenways planning process. One example Neshannock Township's Comprehensive Plan (Killam Associates, 1994), which maps the Township's environmentally sensitive areas such as steep slopes, wetlands, and floodplains. The goals of that plan include: "encouraging development to follow a logical sequence rather than permit it to occur in a haphazard arrangement throughout the Township", "protecting prime agricultural land from undue development pressures," and planning for "proposed bicycle and pedestrian circulation systems to integrate with existing road systems and developments." Environmental concerns are also conveyed in the plan's goals and objectives, wherein it is recommended that all development be planned in relation to natural features, thus

preserving "aesthetic sites and environmentally sensitive areas." One other environmentally-sensitive goal stated in the plan is the discouragement of encroachment upon streams, flood plains, marshes, and wetlands.

These environmental concerns and desire to plan developmental growth intelligently are two ideas that parallel the environmental interests of greenways development. Also, the Township's objective of developing bicycle and pedestrian facilities integrated with the existing road system (in order to attain a higher quality of life for its residents) directly relates to the recreational facet of greenways planning.



Statewide Greenway Plan

Pennsylvania Greenways: An Action Plan for Creating Connections identifies many needs and recommends complex actions that will enable the gradual implementation of a statewide Greenways Plan. This project fits into the Pennsylvania Greenways Plan, in which the needs to map county / municipal greenways, to build GIS base mapping on a regional scale, and to facilitate regional coordination and cooperation among municipalities were identified as building blocks toward a successful statewide greenways network.

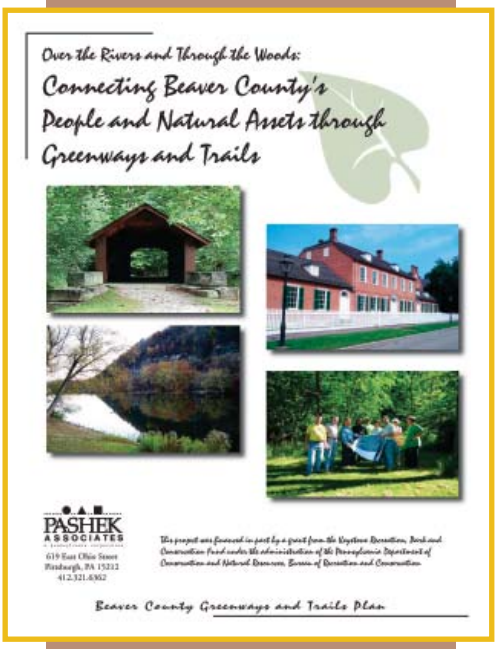
Other needs identified in detail by the Pennsylvania Greenways Plan include:

- More public education about greenways and their benefits;
- Greater effort to conserve land and protect ecological systems;
- Dedication of funding sources for long-term support of greenways, and coordination of funding programs
- A lead state agency for greenway initiatives;
- State agencies' revision of their guidance documents, policies, and practices, and to work cooperatively better to support greenways.

Identifying and encouraging linkages between both "major" greenways (described below) and local greenways is the goal of the state's greenways program. Each county is encouraged to use

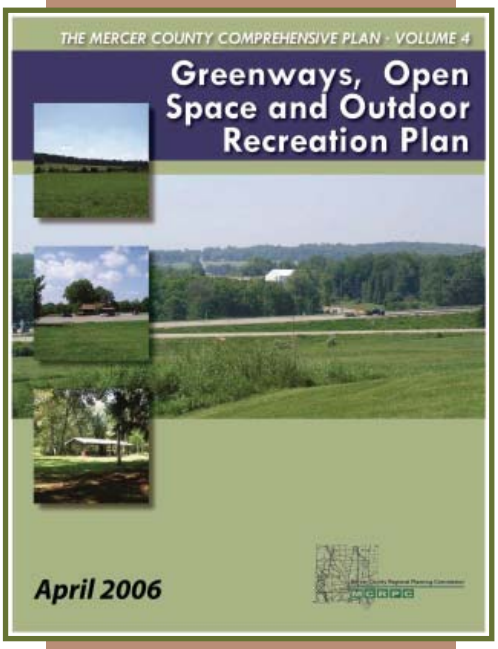
greenways as a land use strategy, and show existing and proposed greenways and open space in their plans. The information from each county would then be shared in a statewide Geographic Information System (GIS). Thus, the Lawrence County Greenway Plan is building toward not only its own goals, but a greater statewide objective.

Another part of Pennsylvania's greenway objectives, as established by DCNR, is the development of *Major Greenway Corridors*. These are regional greenways greater than 50 miles in length, passing through two or more counties, and are each recognized in at least one official planning document. Major greenways are among the top greenway priorities in the state, and will serve as the backbone of the statewide greenways network. Each county's greenway plan is required to discuss major greenway corridors. The only Major Greenway corridor that passes through Lawrence County is the North Country National Scenic Trail. The inclusion of this corridor in the county's proposed greenway network is described in detail later in this report.



Neighboring County Greenways Plans

Information contained in the Greenway Plans of neighboring counties may also be useful in determining potential connections to those respective counties. One example is the *Beaver County Trails and Greenways Plan* (Pashek Associates, 2006). This document proposes greenways along the Beaver River and Connoquenessing Creek, a shared-use trail which would extend northward from Koppel Borough to meet Pennylvania Bike Route 'A' at the county border southwest of Ellwood City Borough, and promotes completion of the North Country National Scenic extending from the Pennsylvania / Ohio border, northeastward to Darlington Borough, onward through southcentral Lawrence County, and eastward toward McConnell's Mill State Park.



Another example is the recently-completed *Mercer County Greenways, Open Space, and Outdoor Recreation Plan* (Gannett Fleming and Delta Development Group, 2007), which was recently adopted as part of their county Comprehensive Plan. Among the plan's strategies are:

- enhancing rural and forest industries ;

- creating recreational connections such as bike routes, pedestrian networks, and water trails; and
- connect local recreational networks with active regional greenways.

One such connection mentioned in the plan is a water trail along the Shenango River, which flows southward from Sharon to its confluence with the Beaver River in Lawrence County.

Northwest Pennsylvania Greenways Plan

An ongoing regional greenways planning effort of great importance is the *Northwest Pennsylvania Greenways Plan (NWGP)*. This study region for the plan includes Clarion, Crawford, Erie, Forest, Lawrence, Mercer, Venango, and Warren Counties. Recommendations made in the Lawrence County Greenways Plan will serve as part of the NWGP. Although early stages of greenway planning for the NWGP have just begun, its ideals are of the utmost importance to the region, including Lawrence County. Special attention should be paid to greenway connections that cross county borders, which may play a role in the regional greenways initiative.

Statewide Recreational Planning: Keystone Active Zone (KAZ)

A statewide planning effort that helps to make residents aware of all the recreation resources around them is the Keystone Active Zone (KAZ) program headed by Pennsylvania Advocates for Nutrition and Activity (PANA) - www.panaonline.org. This program presents a valuable opportunity to Lawrence County. The KAZ encourages Pennsylvanians to have fun and stay fit by engaging in outdoor recreation at a local park, trail, or other outdoor open space. To advance this mission, PANA creates a directory and a website for each county's parks and recreation sites (some of which are described in this section) through the KAZ program.

Franklin County, in south-central Pennsylvania, served as one of two pilots in the statewide collaborative effort with PANA, DCNR, Pennsylvania Parks and Recreation Society (PRPS), AARP Pennsylvania, and the Pennsylvania Department of Health. Materials developed in Franklin County are serving as a model for communities

throughout the state (www.KeystoneActiveZone.org). Nearby Beaver and Butler Counties have registered in the KAZ program and their resources are viewable online as well. A Franklin County KAZ brochure is included in the appendices of this report.

NATURAL RESOURCES

A complete understanding of the natural resources of Lawrence County is essential to developing a greenways plan. For example, sensitive riparian or steep slope habitats are candidates for conservation corridors, while rivers and lakes provide opportunities for water trail development. Unique natural features may also become important greenway destinations.

Important Bird Areas

Lawrence County's dense forests, thickets, wetlands, streams, lakes, and vernal pools provide habitat for a diversity of plants and animals, including birds. Some areas provide critical habitat for certain species of birds, and thus merit special recognition. The Pennsylvania Chapter of the Audubon Society (Audubon Pennsylvania) has designated three (3) Important Bird Areas (IBAs) at least partially located in Lawrence County -- the McConnell's Mill State Park IBA; Pennsy, Black and Celery Swamps IBA; and the Moraine State Park and Jennings Environmental Education Center IBA. According to Audubon Pennsylvania, "to qualify as an IBA, a site must meet at least one of four criteria, each associated with a different type of vulnerability. It must support endangered or threatened species; species that are not widely distributed; species that are restricted to a single extensive habitat or biome; or high densities of congregating species, such as waterfowl or shorebirds." Sites that are important flyways for migrating birds in Spring and Fall may also qualify as IBAs. Over 80 IBA's have been identified by Audubon Pennsylvania. Information on each, including interactive mapping, is available at http://pa.audubon.org/iba.

The McConnell's Mill State Park IBA, according to Audubon Pennsylvania's description, boasts what is perhaps the highest species diversity of breeding wood-warblers in all of Western Pennsylvania. The area is also has an "exceptional concentration of diversity of spring and autumn migratory birds, especially vireos and warblers,"

and is “a critical breeding area for northern and southern interior forest landbirds.” The site contains a diverse array of habitats such as deciduous and coniferous forests, mixed woodlands, shrublands, grasslands, open-water swamp, marshes, riparian forests, and of course the whitewater of the Slippery Rock Creek. The steep slopes of the Slippery Rock Creek Gorge have created a moist forest habitat, including dense old-growth hemlock and mixed-forest habitats that are far removed from their natural range. Consequently, this microclimate “accounts for unusual breeding records” of bird species usually found in forests far to the north of this area. This area was approved as an IBA in 2001 by Pennsylvania’s Ornithological Technical Committee.

The Pennsy, Black and Celery Swamps IBA consists of several parcels of land, including State Game Lands 284 (in Washington Township), also known as Schollard’s Run Wetlands, and locally as Pennsy Swamp in Mercer County and Black Swamp in Lawrence County. The IBA also contains State Game Lands 151 (in Plain Grove Township), which include Celery Swamp. Less than one mile of land separates any two of the five parcels that constitute the IBA. High-quality emergent wetlands, including open water, spatterdock marsh, and shrub swamp in this IBA help to support a high diversity of breeding and migratory bird species. Breeding birds include Pied-billed Grebe, American Coot, Common Moorhen, Virginia Rail, Sora, and Marsh Wren. Nesting migratory birds such as the King Rail and Sandhill Crane have been documented at this site regularly.

Development is the biggest threat to this IBA. The Prime Outlets mall at Grove City, the fourth largest in the U.S., is less than three miles to the east of the IBA, and is spurring nearby development. Residential housing, agricultural expansion, a landfill and several gravel strip mines all pose potential threats to water quality that is vital to the Pennsy, Black and Celery Swamps.

Moraine State Park and Jennings Environmental Education Center IBA consists of the 16,000-acre Moraine State Park, whose crown jewel is the 3,225 Lake Arthur. Wetlands, deciduous forest, and shrubland surround the lake, which is used heavily for recreation. The 300-acre Jennings Environmental Education Center borders the park to the northwest and includes riparian and deciduous forests in addition to its rare relic prairie environment. Lake Arthur has

been an essential migratory stopping point for 31 recorded waterfowl species, and two pairs of nesting osprey at the lake are the pride of a reintroduction effort. The park's woodlands support 19 breeding species of warblers and vireos, as well as a recent program for the reintroduction of barn owls. The largest threat to this IBA is heavy development pressure on parcels adjacent to the park caused by expansion of the park's recreational facilities. Disturbance of nesting birds by recreational overuse, and water quality problems caused by pollution of feeder streams off of the park property may result in degradation of the IBA. Only the extreme western tip of this IBA is located within Lawrence County, but this IBA's size and quality make it important to conservation efforts throughout the region.

The county's IBAs are shown on Map 1: *Sensitive Environmental Features.*

Natural Areas

Another essential source of information about important habitat areas is the Lawrence County Natural Heritage Inventory (NHI), which provides maps and information on the known outstanding floral, faunal, geologic, and scenic features in Lawrence County. These sites may be examples of the county's best natural communities and the locations of animal and plant species of concern (endangered, threatened, or rare). The NHI classifies natural areas within the county as either Biodiversity Areas (BDAs), Landscape Conservation Areas (LCAs), or other Managed Lands. The definitions of these classifications, as given in the NHI, are shown below:

- A BDA is an area containing: 1) one or more locations of plants, animals, or natural communities recognized as a state or federal species (or natural community) of concern; or 2) high-quality examples of natural communities or areas supporting exceptional native diversity.

- An LCA is a large contiguous area which is important because of its size, open space, habitats, and/or the inclusion of one or more BDAs. Although an LCA may include many different land uses, it typically has not been heavily disturbed and thus retains much of its natural character.

- Managed Lands are owned or leased properties with importance, or potential importance to the overall maintenance and protection of ecological resources in Lawrence County. Managed Lands fall into three categories: 1) public land; 2) private land; and 3) Dedicated Areas (DAs), which are public or private properties for which the owner's stated objective is to protect and maintain the property's ecological integrity and biodiversity, usually through a "hands-off" management approach. These lands are usually specific parcels included within BDAs or LCAs.

Natural areas, or "areas of significance" as they are deemed by the NHI, are ranked according to their significance to the protection of the biodiversity and ecological integrity of the region. Three significance ratings were given: *exceptional* (of highest significance), *high*, and *notable*. Thirty-five (35) Areas of Significance were identified by the NHI: thirty-three (33) were BDAs and two were LCAs.

The six (6) Areas of Significance given an "exceptional", and therefore seen as the most significant of any in the county by the NHI report, are described briefly below:

- Slippery Rock Gorge LCA (Perry, Slippery Rock, Shenango, Scott, and Wayne Townships, and portions of Beaver and Butler Counties) -- A watershed containing an amazing ten (10) different natural communities that support several plant and animal species of special concern in one relatively contiguous area of land. These natural communities include:

    - Hemlock-red oak-mixed hardwood forest,
    - Skunk cabbage-gold saxifrage forest seep,
    - Tuliptree-beech-maple forest,
    - Hemlock-tuliptree-birch forest,
    - Sugar maple-basswood forest,
    - Rich hemlock-mesic hardwood forest,
    - Red maple-elm-willow floodplain swamp,
    - River birch-sycamore floodplain scrub,
    - Red oak mixed hardwood forest, and
    - Red maple terrestrial forest.

The LCA also encompasses the McConnell's Mill State Park's Natural Area DA, which is managed by DCNR for its ecological attributes. Also included in the Slippery Rock Gorge LCA are four (4) BDAs: Grindstone Confluence BDA, Hell Run BDA, Muddy Creek Falls BDA, and Harris Slopes BDA, as well as the managed lands at McConnell's Mill State Park and State Game Lands #216.

Threats to the Slippery Rock Gorge LCA include strip-mining, timbering, and agricultural activities on parcels immediately adjacent to McConnell's Mill State Park. These activities minimize buffer zones and infringe into the LCA's interior, creating opportunities for invasive species, such as Japanese knotweed (*Polygonum cuspidatum*) and multiflora rose (*Rosa multiflora*) to spread into sensitive habitats.

- Plain Grove Wetlands BDA (Plain Grove and Scott Townships) -- This wetland boasts a diversity of fens, springs, and seeps that are home to fourteen (14) plant species of special concern, including a globally-rare plant species. These plants are found in some of the noted different plant communities within the BDA: ninebark (*Physocarpus opulifolius*) thickets, skunk-cabbage bogs, calcareous wetlands, open-sedge fens, and forested wetlands. Most of these natural communities thrive due to the groundwater seepage through glacial till soil, which contains significant amounts of limestone, which increases the water's pH making it more calcareous (alkaline) and less acidic. The fen is a DA that is owned and managed by the Western Pennsylvania Conservancy for its ecological value.

- Fringed Gentian Fen BDA (Shenango and Hickory Townships) -- An open-sedge fen containing eleven (11) plant species of special concern, along with one animal species of special concern in Pennsylvania. Other portions of this BDA include a shrub swamp, and neighboring young woodland with a diverse shrub and herbaceous understory. The Fringed Gentian Fen BDA is an alkaline wet meadow that takes its name from the plant species fringed gentian (Gentianopsis crinita), which grows in abundance within this BDA's wetlands. Because the

BDA is relatively isolated, surrounded by mainly pasture and fragments of forested areas, it is mainly undisturbed. Most threats to the fen's biodiversity come from invasive species and from natural forest succession, but the fen is also very sensitive to even the smallest disturbances. A portion of the fen is a DA, and it is also owned and managed by the Western Pennsylvania Conservancy.

- CS&M Mine BDA (Wayne Township) -- The CS&M mine is home to two Pennsylvania animal species of special concern. The mine is a suitable bat hibernacula (roosting / hibernating site) due to its cool temperatures (slightly less than 40 degrees Fahrenheit) in the winter and continued cool temperatures in the summer months. The main threats to this BDA are the lack of awareness of the presence of the aforementioned animal species, and the fact that the BDA is situated on private property. Any alteration to air temperature or air flow within the mine, removal of canopy trees surrounding the mine entrance, or visitation by humans may make the mine unsuitable to the animals species of concern. This site was also designated an Important Mammal Area (IMA) as part of the Important Mammal Areas Project created by the Mammal Technical Committee of the Pennsylvania Biological Survey. Only 45 sites in the state have received the IMA designation.

- Grange Hall Fen BDA (Plain Grove Township) -- This site contains a population of the Pennsylvania endangered plant American Globeflower (*Trollius laxus*) and a plant community of concern, the open sedge fen, which is dominated by three species of sedge (*Carex* species). This BDA is situated in the floodplain of Taylor Run, and threats to the fen include changes in local hydrology, on which the condition of the fen depends. A permit to mine the fen was denied in the 1980s by Pennsylvania Department of Environmental Protectin (PA DEP) after an evaluation of the fen and surrounding area indicated the presence of the aforementioned species of concern.

- Hell Run BDA (Slippery Rock Township) -- The Hell Run BDA contains two natural communities of state concern, the Rich hemlock-mesic hardwood forest, along with the aquatic

habitat found in the waters of Hell Run, the only stream in the county to receive an "exceptional-value" PA DEP Chapter 93 water quality classification. The rich hemlock-mesic hardwood forests within the Hell Run gorge are dominated by mature hemlock (Tsuga canadensis), basswood (Tilia americana), and black cherry (Prunus serotina). The stands of this and the other forest communities found near Hell Run are the most mature in the entire Slippery Rock Gorge area and may be virgin / old-growth timber. Most of this BDA is protected from development because it is within McConnell's Mill State Park. However, the upper reaches of its watershed are threatened by abandoned mine drainage (AMD), aging septic systems, deer browsing, and invasion by exotic plant species.

The NHI recommends that these sites be given top priority and are proposed for "quick, strong, and complete protection" in any conservation planning effort, as they contain high-quality natural habitats and may be more vulnerable to disturbances than most other natural areas in Lawrence County.

This Greenways Plan will also focus on the sites receiving a "high" significance rank, which the NHI suggests should receive "strong protection" in the future. These sites are too numerous to list in detail in this report, but both exceptional- and high-significance natural areas are depicted on Map 1: *Sensitive Environmental Features.*

Forests and Woodlands

Agriculture, Logging, and urban or suburban development have resulted in the clearing of much of the forests in Lawrence County, but large tracts of intact forest still remain. Some are located along stream corridors, while others are sandwiched between areas of urban or suburban development, and still others are surrounded by open crop fields or pastures. These forests vary from dry, upland forest communities dominated by oak trees (*Quercus* species); to palustrine (forested) wetlands containing pin oak, red maple and a variety of shrubs; to an array of lower-lying forests associated with riparian corridors containing sugar maple, black beech, birch, slippery elm, white ash, basswood, cucumber tree, hemlock, yellow birch, tuliptree, and rosebay. The conservation of some of these areas is

recommended in the Lawrence County NHI, as well as in the county's Comprehensive Plan, which promote protection of forested areas through sound land use policies and smart planning for development. Some municipal comprehensive plans also address the protection of forested and other natural areas and express the desire to guide development to avoid these areas. Forested areas within the county are depicted on Map 1: *Sensitive Environmental Areas*.

Soils and Geologic Features

Key soil types for the purposes of greenways planning include hydric (wetland indicator) soils. Hydric soils are depicted on Map 1: *Outstanding Environmental Features.*

The Lawrence County Natural Heritage Inventory (NHI), which focuses mainly on ecological resources, does not address significant geological features other than acknowledging them as natural history references. According to the NHI, one of the most outstanding geological features in the county is Harlansburg Cave, near the village of Harlansburg in Scott Township. This feature is noteworthy because it is the longest mapped cave in Pennsylvania.

Additional outstanding geologic features were identified during the greenways inventory process: Muddy Creek Falls in Scott Township just north of small community of Rose Point, and the Slippery Rock Creek Gorge.

The NHI does discuss general geology of the county, which it divides into four categories as shown below:

- Pocono Group: hard gray sandstone and conglomerate rock;
- Pottsville Group: sandstone and conglomerate interbedded with thin strata of shale;
- Allegheny Group: layers of sandstone, siltstone, shale, limestone, and coal;
- Conemaugh Formation: red and gray shale, siltstone with strata of limestone and coal.

These geologic groups constitute the entire county, but do not significantly differ from each other in terms related to greenway

planning. Therefore, these groups are acknowledged but are not depicted on inventory mapping for this project. Outstanding geologic features such as Harlansburg Cave are shown on Map 1: *Sensitive Environmental Features.*

Public and Other Protected Open Space

The 2,546-acre McConnell's Mill State Park is the only State Park that is located within the boundaries of Lawrence County. The park contains the scenic Slippery Rock Creek Gorge, a historic 19th-century grist mill and wooden covered bridge (tours offered), and offers park amenities such as picnic areas, hiking trails, and guided nature walks. In addition, outdoor recreation opportunities such as climbing / repelling from the Gorge's cliffs, fishing, hunting during regular seasons, wildlife observation, and whitewater rafting or kayaking are possible although programming is not provided.

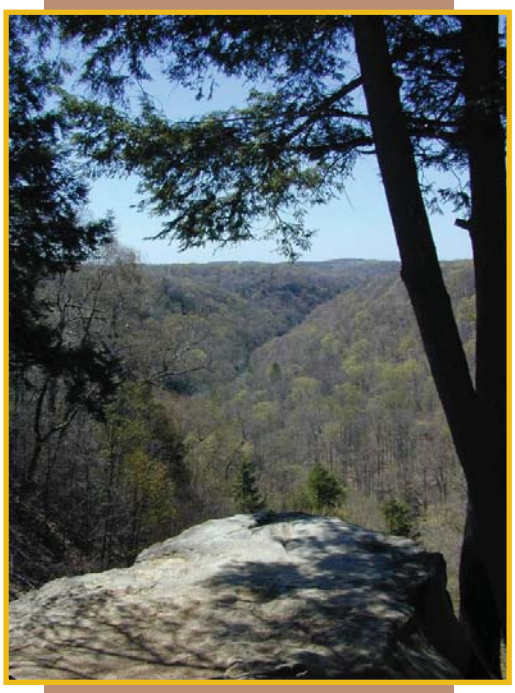
The only county-owned Park is West Park, located in Union Township. This mostly-wooded, 108-acre park contains a newly developed walking / hiking trail, a small parking area, a human-built wetland for environmental study, and natural areas for wildlife observation. Due to increased park visitation, hunting is prohibited on park property.

In addition to the aforementioned parks, over 4,100 acres in Lawrence County are protected as State Game Lands. These lands are managed by the State Game Commission for wildlife conservation, hunting, and trapping. These activities remain tantamount to any other proposed activities on these lands. Proposals for other uses are reviewed by the Game Commission to determine if they are compatible with primary uses. The six State Game Lands that are located at least partially in Lawrence County are SGL #148, 150, 151, 178, 216, and 284. Public Lands are shown on Map 1: *Sensitive Environmental Features.*

Steep Slopes

Land with slopes exceeding 25% is generally considered environmentally sensitive and in need of protection. In Lawrence County, most steeply sloped land is also forested, providing significant wildlife habitat. Conservation of steep slopes is also important for purposes of erosion control. Most of the county's steep slopes can be

found along its various stream valleys, and as part of the Allegheny Plateau physiological province (noted in Lawrence County NHI), Lawrence County is characterized by many relatively small rolling hills that may contain other isolated steeply sloping areas. In addition, steep slopes may exist due to past mining, road construction, or other human development involving earthmoving activities. They are shown on Map 1: *Sensitive Environmental Features*.



Scenic Areas / Viewsheds

Due to the county's rolling topography, only a handful of long, uninterrupted views of the surrounding urban areas or countryside are possible. These few opportunities for such views merit attention and preservation. Scenic viewsheds in Lawrence County may allow one to enjoy a panoramic view over a quaint farm valley or gaze into the Slippery Rock Gorge and ponder the power and constancy of the natural forces that created it. Although there is no known source of mapping for such places, they were made part of the inventory for this plan through accounts of direct observation offered by Study Committee members.

Water Resources

Lawrence County has a variety of water resources. Primary among these are its main streams: the Shenango, Mahoning, and Beaver Rivers; the Neshannock, Slippery Rock, and Connoquenessing Creeks; and their associated floodplains and wetlands. The entire county lies within the Ohio River watershed, which drains southwestward and forms the state border between West Virginia and Ohio.

One Lawrence County stream basin, Hell Run, has been given an exceptional-value classification by the Pennsylvania Department of Environmental Protection (DEP), and also supports a naturally-reproducing brown trout population. This stream has also been classified as a Wilderness Trout Stream by the Pennsylvania Fish & Boat Commission (PFBC). Designed to protect native trout fisheries, this designation is, according to the PFBC, "based upon the provision of a wild trout fishing experience in a remote, natural, and unspoiled environment where man's disruptive activities are minimized."

