

LIVABLE LANDSCAPES

A Park, Recreation, Open Space,
Agricultural and Historic Lands Plan for
LEHIGH COUNTY



MAY 2018



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A summary of this report will be translated into Spanish. Readers may request a full translation into alternate languages by contacting Michael Donchez, Senior Transportation Planner, Lehigh Valley Planning Commission, 961 Marcon Boulevard, Suite 310, Allentown, Pennsylvania 18109-9397, (610) 264-4544, mdonchez@lvpc.org. Efforts will be made to provide translated documents in a reasonable timeframe.

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Many people were instrumental in the development of this Plan. Their time, commitment and input were greatly appreciated.

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Allentown Rose Gardens
Photo by Craig Kackenmeister, LVPC

Lehigh County Livable Landscapes

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Executive Summary

Cedar Beach Park
Photo by Craig Kackenmeister, LVPC

Purpose of the Livable Landscapes Plan

Lehigh County contains many valuable open space and cultural resources worthy of discovery and preservation, including scenic mountains and farmland views, river corridors and large forests, parks and historic sites. These features define Lehigh County and are an integral part of a high quality of life its residents enjoy today. However, recent population growth and land use changes show the region is experiencing strong development pressures on its open space resources, potentially impacting much of what residents find appealing about the County. The biggest challenge facing Lehigh County related to open space is promoting sustainable growth while maintaining a high quality of life, a low cost of living and good health for all residents.

The purpose of *Livable Landscapes – A Park, Recreation, Open Space, Agricultural and Historic Lands Plan for Lehigh County* is to guide the conservation, restoration and enhancement of the County's open space and cultural resources and create linkages between these vast resources. The development of a strategic open space network will help to preserve many of the remaining features treasured by County residents. This Plan is intended to guide the decisions of municipalities, conservation organizations, landowners and developers and encourage partnerships to achieve common goals for natural resources; outdoor recreation facilities; greenways and blueways; agricultural lands and historic, cultural and scenic resources.

Benefits of Open Space

The open space network plays a vital role in making successful, healthy communities by strengthening community identity and attachment, contributing to the regional economy, and providing a range of health and wellness benefits. Attachment to place is an important metric of community health and strength, and open spaces can foster greater inclusion and accessibility for people of all abilities, economic status and backgrounds.

Furthermore, the *Lehigh Valley Return on Environment* study, prepared by the Lehigh Valley Planning Commission and Wildlands Conservancy, found that open spaces of all sizes add some form of value to the regional economy, with benefits accruing to businesses, governments and households. These are evidenced in various ways—

Vision

Lehigh County promotes vitality, inclusion, quality of life and sense of place for all through protected natural areas, working farms, cultural heritage, scenic resources and vibrant communities interconnected with parks, greenways and trails where people live, work and play in a healthy environment.

through direct revenue streams to individuals or governments, through asset appreciation value, or in the form of avoided costs. Examples of these financial benefits include:

- An estimated \$153.8 million or more provided each year by Lehigh County's natural systems in the form of water supply, water quality, flood control, pollination, biological control, habitat and soil formation/retention services.
- An estimated \$26.2 million in annual avoided air quality-related health care costs and damage to agriculture and buildings.
- An estimated \$444.6 million in annual outdoor recreation spending and related economic impacts in Lehigh County, including an estimated 5,160 outdoor recreation-related jobs both inside and outside the County, generating about \$31.8 million in state and local taxes.
- An average premium of \$13,900 for homes in Lehigh County located within ¼ mile of protected open space, contributing to a \$932.8 million total real estate premium for all such homes in the County.

How communities are planned, designed and built can also greatly impact people's health, influencing people's levels of physical activity, the safety of travel, the quality of the outdoor air, access to jobs and services, access to healthy food choices, and opportunities to enjoy local recreation opportunities like local parks, pools and ball fields. The annual County Health Rankings prepared by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute determined that, out of Pennsylvania's 67 counties, Lehigh

County ranked 28th in terms of Health Outcomes (measured by length of life and quality of life) and 24th in terms of Health Factors (health behaviors, clinical care, social and economic, and physical environment, all of which may influence healthy outcomes), with 1 being best and 67 being the worst.

In addition to the community, economic, and health and wellness benefits of open space, this Plan also addresses the unique benefits provided by Lehigh County's heritage and cultural assets. An effective heritage tourism program can bolster local businesses, while bringing attention to distinctive cultural and historical assets like the Delaware & Lehigh National Heritage Corridor, Lock Ridge Park and Furnace, the Coplay Cement Kilns and various cultural landscapes. Through effective promotional campaigns, these assets can be further leveraged to attract new visitors, residents, businesses and investors. When restored and converted to new uses, historic buildings are particularly successful in serving as value-added amenities, providing spaces for innovative business ventures, while contributing richness and depth to the local landscape.

Plan Process

To thoroughly understand the County's needs and opportunities related to open space, the Livable Landscapes preparation process involved multiple components, including formation of two steering committees (a Professional Partners committee and a Municipal Officials committee), public meetings and surveys, interviews with County staff, and a comprehensive inventory and analysis of the County's existing open space resources. The project kick-off meeting was held on June 16, 2016, and meetings of the Plan Steering Committees were held monthly starting in August 2016.

The random sample public opinion survey was administered and analyzed by the Lehigh Valley Planning Commission, which collected electronic survey data from a random sample of Lehigh County residents from December 1, 2016 through January 31, 2017. The purpose of this survey was to assist Lehigh County staff, the Lehigh Valley Planning Commission and the Plan Steering Committees to understand the open space needs of the community. The Lehigh Valley Planning Commission also administered a second, more informal survey that was identical to the random sample survey but was open

to the public and not controlled for statistical validity. The public survey was promoted through social media for anyone to participate using a different, unique link to separate the results from the random sample survey. Results from the public survey generally mirrored those of the controlled random survey.

In addition to the surveys gauging public opinion on various aspects of Lehigh County's livable landscape, the Lehigh Valley Planning Commission also collaborated with its institutional partners—Lehigh County, Buy Fresh Buy Local, The Seed Farm and Penn State Extension—to develop and distribute a 15-question survey of farmers working within Lehigh County. The responses provided important data on the size, tenure and length of operation of farming operations, as well as insights on critical issues, opportunities and potential areas of assistance.

The Lehigh Valley Planning Commission also conducted a survey of all Lehigh County municipalities regarding Planning, Land Preservation, Staffing/Administration and Funding activities as well as interviews with key County staff to gain insight into the state of the County parks (Robert Stiffler, Director of Parks) and the Farmland Preservation Program (Diane Matthews-Gehringer, Director of Farmland Preservation). This feedback, coupled with documentary site visits to all County park facilities, provided the information for the inventory and analysis of existing open space resources, needs and opportunities included in this document.

The Plan

The Livable Landscapes preparation process culminated in the development of a vision statement that expresses the overall intention for the open space resources within Lehigh County. The vision statement establishes the breadth of the open space plan, referring to parks, natural areas, scenic views and historical and cultural sites, that leads directly to the expression of goals, policies, actions and recommendations to accomplish the vision.

To achieve the goals and policies, a set of actions are provided. Note that the policies and actions are in many cases adapted from existing sources, primarily the Lehigh Valley Planning Commission's *Comprehensive Plan The Lehigh Valley...2030* and the *Lehigh Valley Greenways Plan*.



Photo by Becky Bradley, LVPC

Goals

Presented below are the goals established for the *Livable Landscapes A Park, Recreation, Open Space, Agricultural and Historic Lands Plan for Lehigh County*. Policies and actions associated with each goal are presented in the Plan.

Goal 1 – Conserve, restore and enhance natural resources

Goal 2 – Provide and maintain an accessible, interconnected park, trail and recreation system

Goal 3 – Conserve, restore and enhance a greenways and blueways network

Goal 4 – Preserve farmland and farming to meet food production, economic and open space needs

Goal 5 – Preserve historic, cultural and scenic resources and landscapes

Goal 6 – Advance County natural, recreational, agricultural and historical resources and usage through funding, promotion, education, partnerships and other strategies

Action Plan

The Action Plan is a compilation of the recommendations from the different component sections in this Plan. Each recommendation is assigned a priority. The prioritization balances the needs, capacity of County agencies and budgetary realities. The priority levels are Immediate (1 to 3 years), Short-Term (4 to 7 years), or Long-Term (8 or more years). The Action Plan is presented in Implementation Tools section.

A wooden boardwalk with railings leads into a dense forest of tall trees with vibrant green foliage. The path is made of wooden planks and is flanked by wooden railings. The forest floor is covered in green grass and small plants. The trees are tall and thin, with their branches reaching up towards the sky. The overall scene is peaceful and natural.

Introduction

Pool Wildlife Sanctuary
Photo by Craig Kackenmeister, LVPC

From the heights of the Kittatinny Ridge to the banks of the Lehigh River, Lehigh County's identity is rooted in its natural, historical and cultural landscapes. Prior to colonial settlement, the area was a gathering place and a major hunting ground for the region's indigenous Delaware/Lenape tribes. By the early 18th century, the region's rich soils began attracting colonial settlers who established farmsteads and crossroad villages in what was still considered frontier territory. The region's extensive waterways initially provided power for early grist mills, then later provided routes for canals and railroads to access the rich anthracite deposits of the Coal Region to the north. The geology of Lehigh County also provided abundant mineral wealth in the form of slate and limestone, the latter contributing to Lehigh County becoming a dominant concrete producer. The expanding economy and growing prosperity fueled the more intense development of the City of Allentown as well as the County's boroughs, whose downtowns expanded and residential neighborhoods became more ornate and architecturally diverse.

Many valuable open space and cultural resources worthy of discovery and preservation exist throughout Lehigh County—scenic mountains and farmland views, river corridors and large forests, parks and historic sites. These features define Lehigh County and are an integral part of a high quality of life its residents enjoy today. County residents have long been interested in these open space resources, and surveys conducted by the Lehigh Valley Planning Commission in 1974, 1988, 1999 and 2010 have revealed that people are accustomed to the idea of a limitless supply of clean air, water and pristine scenic landscapes. The 2010 survey revealed that nearly 69% of the Lehigh County population agreed that more parks, recreation facilities and open space should be acquired and/or developed in the County. Lehigh County voters have also strongly supported state and County referendums to fund the creation of parks, protect important natural areas and preserve farmland. In a survey of residents conducted spe-

cifically for this Plan, two of the key findings are: 1) protecting lakes, rivers and streams, and preserving water quality were most frequently (67%) ranked the highest priority for the County, and 2) 98% of the respondents strongly agreed or agreed that protecting farmland in the County is important. However, these resources are being impacted every year.

Recent population growth and land use changes show the region is experiencing strong development pressures on its open space resources. If not managed properly, such development pressure could impact much of what residents find appealing about the County. According to the *BUILD LV Lehigh Valley Annual Development Report* (2016), the total residential and non-residential lands approved for subdivision or land development by Lehigh County municipalities during 2015 was 1,500 acres, including agricultural/undeveloped land as classified by the Lehigh Valley Planning Commission. The biggest challenge facing Lehigh County related to open space is promoting sustainable growth while maintaining a high quality of life, a low cost of living and good health for all residents.

The purpose of *Livable Landscapes – A Park, Recreation, Open Space, Agricultural and Historic Lands Plan for Lehigh County* is to guide the conservation, restoration and enhancement of the County's open space and cultural resources and create linkages between the County's vast natural resources; outdoor recreational facilities; greenways and blueways; farmland; and historic, cultural and scenic resources. The County, municipalities, conservation organizations, to landowners and developers can use this Plan in decision making to maintain and enhance the quality of life in the County. Further, the Plan seeks to encourage partnerships to achieve common open space goals. The development of a strategic open space network will help to preserve many of the remaining features treasured by County residents.

Context and Process



Photo by Teresa Mackey, LVPC

County Profile

Setting

Established in 1752, Lehigh County is part of a two-county region (along with Northampton County) known as the Lehigh Valley and is located in central eastern Pennsylvania. The region is located within 300 miles of several large metropolitan areas of the eastern United States, including Pittsburgh, Boston, Baltimore and Washington, D.C. and is particularly accessible to Philadelphia and New York City.

Lehigh County is bounded on the north by the Kittatinny Ridge (Blue Mountain), on the east by the Lehigh River and Northampton County, on the south by the Pennsylvania Highlands, and on the west by Berks and Montgomery counties. The County encompasses approximately 348 square miles, or 222,972 acres. Lehigh County is a third class Pennsylvania County (population between 250,000 and 500,000), but operates under a home-rule charter. The County is comprised of 25 municipalities, including two cities, 15 townships and eight boroughs.

The History

Prior to the settlement of European people in the area, Lehigh County was inhabited by the Delaware/Lenape tribes who hunted the abundant bear, fish and other wildlife thriving in the natural environment. Reminders of these tribes' presence can be found in artifacts and archeological sites collected at the Museum of Indian Culture in the City of Allentown, as well as in the place names taken from Lenape names (Kolapechka Creek), events (Walking Purchase Park) and words (Kittatinny: "great hill"; Macungie: "feeding place of bears").

Starting in the early 18th century, European colonists began to settle in present day Lower Milford Township, gradually migrating and establishing villages north of South Mountain. The backgrounds and values of these settlers are evidenced in the built environment they left behind. Barns throughout the county are adorned with decorative hex signs characteristic of the German "Pennsylvania Dutch" farmers for which the area is renowned. The churches, one-room school houses, two-story porches and hotels with incorporated post offices built by these settlers reflect the social organization of their communities.

Early industry in Lehigh County consisted primarily of agriculture and small-scale, water powered grist mills, all served by a network of roads and covered bridges. Following the discovery of extensive anthracite deposits in and around Mauch Chunk (present day Jim Thorpe), local entrepreneurs constructed the Lehigh Canal in 1818-1820 to capitalize on Lehigh County's strategic location between the Pennsylvania Coal region to the north and the major commercial ports of New York and Philadelphia. By 1855, the canal was supplemented and quickly supplanted by the Lehigh Valley Railroad.

The discovery of significant limestone deposits launched the Lehigh Valley's cement industry. Other extractive industries that arose in Lehigh County during this period included slate and iron ore. Manufacturing in Lehigh County started booming in the late 1800s with the establishment of the first of many silk mills. In the early 1900s, Mack Trucks relocated their truck building operation from Brooklyn to the City of Allentown. During the same time period in neighboring Northampton County, Bethlehem Steel Corporation began its operations.

As the region's industry and transportation network expanded and evolved, Lehigh County became increasingly urbanized in the latter half of the 19th century and into the 20th century. With its strategic location along the canal and the railroad, Catasauqua Borough became an early river port and iron producing center. The City of Allentown emerged as the cultural and economic hub of Lehigh County and the queen city of the Lehigh Valley. Likewise, Emmaus Borough expanded from a small Moravian settlement to a significant urban center with the arrival of the East Penn Railroad.

Demographics

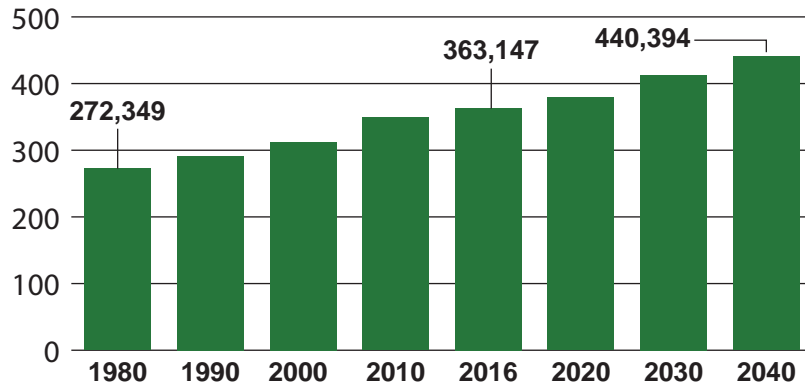
The demographics of a region play an important role in identifying the open space and recreational needs of the community. Planning for the needs of all residents and age groups should be considered, as well as planning for the demographic changes over time.

Population Trends

Lehigh County has experienced steady and sustained population increases over the last several decades. During the 1980s and 1990s, decennial growth remained steady; however, between 2000 and 2010, the County's growth increased by approximately 37,400 residents. Not

Historical and Official Projections of Population

in thousands



Source: U.S. Census Bureau, 1980-2010 Decennial Census and 2016 Estimate; Lehigh Valley Planning Commission, 2020-2040 projections

only did this 12% growth rate exceed the state's growth rate of 3.4% between 2000 and 2010, it was also higher than the 9.7% rate for the nation overall, substantiating the notion that Lehigh County is experiencing considerable growth. Lehigh County ranked 8th out of all 67 Pennsylvania counties in percentage growth between 2000 and

2010. The 2016 official population estimates from the U.S. Census indicate that Lehigh County grew from 349,497 persons in 2010 to 363,147 persons in 2016, or 3.9% growth over this period. Based on this percentage growth, the County ranked 4th out of all Pennsylvania counties.

Projections prepared by the Lehigh Valley Planning Commission in 2017 anticipate continued population increases within the County through 2040. From 2010 to 2040, the County's population is projected to increase by almost 91,000 residents, or 8.7% growth per decade, bringing the total population to approximately 440,000. In comparison, the County's population grew at a rate of 9.4% per decade over the previous 30 years.

Age

- 18 The age composition of the County's population has changed considerably over the last 20 years. Lehigh County, like many areas of

the country, has experienced a general aging of its population. This is reflected in the increase in median age for the County (35.6 years to 39.4 years) from 1990 to 2010. The U.S. Census American Community Survey one-year estimates for 2015 indicate that the median age for the County was 39.6.

Land Use

An assessment of land use data can be used to identify land development trends, the extent of development and the availability of additional land areas to provide for County residents' open space and recreation needs. The Lehigh Valley Planning Commission has been estimating existing land use since the mid-1960s. The existing land use estimates have been used for general planning, forecasting and measuring land use change throughout the years. The Lehigh Valley Planning Commission utilizes 10 categories of land use in its estimation process: residential; commercial and retail; industrial and manufacturing; warehousing and distribution; office and business; public and quasi-public; parks and outdoor recreation; agriculture/undeveloped; residential over 10 acres; transportation, communications and utilities. Non-residential development has generally taken place in the urban core of the County. Residential development, on the other hand, has expanded into the more rural areas of the County, consuming open space in the process. As the County's population continues to grow, more pressure to develop in these rural areas is likely to occur.

Since 1972, residential and non-residential uses in Lehigh County have increased from 28% of the land area to 45% in 2012, with residential uses accounting for the majority of the increase. As a result of this urbanization, agriculture/undeveloped land has continued to decline, indicating that these areas remain under intense development pressure in the County. In 1972, agriculture/undeveloped land accounted for 68% of the land area of Lehigh County; in 2012, this land use type accounted for less than half of the land area of the County. Parks and recreational land uses have more than doubled since 1972, accounting for 9% of the County's land area in 2012.

These development patterns, combined with the projected population growth, underscore the vulnerability of the County's remaining undeveloped lands and highlight the importance of planning for the open space and recreational needs of its residents.



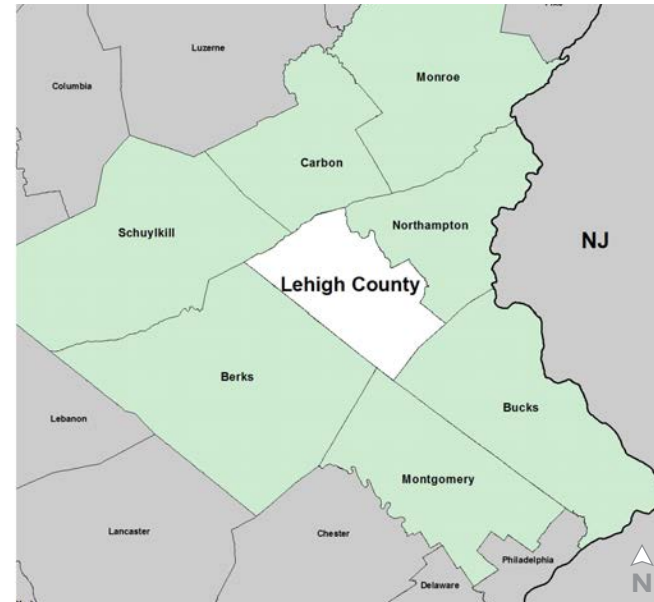
LVPC file photo

Connected Landscapes

Lehigh County has a wide variety of open space resources, ranging in size from small pocket parks in urban areas to large-scale natural features that cover thousands of acres and extend beyond the County's borders. Three such regional resources form the boundaries of the County: the Kittatinny Ridge to the north, the Lehigh River to the east and the Pennsylvania Highlands to the south. All of these resources form connections to neighboring counties and states, creating a regional network that provides recreational opportunities, wildlife habitat, heritage tourism and scenic views to residents and visitors. Looking beyond the County's borders is critical to optimizing the preservation of these natural and heritage resources. In addition to these regional natural features, several recreational resources occur at a regional level and are often located within the natural features reported above. Regional trails are the primary example, with four regional trails running through the County: Appalachian Trail, September 11th National Memorial Trail, D&L Trail and the Pennsylvania Highlands Trail. A third type of regional open space resources is designated, such as the Delaware & Lehigh National Heritage Corridor and State Heritage Area, state game lands, water trail, greenways and conservation priority areas. These areas may be designated in one county and may or may not be so designated in a neighboring county, although the resource itself exists. Adjacent counties' plans were reviewed for these regional resource connections and are presented in the Appendix – Regional Landscape and Connectivity.

The quality of regional park space is also impacted by how parks, open spaces and trails are connected to and integrated with the region's transportation infrastructure. While environmental screening for many road projects is accomplished with the National Environmental Policy Act (NEPA) through a process called Linking Planning and NEPA, much more can and should be done at the local level to enhance livable transportation connections. Evolving toward a more holistic approach of cleaner environments, healthier communities and mobility is critical to improving the quality of life in the Lehigh Valley.

One of the goals of the *MOVE LV Long Range Transportation Plan* is to make transportation decisions that support and enhance livable communities. Qualities of livable communities include a mix of affordable transportation options, such as public transit and walking and



bicycling opportunities. By their very nature, livable communities promote active transportation through the design of a built environment. More walking and bicycling reduces dependence on auto travel, which can have air quality and health benefits.

This Plan offers an opportunity to consider transportation enhancements appropriate to the open space and trail connection network. Multi-use or single use trails could serve as a first and last mile of a work or recreational journey. In other cases, a community may be developing a network of urban trails that opens up further possibilities to enhance community-wide accessibility by connecting the trail network to the transportation network at multiple points.

These opportunities suggest that a strategy should be developed that integrates trails into both the existing and planned transportation system. Innovative and evolving strategies should be a part of this conversation and may include such concepts as:

- The Greenroads Rating System (which measures transportation sustainability) developed through the Greenroads Foundation.
- Carbon-Neutral Developments (developments with

design features that eliminate carbon emissions) with recommendations offered through the Global Carbon Project.

- Bicycle Boulevards (slow-speed streets optimized for bicycle traffic) with guidelines from the National Association of City Transportation Officials.
- Complete Streets (streets or walkable neighborhoods designed for bicycles, pedestrians and transit) using policies from the National Complete Streets
- Coalition through Smart Growth America.
- Road Diets (lane reductions to achieve systematic improvements).
- Safe Routes to Schools (creation of safe, convenient and fun opportunities for children to bicycle and walk to and from school), a national and international movement locally championed by the Pennsylvania Department of Transportation.
- Corridor Studies (study of improvement needs for a significant roadway or major highway).

While funding is always an issue, the region and County must continue to advocate at the federal level for multimodal advancements, including the expansion of relevant transportation enhancement programs, the development of transportation and community system preservation programs, and the consideration of open space and habitat protection in the transportation planning process.

Two recent transportation initiatives that lend themselves to recreation, open space and trail planning are currently evolving in the Lehigh Valley. They include PennDOT Connects and the development of the Lehigh Valley's first ever regional bicycle and pedestrian plan.

PennDOT Connects is a new approach to infrastructure/project planning and development. The program expands the Pennsylvania Department of Transportation requirements for engaging local communities and planning partners by requiring collaboration with stakeholders before project scopes are developed. PennDOT Connects aims to transform capital and maintenance project development by ensuring that community collaboration happens early, and that each project is considered in a holistic way for opportunities to improve safety, mobility, access and environmental outcomes for all modes and local

contexts. Specific considerations to be discussed during collaboration will include bicycle/pedestrian accommodations, transit access and stormwater management to name a few.

The Lehigh Valley Planning Commission also proposes to develop a regional bicycle and pedestrian plan for the Lehigh Valley. The project would involve developing a plan that coordinates transit, trail, side-walk and roadway systems to create a robust regional transportation network that is safe, convenient and efficiently accommodates bicycle and pedestrian transportation. Linking trails to local and regional attractions will support economic development and make the region a desirable bicycle and pedestrian destination.

The intent of this effort is to plan for improvements that will provide for enjoyable, healthy, active and viable transportation and recreation alternatives. Although a vision and goals would be developed as part of the planning process, anticipated objectives include connecting communities, connecting points of interest/regional destinations, connecting to the natural environment, preserving existing trails, encouraging youth to walk and bike, providing access across all socioeconomic communities, highlighting the economic value of the bicycle/pedestrian system and providing appropriate community design tools.

Recommendations

- Develop a regional multimodal strategic plan that helps decision makers integrate the transportation network improvements with land use decision making.
- Investigate and implement innovative strategies that integrate transportation with open space.
- Develop a regional bicycle/pedestrian plan, including a bicycle/pedestrian transportation working group.

The Lehigh County Livable Landscapes Plan is one of several past and current planning efforts that provide guidance through goals, policies and recommendations for the protection of natural resources, the provision of recreational facilities and the preservation of agricultural lands and historical features in Lehigh County. A brief summary of these related planning documents and initiatives at the state, regional and county levels are provided in the Appendix – Related Plans and Studies.

Benefits of Open Space

Lehigh County's open space network includes its natural resources; outdoor recreation resources; greenway and blueway resources; historic, cultural and scenic resources; and agricultural resources. There is no disputing that this essential network provides great environmental benefits, such as cleaner water and air, protection of wildlife and ecosystems, and preservation of nature's beauty.

In addition to these benefits are those that may not be immediately apparent. The open space network also plays a vital role in making successful, healthy communities through benefits that generally fall within the categories of Community Benefits, Economic Benefits, and Health and Wellness Benefits. The wide range of these potential positive outputs are summarized below.

Community Benefits of Open Space

Highlights

- Reduction of crime and delinquency
- Better-connected families and social support networks
- Places to support youth engagement
- Offer lifelines for the elderly

Attachment to Place

What makes a community a desirable place to live? Gallup and the John S. and James L. Knight Foundation launched the Knight Soul of the Community project in 2008 with this question in mind. Interviewing almost 43,000 people in 26 communities nationwide over three years, the study found that three main qualities attach people to place:

- **Social Offerings** – Places for people to meet each other and the feeling that people in the community care about each other.
- **Openness** – How welcoming the community is to different types of people, including families with young children, minorities and talented college graduates.
- **Aesthetics** – The physical beauty of the community, including the availability of parks and green spaces.

Attachment to place is an important metric to communities. Those who identify a lack of attachment, more often than not, feel a lack of complete social inclusion as well. These people may represent a minority, which reveals specific gaps in the offerings of an equitable and welcoming community. In Lehigh County, 13.8% of residents identify themselves as having a disability, 19.9% are of a non-white ethnicity, and 13.7% are below the poverty level, with 22% of children living in poverty. Open spaces represent an opportunity to foster inclusion and accessibility for people of all abilities, economic status and backgrounds.

The Health Profile for the 2016 Community Health Needs Assessment for the Lehigh Valley, prepared by the Health Care Council of the Lehigh Valley, identified that Lehigh County has 10.8 organized social groups per 10,000 people (2013). This is slightly lower than Pennsylvania, which has 12.3 social groups per 10,000 people.

Community attachment not only has social benefits but also links to key outcomes like local economic growth, as explained further below.

Economic Benefits of Open Space

Highlights

- Increased tourism
- Enhanced land and property value
- Increased business retention and business attraction
- Revenue generation
- Reduction of crime and vandalism
- Cost mitigation for services that open spaces provide

Return on Environment

As documented in the *Lehigh Valley Return on Environment* study (2014), prepared by the Lehigh Valley Planning Commission and the Wildlands Conservancy, a key trend identified was that people's attachment to where they live and their quality of life positively impacts economic development. This study quantified the economic value of the benefits provided by open space and measuring its impacts across four areas: Natural System Services, Air Quality, Outdoor Recreation and Property Value. Each of these areas generate the "natural capital"

or economic value from the flow of goods and services supported by natural resources. The correlating benefits represent the Return on Environment for Lehigh County and are explained in further detail.

Natural System Services: It is essential to recognize the role that trees, fields, meadows and wetlands play in keeping the cost of living low by filtering water, cleaning the air, controlling flooding and providing other environmental services. Key findings reveal that:

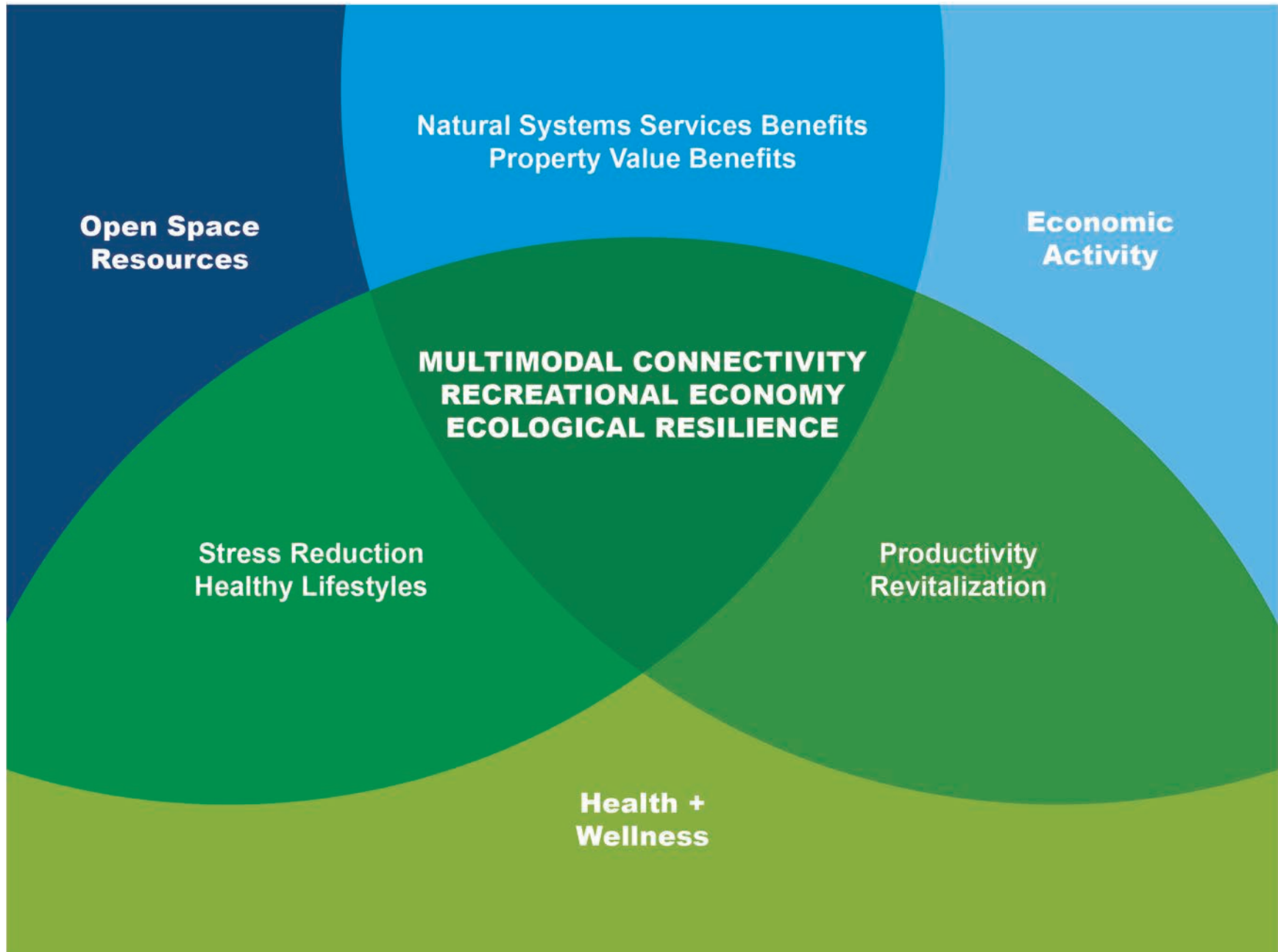
- The highest natural system services value on a per acre basis is found in wetlands, riparian corridors and forests. Maintaining and restoring connected habitats and corridors will provide the full potential value of natural system services.
- The current green infrastructure along streams in Lehigh County reduces tax dollars by avoiding more than \$44.2 million annually in expenditures for water supply (\$20.9 million), disturbance (flood) mitigation (\$16.6 million) and water quality (\$6.7 million).
- Natural areas provide over \$11.0 million annually in pollination and \$1.2 million in biological control services to agriculture, backyards and the natural landscape.
- Natural areas provide \$97.0 million annually in habitat for insects, birds, animals and plants.
- Natural areas provide \$0.4 million annually in soil formation/retention.

In summary, open space provides value in the form of natural system services for water supply, water quality, flood control, pollination, biological control, habitat and soil formation/retention estimated at \$153.8 million or more each year in Lehigh County.

Air Quality: Lehigh County faces substantial air quality problems. Poor air quality is a common problem in many urban and suburban areas and can lead to a variety of human health problems, including asthma and other respiratory ailments. Additionally, air pollution can damage buildings and plants, disrupt many natural system services and can cause reduced visibility and smog. Trees remove significant amounts of air pollution and, consequently, improve environmental quality and human health. They also help mitigate climate change by



Photo by Becky Bradley, LVPC



removing carbon dioxide (CO₂) from the air and sequestering the carbon in new biomass each year. Carbon storage is an estimate of the total amount of carbon that is currently stored in the above and below ground biomass of woodlands, while carbon sequestration is a measure of how much new carbon is taken up by woodlands each year through new growth. The incidence of childhood asthma worldwide has paralleled the sharp increase in CO₂ emissions, over at least the last two decades, in part due to climate-related factors. Key air quality findings from the *Lehigh Valley Return on Environment* study are:

- Air quality services provided by trees removing pollutants are estimated at \$23.5 million annually.
- Tree-covered open space stores 2,681,374 tons of carbon over the life of the current woodlands in Lehigh County.
- Without carbon storage by trees, damage due to increased carbon emissions would cost \$52.1 million to mitigate in Lehigh County, which, if divided by an assumed average tree life of 50 years, represents a value of about \$1.0 million annually.
- Photosynthesis by trees removes CO₂ from the atmosphere, releases oxygen and extracts or sequesters 88,397 tons of carbon each year in Lehigh County, providing health and other benefits of about \$1.7 million per year.

In summary, the total annual avoided health care costs and damage to agriculture and buildings provided by Lehigh County open space is estimated to be \$26.2 million.

Outdoor Recreation: Open space contributes to a high quality of life when residents have many opportunities to engage in recreation and exercise, and directly correlates with healthy communities. In addition, open space and its associated activities attract families and businesses who desire to engage with and sustain them.

Through local surveys, participation rates for 11 outdoor recreational activities were identified for the *Lehigh Valley Return on Environment* study. The results are as follows:

- Walking, 60%
- Wildlife Watching, 35%

- Birding/Bird Watching, 31%
- Bicycling, 17%
- Running/Jogging, 16%
- Fishing, 14%
- Kayaking/Canoeing, 14%
- Nature Study, 14%
- Hunting, 11%
- Hiking/Backpacking, 10%
- Camping, 6%

Overall, an estimated \$444.6 million is spent on outdoor recreation each year in Lehigh County. This represents the amount of money that residents in the County spend on outdoor activities and their total impact on the economy.

Additionally, recreational activities within Lehigh County's open spaces create an estimated 5,160 jobs both inside and outside the County. These jobs generate about \$31.8 million in state and local taxes.

Property Value: Square footage, quality of schools, landscaping and structural condition can raise or lower the value of a home, as can proximity to open space. People will pay a premium to be near a trail, park, scenic area or waterfront. As a result, Lehigh County's existing open space adds to the overall value of its housing stock. This increased wealth is captured by citizens through higher sales values of homes near open space, which generates increased government revenues via larger property tax collections and transfer taxes at time of sale. Key findings are:

- The average premium afforded each home within ¼ mile of protected open space is \$13,900 in Lehigh County.
- Protected open space includes: 1) parks, natural areas and outdoor recreation sites that are owned by federal, state, County, municipal governments or conservancies or privately-owned property with a conservation easement, and 2) agricultural easements.
- There are 67,085 single family homes located within a ¼ mile of protected open space in Lehigh County.
- The total real estate premium attributed to living with-

in ¼ mile of protected open space in Lehigh County is more than \$932.8 million (number of homes times average premium).

- The average real estate premium for single family homes within ¼ mile of protected open space in Lehigh County is lowest for homes located in rural townships (\$2,200) and highest for homes located in cities and boroughs (\$19,900).

Results from the study found that open spaces of all sizes add some form of value to the regional economy, with benefits accruing to businesses, governments and households. These are evidenced in various ways—through direct revenue streams to individuals or governments, through asset appreciation value or in the form of avoided costs.

Health and Wellness

Benefits of Open Space

Highlights

- Reduced stress
- Increased life expectancy
- Improved air quality
- Facilitate balance between work and play
- Reduced boredom and social isolation
- Promotion of physical activity and healthy lifestyles
- Reduced risk of obesity
- Reduced pressure on local health services
- Improved mental health

How communities are planned, designed and built can greatly impact people's health. The built environment influences people's levels of physical activity, the safety of travel, the quality of the outdoor air, access to jobs and services, access to healthy food choices, and opportunities to enjoy local recreation opportunities like local parks, pools and ball fields. A well-designed neighborhood offers transportation choices, accommodates people at all stages of life, encourages physical activity and social interaction, and offers a mix of housing that is close to a good range of jobs.

The annual County Health Rankings (a collaborative program between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute) measure vital health factors, including high school graduation rates, obesity, smoking, unemployment, access to healthy foods, the quality of air and water, income, and teen births in nearly every county in America. The Rankings provide a revealing snapshot of how health is influenced by where we live, learn, work and play and provide a starting point for change in communities. The County Health Rankings have two components:

- Health Outcomes – measured by length of life and quality of life.
- Health Factors – health behaviors, clinical care, social and economic, and physical environment, all of which may influence healthy outcomes.

In the 2016 Rankings for all 67 Pennsylvania's counties, Lehigh County ranked 28th in Health Outcomes and 24th in Health Factors (with 1 being the best and 67 being the worst). This reveals that Lehigh County is in better health than just under two-thirds of the rest of Pennsylvania's counties.

In 2016, the Health Care Council of the Lehigh Valley also released a community health needs assessment titled *The Road to Health*. This document identified several factors that contribute to the overall health rankings of both counties in the Lehigh Valley. These factors are generally similar to, and sourced from, the County Health Rankings. The report is useful as it compares current statistics with those from previous years, making it easy to identify quickly which areas are improving and which require extra attention. Because the report also compares Lehigh County data with Northampton County data, it can be useful for identifying cross-county trends where collaboration might be possible in improving factors influencing community health. Both counties share similar levels of Age Group Distribution as well as near-identical Air Quality measurements, for example.

Some of the highlights from *The Road to Health* (2016) pertaining to Lehigh County are as follows:

- People who identify themselves as being physically inactive have been reduced from 25% in 2012 to 21% in 2015.

Lehigh County Livable Landscapes



Bob Rodale Cycling & Fitness Park,
Photo by Craig Kackenmeister, LVPC

- 13% of people have food insecurity, while 34% of children are eligible for free/reduced lunch.
- 17% of children K-12 are obese.
- Heart disease-related deaths have decreased from 117 per 100,000 people between 2005-2009 to 84.4 between 2011-2013.
- Deaths related to injury and violence have increased.
- 1 in 3 surveyed teens in both Lehigh and Northampton counties indicated they felt sad or depressed most days in the last 12 months.

These statistics indicate that there are both strengths to celebrate as well as opportunities for improvement in the overall health of Lehigh County residents.

Value-Added Benefits of Open Space Heritage and Reasons to Preserve

While the previous sections have explained the positive outcomes of open spaces as-is, identifying the benefits associated with the proactive, long-term engagement of open space heritage asset preservation is also important. Lehigh County can yield both quantitative and qualitative benefits through strategic preservation and future promotion of its natural heritage resources. The following statistics outline further benefits associated with preservation:

- 22 jobs are created for every \$1 million spent on historic preservation.
- 78% of leisure visitors (118 million adults nationwide) participate in cultural and/or heritage activities when traveling and spend approximately 30% more than other visitors.
- In Philadelphia, a 13% real estate premium was identified in historic districts compared to properties in undesignated neighborhoods.