In addition, eleven (11) other streams in the county are listed on the PFBC's 2006 Trout Stocking List, having been proven to support stocked trout populations. This not only shows that the stream waters are of good quality for fish habitat, but makes them an important recreation asset as well.

Although the Slippery Rock Creek Gorge was designated a National Natural Landmark by the National Park Service (part of the U.S. Department of the Interior) in 1974, and other rivers in the county are home to very scenic areas, none of Lawrence County's rivers are federally- or state-designated Wild & Scenic Rivers.

The North Fork Little Beaver Creek watershed merits attention in greenways planning as well. It has been designated a high-quality cold water fishery by DEP, and is listed in DEP's Integrated Water Quality Monitoring and Assessment Report. This report describes a tributary to the North Fork Little Beaver Creek as "impaired" from urban runoff / storm sewers. Listed pollutants include nutrients and siltation. The North Fork Little Beaver Creek in Ohio (upstream) is designated as a Wild & Scenic River by Ohio's Environmental

Protection Agency. The watershed is threatened by both urban and agricultural runoff, and drainage from nearby strip mines.

Floodplains and wetlands correlate directly with the intricate stream system that covers Lawrence County, draining southward toward the Ohio River valley. The soft limestone and other bedrock types found throughout the county are also important as they allow recharge of the underlying aquifers, which in some cases are used for drinking water.

The county also boasts several small lakes, such as Bessemer Lake, which is a former limestone quarry that is now a trout-stocked recreational fishery. This lake, along with the county's various other surface water resources and underground aquifers, are depicted on Map 2: *Hydrologic Resources.*

BUILT RESOURCES

Greenways also take advantage of elements in the human-made, or "built" environment. An often used example is that of abandoned rail lines being reborn as recreational rail trails. But sound greenways planning also require an understanding of a diversity of built resources. There are those that facilitate a greenway corridor, like old canal beds or utility corridors. Others present challenges to greenway development, like major highways and active industrial sites. And there are some built features that provide interesting stops along the greenway, like historic and cultural sites.

Transportation and Utility Corridors

- Abandoned Rail Lines - An abandoned railroad grade connects the Borough of Volant to the City of New Castle, following the Neshannock Creek. A rail-trail has been proposed along this alignment and is described in detail later in this section. The Stavich Bike Trail has been built on an abandoned trolley track alignment connecting the City of New Castle to Struthers, Ohio, and is described later in this section. In addition, several sections of abandoned rail line exist along the Shenango River in the northwestern part of the county. Portions of this line are visible in the village of Pulaski, and in western Neshannock Township just northwest of New Castle.

- Pedestrian Walkways - Urban areas in and around the large and small population centers of Lawrence County, including New Castle, Ellwood City, Wampum, New Wilmington, and Volant, have paved sidewalks. Most of the county's Townships do not require sidewalks with new development, thus none exist except in villages or other small population centers where housing units are in close proximity to the roadway and to each other.

- Park and Ride Lots - One park-and-ride lot is located in Lawrence County, on U.S. Route 422, approximately 3 miles west of the I-79 interchange. Two other park-and-ride lots are located just outside county lines: one near the U.S. 422 interchange with Interstate 79, and another on State Route 488

at the I-79 Interchange near Portersville.

- Bus and Train Terminals - The headquarters of the New Castle Area Transit Authority (NCATA) is located on Mahoning Avenue in the City of New Castle. The NCATA offers public transportation to several destinations within the city limits, to points in Union and Neshannock Townships, as well as Wampum, Volant, and Ellwood City Boroughs. Bus lines also extend outside the county to Grove City (Mercer County), Iron Mountain Document Storage and Boyers area (Butler County), and to Pittsburgh (Allegheny County). A bus transfer station was recently completed at the corner of Washington Street and Croton Avenue in the City of New Castle. The other locations listed above are bus stops only. The NCATA also utilizes a park-and-ride lot (mentioned previously) approximately 3 miles west of the interchange of U.S. Route 422 and I-79.

  The NCATA operates the only public transportation in Lawrence County. According to the AMTRAK website (www.amtrak.com), there are no passenger train stops in Lawrence County. Greyhound Bus Lines (www.greyhound.com) does not operate any bus stations or limited-service bus stops in Lawrence County.

The various transportation and utility corridors in Lawrence County are shown on Map 3: *Recreation Features.*

Recreation Facilities

Various recreation facilities, including the community parks in municipalities throughout the county, are depicted on Map 3: *Recreation Features*. Though the recreation facilities in Lawrence County are too numerous to describe in detail here, this section describes of the most significant recreational assets that are relevant to the Greenways Plan.

- The 2,546-acre McConnell's Mill State Park is the only State Park that is located within the boundaries of Lawrence County. The park contains the scenic Slippery Rock Creek Gorge, a historic 19th-century grist mill and wooden covered bridge (tours offered), and offers park amenities such

as picnic areas, hiking trails, and guided nature walks. In addition, outdoor recreation opportunities such as climbing / repelling from the Gorge's cliffs, fishing, hunting during regular seasons, wildlife observation, and whitewater rafting or kayaking are possible although programming is not provided.

- The largest of two county-owned Park is West Park, located in Union Township. This mostly-wooded, 108-acre park contains a newly developed walking / hiking trail, a small parking area, a human-built wetland for environmental study, and natural areas for wildlife observation. Hunting is prohibited on park property.

- The County's only other park is Henry Bazzichi Park, a community playground (approximately 1 acre) maintained by Wayne Township, in which the park is located. This park consists of an open lawn area used as a ball field, several pieces of playground equipment, swings, a small basketball court, and a small picnic pavilion.

- Among the largest community parks in Lawrence County are Cascade Park (72 acres, New Castle), Ewing Park (58 acres, Ellwood City), and the 81-acre Pearson Park (Neshannock Township). Cascade Park boasts spectacular views of the 40' Big Run Falls, fishing, public swimming, a dance hall, a historic carousel building used as a pavilion, and is host to several community events, including the annual Back to the 50's Festival.

Ewing Park offers hiking trails along the side of the scenic Connoquenessing Creek Gorge, as well as picnic opportunities, a public swimming pool, playgrounds, and historic buildings. Ewing Park also plays host to several community events, including the Ellwood City Arts, Crafts, and Food Festival, and an Earth Day Celebration.

Pearson Park offers a private swimming pool, tennis courts, baseball fields, picnic opportunities, basketball, sand volleyball, and a fitness trail. These three parks receive a large amount of use from residents not only in their respective municipalities but from surrounding areas as well, and are major destinations within the County.

- Hunting is very popular among residents of Lawrence County. More than 4,100 acres are designated State Game Lands in Lawrence County, and are thus managed by the State Game Commission for wildlife conservation, hunting, and trapping. These activities remain tantamount to any other proposed activities on these lands. Proposals for other uses are reviewed by the Game Commission to determine if they are compatible with primary uses. The six State Game Lands that are located at least partially in Lawrence County are SGL #148, 150, 151, 178, 216, and 284.

- Highway Bike Routes - Pennsylvania's bike routes are laid out to allow bicyclists to experience the State's scenic, cultural, and historic places. These routes often do *not* contain bike lanes or other facilities designed specifically for bicyclists, and are depicted solely by signage. Pennsylvania Bike Route "A", which stretches nearly 200 miles from Erie to Greene County, PA just north of Morgantown, WV, traverses eastern Lawrence County in a north-south orientation. Bike Route "A" enters Lawrence County from the north along U.S. Route 19 through Harlansburg and several other small villages, into Portersville. The bike route then follows State Route 488 southwestward into Ellwood City, where it turns onto State Route 351 and heads southward over the county line toward Koppel in Beaver County.

Pennsylvania Bike Route "V" was designated during the greenways planning effort. The State's newest Bike Route, Route "V" extends east from the Ohio State line on State Route 317 through North Beaver Township and Bessemer Borough, then into the Village of Mount Jackson, where it follows State Route 108 northeastward into the City of New Castle. Route "V" then follows S.R. 18 northward to East Washington Street, where it turns east for two blocks to Highland Avenue / S.R. 1005. The Bike Route follows Highland Avenue northward out of the New Castle and through Neshannock Township, where S.R. 1005 continues as Mercer Road. The Bike Route continues to follow Mercer Road/ S.R. 1005 northeastward through Wilmington Township, passing into Mercer County east of New Wilmington Borough. Mercer Road / S.R. 1005 becomes New Castle Road / S.R. 2001 at the Mercer County border, and the bike lane continues northward and eastward, eventually stretching across 15 other counties (17 total) on its way to the Pennsylvania / New Jersey border.

- The Stavich Bicycle Trail stretches westward from New Castle, across the state border, through the village of Lowellville and on to Struthers, Ohio. This sunny trail follows a former trolley track alignment through rolling farmland and tiny communities. Several areas along the trail also boast colorful wildflowers, and the beaver pond near the trail offers opportunities for birdwatching. In 2003, the Stavich Trail was designated a National Recreational Trail by the U.S. Department of the Interior.

  Most of the trail is on level or gently-sloping grades, with a few very short steeper sections. The trolley track tolerated much steeper grades than conventional railroad lines. To date, ten miles of paved trail have been completed, and the trail utilizes streets in some of the small communities it passes through. The only trail access in Lawrence County is on Covert Road in Union Township.

- Fishing is another popular outdoor recreational activity among

county residents. Waterways in Lawrence County offer many opportunities for the pursuit of trout, as well as several warm-water game fish species like large- and small-mouth bass, catfish, northern pike, and panfish.

In 2006, nine (9) of Lawrence County's streams, in addition to Bessemer Lake and Cascade Quarry were on the Pennsylvania Fish & Boat Commission's (PFBC's) list of trout-stocked waterways. Trout-stocked streams within Lawrence County included:

- North Fork of Little Beaver Creek
- Big Run
- Deer Creek
- Hickory Run
- Honey Creek
- Neshannock Creek
- West Branch of Little Neshannock Creek
- Slippery Rock Creek
- Taylor Run

There are two special-protection trout waters or "special regulation" areas, as designated by the PFBC, in Lawrence County. A 2.7-mile portion of the Neshannock Creek, from the Borough of Volant downstream to the Covered Bridge on T-476 (Covered Bridge Road) is a delayed harvest area, in which anglers may only remove fish from the stream between July and December (traditional trout season opens in April each year). This stretch of stream is open year-round for catch-and-release trout fishing with artificial lures only. The second special-protection trout fishing area is a part of the Slippery Rock Creek, from the southern property line of Heinz Camp downstream to the State Route 2022 (Armstrong Road) Bridge in the extreme southern portion of the county. This half-mile stretch of stream is open only to flyfisherman and only for catch-and-release fishing, but is open year-round.

One of the most important fishing resources in Lawrence County is Hell Run, which is the county's only stream supporting a wild trout population - in this case, wild brown trout (pictured to the right). Hell Run is located in the western

reaches of McConnell's Mill State Park. The gorge containing the stream is known as Hell's Hollow, and is a finger of the Slippery Rock Creek Gorge. The stream is the county's only stream that received an exceptional value water-quality classification (highest possible rating) from Pennsylvania Department of Environmental Protection. Hell Run is also classified as a Wilderness Trout Stream by the PFBC. Designed to protect native trout fisheries, this designation is, according to the PFBC, "based upon the provision of a wild trout fishing experience in a remote, natural, and unspoiled environment where man's disruptive activities are minimized."

- An approximately 20-mile long section of the North Country National Scenic Trail traverses the southern portion of Lawrence County, through both public and private land. The trail traverses McConnell's Mill State Park, where it follows the park's Slippery Rock Gorge Trail, then heads westward on private ground, passes north of Ellwood City Borough, then through State Game Lands #148 in New Beaver Borough near Wampum, and southwestward into Beaver County. Approximately 14 of these 20 miles have been completed.

  The North Country Trail is among the most-famous footpaths in the United States, traversing forests, communities, and prairies across seven northern states: New York, Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, and North Dakota. To date, 1,700 miles of trail have been certified off-road, with other portions following shared-use trails or roads. The trail serves as a main spine of connectivity for other regional trails in Pennsylvania and elsewhere and thus is an opportunity for greenway connections to areas outside Lawrence County.

  Although a general trail alignment has been proposed across these states, the trail is not yet completed in its entirety. While most segments of the trail (on both public and private land) are hikable and open to the public, many segments have yet to be developed. Such is the case in Lawrence County: most segments on both public and private land are open to the public while a few require road walks to circumvent private property.

- Planned Bicycle and Pedestrian Trails - The only trail being currently planned at a county level is a rail-trail along the abandoned railroad grade that follows the Neshannock Creek north from New Castle to Volant Borough. The first developed segment will most likely be within the New Castle City limits, pending an agreement reached with the owners of property containing the railroad grade.

Historic Sites

Lawrence County played an important part in the industrial past of Western Pennsylvania. With access to canals and later railroads, and its close proximity to raw material markets, industry in Lawrence County's flourished and around the turn of the 20th century was one of the centers of the world's tin plate industry. The county grew in population as its geographic and governmental center, the City of New Castle, saw its population increase more than six-fold between 1870 and 1910 due to the influx of immigrants in pursuit of work in industrial mills. Like most of Western Pennsylvania, Lawrence County entered an economic decline following the collapse of the steel industry in the 1980's.

In contrast to the strong industrial presence, Lawrence County's past also included agriculture. Throughout its existence, the county has remained mainly rural. Settlers who first came to the area in the early 1800's farmed the land for sustenance, and the agricultural workforce was increased with the arrival of European immigrants in the early 20th century. Many farms remain in operation in Lawrence County today, further contributing its rural character.

Today, many historical sites celebrate the county's rich heritage and help to educate local residents and visitors. The National Register of Historic Places lists eight (8) sites in Lawrence County. These include the Lawrence County Courthouse, Armory, and North Hill Historic District in New Castle; as well as the Banks Covered Bridge in Wilmington Township, S.R. Thompson House in New Wilmington Borough, historic homesteads in Bessember and Enon Valley Boroughs, and the McConnell's Mill Covered Bridge at McConnell's Mill State Park. In addition, many locally-significant Victorian mansions, historic farmsteads, and iron furnaces dot the county's landscape. Several of these places have potential as points of interest in the proposed greenways system, and are shown on Map 4: *Cultural and Historical Amenities.*

Cultural Destinations

An array of cultural sites was inventoried, including schools, interpretive centers, colleges, community centers, museums, public facilities, libraries, and hospitals. These cultural destinations are

depicted on Map 4: *Cultural and Historical Amenities*. Sites that offer education on the county's natural and cultural heritage, and thus are of special relevance to the Greenways Plan, include:

- The Hoyt Institute of Fine Arts
- Amish Agricultural Community
- Harlansburg Station Museum of Transportation
- The Lawrence County Historical Society
- New Castle Playhouse
- Scottish Rite Cathedral

Population Centers

Lawrence County has sixteen (16) townships and ten (10) boroughs in addition to its only city, New Castle. According to the 2000 U.S. Census, the five largest municipalities in Lawrence County are: the City of New Castle (population 26,309); Neshannock Township (9,216), Ellwood City Borough (7,956), Shenango Township (7,633), and Union Township (5,103). This indicates a strong concentration of the county's population into the urban and suburban residential areas that are in proximity to the county's main employment centers, New Castle and Ellwood City. These municipalities are obviously important in any planning study. The county's smaller boroughs and villages, however, often have unique historic features and character that make them appealing destinations. Those of particular interest to this Greenways Plan are:

- Volant Borough
- New Wilmington Borough
- Wampum Borough
- Harlansburg Village
- Edinburg Village

The county's population centers are depicted on Map 4: *Cultural and Historical Amenities.*

Farmland

Economically, environmentally, and aesthetically, agriculture plays an important role in Lawrence County. According to the Lawrence County

Comprehensive Plan (2004), rural character was identified as being an extremely important county asset meriting protection. According to the Census of Agriculture (County Profile) administered by the U.S. Department of Agriculture, in 2002 the county contained 702 farms totaling 86,987 acres. The number of farms in the county has risen to 705, while the total acreage is now 86,500. The county's most prominent farming areas are located in Pulaski, Wilmington, Washington, Hickory, and Plain Grove Townships in the extreme northern part of the county, along with North Beaver, Little Beaver, Wayne, and Perry Townships and New Beaver Borough in the southern extremities of the county. Besides their economic value (approximately $22,361,000 in production value in 2002), farms provide large areas of open space and contribute to the scenic quality of the pastoral landscape.

As of April 2006, the county has purchased easements on 14 farms, thus permanently preserving 1,354 acres of agricultural land under the Agricultural Conservation Easements Purchase Program. Several thousand acres of farms in the county have been registered in the Agricultural Security Program, which gives farmers special consideration and legal protection from State agencies, thus strengthening the future of agricultural practices on registered areas, which may be comprised of portions of multiple parcels of land under separate ownership. Protected Agricultural lands are depicted on Map 4: *Cultural and Historical Amenities.*

Future Development Areas

Areas of current and potential future growth were identified and discussed in the Current and Future Land Use section of the county's 2004 Comprehensive Plan. Areas with the highest rates of growth, measured by the number of subdivisions approved within individual municipalities, are Neshannock Township, Slippery Rock Township, and Shenango Township. Neshannock and Shenango Townships are suburban areas adjacent to New Castle, and Slippery Rock Township is a mainly rural area in the southeastern portion of the county along one of the county's main transportation routes, U.S. Route 422. Locations of other areas of more modest growth in the county follow no identifiable pattern, and the Comp Plan recommends that

regulations be put in place to guide development.

One of the Comp Plan's recommendations for guiding development is the use of *preferred development models* to promote "a more progressive plan for land use based on the preservation of rural character and open space...". These development models propose compact building forms, pedestrian-oriented transportation improvements, and the provision of open space. Among the underlying principles for the preferred development models are:

- Promote in-fill development in areas of the county that have experienced some low-density growth and already have infrastructure in place before developing new areas. These in-fill developments could include road network improvements and bicycle or pedestrian facilities.

- Protect agricultural areas to preserve rural character through conservation-minded land use.

- Develop a comprehensive open space plan including a series of greenways, linear paths and parks.

The Natural Resources and Development Constraints portion of the Comprehensive Plan includes the county's Natural Heritage Inventory (NHI) and recommends protection of the natural areas identified in the NHI through the use of buffer zones, sound land use, and progressive standards for development. Areas of current and future development are essential factors to be considered during greenways planning because preservation of open space such as greenways can be a guiding factor for intelligent land use and development.

Chapter 2

The Greenways Vision

THE CRITERIA

Greenways can serve many functions. When determining the guiding principles used to designate greenways for Lawrence County, we considered the objectives established in the early part of the planning process. The following goals and objectives offer insight into the function of the greenways to be developed in the county:

Preserving and enhancing Lawrence County's character and quality of life is the main goal of the Greenway Plan, and these specific objectives support this main goal:

- Protect existing natural areas primarily for ecological health and preservation of wildlife habitat;
- Promote the preservation of agricultural land;
- Provide recreational opportunities for county residents through preservation and connection of existing open spaces;
- Promote economic growth via recreational or eco-tourism;
- Encourage local municipalities to work in unison to help protect their various resources by adopting open-space and land-use regulations;
- Educate county residents on the aspects and benefits of Greenways Planning, including the benefits of implementation of the goals listed above.

These goals and objectives support the two general functions that define proposed Greenways in Lawrence County:

1) Conservation Greenways are corridors whose primary function is preservation of sensitive environmental features and habitats, such as wetlands, steep slopes, floodplains, exceptional value water-quality streams, high-value natural areas identified by the Lawrence County Natural Heritage Inventory, outstanding geologic or scenic features, and land surrounding the county's drinking water sources. They are linear tracts of essentially undeveloped open space. Some low-impact activity, like hiking or wildlife observation, is acceptable in these corridors, but intense development and motorized vehicle use are not recommended.

2) Recreational and Transportation Greenways are corridors in

which trail development is recommended. These greenways connect population centers and points of interest. They bring people into contact with the outdoors and engender an appreciation of the natural world. These trails also provide alternative, environmentally-friendly transportation options for commuters and visitors. In some cases, recreational trails overlay areas where conservation of natural assets is also an objective. To avoid conflicts, recreational uses should be planned to minimize impacts. For example, a biking trail along a river or stream corridor should be designed to preserve steep slopes, wetlands, and other sensitive areas.

THE STRUCTURE OF THE NETWORK

Building the framework of the greenway network began with laying out the conservation greenways. These corridors follow the natural systems and features of the county -- forests, ridge lines, significant stream corridors, and wildlife habitats. Overlaying this backdrop, the plan adopts a "hubs and spokes" structure for its recreational and transportation greenways. Pennsylvania's State Greenways Plan, entitled *Pennsylvania Greenways: An Action Plan for Creating Connections*, describes the product of this overlay method as follows:

> *Pennsylvania's greenways network will ultimately take the form of "hubs and spokes." The "hubs" of this network will be the state's parks, forests, game lands, lakes, and other destination areas, including our towns. The "spokes" of the network will be greenways -- connecting our natural areas and recreational and cultural destinations with the places where we live. The landscape connections that will result throughout Pennsylvania will create a "green infrastructure" of open space vital to the health of Pennsylvania's ecological systems and human communities.*

The hubs, sometimes also called "nodes," are the significant destination points - boroughs and villages, historic and cultural sites, and important parks and recreational areas. The "spokes," or corridors, will provide the links between them. In some areas, conservation corridors are distinct from recreational greenways; in other cases, they coincide. Finally, because streams, mountain ridges, wildlife habitats, state parks, and some recreational trails do not

terminate at the county's boundaries, the greenways network proposes that corridors continue outward and form connections to natural and recreational assets in neighboring counties.

It should be noted that any plan to develop greenways will encounter hurdles, such as incompatible land uses, environmental constraints, and unwilling private and public landowners. These issues, while inevitable, should not prevent the county from creating its vision of a greenway network. Conflicts can be addressed at a later phase, when segments of this plan proceed to design and implementation at the local level.

Conservation Greenways

Conservation Greenways were established using a system of weighted values given to natural resources. The project study committee, with the help of Pashek Associates, assigned values to natural resources according to magnitude of county-wide importance. Each type of natural resource was then mapped individually, and all natural resources were overlayed onto each other and depicted on the *Conservation Corridors Criteria* map. When more than one natural resource overlapped, their respective values were added. Areas with the highest total values included the most natural resources, and thus merited inclusion in the conservation greenways network.

Weighted values given to the county's various natural resources are shown in the table below, and also on the *Conservation Corridors Criteria* map:

CONSERVATION CORRIDORS Natural Resource Values	
Type of Resource	**Weighted Value**
Hydrologic Resources:	
Exceptional Value and High-Quality Streams (per DEP Water-Quality Classifications) (proposed 200' buffer on each side of stream)	5
Trout-Stocked Streams (proposed 150' buffer on each side of stream)	3
Special Protection Trout Waters (proposed 150' buffer on each side of stream)	3
Trout-Stocked Lakes	2
Other Rivers and Streams (proposed 100' buffer on each side of stream)	1
Other Lakes and Ponds	1
Wetlands (from NWI maps)	2
100-year Floodplains	2
Sensitive Environmental Features:	
Important Bird Areas (IBA's)	5
Landscape Conservation Areas (LCA's)	1
Biological Diversity Areas (BDA's)	5
Steep Slopes	3
Hydric Soils	1
Prime Agricultural Soils	1
Forested Areas (>10 acres)	2
Outstanding Geologic Features	2

The project study committee determined that areas with a cumulative value of 5 or higher were to be included in the conservation greenway

network to the greatest extent possible. The most important natural resources received values of 5 to insure their inclusion in the network. Other areas achieving the minimum cumulative value contain at least two overlapping resources.

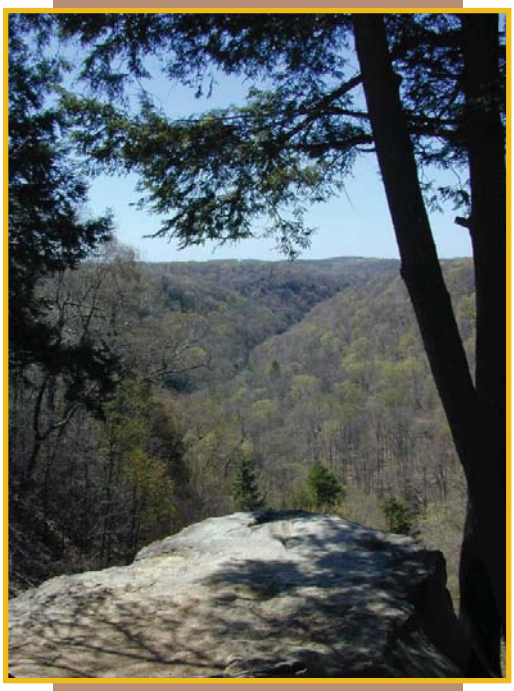
Although every effort was made to include all the areas achieving the minimum weighted value, not every piece of land containing important resources could be encompassed. The conservation greenways network includes most contiguous areas while striving to preserve linear tracts of open space. It is recommended that small, isolated patches with high weighted cumulative values be addressed at the municipal level rather than in the county-wide greenway plan.

The above method describes the scientific side of identifying important conservation corridors. To develop feasible conservation greenways, common sense must also be applied. In some instances, areas receiving a cumulative value less than the stated minimum were included in the conservation greenways network. These areas are essential in creating logical connections between conservation corridors in close proximity to one another. In other words, these areas "span the gaps" between other resources, ensuring continuity of proposed conservation greenways.

Conservation Greenways Descriptions and Priorities

Using the cumulative resource value method, the project study committee identified the following conservation greenways. Each proposed Greenway is grouped into a priority category (first, second, or third priority). The study committee determined these rankings, with the help of Pashek Associates, according to the amount and importance of natural resources contained in each proposed greenway, potential for connectivity to regions outside the county, and the susceptibility of the land in the proposed greenway to development, pollution, or other degradation.

All of the proposed conservation greenways are depicted on the *Conservation Greenways Plan* map that follows, and each greenway's description and priority ranking are found on the pages thereafter.



First Priorities:

- Slippery Rock Greenway - This corridor includes the scenic Slippery Rock Gorge and surrounding Landscape Conservation Area (LCA), as well as parts of the Connoquenessing Creek Gorge in Ellwood City and Ellport Boroughs. The LCA contains ten different plant communities, some of which are at risk of invasion by exotic species populating the reclaimed strip mines on the periphery of the LCA. The two stream gorges are among the most scenic areas in the county.

  Also encompassed in this greenway are several wetlands (included in the IBA's described below) and smaller streams in Washington and Plain Grove Townships. These areas are included because they lie within the Slippery Rock Creek watershed.

  This corridor also contains two Important Bird Areas (IBA's - McConnell's Mill State Park IBA and Pennsy, Black, and Celery Swamps IBA) and twelve Bio-diversity Areas (BDA's). Other natural resources within the Slippery Rock Creek Greenway include: Cleland Rock (an outstanding geologic feature); Hell Run, the county's only exceptional value water quality stream and wild trout stream; a special regulation trout fishery along the Slippery Rock Creek just southwest of McConnell's Mill State Park; and extensive wildflower areas inhabiting sandstone cliffs at Rock Point (the confluence of the Beaver River and Connoquenessing Creek). This corridor also extends into Butler, Beaver, and Mercer Counties.

  This greenway should strive to protect as much land as possible within and surrounding each IBA. However, efforts

should be concentrated on protecting the "Core" area of each IBA, as defined by Aububon Pennsylvania on individual IBA maps available online at http://pa.audubon.org. These "Core" areas are the IBA boundaries shown on maps developed for this Greenways Plan.

Due to the inclusion of these natural resources, a large portion of this greenway was identified as a preservation area in the 2004 Lawrence County Comprehensive Plan (Comp Plan). In addition, the Lawrence County NHI recommends that the relatively unfragmented forested areas along Slippery Rock and Connoquenessing Creeks be protected as migratory routes / habitat for bird species. This recommendation includes the Slippery Rock Gorge, other areas surrounding McConnell's Mill State Park, the Connoquenessing Creek Gorge in Ellwood City / Ellport, and the large contiguous forest tract at Rock Point. The Greenways Plan embraces recommendations made in the Lawrence County Comp Plan and NHI.

Approximate Size: Total length from the northeast reaches of the county to the mouth of the Connoquenessing Creek is over 23 miles. Width varies from 300 feet along Slippery Rock Creek and its tributaries in the northeastern portion of the county, to over 5 miles.

Associated Municipalities: Perry, Plain Grove, Scott, Shenango, Slippery Rock, Washington, and Wayne Townships; Ellport and Ellwood City Boroughs

- Little Beaver Creek Greenway - The Little Beaver Creek Greenway includes the North Fork Little Beaver Creek stream corridor, four BDA's, and smaller streams within the North Fork Little Beaver Creek watershed.

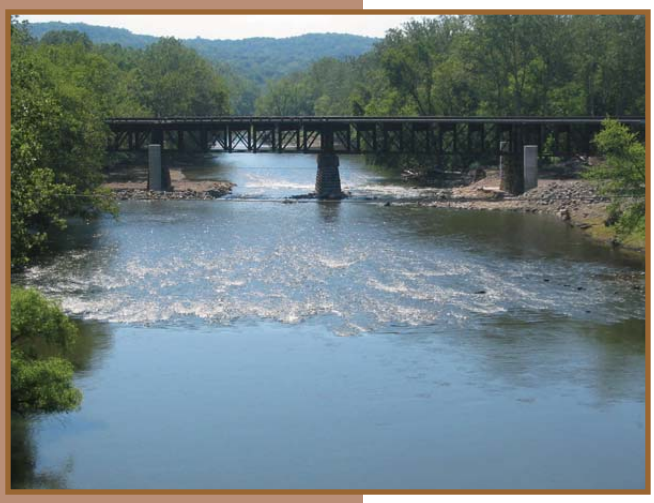
  This greenway provides connection to both Beaver County and to Mahoning County, Ohio, in which the North Fork Little Beaver Creek is considered a Wild & Scenic River. This

Greenway also contains a portion of the North Fork Little Beaver Creek LCA, which is given a "High Significance" classification by the Lawrence County NHI. The LCA contains the stream itself, and a buffer to protect adjacent wetlands and floodplain forest communities. The LCA was formed to protect the animal species of concern living in the stream from siltation and runoff from surrounding land uses.

The Pennsylvania Department of Environmental Protection's (DEP's) Integrated Water Quality Monitoring and Assessment Report lists impaired / degraded streams along with their source of pollution. This list describes one of the unnamed tributaries to the North Fork Little Beaver Creek as "impaired" from urban runoff / storm sewers. Listed pollutants include nutrients and siltation. The North Fork of Little Beaver Creek itself was designated a high-quality cold water fishery by DEP.

Approximate Size: Total length within the county is 7 miles. This corridor also extends westward into Ohio and south into Beaver County where it continues as a proposed conservation greenway. Corridor width within Lawrence County borders ranges from 1.5 to 3 miles.

Associated Municipalities: Enon Valley, New Beaver, and SNJPJ Boroughs, North Beaver and Little Beaver Townships.



Second Priorities:

Beaver / Mahoning River Greenway - This greenway contains the Beaver River and Mahoning River corridors, which contain seven BDA's and other natural areas. Among these BDA's is the CS&M Mine BDA, which is given an "Exceptional Significance" rating (the highest possible) by the Lawrence County NHI. The BDA is home to two Pennsylvania animal species of special concern, and is a hibernacula for bats. The BDA is threatened by vandalism, continued mining in the surrounding area, and removal of adjacent

forest canopy. These activities may detriment the BDA if air flow to the mine is restricted, or its humidity and air temperature are altered.

The Mahoning River corridor has been heavily polluted since the 1880's, when steel mills and electrical conductor plants near Youngstown, Ohio used the water in their production processes. Residual compounds from these processes are bound to the sediment on the river bottom today. In addition, only 13% of the river's watershed contains forest cover within 300 feet of the river (Ohio EPA 1994). Siltation from adjacent agriculture and mining operations also degraded the aquatic ecosystem in the river, and pollution from the Mahoning consequently spread downstream into the Beaver River. This greenway includes several small tributaries to the two rivers in an attempt to protect as much of the watershed as possible.

In 1999, studies completed by the U.S. Army Corps of Engineers (USACE) recommended the dredging of over one million tons of material from the Ohio portion of the Mahoning River, and similar cleanup in the Pennsylvania portions. This work is necessary to rehabilitate the aquatic ecosystem within the Mahoning and Beaver Rivers.

Approximate Size: Total length within county borders is 19 miles, with connections westward into Ohio and southward into Beaver County, where a proposed conservation greenways follows the Beaver River to its mouth on the Ohio River. Width varies from 200 feet to over 1 mile.

Associated Municipalities: New Beaver and Wampum Boroughs; Mahoning, North Beaver, Taylor, Union, and Wayne Townships; and the City of New Castle

- Shenango River Greenway - This corridor encompasses the Shenango River and its surrounding riparian zone along with the Deer Creek Confluence BDA, which contains a notably large example skunk cabbage-golden saxifrage seep plant community. This natural community is highly dependent on a stable water table level and could be easily degraded by

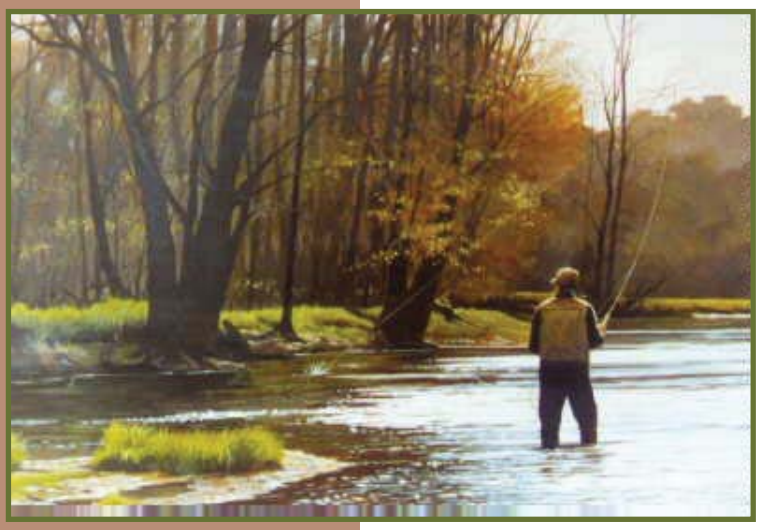
disturbances such as removal of nearby forest canopy cover for development. The Lawrence County NHI classifies this BDA as "Notably Significant". Both this and the Neshannock Creek Greenway extend north into Mercer County. The Shenango River is also the source of drinking water for the City of New Castle.

In addition, this corridor extends to include the West Park Nature Center. West Park is the only county-owned park, and protects 108 acres of forest, grassy field, and wetlands for passive recreation such as hiking and nature observation.

Approximate Size: This corridor is roughly 17 miles long within Lawrence County. A greenway connection is made north into Mercer County, where the Shenango River corridor is identified as a natural resource in the Greenways section of the 2006 Mercer County Comprehensive Plan. Width of this corridor varies from 200 feet to 1 mile.

Associated Municipalities: Mahoning, Neshannock, Pulaski, Taylor, Union, and Wilmington Townships; and the City of New Castle

- Neshannock Creek Greenway - The Neshannock Creek corridor contains some of the County's most scenic areas, as well as five BDA's, including the Westminster College BDA. This BDA was given a "High Significance" classification (second highest) by the Lawrence County NHI. The wetlands surrounding the college campus provide potential winter habitat for a Pennsylvania animal species of special concern, and adjacent upland fields provide foraging habitat in warmer months.



The remainder of this greenways contains steep slopes, many wetlands, large floodplain areas, and one of the county's only known cave systems.

The Neshannock Creek and Little Neshannock Creek are also trout-stocked streams indicative of good water quality.

Approximate Size: Total length of this corridor within county borders is 17 miles, including length of three branches along three different streams. Width ranges from 300 feet to over 1 mile.

Associated Municipalities: New Wilmington and Volant Boroughs; Hickory, Neshannock, Washington, and Wilmington Townships; and the City of New Castle

Third Priorities:

(smaller greenway corridors providing less potential for connectivity, and/or including less natural resources):

- Big Run Greenway - This small greenway extends eastward from the Shenango River in the southern portion of the City of New Castle, along the Big Run, a trout-stocked stream. It includes wetlands, floodplains, and forested areas sometimes adjacent to urban development. This corridor also contains the Fringed Gentian Fen BDA, one of the "exceptionally significant" natural areas in the county, according to the NHI. This BDA supports eleven plant species and one animal species of state-wide special concern thriving in an open-sedge fen plant community. This is an alkaline wet meadow occupying the middle portions of a slope draining into one of the Big Run's tributaries. Also included in this greenway is Cascade Falls, one of the county's most scenic features. The falls are located within Cascade Park, New Castle City park that lies in Shenango Township.

  Approximate Size: Length is 6 miles, while width varies from 300 feet to just under 1 mile.

  Associated Municipalities: South New Castle Borough, Hickory, Shenango, and Slippery Rock Townships, and the

City of New Castle

- Hickory Run Greenway - This greenway protects Hickory Run's water quality by proposing the preservation of wetlands, floodplains, and forested areas around the stream. Hickory Run is one of the county's stocked trout streams, which is indicative of its good water quality. The stream is mildly threatened by siltation through runoff from adjacent mining and agricultural lands, and also by recent land development.

  Approximate Size: Length is roughly 8.5 miles, and width ranges from 300 feet to 1/2 mile.

  Associated Municipalities: North Beaver Township Bessemer Borough

- McKee Run Greenway - This small greenway corridor encompasses McKee Run, a scenic stream containing several small cascading waterfalls, from its headwaters to its mouth at the Beaver River just north of the village of West Pittsburg. The eastern terminus of this greenway is the Gardner Swamp BDA, which is located in Shenango Township Park. The wetlands in this BDA are home to Torrey's Rush (*Juncus torreyi*), a threatened plant in Pennsylvania.

  The wetlands of the Gardner Swamp BDA are isolated by intensive surrounding land uses: a small reclaimed strip mine to the west; a residential area to the east; a strip mall (Lawrence Village Plaza) to the north; and Gardner Road to the south. The wetland's diversity is threatened by filling and by runoff from adjacent land uses, which may add nutrients to the surface water. Invasive plant species such as multi-flora rose (*Rosa multiflora*) and dame's rocket (*Hesperis matronalis*) also pose threats to this BDA. They may invade the wetland and out-compete natural vegetation, thus reducing biological diversity.

  Approximate Size: This corridor is roughly 5 miles long, and ranges in width from 200 feet to 1.5 miles.

Associated Municipalities: Shenango and Taylor Townships

Level of Recommended Protection

Large areas of some greenway corridors are protected as state park land or state game lands. However, portions of many of the greenway corridors are located on private land. Acquisition of the entirety of each corridor would be unfeasible and unnecessary. Municipalities associated with each proposed conservation greenway corridor should strive to educate and work with landowners to promote conservation.

While regulatory tools may protects some areas from development, they ignore other threats such as logging or mining, and can also be a heavy hand to deal when attempting to form friendly relationships with landowners. Easements and other agreements with educated, conservation-minded landowners can be customized to meet needs of both parties and may protect some targeted natural resources. Acquisition of small tracts near very vulnerable resources (exceptional-value water quality streams, wetlands, etc.) should be considered, but only when feasible and directly beneficial.

One wonderful example of successful greenway planning and implementation is Falling Spring Greenway, an established greenway corridor along a renowned trout stream near Chambersburg, Pennsylvania. Falling Spring Greenway is an excellent example to be followed regarding level of land protection for other greenways protecting stream corridors, especially trout fisheries. A sample stream buffer ordinance and an article from *Pennsylvania Angler & Boater* magazine illustrating the success at Falling Spring are included in the appendices of this report.

Specific tools for conservation, along with specific recommendations, are described in detail in a later section of this report.

Recreation and Transportation Greenways

Recreational and transportation greenways were established by first identifying those locations in the county that qualify as key destination points. The table below sets forth the criteria used to designate

those destination points, or “hubs”. Those that were regionally significant destinations were seen as major hubs. Others that had less significance but exhibited potential for connectivity to other hubs were selected as minor hubs. Those designated as “points of interest” are considered of mainly local cultural, historical, or aesthetic significance. Thus they are included in the recreational and transportation greenways network only when they are in close proximity (one-half mile) to proposed hubs or spokes.

Once the “hubs” were pinpointed, the “spokes” or trail connections between them were charted using one or more of the following manmade or natural features:

- Existing or planned land or water trails
- Abandoned rail lines
- Stream corridors
- Existing on-road bike routes
- Utility Corridors / Rights-of-way

RECREATIONAL AND TRANPORTATION GREENWAYS: Hub Selection Criteria			
	Major Hubs	**Minor Hubs**	**Points of Interest**
Population Centers:			
Municipalities with Visitor Services (Restaurants, Lodging, Main Street Retail)	X		
Municipalities with Cultural and Historic Sites (Museums, Theaters, Libraries, etc.)	X		
Small municipalities or population centers with potential for trail connection		X	
Recreational Features:			
State Parks	X		
Community Parks			X
Small Community Recreation Areas / Parks (Playgrounds, etc.)			X
State Game Lands			X
Cultural and Historical Sites:			
National Register Historic Districts			X
National Register Historic Sites with Regional Visitation			X
National Register Historic or other Local Historic Sites with Local Visitation			X
Museums and Cultural Centers			X
Secondary Schools and Universities			X
Libraries			X

Proposed trails or "spokes" are planned primarily for active recreational uses such as running, walking, rollerblading, hiking, biking, canoeing, kayaking, and other forms of non-motorized recreation and transportation. Preference was given to off-road trail opportunities wherever feasible. However, in making trail linkages through urban areas or across rural areas where other options were not available, trails on or adjacent to existing roadways were proposed. Where proposed recreation and transportation greenways coincide with conservation greenways, trail design should strive to minimize impact from these uses.

Several of the trails described in the proposed greenway network are existing trails or already planned. In other instances, new trail connections are recommended. The inclusion of both existing and proposed trails supports the project study committee's goal of creating an interconnected web of recreational opportunities connecting various destinations around the county.

It is also important to keep in mind that ***because the plan makes recommendations at a countywide level, exact locations and designs of trails are not specified. This plan is conceptual in nature and actual implementation will require further study on a site-specific level.*** This section generally describes location and possible obstacles to recreation and transportation greenway development. In a later section of this report, a proposed demonstration trail segment will be identified and described in more site-specific detail.

Proposed recreation and transportation greenways are depicted on the *Recreation Greenways Plan* map on the following page, and are described thereafter.

Major Hubs

- The City of New Castle is Lawrence County's largest population center as well as its commercial, historic, government, and geographic center. New Castle was born in 1798 when civil engineer John Carlisle Stewart claimed 50 acres of land adjacent to the confluence of the Shenango River and Neshannock Creek in what was then Allegheny County. The 19th century saw New Castle become a business center thanks to the canal and railroad systems, which served the city's numerous manufacturing plants.

In addition to this industrial boom, New Castle was a stop on the underground railroad, the route taken by countless former slaves on their way to freedom in Canada, in the early 1800's.

New Castle was considered the tin plate capital of the world in the early 1900's, as it's population swelled more than three fold between 1890 and 1910 thanks to a large influx of European immigrants flocking to work in the city's mills. The city saw another population boom with the increase in industry resulting from the two World Wars, but the population declined with the fall of the steel industry in Western Pennsylvania during the 1980's. Today New Castle boasts an economic base comprised of manufacturing, retail, and service-related businesses.

Although tin plate mills were the city's foundation years ago, its more recent "claim to fame" has been the fireworks industry. The father of New Castle fireworks, Leopold Fazzoni, received the first certificate for fireworks manufacturing from the Commonwealth of Pennsylvania in 1886. He consequently started Fazzoni Brothers Fireworks Company in New Castle. From his business, workers started their own fireworks companies. These include names familiar today, such as Zambelli Fireworks, Vitale Fireworks (now Pyrotechnics, Inc.), and Rozzi Fireworks (now located in Loveland, OH). Some of these companies have created

fireworks displays used in 4th of July celebrations at the White House. In 2006, the U.S. Trademark Office offiically designated New Castle the "Fireworks Capital of America."

The Lawrence County Historical Society (www.lawrencechs.com), located in the historic Joseph A. Clavelli mansion overlooking New Castle, was chartered in 1938 to preserve Lawrence County's History primarily through education. The society offers several exhibits on display in the mansion museum. History is also display around the city, as evidenced by New Castle's three sites on the National Register of Historic Places. These sites are the Lawrence County Courthouse, the New Castle Armory, and the North Hill Historic District.

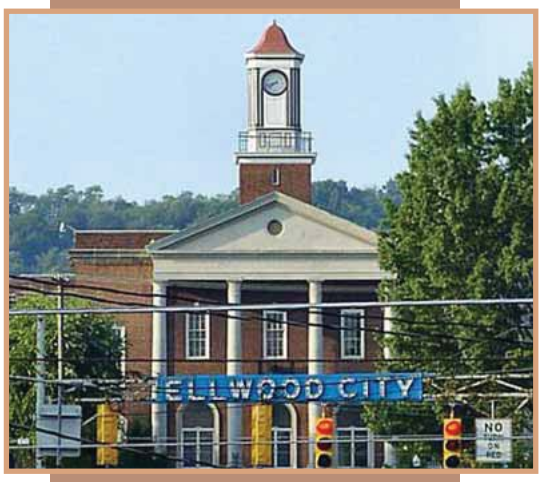
This greenway plan strives to make connections to the recently-completed downtown improvements in the City of New Castle. Trail connections may complement the refurbished downtown streetscapes by offering easy access to walking and bike trails, as well as to the adjacent Neshannock Creek and Shenango River.

- New Wilmington Borough is nestled within quiet Amish farmland in the north-central part of Lawrence County. New Wilmington was officially made a borough in 1873, and today still reflects aspects of the original layout designed by John Waugh in 1824. Waugh's ancestors settled in the area in the 17th century. Some of the earliest buildings in the borough still remain, including the Tavern Inn, which was a stop on the underground railroad during the Civil War. Today New Wilmington is one of the county's small, charming population and commercial centers, and is home to the county's only liberal arts center of education, Westminster College.

- The Borough of Volant is a hidden pocket of Western Pennsylvania history. A grist mill was built there in 1812 and the surrounding community grew around this business. By 1875, a railroad connecting New Castle with Franklin, PA ran through Volant, bringing outside

trade. This boom spawned local commerce, including blacksmiths, soda fountains, hotels, general stores, harness shops, lumber mills, a tin shop, a brick company, oil-related industries, and even a college. Like most Western Pennsylvania towns, Volant experienced a decline when industry departed. The mill closed in 1960, but was remodeled in 1984 as an antique store.
Today people flock to Volant to shop in the array of shops located in the historic town or to pursue trout in the adjacent Special Regulations fishing area of the Neshannock Creek. In September 2006, the Volant Mill was purchased by the Volant Community Development Corporation, who plans to restructure the mill and establish a cultural center offering grist mill services to local farmers and education exhibits / tours to visitors.

This greenway plan recognizes the importance of Volant, New Wilmington, and the Amish Countryside to the economic success of Lawrence County, and supports connection of these areas to populations elsewhere in the county and beyond.



- Ellwood City Borough was incorporated as a Borough in 1892, and grew rapidly into one of Lawrence County's commercial and population centers. The borough was a manufacturing center for railroad equipment and other steel products in the first half of the 20th century, then experienced decline during the next 40+ years. Ellwood City currently boasts an economic base of light commercial, industrial, and service-related businesses. Several recreation facilities are located within the borough, which is bisected by the scenic Connoquenessing Creek Gorge.

  The project study committee recognizes recent efforts to enhance recreational opportunities in Ellwood City and in nearby Ellport Borough. Recreational Greenways proposed in this plan hope to advance such efforts in the future.

- Although McConnell's Mill State Park is not a population center of any kind in Lawrence County, it is one of the

county's most important centers of recreation. The 2,546-acre park draws visitors from around Western Pennsylvania who enjoy hiking, picnicking, kayaking, fishing, wildlife observation, photography, or historical education. Through the heart of the park runs the scenic Slippery Rock Creek Gorge, which was carved by meltwaters from a glacial Lake Arthur, near the lake of the same name located in Moraine State Park today. The historic McConnell's Mill Grist Mill and Covered Bridge are among the most recognizable images in Lawrence County.

Minor Hubs

- Pulaski Village is located in northwestern Lawrence County, along the Shenango River. Adjacency to the river, as well as potential for connectivity to two of the county's major hubs (New Castle, New Wilmington), make Pulaski Village a destination in its own right. Abandoned railroad alignments following the Shenango River provide potential connections southward to New Castle, and northward to Sharon in Mercer County. In addition, Pulaski is a stop along the North Country Scenic Byway driving route, which leads visitors on a tour of the county's scenic villages and countryside.

- All hubs do not necessarily lie within county boundaries. One example is the Village of Lowellville (Ohio), an important stop on the former trolley track alignment that is now the Stavich bike trail. Lowellville offers a few services that may be used by trail riders, and has potential for connection to other points in Ohio.

- Wampum Borough is another of Lawrence County's small population centers that is situated at the confluence of potential trail corridors. The North Country National Scenic Trail runs through a portion of Wampum, which is home to one of the North Country Trail Association's local chapters. The borough is also adjacent to the Beaver River, an easily navigable waterway offering potential for connectivity into all of western Lawrence County and southward into Beaver County. Wampum is also along the planned North Country Scenic Byway driving route.

- The Village of Edinburg is situated on the southern side of the Mahoning River in western Lawrence County. Its location creates potential for connection to the existing Stavich Bike Trail, to the Mahoning River, and to the North Country Scenic Byway that traverses the village on State Route 551.

Points of Cultural, Historic, Recreational, or Aesthetic Interest
(within 1/2-mile of proposed trails)

The following points of interest along the greenway network will provide trail users with opportunities to rest, learn about various aspects of Lawrence County's history, enjoy local recreation facilities, or enjoy scenic areas. These venues are not the only places of interest in the county, just those that are in close proximity to the proposed trail network (within 1/2-mile). Proposed trails in proximity to these points should strive to offer connection to them. Signage directing trail users to these sites and noting their historic, cultural, scenic, or recreational significance should be included in the trail design.

- Historic Sites - The proposed recreational and transportation greenway network should provide access to sites of local historic significance that are in close proximity to proposed trails. Many such sites exist in Lawrence County. These include, but are not limited to: Old Main Building at Westminster College, Volant Mill, the Banks Covered Bridge, McConnell's Grist Mill (Hickory Township), the Hoyt Institute of Fine Arts, the Old Train Station in New Castle, the Pennsylvania Engineering Building, the Lawrence County Courthouse, McConnell's Mill Grist Mill and Covered Bridge, the historic Rock Point park, Hope Iron Furnace, West Pittsburg Train Station, and the Old Log Cabin (Union Township). A list of county sites listed on the national register of historic places is included in the appendices of this report.

- Libraries identified along the proposed recreational and transportation greenways include the New Castle and Ellwood City Public Libraries.

- Museums - The Hoyt Institute of Fine Arts, the Lawrence County Historical Society, Lawrence Museum of Industrial Arts & History, Harlansburg Station Museum of Transportation, and the Ellwood City Historical Society are all in proximity to the proposed trail network, and provide stopping points for local historical learning.