(Sourced from http://my.preservationnation.org/site/DocServer/Economic_Benefits_of_HP_April_2011.pdf?docID=9023)

Lehigh County greatly benefits from hosting a portion of the Delaware & Lehigh National Heritage Corridor, one of 12 defined Heritage Areas in Pennsylvania. The County also has a special place in agricultural



D&L Trail, Photo by Teresa Mackey, LVPC

history as the dominant county (of just three in the state) that participated in potato production and helped define the success of the Great Valley potato region between 1850 to 1910.

Features like these provide qualitative contributions to ongoing histories. By contributing to the distinctiveness of place, their preservation and promotion also offers significant economic development benefits. An effective heritage tourism program can bolster local businesses, while bringing attention to a community's distinctive characteristics, therefore contributing richness and depth to the people who live and work there. Through effective promotional campaigns, these assets can be further leveraged to attract new visitors, residents, businesses and investors. This approach may be evidenced in a campaign for historic agricultural areas, combining desires for local fresh food access with programming that educates people about farming practices that helped establish the region. Marketing may achieve the goal of attracting people with particular interests to the region. The Lehigh Valley Ale Trail successfully draws beer enthusiasts who are interested in

craft (traditional) beer production. Open spaces can also be marketed to bring higher visibility to lesser known community groups, such as hosting festivals that celebrate a specific culture or ethnic group.

When restored and converted to new uses, historic buildings are particularly successful in serving as value-added amenities, providing spaces for innovative business ventures. This is evidenced in places such as Lock Ridge Park and Furnace, which can accommodate weddings, or the many historic barns dotting the County that offer tours and host events. These are just a few examples of heritage spaces that improve their chances of preservation through diversifying their uses.

Historically or culturally significant open space sites encourage all of the earlier benefits mentioned—strong communities, economic return, and health and wellness—as well as a sense of stewardship that enables these benefits to be enjoyed by future generations. Stewardship is essential for establishing how these sites will be sustained in a way that is consistent with the County's values and needs.

Planning Processes

Phases

The Livable Landscapes preparation process consisted of the following steps:

- Inventory of existing open space resources
- Gather input from County staff, municipalities and from various public participation strategies, such as meetings and surveys
- Analysis of needs and opportunities for open space resources
- Development of vision, goals, policies, actions and recommendations
- Action plan development
- Plan review and development of final plan

Public Participation

To gain an understanding of the needs and opportunities related to open space in the County, the public participation process to develop Livable Landscapes included multiple components. The main elements used to solicit input were two steering committees (a Professional Partners committee and a Municipal Officials committee), public meetings, key person interviews, and a public opinion survey. A summary of these components is described below.

Steering Committee: The Plan Steering Committees were created to provide insight and input into the planning process, comment on information and mapping developed by the Lehigh Valley Planning Commission, act as a resource for localized activities pertaining to park, recreation and open space planning, and suggest alternatives and make recommendations to the Plan.

The project kick-off meeting held on June 16, 2016 included an overview of the plan and a presentation of previous public opinion survey results, elements of the plan and the associated major focal points. Commencing in August 2016, steering committee meetings were held on a monthly basis to establish an overarching vision for the plan;

discuss the County's strengths, weaknesses, opportunities and threats in various topic areas; provide progress updates on data collection, analysis, and plan development efforts; and present findings from the Public Opinion and the Farmer surveys. At the March 6, 2017, meeting, Cory Kegerise, the Pennsylvania Historical and Museum Commission's Community Preservation Coordinator for the Eastern Region, gave a presentation to the steering committees regarding historic preservation efforts in the Commonwealth.

Community Survey: This random sample survey was administered and analyzed by the Lehigh Valley Planning Commission, which collected electronic survey data from a random sample of Lehigh County residents from December 1, 2016 through January 31, 2017. The random nature of the survey is intentional to obtain opinions from the full cross-section of County residents, rather than a survey of existing park and open space users. The purpose of this survey is to assist Lehigh County staff, the Lehigh Valley Planning Commission and the Plan Steering Committees to understand the open space needs of the community. The mail survey included an optional QR code (accessible by smartphones) unique to an online version of the survey. Highlights of the results are presented on page 30, with the complete survey results available in the Appendix.

The Lehigh Valley Planning Commission offered a second survey that was open to the public and not randomly administered or controlled for statistical validity. The content of this self-administered survey was identical to the random sample survey, but it was promoted through social media for anyone to participate using a different, unique link to sequester the results from the random sample survey. Responses to the public survey generally mirrored those of the controlled random survey.

Municipal Survey: To gain an understanding of the strategies that the County's municipalities use to provide outdoor recreation opportunities to residents and to update the Lehigh Valley Planning Commission's park, outdoor recreation and open space database, a survey form and map were sent to the 25 municipalities as part of this Plan. The information requested on the form was related to four categories—Planning, Land Preservation, Staffing/Administration and Funding. The municipalities were also asked to review a Park, Recreation and Open

Space map for their municipality and provide any updates. Highlights of the results are presented in the Outdoor Recreation section of the Inventory and Assessment Chapter, with the complete survey results available in the Appendix.

Farmer Survey: In addition to the surveys gauging public opinion on various aspects of Lehigh County's livable landscape, the Lehigh Valley Planning Commission also collaborated with its institutional partners—Lehigh County, Buy Fresh Buy Local, The Seed Farm and Penn State Extension—to develop and distribute a 15-question survey of farmers working within Lehigh County. Drawing upon the membership and mailing lists of these organizations, hard copies of the survey, along with return envelopes addressed to the Lehigh Valley Planning Commission, were sent out to 650 recipients. Surveys were mailed on January 6, 2017, and the survey remained open through March 7, 2017. Additional surveys were also distributed and collected at the Farmers' Meeting held at the Lehigh County Government Center on March 7, 2017. Upon receipt of the completed surveys, the Lehigh Valley Planning Commission entered the collected responses into Survey Monkey, and a final total of 135 responses were received. The response data provided important data on the size, tenure and length of operation of farming operations, as well as insights on critical issues, opportunities and potential areas of assistance. The Lehigh Valley Planning Commission also performed cross-tabulated analysis of the results to gain more detailed information on the correlation between the size of farming operations and other factors revealed through the survey. Highlights of the results are presented in the Agricultural Resources section of the Inventory and Assessment Chapter, with the complete survey results available in the Appendix.

Public Meetings: Three public meetings were held during the planning process.

- Planning & Pizza, August 24, 2016: Project Overview, Existing Conditions Mapping, Visioning Exercise, Biggest Priorities
- Community Input Meeting – Public, February 7, 2017: Project Overview, Existing Conditions Mapping, Biggest Priorities, Visioning Exercise
- Community Input Meeting – Farmer, March 7, 2017: Project Overview, Agricultural Resources Mapping, Issues Discussion



Cedar Beach Playground, photo by Craig Kackenmeister LVPC

Key Person Interviews: Key person interviews were held with County staff. The County staff provided insight into the state of the County parks (Robert Stiffler, Director of Parks) and the Farmland Preservation Program (Diane Matthews-Gehringer, Director of Farmland Preservation).

Plan Review: A hard copy of the draft plan was provided to the Steering Committee members at the June 1, 2017, monthly meeting. A follow-up email was sent to the Lehigh Valley Planning Commission members and Steering Committee members that provided a link to the electronic version, posted on the Lehigh Valley Planning Commission's website, requesting any comments by June 8, 2017.

Community Survey

Parks, trails and natural areas

Open space activity = walk, hike, run on natural surfaces



Value protection of lakes, rivers, streams and water quality



Familiar or very familiar with parks, trails, open space and natural areas



Restrooms are the most desired amenities



Visit parks, trails and natural areas weekly or monthly



Open space activity = farmers' markets and farmstands



Prioritize existing trails



Community/neighborhood parks are the most commonly visited type of non-county parks and natural areas



Trexler Nature Preserve most visited County-owned site



Sidewalks for leisure walking are the most frequently visited



The Lehigh River is the most frequently visited waterway



Agricultural Resources

Strongly agree with protection of farmland



Familiar or very familiar with agricultural resources



Historical sites, landmarks and districts

Strongly agree with preservation of historical sites, landmarks and districts



Historic and covered bridges most visited historic resources



Familiar or very familiar with Lehigh County's Historical Sites



Visit historical sites, landmarks and districts weekly or monthly



Lock Ridge Park and Furnace Museum,
photo by Craig Kackenmeister, LVPC

Inventory and Assessment



The Seed Farm
Photo by Craig Kackenmeister, LVPC

Natural Resources

Interconnected natural resources provide numerous benefits, such as protecting and enhancing water quality; filtering pollutants from water, soil and air; providing habitat and maintaining biodiversity; recharging groundwater aquifers; providing recreation opportunities; buffering developed areas from flooding, ultimately saving lives, money and property; and providing aesthetically pleasing areas to experience. Lehigh County's natural resources include a river and streams, wetlands, floodplains, natural heritage areas, mountains and woodlands. These natural landscapes are a defining characteristic of the County's history and culture and contribute to the high quality of life that residents enjoy today. Voters have expressed very clearly in public opinion surveys conducted over the past 40 years the importance of preserving the County's natural resources.

The Lehigh Valley Planning Commission maintains databases of the open space resources in the County such as those listed above. Over 1,200 acres of these natural resource lands, which do not have recreational facilities, are protected through ownership by primarily Wildlands Conservancy or governmental entities (i.e. federal, state, County or municipal governments) or privately-owned property with a conservation easement. The largest protected sites are the Fogelsville quarries, municipal reservoir lands and conservation easements on private land. Although the State Game Lands occur on the largest contiguous wooded areas in the County, they are not included in this section because of their associated outdoor recreation component and are reported in the Outdoor Recreation Resources discussion later in this chapter. Three County-owned sites are currently classified as Natural Resource Areas and are reported below. See the County Parks and Natural Resource Areas map in the Outdoor Recreation Resources section for locational information.

Conservation easements protect land for the future, while allowing owners to retain many private property rights and to live on and use their land. In a conservation easement, a landowner agrees to sell or donate certain rights associated with the property—often the right to subdivide or develop—and a private organization or public agency agrees to hold the right to enforce the landowner's promise not to exercise those rights. Conservation easement lands protect 471 acres of

natural resource areas in Lehigh County, although a portion of some easement properties may be in agricultural use.

Natural Resources covered in this section include:

- County-Owned Natural Resource Areas
- Topography
- Geology
- Steep Slopes
- Woodlands
- Interior Woodlands
- Riparian Woodlands
- Hydrography
- Floodplains
- Wetlands and Hydric Soils
- Natural Heritage Areas
- Natural Resources Plan

County-Owned Natural Resource Areas

County Land Adjacent to a Seems Parcel

Location: Kohler Road, Upper Milford Township

Size/Classification: 25 acres/Natural Resource Area

Description: A wooded parcel on the west side of The Seed Farm, a County-owned farm with an agricultural easement and a farm incubator, and across from Churchview Park, which is County-owned but leased to Upper Milford Township.

Assessment: Currently there are no recreation facilities at this location, and the County does not have any plans to develop any facilities in the future. With this site's proximity to the Lehigh County Conservation Demonstration Project site, which provides passive recreation opportunities, developing any facilities at this site is not necessary.

Recommendation: Continue to maintain this site as a natural resource area.

Scholl Woodlands Preserve

Location: South Mountain, Upper Saucon Township

Size/Classification: 22 acres/Natural Resource Area

Description: A wooded, landlocked parcel on the south-facing slope

of South Mountain adjacent to the County-owned South Mountain Big Rock Park (discussed in the Outdoor Recreation Resources section) to the north and a residential area to the south.

Assessment: The County does not have any plans to develop this site. The slope at this site precludes development of any recreation facilities.

Recommendation: The County should continue to keep this property for the preservation of South Mountain.

Upper Milford South Mountain Property

Location: Near Chestnut Hill Road, Upper Milford Township

Size/Classification: 17 acres/Natural Resource Area

Description: A wooded, landlocked parcel adjacent to Unami Fish & Game Protective Association and a parcel owned by Emmaus Borough where the Shelter House (circa 1734 and the oldest building in Emmaus) is located.

Assessment: The County plans to keep this property as a natural resource area. An opportunity in the future exists to connect the site to the nearby Beuhler Memorial Park, a Wildlands Conservancy-owned preserve, if the parcel that links the two properties becomes available for preservation. The County is attempting to acquire an adjacent property from Emmaus Borough.

Recommendation: Acquire the adjacent property from Emmaus Borough if funding allows.

Topography

The predominant geographic features of Lehigh County are the Kittatinny Ridge—referred to locally as the Blue Mountain, separating Lehigh County from Carbon and Schuylkill counties to the north—and the Pennsylvania Highlands to the south. The Lehigh River forms part of the eastern boundary. Between the Kittatinny Ridge and the Pennsylvania Highlands is a seven-mile wide limestone valley where most people in Lehigh County live and work. The topography ranges from 1,668 feet above sea level along the northern ridge to 212 feet above sea level in the Lehigh River and creates a landscape with abundant natural landmarks and scenic beauty.

Geology

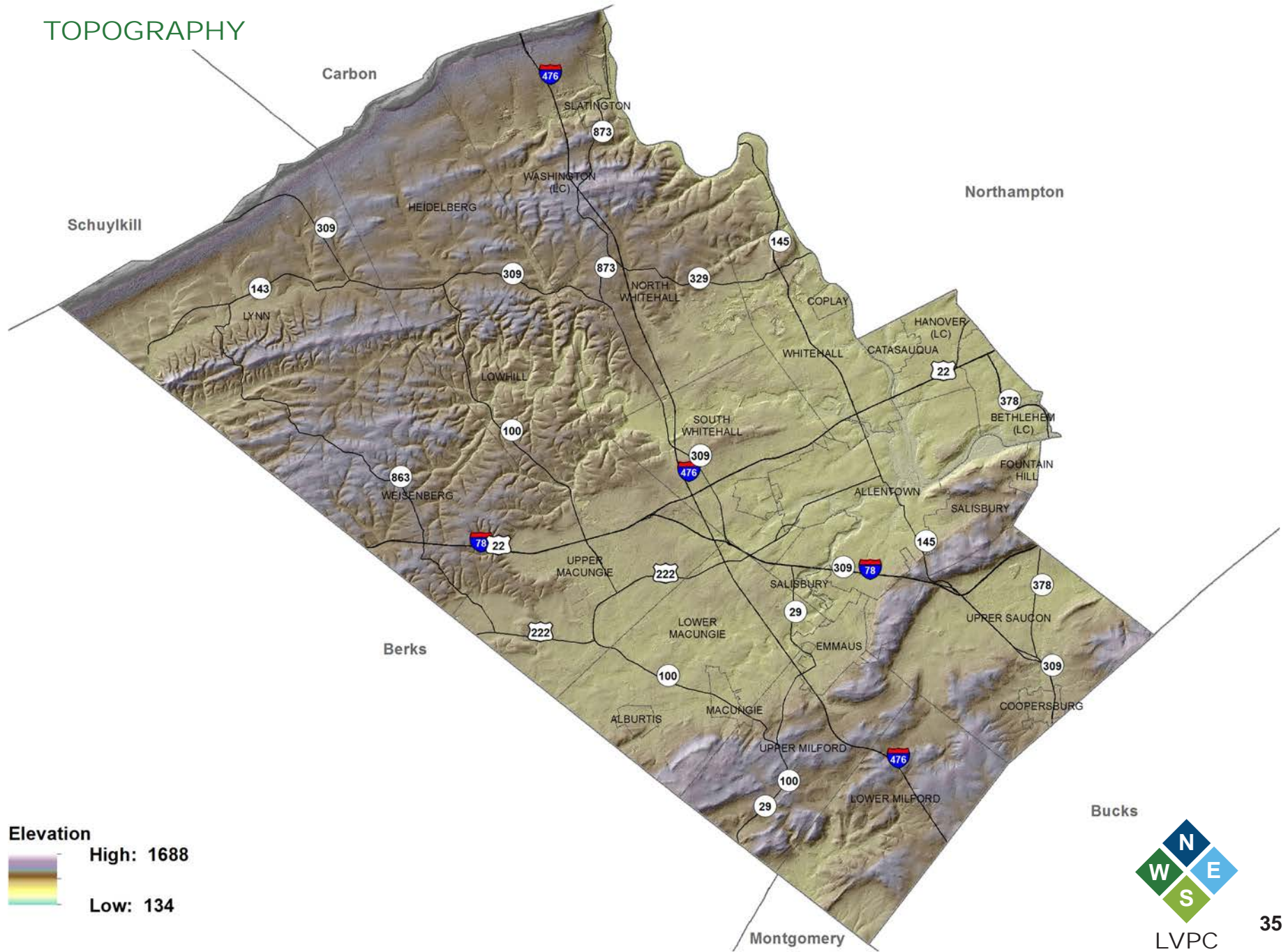
The Department of Conservation and Natural Resources' Pennsylvania Geological Survey is striving to promote the awareness, appreciation and conservation of such outstanding geologic features by documenting their presence. The geologic mapping service has mapped six physiographic provinces throughout Pennsylvania. Each province is made up of sections characterized by terrain, subsurface rock type, soil and history. Lehigh County has three physiographic provinces—the Ridge and Valley, New England and Piedmont.

The Ridge and Valley Province, characterized by forested, flat-topped ridges and fertile valleys, has two sections within Lehigh County—Blue Mountain and Great Valley. The Kittatinny Ridge along the northern edge of the County contains the Blue Mountain Section, and south of the Kittatinny Ridge is the Great Valley Section, a very broad lowland area characterized by carbonate bedrock and well-drained, fertile soils. The flat, undulating terrain of the central portion of Lehigh County has been used intensively for agriculture, and most of the areas where urban development has taken place are underlain by limestone bedrock. In Lehigh County, 19 of the 25 municipalities are underlain entirely or in part by carbonate rock. These carbonate formations are located in the urban core, provide the primary raw material for the local cement industry, and lie under the most fertile soils. Carbonate rock has the potential for sinkhole formations, which are fairly common in the County. When sinkholes occur in developed areas, they can cause severe property damage, injury and the loss of life, disruption of utilities and public services, and damage to roadways.

The New England Province in the County has one section, the Reading Prong, which consists of isolated hills and ridges divided by stream valleys. South Mountain, a landmark ridge on the southern border of the cities of Allentown and Bethlehem, is part of the Reading Prong and a larger region of mountains called the Highlands, which extend from eastern Pennsylvania through New Jersey and New York to northwestern Connecticut, forming a vital linkage between the Berkshires and the Blue Ridge Mountains.

The Piedmont Province area in the County has the Gettysburg-Newark Lowland Section, with most of the Section located in Bucks County and running west. The Gettysburg-Newark Lowland Section is characterized by rolling low hills and valleys and isolated ridge tops.

TOPOGRAPHY



Elevation
High: 1688
Low: 134



Steep Slopes

Slopes with grades of 15% or greater are steep, and slopes with grades greater than 25% are very steep as classified by the *Comprehensive Plan The Lehigh Valley ... 2030*. Steep slopes (inclusive of very steep) are vulnerable to damage resulting from site disruption, particularly related to soil erosion. Erosion of steep slopes can be a serious problem as all soils are subject to movement as the slope of the landscape increases. If disturbed, these areas can yield heavy sediment loads on streams and wetlands, degrading water quality and disturbing aquatic habitat. Increased sedimentation also increases flood hazards by reducing the floodwater storage capacity of drainage ways. The majority of steep slopes are located in northern Lehigh County on the Kittatinny Ridge, Shochary Ridge and along stream corridors. Approximately half (52%) of all steep slopes are wooded; very few steep slopes are used for cropland or pastures due to their lack of suitability.

Woodlands

Woodlands are valued for many reasons, providing recreational opportunities such as nature study, hunting, hiking and horseback riding. Woodlands can be used for firewood harvesting, commercial timbering, and as land use buffers and boundaries between non-compatible land uses. Many species of birds and wildlife depend on large, unbroken wooded tracts for survival. Woodlands also mitigate environmental stressors by reducing stormwater runoff, filtering groundwater recharge, controlling erosion and sedimentation, moderating local microclimates, and purifying the air. There are approximately 49,500 acres of woodlands (in stands of greater than five acres) in Lehigh County. The largest concentrations are found along the mountain ranges and hillsides adjacent to major stream and river corridors. Woodlands are commonly found on other environmentally sensitive areas such as steep slopes and floodplains, adding to their significance and need for protection.

Interior Woodlands

Interior woodlands are areas that are a minimum of 300 feet from the edge of the woodland patch and, therefore, do not have the environmental conditions that exist along the edges of the woodland, which is known as the 'edge effect'. The habitat characteristics—light, wind, moisture, predation rates, tree density and composition—found at the

edges are quite different from the conditions in the forest interior. Many wildlife species (e.g., certain songbird species) require the habitat characteristics provided in interior woodlands for survival. The size of the interior woodland is a factor in determining the number of species that exist (i.e. a higher number of species are found in larger tracts). The majority of interior woodlands in Lehigh County are found on the Kittatinny Ridge, Shochary Ridge and along the isolated hill and mountain tops of the Highlands.

Many forested areas in the County have been fragmented primarily as a result of land development, a trend across Pennsylvania and other historically forested states. Conversely, some isolated wooded areas may become reconnected due to succession (the natural change in vegetation species and structure over time), occurring when land is left in a natural condition and reverts to woodlands.

Riparian Woodlands

Riparian woodlands are recognized as a vital feature for protecting and restoring waterways. A riparian buffer is an area of natural vegetation that is maintained along the shore of a water body to protect water quality and stabilize channels and banks. The riparian vegetation affects the stream channel shape and structure, as well as the stream's canopy cover, shading, nutrient inputs and amount of large woody debris entering the stream. The buffer serves to reduce the amount of pollutant runoff entering the stream by trapping sediment and reducing soil erosion.

Grassland and forested buffers are both effective at trapping sediment, however, forested buffers provide many additional benefits. Riparian woodlands supply food for aquatic organisms in the form of leaf-litter and debris, maintain and cool water temperatures through shading, and provide habitat for many desirable species of amphibians, reptiles, mammals and birds. If wide enough, riparian buffers function as corridors for the movement of large and small mammals. Riparian buffers also provide numerous benefits to landowners and the community by: 1) protecting groundwater recharge areas, 2) providing flood control, 3) providing stormwater management, and 4) stimulating economic opportunities by creating valuable open space that increases residential property values and the tax base.

STEEP SLOPES

Carbon

Schuylkill

Northampton

Berks

Bucks

Montgomery

Legend:

- 15% to 25% slope
- Greater than 25% slope

Compass Rose: N, S, E, W

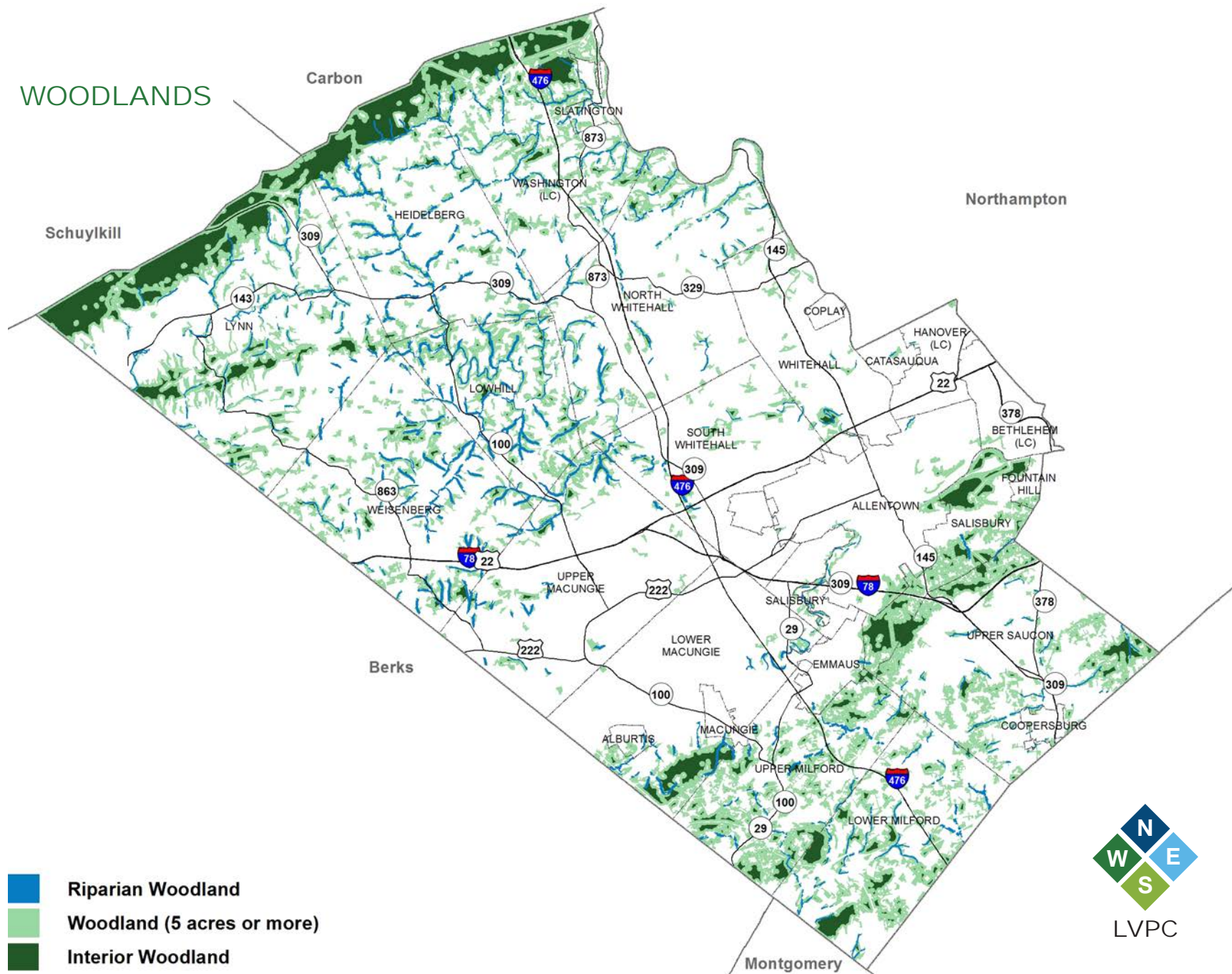
LVPC

Greater than 25% slope



LVPC

WOODLANDS



Hydrography

The rivers and streams of Lehigh County have played a significant role in its history and development. The County's two cities and some of its major boroughs grew along the banks of the Lehigh River as major industries began their existence along the Lehigh Navigation Canals. Today, the industrial heritage of the County is reflected and interpreted by commemorative parks, historical remnants and museums. Many municipal parks and trails in Lehigh County are located near rivers and streams and along canal towpaths. River and stream corridors can also serve, or have the potential to serve, as blueways (defined in the Greenways and Blueways section), providing a link between population centers and recreation areas. The Lehigh River provides boating and fishing opportunities. Wildlands Conservancy's annual Lehigh River Sojourn is a popular multiple-day paddling adventure down the Lehigh River.

In addition to their historical and recreational benefits, the waterways of Lehigh County provide critical wildlife habitat areas. Many species of birds, aquatic animals and mammals depend on river and stream corridors for travel, cover and nesting places. According to the Pennsylvania Fish and Boat Commission, one of the best wild trout fishing waters in Pennsylvania is a segment of the Little Lehigh Creek located in the Lehigh Parkway.

Recognizing the importance of water quality for the preservation of Pennsylvania's water supply and wildlife, and as required by the federal Clean Water Act, the Pennsylvania Department of Environmental Protection established a Water Quality Standards program documented in 25 Pa. Code, Chapter 93. The standards are based upon water use: 1) Designated Use – specified for each water body or segment whether or not the use is being attained, and 2) Existing Use – the use actually attained in the water body on or after November 28, 1975 whether or not the use is included in the water quality standards. All Commonwealth waters are protected for a designated aquatic life use as well as a number of water supply and recreational uses as listed below:

- Exceptional Value Waters
- High Quality Waters
- Cold Water Fishes

- Trout Stocking Fishes
- Migratory Fishes
- Warm Water Fishes

The majority of streams in Lehigh County have a Designated Use of either High Quality-Cold Water Fishes or Cold Water Fishes. Lehigh County has portions of six streams with an Existing Use higher than the Designated Use:

| High Quality-Cold Water Fishes (HQ-CWF) | | |
|---|--------------|-------------------|
| | Existing Use | Designated Use |
| Ontelaunee Creek | EV | Cold Water Fishes |
| School Creek | EV | Cold Water Fishes |
| Stony Creek and tributaries | HQ-CWF | Cold Water Fishes |
| Saucon Creek | HQ-CWF | Cold Water Fishes |
| Hosensack Creek | HQ-CWF | Cold Water Fishes |
| Catasauqua Creek | HQ-CWF | Cold Water Fishes |

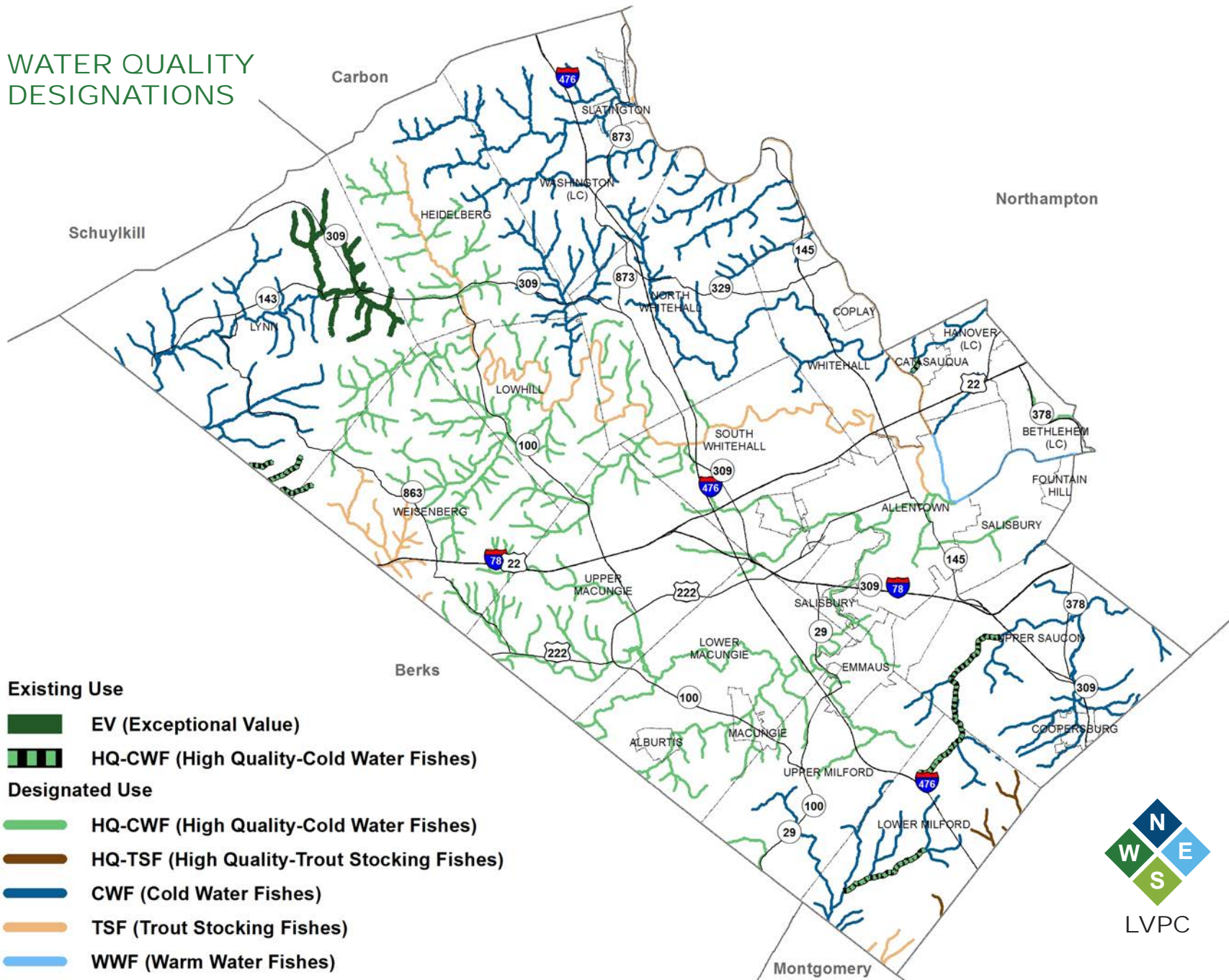
The associated riparian buffers and surrounding floodplains of streams and rivers represent opportunities for blueway development.

Floodplains

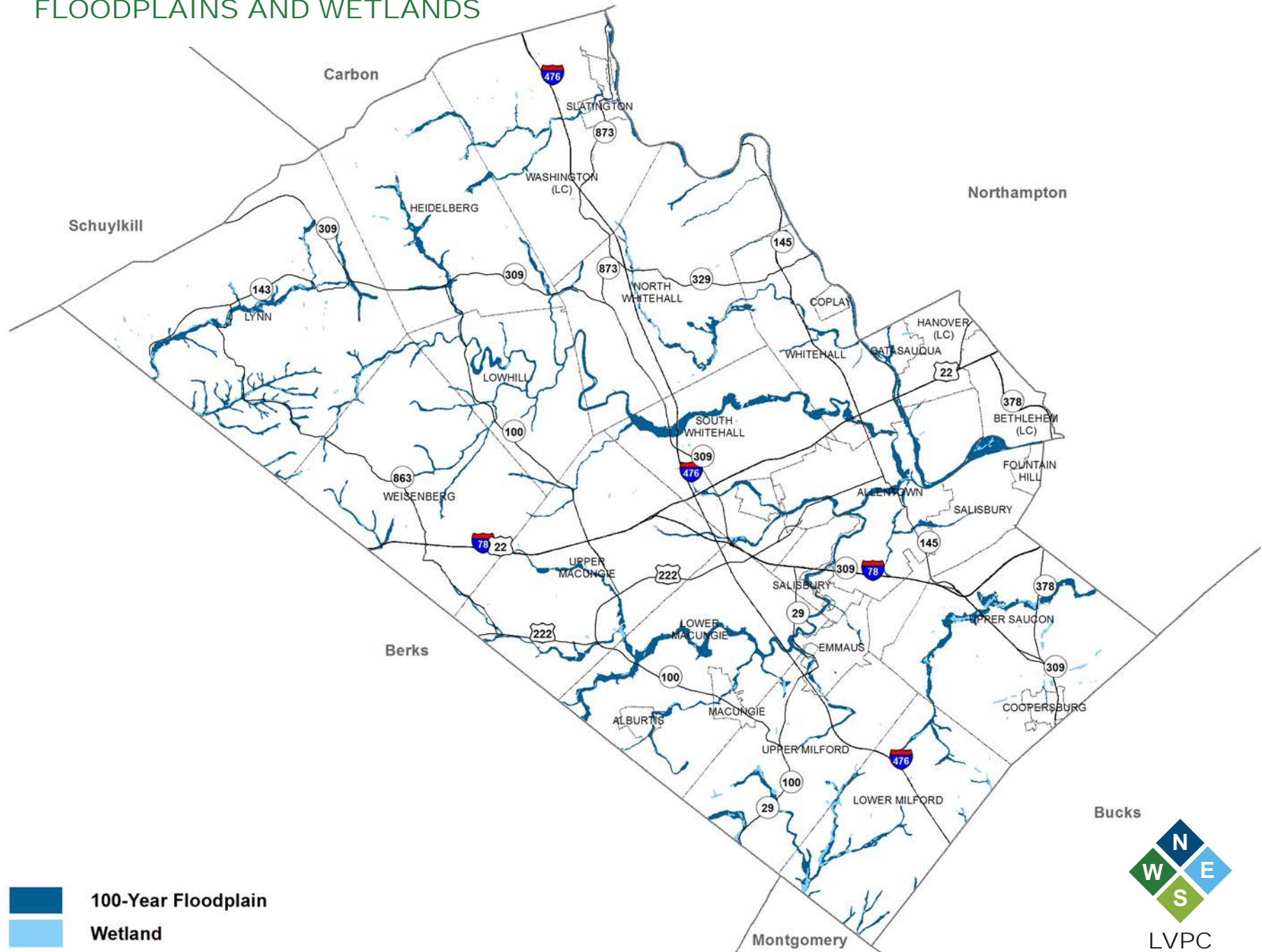
A floodplain is the low lying area adjacent to a stream, river or watercourse that is subject to periodic flooding. Naturally vegetated areas within floodplains help to trap sediment from upland surface runoff, ultimately leading to the creation of proper downstream conditions required for aquatic life. These areas also store large amounts of water, which can be a source of aquifer recharge and prevent loss of life, health hazards and property damage. Many of the most scenic areas in Lehigh County are found within the floodplains of the Lehigh River and the larger streams. Regulation of floodplains further helps to protect open space and critical habitat areas, and preserve and enhance water quality and quantity.

The Pennsylvania Floodplain Management Act (Act 166 of 1978) requires municipalities identified as being flood prone to enact floodplain

WATER QUALITY DESIGNATIONS



FLOODPLAINS AND WETLANDS



regulations, which, at a minimum, meet the requirements of the National Flood Insurance Program. To minimize flood damage and protect floodplains, the *Lehigh Valley Comprehensive Plan* recommends municipalities prohibit new structures and fill in the 100-year floodplain, except for certain infrastructure as recommended by the Pennsylvania Code.

Wetlands and Hydric Soils

Wetlands—swamps, marshes and bogs—are areas that are filled by surface or groundwater long enough to support a variety of vegetation typically adapted for life in saturated soil conditions. According to the Pennsylvania Department of Environmental Protection and the United States Army Corp of Engineers, a wetland must have hydrophytic vegetation (plant life that thrives in oxygen poor/saturated conditions) and hydric soils (soil formed when oxygen was lacking due to prolonged inundation saturation) to be designated as such. Many of these are considered seasonal wetlands (i.e. they are dry during one or more seasons every year). The quantity of water present and the timing of its presence determine the functions of a wetland. Even wetlands that appear dry for significant portions of the year (e.g., vernal pools) can provide significant habitat for a variety of species.

Wetlands provide higher natural system service benefits on a per acre basis than any other land cover at about \$9,000 per acre per year.

Wetlands are one of the most biologically diverse systems in the world and perform a variety of important physical and biological functions. Wetlands have important filtering capabilities for collecting runoff before it reaches rivers and streams, maintaining stream flow during periods of drought and assisting in groundwater replenishment. As documented in the *Lehigh Valley Return on Environment* study (2014), wetlands provide higher natural system service benefits on a per acre basis than any other land cover, helping Lehigh County avoid more than \$44.2 million annually in water supply, flood mitigation and water quality expenditures. Additionally, wetlands are ideal locations for environmental education opportunities and often feature as an element within scenic viewsheds.

According to the U.S. Fish & Wildlife Service's National Wetland Inventory, Lehigh County has 439 sites classified as freshwater forest/shrub or freshwater emergent wetlands. Wetlands and hydric soils are found in most municipalities, with slightly more concentrations in the northern and southern parts of the County.