- West Park Nature Center, the only county-owned park, is located in Union Township. The 108-acre park boasts wildflower meadows, mature forest areas, a small stream system, and several acres of wetlands. Many recreational opportunities await nature enthusiasts at West Park. These include hiking trails, informational kiosks, and wildlife observation areas.

- Other Community Parks may provide trail users with places to rest or engage in a variety of recreational activities. Those to be included in the proposed recreational and transportation greenways system are located near trails in Ellport, Ellwood City, New Wilmington, and Wampum Boroughs; Hickory, Mahoning, Neshannock, Shenango, and Wilmington Townships; and the City of New Castle.

- Schools - Since students and young people are likely trail users and prime candidates for education on the importance of greenways, proposed greenways should include access to colleges / universities and secondary schools in close proximity to proposed trails. Schools included along the recreational and transportation greenway network for Lawrence County include Westminster College and the Lawrence County Career & Technical Center (Vo-Tech), which hosts the Butler County Community College's Lawrence County Center in addition to its own classes. Also included are several elementary, middle, and high schools in

several school districts (S.D.'s) around the county, including: Ellwood City Area S.D., Laurel Area S.D., Neshannock Township S.D., New Castle Area S.D., Shenango Area S.D., and Wilmington Area S.D.

- Hunting and Fishing are important recreational activities to the residents of Lawrence County, as is the case in much of Pennsylvania. It is important that the recreational greenways network provide access to fishing and hunting opportunities when feasible. Such opportunities in proximity to the proposed trail network include but are not limited to the following:

  - Special Regulation trout fishing areas in Volant (Neshannock Creek, delayed-harvest and artificial lures only) and in Perry/Wayne Townships (Slippery Rock Creek, fly-fishing only);
  - portions of the Mahoning, Shenango, and Beaver Rivers;
  - sections of the Neshannock, Little Neshannock, Connoquenessing, and Slippery Rock Creeks and Big Run;
  - Hell Run, the county's only wild trout stream;
  - Stage Game Lands #150 (Pulaski Township), #216 (Slippery Rock Township), #148 (New Beaver Borough), and #178 (Neshannock Township);
  - West Park Nature Center (hunting is permitted during regular seasons)

Several other points of interest are in proximity to the proposed trail network. These include: private recreation facilities such as the Boy Scout Camp Agawam in Slippery Rock Township and Girl Scout Camp Elliott in Washington Township; public recreation facilities such as the Lawrence County Fairgrounds; cultural assets like the New Castle Playhouse and Scottish Rite Cathedral; and scenic amenities such as Quaker Falls and Cleland Rock.

Recreation and Transportation Greenway Descriptions and Priorities

With guidance from Pashek Associates, the project study committee prioritized recreation and transportation greenways according to their perceived feasibility, potential to spur economic growth, and by the perceived amount of use they will receive. The priorities given to these proposed trail segments should *not* deter development of trail projects along second- or third-priority proposed trail routes if they are proposed before first-priority trails are constructed. Segment letters in parentheses correspond to labels on the Recreation Greenways Plan.

First-Priority Trails:

- Neshannock Rail-Trail (Segment A) - This previously planned trail follows an abandoned railroad alignment from New Castle to Volant, with a spur connection to New Wilmington. Ownership issues have prevented completion of demonstration segments of the trail within the City of New Castle. Once these issues are resolved, a portion of the trail may be completed under ownership by Alduk Neshannock Trail: a Pennsylvania Non-Profit organization. Approximately 75% of this 12.5 mile stretch of trail is currently open or maintained in some way. The completion of the trail would provide a recreational mode of transport to the shops at Volant and possibly an alternate commuter route for county residents working in either New Castle or Volant. In addition, the proposed extension of this trail includes a segment along the Neshannock Creek in downtown New Castle.

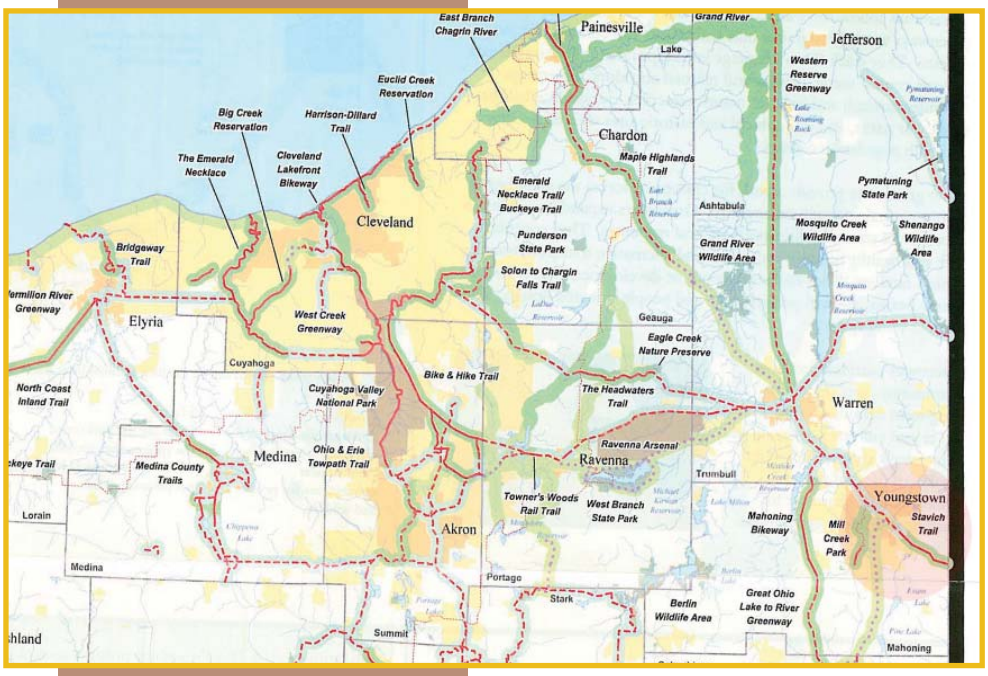
  Resources on formation and maintenance of rail-trails such as the proposed Neshannock Rail-Trail are offered by the Rails-to-Trails Conservancy and by PA DCNR. "Secrets of Successful Rail-Trails", a general step-by-step guide to rail-trail implementation, can be found at http://www.railstotrails.org/resources/documents/resource_docs/tgc_secrets.pdf, while

information regarding acquisition of abandoned railroad rights-of-way is available at http://www.railstotrails.org/whatwedo/railtrailinfo/resources/acquisition.html. General information on regional rail-trails and planning initiatives is available at http://www.railstotrails.org/wherewework/northeast/index.html and at http://www.dcnr.state.pa.us/railtrails/.

Approximate Length: 12.5 miles

Associated Municipalities: City of New Castle; Hickory, Neshannock, and Wilmington Townships; New Wilmington and Volant Boroughs

- Stavich Bike Trail (Segment B) - This trail extends from Covert Road in Union Township to Struthers, Ohio by way of the Village of Lowellville, Ohio. The Stavich family donated considerable time and money to the Lowellville-Hillsville Charitable Foundation (LHCF) for the initial completion of the 10-mile trail. The existing asphalt trail surface has significantly deteriorated and is in need of replacement. State grant agencies have advised the county to pursue the removal of the existing trail surface and placement of new surfacing, creating a new trail. The original trolley track alignment that now contains the trail extends onto what is now West Washington Street in New Castle. In order to maintain an off-road trail, an extension of the trail is proposed along various railroad alignments and local roads southward along the Mahoning and Beaver Rivers to Wampum and further south, joining the existing Beaver



Falls Rail-Trail in Beaver County. A feasibility study should be completed to determine the best exact route for this extension of the trail.

Rehabilitation of this existing trail should be a priority in the near future, possibly as a project for the county's Growing Greener II funds. Such funding would greatly reduce the need for trail maintenance in the near future, easing the burden on the LHCF, who is currently responsible for trail maintenance and improvement. The County has a pending lease agreement with Penn Power, owners of the trail corridor. After this lease agreement is signed, Lawrence County will be responsible for maintenance and improvement of the portion of the Stavich Bike Trail from the Pennsylvania/Ohio border eastward.

In addition to being an asset to county residents, the Stavich Trail is a potential link to a vast planned trail system in Eastern Ohio. The Ohio Greenways initiative, completed in 2001, developed a state-wide map of existing and planned greenways and trails. This map serves as a foundation for state-wide greenways planning and advocacy in Ohio. The map (detail area shown above) identifies the connection of a planned shared use path (red dashed line) to the western end of the Stavich Bike Trail in Struthers, OH (highlighted).

This connection will provide an essential link in the chain of trails stretching from Cleveland and other points in Northeastern Ohio into Pennsylvania. Using the Stavich Bike Trail, a connection is possible over the state line to New Castle, and further southward into Beaver County. The ultimate goal of this connection is the linkage of the Ohio trails with the Great Allegheny Passage. This would create an uninterrupted bike route from Cleveland to Washington, D.C.

Approximate Length: 18 miles (6.5 exisitng within Lawrence County, 11.5 proposed)

Associated Municipalities: City of New Castle, Mahoning and Union Townships

- The North Country National Scenic Trail (NCT) (Segment C) - The NCT is a planned footpath that extends over 4,000 miles from New York to North Dakota, visiting 6 other states along the way. Many segments of the trail have been completed, but completion of the entire NCT is still years away. A ±20 mile portion of the NCT alignment traverses southern Lawrence County. Approximately 17 of those 20 miles have been completed. The trail contains a 7-mile stretch along the Slippery Rock Gorge in McConnell's Mill State Park, passes through State Game Lands 148 and 285, and also runs through the Borough of Wampum.

  One of the North Country Trail Association's (NCTA's) most active local chapters is located in Wampum (www.northcountrytrail.org/wam), and is responsible for construction, promotion, and maintenance of the trail in Lawrence and Beaver Counties. The Wampum Chapter recently took a large step forward in reaching an agreement with Cemex, Inc. to create several miles of new trail on the corporation's property. Although this is a great success for the NCT, additional funding or other county support may be needed to acquire property, easements, or rights-of-way that will allow for completion of the local trail segment.

  Approximate Length: 20 miles (10.6 currently finished and certified by the NCTA and National Parks Service, 6.4 finished and yet-to-be certified))

  Associated Municipalities: Shenango, Slippery Rock, and Wayne Townships; Wampum and New Beaver Boroughs

- Shenango / Beaver River Water Trail (Segment D) - Water trails are boat routes suitable for canoes, kayaks, and small motorized watercraft. Like conventional trails, water trails are recreational corridors between specific locations. Water trails are comprised of access points, boat launches, day use sites, and -- in some cases -- overnight camping areas.

  This proposed water trail offers access to several points in western Lawrence County, and also extends into Mercer and

Beaver Counties. The Shenango River flows southward from Shenango Reservoir in Mercer County, through the Village of Pulaski. The river forms the southwestern boundary of the City of New Castle before joining the Beaver River, which flows further south through Beaver County to the Ohio River.

This water trail would provide access to several communities within Lawrence County and outside of county borders. River access points are proposed at the Village of Pulaski, and at other locations in Neshannock, Pulaski, Taylor, and Wayne Townships; Wampum and New Beaver Boroughs; and the City of New Castle.

While beginner canoeists and kayakers should have no problem navigating the length of this water trail, motorized craft may only be able to navigate select parts of the river. Rapids of note are located at a railroad bridge in Wampum (known as Irish Ripple) and two miles north of Wampum (known as Hardscrabble). These areas make upstream travel extremely difficult if not impossible without portaging. These rapids do not pose problems during normal water conditions, but may prove challenging during period of high water. Signage and/or mapping providing locations of both rapids should be installed at all access points for this water trail.

Another proposed access point is Rock Point, at the confluence of the Beaver River and Connoquenessing Creek near Ellwood City. Rock Point was a popular amusement park around the turn of the 20th century. Since its abandonment as a park, Rock Point has reverted to a more natural state, and has become a quality wildflower site.

The Wild Waterways Conservancy (WWC) recently purchased property including Rock Point, and intends to complete a master plan for that area. The goal for Rock Point according to this Greenways Plan is twofold: 1) river access; and 2)

conservation. Minimal recreational development will provide quality public access to the water trail while respecting the natural communities of the BDA identified on the Rock Point property.

Any development of the area should follow the recommendations of the WWC Master Plan slated for Rock Point. This will ensure preservation of any historic and/ or natural features, will ensure preservation of the large unfragrmented forested area for migratory bird habitat at Rock Point, and will hopefully provide needed access to the Connoquenessing Creek and Beaver Rivers.

The Pennsylvania Fish and Boat Commission is the sole agency to designate official Pennsylvania Water Trails. However, individual trails and trail corridors are conceived and maintained by a network of volunteers, property owners, civic groups and associations. Detailed information on Pennsylvania's existing water trails, organizations partnering to promote and develop water trails, and resources for water trail formation are available via the Pennsylvania Fish & Boat Commission (http://sites.state.pa.us/PA_Exec/Fish_Boat/watertrails/index.htm), and through the Pennsylvania Environmental Council (www.pecwest.org/watertrails.htm).

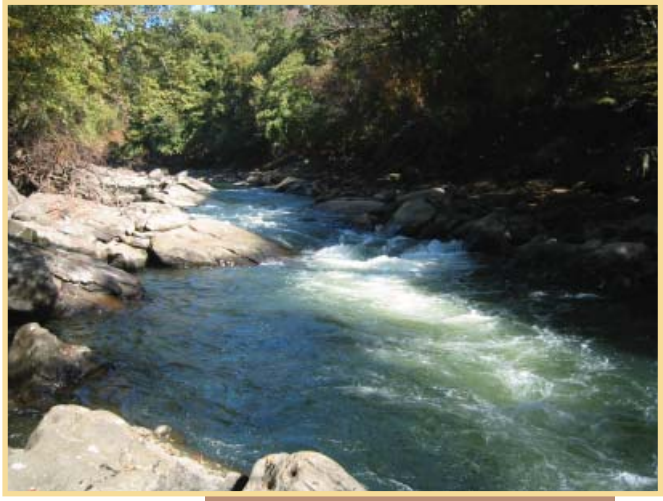
Approximate Length: 23 miles

Associated Municipalities: Mahoning, Neshannock, North Beaver, Pulaski, Taylor, Union, and Wayne Townships; Wampum and New Beaver Boroughs; and the City of New Castle

- Connoquenessing Creek Water Trail (Segment E) - The portion of this proposed water trail suitable for canoeing / kayaking by beginners is totally located in Beaver County. Lawrence County's portion would accommodate experienced kayakers or rafters only, as the Connoquenessing Creek in and around Ellwood City Borough contains several substantial rapids. Existing access points are located along Route 488 in Wurtemburg Village and at Rock Point near the creek's

confluence with the Beaver River.

A beginner's experience on the water trail should end at the site of the former Frisco Railroad bridge, which crosses the creek just south of the Lawrence / Beaver County boundary. Large stone bridge supports still remain at the site, which is visible from River Road north of State Route 288/65 (Zelienople Road). Below this point, the Connoquenessing drops 110 feet in elevation over its last 6 miles, and includes difficult rapids. These areas require skills possessed by experienced kayakers or rafters. During high water, these rapids become hazardous, reaching class 4 status, and should only be attempted by those with expert skills and experience.



This water trail was given consideration in greenways planning. However, due to its exclusive nature and potentially hazardous conditions, the Greenways Plan does not recommend designation of this water trail north of the Lawrence / Beaver County boundary.

Approximate Length: unknown

Associated Municipalities: None (located entirely in Beaver County)

Second-Priority Trails:

- Shenango River Rail-Trail (Segment F) - This proposed shared-use trail utilizes at least one of the two abandoned rail alignments located along opposite banks of the Shenango River. The trail could connect the City of New Castle with points northward along the Shenango River, including the Village of Pulaski, where other planned and proposed trails

intersect, and Sharon, PA. Within careful planning, this trail may also connect to the Neshannock Rail-Trail via a riverfront trail along the Neshannock Creek in downtown New Castle. Possible uses could include hiking, biking, and equestrian use. In certain areas, uses could be separated if abandoned rail lines on both sides of the river are acquired for trails.

Approximate Length: 12.5 miles

Associated Municipalities: City of New Castle; Mahoning, Neshannock, Pulaski, and Union Townships

- Mahoning River Water Trail (Segment G) - The Mahoning River Water Trail offers canoe and kayak access at several points in the western portion of the county, and extends upstream into Ohio. This trail also meets the proposed Shenango / Beaver River Water Trail at the confluence of the Mahoning and Shenango Rivers in the extreme southwestern corner of the City of New Castle. Canoeists and kayakers would theoretically be able to paddle between Mercer, Lawrence, and Beaver Counties in PA as well across the state line into Ohio. Access points are proposed at the Shenango / Mahoning Rivers confluence, on the southeastern side of the Covert Road Bridge in North Beaver Township, and at the Village of Edinburg. The Greenway Plan recommends that the County approach landowners and the PA Fish & Boat Commission to discuss possibilities of boat launches at these water trail access points.

Approximate Length: 10.5 miles

Associated Municipalities: City of New Castle; Mahoning, North Beaver, and Union Townships

- Ewing Park-Ellport Nature Trail (Segment H) - Recent efforts by Ellwood City Borough have upgraded the Ellwood City Nature Trail, which is located in Ewing Park. During the public input process, residents of Ellport Borough expressed interest in extending a trail from one of their

small parks along the Connoquenessing Creek to the trail at Ewing Park. This may be a monumental task due to the need for a footbridge spanning the gorge surrounding the creek. However, the recreational connection that would be created would be very beneficial to both boroughs.

Approximate Length: 1 mile (not including existing trail within Ewing Park)

Associated Municipalities: Ellport and Ellwood City Boroughs

Third-Priority Trails:

- Scenic Byway Bike Lane (Segment J)- This proposed on-road bike lane follows the route of the planned Scenic Byway driving route, which follows a broad circle through most parts of Lawrence County. The Bike Lane would be separate from existing traffic lanes, and would follow the road shoulder along State Routes 208, 551, 108, 18, 288, and 488, as well as a portion of U.S. Route 19. This route would provide long-distance bicyclists the opportunity to visit the Amish countryside and many of the quaint villages in Lawrence County's countryside. Signage would also be necessary to guide bicyclists and mortorists alike, as well as to identify points of historic, cultural, recreational, or scenic interest along the route. The Scenic Byway itself may not continue into Butler County, but this plan recommends that the associated bike lane cross over the county boundary.

  Approximate Length: 59 miles (loop, with roughly 55 miles in Lawrence County)

  Associated Municipalities: Mahoning, North Beaver, Perry, Plain Grove, Pulaski, Slippery Rock, Washington, Wayne, and Wilmington Townships; Ellport, Ellwood City, New Beaver, New Wilmington, Volant, and Wampum Boroughs; and the City of New Castle.

- Camp Agawam Footpath (Segment K) - This proposed footpath extends from U.S. Route 19 southwestward along the Slippery Rock Creek to Camp Agawam, a local Boy Scout summer camp. The path crosses both private property and parts of State Game Lands #216. Fishing access to the Slippery Rock Creek would also be provided by the proposed trail.

  Approximate Length: 1.5 miles

  Associated Municipalities: Scott and Slippery Rock Township

- New Castle-Shenango Bike Trail (Segment L) - This short proposed trail includes off-road segments between Gaston, Cunningham, and Cascade Parks in New Castle; as well as on-road connection to Shenango Township Park and Shenango School District facilities via Route 65 and/or Old Pittsburgh Road and Gardner Center Road.

  Approximate Length: 1.5 miles

  Associated Municipalities: City of New Castle, Shenango Township

- Shenango-Ellwood City Single Track (Segment M) - Mountain bike trails usually can traverse difficult terrain, and this proposed trail is no different. It follows an existing gas line right-of-way that extends from Shenango Township park southward to Ellwood City Borough. Although negotiation with the right-of-way's owner(s) may be difficult, this track would provide connection between the county's two biggest population centers.

  Approximate Length: 7 miles

  Associated Municipalities: Shenango and Wayne Townships, Ellwood City Borough

- New Wilmington-Neshannock Bike Route (Segment N)

- State Route 956, along with Mercer Road and Mitchell Road, would accommodate this on-road bike route. The route connects Neshannock Township School District facilities and Pearson Park with Marti Park in Wilmington Township and destination points in New Wilmington Borough. The portion of the route along Mitchell Road near Neshhanock Township School District is an existing share-the-road bike route. Several of the other roads along this route are utilized by avid cyclists belonging to the Lawrence County Cycling Club, which rides several long loop routes beginning at Marti Park in their annual "Tour de la Mec".

Approximate Length: 5.5 miles

Associated Municipalities: Neshannock and Wilmington Townships; New Wilmington Borough.

- Old Youngstown Road Bike Route (Segment O) - Although this proposed on-road bike route is rather short, it provides important connections. The route connects the existing Stavich Trail with the proposed Shenango River Rail-Trail, and at the same time provides access to West Park Nature Center, the only county-owned park.

Approximate Length: 3 miles

Associated Municipalities: Neshannock and Union Townships

- Volant-Laurel Bike Route (Segment P) - An on-road bike route / "share the road" route is proposed from Volant southward along State Routes 168/388. This route connects Volant Borough to the Laurel School District recreational facilities, the Lawrence County Fairgrounds, and the planned C.J. Long Spartan Park.

Approximate Length: 7.5 miles

Associated Municipalities: Volant Borough; and Hickory, Washington, and Wilmington Townships

It should be noted that consideration was given to a water trail along the Slippery Rock Creek from U.S. Route 19 downstream / south through McConnell's Mill State Park and onward to the confluence with the Connoquenessing Creek near Ellport Borough. This stretch has been popular for whitewater kayaking at times in the past. However, problems have been documented with landowners near Kennedy Mill (where the creek crosses U.S. Route 19). In addition, seasonal water level changes can make the creek either dangerously fast or too low to be navigable. According to the Canoeing Guide to Western Pennsylvania and Northern Virginia (1991) by the Pittsburgh Council of American Youth Hostels, Inc., prime kayak / canoe seasons on the creek are from November to January and from May to early July only. And, during these times, only experienced kayakers / canoeists can safely navigate the creek. Due to the severe limitation of use, no seasonal water trail was proposed.

All proposed greenways are depicted on the *Proposed Greenways Plan* map, on which they are superimposed atop the proposed conservation greenways. This map can be seen on the following page.

Chapter 3
The Action Plan

This chapter is the blueprint for implementation of the Greenways Plan. Included in this section are strategies for county government, municipalities, public agencies, and private / non-profit organizations wishing to build the greenways network. Recommendations of the Action Plan are organized into five subsections: 1) Management Structure; 2) Implementation Strategies; 3) Land Conservation Tools; 4) Model Ordinances and Agreements; and 5) Potential Funding Sources.

Making this Greenway Plan a reality will require leadership at the county level and formation of strong partnerships with local municipalities and key organizations, both public and private. Another essential is a strong commitment by the county and its municipalities to carry out the plan. Greenways are not developed overnight. They are often assembled piece-by-piece, one parcel at a time. This process usually takes years, even decades. Greenway corridors that can be achieved with few obstacles should be the early focus of implementation. Establishing a record of small successes will build positive momentum for larger-scale implementation of the plan. The Action Plan offers guidance regarding various tools that can help bridge the gap from concept to reality.

Management Structure

Various models of management structure can be used to facilitate planning and development of Lawrence County's Greenways. These management options each present different opportunities and constraints, as are described in **Figure 3.1**:

Undertaking an effort of this magnitude cannot be expected of any single organization in Lawrence County. Pashek Associates recommends a strong partnership structure led by the Lawrence County Planning Department. Developing and managing partnerships requires careful coordination and well-defined roles.

This partnership structure, illustrated later in this section, recommends that the county maintain an active role in advancing the recommendations detailed in this plan. A partnership management structure also allows the county, along with participating municipalities, to draw from the knowledge and resources of other state, county, local, and non-profit organizations when implementing the plan's recommendations.

This plan strongly recommends that the Lawrence County Planning Department create a new staff position dedicated to greenway implementation. In other greenway implementation efforts, the lack of a "point person" charged with responsibility for advancing greenways plan recommendations has resulted in stagnation of the plan. A Greenways Coordinator can focus attention on bringing the appropriate agencies and non-profit organizations to the table, collaborating with municipal officials, and providing technical assistance when needed. Being that existing Planning Department staff have many responsibilities, they cannot concentrate solely on greenways. Pashek Associates recommends that the Planning Department complete an interview process to search for an appropriate person possessing greenways-related background and excellent networking skills.

As a resource to Lawrence County, this plan offers a model of the skills, experience, and expectations of a greenways coordinator. In addition to the information provided below, job descriptions for two Greenway Coordinator positions that were created in Pike and Cumberland Counties are included in the appendices of this report.

A Successful Greenways Coordinator should. . .

Knowledge and experience are only half of what makes a successful worker. Equally important are **attitude**, ability to communicate and work with others, and the ability and willingness to research and obtain answers and issues beyond their knowledge or experience base. It is essential that a greenways coordinator be **self-starting**, **enthusiastic**, and **entrepreneurial**. In addition to these qualities, the coordinator should boast the following skills and credentials:

- Excellent communication, organizational, and relationship-building skills;
- Experience in public and private land conservation and obtaining ownership of trail corridors via acquisition and easements;
- A minimum two years experience as a paid staff person for a conservation organization (preferred); and
- A minimum two years managing projects involving coordination and consensus building among diverse interest groups.

The Greenways Coordinator should energetically advance the recommendations of Lawrence County's adopted Greenways Plan. Specific Expectations should include:

- Providing technical assistance to municipalities to advance greenways in accordance with the county's priorities for greenway development;
- Working and negotiating with landowners, other agencies, and organizations to implement and protect greenway corridors;
- Overseeing property holdings;
- Increasing public awareness of the benefits of greenway protection throughout the county by conducting presentations, spearheading outreach programs, distributing information and attracting media coverage;
- Educating and developing good working relationships with conservation groups, government agencies, municipal officials; non-profit organizations, and landowners;
- Working with municipalities and/or non-profit groups to increase funding by assisting with grant writing and development of donor materials;
- Managing daily operations;
- Coordinating volunteer labor or material donations; and
- Attend meetings or events during evenings and weekends.

A New Precedent in Intergovernmental Cooperation

Lawrence and Beaver Counties Planning Commissions Staff have embraced the opportunity to collaborate on what could be an unprecedented intergovernmental agreement. This agreement would create a joint greenways coordinator position funded by, and serving, both counties.

Such an agreement presents a challenge to both counties because no precedent for a multiple-county greenways coordinator has yet been set in Pennsylvania. Although this agreement is not a requirement of DCNR, the willingness of both counties to lead by example would strengthen the County's application for the Circuit Rider Program.

To date Planning Commission Staffs have met several times, once with DCNR representatives, to develop drafts of the documents listed below. Upon concurrence by both Counties' respective Boards of Commissioners, these documents would create a greenway coordinator position meeting each County's respective needs.

- Draft Greenways Coordinator Position Description
- Draft Administrative Budget
- Draft Intergovernmental Agreement

The draft Greenways Coordinator Position Description is provided in the appendices of this report for reference.

the DCNR Circuit Rider Program

Lawrence County may apply to the Pennsylvania Department of Conservation and Natural Resources (DCNR), through their Circuit Rider Program, to fund the County Greenways Coordinator position.

The Circuit Rider Program is designed to provide funding for county or regional organizations to hire a professional, full-time staff position. The circuit rider's purpose is to initiate new programs and services for counties, municipalities, and organizations that individually do not have the financial resources to hire a professional staff person.

DCNR accepts applications to the Circuit Rider Program applications at any time. Eligible project costs include only the circuit rider's salary and DCNR Bureau of Recreation and Conservation (Bureau)-approved technical assistance and training expenses as follows:

First Year:	Up to 100% of gross salary
Second Year:	Up to 75% of gross salary
Third Year:	Up to 50% of gross salary
Fourth Year:	Up to 25% of gross salary
Training Expenses:	Up to $2,000 available for Bureau-approved training expenses over the four years of funding.

Participating organizations must provide local funds to cover the circuit rider's employee benefits for all four years, the balance of the position's salary in years two, three, and four, and normal support services such as office space and furnishings, trainings, and travel expenses, clerical support, equipment, etc. In year five and beyond, DCNR expects the local support of the full-time staff position to continue without assistance.

An important opportunity for Lawrence County to secure matching funds for those awarded in the Circuit Rider Program lies in the application to the Pennsylvania Department of Community and Economic Development (DCED) for funding. Funds received from DCED may be used as matching funds for DCNR funding awarded through the Circuit Rider Program.

To request a Circuit Rider grant, Lawrence County must submit a DCNR Community Conservation Partnerships Program (C2P2) grant application. Following receipt of this application, the Bureau will request the submission of a first-year budget, draft job description, and, when applicable, an intergovernmental agreement. If the proposed initiative meets grant eligibility requirements and is considered viable by the Bureau, the grant request will be considered. If a grant is awarded, the Bureau will provide a grant agreement and work with the recipient to begin the hiring process.

Continued DCNR funding in remaining years of the Circuit Rider is contingent on the grantee's performance in previous years of

the program and submission of acceptable requests for additional funding.

Two Pennsylvania counties have established DCNR-funded greenway coordinator positions. Cumberland County established a greenways coordinator as the pilot project for their greenways plan nearly four years ago, and Pike County's coordinator was hired in August 2005. Both work closely with municipal officials to develop local plans, promote greenways, write grant applications, and conduct other business necessary to advance their counties' respective greenways plans.

To successfully apply for this funding, Lawrence County must have adopted this Greenways Plan. If applying jointly with Beaver County, both counties must have adopted their respective greenways plans. In addition, DCNR will look more favorably on grant applications when county commissioners have demonstrated a commitment to both the value of establishing greenways and to providing increasing financial support. If a county is successful in obtaining a grant to fund the greenways coordinator position, DCNR staff will participate in the interview process and must approve (but not select) the person hired to fill the position.

Administrative Budget

The following Table (**Figure 3.2**) proposes an administrative budget for the Greenways Coordinator position. This budget assumes the coordinator has full access to Planning Department resources, including:

- Office Space
- Computer
- Telephone
- Reproduction Services (photocopying, plotting, etc.)
- U.S. Postal Services
- Clerical Services

Should Lawrence County opt to create a greenways coordinator position solely for Lawrence County, the total projected cost to the County over a 5-year period is $304,544.35. If a joint greenways

coordinator position is created for Lawrence and Beaver Counties, this cost would be shared equally by both Counties. In comparison, a successful greenways coordinator should be able to raise $100,000 to $200,000 each year through grants and allocations from foundations (in conjunction with a non-profit that can accept donations from a foundation). Thus the benefits of creating this position far outweigh the burden on the county's respective finances, as shown below:

Figure 3.2

ADMINISTRATIVE BUDGET	Year One	Year Two	Year Three	Year Four	Year Five
Projected Costs					
Greenways Coordinator Salary (2.5% increase per year)	$40,000	$41,000	$42,025	$43,075.63	$44,152.52
Payroll Benefits and Costs (includes family insurance @ 10% increase in cost per year)	$12,000	$13,200	$14,520	$15,972	$17,569.20
Travel, Training, Equipment	$9,000	$3,000	$3,000	$3,000	$3,000
Total Operations Costs	*$61,000*	*$57,200*	*$59,575*	*$62,047.63*	*$64,721.72*
Potential Revenue					
DCNR Circuit Rider Program / DCED Funding	$40,000	$30,750	$21,012.50	$10,768.91	$0
DCED Shared Municipal Services Funding	$0	$10,250	$21,012.50	$32,306.72	$44,152.52
Cost Summary					
Total Expenses After Revenue	*$21,000*	*$16,200*	*$17,520*	*$18,972*	*$20,569.20*
Lawrence County	$10,500	$8,100	$8,760	$9,486	$10,284.60
Beaver County	$10,500	$8,100	$8,760	$9,486	$10,284.60

Pursuing a joint Greenways Coordinator positiion for both Counties presents an opportunity to further reduce the cost for creating the position. If the joint Greenways Coordinator position is created, both Counties may become eligible for Shared Municipal Service Funding through the Pennsylvania Department of Community and Economic Development (DCED).

Starting in the 2nd year of the created Greenways Coordinator position, Shared Municipal Services funding provides 25% of the gross salary. In year three, funding increases to 50%, then 75% in year four, and finally 100% of gross salary in year five. Funding provided by the DCED Shared Municipal Services program is outlined in the **Figure 3.2**.

Municipalities Drive Greenway Implementation

Local municipalities are the engine that drives the greenways implementation machine. The broad recommendations made in this Greenways Plan should be confirmed and refined at the municipal level via comprehensive plans or recreation, park, and open space plans. These planning efforts should recommend the adoption of new land use tools in local ordinances that facilitate greenway development. Examples of such tools are: conservation overlay districts, stream buffer requirements, steep slope restrictions, and developer incentives that encourage preservation of contiguous open space in new residential subdivisions and other land developments. Such devices are explained in more detail later in this section.

This plan also recommends the development of multi-municipal greenway plans and/or feasibility studies. Such efforts will evaluate proposed greenways corridors in greater detail, including exact trail alignments, land ownership at the parcel level, known obstacles, proposed solutions, and estimated costs.

Through its Greenway Coordinator, the Planning Department will assist both municipalities and non-profits in implementing greenway corridors, attracting funding, and coordinating with other partners who can provide technical assistance. This plan also recommends that environmental advisory councils (EAC's) consisting of members of existing governing bodies and knowledgeable private conservation

groups be organized at the municipal, multi-municipal, or even County level to assist in the planning and implementation of conservation greenways. Municipalities interested in forming an EAC should visit www.eacnetwork.org. Using this website, the Pennsylvania Environmental Council (PEC) offers learning opportunities regarding locations, operations, and successes of EAC's throughout the state.

To best communicate ideas and recommendations from the greenways plan to municipalities, the County should introduce the plan to the Lawrence County Council of Governments (COG). The COG consists of 24 of the 27 municipalities within Lawrence County, and the County government is also a member. Thus, communicating through the COG will be the most efficient way to spread information on further greenways planning or implementation projects.

Each member of the COG receives one vote, which can only be given by an elected official from that member municipality (or the County) that was its chosen representative. For county-wide greenways issues, votes may be taken in the COG. For smaller greenways projects or issues effecting a small number of municipalities, discussion can still be held at COG meetings without vote. Such discussions would be held for the sole purpose of information exchange -- after which smaller groups of municipalities can meet to further discuss greenways issues effecting them.

The Planning Department and its local municipal partners will work with various county, state, and private / non-profit partners. These entities have valuable expertise that can be tapped to advance the goals of this plan. Among the Planning Department's likely conservation partners are the Lawrence Conservation District and Audubon Pennsylvania.

On the recreation side, the Lawrence County Tourism Promotion Agency, Chamber of Commerce, and Economic Development Corporation may be important county partners in planning, promoting, and developing trails. **Figure 3.3** depicts other key partners with knowledge and expertise germane to the establishment of greenways.

This plan recommends that local municipalities coordinate closely with these partner organizations, or even enlist representatives of

these partner organizations to serve on municipal greenway planning committees. Furthermore, the plan urges municipalities to identify and engage other partners possessing knowledge and resources that could benefit plan implementation.

STRATEGIES FOR IMPLEMENTATION

This section of the Greenways Plan offers step-by-step recommendations outlining the process of implementing the proposed greenways network in Lawrence County. **Figure 3.4** describes the sequence of events needed to carry the Greenways Plan from the "vision" described earlier in this plan to completion of conservation and recreation greenway corridors.

The following tables relate implementation strategies to several general objectives. For each broad objective, the tables specify a sequence of prioritized tasks, along with respective estimated costs, and parties responsible for leadership and assistance in the undertaking of each task. Responsible parties will need to seek funding through grants or cost reimbursement programs throughout the implementation process. This section also provides lists of potential funding sources.

Tasks are prioritized into three designations:

- **Short-term (S) priorities** should be accomplished in the first 2 years after official adoption of the Greenways Plan. These strategies will lay the foundation for successful implementation of the greenways plan.

- **Middle-term (M) priorities** should be undertaken in years 3 through 5.

- **Long-term (L) priorities** are expected to begin 5 or more years down the road.

Many of the strategies listed have little or no cost beyond the administrative costs to be incurred by the responsible parties. Where recommended tasks require an additional expense for implementation, a cost estimate is included. It is essential to note that costs are "ball park" figures, in 2007 dollars, based on similar projects or initiatives. Detailed cost estimates will need to be developed through feasibility studies.

Pashek Associates recommends that Lawrence County review

these tables no less than annually to determine which tasks have been accomplished, which should be undertaken next, and where adjustments need to be made. Entering beginning and/or completion dates in the "Status" column of the tables will help Lawrence County to track progress made toward completion of each general objective.

These tables outline a recommended plan of action. Actual implementation will depend on fiscal and political climate in any given year or municipality, thus making it essential that tables be reviewed often. Although this section of the greenways plan sets lofty goals, it also accounts for fiscal and political realities.

Advancing Individual Greenway Segments

The following steps show the process that the LCPD, via the Greenways Coordinator, may take to advance the implementation of a specific greenway segment.

1) Approach municipalities to educate them on the benefits of establishing greenways.
2) Work with municipal officials to identify a demonstration project that will result in a success story, and achieve consensus and support for advancing the project.
3) Meet with municipal officials and other local supporters to discuss greenway protection and/or trail development, plan a strategy for approaching landowner(s) in the project area, and identify land trusts or other organizations as possible partners.
4) Determine who will hold property or easement if property acquisition or easement establishment is successful.
5) Assist municipalities and partners in determining the need for further planning and the feasibility of property acquisition or easement establishment. If additional planning is required, proceed directly to step 10.
6) Help municipal officials and partners to anticipate questions, issues, and concerns of landowner(s). Prepare a response detailing how proper planning will specifically address landowner questions and issues, alleviate concerns, and promote healthy relationships between the municipality and landowner(s).
7) Coach municipal officials and partners in preparing to negotiate the acquisition or establishment of easements on the greenway segment.
8) Approach landowner(s) with municipal officials and partners to discuss the project, identify landowner issues / concerns, and address ability of planning and design to address those concerns in an manner acceptable to the all parties. Ask landowner(s) permission to advance planning and design of the greenway segment. Schedule a follow-up meeting with landowner to present a conceptual design for the greenway segment.
9) Accompany municipal officials and partners to present

preliminary planning and design of greenway segment, ask owner if his/her concerns have been sufficiently addressed. Revise planning and/or design if necessary until acceptable to all parties.

10) Review methods of acquisition and preservation and negotiate with landowners to acquire property or establish easement(s).
11) Arrange for County Solicitor to arrange legal paperwork for acquisition of property or establishment of easements in greenway segment.
12) Assist municipality in establishing a construction budget, and determine the county's level or participation in development of the greenway segment.
13) Help with preparation of grant applications to secure funding for acquisition and/or development of greenway segment.
14) Oversee development of greenway segment.

Land Conservation Tools

Some proposed greenway corridors pass through public land such as parks or State Game Lands, and are thus protected from development and other adverse uses. However, most proposed greenways pass through privately-owned land. This section takes a comprehensive look at tools that can be used to conserve land for greenways.

Protection of open space is primarily achieved in one of two ways: through acquisition of property or its underlying rights; or through regulatory requirements. Land conservation mechanisms in each of these two categories are detailed below. Many are discussed in "Land Use in Pennsylvania: Practices and Tools", a publication released in 2000 by the Pennsylvania Department of Community and Economic Development, Governor's Center for Local Government Services.

Acquisition Tools

These mechanisms generally provide permanent protection of land and are preferred when establishing greenways.

Fee Simple Purchase

- Description: Direct purchase of land, at a price agreeable

to the landowner, is done by a governmental or public agency or non-profit land trust organization. Land acquisition can be made at every level of government.

- Benefits: Acquiring fee simple title provides more permanent protection than other methods such as zoning or subdivision requirements. Acquisition by non-profit groups partnering with communities imposes little or no cost and little administrative burden on local governments.

- Implementation: DCNR and DEP's Growing Greener Program has sources of funding to help communities and non-profit groups implement acquisition of land for inclusion in greenways.

Option / First Right of Refusal

- Description: A municipality enters into an agreement with a landowner that, should the landowner decide to sell, gives the government entity the right to bid on the land before anyone else.

- Benefits: This technique gives the municipality time to assemble funds needed to purchase the property or to reach an agreement with the landowner through other means.

- Implementation: The option is negotiated and memorialized in a legal agreement. If the property is sold, the municipality may, but is not obligated to, submit a bid to the landowner.

Conservation Easements

- Description: A landowner voluntarily agrees to sell the right to develop his land in certain ways by granting an easement to another entity such as a land trust. The landowner retains title to the land and continues to pay taxes on it. The easement may or may not allow the grantee access to the land for certain purposes.

- Benefits: Establishment of conservation easements provides long-term protection, but is less costly than fee simple acquisition because the buyer receives less than full title to the land. Where the easement is held by a non-profit group, cost and burden on local government are minimized. Moreover, the landowners pays reduced real estate taxes, subject to terms of the conservation easement.

- Implementation: Generally, the buyer pays the landowner the difference between the value of the land that can be fully developed and the value of the land without development potential. The easement is recorded with the property deed and remains if the land is sold.

  Through both state-wide and local chapter efforts, Audubon Pennsylvania (AP) promotes conservation through a variety of education programs. Among these programs are workshops aimed at promoting the establishment of conservation easements. One such seminar was held at Jennings Environmental Center near Moraine State Park in late April 2007. Another workshop is planned at the same location in the near future.

  Although AP does not hold conservation easements, it promotes establishment of easements through other qualified land trust organizations (local examples are described later in this section). AP's efforts are important to Lawrence County because three Important Bird Areas (IBAs) are located partially within the county's borders. IBAs contain areas of essential and sometimes vulnerable bird habitat. These areas are known as Important Bird Areas, or IBAs. Three IBAs are located at least partially in Lawrence County. The McConnell's Mill IBA covers most of the Slippery Rock Creek Gorge in southeastern part of the county, while the Pennsy, Black, and Celery Swamps IBA straddles the Lawrence / Mercer County border to the north. In addition, the Moraine State Park and Jennings Environmental Center IBA touches Lawrence County's eastern border.

The protection of these areas is of great interest to AP, and conservation efforts in these areas may attract the support of the organization in the form of landowner education. More information is available through the AP website, http://pa.audubon.org, or through the local chapter: the Bartramian Audubon Society (www.csonline.net/russs/bas).

Agricultural Conservation Easements

- Description: A subset of conservation easements described above, these easements protect farms from development. Landowners voluntarily sell the rights to develop the farm to a government entity or land trust. The agency or organization usually pays them the difference between the value of the land for agricultural use and the value of the land for it's "highest and best" use, which is generally residential or commercial development.

- Benefits: Conservation easements preserve land for agricultural use. They provide a financial benefit to farmers while conserving farmland that often provides wildlife habitat. Also, owners of land subject to conservation easements pay reduced real estate taxes.

  Although Lawrence County was not experiencing heavy development pressure at the time of this plan, agricultural preservation is still very important. Agriculture is a large part of the county's character and of its economy. Protection of farmland in advance of any development pressures may prevent growth in areas where it is not desired.

- Implementation: County Agricultural Land Preservation Boards have primary responsibility for developing application procedures. They also establish priority for easement purchases based on a numerical ranking system. The ranking system is modeled on Pennsylvania Dept. of Agriculture (PDA) regulations that require consideration of soil quality, conservation practices, development

pressure, and proximity to other preserved farmland and open space.

The county should strive to conserve open space by enhancing its agricultural preservation program. Mapping from the 2004 Lawrence County Comprehensive Plan indicates that only 14 farms have been placed under the PDA's Purchase of Agricultural Conservation Easements (PACE) program.

Forest Land Conservation Easements

- Description: These easements are a market driven tool used to preserve working forests, in the same way agricultural conservation easements protect working farmland.

- Benefits: Easements can be used to protect forests for present and future economic benefit, simultaneously preserving wildlife habitat, protecting watersheds, providing outdoor recreation opportunities, and promoting soil conservation. In addition, benefits to landowners include reduced property taxes. These easements are of great importance to the Commonwealth of Pennsylvania, as timber is one of the top sectors of the state's economy.

- Implementation: Some non-profit groups such as conservancies and land trusts provide financial support for purchasing easements from landowners. They also accept tax-deductible donations of easements.

  The U.S. Forest Service's Forest Legacy Plan (FLP) aids in the identification and protection of environmentally-important forest lands threatened by conversion to non-forest uses. The FLP provides funding to state governments to help purchase easements on private forestland. Eligible forest lands must be located in a designated Forest Legacy Area and must meet other specific eligibility requirements. The DCNR Bureau of Forestry, in cooperation with the State Forest Stewardship Committee (SFSC), is responsible for implementation of this program in Pennsylvania. For more information, visit www.dcnr.state.pa.us/forestry.

Transfer / Purchase of Development Rights

- Description: Transfer of Development Rights (TDR) is a tool that allows conservation and development to coexist within a municipality or group of municipalities with joint zoning. TDR permits landowners in conservation target areas to transfer some or all of the development rights to their land (sending areas) to areas where growth is desired at higher densities than zoning allows (receiving areas). The landowners keeps title to the land and the right to sue it, but gives up the right to develop it for other purposes. The buyer of development rights uses them to develop another parcel at greater density than would otherwise be permitted. With TDR, transfer of rights occurs at the time of development.

- Purchase of Development Rights (PDR) operates in a similar manner. However, with PDR, an entity buys the rights to develop land from the landowner. The landowner retains title and use of the land, and receives tax benefits. A municipality can pass a bond issue to buy the rights and "bank" them. A developer may then purchase the development rights from the municipality when ready develop an area with high density. The municipal bond financing is paid off over time by the purchase of development rights as development occurs.

- Benefits: The value of each development right is controlled by the open market, not the municipality. TDR is an equitable option for preserving open space and agricultural land, compensating the owner of the preserved land while guiding the growth of development by allowing increased density where existing infrastructure can support it.

- PDR provides an immediate return to the landowner, as he/she is compensated for the reduction in development potential of their land. At the same time, PDR supports the development district concept. PDR also streamlines

the development process, since private sales and negotiations for development rights are eliminated. It allows a municipality to guide growth to places where it is desired.

- Although Lawrence County was experiencing little development pressure at the time of this study, PDR may be an important tool in the future. The possible development of the Bedford Downs racetrack / slot casino in northwestern Lawrence County could lead to issues with development of farmland and growth in areas without necessary infrastructure.

- Implementation: In Pennsylvania, TDR can only be used to transfer development rights within a single municipality or among municipalities with a joint zoning ordinance. It is up to each municipality implementing TDR to set up a mechanism to accomplish the transfer.

Regulatory Tools

Regulatory techniques can also be used to establish greenways. However, because they can always be amended or even abolished by local officials, they cannot be relied on for permanent protection of land. Nevertheless, they should not be overlooked when discussing long-term strategies for assembling a greenway network.

Of the 27 municipalities in Lawrence County, 11 did not have zoning ordinances at the time of this study, and 13 did not have subdivision and land development ordinances (SALDOs). Some municipalities are covered under the county's SALDO. However, it is apparent that many of the county's municipalities currently have limited or no provisions to protect resources associated with greenways. Thus, special attention should be given to the following techniques.

Open Space Zoning / Conservation-by-Design

- Description: This preserves a large amount of land for conservation uses while still allowing full-density development. In contrast to cluster zoning, where the emphasis is more often placed on providing active recreation areas, open space zoning is more suited for protecting farmland, forests,

historic sites, or scenic views. Subdivisions are required to dedicate a significant portion of their unconstrained land to permanent open space uses. The open space is typically owned and managed (according to an approved management plan) by a homeowners' association. Other possible owners include land trusts or the municipality.

- Benefits: While a regulatory tool, open space zoning provides a means of permanent protection of undeveloped land while allowing full-density development. Ideally, the open space in each new subdivision will be planned to abut one another, forming an interconnected system of conservation land.

- Implementation: This technique is implemented through a municipal zoning ordinance. The number of dwellings permitted is based on the net acreage of buildable land and the allowable density in the property's zoning district. Easements are then placed in the open space to ensure that it will not be further subdivided or developed.

  One local example is found in Hickory Township. Their conservation subdivision ordinance offers 50% reduction in lot sizes (effectively doubling the number of lots that can be developed) if 40% of the total property, excluding rights-of-way, is permanently preserved as open space. Uses for this land include but are not limited to: farming, timbering, natural area, or recreational park land.

Overlay Zoning Districts

- Description: An overlay zoning district applies additional regualtions to an underlying zoning district or districts. The restrictions of the overlay district supplement and supersede (where there is a conflict) the provisions of the underlying district. Overlay districts have been used to conserve floodplains and other sensitive natural features.

- Benefits: Overlay zoning allows regulations to be tailored to specific conditions. Administration is similar to any

other zoning district.

- Implementation: Provisions of a zoning district must apply uniformly to each class of uses or structures within the district. However, Section 605 (2) of the Municipal Planning Code authorizes additional classifications, potentially through overlay zoning, for "regulating, restricting, or prohibiting uses and structures at, along, or near...."

  (ii) Natural and artificial bodies of water.....
  (iii) Places of relatively steep slope or grade, or areas of hazardous geological or topographic features.....
  (vi) Places having unique historical, architectural, or patriotic interest or value.
  (vii) Floodplain areas,.....sanitary landfills, and other places having a special character or use affecting and affected by their surroundings."

Buffer Zones

- Description: Municipalities enact regulations requiring buffers of a prescribed width between incompatible uses such as residential and commercial areas or adjacent to sensitive resources such as streams or drinking water supplies. This tool allows the municipality to limit or prohibit development within the buffer area.

- Benefits: Buffers can be used to protect large, linear corridors of valuable resources like stream and river banks, which are often included in greenways. They allow municipalities to protect areas of sensitive land without having to shoulder the expense of acquisition.

- Implementation: Requirements for buffers are enacted as part of a zoning ordinance or subdivision and land development ordinance. Buffer restrictions should be wide enough to protect the resource or shelter the less intensive use. However, care must be taken not to create buffers that are so wide that they will disproportionately reduce the value of land in the municipality. An amazingly successful example of a buffer

zone is Falling Spring Greenway in Guilford Township, Franklin County. Successful implementation of a buffer zone around the Falling Spring Branch, a popular fishery, coupled with several stream restoration projects, saved a threatened natural resource. This ordinance, as well as an illustrated article detailing its success, are available in the appendices of this report.

Special attention should be paid to this example, as several trout streams in Lawrence County may benefit from such efforts.

Agricultural Protection Zoning

- Description: This zoning designates areas where farming is the primary land use and discourages other land uses in those areas.

- Benefits: Agricultural Protection Zoning stabilizes the agricultural land base by keeping large tracts of land relatively free of non-farm development. This reduces the likelihood of conflicts between farmers and non-farming neighbors. Maintaining unbroken masses of farmland ensures continued support for local agricultural service businesses. This option is of special importance in Lawrence County, where several municipalities throughout the county contain large swaths of agricultural land.

- Implementation: Agricultural Protection Zoning is economically viable when coupled with tools such as Tranfer of Development Rights or Purchase of Development Rights.

Public (Mandatory) Dedication Ordinance

- Description: Township officials require developers to dedicate a portion of the undeveloped land on a development parcel for open space preservation purposes. The amount of open space dedication is often reflective of

the type, amount, and intensity of development to occur on the site.

Fees in-lieu-of dedication are required of the owner or developer as a substitute for dedication of land. Fees are usually calculated in dollars per lot, and referred to as "in-lieu fees." The municipality then uses these funds to purchase new park or conservation land.