Natural Heritage Areas

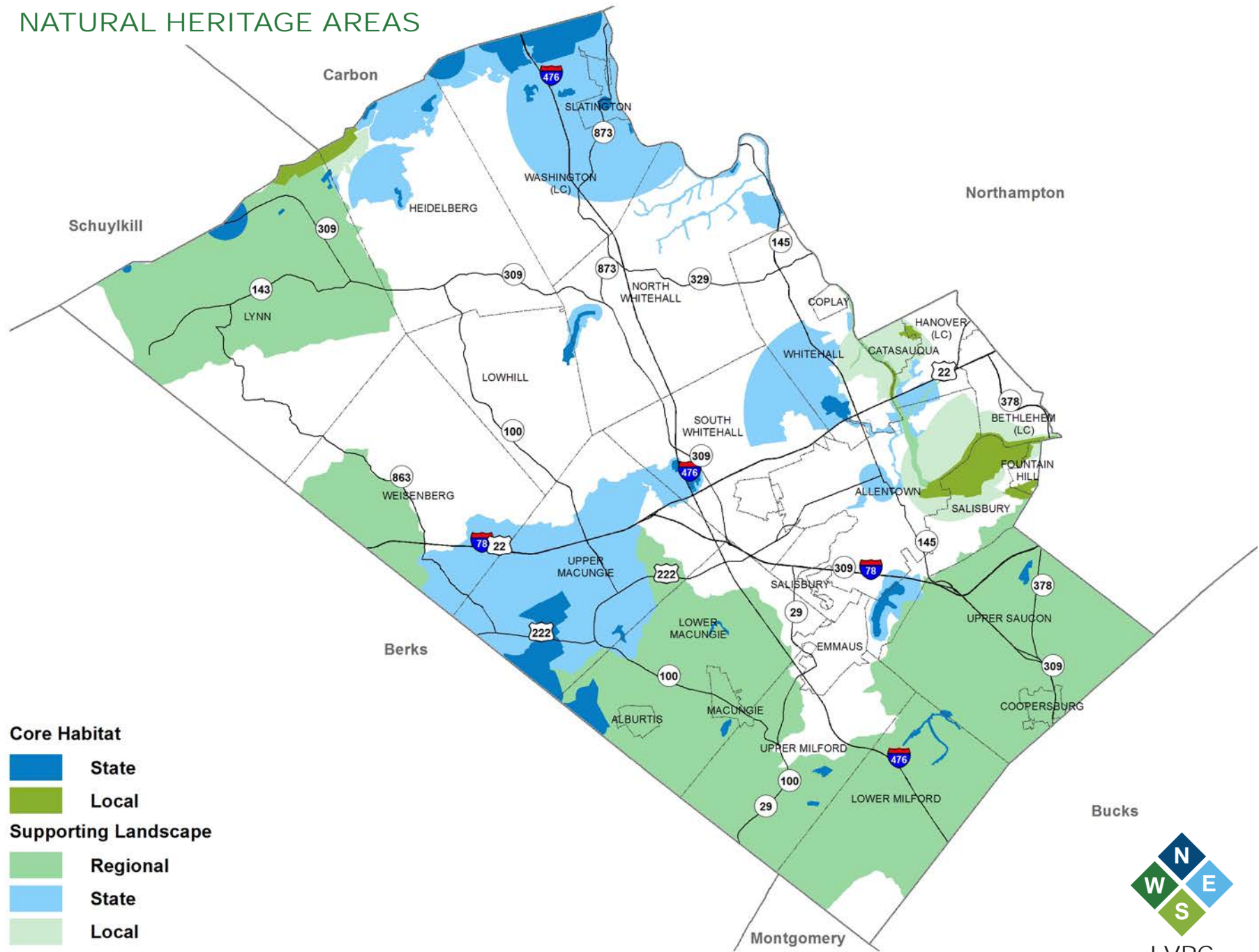
Lehigh County has many natural areas worthy of protection, such as rare plant and threatened and endangered animal species locations, highest quality natural habitats, and outstanding geologic features. Working with the Western Pennsylvania Conservancy, in 2013 the Lehigh Valley Planning Commission updated and released the Natural Areas Inventory for the Lehigh Valley titled *Natural Heritage Inventory of Lehigh and Northampton Counties, Pennsylvania – Update 2013*. The study updated the previous versions from 1999 and 2005 and identified 51 Natural Heritage Areas in Lehigh County, 35 sites with a core habitat and supporting landscape defined and ten sites having only a watershed-supporting landscape defined. The core habitat/supporting landscape mapping process is a new way to delineate the site boundary. Core habitats represent critical habitat that cannot absorb significant levels of activity without substantial negative impacts to the species of concern or natural community. Supporting landscapes are directly connected to core habitat and maintain vital ecological processes and/or secondary habitat that may be able to withstand some lower level of activity without substantial negative impacts to elements of concern.

The study identified 111 species of concern in the Lehigh Valley, including several of global conservation concern and eight high quality natural community types. The majority of Natural Heritage Areas identified in the *Natural Heritage Inventory* are associated with wetlands, riparian zones, floodplains and vernal pools. Several Natural Heritage Areas in Lehigh County are completely or partially located within protected land owned by federal, state, county or municipal entities or land conservancies.

Natural Resources Plan

The Natural Resources Plan was developed as part of the *Comprehensive Plan The Lehigh Valley...2030* and identifies the important natural resource areas in the Lehigh Valley and how to preserve them. Eleven

NATURAL HERITAGE AREAS



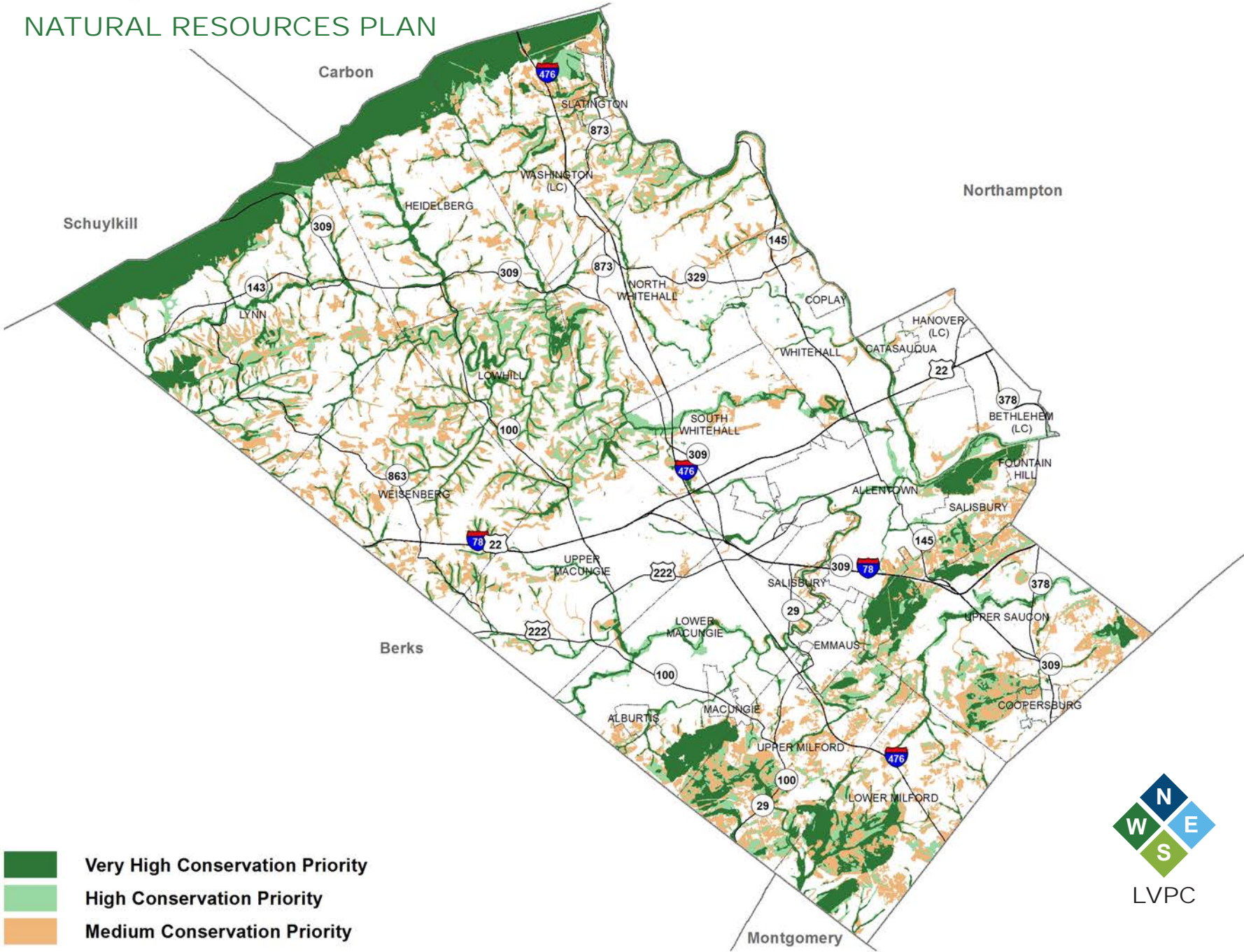
different natural resource components were used to produce the Natural Resources Plan: floodplains, hydric soils, the Blue Mountain natural area, Natural Areas Inventory, river resource areas, steep slopes, water quality, wetlands, woodlands, interior woodlands and riparian woodlands. The 11 elements were weighted and layered using a Geographic Information System. The calculations resulted in a range of values, with the higher numbers indicating where the greatest combination of natural resources occurs in the Lehigh Valley. Three

conservation priority levels were created for the range of values. The three conservation priority areas total 76,495 acres in the County, with only 17% being protected to date.

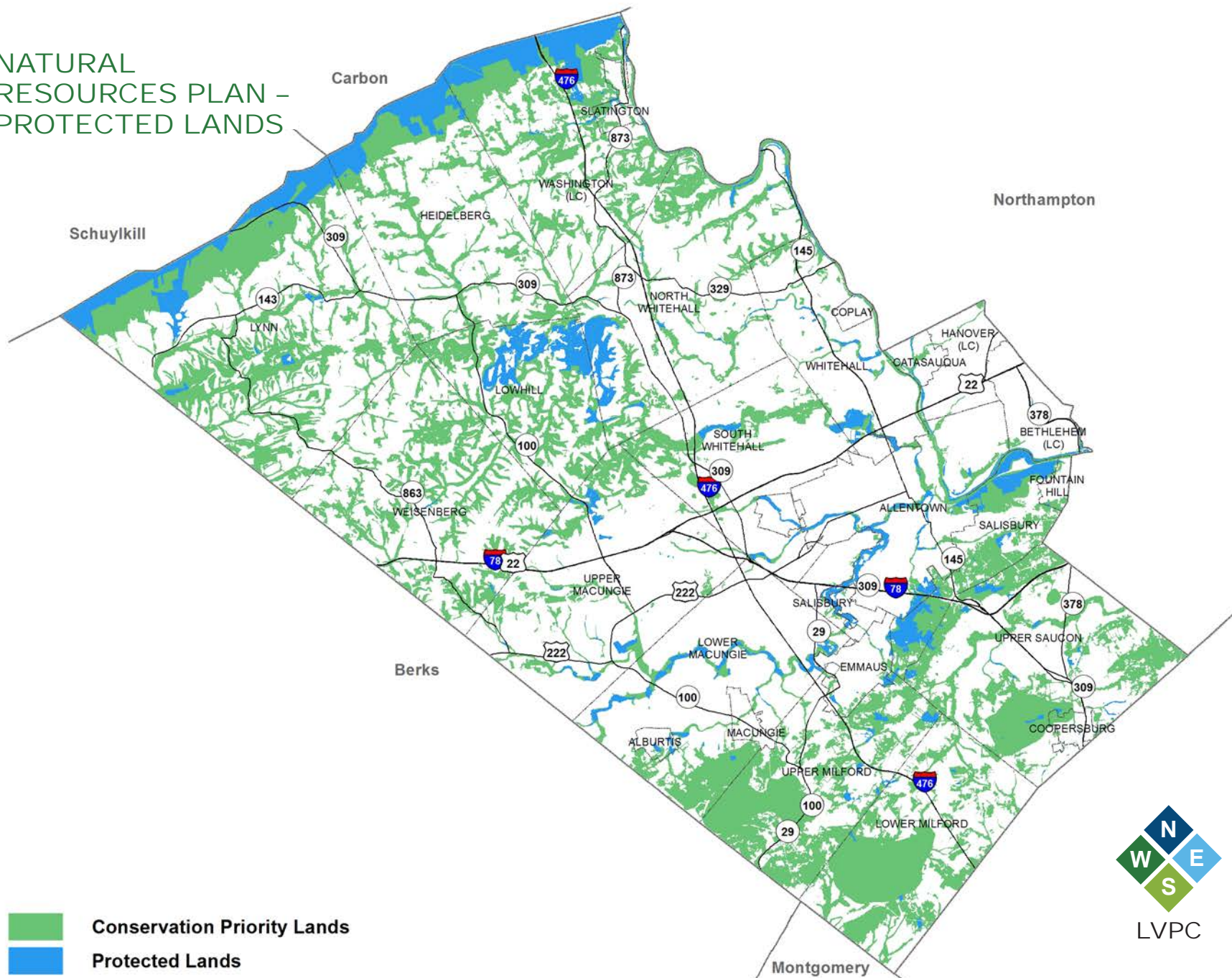
NATURAL RESOURCES PLAN CONSERVATION PRIORITIES

| Conservation Priority | Description | Acreage | % Protected |
|-----------------------|---|---------|-------------|
| Very high | Areas that should be given first consideration for public and private conservation acquisition programs. | 29,389 | 30% |
| High | Areas that should also be considered for acquisition, especially if they are part of a larger natural feature identified as very high conservation priority. In some cases, such as floodplains and steep slopes, high priority areas might be adequately protected through municipal zoning. | 17,069 | 14% |
| Medium | Areas that should be protected through zoning regulations, conservation subdivision design and conservation farming practices. Many of these areas may include small stands of woodlands, drainage swales or poorly drained soils that are either part of local farm operations or are part of larger residential lots. | 30,037 | 6% |

NATURAL RESOURCES PLAN



NATURAL RESOURCES PLAN – PROTECTED LANDS



Outdoor Recreation Resources

Lehigh County has a wide variety of outdoor recreation opportunities for residents and visitors to enjoy. County residents have grown accustomed to a high quality, interconnected system of parks, trails and natural areas. Lehigh County and several municipalities have demonstrated a long-standing commitment to creating public parks and protecting the natural environment, resulting in outstanding places like the County-owned Trexler Nature Preserve in Lowhill and North Whitehall townships and the City of Allentown's Lehigh Parkway.

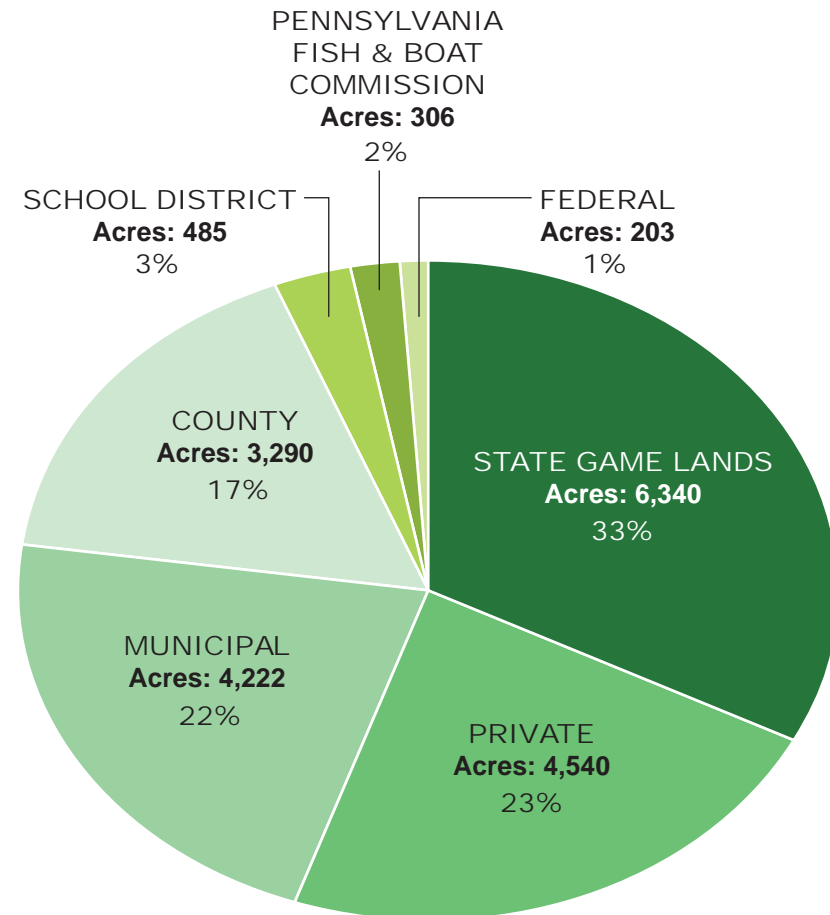
The County's outdoor recreation system consists of 431 sites totaling 19,386 acres (9% of the County land area) owned by federal, state, County, municipal and private entities. The outdoor recreation sites are classified based on their function, a variation of the National Park and Recreation Association's classification system adjusted to meet local needs. Of these sites, 59% are open to the public, 15% may have public access limitations, and 26% are not open to the public (e.g., homeowner's association recreation areas, proposed parklands leased for farming, private school properties, membership-only groups, etc.). Natural resource areas that do not have a recreation component are reported in the Natural Resources section of this chapter.



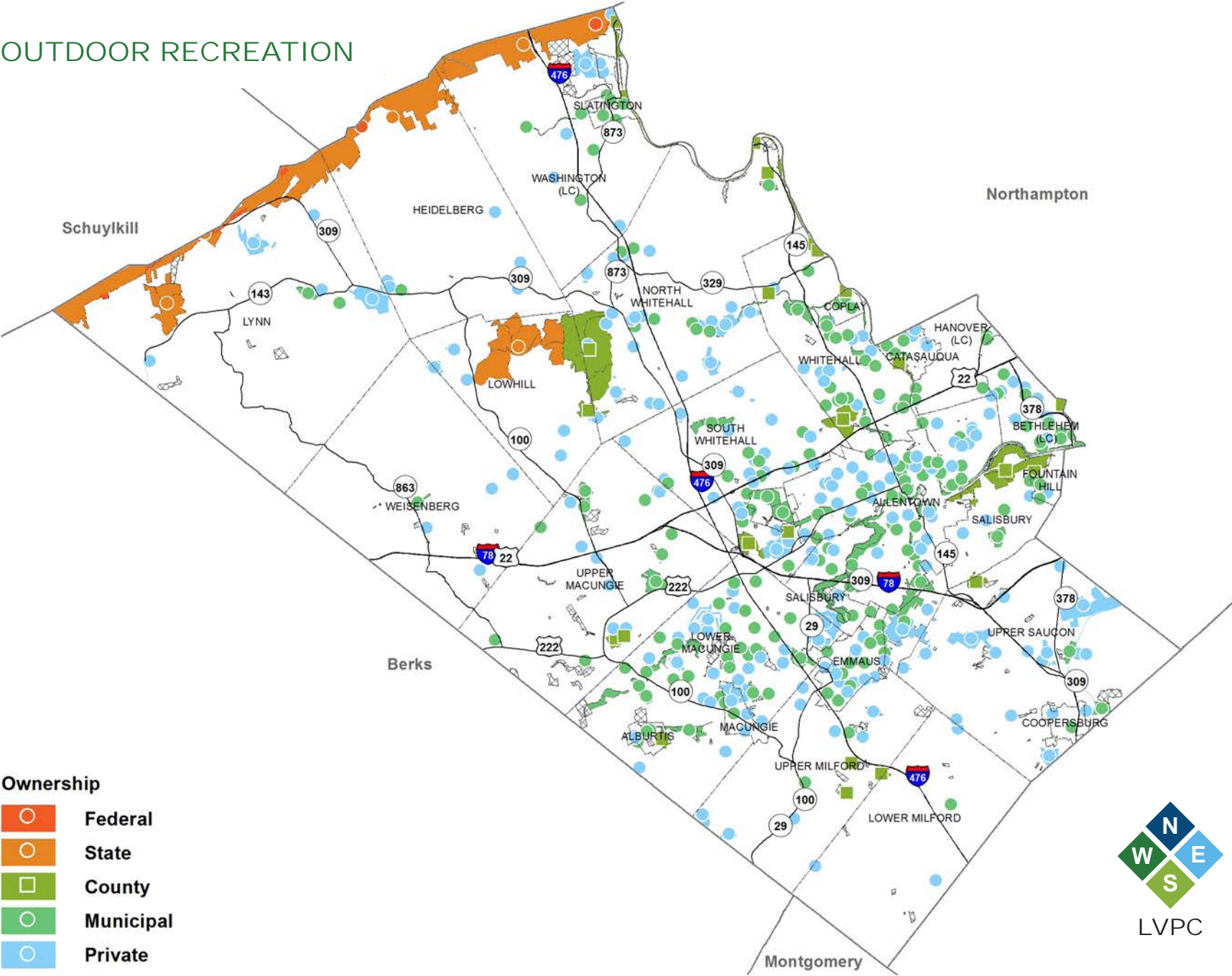
Leaser Lake

Photo by Craig Kackenmeister, LVPC

OUTDOOR RECREATION BY OWNERSHIP



OUTDOOR RECREATION



Park, Outdoor Recreation and Natural Area Classifications

MINI-PARK

General Description: Used to address limited, isolated or unique recreational needs, active or passive.

Location Criteria: Less than a ¼ mile.

Size Criteria: Less than 5 acres.

NEIGHBORHOOD PARK

General Description: Neighborhood park remains the basic unit of the park system and serves as the recreational and social focus of the neighborhood. Focus is on informal active and passive recreation.

Location Criteria: ¼ to ½ mile distance and non-interrupted by nonresidential roads and other physical barriers.

Size Criteria: 5 acres is considered minimum size; 5 to 10 acres is optimal.

SCHOOL RECREATION AREA

General Description: These are the recreation and sports facilities associated with public and private schools.

Location Criteria: Determined by location of school district property.

Size Criteria: Variable—depends on function.

COMMUNITY PARK

General Description: Serves broader purpose than neighborhood park. Focus is on meeting community-based recreation needs, as well as preserving unique landscapes and open spaces.

Location Criteria: Determined by the quality and suitability of the site. Usually serves two or more neighborhoods and ½ to 3 mile distance.

Size Criteria: As needed to accommodate desired uses usually between 30 and 50 acres.

LARGE URBAN PARK

General Description: Large urban parks serve a broader purpose than community parks and are used when community and neighborhood parks are not adequate to serve the needs of the community. Focus is on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces.

Location Criteria: Determined by the quality and suitability of the site. Usually serves the entire community.

Size Criteria: As needed to accommodate desired uses. Usually a minimum of 50 acres, with 75 or more acres being optimal.

REGIONAL PARK

General Description: Area of natural or ornamental quality for outdoor recreation, such as picnicking, boating, fishing, swimming, camping and trail uses; may include play areas.

Location Criteria: Several communities, approximately 1/2 hour driving time.

Size Criteria: 100 acres.

PASSIVE RECREATION

General Description: Parks that provide only passive recreation opportunities (e.g., walking, fishing) can be natural or in lawn, or a mix. Minimal facilities (e.g., benches) may be provided.

Location Criteria: Variable.

Size Criteria: Variable.

GREEN SPACE

General Description: Green areas with no facilities, usually owned by municipalities, including subdivision open space areas, urban parcels. Can be lawn or mix of lawn and natural.

Location Criteria: Variable.

Size Criteria: Variable.

NATURAL RESOURCE AREA

General Description: Lands set aside for preservation of natural resources, remnant landscapes, and visual aesthetics/buffering.

Location Criteria: Resource availability and opportunity.

Size Criteria: Variable.

GREENWAY/TRAIL

General Description: Corridors of green space, with or without a trail.

Location Criteria: Resource availability and opportunity.

Size Criteria: Variable.

SPECIAL USE

General Description: Covers a broad range of parks and recreation facilities oriented toward single-purpose use.

Location Criteria: Variable—dependent on specific use.

Size Criteria: Variable.

Federal Resources

Appalachian National Scenic Trail is a 2,185-mile long public footpath that traverses the scenic, wooded lands of the Appalachian Mountains. The trail was built by private citizens and completed in 1937. Currently the trail and its associated lands are managed by the National Park Service, U.S. Forest Service, Appalachian Trail Conservancy, numerous state agencies, and thousands of volunteers. The Appalachian Trail runs along the top of the Kittatinny Ridge, weaving for 19 miles between Lehigh County and Carbon and Schuylkill counties to the north, primarily located within the County's State Game Lands and scattered National Park Service lands.

Federal + State Resources

Delaware & Lehigh National Heritage Corridor and State Heritage Area, recently named a Smithsonian Affiliate, is a joint effort of private groups and interested citizens, county and municipal governments, the Commonwealth of Pennsylvania and the federal government to conserve cultural and natural resources in the five-county region of Pennsylvania that traverses the historic Delaware and Lehigh canals. Since the Corridor's designation by Congress in 1988 as a National Heritage Area, their mission has been to restore historic places, conserve green space for public use, and preserve and interpret our heritage to enhance life for generations to come. The Corridor stretches 165 miles from Wilkes-Barre to Bristol, passing through five counties—Luzerne, Carbon, Lehigh, Northampton and Bucks. Eleven municipalities in Lehigh County along the Lehigh River are within the corridor.

State Resources

State Game Lands are the largest outdoor recreation resource (in land area) in the County, with 6,340 acres (State Game Lands #106 and #217) on the Kittatinny Ridge in three municipalities (Lynn, Heidelberg and Washington townships) and 1,295 acres (State Game Lands #205) adjacent to the Trexler Nature Preserve. The State Game Lands are managed by the Pennsylvania Game Commission, whose mission is to manage Pennsylvania's wild birds and mammals and their habitat for current and future generations. Lawful hunting and trapping are permitted during open seasons. The Appalachian Trail has most of

its Lehigh County alignment within the boundaries of the State Game Lands.

Pennsylvania Fish and Boat Commission owns part of the Leaser Lake site (the lake and immediate surrounding land, 308 acres) providing fishing and boating opportunities. The County owns an additional 225 acres of adjacent land. Through a lease agreement with the Pennsylvania Fish and Boat Commission, the County is responsible for all the land surrounding Leaser Lake.

Lehigh County does not have a state park, however, regional outdoor recreational facilities owned by the County and other entities (as discussed in this section) provide opportunities to meet the needs of residents and visitors.

Lehigh Valley Greenways Conservation Landscape: Lehigh Valley Greenways, created in 2004 by the Department of Conservation and Natural Resources, is a proactive, partnership approach to regional landscape conservation in Lehigh and Northampton counties. The diverse group of partners work together to enrich the quality of life of the Lehigh Valley citizens and visitors by providing green corridors and trails throughout the two-county, densely populated area to help keep communities vibrant and connected.

County Resources

In response to recommendations made by the Lehigh Valley Planning Commission, Lehigh County started a major County-wide park program in the late 1960s. The County and the Lehigh Valley Planning Commission have been actively involved in park planning, acquisition and development ever since. In 1971, the Lehigh Valley Planning Commission completed the first *Regional Recreation and Open Space Plan* (updated in 1980). Subsequently, the Lehigh Valley Planning Commission, with assistance from Wildlands Conservancy, prepared a parks plan in 1990, *Lehigh County Parks – 2000*, which was updated in 1997 by the Lehigh Valley Planning Commission to the current plan, *Lehigh County Parks – 2005*.

The County-owned park system consists of 22 sites, providing a wide variety of recreational opportunities for residents and visitors, ranging in size from just over an acre to the 1,386-acre Trexler Nature Pre-



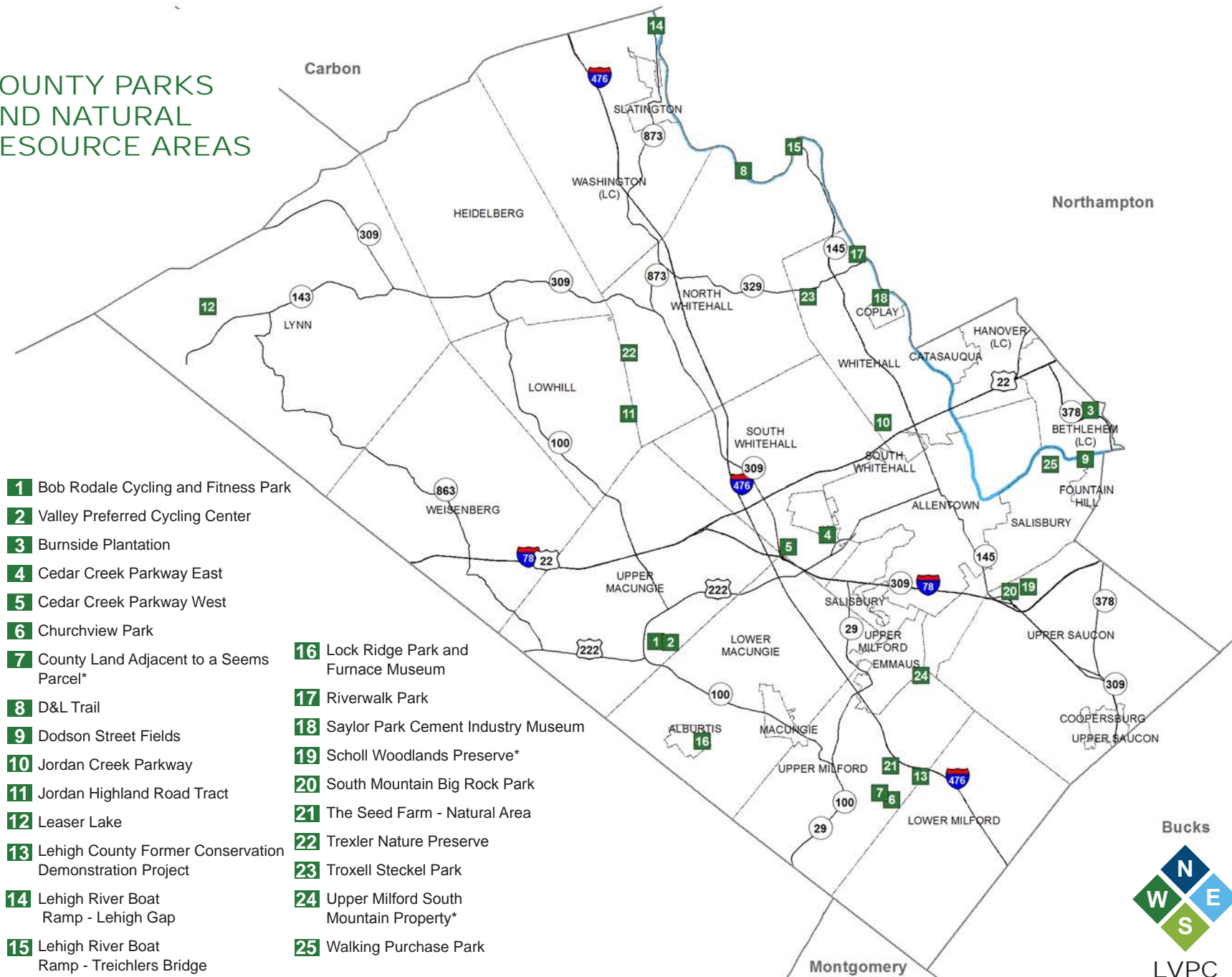
Photo by Craig Kackenmeister, LVPC

serve and located in urban, suburban and rural areas. The sites range from highly specialized sites (Valley Preferred Cycling Center [i.e. the Velodrome]) to sites that are on the National Register of Historic Places to the D&L Trail within the Delaware & Lehigh National Heritage Corridor. The primary focus of the County park system is to provide passive recreation opportunities, although the County's Cedar Creek Parkway West is a large sports complex used regionally for tournaments. Five sites have unique ownership/management scenarios: two sites are leased to and managed by municipalities, two sites are co-owned with two municipalities, and a fifth site is owned in part by the Pennsylvania Fish and Boat Commission.

The County's park staff consists of 15 full-time employees and one part-time employee. The County does not conduct any programming directly, only through the programs that Wildlands Conservancy offers at the Trexler Nature Preserve. The County uses a tiered system to schedule the fields, with youth/nonprofit, nonprofit/citizen and for-profit in that order of priority.

The County outdoor recreation sites are described and recommendations provided below.

COUNTY PARKS AND NATURAL RESOURCE AREAS



* Natural Resource Area reported in Natural Resources section.



Jordan Creek Parkway, photo by Teresa Mackey, LVPC

COUNTY PARK ACTIVITIES + FEATURES



Picnic or meeting area for events (tables, covered pavilions, grills, etc.)



Formal area designated for organized sports (tennis court, baseball field, etc.)



Informal areas for sports (snowshoe, horseback riding, archery hunting, fishing, boating)



Water on site (pond, stream, etc.)



Natural hiking trail



Mountain biking



Paved trail



Historic feature, memorial or museum



Forested or wooded areas



Scenic view



Bird watching or nature study



Playground



Wetlands



Educational outreach or other programs



1. Bob Rodale Cycling and Fitness Park

2. Valley Preferred Cycling Center

Location: Hamilton Boulevard and Mosser Road, Village of Trexler-town/Upper Macungie Township

Size/Classification: 89 acres/Regional Park, 16 acres/Special Use

Description: Bob Rodale Cycling and Fitness Park facilities include a 1.3-mile, 24-foot wide, paved track with a flat inner loop through the Trexlertown Pines and an open hill loop; trails through the pine woodlands with a wetlands boardwalk, benches for relaxation and an observation pier; sandbox and tricycle trail; two youth soccer fields; 48-seat pavilion with a grill; softball field; combined softball field/cricket pitch; basketball court; swing sets; and a 32-seat pavilion with a grill.

The Valley Preferred Cycling Center (Cycling Center) is the premier track racing facility on the East Coast with world class racing events held throughout the summer months; charity rides, cyclo-cross and other events; and community programs (adult and child). The Cycling Center is owned by the County and is leased to the Velodrome's 501(c)(3) nonprofit foundation. The County maintains the facilities and grounds; the Cycling Center operates the track and its programs.

Assessment: The Bob Rodale Cycling and Fitness Park lost a lot of trees in the woodlands during one of the hurricanes in recent years. The County has no current plans for improvements for this park.

Recommendation:

- Plant trees in the woodlands to replace those lost during the hurricanes.



3. Burnside Plantation

Location: Schoenersville Road, City of Bethlehem

Size/Classification: 7 acres/Special Use

Description: Lehigh County purchased this site in the mid-1980s as the last remaining tract of the original 500-acre Burnside Farm. The City of Bethlehem's Farm in the City is listed on the National Regis-



Burnside Plantation, photo by Craig Kackenmeister, LVPC

ter of Historic Places and is available for public tours by appointment with a guide from Historic Bethlehem Museum and Sites. Today, Burnside Plantation is a historic site interpreting farming and farm life from 1748-1848. The park is open from sunrise to sunset to enjoy the setting and read the interpretive signage located throughout the site. The site does provide access to the adjacent Monocacy Way, a trail that follows Monocacy Creek from the Lehigh River to Illick's Mill in Monocacy Park.

Assessment: This site is leased to Historic Bethlehem Museum and Sites; the County conducts minimal maintenance, only for large projects.

Recommendation:

- Continue lease arrangement with the Historic Bethlehem Museum and Sites for management of this site.



Bob Rodale Cycling & Fitness Park, photo by Craig Kackenmeister, LVPC



4. Cedar Creek Parkway East

Location: Haines Mill Road/Chestnut Street, South Whitehall Township

Size/Classification: 37 acres/Passive Recreation

Description: The facilities include picnic tables; trout fishing in Cedar Creek; benches; a gazebo, which can be reserved; The Tree of Life Memorial Grove and Survivors' Gazebo, which is set aside for the Crime Victims Council as a memorial to those killed through violent acts; a youth soccer field and soccer field/cricket pitch.

Haines Mill, located at the west end of the park, is an example of the Lehigh Valley's agricultural heritage and is still operational. The original mill was built about 1760, reconstructed in 1909 after a fire gutted the interior of the building, and operated until 1956. Lehigh County purchased the mill in 1972 for preservation, and two years later opened the mill as a museum. Haines Mill was listed on the National Register of Historic Places and is currently operated by the Lehigh County Historical Society.

Assessment: With all the picnic opportunities available, possibly adding a playground facility for children while family picnicking. Installing a bridge over the creek with accessible pathways to connect the main parking lot with the Haines Mill area is in process and will help with school tours. A recommendation from the current county park plan was to end the use of the park for soccer once the Cedar Creek Parkway West facility was completed, but the fields are still in use.

Recommendations:

- Add a playground facility for picnic users.
- Add an improved trail loop through the entire park, connecting the various components of this park.



Cedar Creek Parkway West, photo by Craig Kackenmeister, LVPC



5. Cedar Creek Parkway West

Location: Broadway and South Cedarbrook Road, South Whitehall Township

Size/Classification: 156 acres/Regional Park

Description: This site is one of the premier soccer tournament facilities in the area and the central location for many large regional soccer tournaments throughout the year. The facilities include six full-sized and three small-sized soccer fields (three fields have lighting for night play), a full-sized competition baseball field, a competition women's softball field, four softball and youth baseball fields, tennis courts, basketball court, 120-seat pavilion, small picnic pavilion and picnic tables. The soccer fields are maintained by Lehigh County and administered by the Lehigh County Sports Fields Association (e.g., scheduling, fee collection). The south end of the park contains a wooded wetland area along Cedar Creek that provides bird watching and nature study opportunities.

Assessment: The park was partially developed when the Master Site Plan was completed, so although only Phase 1 has been completed to date, much of this site is developed. Only one agricultural field on the east side of the park is yet to be developed. Although not the intention, a fenced overflow parking lot has been used as a dog park by some park users. The small pavilion next to the tennis courts is in poor condition—dirt floor, picnic table and benches should be replaced.

Recommendation:

- Complete the remaining improvements as recommended in the park's Master Site Plan.



6. Churchview Park

Location: Kohler Road, Upper Milford Township

Size/Classification: 17 acres/Passive Recreation

Description: The County leases this property to Upper Milford Township, 7 acres of which are developed into a passive recreation park. The only recreation facilities are two asphalt tracks—less than 0.1 mile and 0.25 mile. In 2015, the interior of the loop was converted from lawn to a meadow with a nesting box installed. Interpretive signage educates park users about the meadow restoration project. The remaining 10 acres of the parcel is primarily a mowed field, with some wooded area. Restroom facilities are a porta-potty.

Assessment: The park could be expanded using the remaining 10 acres of this parcel. The track has a center line and directional arrows that are faded and barely visible.

Recommendation:

- Consider transferring ownership of the parcel to Upper Milford Township if acquisition and/or development grantor agreements allow.



Churchview Park, photo by Craig Kackenmeister, LVPC 57

7. County Land Adjacent to a Seems Parcel

Natural Resource Area reported in Natural Resources section.



8. D&L Trail

Location: Catasauqua Borough and Rt. 329, Cementon to Lehigh Gap

Size/Classification: 170 acres/Greenway/Trail

Description: The County owns 13 miles of the 165-mile D&L Trail that runs through the Delaware & Lehigh National Heritage Corridor. The rail trail, which has a crushed limestone surface, runs along the Lehigh River with trailheads at Lehigh Gap, Slatington, Cove Road, River Drive and Cementon.

Assessment: The County conducts tree and brush trimming to maintain the trail corridor and a drive-through, weekly and after major storm events. The County is partnering with the Delaware & Lehigh National Heritage Corridor, the Lehigh Valley Planning Commission and Wild-lands Conservancy to continue the trail south from Rt. 329 to the City of Allentown.

Recommendations:

- Continue efforts to complete the trail south to the City of Allentown.
- Monitor trailhead use to determine if other access points are needed.



9. Dodson Street Fields

Location: Dodson Street, Salisbury Township

Size/Classification: 3 acres/Special Use

Description: This park is co-owned by the County, City of Allentown and Salisbury Township and is located on the southern edge of Walking Purchase Park, which is also co-owned by the same three

entities. Two types of sport fields are available at this park—baseball and soccer. The primary user is Salisbury Township, which handles all the scheduling.

Assessment: The one bench for the one ballfield is missing the seat (the support posts are present). The metal storage locker behind the backstop is in poor condition. The park sign at the entrance is cracked down the middle from top to bottom.

Recommendations:

Lehigh County, the City of Allentown and Salisbury Township should coordinate to:

- Replace the storage box behind the backstop.
- Replace both benches, the existing wood one and the one missing the seat, with new durable benches.
- Repair or replace the park sign.



10. Jordan Creek Parkway

Location: Lehnert and Mauch Chunk roads, Whitehall and South Whitehall townships

Size/Classification: 273 acres/Regional Park

Description: Facilities and activities include trails for hiking, jogging and trail biking; bird watching and nature study; three softball fields and a regulation baseball field (grass areas of the softball fields are used for youth soccer in the fall); two multipurpose fields; four tennis courts; a community garden (93 plots); a 6,000-foot disc golf course; a picnic area and a 32-seat pavilion with a grill. The Jordan Creek Parkway is part of the Jordan Creek Greenway and the associated trail, which has been completed within the park.

Assessment: The kiosk at the parking lot on Lehnert Road needs to be repainted. The turf on the upper multipurpose field on the south side of Lehnert Road is very thin and needs repair.

Recommendations:

- Complete the development and improvements recommended in the Master Site Plan.
- Repair the turf on the upper multipurpose field.
- The County should finalize the agreement with the Valley Mountain Bikers for trail construction, maintenance and activities.



D&L Trail Cove Road Trailhead, photo by Teresa Mackey, LVPC



11. Jordan Highland Road Tract

Location: Jordan and Highland roads, Lowhill and North Whitehall townships

Size/Classification: 108 acres/Passive Recreation

Description: This site is located at the southern tip of the Trexler Nature Preserve and is the future location of a segment of the Jordan Creek Greenway Trail. The County has a cooperative agreement with the Pennsylvania Game Commission for habitat management at this site, and, therefore, allows archery, shotgun and muzzle-loading hunting at this site. There is a small (two vehicles) pull-off on Jordan Road at the eastern end of the site.

Assessment: The amount of parking is not large enough for the size of the site. Signage is not provided indicating that this is a County-owned site open to the public.

Recommendations:

- Expand the existing parking area or explore other locations for additional parking.
- Add a County park sign.



12. Leaser Lake

Location: Ontelaunee Road, Village of Jackson/Lynn Township

Size/Classification: 531 acres/Regional Park

Description: This park is owned in part by the Pennsylvania Fish and Boat Commission and in part by Lehigh County. Access to the park is on the east, west and north sides—each with a parking lot and the north and east sides with boat launch ramps. The 117-acre lake provides fishing from the shore or boats; sailboats up to 17 feet and small electric motors are permitted. Swimming and bathing are prohibited. A 4-mile trail, improved and unimproved segments, around the lake provides beautiful views and nature study, as well as seasonal hiking and cross-country skiing opportunities. All three areas have restrooms, picnic tables and benches. The north end is the main picnic area and has over 50 tables. At the west access area, several facilities have been installed that are Americans with Disabilities Act accessible—fishing pier, 3-table picnic area, two one-table picnic areas, shore fishing area and a kayak launcher. A memorial to Frederick Leaser is located at the east access area.

Assessment: The west side access area restroom facilities are currently a porta-potty and not the updated facilities like those located at the north and east access areas.

Recommendation:

- Construct a new restroom at the west side park access area using Pennsylvania Fish and Boat Commission funding.



Leaser Lake, photo by Craig Kackenmeister, LVPC



13. Lehigh County Former Conservation Demonstration Project

Location: Church View Road, Upper Milford Township

Size/Classification: 55 acres/Special Use

Description: The primary use of this facility is for fishing. Part of the property is in a natural state, with the pond for fishing, woodlands and some grassy open areas. The remaining part of the property is currently being farmed. The pond is stocked with trout from the Cedar-view Trout Hatchery. The County considers this site to be a significant unofficial park.

Assessment: The first noticeable difference from other County park sites is that there is no standard entrance sign. The dirt entrance driveway appears to be a private driveway. This site has potential to be a passive recreation park that could provide more recreational opportunities other than fishing, such as picnic tables or a trail around the pond. Except for the traffic noise from the adjacent highway (Pennsylvania Turnpike), the setting is quite pastoral. The split-rail fencing around the parking area is in need of some minor repair.

Recommendations:

- Install the standard County park sign at the entrance.
- Repair the split-rail fencing around the parking lot.
- Prepare a feasibility study to determine the best use for this site beyond the current opportunities.



14. Lehigh River Boat Ramp - Lehigh Gap

Location: Paint Mill Road, Lehigh Gap, Washington Township

Size/Classification: 2 acres/Special Use

Description: The boat ramp is the most northern one in Lehigh County providing access to the Lehigh River. The gravel entrance

road crosses over the D&L Trail, which runs parallel to Paint Mill Road and has a trailhead just south of the boat ramp entrance road. A larger parking area is to the right near Paint Mill Road, and a smaller parking area (about five cars) is on the left side of the entrance road closer to the river. One picnic table is provided near the boat ramp.

Assessment: There is only a small canoe/kayak sign at the entrance, which gives the impression that the boat launch is carry-in only.

Recommendations:

- Add a standard County park sign at the entrance.
- Add a Lehigh River Water Trail sign similar to the one at the other County-owned boat ramp at Treichlers Bridge.



15. Lehigh River Boat Ramp - Treichlers Bridge

Location: Treichlers Bridge at D&L Trail Cove Road Trailhead, North Whitehall Township

Size/Classification: 2 acres/Special Use

Description: This boat ramp was constructed in 2016 and has two gravel parking areas, upper and lower. This site is adjacent to the D&L Trail and the Cove Road Trailhead. Access to this site is past the trailhead parking, crossing over the D&L Trail.

Assessment: Parking problems had existed along Cove Road before the parking areas were added to the boat ramp facility. Depending on the need, another parking area may be added on the other side of Rt. 145.

Recommendation:

- Monitor use at this site to determine if another parking area should be added.



Lehigh River Boat Ramp - Treichlers Bridge, photo by Teresa Mackey, LVPC



Lock Ridge Park, photo by Craig Kackenmeister, LVPC



16. Lock Ridge Park and Furnace Museum

Location: Church Street, Borough of Alburty and Lower Macungie Township

Size/Classification: 54 acres/Special Use

Description: The centerpiece of the 54-acre park is the Lock Ridge Furnace Museum — a unique monument to Lehigh County's industrial heritage, operating as an iron mill from 1868 until 1921. Lehigh County acquired the Furnace in 1972. In 1981, it was listed on the National Register of Historic Places. The museum is operated by the Lehigh County Historical Society. Visitors can tour the rebuilt furnace room, the engine house and the original cast house. The blooming of

the bluebells every Spring in a large expanse adjacent to the furnace museum draws many visitors to the park.

Facilities include trails; a field for T-ball and softball; fishing in Swabia Creek; and an 81-seat pavilion with a grill, fireplace and restroom. The outdoor area next to the furnace building can be reserved for weddings and events. An Alburty Water facility is in the woodlands on the south end of the property.

Assessment: Some of the brick walkways are uneven from tree roots. Maintenance of the historic site is a constant concern for the County; historic preservation funding is usually minimal, and the amount needed is so large. A Historic Preservation Plan was completed in 2007 and estimated that \$2 million was needed to rehabilitate the site, primarily for furnace repairs. The South Furnace is the main concern. The other two buildings were refurbished in the 1970s. Student masons are hired by the County to point stone all summer for minor projects, but a master mason is called in for major projects. Original plans for the Hills at Lockridge, an adjacent residential development, had a trail connecting to the park.

Recommendations:

- Make repairs to walkways to make them safe for users.
- Consider adding a connector trail to the Hills at Lock Ridge development.
- Pursue non-traditional funding for major repairs to the historical structures.



17. Riverwalk Park

Location: Front Street, Village of Cementon/Whitehall Township

Size/Classification: 1 acre/Mini-Park

Description: Riverwalk Park, which is located on part of a D&L Trail parcel owned by the County, is leased to and managed by Whitehall Township. Facilities at this mini-park include a half basketball court, picnic tables, a small pavilion with a picnic table, an arbor with two benches, fitness stations and a playground. The park is adjacent to the D&L Trail and provides access via a walkway.

Assessment: A variety of recreation facilities in good condition is available in this mini-park.

Recommendation:

- The County should continue leasing this space to Whitehall Township.



18. Saylor Park Cement Industry Museum

Location: North Second Street, Coplay Borough

Size/Classification: 2 acres/Special Use

Description: The main attraction at this site is the nine 90-foot vertical cement kilns that helped make Lehigh County the center of the Portland Cement Industry at the time. The open air museum is open year round and is listed on the National Register of Historic Places. A paved trail encircles the kilns with concrete monuments and interpre-

tive signage providing the story of the site. A museum was previously at the base of the kilns, but is closed due to safety issues. The site is adjacent to the Ironton Rail Trail/Coplay Parkway, connected by the sidewalk along North 2nd Street, and a proposed segment of the D&L Trail to the east.

Assessment: Water infiltration has occurred over the years and has caused extensive damage to this site. The West 1 kiln has recently been refurbished with funding provided by Save America's Treasures and Lehigh County. To complete the restoration, interpretive signage, solar lighting and replacing the current fencing around the kilns is needed. The interpretive signage will, to some extent, replace the museum at the base of the kilns that is no longer safe for visitors. The County does not want to demolish the remaining kilns, but there is no funding available at this time to refurbish the remaining eight kilns. No parking is available on-site; the entryway looks like a driveway, but no parking spaces are available and the driveway leads into the paved trail. Visitors need to use the Coplay Parkway's parking lot. There are two park signs at the entrance along North 2nd Street—Saylor Park Lehigh County Park Department and Saylor Cement Museum (a Delaware & Lehigh National Heritage Corridor sign). Both signs are in disrepair. The metal lettering on the County sign has run and stained the concrete on which they are mounted. The south-facing side of the Saylor Cement Museum sign is discolored and barely readable. This sign also states hours, which must be for the now closed museum, because the site is open year round.

Recommendations:

- Add a connecting trail from the Coplay Parkway to the Ironton Rail Trail and the Saylor Park trail.
- Complete the remaining improvements related to the restoration project—interpretive signage, solar lighting and replacing the fencing around the kilns.
- Repair the two signs and remove the hours of operation from the Saylor Park Museum sign.
- Add a sign to the existing parking lot sign at Coplay Parkway allowing parking for Saylor Park.

19. Scholl Woodlands Preserve

Natural Resource Area reported in Natural Resources section.



20. South Mountain Big Rock Park

Location: East Rock Road, Salisbury and Upper Saucon townships

Size/Classification: 54 acres/Natural Resource Area

Description: The most prominent feature of this park is Bauer Rock, a towering mass of dark-colored gneiss that rises 40 feet above the crest of the South Mountain, which offers a view of southern Lehigh County with the best view after leaf fall. The Pennsylvania Department of Conservation and Natural Resources has identified Bauer Rock as an Outstanding Geological Feature of Pennsylvania. A walk down an access road, past a cell tower site, and a short trail through the woods leads to this natural formation. The park has many acres of dense forest for hiking and nature study.

Assessment: A minimal amount of parking is available, possibly four cars, that would still allow access to the cell tower road. There are no directional signs to the lookout. Bauer Rock and a lot of the surrounding rocks were covered in graffiti. In the past, the County has removed the graffiti, but defacement continues, so the County has stopped removal efforts. The current *Lehigh County Parks* (1997) plan had recommended closing the park, but the County believes this would not stop the use of this site because of word-of-mouth.

Recommendation:

- Install directional signage from the parking area to Bauer Rock.



21. The Seed Farm - Natural Area

Location: Vera Cruz Road, Upper Milford Township

Size/Classification: 27 acres/Natural Resource Area

Description: This site is the natural area portion of The Seed Farm, a County-owned preserved farm and farmer incubator site (discussed in the Agricultural Resources section). The natural area part of the



The Seed Farm, photo by Craig Kackenmeister, LVPC

property consists of two large ponds (2-½ acres and 3 acres) and a wooded area. The primary outdoor recreation use of this site is fishing. Parking is available near the entrance in the area of the farm incubator facilities.

Assessment: A standard County park sign—The Seed Farm Agricultural Business Incubator—is at the entrance, but also states the “Park is open sunrise to sunset.” Once in the parking area, there is no signage about what recreational activities are available. Visitors to this site for fishing are supposed to park in the parking lot by the entrance and walk to the ponds, but some visitors drive down to the ponds.

Recommendation:

- Install signage about the use of the ponds for fishing and that parking should be at the entrance area.



22. Trexler Nature Preserve

Location: North Whitehall and Lowhill townships

Size/Classification: 1,386 acres/Regional Park

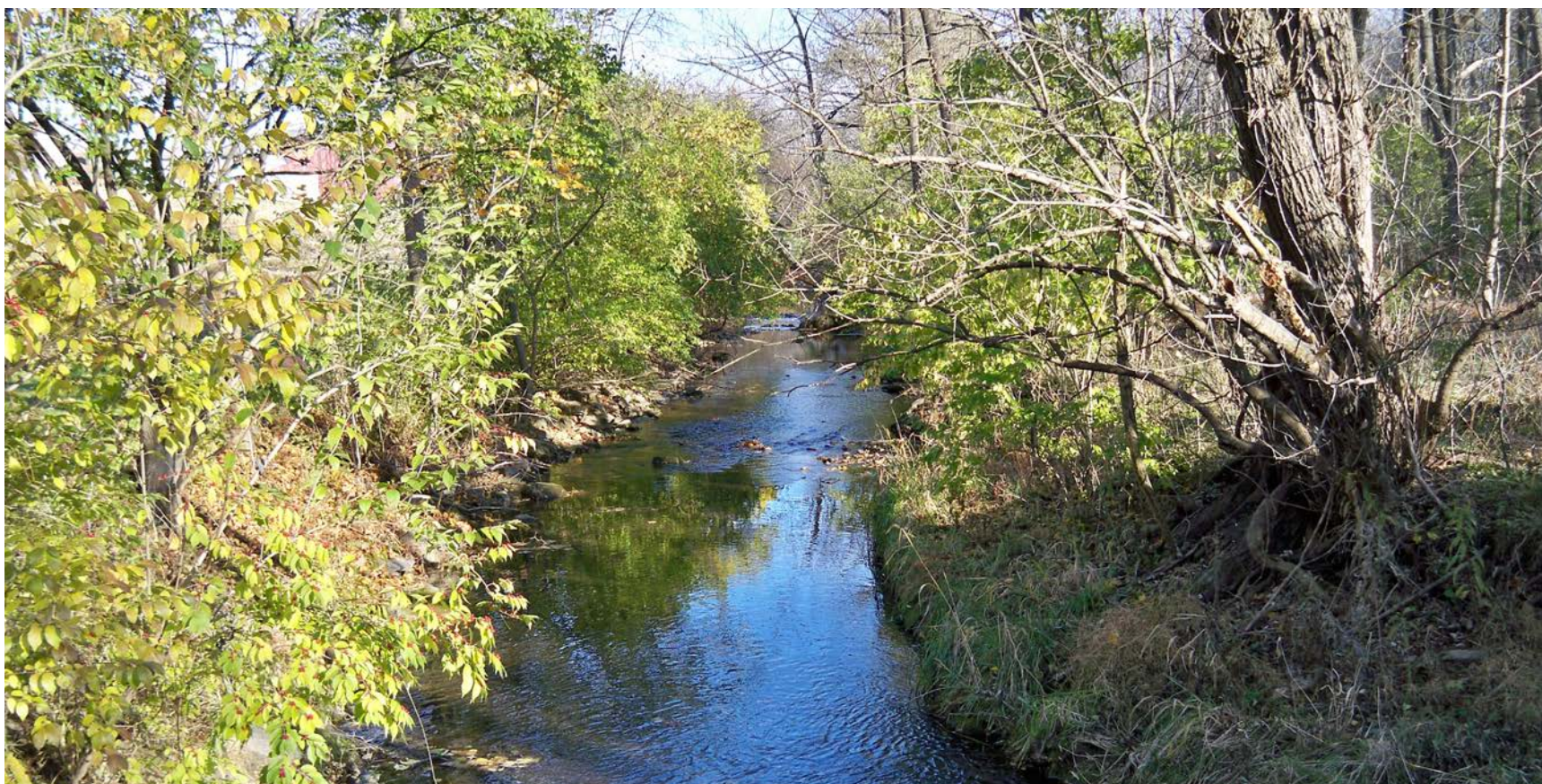
Description: The Preserve includes buffalo and elk, spectacular views of the Lehigh Valley, a 26-mile trail network, wildlife observation, bird watching, hiking, walking, horseback riding, mountain biking, snowshoeing and cross-country skiing. Mountain biking is a significant use on several miles of the trail network. The 1.2 mile Covered Bridge Loop Trail in the Central Range is Americans with Disabilities Act accessible. A campsite in the Central Range is available to scouting groups only. Along the Jordan Creek, visitors can enjoy fishing and picnicking. At the ford, Jordan Creek is broad and shallow and is ideal for wading. Turkey and white-tailed deer archery hunting is allowed on the North Range. The Schlicher's and Geiger Covered Bridges are on Game Preserve Road and Old Packhouse Road, respectively, within the Preserve boundary. The Trexler Environmental Center was designed to be a sustainable, green building. The Center serves as an educational facility, and the community room is available for appropriate meetings by reservation. The State Game Lands #205, the County-owned Jordan Highland Road Tract and Lehigh Carbon Community College's athletic fields and courts are adjacent to the Preserve and the proposed Jordan Creek Greenway Trail connects to the Preserve. The 29-acre Lehigh Valley Zoo, located in the Central Range of the Preserve, began in 1974 and is now home to more than 275 animals, representing 70 species. The zoo provides a peaceful spot for family or group outings and offers a variety of educational programs for all ages.

Assessment: Efforts to remove the autumn olive, an invasive shrub, on the North Range continues—spraying will occur in spring 2017. The plan is to plant and maintain grasslands. With this project, a

prime mountain biking trail (Killdozer) has been lost; the County is working on a replacement trail elsewhere in the Preserve. An update to the Preserve's Master Site Plan is planned; most objectives from the existing plan have been accomplished. An old feeding structure exists at the North Range parking area, which is no longer in use. No restrooms are available on the North Range. A composting facility on the Central Range is no longer in operation. The County has a cooperative agreement with the Pennsylvania Game Commission for habitat management on areas at the southern end of the Preserve and on the North Range. There is no pathway from the parking lot to the Trexler Environmental Center. Two of the three tasks, which include educational signage and outreach, implement best management practices and connect local citizens to wildlife stewardship, that are part of a Lehigh Valley Greenways mini-grant are anticipated to be completed by December 31, 2017.

Recommendations:

- Explore and apply for funding for the Master Site Plan update.
- Complete the removal of the autumn olive and installation of grasslands.
- Locate, design and build the replacement trail for the Killdozer trail that was lost due to the autumn olive removal.
- Remove the feeding structure on the North Range at the parking lot.
- Make improvements to the septic system at the Trexler Environmental Center.
- Install a walkway at the Trexler Environmental Center from the parking lot to the building.
- The County should finalize the agreement with the Valley Mountain Bikers for trail construction, maintenance and activities.
- Complete the remaining tasks of the Lehigh Valley Greenways mini-grant.



Troxell Steckel Park, photo by Teresa Mackey, LVPC



23. Troxell Steckel Park

Location: Reliance Street, Whitehall Township

Size/Classification: 14 acres/Natural Resource Area

Description: The Coplay Creek and wetlands are located on this predominantly wooded property. A lawn area by the road turns into a grass pathway and crosses an old wooden footbridge, following the

northern side of the creek for a short distance. Another footbridge across the creek was removed by the County shortly after the site visit. The primary use of this site is for fishing in Coplay Creek, with a picnic table and one bench as the only facilities provided. This site is adjacent to the Troxell-Steckel Farm Museum, which is listed on the National Register of Historic Places and is owned and operated by the Lehigh County Historical Society. The Ironton Rail Trail is adjacent on the southeast side of the park, separated by a 60-foot wide private gravel road that does not restrict access.

Assessment: The wooden bridge gets washed out often from storm

events. The County has decided to protect the wetlands on the site by not maintaining trails in those areas due to the negative impacts that were occurring to the habitat. The property line on the north side adjacent to the farm field where the grassy pathway leads is undefined. The County has no plans for the site.

Recommendations:

- Replace or remove the wooden bridge that continues to get washed out from storms.
- Install a park boundary sign on the north side adjacent to the privately-owned farm field.
- Consider acquiring adjacent properties if they would become available to connect to Egypt Memorial Park to the north of this site.

24. Upper Milford South Mountain Property

Natural Resource Area reported in Natural Resources section.



25. Walking Purchase Park

Location: Constitution Drive, Salisbury Township

Size/Classification: 601 acres/Natural Resource Area

Description: Walking Purchase Park is co-owned by Lehigh County, City of Allentown and Salisbury Township in part (456 acres), owned by Lehigh County in part (123 acres), and owned by the City of Allentown in part (27 acres), although the properties are not contiguous due to a rail line, an industrial site and some private property. Wildlands Conservancy, contracted by Lehigh County, provides assistance and recommendations for this site. The park is comprised of a lowland and upland areas, most of which are wooded. Various historical features of Native Americans and European settlers (old farmsteads) exist in the lowlands area of the park. Except for separation of a rail line, the park borders the Lehigh River for approximately 3 miles.

The primary use at this time is a trail network located on the eastern portion of the uplands. This sustainable, multi-use, singletrack trail network was designed, constructed and is maintained by the Valley Mountain Bikers. Many hours of volunteer labor have gone into making this trail system a success, transforming Walking Purchase Park into a destination for hikers, trail runners and cyclists, such as the annual Steel City Enduro event for mountain bikers.

Assessment: The undeveloped nature and remoteness of the park and the park located within a highly urbanized area provides opportunities for vandalism and misuse of the park. Recommendations in the Master Site Plan were related to curtailing some of these activities. Initial work recommended by the Master Site Plan has been completed—signage and tactics to try and reduce the illegal dumping, such as security cameras. The County believes the plan proposes too much development and felt the park should remain more passive. A pull-off area on Cardinal Drive had a pile of dumped materials, which has been removed since the site visit. The County has installed a camera with a motion sensor that takes a photo when a car or person triggers the sensor, along with a recorded message. Two of the kiosks and the large park map are damaged by vandalism and graffiti. The County replaces these amenities and the damage continues. The lowland area is physically accessible partially along the perimeter, but a sign at the turn-off prohibits vehicle access. Some areas of Cardinal Drive are in poor condition.

Recommendation:

- Lehigh County, the City of Allentown and Salisbury Township should consider implementing the recommendations from the Master Site Plan that would allow the park to remain a passive recreation site but also showcase some of the special features of this site that may provide enough visitors to curb the undesirable activities that currently occur at this site.

Regional Parks Outside of Lehigh County

Several regional parks exist in neighboring counties, including federal, state, county and municipal facilities that provide outdoor recreation opportunities for Lehigh County residents.

Federally-owned nearby outdoor recreation sites include the National Park Service's 70,000-acre Delaware Water Gap National Recreation Area, located in Northampton, Monroe and Pike counties (Pennsylvania) and Warren and Sussex counties (New Jersey), described in more detail under the Federal heading at the beginning of the Outdoor Recreation Resources section. The U.S. Fish and Wildlife Service's Cherry Valley National Wildlife Refuge, located in Northampton and Monroe counties, was established in December 2008 for the conservation of migratory birds and federal trust species (i.e. migratory birds, threatened species, endangered species, interjurisdictional fish, marine mammals, and other species of concern) and their habitats. The lands and waters of Cherry Valley have been widely recognized for their valuable natural resources.

The Pennsylvania state park system has several parks within 25 miles of the County boundary, with closer parks including Beltsville, Jacobsburg and Nockamixon. Beltsville State Park, Carbon County, is 3,000 acres. Pohopoco Creek, an excellent trout stream, feeds the 949-acre Beltsville Lake, which is a rest stop for migrating waterfowl and is a destination for boaters and anglers. Other facilities include a sand beach and picnic pavilions. Jacobsburg Environmental Education Center, Northampton County, is 1,146 acres and provides programs that focus on the natural and cultural history of the park. The Jacobsburg National Historic District lies almost entirely within the park and gives visitors insight into a colonial gun—the Henry rifle—manufactory. Henry's Woods, an old growth forest, surrounds Bushkill Creek, and there are 18.5 miles of trails for hiking, mountain biking and horseback riding. Nockamixon State Park, Bucks County, is 5,300 acres. Tohickon Creek, Three Mile Run and Haycock Run feed the 1,450-acre Lake Nockamixon, which is a rest stop for migrating waterfowl and a destination for boaters and anglers. Activities include picnicking, visiting the pool, hiking, biking, fishing and boating.

Municipal Resources

Local parks are where most residents participate in outdoor recreation activities, and providing these close-to-home facilities is the responsibility of the municipalities. These facilities are the primary source for active recreation opportunities compared to the passive recreation that is often provided by county and state parks.

Municipal parkland totals 4,222 acres, ranging in size from 0.08 acres to 515 acres. The primary park uses in many municipalities are active recreation, such as athletic fields, sport courts and playgrounds, but there are many that provide passive recreational activities, serve to protect natural resource features or are being held for a future municipal park or facility. Some of the larger city-owned parks and recreational facilities are often used on a regional basis.

To gain an understanding of the strategies that the County's municipalities use to provide outdoor recreation opportunities to residents and to update the Lehigh Valley Planning Commission's park, outdoor recreation and open space database, a survey form and map were sent to the 25 municipalities as part of this Plan. The information requested on the form was related to four categories—Planning, Land Preservation, Staffing/Administration and Funding. The municipalities were also asked to review a Park, Recreation and Open Space map for their municipality and provide any updates. Twenty-three of 25 surveys were returned. Key findings from this survey and records of the Lehigh Valley Planning Commission are provided below, with the detailed results reported in the Appendix.

Planning:

- 24 municipalities have a park, recreation and open space plan, 2 of which use the municipality's comprehensive plan park and recreation section, 6 of which have additional topic-specific plans, and 4 multimunicipal plans encompassing 13 municipalities.
- 7 municipalities have official maps, with the oldest dated September 2006 and the most recent being June 2016.

Land Preservation:

- 8 municipalities are actively pursuing land preservation, including 1 reporting as sporadic/case-by-case and 1 through zoning only.
- Most responded using both easements and ownership by the municipality or a conservancy.
- Public access on these properties usually depends on the situation.

Staffing/Administration:

- 6 municipalities reported having dedicated park and/or recreation employees, ranging from 1 to 7 full-time and several part-time employees; 2 municipalities use maintenance or public works staff for park-related work.
- 22 municipalities have some form of recreation board, committee or commission.
- 5 municipalities have an open space/land preservation board, 1 being combined with the recreation board and 1 being combined with the Environmental Advisory Council.
- 13 have Environmental Advisory Councils, 1 being joint with another municipality and 2 currently with no members.

Funding:

- The percentage of the municipalities' annual budget dedicated to outdoor recreational facilities and programming ranged from 0.04% to 30%.
- 1 municipality has an Earned Income Tax of 0.139%.
- 14 municipalities require public dedication of land for new construction of dwelling units, with several reporting ranges or a tiered structure.
- 16 municipalities have fee-in-lieu of land dedication, ranging from \$500 to \$5,000.
- 1 municipality has a recreation account with the Pennsylvania Local Government Investment Trust.
- Various other forms of funding were reported, such as general funds, escrow fund, municipal golf course.

School District Resources

School district facilities may also provide close-to-home recreation opportunities, such as playgrounds, tracks and athletic fields, and may be available to the public when not in use by the school students. Public school recreational facilities within the nine school districts in the County total 485 acres.

Private Resources

Another component of the park system is outdoor recreation facilities and natural areas provided by private nonprofit and for-profit organizations and businesses. Public access to these facilities may or may not exist. Some of the specialized recreation opportunities play an important role in meeting the outdoor recreation needs of County residents that cannot be met by other providers.

Privately-owned parkland and natural area lands with an outdoor recreation component total 4,540 acres, ranging in size from 0.03 acres to 543 acres. These facilities include golf courses, mini-golf, rod and gun clubs, camps and campgrounds, picnic groves, nature preserves, clubs (e.g., boat, racquet, fishing), athletic associations and facilities on church, private school, homeowner association and corporate/industrial lands.

The largest of these sites that is open to the public is South Mountain Preserve, which is owned by Wildlands Conservancy, and provides nature-based outdoor recreation opportunities in an urban landscape. The Preserve is 350 acres of woodland trails, pronounced rocky outcrops and scenic vistas. Unique geology, mining and farming history, wetland and successional forests and abundant wildlife make this preserve a popular destination for hiking, mountain biking, walking, bouldering and bird watching. Another nature-based outdoor recreation opportunity is located at the northern edge of the County along the Kittatinny Ridge. The Lehigh Gap Nature Center, which straddles the boundary of Lehigh and Carbon counties, consists of over 750 acres of varied habitat. The Center has approximately 13 miles of hiking trails, which link to the D&L Trail and the Appalachian Trail. Additionally, the Center provides access to the Lehigh River, a picnic pavilion, an American with Disabilities Act accessible native plant garden, and biking and horseback riding on designated trails. Both of these organizations also offer an array of environmental programs throughout the year.



South Mountain Preserve Alpine Street Trailhead,
photo by Teresa Mackey, LVPC

Outdoor Recreation Acreage Guidelines

Guidance to determine the amount of park and recreation acreage needed within a community has existed for several decades. From 1971 to 1995, the National Park and Recreation Association published the National Park, Recreation and Open Space Standards that provided direction on this subject. These guidelines evolved over time to reflect the changes in providing park and recreation facilities. The 1990 edition suggested that a park system have 6.25 to 10.5 acres of local, close-to-home park space (Mini-Park, Neighborhood Park and Community Park) per 1,000 persons and 15 to 20 acres of regional park space per 1,000 persons. The 1996 edition then advocated a systems approach to park and open space planning using a level of service guideline that was still based on acreage per 1,000 persons but also included community involvement. Today, the National Recreation and Park Association provides a tool, PRORAGIS (Parks and Recreation Operating Ratio and Geographic Information System), which allows users to compare themselves to similar park and recreation departments from across the country.

Determining the distribution of park and recreation facilities throughout a community is also important. The area served by a park is called the service area, usually related to the distance users are willing to travel to reach the facility. Park service area guidelines were also provided in the National Park and Recreation Association publications discussed

above. The analysis of service areas does not include a review of obstacles (e.g. highways) that may influence access.

The acreage per 1,000 persons formula was used in the current *Lehigh County Parks* (1997) plan with the thresholds mentioned above and has been carried forward to this Plan, with the addition of service area analyses. The results are presented below.

Park Acreage per 1,000 Persons Analyses:

The park acreage per 1,000 persons analyses were conducted for the municipalities (close-to-home) and the County (close-to-home and regional). Parks partially within or immediately adjacent to a municipal boundary were also included. A second analysis ("Plus") expanded the classifications to include regional parks, passive recreation parks, natural areas with recreation, trails and most special use facilities. These criteria were used to account for cases where the closest park to a resident may be a park in an adjacent municipality or may not be the standard close-to-home park. U.S. Census data were used for 2010, and the Lehigh Valley Planning Commission's population projections were used for 2020, 2030 and 2040.

1) Municipal Close-to-Home Park Acreage:

Threshold: 6.25 acres minimum per 1,000 persons

Classifications:

- Large Urban Park
- Community Park
- Neighborhood Park
- Mini-Park

Results: 11 municipalities do not meet the threshold for 2010; three additional municipalities do not meet the threshold by 2040, but this may be alleviated with the development of currently proposed close-to-home parks.

2) Municipal Close-to-Home "Plus" Park Acreage:

Threshold: 6.25 acres minimum per 1,000 persons

Additional park classifications:

Regional

- Passive Recreation

CLOSE-TO-HOME¹ PARK ACREAGE BY MUNICIPALITY

| | Park Acreage ² | 2010 Population ³ | Acres/ 1,000 Pop. | 2020 Population ⁴ | Acres/ 1,000 Pop. | 2030 Population ⁴ | Acres/ 1,000 Pop. | 2040 Population ⁴ | Acres/ 1,000 Pop. |
|--------------------------|------------------------------|---------------------------------|-------------------------|---------------------------------|-------------------------|---------------------------------|-------------------------|---------------------------------|-------------------------|
| Alburtis Borough | 70 | 2,361 | 30 | 2,546 | 28 | 2,758 | 26 | 2,941 | 24 |
| Allentown City | 456 | 118,032 | 4 | 121,803 | 4 | 128,071 | 4 | 134,044 | 3 |
| Bethlehem City | 31 | 19,343 | 2 | 19,747 | 2 | 20,774 | 1 | 21,702 | 1 |
| Catasauqua Borough | 18 | 6,436 | 3 | 6,702 | 3 | 7,024 | 3 | 7,323 | 2 |
| Coopersburg Borough | 50 | 2,386 | 21 | 2,526 | 20 | 2,682 | 19 | 2,812 | 18 |
| Coplay Borough | 13 | 3,192 | 4 | 3,283 | 4 | 3,409 | 4 | 3,544 | 4 |
| Emmaus Borough | 156 | 11,211 | 14 | 11,533 | 14 | 11,926 | 13 | 12,305 | 13 |
| Fountain Hill Borough | 12 | 4,597 | 3 | 4,704 | 2 | 4,831 | 2 | 4,952 | 2 |
| Hanover Township | 8 | 1,571 | 5 | 1,642 | 5 | 1,793 | 4 | 1,954 | 4 |
| Heidelberg Township | 34 | 3,416 | 10 | 4,024 | 8 | 4,413 | 8 | 4,621 | 7 |
| Lower Macungie Township | 501 | 30,633 | 16 | 33,169 | 15 | 35,834 | 14 | 38,142 | 13 |
| Lower Milford Township | 4 | 3,775 | 1 | 4,163 | 1 | 4,399 | 1 | 4,604 | 1 |
| Lowhill Township | 0 | 2,173 | 0 | 2,511 | 0 | 2,884 | 0 | 3,178 | 0 |
| Lynn Township | 64 | 4,229 | 15 | 4,883 | 13 | 5,352 | 12 | 5,717 | 11 |
| Macungie Borough | 40 | 3,074 | 13 | 3,185 | 13 | 3,310 | 12 | 3,422 | 12 |
| North Whitehall Township | 94 | 15,703 | 6 | 19,121 | 5 | 22,508 | 4 | 23,973 | 4 |
| Salisbury Township | 147 | 13,505 | 11 | 14,819 | 10 | 16,270 | 9 | 17,336 | 8 |
| Slatington Borough | 13 | 4,232 | 3 | 4,369 | 3 | 4,523 | 3 | 4,658 | 3 |
| South Whitehall Township | 150 | 19,180 | 8 | 21,079 | 7 | 23,208 | 6 | 24,818 | 6 |
| Upper Macungie Township | 310 | 20,063 | 15 | 24,075 | 13 | 28,355 | 11 | 32,220 | 10 |
| Upper Milford Township | 38 | 7,292 | 5 | 8,179 | 5 | 8,694 | 4 | 9,099 | 4 |
| Upper Saucon Township | 101 | 14,808 | 7 | 18,122 | 6 | 21,952 | 5 | 25,238 | 4 |
| Washington Township | 59 | 6,624 | 9 | 8,159 | 7 | 9,267 | 6 | 9,930 | 6 |
| Weisenberg Township | 21 | 4,923 | 4 | 5,843 | 4 | 6,899 | 3 | 7,601 | 3 |
| Whitehall Township | 154 | 26,738 | 6 | 28,780 | 5 | 31,695 | 5 | 34,261 | 5 |
| Lehigh County | 2,544 | 349,497 | 7 | 378,968 | 7 | 412,832 | 6 | 440,394 | 6 |

1: Includes Large Urban, Community, Neighborhood and Mini park classifications and are open to the public.

2: Acreage is any park within, intersecting or adjacent to the boundary of a municipality. No proposed Community or Neighborhood Parks are included.

3: U.S. Census Bureau, 2010 Decennial Census

4: Lehigh Valley Planning Commission, *The People - 2017 Population Projections, Employment Projections*

- Natural Resource Area [with recreation]
- Greenway/Trail
- Most Special Use

Results: One municipality does not meet the threshold for years 2010, 2020, 2030 and 2040.

3) Countywide Close-to-Home Park Acreage:

Threshold: 6.25 acres minimum per 1,000 persons

Classifications:

- Large Urban Park
- Community Park
- Neighborhood Park
- Mini-Park

Results: The County has 7 acres per 1,000 persons. If all the proposed close-to-home parklands are developed, the acreage increases to 8 acres per 1,000 persons but would decrease to 6 acres per 1,000 persons in 2040, slightly below the threshold.

Although the above analyses provides numeric results measured against a standard, the objective of each municipality should be to gather information from their residents about what park and outdoor recreation facilities the community desires and then either acquire and/or develop the amount of parkland needed to provide these opportunities.

4) Regional Park Acreage:

Threshold: 15 acres minimum per 1,000 persons

Classifications:

- Regional Park
- Natural Resource Area
- Large Urban Park

Results: The County has 11, 11, 10 and 9 acres per 1,000 persons for 2010, 2020, 2030 and 2040, respectively, and, therefore, does not have enough regional park acreage for all years reported. This analysis included the yet undeveloped areas of existing regional parks (Cedar Creek Parkway West and Jordan Creek Parkway).

Service Area Analyses:

Various service area analyses were conducted to determine the geographic coverage of outdoor recreation facilities—close-to-home park, 10-minute walk to a close-to-home park and County-owned parks. Service area size was based on: 1) National Recreation and Park Association Location Criteria distances from the 1996 guidelines for the Mini-Park, Neighborhood Park and Community Park classifications, and 2) Lehigh Valley Planning Commission staff review for other park classifications.

5) Close-to-Home Parks Service Area:

Classifications and service area distances:

- Large Urban Park, 5 miles
- Community Park, 3 miles
- Neighborhood Park, 0.5 miles
- Mini-Park, 0.25 miles

Results: Three areas—1) northern Slatington Borough/Washington/Heidelberg townships, 2) parts of Lowhill, Weisenberg and Lynn townships, and 3) parts of Upper Milford and Lower Milford townships—did not have coverage.

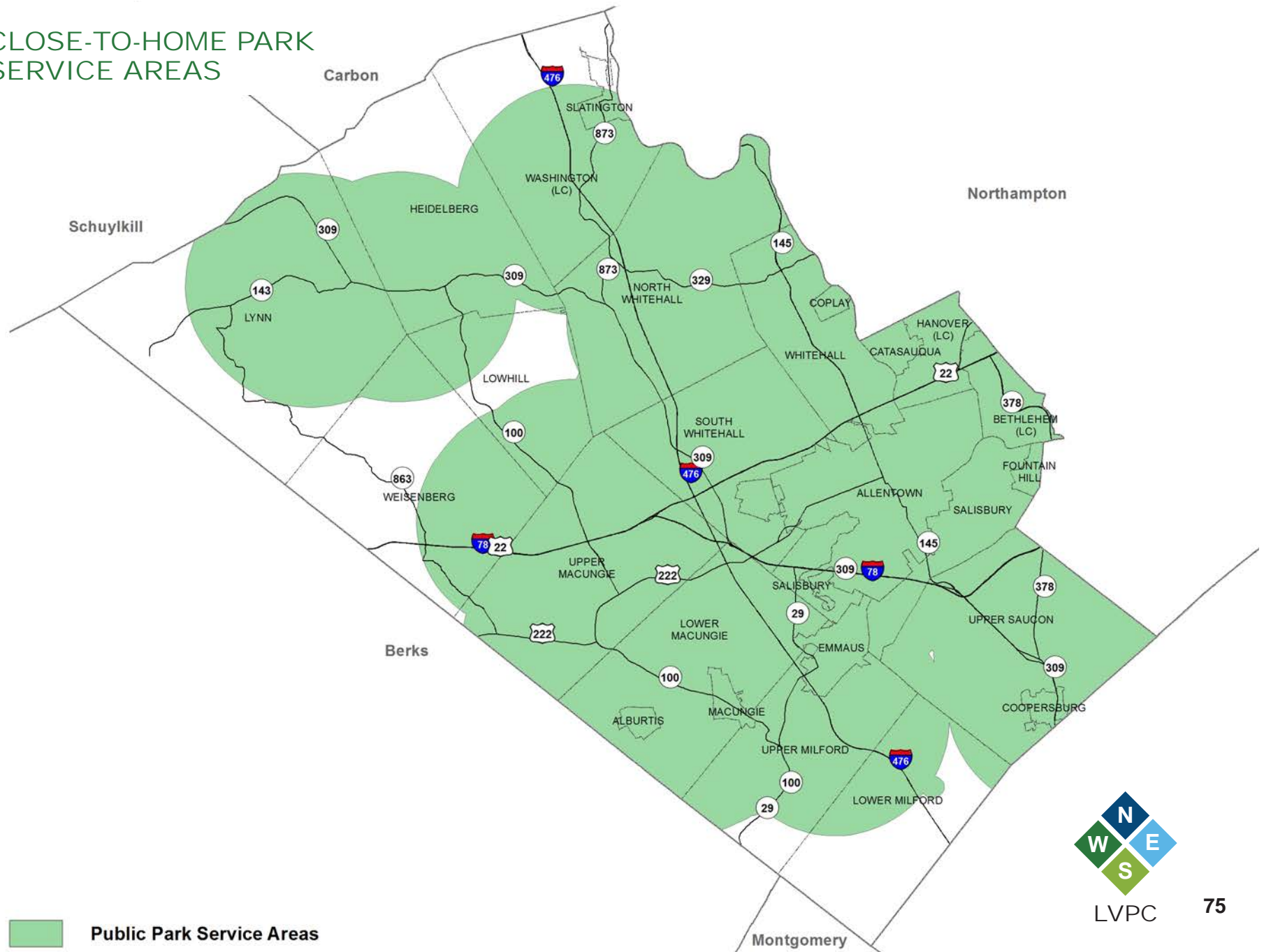
The northern parts of Washington, Heidelberg and Lynn townships have extensive coverage by the State Game Lands and the Lehigh Gap Nature Center on the Kittatinny Ridge. Lowhill Township has part of the Trexler Nature Preserve and State Game Lands within the municipality. Although these opportunities are not classified as standard close-to-home parks, they do provide passive recreation for the residents. The coverage would not change even if proposed parks were developed because the proposed close-to-home parks are within areas already with coverage.