- Benefits: Public dedication ensures that open space will be preserved as a municipality develops. With careful planning by municipal officials, these areas of open space can be aligned to create greenway corridors. However, many municipalities prefer payment of in-lieu fees because they allow the municipality to combine funds from several developments and purchase large tracts of recreation or conservation land.

  It is important to note that public dedication ordinances can include specific clauses requiring the dedication of land that includes environmentally-sensitive features such as wetlands, floodplains, etc. Ordinances can also require negotiation with municipal officials so that other lands desired by the municipality can be identified for dedication. Currently, the amount of development in Lawrence County would not support the use of this technique. However, it should be kept in mind should the county begin to experience greater development pressure.

- Implementation: Provisions requiring public dedication or in-lieu fees can be added to municipal zoning ordinances by amendment. The Municipal Planning Code requires that "the land to be dedicated or the fees to be paid shall bear a reasonable relationship to the use of the park or recreational facilities [developed on that land] by future inhabitants of the development....". The municipality is also required to expend any fees collected within three years of payment by the owner / developer.

The Official Map

- Description: A municipality creates an "official map" that designates public or private land that has been identified as a current or future public need. This can be land for roads or other infrastructure, as well as open space for conservation or recreation. Making this map available to the public notifies landowners and developers about land that the municipality is planning to use for public purposes.

- Benefits: The Official Map is a very powerful tool for municipalities planning for conservation and recreation. It gives municipalities time to assemble funds to purchase identified lands through First Right of Refusal (described earlier in this section). Of importance in Lawrence County is the fact that a municipality is not required to enact ordinances to create and adopt an Official Map.

- Implementation: The Official Map does NOT result in taking of land, but simply gives the municipality right of first refusal to purchase the land or obtain an easement. The municipality has one year to make an offer to the landowner should the property be made available for sale. After one year, the landowner can sell the property to any other interested buyer.

  Municipalities wanting to establish an Official Map should only do so after they have identified lands needed for conservation or recreation through a comprehensive planning process. Such lands must be identified on a parcel-by-parcel basis, with greater detail than is given in this greenways plan. If lands are to be reserved in an official map, the municipality should have a reasonable prospect of obtaining the funds necessary to purchase the property of interest.

  The Official Map is a tool of great importance in Lawrence County because a municipality can implement an official map with or without a zoning

ordinance. Nearly half of the county's municipalities lack local zoning. If established in the near future, the official map will allow municipalities within the county to plan ways to meet recreation needs and protect natural resources while development pressures are low. Then, if development pressures increase in the future, municipalities can take immediate action to acquire identified lands for public use.

Other Recommendations

The action plan also includes several other conservation- and recreation-based recommendations essential to maintaining the quality of life that defines Lawrence County. The following mechanisms are methods of land conservation or resource protection that do not involve acquisition of land or enactment of ordinances by a municipality, but are no less effective.

Agricultural Security Areas

- Description: A landowner or group of landowners whose parcels together comprise at least 250 acres, may apply to their local government for designation as an Agricultural Security Area.

  Many Agricultural Security Areas (ASAs) already exist within Lawrence County's borders. In addition to these farms, the Amish agricultural community preserves large tracts of farmland in the northern portion of the county.

  Although ASAs do not offer conservation-based protection, they help ensure continuation of agricultural practices, which are a large part of the quality of life in Lawrence County. This plan recommends that the county continue to accept applications for agricultural security areas, and couple that effort with a strong conservation-based education program showing farmers in ASAs the benefits of best agricultural best management practices and natural resource conservation.

Agricultural Tax Incentives

- Description: Differential assessment laws direct local governments to assess agricultural land at its value for agriculture, rather than its full market value, which is usually higher. Differential assessment laws are enacted at the state level, but implemented locally.

- Benefits: The programs allow farmers to continue operating an agricultural operation in the face of development, thus helping ensure the economic viability of agriculture. These tax laws align agricultural property taxes with what it actually costs local governments to provide services to the land.

- Implementation: Landowners must apply to the County Assessment Office.

Clean and Green Program

- Description: Pennsylvania ACT 319 (also known as Clean and Green) provides real estate tax benefit to owners of agricultural or forest land by taxing that land on the basis of its "use value" rather than its true market value. This act provides preferential assessment to any individuals who agree to maintain their land solely devoted to one of the three following uses:

  - Agricultural Use: Land used for producing an agricultural commodity or devoted to (and qualifying for) payments or other compensation under a soil conservation program under an agreement with a Federal government agency.

  - Agricultural Reserve: A non-commercial open space used for outdoor recreation or enjoyment of scenic or natural beauty, offering public use without fee or charge. Agricultural reserve land is the only use under the Clean and Green program that requires landowners to permit nondiscriminatory public access. This use is generally requested by landowners that wish

to maintain their land in a natural state, free of farming, timbering, or any other activities.

- Forest Reserve: A 10+ acre parcel of land stocked by forest trees that are capable of producing timber or other wood products. Forest reserve lands include any farmstead land on the same property parcel as the timber trees.

- Benefits: Clean and Green reduces property taxes for owners of farm, timber, or conservation land.

- Implementation: Landowners applying for the Clean and Green Program must have 10 or more acres of active agricultural or forest land unless they gross at least $2,000 annual income from the land.

  According to the 2004 Lawrence County Comprehensive Plan (map #8, "Clean and Green Program"), hundreds of properties across the County have already been enrolled in the Clean and Green program.

  Lawrence County recently had a county-wide property tax assessment, which sets market values for land. The Clean and Green Program measures "use values" (i.e. value of land for farming) against market values. Because the assessment was recent, land values are up to date and thus more accurate. This plan recommends that landowners contact the Lawrence County Penn State Agricultural Extension (phone: 724-654-8370, email: LawrenceExt@psu.edu) or the Lawrence County Assessment Office (Phone: 724-656-2191) to obtain application forms and for more information on the Clean and Green program.

Partnership with a Land Trust Organization

- Description: The regular acquisition of property rights (using several of the conservation tools mentioned previously in this section) for conservation defines an organization as a land trust. Land trusts are non-profit organizations focused on working cooperatively with landowners and organizing

land acquisition projects that benefit both landowner and community. Nearly 100 land trusts operate in Pennsylvania.

Land trusts can be private charitable organizations, or in some cases governmental agencies, that vary greatly in size and conservation priorities. They may be staffed entirely by volunteers concentrating efforts in a small area or municipality, or may be large regional entities staffed by many professionals (i.e. the Western Pennsylvania Conservancy). Among the various possible focuses of land trusts are:

* Operating public recreation areas or nature preserves;
* Owning no property but hold conservation easements for the protection of natural resources;
* Acquiring land that is to be turned over to governments for public parks or other recreation such as State Game Lands;
* Focusing on protection of water resources such as lakes, rivers, and streams;
* Preserving scenic views, wildlife habitat, or open space for public recreation;
* Promoting the preservation of productive farmland, forested areas, or hunting grounds; or
* Promoting smart land-use planning, environmental education, or trail development for transportation.

- Benefits: Conservation of open space in Pennsylvania is essential not only to the environment, but to the State's economy. Agriculture, timber production, eco-tourism, hunting, fishing, wildlife observation, and other outdoor recreation are all dependent on preservation and management of Pennsylvania's natural resources, upon which the State's economic success depends.

  Because they are devoted to working directly with landowners, land trusts can dispel any fears about government "taking" of land. Their efforts can comply with community conservation interests while spelling out benefits to the landowner, thus creating a "win-win"

situation.

In addition, land trusts may have considerably more success than municipalities in attracting funding for acquisition projects. They sometimes qualify for Federal, State, and local government funds available for conservation projects. Pennsylvania DCNR supports land trust acquisitions with Keystone Fund and Environmental Stewardship Fund (Growing Greener) grants, which support 50% of the costs of priority acquisitions. Land acquisition projects were a main focus of the Growing Greener grant funding in 2006. Of further interest, the Pennsylvania Land Trust Association (PALTA) also offers a similar program with a newly-increased maximum $6,000 reimbursement grant for conservation easements on natural areas and also for trail easements. (see www.conserveland.org/ceap).

- Implementation: To meet Lawrence County's conservation needs, county officials should consider expanding the mission or interests of an existing land trust. Conservation priorities of such land trusts must be considered. This will allow the county to gauge the interest a land trust may have in expanding its role in the county's conservation efforts.

  The following organizations are among the potential land trust partners with conservation interest in Lawrence County:

  - *The Western Pennsylvania Conservancy*
    The Western Pennsylvania Conservancy (WPC) is a large regional land trust that conserves land of ecological, scenic, or recreational significance, and often conveys those lands to government agencies such as the municipalities, counties, and the Commonwealth of Pennsylvania.

    Among lands conserved by WPC efforts are properties now comprising McConnell's Mill State Park. Interest in the protection of land in and around the park, as well as a record of past agriculture-based conservation projects in the Shenango River watershed in northwestern Lawrence

County, may draw the WPC's support for future local conservation efforts. Detailed information about the WPC is available at www.paconserve.org.

- *The Wild Waterways Conservancy*
  Conservation of natural areas in the Slippery Rock Creek and Connoquenessing Creek watersheds is among the top priorities of the Wild Waterways Conservancy (WWC). The WWC works to acquire land or establish conservation easements in the watersheds and convey that land to local government agencies. Because the WWC has definite local interest and is currently striving to expand its capabilities, it is a logical partner for the LCPD.

  Although the WWC is significantly smaller and more localized than the other land trusts mentioned above, it has shown continued interest in Lawrence County conservation. The WWC is currently trying to establish a revolving land fund so that acquisitions can be made in more timely fashion, and has recently asked a member of the LCPD to sit on its proposed volunteer Advisory Board. These efforts follow WWC goals set forth in its recently-completed strategic plan that will guide its effort in the near future. The WWC can be reached at 101 East Spring Street, Zelienople, PA 16063, phone: (724) 452-1429.

Many of Pennsylvania's land conservation organizations are members of the *Pennsylvania Land Trust Association* (PALTA), whose mission is to increase the quality and pace of land conservation state-wide by strengthening conservation efforts, improving related government policy, and raising public awareness while building positive relationships between land conservation organizations and other partners. The WPC is a current member of PALTA, and at the time of this report, the WWC was in the progress of gaining land trust accreditation through PALTA. Information on these and

other land trusts is available at www.conserveland.org.

Continue to Promote Agricultural Best Management Practices

Pashek Associates recommends that the County Conservation District continue its work with farmers to promote and implement best management practices, thus protecting water quality in the county's streams. Agricultural runoff may cause siltation and may alter nutrient content of streams, adversely effecting aquatic ecosystems. Best management practices such as stabilized cattle stream crossings, streambank fencing to limit livestock access to streams, and planting vegetative stream buffers may help to prevent excessive runoff from agricultural fields.

The Lawrence County Conservation District currently offers landowner education on agricultural best management practices, and has helped landowners implement such practices throughout the county. In addition, the Western Pennsylvania Conservancy (WPC) provides outreach and implementation services for best management practices via the Pennsylvania Conservation Reserve Enhancement Program (CREP). CREP rewards agricultural producers and landowners for agreeing to install conservation practices on their land. More information is available at www.creppa.org and through the Lawrence County Conservation District (phone: 724-652-4512).

Caution must also be taken to preserve farm-related infrastructure such as farm supply stores, etc. A regional example of preservation without proper planning is Montgomery County, Maryland. Agricultural preservation areas were concentrated in one area of the county only, while other areas were left open to development. Once land was developed in other portions of the county, farm-related infrastructure like supply businesses moved out of the county towards larger customer bases. The farms that remained protected in the county then experienced financial hardship due to lack of nearby support businesses like supply stores, machinery dealers, etc.

Pennsylvania Game Commission Cooperative Programs

Hunting is a part of life in Lawrence County, as is agriculture. Both of these facts are apparent during any drive through the county's countryside, and in the county's abundance of State Game Lands. It is recommended that the county encourage its landowners in rural areas to make land available for public hunting via the ***Cooperative Farm-Game Program*** and ***Cooperative Safety Zone Program*** administered by the Pennsylvania Game Commission (PAGC).

These programs benefits both sportsmen and farmers. They provide more accessible hunting grounds, support the implementation of sound land use practices associated with game species habitat, and foster a mutual respect between hunters and landowners. Landowners may also receive the following:

- increased law enforcement patrol during regular hunting seasons;
- food and cover seedlings attractive to game species;
- special preference in the commission's pheasant stocking program;
- informational and warning signage for property borders and for safety zones, which are located within 150 yards of occupied dwellings or other buildings;
- free advice on soil conservation and other farm-related land use practices; and
- cutting of tree roots and limbs from crop field borders to increase sunlight on crops and provide cover for small game species and other wildlife.

Cooperating property owners enrolled in the Safety Zone Program execute an agreement with the PAGC that may be terminated at any time with 60-days advanced written notice. Landowners in the Farm-Game Program execute an agreement giving the commission hunting rights to the

property for a minimum of 5 years. As of 2003, over 21,000 such agreements were in place, spanning 59 Pennsylvania Counties and keeping almost 2.5 *million* acres open to public hunting. Further information is available from PAGC field officers, any of the 6 regional PAGC offices, through the Bureau of Land Management at the PAGC Harrisburg headquarters, or through the PAGC website: www.pgc.state.pa.us.

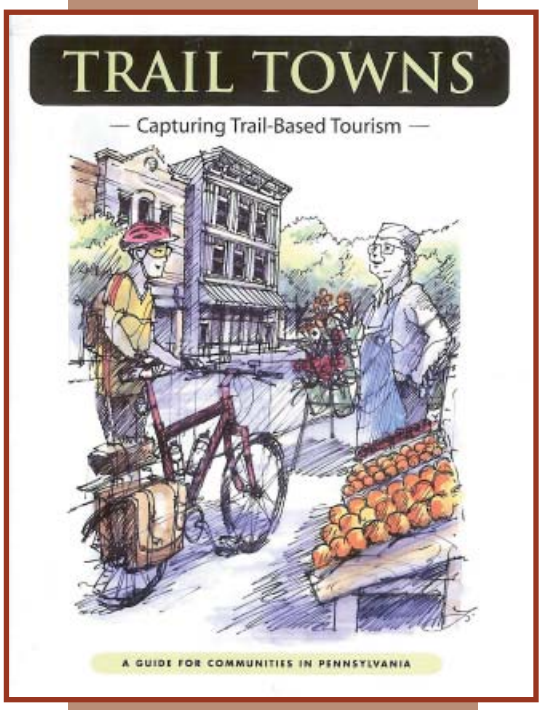
Enhancement of Trails through Wayfaring Signage

This plan recommends the implementation of a ***wayfaring signage system*** that will make trail users aware of the historical, cultural, recreational, and aesthetic features in Lawrence County. For instance, a bicyclist using an on-road route might ride past a community park or historic feature near a trail if no signage is in place to signify the location of the feature. When visiting features that are far from the proposed bike trail or lane, bicyclists could share the road with vehicular traffic in the event that formal bike lanes to the feature are not developed.

The addition of such simple wayfaring signage could introduce a new tourism opportunity for bicyclists visiting the county, offer residents a chance to learn about local history, and provide small communities containing historic features with a potential economic benefit.

Trail Towns Initiative

In 2005, the Allegheny Trail Alliance and the Regional Trail Alliance partnered to create the **Trail Towns** initiative. Their publication, Trail Towns: Capturing Trail-Based Tourism, serves as a guide for communities across Pennsylvania who



have opportunities to benefit economically from nearby hiking, biking, equestrian, or water trails.

The town of Wampum in Lawrence County has potential to become a Trail Town drawing travelers in from the adjacent North Country National Scenic Trail. In addition, several other communities in Lawrence County may follow the Trail Towns model when proposed trails are implemented. The City of New Castle, Volant and New Wilmington Boroughs, and the Village of Pulaski are among the county's potential Trail Towns.

This Greenway Plan recommends that leaders in the county government and in these communities plan to utilize the model strategies described in the Trail Towns initiative. These include, but are limited to, the following:

- Enticing trail users to get off the trail and into the community;
- Welcoming trail users by making information about the community readily available along the trail;
- Making a strong and safe connection between the trail and community;
- Educating local businesses and residents on the economic benefits of meeting trail tourists' needs;
- Recruiting new businesses or expanding existing ones to fill gaps in the goods or services needs of trail users;
- Promoting a "trail-friendly" character within the town;
- Working with neighboring communities to promote the entire trail corridors as a tourist destination

The Trail Towns initiative also promotes community and economic development through one of the nation's most well-known and successful revitalization programs: The National Main Street Center's "Four Point" or "Main Street Approach." This program offers a complete outline

for downtown revitalization that has been successful in more than 1,700 towns and cities throughout the United States. The program's four points, or keys to success, are: Organizing, Design, Economic Restructuring, and Promotion. Pashek Associates recommends that communities with Trail Town potential consider this program when proposed trails are implemented.

Chapter 4
Potential Pilot Projects

Chapter 2 discussed the criteria established for prioritizing Lawrence County's greenways, and the Project Study Committee's establishment of priorities. Furthering that effort, this chapter establishes criteria to determine which of the priority greenway segments serve as the most appropriate demonstration segments, or "pilot projects." The criteria developed for greenways pilot projects is as follows:

A Greenways Pilot Project should....

1) Create momentum for future expansion of the greenways system
2) Be destination-oriented
3) Attract both local and regional use / attention
4) Increase awareness of local natural resources

Using these criteria, the Project Study Committee identified the following greenways pilot projects. Through the creation of Concept Plans, this chapter explores and evaluates each respective greenway segment to determine viability for its implementation. Further, this chapter provides recommendations for alignment, construction, acquisition, and development costs of respective segments.

- Pilot Project #1: Stavich Bike Trail Improvements / Extension

  Improvements to the existing trail surface (6.5 miles within Lawrence County) and facilities, and a trail extension (approx. 2.8 miles) from Covert Road to Route 18 in Mahoningtown.

  This segment was chosen because it will enhance an existing trail that draws regional use, perhaps increasing awareness of the opportunities for regional connections into Beaver County (ultimately to the Allegheny Passage) and to the vast trail network in Eastern Ohio (ultimately to Cleveland).

- Pilot Project #2: Neshannock Rail / Trail Beginning Segment

  A shared-use trail starting at the existing trailhead on Croton Avenue, and ending at the New Castle City Limits (approx. 1.33 miles).

  This segment is a long-planned project, and represents a

project into which the County Government has already put considerable effort. A segment of this trail in New Castle will also raise trail awareness among the largest concentration of the County's residents.

- Pilot Project #3: Shenango / Beaver River Water Trail
  From a proposed Shenango River access point on State Game Lands #150 property near the Village of Pulaski, to a proposed access point on the Beaver River at Rock Point near Ellwood City Borough (approx. 23 miles).

  This project will require far less acquisition, funding, and construction than other land-based segments, and provides opportunities for connections into Mercer and Beaver Counties along rivers that are, in most cases, easily navigable by novice canoeists or kayakers.

- Pilot Project #4: Conservation-Based Municipal Ordinance in or adjacent to the Slippery Rock Creek Gorge
  Conservation-based ordinances, such as Conservation-By-Design, Stream Buffer / Protection, Mandatory Dedication or Fees-in-lieu, etc., protecting the Slippery Rock Creek Gorge or its surrounding watershed.

  This project was chosen because it may increase awareness of the exceptional natural and scenic resource within the County, and will provide other municipalities with a model for natural resource protection through regulation.

Stavich Bike Trail Improvements and Extension

An extension of the existing Stavich Bike Trail is described in Chapter 3 of this report. Continuing the trail southward along the Mahoning and Beaver Rivers into Beaver County could provide connection to the Beaver Falls Rail-Trail, in hopes of making an ultimate connection through Beaver County to the Montour Trail, which is currently the northern terminus of the Great Allegheny Passage.

An extension to the southern border of Lawrence County would add approximately 11.5 miles of shared-use trail to the existing 6.5 miles (of 10 total miles) of existing paved shared-use trail. The proposed trail extension extends from the trail's current trailhead at Covert Road in Union Township, southward across the newly-constructed Covert Road Bridge over the Mahoning River, and then eastward via a railroad right-of-way to State Route 18 in the Mahoningtown neighborhood of the City of New Castle.

Although this proposed route (±2.8 miles) does not provide access to any key destinations or points of interest, the connection it would bring the Stavich Trail into the County's biggest population center. Thus, the entire trail would connect New Castle to Struthers, Ohio.

Improvements to Existing Stavich Trail

Based on a 2007 field visit to observe the condition of the existing Stavich Trail, along with research into potential funding, this plan recommends two possible approaches to fund improvements to the existing trail with Lawrence County.

Apply for PennDOT Transportation Enhancement Act (TEA) Funding

The first approach assumes that PennDOT funding via the Transportation Enhancement Act (TEA) program. Although this program provides large amounts of funding for transportation projects, meeting requirements of the grant may prove extremely expensive.

For the following tasks, PennDOT will require more design detail than if the project were not to utilize the TEA funding.

- Environmental Clearance
- Right-of-Way Clearance, will require detailed boundary survey of the property.
- Additional Design / Engineering Work

- PennDOT Certified Construction Inspection

Also, we believe PennDOT will require the County to widen the existing trail to 10 feet from its current 8-foot width. The current American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Pedestrian and Bicycle Facilities recommends a 10-foot width for shared use paths (earlier versions of the same document recommended an 8-foot width). No congestion or user conflicts on the trail support the need for widening it. However, PennDOT has not historically waived compliance with the AASHTO Guidelines. Therefore, the cost estimate for this approach includes the cost to widen the trail. During our field review it appeared it may be difficult to widen the trail in some instances given the lack of available right-of-way width.

Pursue Other Grant Funding

Although other grant funding sources offer much smaller monitary amounts, they also require far less detail in terms of design and will not require widening the trail. Thus, the cost of improving the trail will be lower without PennDOT funding. Estimates for both approaches to funding the resurfacing of the existing Stavich Trail portion within Lawrence County are shown in **Figure 4.1a** and **Figure 4.1b** below. Length of the existing Stavich Trail represents trail length with Lawrence County only. The total trail length includes trail segments in Ohio.

All costs are estimated in 2008 dollars. Estimates for completion of trail improvements in later years should account for inflation.

Figure 4.1a

STAVICH TRAIL RESURFACING - COST ESTIMATE Assuming PennDOT TEA Funding		
Item	**Description**	**Cost**
1	Property Survey as required for DCNR grant funding and other State grants	$20,000
2	Additional Survey required to meet PennDOT right-of-way and construction document standards	$50,000
3	PennDOT Environmental Survey	$20,000
4	NPDES Permitting	$7,500
5	Address minor erosion at culvert crossings	$135,000
6	Address major erosion at beginning of trail	$100,000
7	Mill existing asphalt, proof roll base, install 2.5-inch asphalt wearing course	$395,000
8	Expand Trail Width to 10 feet (includes earthwork)	$370,000
9	Design and Construction	$67,500
10	Additional design to meet PennDOT Construction Document requirements	$25,000
11	PennDOT Construction	$172,000
12	Contingency	$67,500
Subtotal		***$1,429,500***
Escalation to schedule 2008 Construction		$71,475
TOTAL		**$1,500,975**

Figure 4.1b

STAVICH TRAIL RESURFACING - COST ESTIMATE Assuming Other Funding		
Item	**Description**	**Cost**
1	Property Survey as required for DCNR grant funding and other State grants	$20,000
2	NPDES Permitting	$7,500
3	Address minor erosion at culvert crossings	$135,000
4	Address major erosion at beginning of trail	$100,000
5	Mill existing asphalt, proof roll base, install 2.5-inch asphalt wearing course	$395,000
6	Design and Construction	$67,500
7	Contingency	$67,500
Subtotal		***$792,500***
Escalation to schedule 2008 Construction		$39,625
TOTAL		**$832,125**

Trail Extension: On-road Bike Lane Segment

The western end of this extension would require an on-road bike lane along a stretch of Cover Road approximately 1/2 mile in length. A share-the-road segment is possible because Covert Road does not receive a heavy amount of traffic. However, sight distances at the trail's westernmost intersection with Covert Road are not optimal. Thus, sharing the road with vehicular traffic may create an unsafe situation for bicyclists.

Implementing a separate bike lane would require widening the narrowest portions of the existing asphalt road surface (19 feet wide) by 5 feet to provide a bike lane and related line striping (see detail). Near the newly constructed Covert Road bridge over the Mahoning River, the asphalt roadway widens to 29 feet, including 5-foot wide shoulders on each side. These shoulders provide space for the aforementioned bike lane. Ample room is also available for riding on the wide road shoulders on the bridge.

Additional signage should be provided at the existing trail's

westernmost intersection with Covert Road, and at the existing trailhead parking area. This signage should include mapping of the new trail extension. Signage should also be provided along the proposed on-road bike lane segment. These signs will provide warning for motorists and direction for bicyclists.

Assuming the on-road portion of this pilot project is possible within the existing Covert Road right-of-way, the County will need to negotiate with Mahoning, North Beaver, and Union Townships. Covert Road passes through portions of each municipality.

Trail Extension: Rail-with-Trail Segment

One privately-owned property that would be used by this pilot project is the Railroad right-of-way belonging to Norfolk-Southern Railway Company (per 2005 PADOT Historical Lawrence County Transportation Map). The right-of-way contains one active rail line and ample room used for vehicular maintenance access on both sides of the rail line. The right-of-way's width near its intersection with Covert Road would potentially allow 15 to 20 feet of separation between the trail and the active rail line. Although right-of-way width may vary, separation of trail and active rail line is still possible.

We recommend that the County begin discussions with Norfolk Southern to create a **rail-with-trail**. Rails-with-trails are now found in at least 20 states, with Pennsylvania having the most of any state.

Despite safety concerns, rails-with-trail situations are just as safe as other trails. According to the Rails-to-Trails Conservancy's 2000 report entitled *Rails with Trails: Design, Management, and Operating Characteristics of 61 Trails Along Active Railroads*, only one accident between a trail user and a train had happened on any of the surveyed rails-with-trails, EVER.

Railroad companies, rightly so, are often concerned with possible

lawsuits, and often require trail managers to indemnify them against liability. The Rails-with-Trails report mentioned above found that only three claims were made by trail users -- all against trail managing agencies. NO claims were made against railroad companies.

In addition, rails-with-trail provide the following benefits to railroads:

- Corridor beautification;
- Potential reduction of trespassing on train tracks;
- Reduced vandalism; and
- Increase transit ridership (where applicable)

The section of rail in this right-of-way crosses the Mahoning River just northwest of State Route 18. The railroad bridge contains space for two rail lines, and only one is in use. The trail could cross the bridge in the space provided for the unused rail line.

Trail Extension: Trailhead Parking

At the southeastern terminus of the proposed pilot rail-with-trail is at State Route 18 in the Mahoningtown neighborhood of New Castle. An unpaved parking area is located on the southern side of Route 18. This space could accommodate several cars and with improvements and signage could be used as a trailhead parking area if acquired. This unpaved parking area covers areas of two vacant parcels, both of which are included in the chart of neighboring property owners included later in this section.

Trail Extension: Development Costs

The estimated cost of developing the proposed trail extension must account for A) cost of trail surface materials, associated earthwork, and maintenance; B) the possibility that property may be need to be acquired; and C) liability insurance that the railroad company may insist upon if the trail is to share their right-of-way.

Trail Construction and Maintenance

Due to the shear length of trails, construction can often be very expensive. Because the proposed trail alignment follows the vehicular access road for the railroad right-of-way, only minor earthwork will be required to create a suitable trail tread. The main cost item in this case will be surface material. The trail surface determines which activities are possible on the trail -- for example, rollerblading may be possible on a paved trail, but would be very difficult on a compacted aggregate trail with a softer surface.

Rail-Trail Maintenance & Operation, a 2005 report by the Rails-to-Trails Conservancy's Northeast Regional Office, surveyed the managing entities of 100 rail-trails in the Midwest and Northeastern parts of the Country. According to this report, the average period for resurfacing of paved trails (usually asphalt) is 17 years, while only 9 years for non-paved trails (usually compacted aggregate, cinders, or slag). Although paving a trail reduces the frequency of needed resurfacing, it cost significantly more to construct. Also noted in the report is that newer trails maintain a 10-foot trail width, as opposed to narrower trails created in the past.

In addition to trail surfacing, vehicular gates or barriers are needed that allow only bikes and pedestrians access to the trail. These items also need to be removable so that the railroad company can gain maintenance access to their tracks.

With these ideas in mind, the following represents a rough estimate of possible initial costs for the proposed Stavich Trail Extension. This estimate does not include land acquisition prices, which can vary greatly depending on decisions made by the current property owner(s).

Approximate lengths of proposed trail extension portions were calculated using the U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle Map for Bessemer, PA. The length of the proposed on-road bike lane portion of the Stavich Trail extension is 2,500 feet (0.47 miles). The rail-with-trail portion is

approximately 12,400 feet (2.35 miles).

Cost estimates shown in the following chart include **materials costs only**. Labor costs may vary greatly depending on grant funding requirements and on who is performing the work.

PROPOSED STAVICH TRAIL EXTENSION - ESTIMATED COSTS			
Item	***Amount***	***Total Item Cost***	***Notes***
Earthwork	2,000 Cubic Yards @ $5 / Cubic Yard	$10,000	assumes 1/2 mile of trail alignment requires earthwork to create safe trail grade
Compacted Aggregate Surfacing (6" depth)	13,780 Square Yards @ $10 / Square Yard	$137,800	assumes 10' trail width (rail-with-trail portion)
**Asphalt Surfacing (alternate)*	*13,780 Square Yards @ $20 / Square Yard*	*$275,600*	*assumes 10' trail width (rail-with-trail portion)*
Bike Lane Striping (On-road portion)	5,000 Linear Feet @ $0.25 / Linear foot	$1,250	includes bike lane pavement symbols and lane stripe
Signage	10 Signs @ $100 each	$1,000	at trailheads, along Covert Road
Vehicular Gates	Two 15' wide gates @ $1,000 each	$2,000	steep pipe swinging gates, at trailheads
TOTAL (with compacted aggregate surface)		$152,050	
TOTAL (with asphalt surface)		***$289,650***	*Alternate*

Routine maintenance is another expense that the County must account for when planning rail-trail segments. According to Rail-Trail Maintenance & Operation, the average annual maintenance for the trails surveyed is approximately $1,500 per mile. This number can be greatly reduced depending on who performs the maintenance. The most efficient management system involves County or other government body ownership with maintenance performed by volunteers or non-profit groups.

Property Issues

The entire trail should remain within the confines of the railroad right-of-way, thus eliminating the need for acquisition of land to construct the trail. However, information about property parcels along the proposed trail route can be helpful for future reference. Any negotiations with neighboring landowners will be totally voluntary on the landowners' part, and will respect landowners' decisions. The following chart depicts all landowners along the proposed trail segment. Information was acquired through the Lawrence County Tax Assessor's Office.

Parcel ID# , Tax Map/ Lot, Municipality	*Acreage*	*Property Owner Name*	*Use*	*Relation / Interest to Proposed Trail Segment*
34291601, 4202-152D, Union Twp.	5.76	Township of Union 1910 Wilson Drive New Castle, PA 16101	Vacant	Abuts Covert Rd. / Stavich Trail intersection
34100300, 4202-152B, Union Twp.	2.50	Beverly C. Ryan c/o Beverly Ryan Shober 19 Latavo Drive New Castle, PA 16105	Resi-dential	Abuts Covert Rd. / Stavich Trail intersection
34059500, 4202-152C, Union Twp.	2.5	H. Maureen Clark P.O. Box 319 Ediburg, PA 16116	Resi-dential	Abuts Covert Rd. / Stavich Trail intersection
34260500, 4202-145, Union Twp.	144.18	Beverly C. Ryan c/o Beverly Ryan Shober 19 Latavo Drive New Castle, PA 16105	Aggregate Mining (Soils, Inc)	Fronts Covert Rd. north of Mahoning River - operator of Soils Inc. is avid bicyclist (Wayne Ryan)

34090400, 4202-144, Union Twp.	78.83	Beverly C. Ryan c/o Beverly Ryan Shober 19 Latavo Drive New Castle, PA 16105	Aggregate Mining (Soils, Inc)	Fronts Covert Rd. north of Mahoning River - operator of Soils Inc. is avid bicyclist (Wayne Ryan)
26004900, 1416-110, Mahoning and North Beaver Twps.	66.92	Heather Armstrong 381 Armstrong Drive New Castle, PA 16101	Vacant, Clean & Green	Between RR and river, east of Covert Road (trailhead parking)
Railroad Right-of-Way	--	Pennsylvania & Lake Erie Railroad	Active Rail Line	Proposed trail alignment
07010200, 94-007, City of New Castle	1.00	Jacqueline M. Conti 605 W. Clayton Street New Castle, PA 16102	Vacant	Trailhead Parking at Route 18
07103300, 94-009A, City of New Castle	0.06	Martin Media c/o TLC Properties 5551 Corporate Blvd. Baton Rouge, LA 70808	Vacant	Trailhead Parking at Route 18
07105900, 94-010A, City of New Castle	0.93	Reed Oil Co. 511 Montgomery Ave. New Castle, PA 16102	Vacant	Trailhead Parking at Route 18

It should also be noted that the proposed trailhead parking on the eastern side of the Covert Road Bridge, south of the Mahoning River, is a suitable location for a boat launch that would provide access to the Mahoning River Water Trail proposed in the Greenways Plan. Access to both the Stavich Bike Trail Extension and the proposed water trail would further benefit Lawrence County residents.

In addition, the property between the river and railroad right-of-way is enrolled in the Clean & Green program, thus the landowner may be amenible to allowing public access for the boat launch as well as trailhead parking. The Greenways Plan recommends that the County

approach the aforementioned landowner as well as the PA Fish & Boat Commission to discuss water trail access possibilities.

Liability Insurance

The 2000 Rails-to-Trails Conservancy report entitled *Rails with Trails: Design, Management, and Operating Characteristics of 61 Trails Along Active Railroads*, highlights insurance and liability as key issues to be resolved when developing a rail-with-trail. Railroads can be very concerned about an increase in liability they potentially face due to consturction of a rail-with-trail.

Of the 61 trails surveyed in *Rails with Trails*, only 3 were not covered by existing county, city, state, or park district insurance policies. Of these 3 trails, two (including the existing Stavich Trail) were privately insured by trail management agencies and the other was negotiating coverage under a city insurance policy at the time of the report. It is important to note that NONE of the trail managers of the 61 trails surveyed were aware of liability claims being filed against any railroads as a result of trails running alongside active rails.

Sixteen (16) of the 61 trail managers surveyed were required to release the rail corridor's owner (the railroad company) from liability for incidents resulting from trail use. Although this method is very viable, offering to incorporate the trail into the county or municipal umbrella policy can effectively alleviate a railroad company's concerns.

The most important thing to keep in mind when considering liability insurance for a rail-with-trail is ***management of risk***. The three scenarios that could expose trail managers to liability are: 1) injuries caused by trail defects; 2) injuries caused by conditions on an adjacent property including the railroad; and 3) injuries resulting from conflicts among users or where a trail crosses a road or railroad.

A trail should be designed to accepted safety standards by design professionals. Correct signage and barriers at road or railroad

crossings should be included in the design and maintenance plan. In addition, trail managers should keep clear, well-documented records. The manager of any trail should always obtain legal advice on their exposure to liability.

Neshannock Rail-Trail Beginning Segment

A rail-trail connection of New Castle and Volant has been a planned project for the last 10 to 15 years in Lawrence County. As mentioned earlier in this report, the planned trail would follow an abandoned railroad alignment along the Neshannock Creek valley, with a spur connection to New Wilmington.

This plan recommends the section of this planned trail within the New Castle City limits, from Croton Avenue northeastward to the New Castle City / Hickory Township border (approximately 1.33 miles), as a pilot project. The County acquired approximately $220,000 in Transportation Enhancement Act (TEA) funding through PennDOT for improvement to this trail in 1992 but completion of this segment (using those funds) has been prevented by legal issues concerning ownership of the right-of-way. In order to use the funds, trail ownership must be proven to utilize funding. Therefore, it is in the County's best interest to assist the non-profit organization ***Alduk Neshannock Trail*** in proving its ownership of the right-of-way before existing funding expires. No definite date has yet been set for funding expiration. PennDOT has indicated, in recent correspondence with the County, that funding will expire in the near future if progress is not made on the project.

Although this trail segment will not complete a connection from New Castle to any points of interest in the County, it will create momentum for future acquisition of right-of-way land or future development of the rail-trail. This beginning portion of the trail will be easily accessible to residents in New Castle, the County's biggest population center.

Resources on formation and maintenance of rail-trails such as the proposed Neshannock Rail-Trail are offered by the Rails-to-Trails Conservancy and by PA DCNR. "Secrets of Successful Rail-

Trails", a general step-by-step guide to rail-trail implementation, can be found at http://www.railstotrails.org/resources/documents/resource_docs/tgc_secrets.pdf, while information regarding acquisition of abandoned railroad rights-of-way is available at http://www.railstotrails.org/whatwedo/railtrailinfo/resources/acquisition.html. General information on regional rail-trails and planning initiatives is available at http://www.railstotrails.org/wherewework/northeast/index.html and at http://www.dcnr.state.pa.us/railtrails/.

Trailhead Parking and Signage

Two locations on the proposed pilot project trail segment provide easy vehicular access and parking. One is at the trail's southern trailhead on lower Croton Avenue just blocks from the downtown New Castle redevelopment area.

A narrow parcel of land between Croton Avenue/State Route 108 and the Neshannock Creek abuts the gate built to mark the entrance to the trail. This parcel, approximately 0.36 acres, is currently vacant according to digital tax mapping and information acquired via the Lawrence County Tax Assessor's Office. More detailed property information is provided later in this section.

Another location for possible trailhead parking is the El Rio Beach property owned by the City of New Castle. Easily accessible from Paper Mill Road (which contains the trail for a short distance), the El Rio Beach property offers ample room for parking that with minor clearing could be made easily visible from the adjacent street.

In both cases, signage will be needed to signify the trailhead and inform trail users of trail rules, mapping, and the opportunity to realize the entire project vision - connection of Volant and New Castle via trail. In addition, directional signage will be needed at intervals along Paper Mill Road to prevent trail users from straying onto connecting roads.

Gravel parking is suitable for any parking areas at the El Rio Beach property, but paved parking is suggested at the trailhead along Croton Avenue / State Route 108. This road is a busy local thoroughfare and gravel from the proposed parking area may cause a minor traffic hazard if it is eventually spilled onto the roadway by vehicles entering / exiting the proposed parking area.

Trail Maintenance and Safety

Unauthorized ATV and Vehicular Access

Trail entrance near Paper Mill Bridge

An unauthorized ATV trail weaves off the Rail-trail alignment through the treeline to the right (near Volant Borough)

One of the biggest problems facing the development of this trail is unauthorized access by ATVs and automobiles. ATV's and automobiles destroy the trail tread creating potholes and large puddles, cause erosion into the adjacent Neshannock Creek, and facilitate illegal dumping along the trail. Continuation of this access after development of the trail will be an extreme safety hazard and a maintenance problem.

This plan recommends gating the trail at the northeastern end of Pearson Mill Road (where the trail right-of-way exits the road right-of-way), at the intersection of the trail right-of-way and Paper Mill Road just east of the Paper Mill Bridge, and at the Croton Avenue trailhead. Removable bollards requiring keys for removal may be the best option for restricting unwanted access while allowing bikes and pedestrians to pass. Because the trail follows a sanitary sewer right-of-way, sewer maintenance access may still be needed incidentally. Placing large boulders or other obstructions at the trail entrances will deter unauthorized access, but may hinder maintenance crews from accessing the trail or sewer line. Swinging gates, while seemingly impassible, are prone to vandalism such as illegal lock removal or damage.

It is important to note that any form of gate or purposeful obstruction on the trail itself must also extend into the adjacent wooded areas to prevent ATV riders from simply riding around the gate and then re-entering the trail. This has happened several times before after a Hickory Township landowner along the trail erected a fence constructed of steel I-beams across the trail to prevent ATV access. ATV riders simply rode down the embankment next to the trail, and created a side trail that went around the barricade. The aforementioned steel barricade is just north of the City of New Castle / Hickory Township boundary.

Removable bollard (above) and locking mechanism (top)

Illegal Dumping on the Trail

Gating the trail at roadway access points will deter most unauthorized ATV and vehicular access, thus eliminating the ability to drive along the trail and dump garbage illegally. However, a recurring problem exists with adjacent landowners atop the hillside to the southeast of the trail illegally dumping trash over the hillside onto the trail. This situation is especially prevalent on the trail segment between Croton Avenue and the Paper Mill Bridge. Residents of the New Castle neighborhood of Croton constantly dump trash over the hillside onto the trail.

This plan recommends that the County, being involved with trail development, issue warnings for littering (and fines, if necessary) to residents adjacent to the trail. This may help to curb the illegal dumping that otherwise cannot be controlled.

Trail Construction / Resurfacing

The 2005 Rails-to-Trails Conservancy report entitled *Rail-Trail Maintenance & Operation* is mentioned earlier in this chapter. The report analyzes types of trail surfaces, their construction costs, and

maintenance needs.

After considering the aspects of using various trail surfaces mentioned in *Rail-Trail Maintenance & Operation*, this Greenways Plan recommends an asphalt surface for the Neshannock Creek Rail-Trail pilot project segment. Although asphalt surfacing has a higher initial cost, it requires less maintenance than aggregate surface trails and is equal in cost to other trail surfaces when factoring in periodic maintenance and replacement. In addition, asphalt surface for this pilot project will better withstand any unauthorized ATV traffic that circumvents proposed trail barriers.

Trail Development Costs

Below is a cost estimate for the initial development of the Neshannock Creek Trail pilot project. Cost estimates shown in the following charts include **materials costs only**. Labor costs may vary greatly depending on grant funding requirements and on who is performing the work.

Approximate lengths of proposed trail extension portions were calculated using the U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle Map entitled New Castle North, PA. The length of the proposed off-road portion of the pilot project trail segment is 4,600 feet (0.87 miles). The trail portion on Paper Mill Road is approximately 2,400 feet (0.46 miles).

PROPOSED NESHANNOCK TRAIL PILOT PROJECT - ESTIMATED COSTS			
Item	***Amount***	***Total Item Cost***	***Notes***
Earthwork	2,560 Cubic Yards @ $5 / Cubic Yard	$12,800	assumes 1.1 mile of trail alignment requires earthwork to create safe trail grade
Compacted Aggregate Surfacing (6" depth)	5,110 Square Yards @ $10 / Square Yard	$51,100	assumes 10' trail width
Asphalt Surfacing (4" thickness)	5,110 Square Yards @ $20 / Square Yard	$102,200	assumes 10' trail width
Entrance Signage (@ trailhead parking areas)	2 Signs @ $1,000 each	$2,000	Includes rules, mapping, and project overview
Directional Signage	10 Signs @ $100 each	$1,000	along Paper Mill Road @ 400' intervals
Removable Bollards at trail access points	16 @ $500 each	$8,000	assumes 4 per trail access point
TOTAL		**$177,100**	

Also mentioned earlier in this chapter is the cost of routine maintenance. This is another expense that the County must account for when planning rail-trail segments. According to Rail-Trail Maintenance & Operation, the average annual maintenance for the trails surveyed is approximately $1,500 per mile. This number can be greatly reduced depending on who performs the maintenance. The most efficient management system involves County or other government body ownership with maintenance performed by volunteers from a non-profit group such as Alduk Neshannock Trail.

Property Issues

The entire pilot project trail segment lies within the confines of the sanitary sewer right-of-way and the road right-of-way for Paper Mill Road. Acquisition of land for trail construction is not needed, but additional land will be needed for trailhead parking along Croton Avenue. In addition, information about all property parcels along the proposed trail route can be helpful for future reference. Any negotiations with neighboring landowners will respect landowners'

decisions, and any involvement by the landowners will be purely voluntary. The following chart depicts all landowners along the proposed trail segment. Information was acquired through the Lawrence County Tax Assessor's Office.

Parcel ID# , Tax Map/Lot, Municipality	*Acreage*	*Property Owner Name*	*Use*	*Relation / Interest to Proposed Trail Segment*
03090700, No Map/Lot #, City of New Castle	0.2	Charles P. & Margaret J. Kimmel 1535 Old Butler Road New Castle, PA 16101	Vacant	Possible trailhead parking lot at trail intersection with Croton Avenue
03192800, 16-400, City of New Castle	***	City of New Castle	Public Rec-reation	Between trail and southern side of Paper Mill Bridge (El Rio Beach property?)***
3192800, 17-190, City of New Castle	***	City of New Castle	Public Rec-reation	El Rio Beach property***
3192800, 17-305, City of New Castle	*** (part of 17.98 total)	City of New Castle	Public Rec-reation	El Rio Beach property***
No parcel ID #, 16-405, City of New Castle	1.20	??? (not listed)	Vacant	Part of El Rio Beach property?
22077900, 2203-149, City of New Castle	12.00	Albert, Ralph, & Alfred Rich 1704 Eastbrook Road New Castle, PA 16101	Vacant	borders Hickory Twp., near last house on Paper Mill Road, surrounds trail at the point where it exits the road right-of-way

Liability Insurance

The Rails-to-Trails Conservancy report *Rail-Trail Maintenance and Operations* offers insight into liability insurance coverage for trail groups. The report surveyed managers of 100 rail-trails. Of the 100 trail groups surveyed, 11 reported being sued once each. The time frame covered in the survey was the past 12 years (as of the 2005 writing of the report). Only those 11 lawsuits were field despite over 150 million trail visits over that 12-year period.

Among the recommendations set forth in ***Rail-Trail Maintenance and Operations*** are the following, which are embraced by this Greenways Plan:

- If possible, place the trail in public ownership;
- Understand your state recreational use statutes and other pertinent laws (a reference to these statutes is found at www.nps.gov/ncrc/programs/rcta/helpfultools/recusebrochers/index.htm);
- Design for safety;
- Regularly inspect the trail and correct any unsafe conditions. Keep records of these activities;
- Prominently post hours of operation and other rules and regulations, along with emergency contact information;
- Incorporate, which may eliminate some personal liability for principals; and
- Buy insurance.

The average annual insurance cost among the trail managers surveyed was just over $2,000 for an average of $3,000,000 in coverage. Such coverage may be required if public events are held on the trail. Two sources are offered for coverage: the Alliance of Non-Profits for Insurance (www.ani-rrg.org) and the Land Trust Alliance (www.lta.org).

SHENANGO / BEAVER RIVERS WATER TRAIL

A proposed water trail accommodating canoes, kayaks, and small motorized watercraft on the Shenango and Beaver Rivers in Lawrence County is described in Chapter 3 of this report. This trail is comprised of access points, boat launches, day use sites, and possibly overnight camping areas. The trail will connect the City of New Castle, the County's largest population center, with smaller population centers -- the Village of Pulaski (in Pulaski Township), along with the Borough of Wampum. In addition, the trail will provide connection to the City of Sharon and other points in Mercer County to the north, as well as to the City of Beaver Falls and other points in Beaver County to the south.

Because a water trail requires considerably less time, effort, and funding to develop than a land-based trail, the entire length of this trail in Lawrence County is viewed as a pilot project for the County's Greenways effort.

Previously-Planned Access Points

Two access points (boat launches) for the water trail are already planned: 1) on the eastern shore of the Beaver River just north of the State Route 288 bridge at Wampum; and 2) on State Game Lands (SGL) #150 property on the eastern shore of the Shenango River just south of State Route 208 in the Village of Pulaski. The proposed launch at Wampum will be possible thanks to donation of land from a private landowner and cooperation between the Lawrence County Conservation District (LCCD) and the PA Fish & Boat Commission (PAFBC). This launch will be accessible from River Road in Wayne Township. The launch at Pulaski will be accessible via a gravel access lane to the SGL #150 property. This lane extends southward from State Route 208 near a large pond just east of the Shenango River.

Additional Proposed Access Points

Several other possibilities exist for development of access points on the water trail in the near future. The Greenways Plan recommends that the County consider further research

into the feasibility of developing boat launches in locations listed below. This may necessitate approaching landowners to negotiate possible acquisition or easements. As in all greenways planning and development efforts, all involvement by the landowners will be purely voluntary. Landowner decisions will always be respected:

1) adjacent to Nashua Road Bridge on the Shenango River in southeastern Pulaski Township;
2) adjacent to the Pulaski Road Bridge near its intersection with Kings Chapel Road on the western edge of Neshannock Township (near the area known as the "Harbor");
3) on City of New Castle property at the confluence of the Shenango River and Neshannock Creek just west of downtown New Castle;
4) at the confluence of the Mahoning and Shenango Rivers in North Beaver Township; and
5) on the Rock Point property on the northeastern side of the confluence of the Beaver River and Connoquenessing Creek in Wayne Township (rehabilitating an existing boat launch).

Property Issues

Acquisition of land for boat launches and associated parking areas may be needed. Information about all property parcels adjacent to the proposed water trail access points may be helpful for future reference. Any negotiations with neighboring landowners will respect landowners' decisions, and any involvement by the landowners will be purely voluntary. The following chart depicts all landowners adjacent to each of the proposed water trail access points. Information was acquired through the Lawrence County Tax Assessor's Office.