6) 10-minute (0.5 miles) Walk to a Close-to-Home Park Service Area:

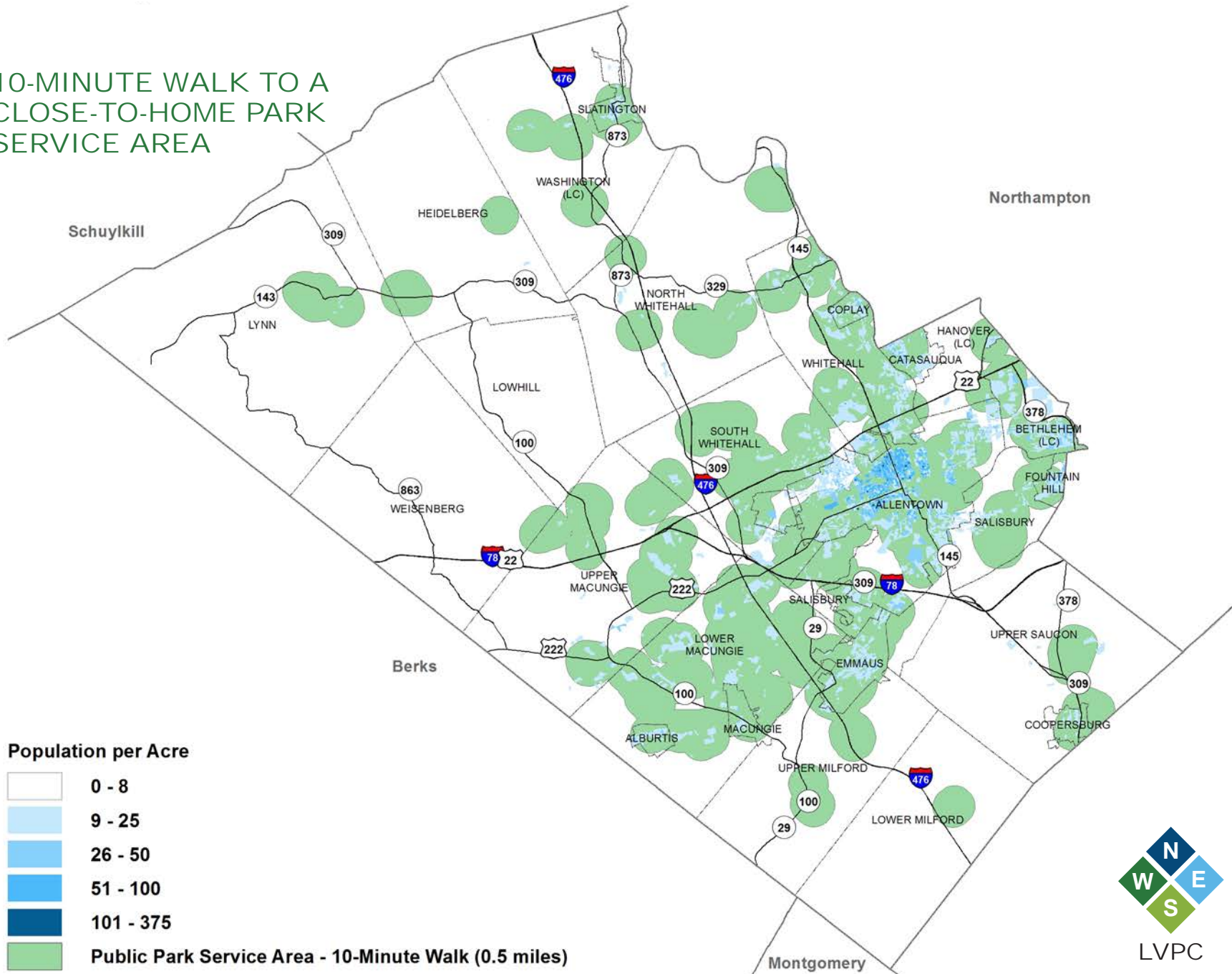
Classifications:

- Large Urban Park
- Community Park
- Neighborhood Park
- Mini-Park

CLOSE-TO-HOME PARK SERVICE AREAS



10-MINUTE WALK TO A CLOSE-TO-HOME PARK SERVICE AREA



LVPC

The more densely populated (50 to 375 persons/acre) urban areas provide a close-to-home park within a 10-minute walk of residents. Two areas with medium density populations (25 to 50 persons/acre) that are not covered are located in north-central and eastern City of Allentown; these two areas plus central City of Bethlehem have less densely populated (8 to 25 persons/acre) areas not covered. Some of these areas lacking park space may have privately-owned recreation facilities for the development's residents (e.g., apartment complexes).

7) County-Owned Service Area:

Classifications and service area distances:

3 miles to 20 miles depending on classification and park; excluded from the analysis were the two parks leased to municipalities, two Lehigh River boat ramps and Valley Preferred Cycling Center.

Results: The County-owned park site service area analysis revealed complete coverage of the County.

Recommendations:

To meet overall County park acreage standards and fill service area gaps, general recommendations are provided below. Recommendations related to specific County facilities are provided in the County Resources section of this chapter.

- All municipalities should gather information from their residents about what park and recreation facilities the community desires and acquire and/or develop the parkland needed to provide these opportunities, regardless of whether service area gaps or acreage deficiencies exist.
- Municipalities with close-to-home park acreage per 1,000 persons deficiencies—City of Allentown, City of Bethlehem; Catasauqua, Coplay, Fountain Hill boroughs; and Hanover, Lower Milford, Lowhill, North Whitehall, Upper Milford, Weisenberg and Whitehall townships—should plan to add new parks to meet the threshold if practical, feasible and supported by a residents' needs analysis.
- Municipalities with close-to-home park service area gaps—northern Slatington Borough/Washington/Heidelberg townships, parts of Lowhill, Weisenberg and



Ironton Rail Trail, LVPC file photo

Lynn townships, and parts of Upper Milford and Lower Milford townships—should plan to add new parks to fill the areas currently not served by close-to-home parks if practical, feasible and supported by a residents' needs analysis.

- Lehigh County should consider working with partners to identify opportunities to add regional outdoor recreation space.

Trails

Trails are an integral part of outdoor recreation facilities offered in the County and can be found in a variety of environments, ranging from wilderness to subdivisions to urban centers to farmland, connecting residents to parks, historic sites, shopping districts and employment centers. They run next to streams and canals, through former rail corridors, within industrial parks, on municipal sidewalks and even next to stormwater management facilities. They carve through land and water to accommodate such uses as walking, hiking, biking, jogging, mountain biking, horseback riding, cross-country skiing, boating, historical site appreciation, nature study, education and wildlife-watching.

In 2009, the Lehigh Valley Planning Commission completed a comprehensive update to the trails inventory for Lehigh and Northampton counties. The update compiled data from municipal plans and studies across the two counties and produced the *Lehigh Valley Trails Inventory—2009*. The goal of the 2009 inventory was to assist local officials in planning for future trails in the Lehigh Valley. A 2013 update included two new components: identifying priority trail gaps and providing guidelines to designing safe road crossings for trails. These two new components are part of a statewide effort by the Pennsylvania Department of Conservation and Natural Resources to help organizations and municipalities implement trail initiatives.

According to the Lehigh Valley Planning Commission inventory, 27 existing trails or trail networks are located in Lehigh County, totaling approximately 175 miles (including 19 miles where two trails use the same alignment). Additionally, 180 miles of trails are either under construction, designed, proposed or conceptual. (A proposed trail is when the land for the future trail has been acquired or is under agreement with the trail's managing entity. With a conceptual trail, the land has not yet been secured.) The longest open trails are the D&L Trail, September 11th National Memorial Trail, Appalachian Trail, Trexler Na-

ture Preserve Trails and Lehigh River Water Trail. In addition to being the longest trails in the County, all of these trails except Trexler Nature Preserve Trails have substantial trail mileage beyond the County and Pennsylvania.

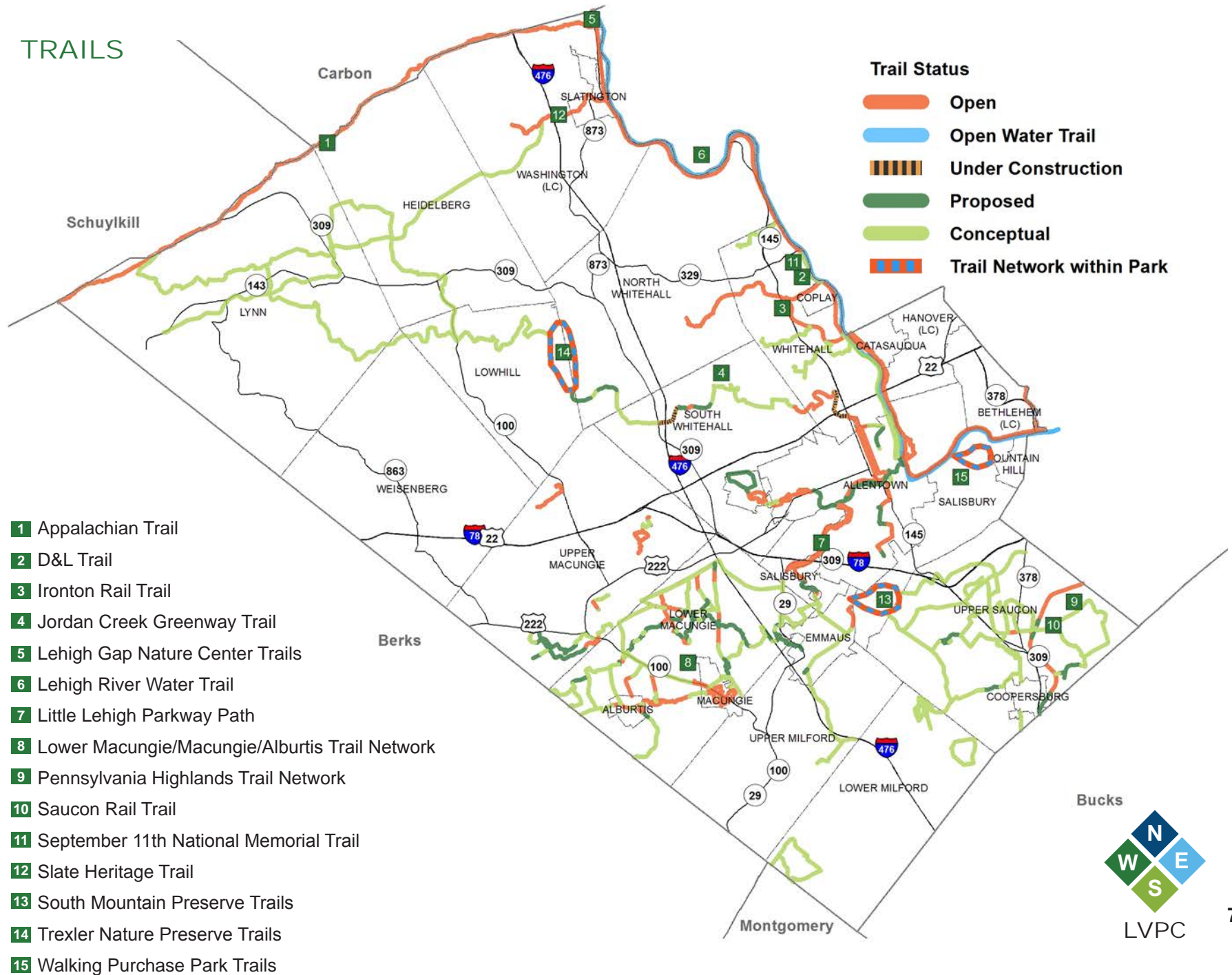
Ten priority trail gaps were identified in the *Lehigh Valley Trails Inventory—2013*. These gaps occur either within a single open trail (e.g., Trail Gap #6 – D&L Trail) or between two individual open trails (e.g., Trail Gap #3 – D&L Trail to Ironton Rail Trail). Reasons for the trail gaps vary and include stream crossings, permitting and land ownership issues. As efforts to close these trail gaps is progressing, the priority now is for the Delaware & Lehigh National Heritage Corridor, the County, Lehigh Valley Planning Commission, Wildlands Conservancy and municipalities to connect the D&L Trail south to the City of Allentown. This undertaking represents the designated pilot project for this Plan.

Bicycle Routes

BicyclePA is the name for a network of cross-state bicycle routes that guide the bicycle tourist across the Commonwealth. The routes generally use existing highways that have been identified as desirable roads for bicycling. In some cases, the route uses improved rail trails to bypass difficult sections. Lehigh County has a short section of one BicyclePA route described as follows:

BicyclePA Route L - This route extends 225 miles from Susquehanna County in the north (just south of Binghamton, New York) to Chester County in the south (just north of Wilmington, Delaware). It passes close to the major metropolitan areas of Scranton, Allentown and Philadelphia, while retaining all of the rural charm that characterizes Pennsylvania. In Lehigh County, the route follows portions of Mountain and Bake Oven roads and Routes 100 and 863.

TRAILS



Greenways and Blueways

Greenways and blueways are critical landscape components because they protect the environment, provide alternate routes of transportation, supply recreational opportunities, and connect natural and cultural areas to one another, providing a linear resource for a variety of users. A greenway is defined as a corridor of open space that may vary greatly in scale from narrow strips of green that run through urban, suburban and rural areas to wider corridors that incorporate diverse natural, cultural and scenic features. A blueway is a greenway corridor that includes a watercourse, which provides additional recreational opportunities and/or wildlife habitat. Water trails, which are recreational blueways, are boat routes suitable for canoes, kayaks and small motorized watercraft comprised of access points, boat launches, day use sites, and, in some cases, overnight camping areas. Connectivity is the defining characteristic that distinguishes greenways from isolated paths and pockets of open space.

Types of Greenways and Blueways

Greenways and blueways come in a variety of forms and serve many functions. The Pennsylvania Greenways Program identifies three major types of greenways: 1) cultural/recreational, which support human activity, 2) conservation, which support ecological and conservation purposes, and 3) multi-use, which support a combination of human and conservation activities. The Lehigh Valley Planning Commission identified a fourth type in the *Lehigh Valley Greenways Plan* that is present in the Lehigh Valley: 4) scenic, which provide a visual landscape connection. A description of these four types is as follows:

Cultural/Recreational: Cultural/recreational greenways and blueways supply the human population with an array of low-impact recreational opportunities and quality of life benefits. They offer alternative transportation routes and provide linkage to close-to-home exercise opportunities.

Conservation: Conservation greenways and blueways exist primarily to protect natural resources. They are undisturbed corridors that fulfill their ecological potential by serving as habitat, buffers, filters, sources and/or destinations.



Trexler Nature Preserve, photo by Craig Kackenmeister, LVPC

Multi-Use: Multi-use greenways and blueways accommodate cultural/recreational activities and provide conservation opportunities, serving both human and wildlife interests.

Scenic: Scenic greenways and blueways enhance the quality of life by providing scenery for residents and visitors to enjoy. Scenic greenways are visual connections across the landscape so people can enjoy the natural environment around them.



Lehigh River, photo by Teresa Mackey, LVPC

Greenway Components

Pennsylvania's greenways network will ultimately take the form of "hubs and spokes." The "hubs" of this network are large centers of activity and include national, state, or local parks; forests and game lands; lakes and headwaters; and historical, cultural and other significant destinations, including our communities. The "spokes" will be corridors connecting these destinations to our communities, including greenways of statewide significance, as well as local and regional networks. Lehigh County's greenways and blueways network is based on this model but with an additional component—nodes, which are natural, recreational, cultural and/or historical places of interest located throughout the network.

The Lehigh Valley Planning Commission identified 15 greenways in Lehigh County in the 2007 *Lehigh Valley Greenways Plan*. Three of these greenways—Jordan Creek, Little Lehigh Creek and Slate Heritage Trail/Trout Creek—have more than one type assigned to different segments, depending on the function of that segment. A majority of these greenways (11) follow stream and river corridors and are, therefore, blueways. The Kittatinny Ridge, Pennsylvania Highlands and Lehigh River greenways/blueways are identified by the Pennsylvania Department of Conservation and Natural Resources as a Pennsylvania Major Greenway Corridor. The greenways and blueways are summarized by type within Lehigh County as follows:

- Conservation (5) – Leibert Creek, Lyon Creek, Ontelaunee Creek, Saucon Creek, Shochary Ridge
- Conservation and Multi-Use (3) – Jordan Creek, Little Lehigh Creek, Slate Heritage Trail/Trout Creek

- Conservation and Scenic (1) – Pennsylvania Highlands
- Cultural/Recreational (2) – Ironton Rail Trail, Macungie-Alburtis Trail
- Multi-Use (3) – Cedar Creek, Lehigh River, Monocacy Creek
- Multi-Use and Scenic (1) – Blue Mountain/Kittatinny Ridge

In addition to the scenic greenways shown in the greenways plan, the Lehigh Valley Planning Commission identified scenic areas throughout Lehigh County from interpretation of natural characteristics, including outstanding scenic geology, elevation, steep slopes and woodlands. Areas with the highest concentrations of these features are shown as scenic on the Greenways and Blueways Map.

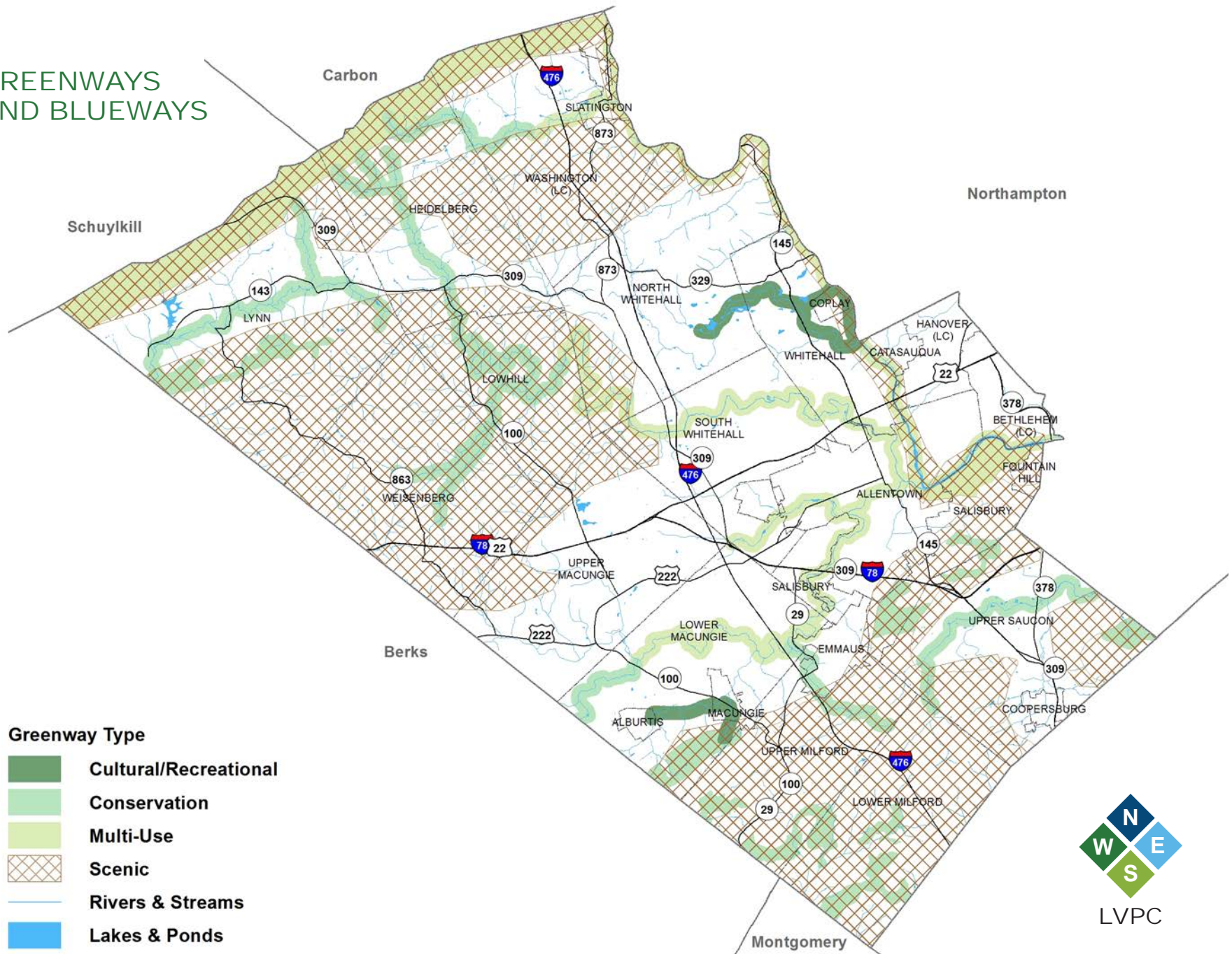
Hubs identified within Lehigh County were:

- City of Allentown
- City of Bethlehem
- Coplay/Northampton boroughs
- Slatington/Walnutport boroughs
- Trexler Nature Preserve

A total of 32 nodes were identified within the greenways, with eight located in multiple greenways.

For a more detailed discussion, please refer to the *Lehigh Valley Greenways Plan* (2007).

GREENWAYS AND BLUEWAYS



Agricultural Resources

Lehigh County's agricultural resources include 56,733 acres of farmland, active farm businesses, community gardens and farmers' markets. Over 59,000 acres of the County's soils are classified as prime farmland (most productive) as defined by the U.S. Department of Agriculture. Productive soils and a moderate climate with adequate rainfall all combine to be essential resources, resulting in the County's productive agricultural lands. The County's farmers have a strong work and stewardship ethic and strive to make a living, caring for their land, crops and animals. Most farmers use farming methods that protect the valuable soil and water resources on their farms.

Agriculture was an important occupation and way of survival for most of Lehigh County's early settlers and continues to be a major land use and valuable industry here. Many of the grains grown here are exported to other areas of Pennsylvania for use as animal feeds and the snack industry. Milk and meat that is not sold locally is also exported to other regions for use in the food industry. There are currently 11 operating dairy farms in the County, and a new one is being planned. One of these dairies also sells milk and milk products, such as ice cream, directly to customers through their on-farm retail store.

The crops and other agricultural commodities grown here are marketed through several avenues. The crops are sold directly to consumers through stores and farmers' markets. Lehigh County has several farmers' markets, three of which are producer-only as identified in Buy Fresh Buy Local Greater Lehigh Valley's report, *Assessment Report: Lehigh Valley Local Food Economy* (2014). These markets are open seasonally and on different days of the week at various locations throughout the County. In recent years, some farmers have started marketing their products through Community

Supported Agriculture. Customers pay a lump sum in advance and pick-up or receive a weekly delivery of food throughout the growing season. In contrast, a large percentage of the grain and other crop commodities grown in the County are sold to grain mills, milk cooperatives and wholesalers.

Although farms are not natural landscapes, they can complement parks and natural areas by providing open space and adding to the pastoral scenery that residents treasure. County residents can visit several farms to learn about agriculture and buy products during a one fall weekend per year called the "Open Gate Farm Tour" which is organized by the Penn State Cooperative Extension. Cooperative Extension also coordinates 4-H clubs for youth. Some farms offer agriculture-related activities for children and adults, referred to as agri-tainment, such as corn mazes, pumpkin patches and pick-your-own fruits, vegetables and flowers. Residents can also learn about agriculture by attending local fairs (e.g., The Great Allentown Fair and Schnecksville Community Fair).

Community gardens also contribute to the agricultural output in the County. Lehigh County has about 20 community gardens as reported by the Food Policy Council, some of which are not open to the public. Buy Fresh Buy Local Greater Lehigh Valley's *Assessment Report: Lehigh Valley Local Food Economy* (2014) provides a detailed review of urban farming and community gardens. Two of the gardens, Cedar Brook with 110 plots and Jordan Creek Parkway with 93 plots, are coordinated by the County Office of Farmland Preservation. Other gardens are run by volunteer groups and supply large amounts of produce to

needy families and hospital patients.

The County also supports The Seed Farm on a 47-acre section of a preserved, County-owned, 287-acre farm in Upper Milford Township. The Seed Farm is a nonprofit organization with a mission to cultivate



Agricultural products grown here include: grains, beans, vegetables, fruit, tree nuts and berries, nursery and greenhouse crops, flowers and trees, hay and straw, poultry and eggs, cattle and calves, milk, cheese and ice cream from cows and goats, hogs and pigs, sheep and goats, horses, ponies and donkeys, and aquaculture. The top crop items are corn for grain, soybeans, hay and silage, and wheat.

the next generation of farmers. In addition to offering new farmer training and workshops on sustainable agriculture and growing methods, The Seed Farm operates a farm business incubator on-site. The incubator provides new farmers with access to land, equipment, infrastructure, and mentoring, addressing the top barriers to farm entry and opening doors for a new generation of farmers. The Seed Farm works to keep agriculture viable in the Lehigh Valley, improve the region's food security, conserve natural resources, and facilitate the development of a vibrant, local food economy.

Loss of Farmland

The U.S. Department of Agriculture's Census of Agriculture reports that Lehigh County has lost a tremendous number of farms and amount of farmland during the last several decades. Between 1954 and 2012, there was a 65% decrease in farmland acreage, with the sharpest decrease occurring between 1954 and 1974, and a 71% decrease in the number of farms, with the sharpest decrease occurring between 1954 and 1959. These decreases compare to the decreases across Pennsylvania during the same time period (1954 to 2012) of 41% and 54% for farmland acreage and number of farms, respectively. One reason for the decline in farmland acreage is land development. According to the Lehigh Valley Planning Commission's database, in 2015, Lehigh County's municipalities approved residential and non-residential subdivision or land development projects for 1,500 acres, including agricultural/undeveloped land as classified by the Lehigh Valley Planning Commission.

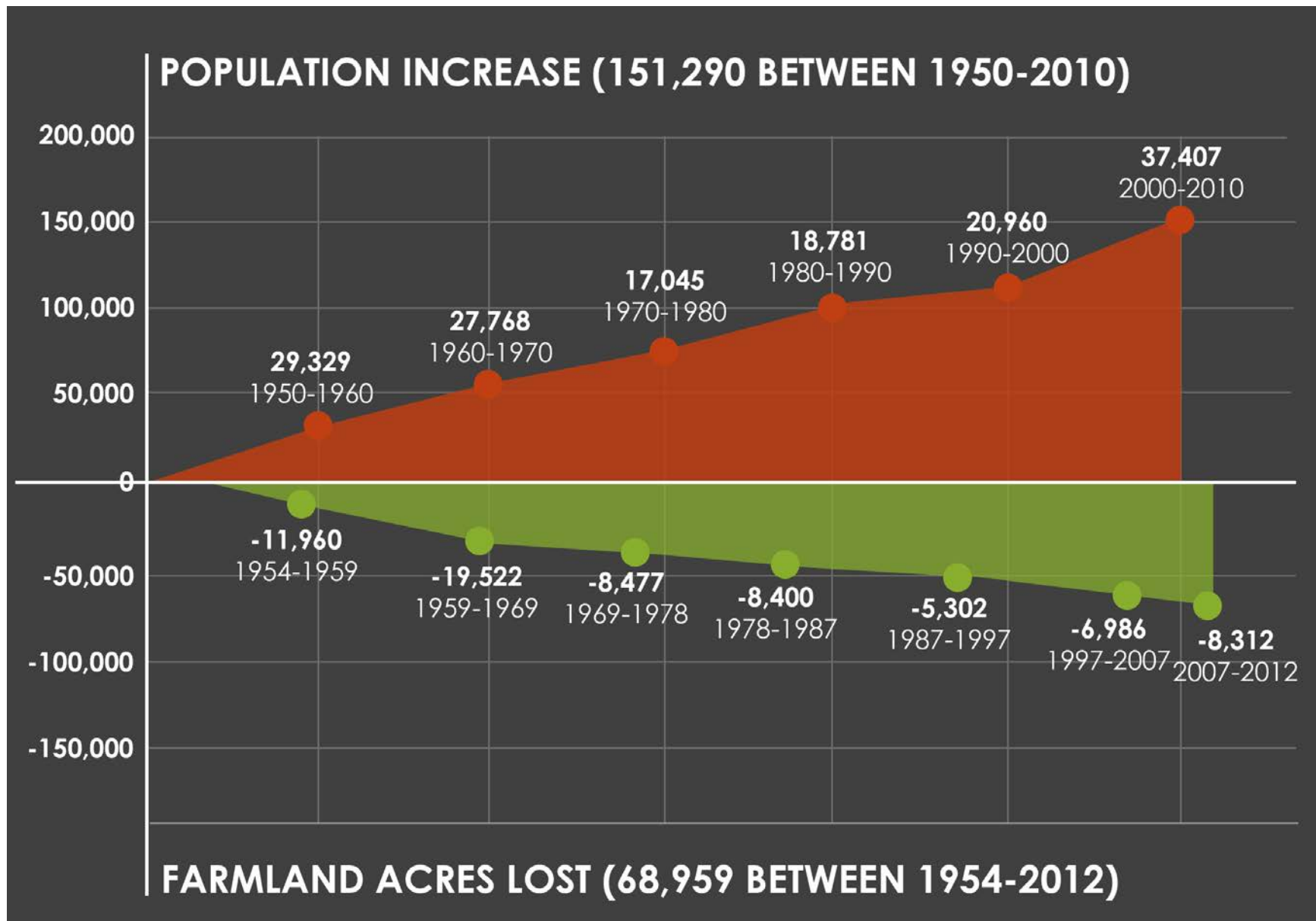
The loss of agricultural land as reported by the Census of Agriculture over the years has a correlation to the growth in population for Lehigh County. The total loss of farmland acres from 1954 to 2012 is reported as 68,959. The growth in population for approximately the same period as measured by the Decennial Census from 1950 to 2010 is 151,290 persons. If the two slightly different time periods are equated, there are 2.19 people added to Lehigh County for each acre of farmland lost over the prior six decades. Of course, not all farmland lost is associated with residential development. It is, however, an interesting metric, especially since, as is evident from the graph, the relationship has remained fairly consistent across the six decades. The timeframe of the data is during a period of suburbanization for Lehigh County, with the single family detached home being the predominant housing



Heidelberg Township, photo by Becky Bradley, LVPC

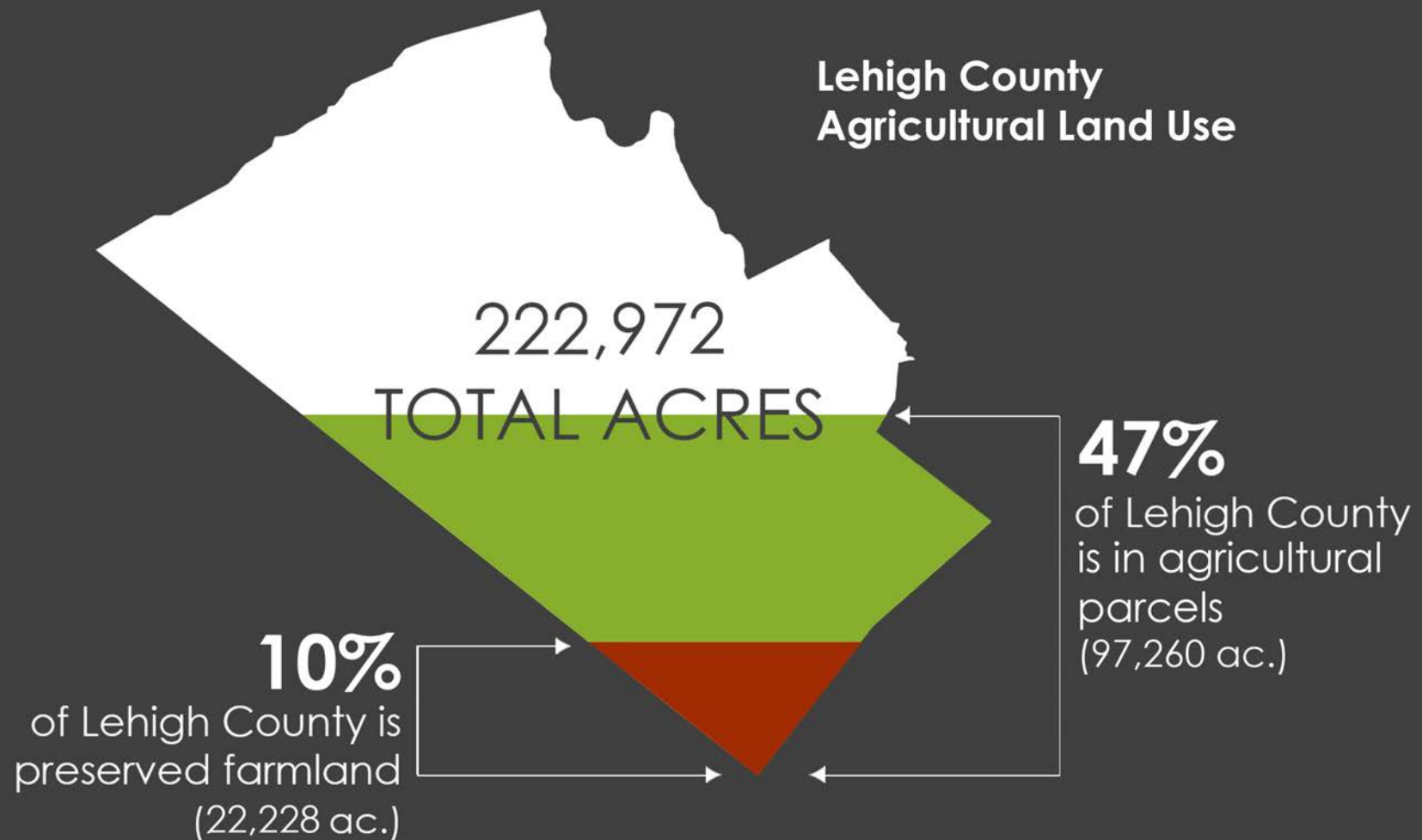
type. More recent development favors higher density attached dwellings. It will be an interesting metric to track, especially as it relates to the preservation of open space resources, as Lehigh County may add another 90,897 people through 2040.

Pennsylvania has different measures that can be used to protect farming interests and preserve farmland. Municipalities, under the authority of the Agricultural Security Area Law (Act of June 30, 1981, P.L. 128, No. 43)(3 P.S. §§ 901-915), are able to create and administer, through a resolution, an Agricultural Security Area to register farm properties as a measure to protect farming interests. Individual farm owners voluntarily apply to create the Agricultural Security Area, which protects farm operations from the adoption of municipal ordinances that restrict normal farming practices because of complaints and pressure from adjacent non-farming landowners. A minimum of 250 acres, which does not need to be contiguous, is required to start an Agricultural Security Area, and the municipalities are supposed to review the area boundaries every seven years and update if necessary. Lehigh County municipalities have 42,524 acres designated as Agricultural Security Areas.

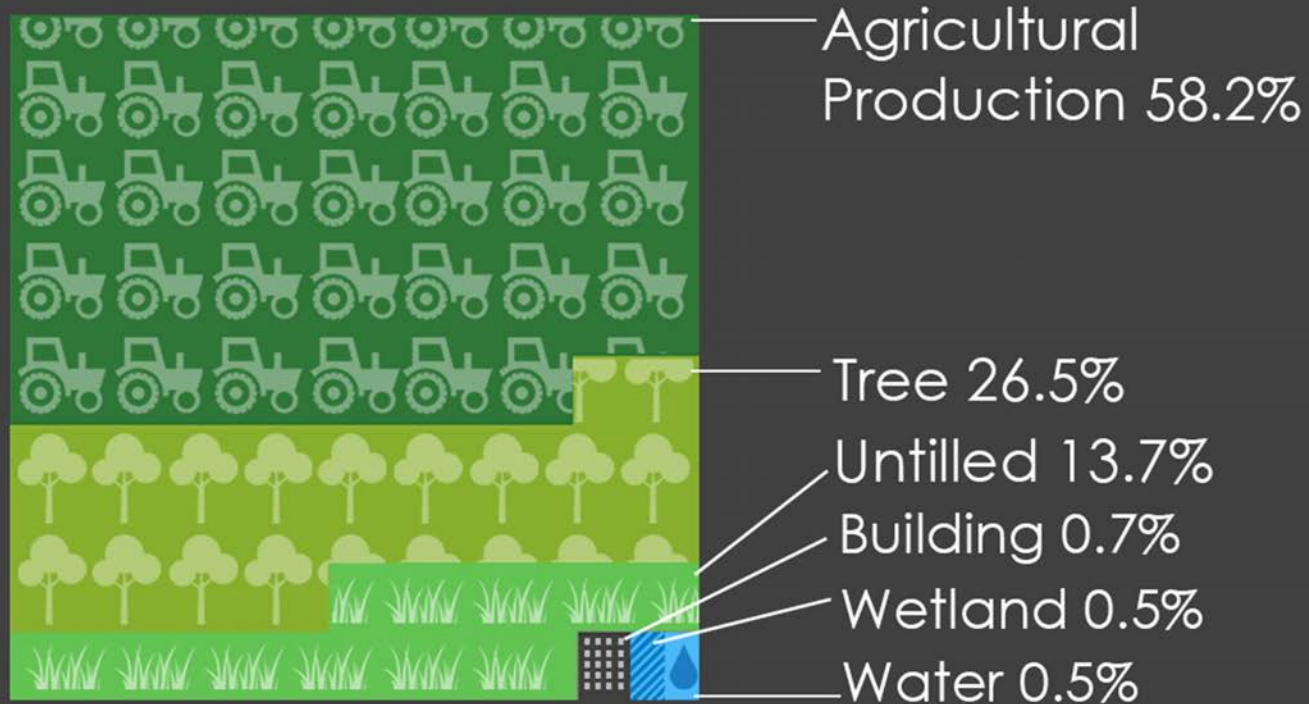


STORY OF THE FARM

Lehigh Valley Planning Commission +
Census of Agriculture Data



Components of a Typical Agricultural Parcel



The Median Size of Farms is 33 acres

(icon = 1 ac)



Farms by Size



25%

of farms have an annual output of \$1,000 or less

486
TOTAL
FARMS

Statewide Ranking (of 67 counties)

#1
Turkey
Inventory

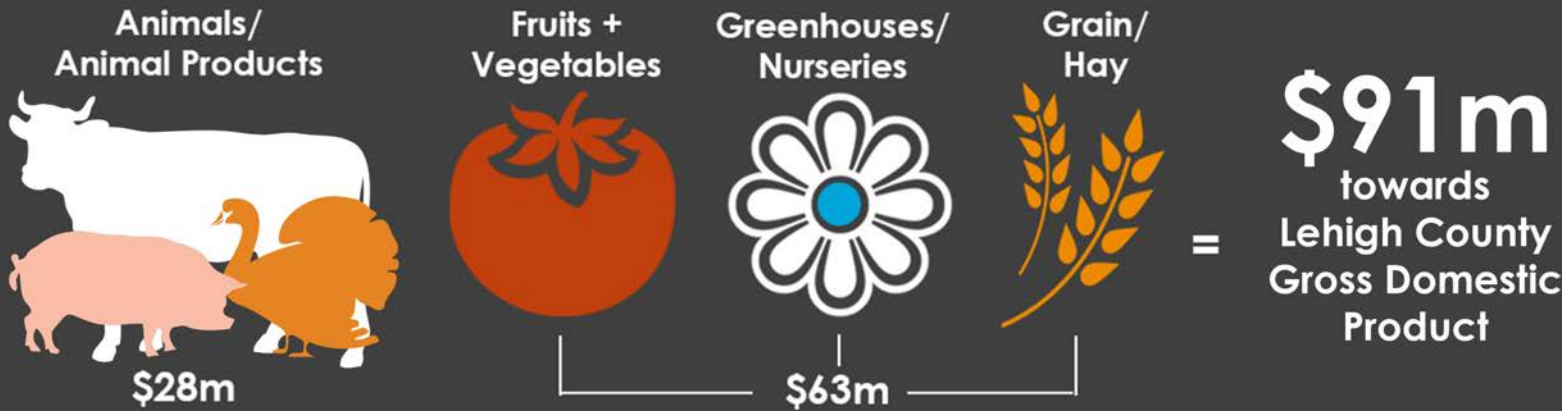
#5
Sales of Nursery,
greenhouse, sod,
floriculture

#5
Wheat Crop
acres

≥26

Farms
Promoting
Agri-tourism
or
Recreation

Market Value of Farm Product Sold by Commodity Type



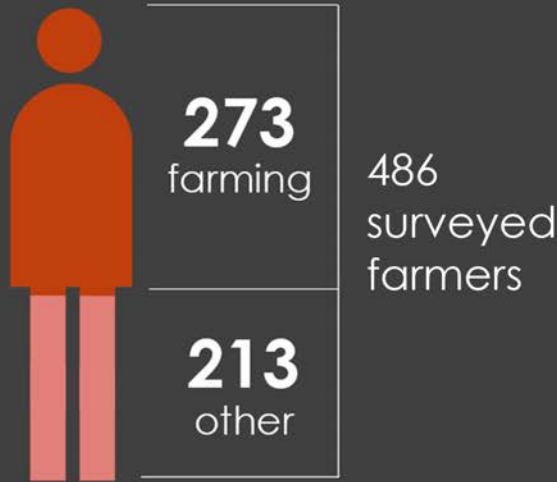
Gender of Farmer



Race of Farmers and Farming Workers



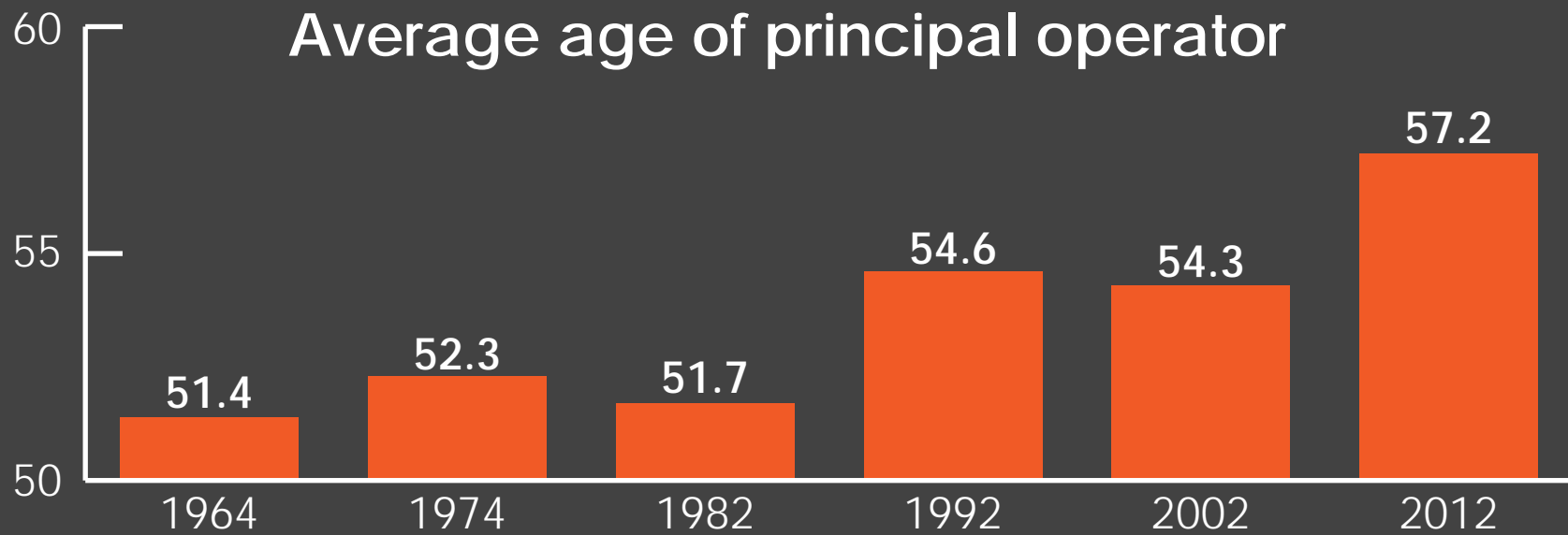
Primary Occupation of Farmers





Frick Family Farm in Coopersburg, photo by Becky Bradley, LVPC

Average age of principal operator



An agricultural conservation easement is a legal restriction on development that limits the use of land to agricultural purposes. Under the agricultural conservation easement program (see program description below), the property owner sells the rights to develop land for nonagricultural purposes to the County, the Commonwealth of Pennsylvania, the local municipality or a combination of these. The property owner retains ownership and continues to farm the land, and may sell or transfer the property with the conservation easement staying in effect in perpetuity.