Parcel ID#, Tax Map/Lot, Municipality	*Acreage*	*Property Owner Name*	*Use*	*Relation / Interest to Proposed Trail Segment*
NASHUA ROAD BRIDGE (PULASKI TOWNSHIP)				
29017300, 3707-131, Pulaski Township	41.94	James J. & Tracy L. Braho 701 Nashua Road Ediburg, PA 16116	Farm, Clean & Green	northwest and southwest of bridge crossing over Shenango River
29142001, 3707-142E, Pulaski Township	97.25	Julie Allbright Gomez 3778 Old Pulaski Road New Castle, PA 16105	Farm, Clean & Green	northeast of bridge crossing
29053100, 3707-142A, Pulaski Township	5.0	Wesley W. & Tracey L. Osborne, et al. 767 High Hill Road Pulaski, PA 16143	Farm / Vacant	southeast of bridge crossing
KINGS CHAPEL ROAD / PULASKI ROAD INTERSECTION (NESHANNOCK TOWNSHIP)				
25254000, 2401-119A, Neshannock Township	51.77	Lawrence County Corporation for Economic Development 229 South Jefferson Street New Castle, PA 16101	Vacant	between Kings Chapel Road and the Shenango River, north of Pulaski Road bridge
25222300, 2401-119, Neshannock Township	90.67	Lawrence County Corporation for Economic Development 229 South Jefferson Street New Castle, PA 16101	Indust-rial Park with a portion near river vacant	Includes Millennium Park, but portion between Pulaski Road and Shenango River vacant
CONFLUENCE OF NESHANNOCK CREEK / SHENANGO RIVER (CITY OF NEW CASTLE)				
01057900, 48-175, City of New Castle	5.34	Ellwood Industrial Facilities Company 700 Moravia Street New Castle, PA 16101	Vacant	abuts the Shenango River just north of the confluence

No Parcel ID #, 48-300, City of New Castle	7.03	City of New Castle	Vacant	abuts the Neshannock Creek and Shenango River at confluence
CONFLUENCE OF MAHONING AND SHENANGO RIVERS (NORTH BEAVER / TAYLOR TOWNSHIPS, CITY OF NEW CASTLE)				
07058000, 99-399, City of New Castle	3.0	Lawrence County Industrial Development Authority c/o Elliott & Sons 901 South 2nd Street Ellwood City, PA 16117	Vacant	between rivers at the confluence
26189500, 1415-104C, North Beaver Twp.	2.07	Ernest & Jacqueline B. Wigley 4287 Wampum Road New Castle, PA 16102	Resi-dential	west of the Mahoning River at the confluence
26140200, 1415-100D, North Beaver Twp.	* part of 29.11 total acres	Harry A. Werner, Sr. 3915 Wampum Road New Castle, PA 16102	Vacant	west of Mahoning River just south of confluence
26140200, 1415-103A, North Beaver Twp.	* part of 29.11 total acres	Harry A. Werner, Sr. 3915 Wampum Road New Castle, PA 16102	Vacant	west of Mahoning River further south of confluence
33076700, 4101-140C, Taylor Township	73.22	R.W. Elliott & Sons, Inc. 901 South 2nd Street Ellwood City, PA 16117	Sec-ondary Strip Comm-ercial	east of Shenango River at confluence
33076800, 4101-140, Taylor Township	154.52	R.W. Elliott & Sons, Inc. 901 South 2nd Street Ellwood City, PA 16117	Sec-ondary Strip Comm-ercial	east of Shenango River south of confluence
WAMPUM ACCESS POINT (WAYNE TOWNSHIP)				

36150401, 4601-116B, Wayne Township	42.01	William B. & Kristen Eaton 1424 River Road Wampum, PA 16157 (property address is 128 River Road)	Resi-dential	east of Beaver River both north and south of Rt. 288 bridge
ROCK POINT - EXISTING BOAT LAUNCH @ CONFLUENCE OF BEAVER RIVER AND CONNQUENESSING CREEK (WAYNE TOWNSHIP)				
36111600, 4603-115, Wayne Township	86.7	Wild Waterways Conservancy 101 E. Spring Street Zelienople, PA 16063	Vacant	Rock Point Property (containing existing boat launch on Conno-quenessing Creek near confluence)
36028900, 4603-114, Wayne Township	30.0	PA Lines, LLC c/o Norfolk-Southern Railway Tax Department 110 Franklin Road SE Roanoke, VA 24042	Vacant	Railway property including active rail line between rivers at confluence

It should be noted that the Wild Waterways Conservancy (WWC) recently purchased property including Rock Point, and intends to complete a Master Plan for the parcel pending grant funding from the PA Department of Conservation and Natural Resources (DCNR).

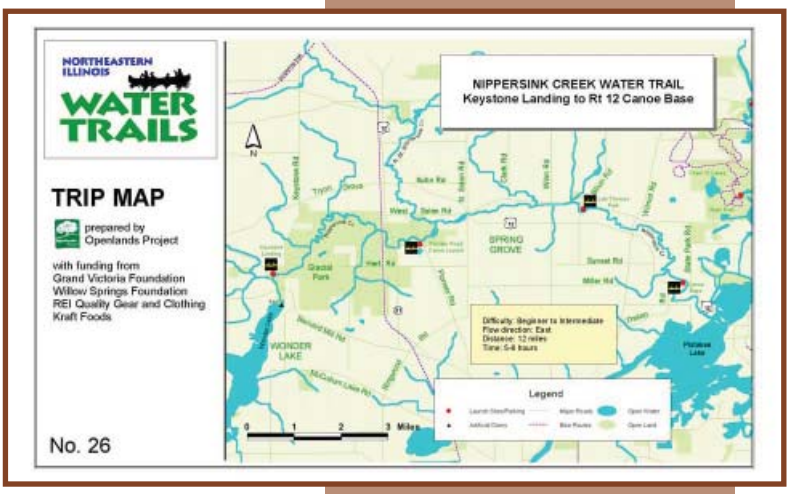
The goal for that area according to this Greenways Plan is twofold: 1) river access - providing a recreation asset to Lawrence County; and 2) conservation - any development of the area should follow the recommendations of the WWC Master Plan for Rock Point. This will ensure preservation of any historic and/or natural features at Rock Point and will hopefully ensure needed boat access to the Connoquenessing Creek and Beaver Rivers.

Trail Regulations and Signage

It is imperative that trail rules and information are posted at all water trail access points (trailheads) for safety purposes.

Proposed *trailhead signage* should be of sturdy construction - hard plastic or metal, and should include the following information:

- types of watercraft permitted (engine sizes, etc.);
- boat launch use hours;
- water trail map (including bridges, dams, access points, tributaries, locations of rapids, etc.);
- distances to nearest access point both upstream and downstream;
- approximate travel times for non-motorized watercraft;
- emergency contact information; and
- directions to other trailheads.



In addition, *trail markers* should be visible from watercraft on the river at large intervals (i.e. every 3-5 miles) or at least near all access points. They consist of a large water trail logo, but may also include the name of the take-out site where they are placed, or simply the words "TAKE-OUT". Trail markers should be of sturdy construction - hard plastic or metal, and should be approximately 18" x 30" and brightly colored for easy visibility.

Official Water Trail Designation (and Resulting Tourism)

The final step in establishing the Shenango / Beaver River Water Trail, after access points have been developed, is to officially designate the rivers as a water trail. This will ensure its inclusion in recreational mapping developed and updated by various state agencies including DCNR and the PA Fish & Boat Commission (PAFBC). Such mapping is distributed across the state and beyond and will help the County to market the water trail as a source of tourism.

No economic impact studies have been performed on water trails in the State of Pennsylvania, thus no reference information regarding the impact of water trails on local economies was available at the time of this report.

This plan recommends that upon completion of the water trail pilot project, the Lawrence County Tourist Promotion Agency and other County organizations provide information on the water trail via their respective websites.

Although individual water trails are conceived and maintained by a network of volunteers, property owners, local government agencies, non-profit organizations, and other groups, the PAFBC is the sole agency able to *designate* official Pennsylvania Water Trails. For detailed information on Pennsylvania's existing water trails, organizations partnering to promote and develop water trails, and resources for water trail formation are available via the following websites:

- The PAFBC website (http://sites.state.pa.us/PA_Exec/Fish_Boat/watertrails/index.htm);
- The Pennsylvania Environmental Council (www.pecwest.org/watertrails.htm);
- DCNR - Greenways & Trails Information (http://www.dcnr.state.pa.us/greenways_trails.aspx)
- The American Canoe Association (http://www.americancanoe.org/recreation/watertrails.lasso)

Water Trail Development Costs

Estimated costs for development of a typical access point for the Shenango / Beaver River Water Trail is shown below.. This cost estimate includes **materials costs only**. Labor costs may vary greatly depending on grant funding requirements and on who is performing the work. The total reflected below could be multiplied by the number of proposed access points to calculate a total project cost. Please note that total costs do not include land acquisition costs.

PROPOSED SHENANGO / BEAVER RIVER WATER TRAIL PILOT PROJECT ESTIMATED COSTS			
Item	***Amount***	***Total Item Cost***	***Notes***
Earthwork	2,710 Cubic Yards @ $5 / Cubic Yard	$13,550	see assumed layout for each access point below
Gravel access road / parking (8" depth)	1,280 Square Yards @ $12 / Square Yard	$15,360	assumes 1500' feet of 20-foot-wide road, plus parking for 5 trucks with boat trailers and 5 other vehicles, access to concrete boat launch (100' x 85' gravel area)
Concrete Boat Ramp (6" thick, approx. 50ft. long x 15ft. wide)	1 ramp @ $4,000 / Each	$4,000	textured surface and tooled lines to provide traction for trucks loading / unloading boats
Entrance Signage (@ access road entrance from adjacent roadway parking areas)	1 Sign @ $1,000 each	$1,000	Includes project name, name of specific access point / launch
Informational Signage (48" x 36")	1 sign @ 1,500 each	$1,500	Includes mapping, water trail name, emergency information, distances to other access points, water trail rules, list of watercraft permitted
Trail Marker (18" x 30")	2 Signs @ $200 each	$400	visible from river on either side of launch, includes water trail name and name of specific access point / launch
Parking Signs	5 Signs @ $200 each	$1,000	Denotes truck / trailer parking only
Swinging Steel Pipe Road gate for winter closing	1 Gate @ $1,500 each	$1,500	Heavy Duty Steel Pipe Swinging Gate
TOTAL		**$38,410**	

CONSERVATION-BASED ORDINANCE: MINING SETBACK AND LAND USE ORDINANCES IN MUNICIPALITIES SURROUNDING THE SLIPPERY ROCK CREEK GORGE

Several past planning efforts document the pristine condition and fragile nature of the natural systems in the Slippery Rock Creek Gorge, much of which is contained within McConnell's Mill State Park. This Greenways Plan recognizes the Slippery Rock Creek Gorge as one of the most important, if not *the* most important, natural resource meriting conservation in Lawrence County.

Not only are the Gorge and its natural communities are unique to the County, but also to the surrounding region, state, and nation. Local, State, and National planning efforts also support the protection of the Slippery Rock Creek Gorge. These past plans, listed below, provide reason for better preservation of the gorge via the introduction of conservation-based regulatory tools.

- The 2004 Lawrence County Comprehensive Plan (Comp Plan) recognizes that McConnell's Mill State Park is among the County's most important tourist attractions, generating over $2 million in revenue for the County annually. The Comp Plan identifies the preservation of the Park's pristine natural conditions as a major objective for the County[1]. The Greenways Plan embraces this objective.

- The 2003 Lawrence County Natural Heritage Inventory (NHI) identifies two types of natural heritage areas within the County: Biological Diversity Areas (BDA's) and Landscape Conservation Areas (LCA's). A BDA

contains one ore more instances of plants, animals, or natural communities recognized as state or federal species of concern. An LCA is a large contiguous area important to plant and animal species because of its size, open space, habitats, and/or inclusion of one or more BDA's[2].

Each type of natural area is represented in or near the Slippery Rock Creek Gorge: the Hell Run BDA, Grindstone Confluence BDA, Muddy Creek Falls BDA, and Harris Bridge Slopes BDA, and the Slippery Rock Gorge LCA (which contains all four BDA's). These natural areas are described in Chapters 1 and 2 of this report.

- The Audubon Society's Important Bird Area (IBA) program aims to reverse declining trends in bird populations by identifying lands containing essential bird habitat such as migratory staging areas, winter roost sites, and/or prime breeding area. A group of scientific advisors known as the Ornithological Technical Committee identifies and approves IBA sites in Pennsylvania. McConnell's Mill State Park, including the Slippery Rock Gorge, was designated as the McConnell's Mill IBA in 2001 due to its exceptional concentration and diversity of spring and autumn migratory birds, as well as its critical interior forest land bird breeding areas[3].

- In 1998, the Slippery Rock Creek Gorge was designated as one of Pennsylvania's ***State Park Natural Areas*** are preserved primarily to protect examples of unique plant and animal communities and outstanding examples of natural interest and beauty. The gorge was selected because its slopes contain rock outcrops, boulders, waterfalls, rare plants species, wildflowers, and old growth forest[4].

- McConnell's Mill State Park was designated in 1974 as a ***National Natural Landmark*** by the U.S. Department of the Interior because of the outstanding geological features present in the portion of the

Slippery Rock Creek Gorge within the park[4].

The Greenways Plan recommends that one or more municipal ordinances be established in the municipalities surrounding the gorge in order to buffer the gorge from two of its major threats: 1) limestone aggregate mining and 2) residential development. Being that much of the gorge is contained within the McConnell's Mill State Park property, this plan recommends that ordinances require setbacks from the park property line rather than from the geographic edge of the gorge. This will ensure better protection of the vegetative communities inhabiting the steeply-sloped sides of the gorge.

Addressing Aggregate Mining

This Greenways Plan recommends does *NOT* recommend that Lawrence County Government oppose *all* mining operations in the southeastern portion of the County. However, the plan recommends that controls be established so that mining can continue while respecting and preserving the Slippery Rock Gorge, one of the County's most precious natural resources.

A surface mining operation adjacent to McConnell's Mill State Park

Mining Presents Threats to the Slippery Rock Creek Gorge

Limestone aggregate mining adjacent to the McConnell's Mill State Park property threatens terrestrial habitats in and around the gorge via destruction of forested habitat without adequate replacement of forest cover, and via the deposition of limestone dust in areas surrounding mining operations. In addition, mining threatens aquatic habitats in the Slippery Rock Creek and its tributaries when acidic mine drainage seeps into groundwater and enters surface streams[5]. One example is the acidic seeps entering a tributary of Hell Run, a Slippery Rock Creek tributary that is the County's only Exceptional-Value (EV) water quality stream, as designated by Pennsylvania Department of Environmental Protection (DEP). EV is the highest possible water-quality rating designated by DEP.

In the past, mine reclamation efforts have been limited to the creation of a non-native prairie-like environment on reclaimed mine lands. This plant community fails to replicate forested cover that once covered most of the area surrounding the mill. Although many refer to these sites as "reclaimed," these lands may not grow to become mature forest for decades if ever. This lack of forest habitat threatens animal species that depend on forested areas, and causes an increase in stormwater runoff to an amount above natural levels.

In addition, the Lawrence County NHI identifies acid mine drainage in the upper sections of the Hell Run watershed as a threat to the stream's water quality, and also names strip mines as a source of disturbance to the natural areas on the park's periphery. Such disturbances on the edges of the park minimize buffers that are vital to the integrity of the park's interior natural area. One such area, according to the NHI, is a proposed limestone mine within 1,000 feet of the park's northwestern boundary. This mine threatens to decrease the park's natural buffer and produce large amounts of noise within gorge. The NHI also recognizes that past mining areas warrant continued attention because their poor soil is often colonized by invasive plant species that may threaten the integrity of the natural plant communities in the gorge[2].

Past Planning Efforts Provide Key Recommendations

The aforementioned threats to the gorge and its natural resources are addressed in the 1995 Strategic Plan for the Protection of the Slippery Rock Creek Gorge (Strategic Plan). The Strategic Plan recommends that:

1) No mining permits should be issued within 1/2 mile of the Slippery Rock Creek in order to minimize threats to the McConnell's Mill State Park's terrestrial and aquatic resources;
2) Future reclamation efforts should focus wherever possible on the restoration of forest cover; and
3) Steps should be taken to treat the acidic seeps affecting Grindstone Run and the unnamed tributary to Hell Run[5].

Existing DEP Regulations

The Pennsylvania Department of Environmental Protection (DEP) has established regulations with regards to non-coal mining within the Commonwealth of Pennsylvania. These regulations are set forth in the Pennsylvania Code, Title 25. Environmental Resources, Chapter 77: Noncoal Mining (Chapter 77). Select regulations directly relating to the mining issues adjacent to the Slippery Rock Creek Gorge are as follows:

-- Section 77.108 General permits for small noncoal operations

- Subsection e, Item 8: "The permittee is responsible for complying with local zoning ordinances under section 16 of the Act (52 P.S. Section 3316)." [7]
- Subsection e, Item 10: "The permittee shall comply with the distance requirements of [Chapter 77] Section 77.504 (relating to distance limitations)."
- Subsection e, Item 11: "The permittee shall comply with other conditions the Department (DEP) may require to assure compliance with the Act[7] and this title." (Title 25)

-- Section 77.504 Distance Limitations

- Subsection a: "Except as provided in subsection (b), a person may not conduct noncoal surface mining operations, other than borrow pits for highway construction purposes, as follows:" [Item 4:] "Within 300 feet of a public park"
- Subsection b: "The Department may allow operators to operate within the distance limitations of subsection (a) if the operator demonstrates:" [Item 1:] "*Expansion of pits*. For opening or expansion of pits, that special circumstances warrant operations within the distance limitations, that the environment and the interests of the public and landowners affected thereby will be adequately protected and there are no feasible or prudent alternatives to opening the pit within the distance limitations." - and [Item 2:] *Support Areas*. For parts of surface mining operations other than opening or expansion of pits, that special circumstances warrant operations within the distance limitations, that the public health and safety will

not be endangered, that the environment and the interests of the public and the landowners affected thereby will be adequately protected and that there are not feasible or prudent alternatives to conducting those aspects of the operation within the distance limitations."

-- Section 77.611 [Revegetation] General requirements

- Subsection a: "Revegetation, if required, shall provide for a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area of land to be affected and capable of self-regeneration and plant succession at least equal in extent of cover to the natural vegetation of the area. Introduced species may be used in the revegetation process where desirable and necessary to achieve the approved postminng land use plan. Vegetative cover shall be considered of the same seasonal variety when it consists of a mixture of species of equal or superior utility for the approved postmining land use, when compared with the utility of naturally-occurring vegetation during each season of the year."

Addressing Land Use

Despite recommendations set forth in past planning documents and close proximity to one of Lawrence County's most pristine and fragile natural areas, none of the Townships around the Slippery Rock Creek Gorge have adopted forward-thinking conservation-based ordinances. Currently, Shenango Township is the only municipality immediately surrounding the gorge that has adopted both a Subdivision and Land Development Ordinance (SALDO) (1989) and a Zoning Ordinance (2001). Slippery Rock Township has established a SALDO (1981). Both of these Township's SALDO's may be in need of update to address current conditions. Perry Township has no ordinances established.

Residential Growth Threatens the Slippery Rock Creek Gorge

The Slippery Rock Creek watershed is currently experiencing residential growth[6]. Unchecked

residential development is seen as the biggest threat to the park and its natural communities[5]. Once-rural areas in nearby Cranberry Township have been grossly transformed by uncontrolled residential development, and any such development adjacent to the Slippery Rock Creek Gorge would pose serious threats to the gorge via habitat loss and pollution from septic system leaks[2] and increased stormwater runoff.

Past Planning Efforts Provide Key Recommendations

The 1995 Strategic Plan recommends that the State Park protect land surrounding the gorge by acquiring property and expanding the park. However, realizing that this is not a very recommendation, the Strategic Plan also recommends possible other land-use controls aimed at limiting residential development within 1/2 mile of the Slippery Rock Creek. These controls include:

- Prohibiting subdivisions in this area;
- Limiting densities on appropriate properties; and
- Transfer of Development Rights to appropriate properties in exchange for limited or no development in sensitive areas near the park[5].

The Strategic Plan notes that these development limitations must derive from Township ordinances[5]. This Greenways Plan offers general descriptions of these tools in Chapter 3.

Another important planning effort, the 1998 Resource Management Plan for McConnell's Mill State Park (Resource Management Plan) completed by the DCNR Bureau of State Parks, recommends monitoring of effects on the park from adjacent mining operations. Specific recommendations include: monitoring surface waters in the park for leaching from adjacent abandoned mine sites; reviewing mining permit applications in areas of concern designated in the 1995 Strategic Plan; and monitoring noise and air quality impacts from sources outside the park[8].

Further, the Resource Management Plan establishes objectives relating to external influences on the park. They include:

- Working with appropriate state agencies and the private sector to maintain and improve the resources of the park;
- Working with various groups to secure grants to help reduce acid mine drainage using programs such as the Cold Water Heritage Program;
- Working with DEP and the Natural Resource Conservation Service (NRCS) to determine feasible treatment (if any) of polluted waters in the park; and
- Monitoring adjacent mining activities and their impact on the park as identified in the 1995 Strategic Plan[8].

The Lawrence County NHI recommends that development in the Hell Run watershed (part of the Slippery Rock Creek watershed) should be carefully planned with the stream impacts in mind. The NHI also states that recognizing the gorge and land surrounding it as prime ecological and recreational resources is essential to appropriate planning. The NHI also makes the following related recommendations:

- Septic systems should be replaced with public sewers to lessen the impact of nutrification;
- Existing special DEP guidelines regarding protection of Exceptional-Value (EV) water quality streams such as Hell Run should be enforced by DEP and local municipalities and followed by developers to maintain the exceptional water quality in Hell Run.
- A discussion should be held between involved municipalities, private landowners, and the DCNR Bureau of Forestry with regards to planning in within the Slippery Rock Creek Gorge LCA[2].

Conservation-based Ordinance Recommendations

Multi-Municipal Comprehensive Planning is Needed

Although Lawrence adopted a County Comprehensive Plan (Comp Plan) in 2004, the recommendations in the Comp Plan must be refined

to a municipal or multi-municipal level to address in detail specific issues such as preservation of the Slippery Rock Creek Gorge. Grant funding for the development of comprehensive plans is available from various State agencies and other sources. In addition, establishing a local comprehensive plan would be looked upon favorably by funding sources if the Townships (Scott, Shenango, Slippery Rock, Perry, and Wayne Townships) surrounding the Slippery Rock Creek Gorge were to subsequently apply for grant funding for development or update of local ordinances.

The Greenway Plan recommends that the Townships surrounding the gorge pursue grant funding for a multi-municipal comprehensive plan from the Pennsylvania Department of Community & Economic Development (DCED) via their Land Use Planning Technical Assistance Program (LUPTAP). In past cases, joint grant applications by multiple municipalities were more likely to receive grant funding than applications sent by single municipalities. Grants awarded through the LUPTAP program are typically 50% of the total project cost, and require a dollar-for-dollar match (the remaining 50%) by the applicant.

Other grant monies are available for comprehensive planning efforts. The Local Government Academy (LGA) (www.localgovernmentacademy.org) offers grants that can be used as match for DCED funding. LGA funds require that representatives of the applying municipalities, such as supervisors, local planning commission members, or possibly County planning commission members, complete a 2-night comprehensive planning training course before grant monies are awarded. This Greenways Plan recommends that the Townships surrounding the gorge apply for the aforementioned grants and any other available grant funding.

Goals of the Conservation-based Ordinance

Once a local comprehensive plan is in place, the local Townships lacking zoning will have established the foundation for development of zoning ordinances. Those with existing zoning ordinances or SALDO's will be ready to apply for grant funding for ordinance updates.

The Greenway Plan recommends that the Townships surrounding the gorge apply, either separately or jointly, to the aforementioned funding sources for grants to complete new ordinances or updates.

Scott, Shenango, Slippery Rock, Perry, and Wayne Townships should follow recommendations such as those set forth in the Strategic Plan (1995) and the Lawrence County NHI (2003). Adherence to these past recommendations should take the form of a conservation-based municipal ordinance such as a conservation overlay district, conservation subdivision ordinance, or buffer zones protecting the gorge and its natural communities. The following list represents goals / ideals to which any such ordinance should aspire.

- Prohibit mining permits for any property within 1/2 mile of the Slippery Rock Creek;
- Prohibit mining permits within 500 feet of any portion of the McConnell's Mill State Park property further than 1/2 mile from the Slippery Rock Creek;
- Justify this additional 500-foot buffer (as opposed to DEP's recommended 300-foot buffer from a public park) using documentation of the Slippery Rock Gorge's fragile natural systems as listed in this report;
- Require a percentage of forest cover (to be determined by qualified ecologists and/or foresters) to be replanted on any property mined within the Slippery Rock Creek watershed -- by proposing that forestland be the post-mining land use for which mining companies must achieve adequate revegetation;
- Require low housing densities (Lots no less than 2 acres) and retainage of a percentage of original forest cover (to be determined by qualified ecologists and/or foresters) on any undeveloped forest property being subdivided within 1/2 mile of the Slippery Rock Creek;

Ordinance Development Costs

The following are probable costs for comprehensive plan and zoning ordinance writing performed by a Planner licensed in the State of Pennsylvania and certified by the American Institute of Community Planners (AICP). These costs assume that one or more

of the Townships surrounding the Slippery Rock Creek Gorge decide to hire an AICP-certified planning consultant to write their comprehensive plan and/or zoning ordinance containing conservation-based objectives or regulation aimed at protecting the gorge from mining, residential development, and other threats. Costs also assume that public participation will result in moderate revision to the plan or ordinance while still retaining the proposed goals listed in the last section.

It is important that a consultant with considerable experience in similar comprehensive plan and ordinance-writing be hired to ensure that the documents are of a high-quality and can serve as examples to other municipalities. Such a comprehensive plan or ordinance may be a County-wide or regional precedent.

PROPOSED CONSERVATION-BASED PLANNING ESTIMATED COSTS		
Type of Planning Effort	***Estimated Consultant Fee***	***Notes***
Municipal Comprehensive Plan	$35,000	single municipality
Multi-Municipal Comprehensive Plan	$80,000 - $100,000	assumes 3 municipalities
Zoning Ordinance (new)	$40,000	single municipality
Subdivision and Land Development Ordinance (new)	$20,000	single municipality
Subdivision and Land Development Ordinance (update)	$15,000	single municipality
Combination Project: Municipal Comprehensive Plan AND Zoning Ordinance	$65,000	Combining projects reduces fee because the same background work serves both projects

Combination Project: Multi-Municipal Comprehensive Plan AND Zoning Ordinances	$170,000 - $190,000	Combining projects reduces fee because the same background work serves both projects for each municipality (assumes 3 municipalities)

[1]from the Lawrence County Comprehensive Plan, prepared by Olsen Associates, 2004.

[2]from the Lawrence County Natural Heritage Inventory, prepared by the Western Pennsylvania Conservancy, 2003.

[3]from a description of the McConnell's Mill IBA available via the Audubon Pennsylvania website, http://.pa.audubon.org

[4]from information on State Park Natural Areas / National Natural Landmarks, and McConnell's Mill State Park available via the DCNR website, www.dcnr.state.pa.us/stateparks/natural/naturalareas.aspx, and www.dcnr.state.pa.us/stateparks/parks/mcconnellsmill.aspx

[5]from the Strategic Plan for the Protection of the Slippery Rock Creek Gorge, a report prepared for DCNR and the DEP Bureau of Mining and Reclamation by Rettew Associates, 1995.

[6]from the Hell Run Conservation Plan, prepared by the Lawrence County Conservation District and Friends of McConnell's Mill State Park, Inc., 2006.

[7]the "Act" refers to The Noncoal Surface Mining Conservation and Reclamation Act (52 P.S. Section 3301-3326).

[8]from Resource Management Plan for McConnell's Mill State Park, completed by the DCNR Bureau of State Parks, June 9th, 1998.