Municipalities, as provided by the Municipalities Planning Code, can also preserve farmland through regulatory approaches. For example, local agricultural zoning can preserve farmland by designating areas where agriculture is the principal use and constrain non-agricultural development and uses. Five municipalities currently have effective agricultural zoning (Lower Macungie, Lower Milford, Lynn, Heidelberg, and Upper Saucon townships). This type of zoning limits the area and number of residential lots that can be subdivided from an agricultural property.

In the *Comprehensive Plan The Lehigh Valley...2030*, the Lehigh Valley Planning Commission recommends the preservation of approximately 25% of the County as agricultural land (over 55,500 acres). Support for farmland preservation is evident from the Lehigh County Livable Landscapes Plan public opinion survey—98% of respondents feel it is extremely or very important to protect farmland.

Agricultural Conservation Easement Purchase Programs

Lehigh County established the Agricultural Land Preservation Board in 1989 with the primary purpose to preserve farmland in the County by developing and administering a program to purchase agricultural conservation easements. The program leverages County and municipal funding with matching funds from the Commonwealth of Pennsylvania, primarily from the Pennsylvania Agricultural Conservation Easement Purchase Program, which was established in 1988. Federal funding is also available through the Agricultural Conservation Easement Program, which is a portion of the Farm Bill re-instituted in 2014 (Agricultural Act of 2014). Over the years, the federal easement regulations have become more complex, and the federal easements are more



The Seed Farm
Photo by Craig Kackenmeister, LVPC

restrictive than the Pennsylvania farmland preservation program easements. The federal program has more detailed appraisal requirements and easement purchase procedures. Federal conservation easements include more land use restrictions, more requirements for best management practices regarding farm operations and additional long-term easement monitoring requirements. Many property owners are not interested in participating in the federal program due to the more restrictive easement requirements. Three farms in Lehigh County were preserved during the early years of the federal program before the program became more complex and restrictive.

Lehigh County provides funding to the farmland preservation program annually, when available. Additional funding, which is used to pay for the monitoring of preserved farms, is provided by interest on roll back taxes collected annually from breaches of Act 319 (Clean and Green Preferential Tax Assessment Program) covenants.

Due to the strong public support for farmland preservation, in 2016 the Lehigh County Commissioners voted to fund the program at a

higher level to get additional farms preserved at a faster rate. For 2017, the County appropriation is \$2,021,126, and combined with the State appropriation, the total amount of funding currently available is \$4,596,602. This level of County funding is anticipated to be maintained for the next three years.

The Lehigh County Farmland Preservation Program has 80 farm applications on a waiting list, representing far more applicants than can be funded each year, ranging in size from 11 acres to 143 acres. Some properties may stay on the waiting list for years due to marginal property characteristics, resulting in a low score on the County's farmland preservation land evaluation and site assessment ranking system. New applications are ranked with older applications on the farmland preservation waiting list each year. More emphasis has been placed on the importance of soil quality (soil classification) in the ranking system in recent years, because past ranking systems placed more emphasis on the clustering of easement purchases. Soil quality now accounts for 50% of the ranking score.

After the ranking scores are completed, the easement purchases are processed in the order of the ranking results. In Lehigh County, small, isolated farms may be desirable to be preserved. With highly ranked soils, regardless of the size of the farm or the farm clustering potential, a farm can compete favorably for funding and be selected for preservation. The County acquired its first agricultural conservation easements in July 1991, located in Lower Milford Township. In Lehigh County, as of June 7, 2017, 279 farms totaling 22,228 acres have been preserved.

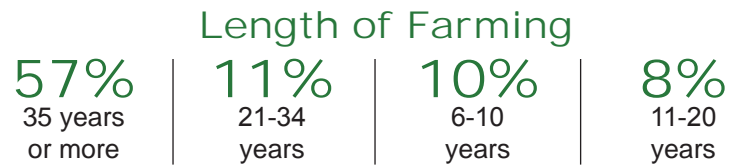
A new program, the Municipal Partnership Program, is in the development phase. This Program will provide County financial incentives for increased municipal involvement in the purchase of agricultural conservation easements. Municipalities can provide funding that can be used to make easement purchase offers over the County's funding cap (currently set at \$6,000 per acre, 2017) when an appraisal shows the conservation easement value to be in excess of the cap. Municipal funding participation can also give municipalities more choice in the selection of farms that will be preserved. In 2016, Lower Macungie and Upper Milford townships contributed funding, \$150,000 and \$50,000, respectively, which helped to preserve a farm in each municipality.

The County has been using innovative techniques to preserve more land. Several farms have been preserved through the County working cooperatively with a local land trust, Wildlands Conservancy. The two organizations worked to preserve the natural area portion of farms through Wildlands Conservancy and the agricultural portion through the farmland preservation program. Land trusts can purchase the agricultural conservation easement and will receive up to \$5,000 per farm reimbursement from the Commonwealth to help pay for some of the costs.

Farmer Survey Results

On January 6, 2017, Penn State Extension, on behalf of the Lehigh Valley Planning Commission, mailed out a paper survey to 650 farmers and other individuals understood to have experience or interest in farming. The list of farmers was compiled by Penn State Extension, Lehigh County Agricultural Land Preservation, The Seed Farm and Buy Fresh, Buy Local Greater Lehigh Valley. Additional surveys were also distributed and collected at the Farmers' Meeting held at the Lehigh County Government Center on March 7, 2017. By the conclusion of the survey on March 7, 2017, the Lehigh Valley Planning Commission had received a total of 135 responses. In addition to providing data on the size, tenure and length of operation of farming operations, respondents also identified critical issues impacting farming, opportunities they took advantage of to improve their businesses and potential areas of assistance that would be helpful to them.

The Lehigh Valley Planning Commission subsequently performed a cross-tabulated analysis of the results to determine correlations between the size of farming operations and other factors revealed through the survey. Highlights of the results are presented below, with complete results available in the Appendix.



farm between 10-179 acres

■ Respondents were evenly split on whether they had enough land to make farming profitable for the long-term.

■ Farmers who felt they had enough land for long-term profitability were more likely to have succession and business plans compared to those who felt they did not have enough land to be profitable.



Emmaus Farmers' Market, LVPC file photo

Trends Among Larger Farms

■ Generally speaking, a consistent majority or plurality of respondents farming under 500 acres consistently stated that they sold 75% or more of their product locally. Those figures drop significantly for those farming over 500 acres.

Critical Issues

■ Respondents who farmed 500 acres or more were significantly more likely to cite "Securing Adequate Affordable Land" (65%) and "Conflicts with non-farming community" (48%) as critical issues.

Opportunities

■ Expansion – Respondents of the largest and smallest farm size categories were most likely to cite "Expansion" (52% and 56%, respectively).

Assistance

■ Respondents farming 500 or more acres identified "Succession Planning" at significantly higher rates.

Trends Among Smaller Farms

Critical Issues

■ Smaller farmers (49 acres or less) were significantly more likely to cite "Access to Markets" as a critical issue, while none of the respondents who farmed 500 acres or more cited it as a critical issue.

■ Small farmers (10 acres or less) cited "Travel on busy roads" and "Conflicts with non-farming community" significantly less (6% and 0%) than other respondents.

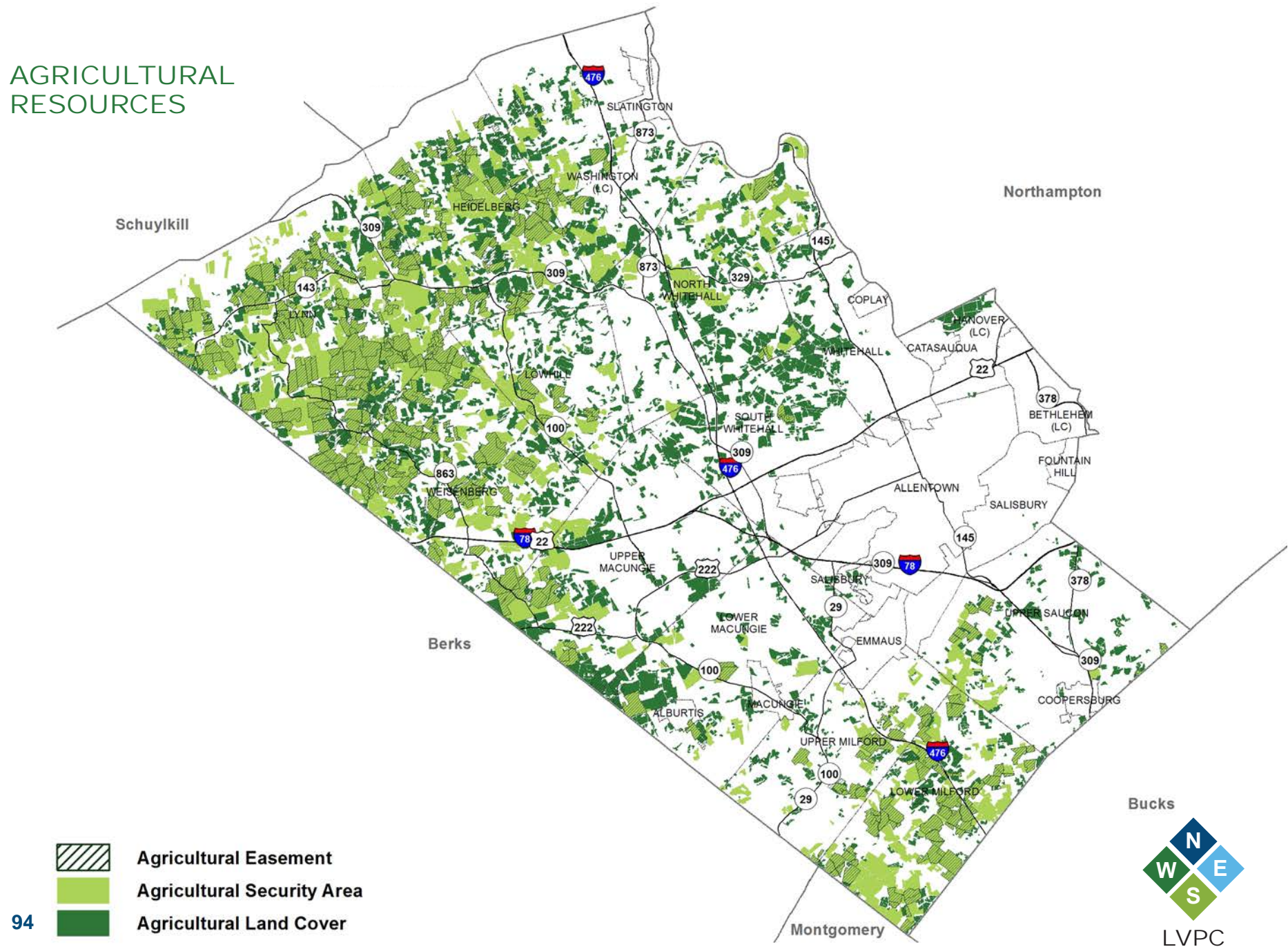
Opportunities

■ Smaller farmers (49 acres or less) identified "Value-added products," "Dealing with local businesses," and "Organic farming" as opportunities they have taken or would take advantage of at significantly higher rates than those farming 50 acres or more.

Assistance

■ Respondents farming 49 acres or less (and respondents farming 10 acres or less in particular) identified "Networking/Working cooperatively," "Productivity training," "Food safety requirements/certification training," and "Organic farming/certification" at significantly higher rates.

AGRICULTURAL RESOURCES



Historical Resources and Cultural Landscapes

Lehigh County offers many beautiful scenes framing the interrelationship between its natural features, rural areas, open spaces, and cities and boroughs. While the previous sections of this Inventory and Assessment Chapter largely focused on the County's natural landscape and amenities, this section details the man-made physical and cultural contributions to the landscapes of Lehigh County.

Lehigh County boasts abundant historical assets, many of which contribute to various cultural landscapes reflecting the lifestyles, cultures and industries that have shaped its growth and defined its character. These cultural landscapes range from rural settlements to urbanized environments and span various time periods since the County's settlement. Often, development from multiple time periods intermingles in semi-defined clusters.

Historic Resources Defined

The Federal Government and the Commonwealth of Pennsylvania define "historic" as a structure or location which is 50 years in age or older. Although much of the built environment in Lehigh County generally falls under this definition, this does not necessarily mean that all of these structures or locations contribute value to the overall story of the region. The true value of place is ultimately determined by those who directly engage with and contribute to it.

The National Register of Historic Places currently recognizes 52 properties in Lehigh County; the Pennsylvania Historical and Museum Commission has established 29 historical markers. However, there are many additional locations and features worthy of preserving to allow future generations the opportunity to further build on history.

Examples of physical historic assets in the County may include:

- Buildings (including long-running stores or service industries - legacy businesses, factories)
- Scenic Views
- Infrastructure and transportation networks (e.g., stone or covered bridges)
- Agricultural Land and their support buildings (e.g.,

vineyards, silos, barns)

- Parks and Trails (e.g., Native American trails)

Examples of intangible historic assets which may be supported through open spaces or the built environment might include:

- Indigenous knowledge of local craft or farming practices
- Continued storytelling of significant events where no physical evidence remains

In spite of a great sense of pride in the region's assets, many structures or historic landscapes are threatened due to a lack of both formal protection and resources to address deferred maintenance. Market forces pose an additional threat to the region's historic barns, which are being disassembled for the premium value of their wood as a construction material. In cases big and small, there is a general shortage of support of appropriate groups and reliable funding. Additionally, there is great pressure on the capacity of the region's infrastructure, threatening the networks which connect historic resources to the people who enjoy and support or maintain them.

A surge in growth and development in the past 20 years has resulted in a region identified as much by its allocation as a site prime for the future of large-scale manufacturing and warehousing as for its historic industrial remnants and charming small towns. With projections of high levels of further growth and development on the horizon, now is the time to define the values of local heritage and form strategies to bring those assets to the forefront, while acknowledging that the County will always be in a state of transformation.

Cultural Landscapes Defined

Put simply, cultural landscapes are areas strongly representative, or subtly indicative of the character of the local historic built environment and other historic resources. The World Heritage Committee expands this definition to include 'an organically evolved, or continuing landscape', implying flexibility and an ability to be adjusted. Some cultural landscapes may already be clearly delineated ('historic district'), while

others cross over into areas with less definition as a series of nodes. These nodes require coordinated collaboration of efforts across groups with varying interests, boundaries and resources.

By providing a framework for interpreting and understanding the story of the built environment, a cultural landscape can draw attention to otherwise overlooked cultural and heritage resources and bolster efforts to protect, preserve and promote these assets. Cultural landscapes produce highly-engaging, recognizable places as opposed to non-descript, neglected spaces. Cultural landscapes generate vitality and revitalization, a tool that can be leveraged to build community pride and resilience.

After reviewing the County's historical settlement and development patterns and compiling an inventory of its historical and cultural assets, the Lehigh Valley Planning Commission identified five cultural landscapes that are particularly notable due to their physical extent and strong associations with the history, culture and identity of Lehigh County. In addition to these cultural landscapes, Lehigh County also served as the home and hunting grounds for the Delaware/Lenape tribes prior to European settlement. Although no critical mass of physical remnants of Native American society remains on the landscape, reminders of the region's original inhabitants can be found at sites like the Indian Jasper Quarries in Vera Cruz, historic pathways like the Minsi Trail (known today as Bethlehem Pike), and over 300 Native American archeological sites throughout Lehigh County. Lehigh County's Native American history continues to be studied and presented to the public at the Museum of Indian Culture and the Lehigh County Historical Society, both located in the City of Allentown.

Rural settlements: According to James J. Hauser's *"A History of Lehigh County, Pennsylvania"* (1902), colonial settlement of Lehigh County began in the early 18th century in present day Lower Milford Township, then soon after extended north of South Mountain to the foot of Blue Mountain. Clusters of early rural settlements remain today in the southwestern and northwestern portions of the County. These natural and rural landscapes are punctuated with villages featuring churches, one-room school houses, two-story porches and hotels with incorporated post offices reflecting the values and social organization of Lehigh County's early agrarian society.

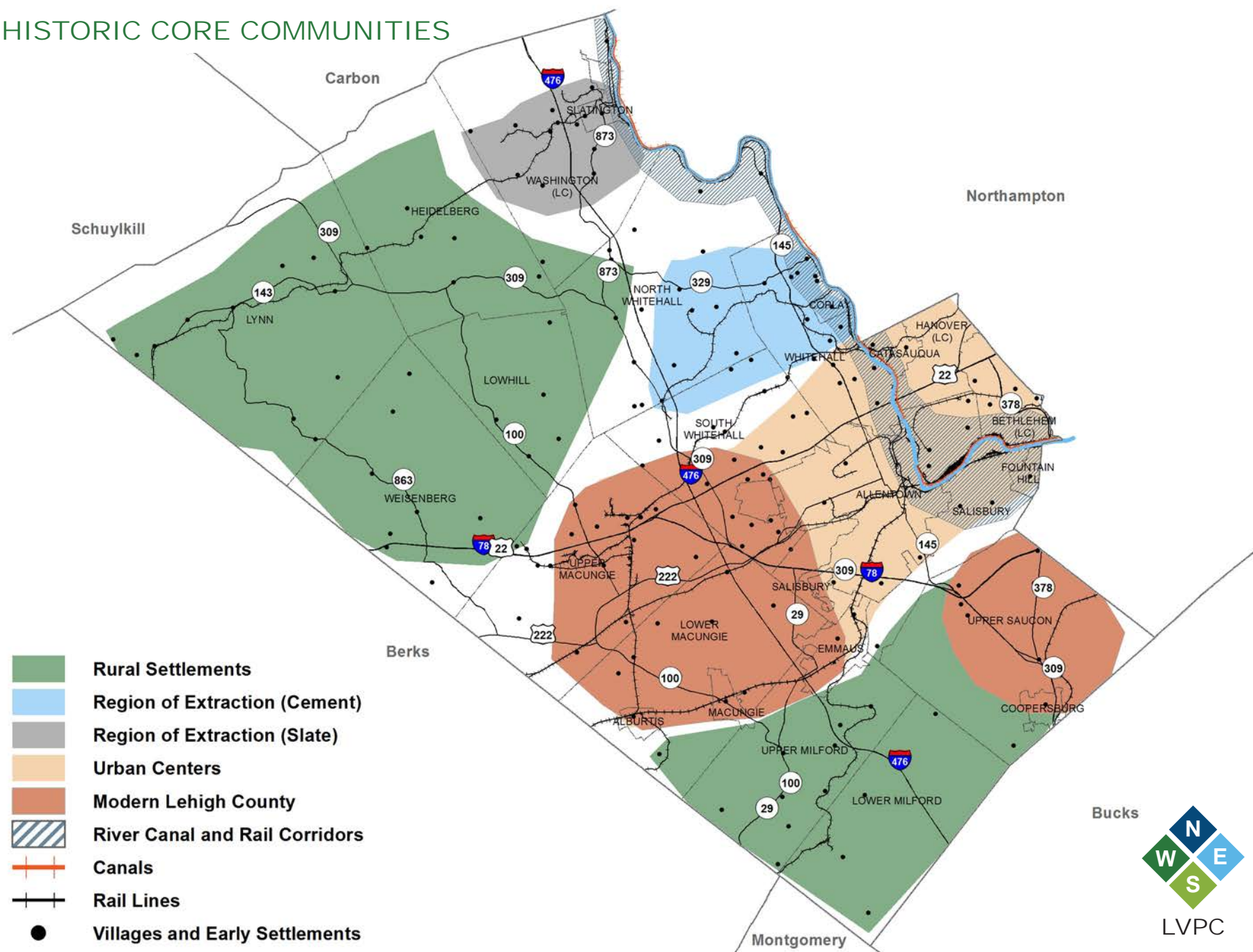
River, Canal and Rail Corridors: The rivers and streams of Lehigh County served as natural transportation corridors for early settlers, as well as a source of power for the numerous grist mills established along waterways like Jordan and Little Lehigh creeks. The historic covered bridges that span these waterways remain some of Lehigh County's most popular historic attractions. The discovery of anthracite coal in nearby Carbon County spurred the development of the Lehigh Canal in 1818-1820 and later the region's extensive rail network, including the Lehigh, the Catasauqua & Fogelsville, and the East Penn railroads.

Regions of Extraction: Like Carbon County to the north, the landscape of Lehigh County also contained an abundance of mineral wealth. The extensive deposits of limestone in and around Coplay, Cementon and Orefield gave rise to the Lehigh Valley's cement industry, as well as local landmarks like the Coplay Cement Kilns. Likewise, Catasauqua Borough and the City of Allentown were early iron-producing centers, while Slatington Borough and Washington Township represented the western extent of a slate-producing region spanning the northern portion of the Lehigh Valley.

Urban Centers: As the locus of the region's most intense development, the City of Allentown and Lehigh County's eight boroughs contain many of the finest examples and the highest concentrations of the region's architectural heritage. The historic mills, factories and warehouses contained within these urban centers attest to the region's industrial prominence, while the downtowns and commercial districts feature defining landmarks like Allentown's PPL Tower. The variety of Lehigh County's architecture is particularly evident in its residential structures, which feature details from many style periods and design influences from many parts of the world.

Modern Lehigh County: In the decades after World War II, Lehigh County experienced similar growth trends as other metropolitan areas throughout the country. Regional leaders demonstrated foresight in modernizing transportation infrastructure in the County, including the construction of Routes 22 and 378, as well as a new terminal building for Lehigh Valley International Airport. This new infrastructure ushered in the era of suburbanization in Lehigh County, characterized by

HISTORIC CORE COMMUNITIES



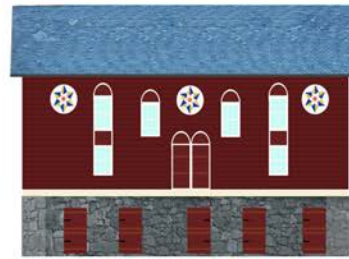
LEHIGH COUNTY ARCHITECTURAL STYLES



Georgian
1700-1780



Federal
1780-1820



Bank Barn
1790-1900



Greek Revival
1825-1860



Gothic Revival
1840-1880



Italianate
1840-1885



Folk House
1850-1890



Victorian - Second Empire
1855-1885



Stick
1860-1890



Dutch Colonial
1625-1840



Richardson Romanesque
1880-1900



Queen Anne
1880-1910



Victorian
1880-1910



Dutch Revival
1910-1940



Chateausque
1880-1910



Italian Renaissance
1890-1935



Tudor
1890-1940



Neoclassical
1895-1955



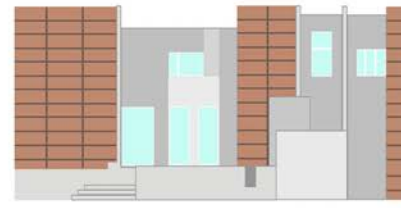
Craftsman
1905-1930



Flemish Revival
1910-1940



French Eclectic
1915-1945



International
1925-present



Trailer, Tiny Home
1930-present



Split Level
1935-1975



Ranch
1935-1980's



Minimal Traditional
1935-1950



Contemporary
1945-1990



Allentown, photo by John von Kerczek, LVPC

single family tract houses, shopping malls, mid-century highway- and strip-commercial centers, diners and drive-ins.

Development Eras

Many of the world's most memorable cities and towns have successfully preserved their built heritage, not simply through protective isolation, but by steadily and creatively building upon that heritage and incorporating it into a continually evolving built landscape. These places often feature an intermingling of structures from multiple time periods and reflect a variety of development trends and patterns.

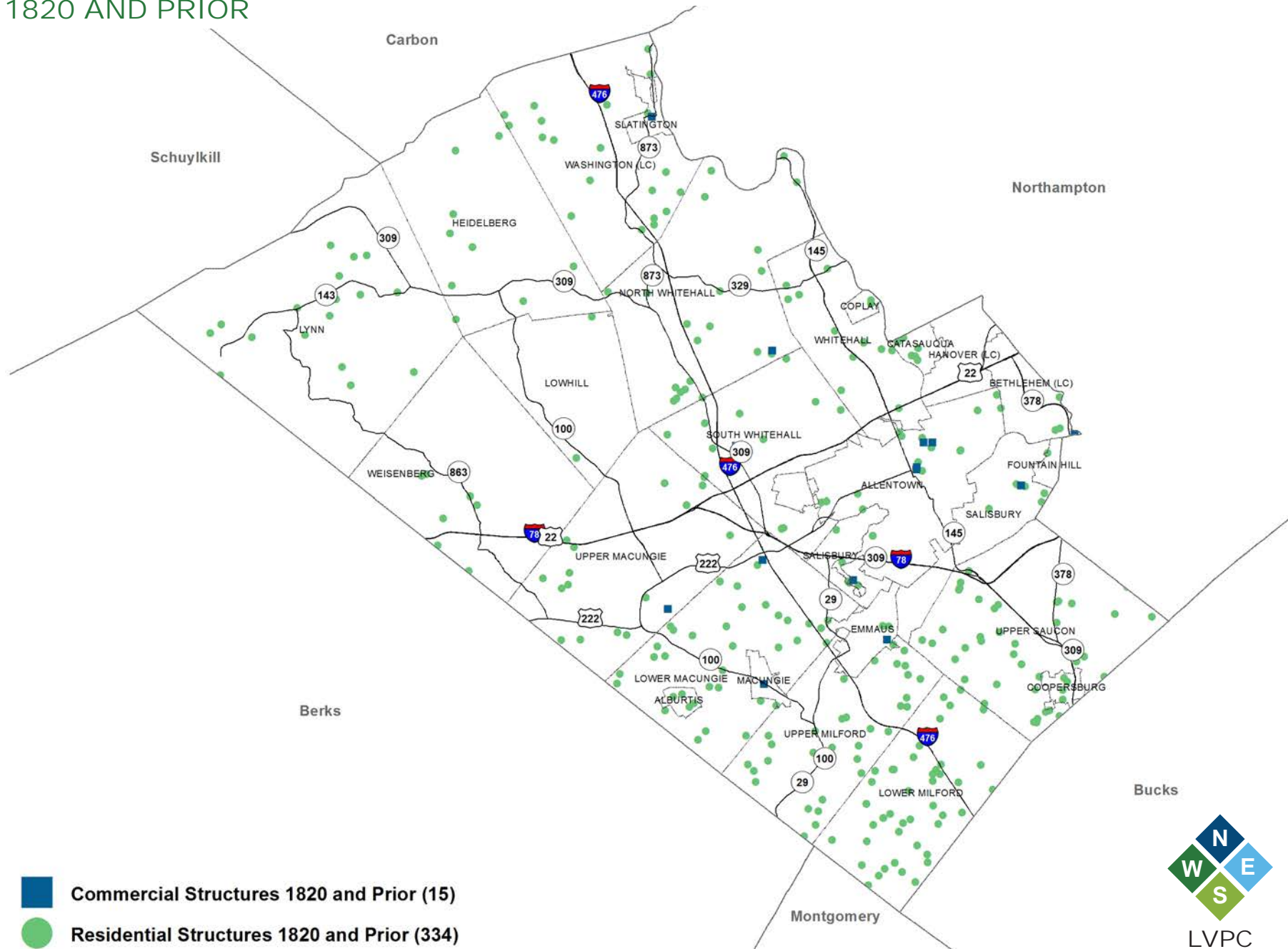
Lehigh County includes many unique built environments reflecting the accrual, intermingling and juxtaposition of development from multiple eras. For example:

- Within the City of Allentown, neighborhoods like Rittersville, East Allentown and Mountainville were once separate villages before being absorbed and incorporated into the expanding city.

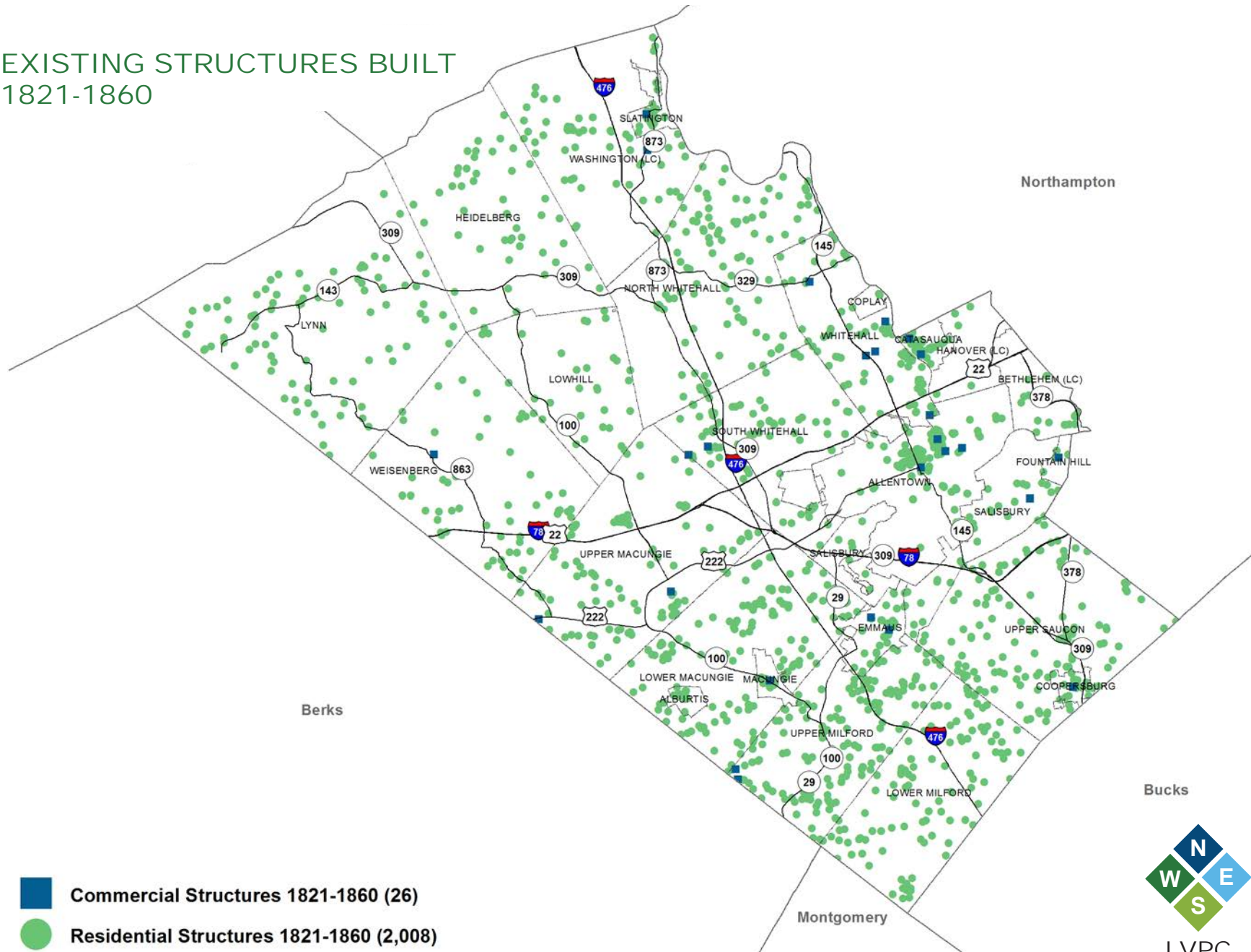
- Travelling westward along Hamilton Boulevard or Tilghman Street, one can also observe the gradual transition from Downtown Allentown's commercial core, past the row houses, duplexes and urban parks of the city's West Side, and onto the single family houses of Lehigh County's post-war residential suburbs.
- In growing townships like Lower Macungie and Upper Saucon, the juxtaposition of different eras of development is more dramatic, with historic rural villages like Trexlertown, Wescosville and Center Valley serving as focal points for the large surrounding suburban communities.

Through well-reasoned preservation strategies and contextually sensitive urban design, communities can encourage innovative and dynamic contemporary development that also contributes to the distinctiveness and authenticity of the existing built environment.

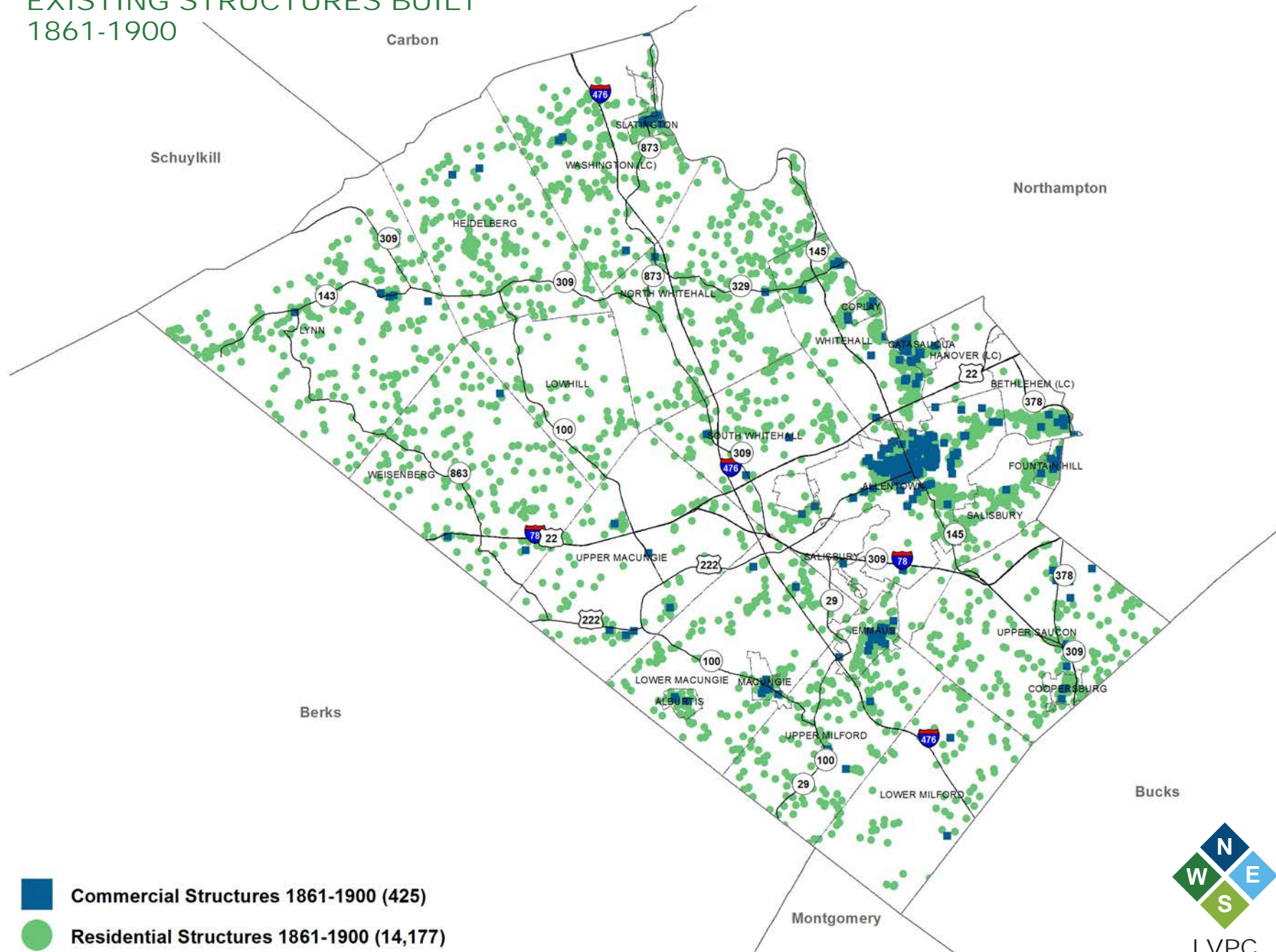
EXISTING STRUCTURES BUILT 1820 AND PRIOR



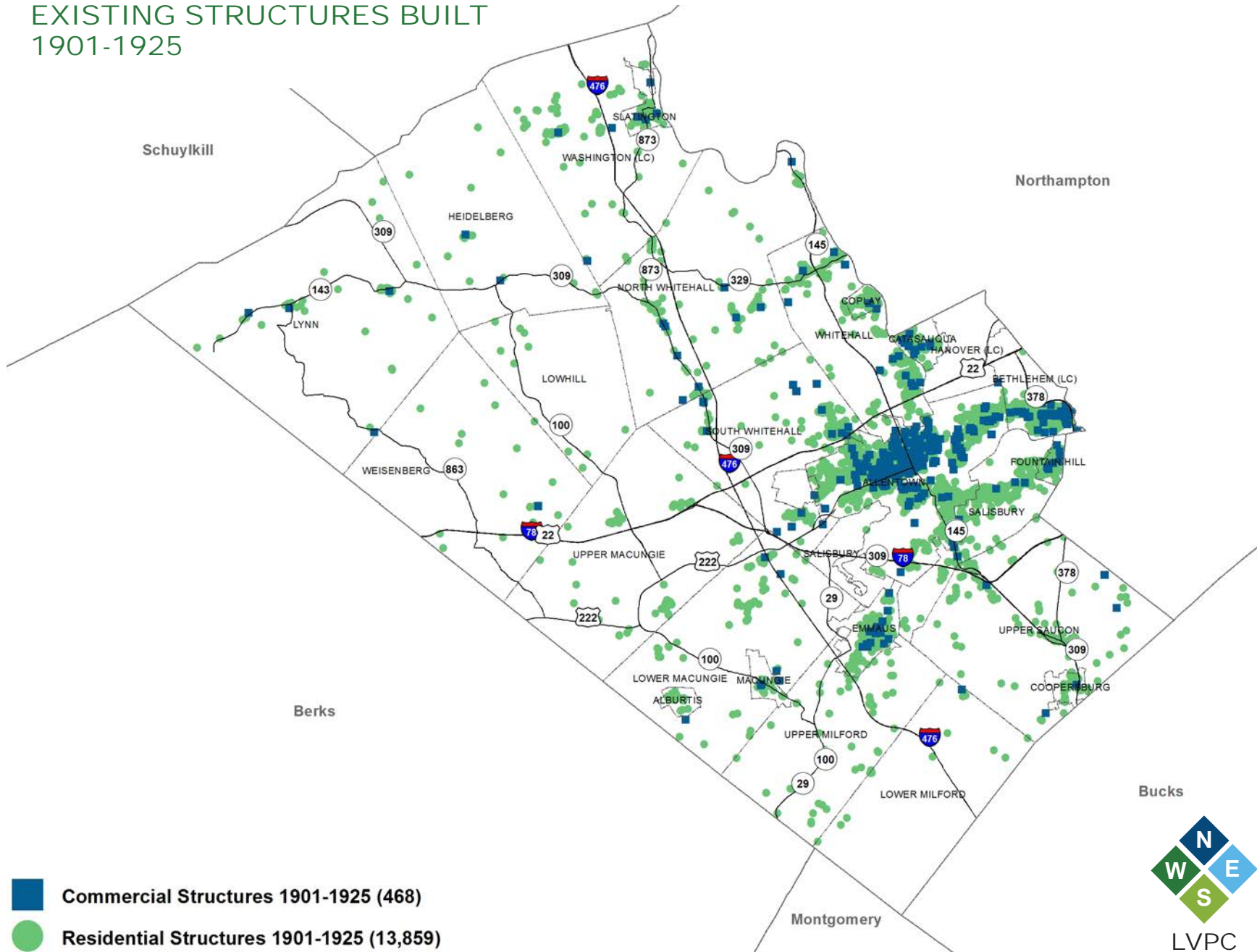
EXISTING STRUCTURES BUILT 1821-1860



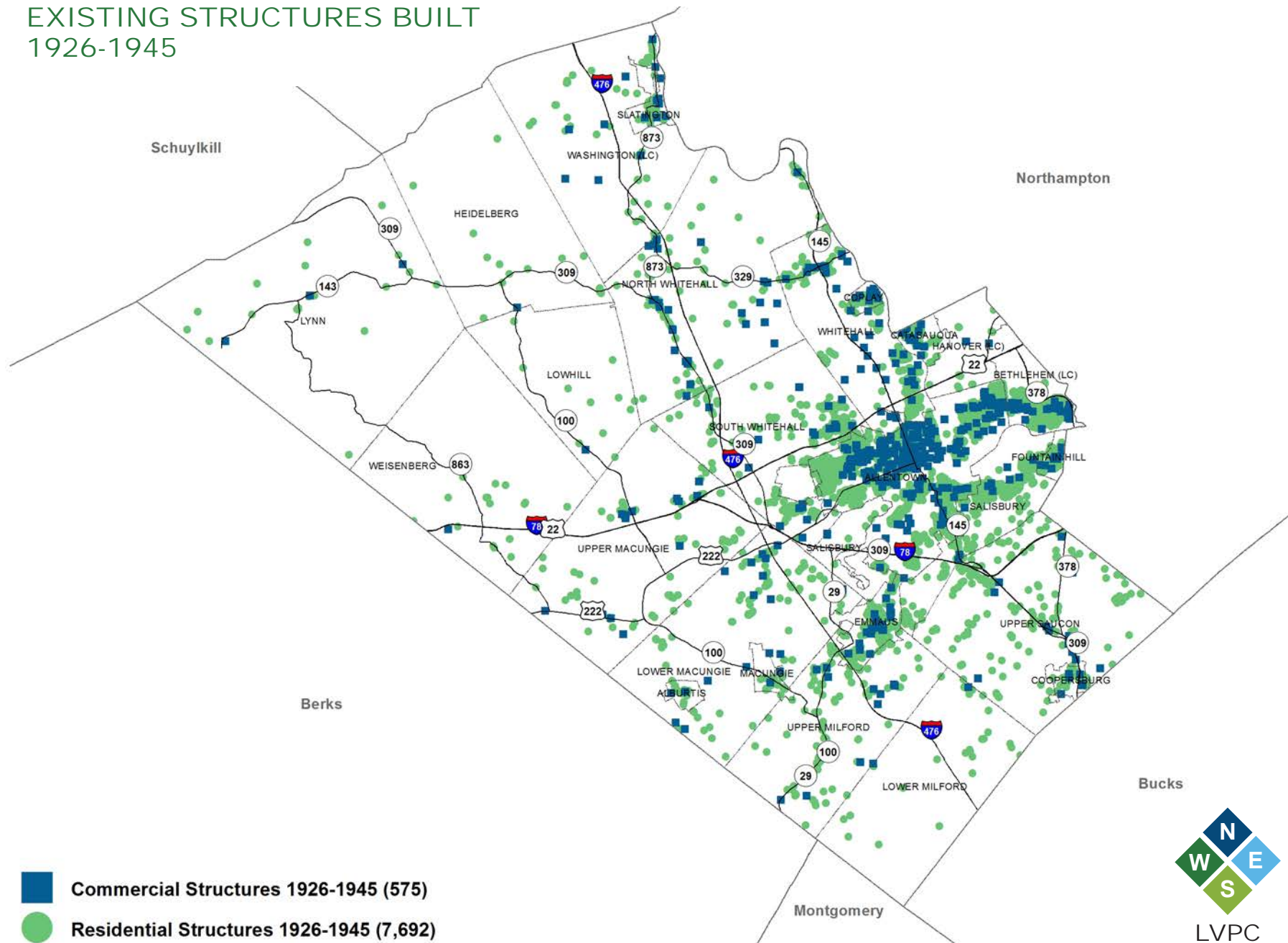
EXISTING STRUCTURES BUILT 1861-1900



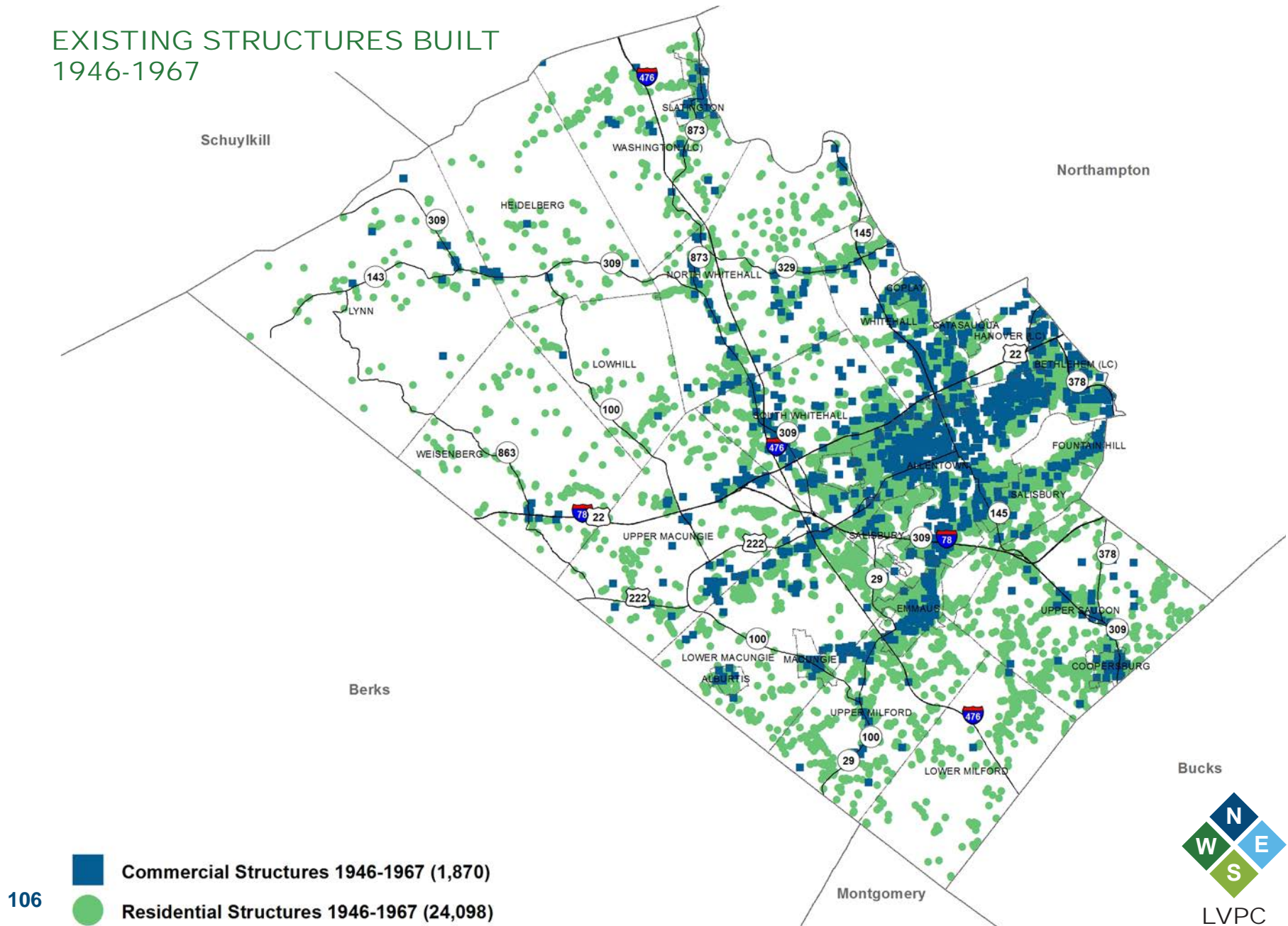
EXISTING STRUCTURES BUILT 1901-1925



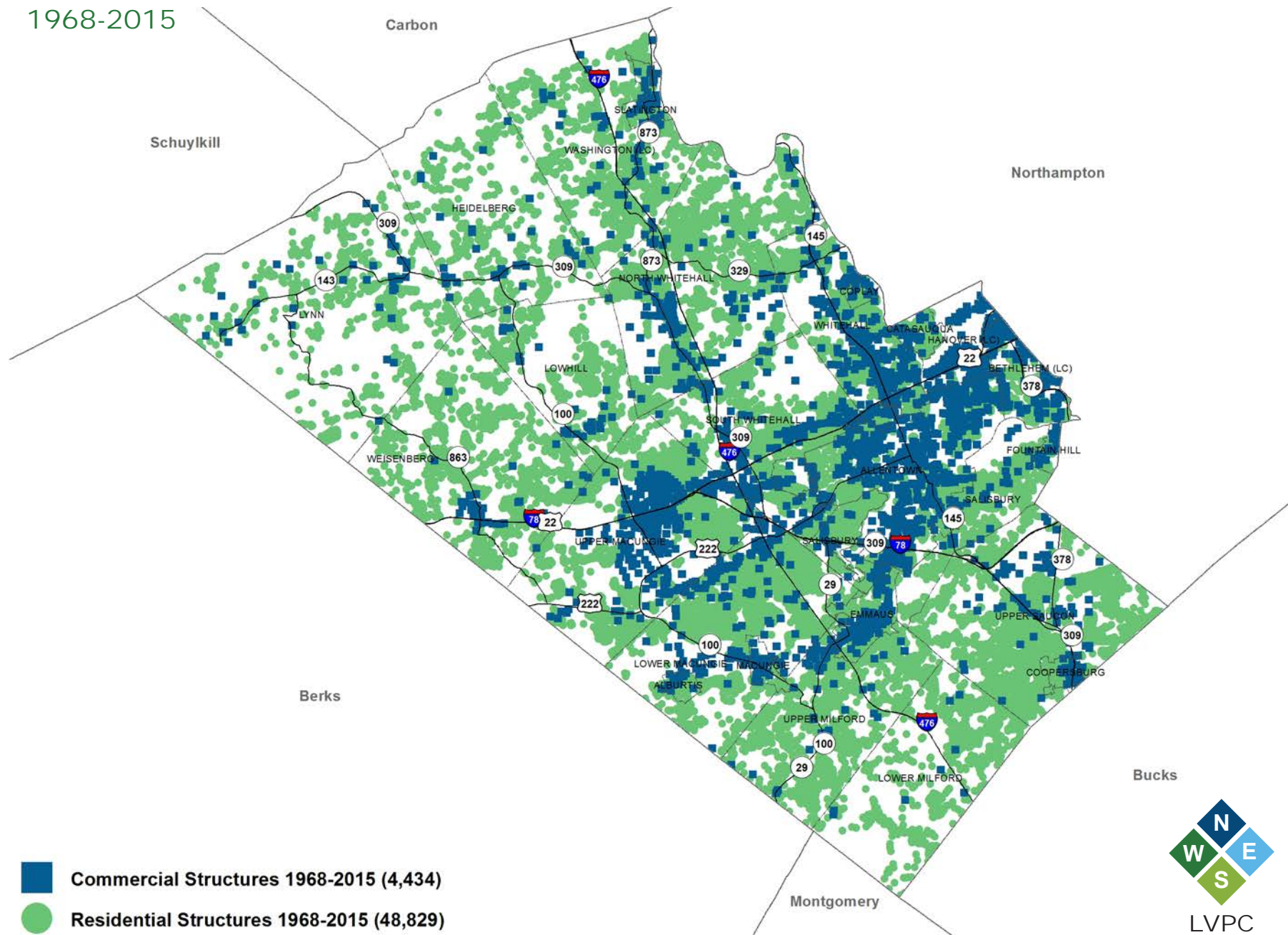
EXISTING STRUCTURES BUILT 1926-1945



EXISTING STRUCTURES BUILT 1946-1967



EXISTING STRUCTURES BUILT 1968-2015



LVPC

Future Trail Connection Opportunities

To determine possible ideas for making additional connections between denser population areas and open space resources, natural resources, current existing and proposed trails, greenways and blueways, and population density data were overlaid. This process revealed several connection corridors for consideration in future planning efforts. In some cases, existing municipal plans provided recommendations or proposed trails, and the present ideas are a continuation of those. The connection corridor ideas were vetted with municipal representatives to gather their input about these connection ideas. Five future trail connection opportunities are provided below.

1. North Whitehall Township Neighborhoods to the Trexler Nature Preserve – Connect neighborhoods southeast and northeast of Trexler Nature Preserve, across Rt. 309 and through the Lehigh Carbon Community College campus.
2. South Whitehall Township Jordan Creek Greenway Loop – Connect Covered Bridge Park south to Walbert Avenue, east on Walbert Avenue, turning north to the Jordan Creek Greenway at Jordan Creek Parkway creating a loop.
3. Upper Macungie Township Northern Connection to the Jordan Creek Greenway – Connect subdivisions

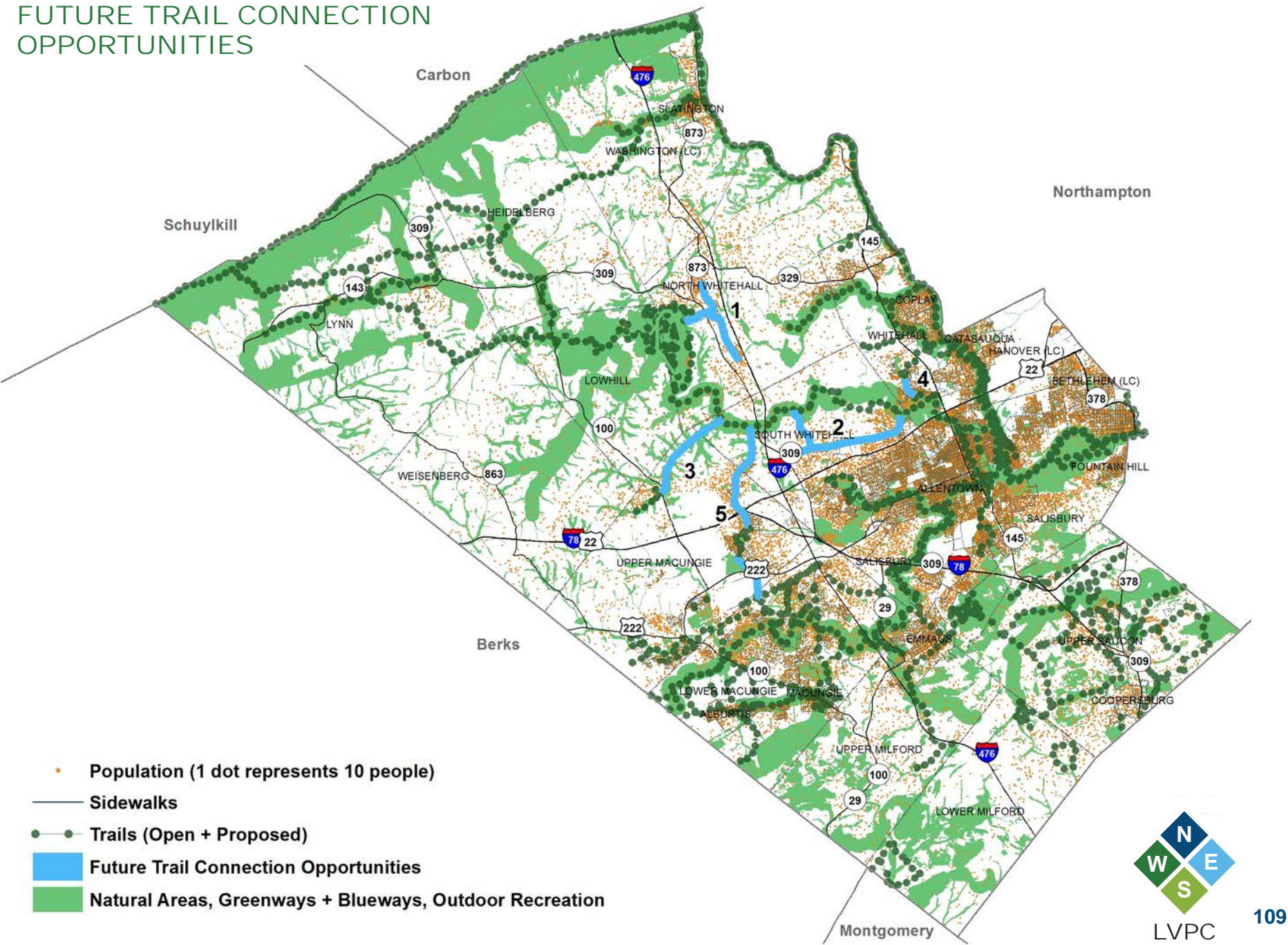
west of Rt. 100 in Upper Macungie Township to the Jordan Creek Greenway along Hassen Creek.

4. Ironton Rail Trail to the Jordan Creek Greenway – Connect the Ironton Rail Trail to the Jordan Creek Greenway by continuing south from a Whitehall Township proposed trail to the Jordan Creek Parkway.
5. Jordan Creek Greenway to the Little Lehigh Creek Greenway – Connect the Jordan Creek Greenway west of Rt. 309 in South Whitehall Township south through Upper Macungie Township to Lower Macungie Township connecting with various subdivisions and parks to Hamilton Boulevard and on to the Little Lehigh Creek Greenway.

Recommendation:

- Lehigh County, municipalities, Lehigh Valley Planning Commission, and local conservation organizations should consider these trail connection opportunities in future trail planning efforts.

FUTURE TRAIL CONNECTION OPPORTUNITIES



The Plan



Vision, Goals, Policies and Actions

The Livable Landscapes vision statement was created to express the overall intention for the open space resources within Lehigh County, through the work of the Plan Steering Committees and with input from public meetings and public opinion surveys conducted specifically for this Plan. The vision statement establishes the breadth of the open space plan that leads directly to the expression of goals, policies, actions and recommendations to accomplish the vision.

Presented below are the goals established for the Livable Landscapes plan. Under each goal are policies providing more specific details associated with each goal. To achieve the goals and policies, a set of actions are provided. Note that the policies and actions are in many cases adapted from existing sources, primarily the Lehigh Valley Planning Commission's *Comprehensive Plan The Lehigh Valley...2030* and the *Lehigh Valley Greenways Plan*.

VISION

Lehigh County promotes vitality, inclusion, quality of life and sense of place for all through protected natural areas, working farms, cultural heritage, scenic resources and vibrant communities interconnected with parks, greenways and trails where people live, work and play in a healthy environment.



Photo by Craig Kackenmeister, LVPC

Goal 1 – Conserve, restore and enhance natural resources

POLICIES

- Protect rivers, streams, lakes, ponds and floodplains by preserving or restoring riparian buffers where appropriate using a variety of native, climate-adaptive vegetation.
- Protect the quality and quantity of groundwater by monitoring withdrawals to not adversely impact present or future uses during drought and non-drought conditions.
- Preserve wetlands and provide a vegetated buffer.
- Avoid development on steep slopes greater than 25% and provide development restrictions, such as lot size and stormwater management provisions, on steep slopes of 15% to 25%.
- Preserve and restore woodlands to increase the amount of interior and quality of woodlands and habitat connectivity.
- Preserve Globally or Regionally Significant Natural Heritage Area core habitats.
- Protect very high and high conservation priority natural resource areas as included in the *Comprehensive Plan The Lehigh Valley...2030* through acquisition or conservation easements.
- Monitor and manage publicly-owned natural areas to maintain the health and quality of the site.
- Advocate a variety of approaches to enhance natural resources connectivity.

ACTIONS

Lehigh County should:

- re-establish an open space conservation easement program to protect natural resources to balance rapid urbanization.
- support conservation organizations (e.g. Wildlands

Conservancy) in their efforts to acquire open space and important natural areas, given that community surveys support people's interest in having more natural areas.

- prioritize park and natural area projects that protect land with surface waters, connect or preserve Natural Heritage Area core habitats and connect with other protected properties.

Lehigh Valley Planning Commission should:

- consider headwaters and first order streams for conservation priority in the update of the regional comprehensive plan.
- maintain a Geographic Information System database that provides current information about natural resources and conservation priorities.

Lehigh County and municipalities should:

- collaborate with Lehigh Valley Greenways partners to conserve critical landscapes and restore stream corridors.
- work cooperatively to seek funding for acquisition or easement purposes to preserve lands with very high or high conservation priority.
- work with state and federal agencies and conservation organizations to provide information and technical assistance to landowners to encourage conservation, restoration and sustainable management of natural resource lands.
- manage and restore riparian buffers and wetlands on publicly-owned land to maintain and enhance their environmental, scenic and educational values.
- provide educational signage as appropriate on publicly owned lands to inform visitors regarding the environmental value of riparian buffers.

Lehigh County, municipalities and local conservation organizations should:

- use the recommendations of the *Natural Heritage Inventory of Lehigh and Northampton Counties, Pennsylvania*.
- encourage public and private landowners to use best management practices in forestry, stewardship and lawn care activities.
- take advantage of state, federal and private grant programs for open space preservation and restoration.
- encourage private landowners to place conservation easements on portions of their property that are located in very high and high priority natural resource protection areas.
- work to control invasive species within natural resource area landscapes.

Municipalities should consider adopting and enforcing zoning and subdivision and land development ordinances consistent with the Lehigh Valley Planning Commission model regulations to:

- prohibit or otherwise control development in the 100-year floodplain.
- protect riparian buffers and wetlands and require a test for wetlands if soils classified as predominantly hydric are present.
- manage development, grading and forestry on steep slopes.

- identify and mitigate risks through site design and construction practices of development in areas with carbonate bedrock.
- control tree removal and the indiscriminate cutting of trees during subdivision and land development activities.
- encourage conservation design practices in the subdivision of land that involves natural resources recommended for conservation.
- require developers to include open space or recreation land (or fee in lieu) as part of all new residential and commercial development proposals subsequent to adoption of a required recreation plan.

Municipalities should:

- identify natural resource areas in comprehensive plans.
- invest in local open space acquisitions and stewardship.
- adopt an official map to preserve very high and high conservation priority natural resources.
- establish a program to purchase or accept donations of land located within very high and high priority natural resource areas.

Wildlands Conservancy should:

- Continue to protect open space through the creation of nature preserves and through conservation easements.

Goal 2 – Provide and maintain an accessible, interconnected park, trail and recreation system

POLICIES

- Provide a wide variety of safe, well-maintained park, trail and recreation facilities for all ages and abilities.
- Improve community health by providing convenient access to park, trail and recreation opportunities for all residents.
- Use current recreation activity trends and local demographics when planning for new recreation facilities and programs.
- Encourage schools to have their recreation facilities available to the public, if feasible.
- Encourage the private sector to provide special use recreation facilities.
- Support efforts to close trail gaps as opportunities arise.
- Use existing linear corridors (rail, roadways, riparian buffers) for bicycle and pedestrian facilities.
- Encourage trail and sidewalk linkages to create a network connecting residential areas, schools, parks, town centers, employment areas and other transportation facilities.
- Provide access to naturalized landscapes, particularly in urban parks.

ACTIONS

Lehigh County should:

- implement the recommendations in the Livable Landscapes plan, which should be updated on a regular basis.
- consult with a landscape architect to review and update existing and design new County parks as needed.

Lehigh County and municipalities should:

- collaborate with Lehigh Valley Greenways partners to connect residents and visitors to trail opportunities.
- work cooperatively to seek funding to support park, trail and recreation development throughout the County.
- cooperate in acquiring, developing and maintaining parks and other outdoor recreation facilities.
- improve existing and design new outdoor recreation facilities to be compliant with the Americans With Disabilities Act.
- conduct park safety audits (e.g., lighting, parking, police response, security cameras) and address identified deficiencies.
- acquire rail rights-of-way needed for recreation or alternative transportation purposes.
- consider opportunities to use floodplains and riparian buffers for trails.
- use an official map to proactively plan for future parks, trails and bicycle and/or pedestrian pathways.
- use the Department of Conservation and Natural Resources' publications, *Pennsylvania Trail Design & Development Principles and Creating Sustainable Community Parks and Landscapes*, for park and trail development.
- coordinate with the Lehigh County Conservation District to explore opportunities for streamlined National Pollutant Discharge Elimination System permitting for proposed recreation improvements.
- naturalize areas, such as stormwater management areas and lawns, on public and private property, using native plants, where feasible.
- enforce park rules to maintain appropriate use of the facilities.

- consider opportunities to use stormwater management areas for recreational space.
- consider rainwater collection and re-use as irrigation for recreation areas.
- design active recreation areas for multi-sport applications.
- consider additional opportunities for large-scale active and passive recreation sites for residents and visitors.
- incorporate multi-generational outdoor play spaces in parks.
- review outdoor recreation sites for accessibility issues, e.g., Safe Routes to Parks program (National Park and Recreation Association).
- survey residents and users' groups (e.g., from their website) for suggestions on park and facility changes or conversions.
- explore opportunities to partner with athletic associations to assist with recreation facility management and maintenance.
- design parks that consolidate infrastructure and reduce light pollution.
- create policies for the use of park and recreation facilities by private, for-profit organizations.
- conduct open-gate tours for outdoor recreational facilities similar to the open-gate farm tours.
- monitor parks facilities for usage (e.g., scheduled use versus actual use, lack of use, exceeding capacity, rules enforcement).
- provide wayfinding signage within outdoor recreation sites.

Municipalities should:

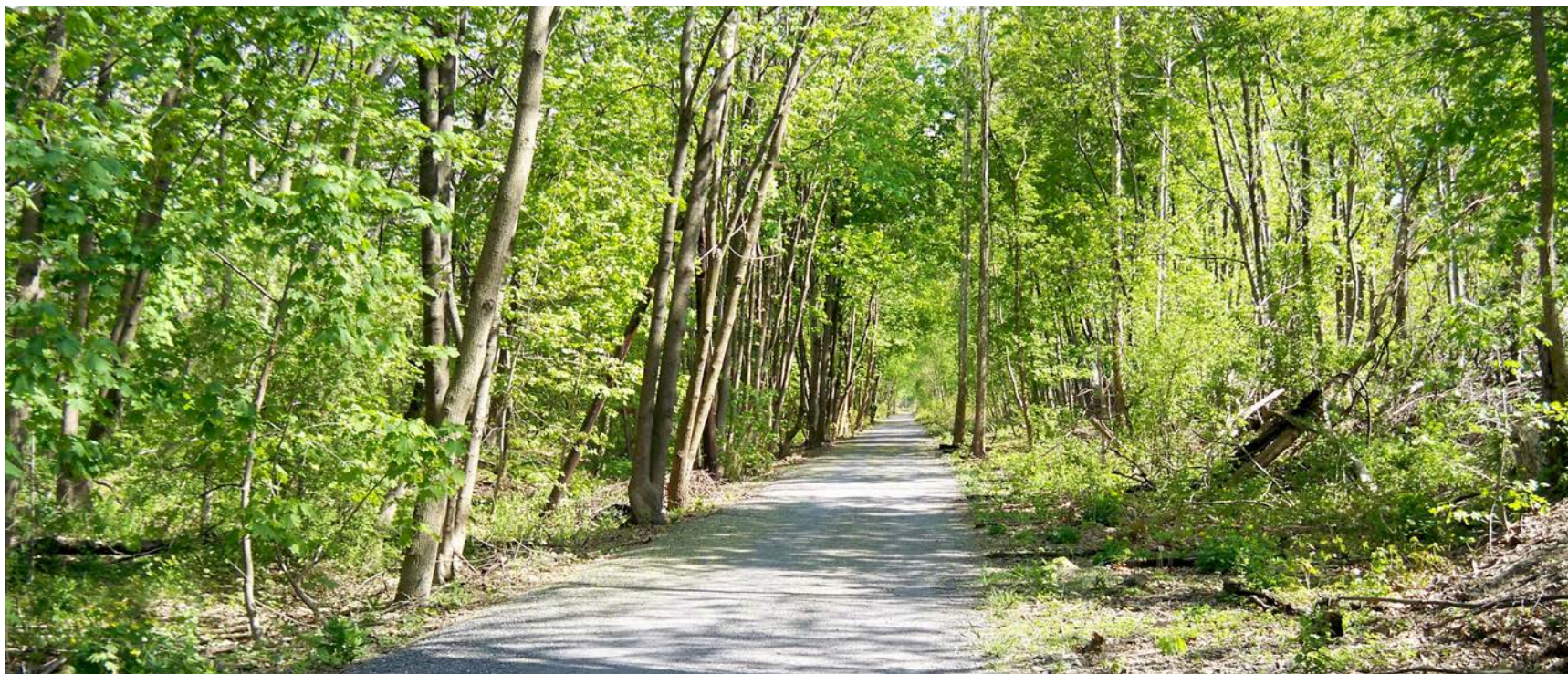
- prepare and implement park and recreation plans that address facilities and management, personnel, administration, programming and financing, with recommendations and an implementation plan.
- require the dedication of land or money for parks as a

condition for subdivision or land development approval as provided in the Pennsylvania Municipalities Planning Code.

- amend subdivision regulations to assure street connectivity, provide for sidewalks and bikeways, and connect sidewalks and trails.
- work with a regional land trust to facilitate donations or establish a program to purchase or accept donations of land for outdoor recreation facilities.
- coordinate with schools, public and nonprofit organizations to provide adequate recreational space for residents.
- pursue opportunities for the development of trails and bicycle lanes when roadways are constructed or repaired.
- Municipalities along the Kittatinny Ridge should use regulatory approaches to protect lands near the Appalachian Trail consistent with the Lehigh Valley Planning Commission's *Protect the Trail: A Guide to Protecting the Appalachian Trail for Lehigh Valley Municipalities*.

Lehigh County, Lehigh Valley Planning Commission, municipalities and local conservation organizations should:

- encourage dialogue with rail and utility companies on the use and/or acquisition of existing or abandoned rights-of way for trail development.
- work with Pennsylvania Department of Transportation and local road departments to include bicycle and pedestrian-friendly facilities when new roads or road improvements are planned.
- work to close trail gaps in Lehigh County as identified in the *Lehigh Valley Trails Inventory—2013*.
- explore opportunities for amenities along trails that could be provided by using adjacent, vacant parcels.
- promote the Leave No Trace principles to users of outdoor recreation facilities.
- provide support facilities, such as restrooms, drinking water and parking, at outdoor recreation sites.



D&L Trail, photo by Teresa Mackey, LVPC

Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Department of Transportation, Lehigh County, Northampton County, Lehigh Valley Planning Commission, municipalities, the Delaware & Lehigh National Heritage Corridor, Wildlands Conservancy and private landowners should:

- prepare a Master Plan for closing the D&L Trail gaps along the Lehigh River and providing connections to other trails, sidewalks and communities, as the designated pilot project for this Plan.

Pennsylvania Department of Transportation and municipalities should:

- add bicycle lanes/shared use lanes to appropriate roads during construction improvements, if demand warrants.

- adopt bicycle/pedestrian design and performance standards.

Pennsylvania Department of Transportation and the Lehigh Valley Planning Commission should:

- create bicycle/pedestrian design and performance standards.

Discover Lehigh Valley should:

- document specific demand for large scale recreation facilities for the County and municipalities to determine possible future facilities.

Goal 3 – Conserve, restore and enhance a greenways and blueways network

POLICIES

- Preserve the natural, recreational, cultural, historical and scenic lands within greenways and blueways identified in the Lehigh Valley Planning Commission's *Lehigh Valley Greenways Plan*, emphasizing the greenways and blueways designated as early implementation (Blue Mountain/Kittatinny Ridge, Jordan Creek and the Pennsylvania Highlands) and priority (Lehigh River, Little Lehigh Creek and Monocacy Creek).
- Use cultural/recreational and multi-use greenways and blueways to provide local, close-to-home recreation opportunities.
- Promote the development of new outdoor recreation facilities at strategic locations throughout the greenway and blueway network.
- Establish greenways and blueways to provide buffers between non-compatible land uses, where feasible.
- Use conservation greenways and blueways to provide corridors for wildlife movement.

ACTIONS

Lehigh County and municipalities should:

- collaborate with Lehigh Valley Greenways partners to advance establishing a greenways network in the County.
- work cooperatively to seek funding to support greenways and blueways elements.
- acquire or obtain easements on properties within greenways and blueways identified in the *Lehigh Valley Greenways Plan*.
- adopt regulatory measures to preserve greenways and blueways, including updated comprehensive

plans, zoning ordinances, natural resources protection ordinances and official maps.

- coordinate efforts with local land trusts, conservancies, school districts and the private sector to establish greenway and blueway connections through acquisitions and easements.
- use cultural/recreational and multi-use greenways and blueways to meet the recreational needs of their communities.

Lehigh County, the Lehigh Valley Planning Commission and municipalities should:

- coordinate the planning and development of the greenways and blueways network with transportation, economic development, tourism, recreation and open space priorities in the region.

Lehigh County, municipalities and local conservation organizations should:

- implement the recommendations in the *Lehigh River Watershed Conservation Management Plan*.

Municipalities should:

- require developers to include open space or recreation land (or fee in lieu) as part of all new development proposals subsequent to the adoption of a required recreation plan.
- establish a program to purchase or accept donations of land for greenway and blueway protection, taking into consideration the long-term maintenance responsibility.

Goal 4 – Preserve farmland and farming to meet food production, economic and open space needs

POLICIES

- Support effective agricultural zoning, agricultural security areas and purchase of agricultural easements in areas recommended for farmland preservation in the *Lehigh Valley Comprehensive Plan*.
- Support the retention and expansion of local family farms.
- Encourage the implementation of best management practices on farms.
- Encourage farm-related businesses in areas recommended for farmland preservation in the *Lehigh Valley Comprehensive Plan*.
- Protect agricultural uses from residential development and non-farm activities that interfere with normal farming practices.
- Support retention and expansion of farmers' markets where the farmers come from within a short distance of the market.
- Support retention and expansion of regional facilities that can provide value-added services, such as packaging, processing, cooling.
- Support the efforts of agricultural organization partners engaged in agricultural development efforts.
- Identify, support and implement market and needs-based solutions that provide ready access to nutritious and healthy food choices in the region's areas of limited food access.
- Support alternative agricultural strategies suitable for areas with high existing levels of development.
- Strengthen regional food systems by linking food production, processing, distribution, consumption and waste management to facilitate development and consumption of the County's food resources.
- Encourage the implementation of programs that mentor new farmers and those interested in farming.
- Educate the public about agriculture.

ACTIONS

The Lehigh County Farmland Preservation Board should:

- preserve farmland in the areas designated for farmland preservation in the *Lehigh Valley Comprehensive Plan*.
- consider dividing the agricultural and natural area lands on a farm and protecting them through separate conservation easements.

The Lehigh County Conservation District should:

- encourage landowners that have an agricultural conservation easement placed on their property to include management recommendations for any natural areas in their conservation plan.

Lehigh County should:

- continue to monitor farmland with agricultural easements to ensure the land remains in active production.
- maintain the program at The Seed Farm facility to educate and train new farmers.
- maintain or enhance the financial support to leverage against available state and federal funding for acquisition of agricultural conservation easements.

Municipalities should:

- participate in the agricultural security program to protect farming from non-farming activities.
- consider the use of blighted or vacant urban lots for community gardens and educating children about farming.
- encourage the creation of agricultural committees in municipalities with farmland to foster improved communication on agricultural issues.

Lehigh County, the Lehigh Valley Planning Commission, agricultural organization partners and municipalities should:

- coordinate with Buy Fresh Buy Local Greater Lehigh Valley to consider implementing the *Fresh Food Access Plan*.

Agricultural organization partners should:

- investigate solutions for nutrient management.
- educate farmers regarding various topics, such as succession planning, business planning, pesticide use.
- strengthen the workforce required by the agricultural community by partnering with various at-risk groups (e.g., migrant labor, special needs, veterans, students, retirees).
- investigate options to provide collective buying power.
- implement the AgConnect program in Lehigh County.
- set up a regional facility that provides value-added processing and space for farmers to sell directly to residents.
- investigate ways to minimize food waste throughout the food chain.
- provide marketing and sales support to farmers, such as community-supported agriculture and food hubs.
- encourage and educate residents about backyard, rooftop and vertical gardening in urban areas.
- educate motorists about using extra caution when passing farm equipment on the road.
- provide agricultural and horticultural education to children and young adults in schools and at Lehigh Carbon Community College.
- enhance and promote existing educational programs about farming.
- provide opportunities to aggregate and distribute farm products from small farmers for wholesale.
- provide training and assistance to farmers regarding



Photo by Craig Kackenmeister, LVPC

compliance with the Food Safety Modernization Act and other applicable regulations.

- investigate opportunities for a community teaching garden.
- pursue innovative solutions for making land available in smaller-sized plots to provide farming initiation and expansion opportunities, such as encouraging owners of preserved farms to lease portions of their easement area to small farmers.

School districts and municipalities should:

- adopt Act 4 provisions to stabilize farm taxes and encourage continued farming.

Goal 5 – Preserve historic, cultural and scenic resources and landscapes

POLICIES

- Assign high priority to historic buildings that have educational importance, value as visitor attractions or that can be used by the private sector for restoration programs.
- Evaluate a full range of possibilities, from minimal efforts that stabilize ruins to full restoration projects, in restoration programs.
- Include historical features in park acquisitions whenever possible.
- Avoid National Register of Historic Places listed or eligible sites during highway projects and other public infrastructure improvements, unless reasonable alternatives are not available.
- Encourage historic preservation planning and adopt historic district regulations pursuant to the Pennsylvania Historic District Act (Act 167).
- Develop and connect trails for historic interpretation and education.
- Preserve cultural resources whenever possible.
- Retain Native American heritage of the region.
- Preserve, through acquisition or easement, scenic landscapes in areas that have not been substantially urbanized.
- Preserve the scenic qualities of the Lehigh River and its tributaries.
- Identify, protect and enhance a network of designated scenic transportation corridors.
- Retain the areas with rural character in the County.
- Investigate and introduce, when possible, additional

uses of historic structures or landscapes to increase sustainability and stewardship opportunities.

- Create and maintain a catalogue of historic resources at the municipal level.

ACTIONS

Lehigh County and municipalities should:

- conduct comprehensive historic sites surveys and inventories.
- designate historic districts through adoption of historic district regulations pursuant to the Pennsylvania Historic District Act (Act 167).
- reduce impacts of development in rural communities to retain the rural character of the County.
- restrict structures to be located or extended above ridgeline elevations to preserve scenic vistas.
- address historic features within parks in master site plans.
- encourage the creation of scenic drives, e.g., the D&L Drive, using the goals and objectives of the Heritage Conservancy's *Shaping the D&L Drive*; Kistler Valley Road; northern Route 100.
- prioritize establishing partnerships with organizations that have existing resources for identifying or preserving cultural resources, as well as potential funding opportunities for heritage projects.
- train municipal staff on local assets, preservation strategies, resources, etc.
- identify tax credits, design grants or other funding means as incentives for structures and land that



The Shelter House in Emmaus, photo by John von Kerczek, LVPC

should be preserved but are not eligible for normal preservation grants (i.e. farmland).

- re-examine appropriateness of zoning in areas that affect historic structures or land that could benefit from diversified and flexible use.
- develop an educational outreach campaign with the help of historical societies, schools, farmers markets, businesses.
- involve all interested parties when designing potential methods intended to ensure compliance with a long-term historic preservation plan.

Regional institutions should:

- create an emergency capital fund for historic structures that need immediate stabilization.

Private property owners of historic sites should:

- preserve the features that make such sites historic.

Goal 6 – Advance County natural, recreational, agricultural and historical resources and usage through funding, promotion, education, partnerships and other strategies

POLICIES

- Promote and market the natural, recreational, agricultural and historical resources opportunities and events available in the County to residents and visitors.
- Educate about the value, preservation and sustainable use of natural, recreational, agricultural and historical resources using the Livable Landscapes plan and the *Lehigh Valley Return on Environment* study.
- Build and maintain partnerships with public and private entities, such as conservation, transportation, educational, public health, utility companies and government agencies, to maximize limited resources.
- Expand and improve staff capabilities to facilitate the expansion and maintenance of the natural, recreational, agricultural and historical network.
- Maintain or enhance funding to provide and maintain natural, recreational, agricultural and historical resources.
- Pursue a variety of funding and incentive opportunities, such as philanthropic and grants, to leverage for acquisitions and enhancements to the natural, recreational, agricultural and historical network.
- Advocate using a variety of tools and techniques to preserve natural, recreational, agricultural and historical resources.

ACTIONS

Lehigh County should:

- use the County's website and social media to provide natural, recreational, agricultural and historical resources material to the public.
- develop promotional materials to educate residents and visitors about the County park and natural, recreational, agricultural and historical resources.
- design and install a standardized wayfinding system to and within County-owned parks.
- provide an annual tour of County parks for County Commissioners to inform them of current projects and issues.
- balance the funding for natural areas preservation, outdoor recreation facilities development and greenway and blueway corridors with the funding for the agricultural conservation easements program.

Lehigh County, the Lehigh Valley Planning Commission, municipalities and local conservation organizations should:

- educate elected officials and the general public on the benefits of natural, recreational, agricultural and historical resources related to the environmental, economic, cultural and physical health of a community.
- develop a regional strategy for attracting private donations for funding natural, recreational, agricultural and historical resources.



Hawk View Road, Germansville, photo by Becky Bradley, LVPC

Lehigh County and municipalities should:

- collaborate with Lehigh Valley Greenways partners to promote the understanding of natural, recreational, agricultural and historical resources and their benefits.
- partner with Pennsylvania Department of Transportation District 5 for trail and bicycle/pedestrian projects.
- work through PennDOT Connects program and Lehigh Valley Transportation Study to use state and federal transportation funds to build trails.
- commit the financial resources and efforts needed to acquire, develop or maintain natural, recreational, agricultural and historical resources.
- use volunteers and private resources (e.g., technical schools, colleges, community organizations, friends of parks) to help maintain natural, recreational, agricultural and historical resources.
- Partner with land trusts like Wildlands Conservancy to assist in the promotion, education and innovative funding programs to advance open space protection.

Municipalities should:

- explore alternative funding sources to leverage with funding provided by the County (usage fees, etc.).
- take advantage of grant programs to acquire, develop or maintain natural, recreational, agricultural and historical resource lands and facilities.
- ensure that land acquired for open space is not converted to other uses.
- expand the Environmental Advisory Council network within the County to help guide municipalities on natural, recreational, agricultural and historical resource issues.

Discover Lehigh Valley should:

- develop a variety of promotional materials in traditional, web and mobile formats of active and passive cultural/recreational attractions in the County to foster interest in, and provide information about, the many opportunities available.
- promote recreational facilities for event use.

Implementation Tools



Increasing development pressures in many parts of Lehigh County have resulted in increased awareness and interest in preserving open space. A range of techniques can be used to conserve open space from absolute to minimal protection. Since it is neither practical nor desirable for local government to regulate everything, a combination of landowner stewardship and public sector regulation is fundamental to the preservation of natural resources, as conservation is most effective when various techniques are applied together. The options available to local governments include regulatory, nonregulatory and administrative measures. Any of the available measures should be carefully evaluated and implemented to meet the environmental and political needs of each municipality (see Appendix – Land Conservation Techniques and Regulatory Measures).

Funding Measures

Land conservation for open space and/or greenways can create costs (e.g., lost tax revenue) and benefits (e.g., increased values for nearby properties, recreational and other amenities) for the County and municipalities. There are several options for acquiring open space, including pay-as-you-go using tax revenue; borrowing funds via traditional loans or general obligation bonds; or federal, state, local and private grant programs.

With pay-as-you-go approaches, the government spends revenues from general appropriations or from a dedicated funding source, such as property taxes, earned income taxes, real estate transfer taxes, dedicated open space taxes or budget surpluses with no borrowing costs. This approach is an incremental approach, with a focus on acquisition of small parcels or completion of projects in stages. The cost of the open space is essentially borne by the present residents of the municipality.

Utilizing a borrowing approach, municipalities issue bonds or borrow from commercial lenders. This allows the municipality to expeditiously fund significant acquisitions or complete major projects. Borrowing spreads the cost of the open space over present and future residents of the municipality. Municipalities can combine the two approaches, borrowing funds for acquisition debt and implement a dedicated tax for open space acquisition. Revenues from the dedicated tax pay off the debt.

Another less commonly known method is the Installment Purchase Agreement. An Installment Purchase Agreement puts the purchase price into a tax-free annuity instead of giving the money directly to the landowner. The landowner receives tax-free interest from the annuity for a fixed number of years, and then at the end of the period, the full amount of the principal is transferred to the owner. In this way, the landowner postpones the taxation of the principal amount, and in the interim, receives tax-free payments semiannually. The municipality typically purchases bonds to cover the payments. Deferral of payment of the purchase price for up to 30 years allows the municipality to make additional purchases or complete projects than could otherwise be made over the short term. Since the municipality will own the easements forever, spreading the payments over time means that the cost is distributed between present and future residents. The implementation of a municipal open space program is based on many variables, and all options should be carefully considered to fit local natural resources protection goals and political needs.

Grant programs are available from government and private sources. Building an open space network involves a wide variety of funding that addresses different network components. A guide, *Finding the green! A Guide to State Funding Opportunities for Conservation, Recreation and Preservation Projects* (compiled by the Pennsylvania Growing Greener Coalition) is available online. Federal funding opportunities are available at <http://www.grants.gov>. The Pennsylvania Land Trust Association's Conservation Tools website provides information on different financing strategies (<http://conservationtools.org/guides/category/5-financing-conservation>).

Recommendation:

- Pursue options for funding recreation and land preservation goals.



Photo by Becky Bradley, LVPC

ACTION PLAN

The Action Plan Matrix is a compilation of the recommendations from the different component sections in this Plan. Each recommendation is assigned a priority and responsible parties. The prioritization balances the needs, capacity of County agencies and budgetary realities. The priority levels are Immediate (1 to 3 years), Short-Term (4 to 7 years), or Long-Term (8 or more years).

COUNTY-OWNED NATURAL RESOURCE AREAS

County Land Adjacent to a Seems Parcel

- Continue to maintain this site as a natural resource area.

PRIORITY → **LONG-TERM**

Scholl Woodlands Preserve

- The County should continue to keep this property for the preservation of South Mountain.

PRIORITY → **LONG-TERM**

Upper Milford South Mountain Property

- Acquire the adjacent property from Emmaus Borough if funding allows.

PRIORITY → **SHORT-TERM**

COUNTY-OWNED OUTDOOR RECREATION RESOURCES

Bob Rodale Cycling and Fitness Park/Valley Preferred Cycling Center

- Plant trees in the woodlands to replace those lost during the hurricanes.

PRIORITY → **IMMEDIATE**

Burnside Plantation

- Continue lease arrangement with the Historic Bethlehem Museum and Sites for management of this site.

PRIORITY → **LONG-TERM**

Cedar Creek Parkway East

- Add a playground facility for picnic users.

PRIORITY → **SHORT-TERM**

- Add an improved trail loop through the entire park, connecting the various components of this park.

PRIORITY → **SHORT-TERM**

Cedar Creek Parkway West

- Complete the remaining improvements as recommended in the park's Master Site Plan.

 **PRIORITY** → LONG-TERM — ENTIRE PLAN;
IMMEDIATE OR SHORT-TERM —
PLAN PHASES

Churchview Park

- Consider transferring ownership of the parcel to Upper Milford Township if acquisition and/or development grantor agreements allow.

 **PRIORITY** → IMMEDIATE

Delaware & Lehigh National Heritage Corridor Trail

- Continue efforts to complete the trail south to the City of Allentown.

 **PRIORITY** → SHORT-TERM

- Monitor trailhead use to determine if other access points are needed.

 **PRIORITY** → IMMEDIATE

Dodson Street Fields

Lehigh County, the City of Allentown and Salisbury Township should coordinate to:

- Replace the storage box behind the backstop.

 **PRIORITY** → IMMEDIATE

- Replace both benches, the existing wood one and the one missing the seat, with new durable benches.

 **PRIORITY** → IMMEDIATE

- Repair or replace the park sign.

 **PRIORITY** → IMMEDIATE

Jordan Creek Parkway

- Complete the development and improvements recommended in the Master Site Plan.

 **PRIORITY** → LONG-TERM — ENTIRE PLAN;
IMMEDIATE OR SHORT-TERM —
PLAN PHASES

- Repair the turf on the upper multipurpose field.

 **PRIORITY** → IMMEDIATE

- The County should finalize the agreement with the Valley Mountain Bikers for trail construction, maintenance and activities.

 **PRIORITY** → IMMEDIATE

Jordan Highland Road Tract

- Expand the existing parking area or explore other locations for additional parking.

 **PRIORITY** → SHORT-TERM

- Add a County park sign.

 **PRIORITY** → IMMEDIATE

Leaser Lake

- Construct a new restroom at the west side park access area using Pennsylvania Fish and Boat Commission funding.

 **PRIORITY** → SHORT-TERM

Lehigh County Livable Landscapes

Lehigh County Former Conservation Demonstration Project

- Install the standard County park sign at the entrance.

PRIORITY → IMMEDIATE

- Repair the split-rail fencing around the parking lot.

PRIORITY → IMMEDIATE

- Prepare a feasibility study to determine the best use for this site beyond the current opportunities.

PRIORITY → SHORT-TERM

Lehigh River Boat Ramp - Lehigh Gap

- Add a standard County park sign at the entrance.

PRIORITY → IMMEDIATE

- Add a Lehigh River Water Trail sign similar to the one at the other County-owned boat ramp at Treichlers Bridge.

PRIORITY → IMMEDIATE

Lehigh River Boat Ramp - Treichlers Bridge

- Monitor use at this site to determine if another parking area should be added.

PRIORITY → IMMEDIATE

Lock Ridge Park and Furnace Museum

- Make repairs to walkways to make them safe for users.

PRIORITY → SHORT-TERM

- Consider adding a connector trail to the Hills at Lock Ridge development.

PRIORITY → IMMEDIATE

- Pursue non-traditional funding for major repairs to the historical structures.

PRIORITY → LONG-TERM

Riverwalk Park

- The County should continue leasing this space to Whitehall Township.

PRIORITY → LONG-TERM

Saylor Park Cement Industry Museum

- Add a connecting trail from the Coplay Parkway to the Ironton Rail Trail and the Saylor Park trail.

PRIORITY → SHORT-TERM

- Complete the remaining improvements related to the restoration project—interpretive signage, solar lighting and replacing the fencing around the kilns.

PRIORITY → SHORT-TERM

- Repair the two signs and remove the hours of operation from the Saylor Park Museum sign.

PRIORITY → IMMEDIATE

- Add a sign to the existing parking lot sign at Coplay Parkway allowing parking for Saylor Park.

PRIORITY → IMMEDIATE

South Mountain Big Rock Park

- Install directional signage from the parking area to Bauer Rock.

PRIORITY → **IMMEDIATE**

The Seed Farm - Natural Area

- Install signage about the use of the ponds for fishing and that parking should be at the entrance area.

PRIORITY → **IMMEDIATE**

Trexler Nature Preserve

- Explore and apply for funding for the Master Site Plan update.

PRIORITY → **IMMEDIATE**

- Complete the removal of the autumn olive and installation of grasslands.

PRIORITY → **IMMEDIATE**

- Locate, design and build the replacement trail for the Killdozer trail that was lost due to the autumn olive removal.

PRIORITY → **SHORT-TERM**

- Remove the feeding structure on the North Range at the parking lot.

PRIORITY → **IMMEDIATE**

- Make improvements to the septic system at the Trexler Environmental Center.

PRIORITY → **SHORT-TERM**

- Install a walkway at the Trexler Environmental Center from the parking lot to the building.

PRIORITY → **SHORT-TERM**

- The County should finalize the agreement with the Valley Mountain Bikers for trail construction, maintenance and activities.

PRIORITY → **IMMEDIATE**

- Complete the remaining tasks of the Lehigh Valley Greenways mini-grant.

PRIORITY → **IMMEDIATE**

Troxell Steckel Park

- Replace or remove the wooden bridge that continues to get washed out from storms.

PRIORITY → **IMMEDIATE**

- Install a park boundary sign on the north side adjacent to the privately-owned farm field.

PRIORITY → **IMMEDIATE**

- Consider acquiring adjacent properties if they would become available to connect to Egypt Memorial Park to the north of this site.

PRIORITY → **LONG-TERM**

Walking Purchase Park

- Lehigh County, the City of Allentown and Salisbury Township should coordinate to consider implementing the recommendations from the Master Site Plan that would allow the park to remain a passive recreation site but also showcase some of the special features of

this site that may provide enough visitors to curb the undesirable activities that currently plague this site.

PRIORITY → **LONG-TERM — ENTIRE PLAN;
IMMEDIATE OR SHORT-TERM —
PLAN PHASES**

OUTDOOR RECREATION ACREAGE GUIDELINES

To fill service area gaps and meet overall County park acreage standards, the following general recommendations are provided. Recommendations related to specific County facilities are provided in the County Resources section of this Plan:

- All municipalities should gather information from their residents about what park and recreation the community desires and acquire and/or develop the parkland needed to provide these opportunities.

PRIORITY → **LONG-TERM**

- Municipalities with close-to-home park acreage/1,000 population deficiencies—City of Allentown, City of Bethlehem; Catasauqua, Coplay, Fountain Hill boroughs; and Hanover, Lower Milford, Lowhill, North Whitehall, Upper Milford, Weisenberg and Whitehall townships—should plan to add new parks to meet the threshold if practical, feasible and supported by a residents' needs analysis.

PRIORITY → **SHORT-TERM**

- Municipalities with close-to-home park service area gaps—northern Slatington Borough/Washington/Heidelberg townships, parts of Lowhill, Weisenberg and Lynn townships, and parts of Upper Milford and Lower Milford townships—should plan to add new parks to fill the areas currently not served by close-to-home parks if practical, feasible and supported by a residents' needs analysis.

PRIORITY → **IMMEDIATE**

- Lehigh County should consider working with partners to identify opportunities to add regional outdoor recreation space.

PRIORITY → **LONG-TERM**

FUTURE TRAIL CONNECTION OPPORTUNITIES

- Lehigh County, municipalities, Lehigh Valley Planning Commission, and local conservation organizations should consider these trail connection opportunities in future trail planning efforts.

PRIORITY → **LONG-TERM**

RECREATION AND LAND PRESERVATION FUNDING

- Pursue options for funding recreation and land preservation goals.

PRIORITY → **IMMEDIATE**

TRANSPORTATION LINKAGE

- Develop a regional multimodal strategic plan that helps decision makers integrate transportation network improvements with land use decision making.

PRIORITY → **IMMEDIATE**

- Investigate and implement innovative strategies that integrate transportation with open space.

PRIORITY → **SHORT-TERM**

- Develop a regional bicycle/pedestrian plan, including a bicycle/pedestrian transportation working group.

PRIORITY → **IMMEDIATE**

Historic, Cultural and Scenic Preservation Toolkit

While earning placement of significant historic resources on the National Register of Historic Places offers some benefits and a sense of status, several additional methods exist for securing support for preservation efforts and planning for the future of historic structures or districts. Historic preservation organizations in Lehigh County can coordinate their promotional and educational activities and collaborate on shared preservation, advocacy, research and programming efforts.

The Lehigh County Historical Society's vast collection of historic documents, photographs and artifacts offers valuable resources for documenting and telling the stories behind the County's historic structures and neighborhoods. Likewise, the Historic Bethlehem Association, Old Allentown Preservation Association and Lehigh Valley Heritage Museum each make great contributions to keeping the local history alive through various means, including guided and self-guided tours, workshops, educational opportunities and exhibitions, façade programs to help fund homeowners with restoring their properties, and many others. Partnerships among organizations like these can potentially broaden the scope of preservation efforts in Lehigh County that place the region's historic assets within a larger historical narrative and cultural landscape context.

After reviewing various preservation programs and best practices, the Lehigh Valley Planning Commission has identified the following four levels of coordination that historic and cultural preservation organizations can draw upon in crafting a preservation strategy for Lehigh County.

At the state/federal level – The *Pennsylvania Statewide Historic Preservation Plan (2012-2017)* outlines their goal “to mobilize resources and provide a framework for preservation that positions municipal governments, partner agencies, preservation advocates, and the general public to preserve the cultural and historic resources important to them and the future of their communities.” One of the ways this goal can be achieved is through federal preservation and maintenance tax credits.

The most common program is the Rehabilitation Investment Tax Credit, offering a 20% income tax credit for certified, income-producing historic buildings and a 10% income tax credit for unregistered historic properties. Eligibility further requires that the building be substantially rehabilitated within two years. In 2010 alone, the estimated total annual increase in economic and fiscal impact due to historic preservation projects in Pennsylvania doubled in both state tax revenues and employment. Of the 33 states which use Historic Tax Credits, Pennsylvania consistently ranks at the top (#4 in 2010) for both number and value of projects. From 1978 to 2010, Lehigh County submitted 40 projects for tax credits, with project costs exceeding \$25 million.

At the regional level – A clear and cohesive regional historic plan is an indispensable tool for developing and implementing region-specific policies to protect and manage historic resources and cultural landscapes. Such a plan should encourage the engagement of many stakeholders with widely varying interests within the community. This allows for a document to be designed by those it will be impacting directly.

At the group [local] level – Local governments can benefit from becoming a Certified Local Government, which allows them to potentially expedite preservation efforts through exclusive funding incentives and enhanced technical assistance. To achieve certification, the local government agrees to proactively engage in preservation programming through activities like enacting historic preservation ordinances, participating in commenting on National Register nominations within their jurisdiction, and providing an annual report on local preservation activities.

Local governments can also establish Historic Architectural Review Boards and secure appropriate training for members of established boards through the region's Bureau for Historic Preservation community preservation coordinator. Historic Architectural Review Boards are composed of volunteers from the built-environment profession and interested citizens, all who are appointed by city or municipal councils. They play an integral role in historic preservation by outlining design principles and codes that must be upheld to maintain local architectural character. Proposed alterations to historic properties generally require the review and approval of a Board to proceed, thereby

Lehigh County Livable Landscapes



West Park Neighborhood in Allentown, photo by Whitney Burdge, LVPC

maintaining the properties' historical integrity and consistency, while encouraging maintenance, modernization and potential alternative building uses.

At the street [individual/grassroots] level

– The first step in historic preservation is to identify which resources are, in fact, historic. The Cultural Resources Geographic Information System database www.crgis.state.pa.us can help determine which resources are in a community. The Bureau for Historic Preservation can offer assistance with using their Inventory Survey Tool, a way of compiling local inventories of historic resources if they have not yet been completed.

For clearly delineated historic areas within towns, municipalities should consider implementing a program consistent with the incremental approach found in the Main Street America Program created by the National Main Street Center. The preservation-based program intends to yield tangible outcomes for revitalization in community downtowns and commercial areas through coordination with strong local leadership and committees dedicated to designing transformation strategies appropriate for the location. The four points of the overall strategy are: 1) Design, 2) Organization, 3) Promotion and 4) Economic Vitality. Historic preservation is a central component of Main Street design strategies, and historic resources play a key role in driving economic activity and providing a unique sense of place.

Appendix



Regional Landscape and Connectivity

Bucks County

Existing connections include:

- Delaware & Lehigh National Heritage Corridor
- D&L Trail
- Pennsylvania Highlands

Open space resources without an identified connection or differing designations:

- Pennsylvania Highlands Trail
- Greenways – Pennsylvania Highlands is designated in the *Lehigh Valley Greenways Plan* but is not designated in the *Bucks County Open Space & Greenways Plan*.
- Conservation Landscapes – Upper Unami Creek and Cooks Creek were identified in the *Bucks County, Pennsylvania, Natural Areas Inventory Update*. The *Natural Heritage Inventory for Lehigh and Northampton Counties, Pennsylvania – Update 2013* did not identify conservation landscapes for Lehigh and Northampton counties.

Northampton County

Existing connections include:

- Appalachian Trail
- Delaware & Lehigh National Heritage Corridor
- D&L Trail
- Greenways – Blue Mountain/Kittatinny Ridge, Lehigh River, Monocacy Creek, Pennsylvania Highlands, Saucon Creek
- Kittatinny Ridge
- Lehigh River

- Lehigh River Water Trail
- Pennsylvania Highlands

Carbon County

Existing connections include:

- Appalachian Trail
- Delaware & Lehigh National Heritage Corridor
- D&L Trail
- Greenways – Blue Mountain/Kittatinny Ridge and the Lehigh River in the *Lehigh Valley Greenways Plan* and in the *Carbon County Comprehensive and Greenway Plan*
- Kittatinny Ridge
- Lehigh River
- September 11th National Memorial Trail
- State Game Lands

Schuylkill County

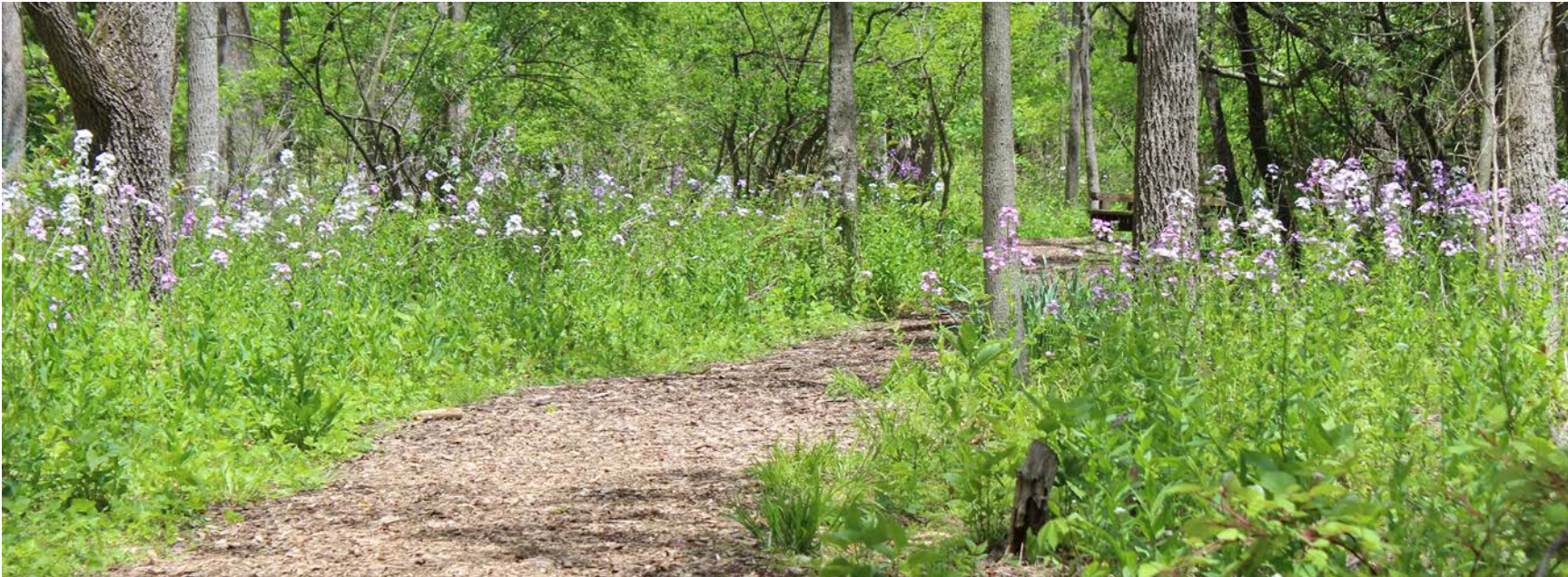
Existing connections include:

- Appalachian Trail
- Greenways – Blue Mountain/Kittatinny Ridge in the *Lehigh Valley Greenways Plan* and in the *Schuylkill County Comprehensive Plan*
- Kittatinny Ridge
- State Game Lands

Berks County

Existing connections include:

- Appalachian Trail
- Kittatinny Ridge



Pool Wildlife Sanctuary, photo by Craig Kackenmeister, LVPC

- Pennsylvania Highlands
- State Game Lands
- Greenways – Blue Mountain/Kittatinny Ridge, Ontelaunee Creek and Pennsylvania Highlands in the *Lehigh Valley Greenways Plan* and the Kittatinny Ridge, Maiden Creek, Perkiomen/Highlands and Oley Hills in the *Berks County Greenway, Park and Recreation Plan*
- Proposed Trails – Lower Macungie Trail Network in the *Lehigh Valley Trails Inventory – 2013* and Longswamp Township's Potential Regional Connection in the *Berks County Greenway, Park and Recreation Plan*

Open space resources without an identified connection:

- Proposed Trail – Maiden Creek Trail to the Leaser Lake area in the *Berks County Greenway, Park and Recreation Plan*

Montgomery County

Existing connections include:

- Pennsylvania Highlands
- Greenways – Pennsylvania Highlands in the *Lehigh Valley Greenways Plan* and the Mill Hill-Hosensack Greenway and Macoby Greenway in *Montgomery County's Open Space, Natural Features, and Cultural Resources Plan Shaping Our Future*

Open space resources without an identified connection:

- Proposed Trails – Lower Macungie Trail Network in the draft *Southwestern Lehigh County Comprehensive Plan* but no proposed trail in *Montgomery County's Open Space, Natural Features, and Cultural Resources Plan Shaping Our Future*

Related Plans and Studies

State Level

Natural Connections – Pennsylvania’s State Comprehensive Outdoor Recreation Plan 2014–2019: The 2014 plan outlines five priorities to help foster outdoor recreation for all Pennsylvanians.

- Health and Wellness
- Local Parks and Recreation
- Tourism and Economic Development
- Resource Management and Stewardship
- Funding and Financial Stability

These five priorities each address primary challenges and opportunities. Case studies at the end of each priority section highlight successes, but others exist that demonstrate examples of how recreation is improving the lives of Pennsylvanians. To help carry out these five priorities, key state and local agencies and recreation providers will be guided by the 20 recommendations and 83 action steps found in the State plan. A matrix of these action items, along with implementing partners, is included in the plan.

Livable Landscapes addresses many of the 20 recommendations throughout this Plan. Health and wellness is highlighted in the Benefits of Open Space section as how the built environment can encourage physical activity, and the Transportation Linkage section asserts that providing transportation options, such as walking and bicycling, can have air quality and health benefits. Close-to-home outdoor recreation is described in the Municipal Resources section, with an analysis of the distribution and amount of outdoor recreation opportunities in the Outdoor Recreation Acreage Guidelines section, and is emphasized by several goals, policies, actions and recommendations. Increasing community prosperity through economic benefits is primarily detailed in the summary of the *Lehigh Valley Return on Environment* in the Benefits of Open Space section. The Natural Resources section summarizes the elements of the Natural Resources Plan and the conservation priority areas in the County.

Pennsylvania Department of Transportation Bicycle

and Pedestrian Plan (2007): The 2007 *Pennsylvania Bicycle and Pedestrian Plan* is a revision to the 1996 plan of the same name and is formally a component of the *Pennsylvania 2007 Mobility Plan*, the state’s long range transportation plan. Its purposes are to satisfy Pennsylvania Department of Transportation’s planning responsibilities under federal law and provide guidance for the Department on how to address the integration of those modes into the routine transportation project development process. It does not mandate any special funding for bicycle/pedestrian activities. The intent of the Department of Transportation plan is to more fully integrate bicycle/pedestrian transportation into Department of Transportation’s routine project development processes and to include their partners in the process. The plan focuses on funding, integration, education, enforcement and systematic engineering approaches.

Pennsylvania Greenways: An Action Plan for Creating Connections (2001):

This action plan is designed to provide a coordinated and strategic approach to creating connections through the establishment of greenways in Pennsylvania and was the direct response to Governor Ridge’s Executive Order 1998-3, charging Pennsylvania’s Department of Conservation and Natural Resources, Department of Environmental Protection, and Department of Transportation, assisted by the Pennsylvania Greenways Partnership Commission, to develop an action plan for advancing a Pennsylvania greenways partnership program. Four goals—Plan and Establish Greenways Connections, Create a Greenways Organizational Framework, Provide Greenways Funding, Provide Greenways Technical Assistance and Outreach—and 12 related strategies were developed to aid in accomplishing the program vision.

Pennsylvania’s Heritage Areas Program: The Next Five Years – A Strategic Plan for 2015-2020 (2015):

This plan provides a roadmap to advance and strengthen the Pennsylvania Department of Conservation and Natural Resources’ Heritage Areas Program. HeritagePA is the nonprofit resource network for Pennsylvania’s officially-designated state and national Heritage Areas. The Delaware & Lehigh National

Heritage Corridor is one of 12 designated Heritage Areas in Pennsylvania and focuses on interpreting railroad and canal transportation history through Luzerne, Carbon, Lehigh, Northampton and Bucks counties. The plan establishes a set of essential goals for the program and for individual Heritage Areas, as well as actionable steps to meet those goals.

Pennsylvania's Statewide Historic Preservation Plan 2012–2017 – Building Better Communities: The Preservation of Place in Pennsylvania: This plan, prepared by the Pennsylvania Historical and Museum Commission, details statewide resources and preservation efforts, articulates a vision for historic preservation in Pennsylvania, and lays out a five-year Action Agenda to achieve that vision. Of particular note is the plan's explicit recognition and support for the link between historic and natural resources: "Preservation is viewed widely and approached as a concept that encompasses entire landscapes, including open spaces, historic buildings and structures, working lands, environmental qualities, viewsheds, and the distinct characteristics found in communities of all sizes."

Regional Level

Lehigh River Watershed Conservation Management Plan (update release expected Fall 2017): In 2003, Wildlands Conservancy completed the Lehigh River Watershed Conservation Management Plan, which provided information about the state of, threats to, and opportunities for improvement of the land, water, and recreational resources of the 1,350 square-mile Lehigh River watershed. The history of the region and the extent to which the present state of our local environment continues to be influenced by the past were also discussed. The plan contains recommendations for improving stream health, preserving farm and forestlands, and creating opportunities for people to connect with the outdoors. The 2016 update of the plan provides information about current water quality conditions, updated strategies and priorities for land preservation, large-scale stream and upland-habitat restoration initiatives, and new and emerging environmental threats. Conservation accomplishments the watershed community has achieved in the 15 years since the original Lehigh River Watershed Conservation Management Plan's completion are also presented.

Carbon County Comprehensive Plan & Greenway Plan (2013):

The *Carbon County Comprehensive Plan and Greenway Plan* provides an overall set of policies for the future development and conservation of Carbon County over the next 15 years. The purpose of the plan is to help ensure this change is positive and that Carbon County retains the qualities that make people want to live, work and visit the county. Issues considered during the development of the plan include:

- Community assets and how to build upon them
- Community concerns and how to overcome them
- Changes the community wants to make and how to encourage change
- Features the community considers most valuable and how to preserve them

Schuylkill County Open Space and Greenway Plan (2006): This *Open Space and Greenway Plan* promotes the importance of open space features, ensures a high quality of life for residents, and protects natural resources within Schuylkill County. The concern for open space conservation in the county is becoming more pronounced as land continues to be developed. As development progresses, setting aside significant areas of open space and maintaining greenway connections throughout the county becomes more difficult. This plan presents a physical framework for Schuylkill County to create an open space and greenway network in the county through collaborative efforts of public and private entities.

Berks County Greenway, Park & Recreation Plan (2007): This plan sets specific goals for the direction Berks County should take to provide future open space, greenways and recreation for its citizens and also provides recommendations for the identification, protection and preservation of Berks County's historic sites and districts. The goals and recommendations set forth in the plan are based on the year 2020. These goals and recommendations will change over time since recreational needs are dynamic. Changes in recreational trends will require development of new forms of preservation and recreational facilities and new strategies in the use of existing facilities.

Montgomery County Open Space, Natural Features, and Cultural Resources Plan – Shaping Our Future (2005): The *Open Space, Natural Features, and Cultural Resources Plan – Shaping Our Future:*

A *Comprehensive Plan for Montgomery County* is intended to guide open space decisions to the year 2025. In particular, this plan lists high priority areas that should be preserved to establish an interconnected open space system that benefits everyone. To address too much open space and farmland being lost to sprawling development and to create a connected open space network, this plan proposes to: 1) protect vulnerable natural features, 2) link and preserve important open space areas, 3) expand county and municipal trails, 4) keep farming viable, and 5) preserve important historic buildings and views.

Livable Landscapes An Open Space Plan for Northampton County (2016): Many valuable open space resources worthy of discovery and preservation exist throughout Northampton County and are an integral part of a high quality of life. Recent population growth and land use changes show the region is experiencing a strong development trend that puts pressure on open space resources and, if not managed properly, could impact much of what residents find appealing about the County. The purpose of *Livable Landscapes – An Open Space Plan for Northampton County* is to guide the conservation, restoration and enhancement of the County's open space resources and create linkages between the County's vast natural resources; outdoor recreational facilities; greenways and blueways; farmland; and historic, cultural and scenic resources.

Bucks County Open Space and Greenways Plan (2011): The *Bucks County Open Space and Greenways Plan* provides a decision-making, implementation and management tool designed to protect and create linkages between the county's vast natural resources, open space and farmland, recreational facilities, and historic and cultural resources. The plan is designed to identify an interconnected network of greenways that protect ecologically valuable lands, provide open space and recreational opportunities, protect important habitat areas and migration paths for wildlife, and provide access to the county's historic and cultural resources. Specifically, the plan identifies corridors that could potentially host trails for public recreation, wildlife viewing, lessons in history and alternative transportation.

County Level

Comprehensive Plan The Lehigh Valley...2030 (2010): The *Comprehensive Plan* deals mainly with the future physical environment of

the Lehigh Valley (Lehigh and Northampton counties) between 2000 and 2030. The plan presents a balanced program of environmental, economic and developmental proposals, while recognizing the fact that the Lehigh Valley is a mixture of agricultural, rural, suburban and urban features. The plan starts by reporting on results gathered from a public opinion survey. Next, the plan describes basic forecasts about future growth. It outlines proposals for natural resource and agricultural preservation. Sections on land use, economic development, housing, transportation and community facilities follow. These sections detail measures that need to be taken to assure compatibility between preservation, development and infrastructure. Finally, the plan presents a section on historic preservation.

Key development concepts advocated in the plan are:

- Conservation of important natural areas and conservation of farmland
- New growth contiguous with major existing urban areas
- New growth in designated urban areas where community utilities already exist or can be expanded
- Increased residential densities in designated urban areas
- No urban growth in areas designated for natural resources or farmland
- Better use of tools already authorized in the Pennsylvania Municipalities Planning Code
- Extensive infill, redevelopment and reuse of properties in cities and boroughs
- Combined economic and community development efforts to provide well-paying jobs and improve the tax base of municipalities in distress
- Continued development of transportation facilities, community utilities and public parks to meet the needs of the region as it grows in the future

Lehigh Valley Greenways Plan (2007): This plan stems from the inventory and analysis of the *Lehigh Valley Comprehensive Plan*, identifying the resources that serve as the framework for a regional greenways network and providing recommendations on how to take



Lehigh River, photo by Teresa Mackey, LVPC

full advantage of the opportunities they present. The development of the *Lehigh Valley Greenways Plan* vision involved many partners and groups that were interested in greenway and conservation efforts for some of the region's major waterways and natural areas. The Lehigh Valley Planning Commission worked closely with these entities to encourage the creation of greenway and trail linkages, the long-term preservation and protection of priority natural resources, and the en-

hancement and creation of natural, recreational, cultural, historical and scenic areas of interest in the Lehigh Valley.

The plan identified four types of greenways in the Lehigh Valley:

- Cultural/recreational greenways, which support human activity

- Conservation greenways, which support ecological purposes
- Multi-use greenways, which support a combination of human and conservation activities
- Scenic greenways, which provide a visual connection across the landscape

The plan analyzed existing resources within the Lehigh Valley to identify a greenways network of hubs, nodes and corridors. Hubs are large centers of activity (e.g., parks, cities, boroughs) that serve to anchor the greenway network; nodes are natural, recreational, cultural or historic places of interest; and corridors are the linear connecting elements, linking hubs and nodes. The plan identified 31 corridors, eight hubs and 63 nodes. The plan also provides information on a range of techniques that can be used to conserve open space from absolute to minimal protection.

MOVE LV Long Range Transportation Plan (2015-2040): The *MOVE LV Long Range Transportation Plan*, covering both Lehigh and Northampton counties, is the \$2.5 billion transportation investment strategy for the Lehigh Valley. The *Long Range Transportation Plan* considers the improvement of the region's roads, highways, bridges, transit system, sidewalks and trail networks. The plan is updated every four years, is federally mandated and helps guide the transportation decision-making process through policy and investment decisions.

The plan achieves three main goals:

- To document the current operational status of the transportation network
- To identify travel network deficiencies
- To identify projects to mitigate those deficiencies

The plan introduces the various travel modes found within the Valley, including highway, transit, rail freight, air, bicycling and pedestrian facilities. The plan discusses the importance of asset management, system maintenance, access management and public safety in the planning process. An emphasis on safety is incorporated into every aspect of transportation planning and across all modes of travel. The plan also speaks to the relationship between transportation projects

and the natural environment.

Natural Heritage Inventory of Lehigh and Northampton Counties, Pennsylvania – Update 2013: The *Natural Heritage Inventory of Lehigh and Northampton Counties, Pennsylvania – Update 2013* is a document compiled and written by the Pennsylvania Natural Heritage Program, which is a partnership between The Pennsylvania Department of Conservation and Natural Resources, the Western Pennsylvania Conservancy, the Pennsylvania Game Commission and the Pennsylvania Fish and Boat Commission.

The 2013 update builds on the original *Natural Areas Inventory of Lehigh and Northampton Counties* completed in 1999 by the Pennsylvania Science Office of The Nature Conservancy and updated in 2005. The document contains site descriptions on the locations of rare, threatened and endangered species and the highest quality natural communities in the two counties. Accompanying each site description are general management recommendations that would help to ensure the protection and continued existence of these natural communities and species of concern. The recommendations are based on the biological needs of these communities and species. The recommendations are strictly those of Western Pennsylvania Conservancy and do not necessarily reflect the policies of the state or the policies of the counties or townships for which the report was prepared.

The inventory resulted in the designation of 123 Natural Heritage Areas in the Lehigh Valley (Lehigh County results are reported in the Inventory and Assessment chapter under Natural Heritage Areas in this Plan). These Natural Heritage Areas are based on the locations of 325 individual occurrences of 111 species of concern (2 mammals, 7 birds, 7 reptiles, 4 amphibians, 4 mussels, 1 dragonfly, 5 butterflies, 2 moths and 79 plants) and eight types of high quality natural communities.

Lehigh Valley Return on Environment (2014): This report is summarized in the Economic Benefits section in the Introduction of this Plan.

Lehigh Valley Trails Inventory-2013: In 2009, the Lehigh Valley Planning Commission completed a comprehensive update to the trails inventory for Lehigh and Northampton counties. The update compiled



Leaser Lake, photo by Craig Kackenmeister, LVPC

data from municipal plans and studies across the two counties and produced the *Lehigh Valley Trails Inventory—2009*. The goal of the 2009 inventory was to assist local officials in planning for future trails in the Lehigh Valley. The 2013 update, in addition to incorporating updated trail information, includes two new components: identifying priority trail gaps and providing guidelines to designing safe road crossings for trails. These two new components are part of a statewide effort by the Pennsylvania Department of Conservation and Natural Resources

to help organizations and municipalities implement trail initiatives. The inventory now documents 59 trails or trail networks in the Lehigh Valley (Lehigh County numbers are reported in the Inventory and Assessment chapter under Trails), totaling approximately 653 miles (all status levels—Open, Under Construction, Proposed or Conceptual) in the two counties, with 333 miles of Open trails.

Land Conservation Techniques

Permanently protecting environmentally sensitive, historically important and/or culturally significant lands from undesirable development can be a challenging and time-consuming task. Choosing the appropriate method of preservation involves evaluating the landscape to identify the features needing protection, assigning priority to the land to assure the most sensitive and at-risk features are protected, and selecting suitable methods and entities to accomplish the conservation objectives. Many valuable resources would have been developed from their natural undisturbed state had it not been for the hard work and collaboration of local governments and nonprofit organizations that aim to acquire and protect land identified by the Lehigh Valley Planning Commission as high conservation priority lands.

The most commonly used land conservation techniques are fee simple acquisition, conservation easements and land management/stewardship as described below.

Fee Simple Acquisition: Fee simple acquisition is the most straightforward method of preservation. A fee simple acquisition provides the greatest level of protection as a landowner sells their rights, title and interest in the property to the buyer, who then owns and maintains the land. Either by purchase or donation (tax benefits may apply to the donor), the receiving entity will hold the deed and be responsible for the insurance, taxes, liabilities and long-term management of the property.

Conservation Easement: A conservation easement is a method of protecting the significant resources of a property with deed restrictions that target only those rights necessary to protect the land's conservation value. Through a conservation easement, a landowner voluntarily assigns restrictions on the future use of the land, thereby protecting sensitive environmental features, riparian buffers, greenways, historic resources, scenic vistas and agricultural lands in perpetuity. Once again, through purchase or donation, a landowner conveys their development rights to the receiving entity yet retains ownership of the property, including the ability to sell or pass it on to heirs. Future owners of the land will also be bound by the conservation easement terms. Conservation easements are a popular option among landown-

ers as the responsibilities and rewards of ownership continue, thus the landowner retains full control over public access just as before granting the easement. However, in most instances when public dollars are used, this method of land preservation may require monitored public access when it is compatible to the conservation objectives. Also attractive to local governments, easement acquisition provides valuable open space to communities at a lesser cost to taxpayers than fee simple acquisition. This results in the generation of a significant public benefit through the permanent protection of more land using limited funds.

Land Management/Stewardship: The least expensive land preservation technique is land stewardship through the careful management of land alteration to ensure that natural and cultural resources are maintained and/or enhanced. This method of protection involves the thorough understanding of the value and roles of the resources present and incorporating this understanding into the development and maintenance of both privately- and publicly-owned land. Conservation-based development is one method of stewardship guided by the preservation of the conservation value of the property, as well as the achievement of the economic goals of the landowner. Careful planning and design that incorporates open areas into a development site ensures that the highest priority natural areas are preserved. These areas can be used for recreation or preserved as open space. This method may use a combination of many land preservation techniques and is an alternative to traditional development.

Regulatory Measures

The Pennsylvania Municipalities Planning Code, in effect since 1969, and updated several times since, provides the enabling legislation to municipalities for the creation of comprehensive plans and the establishment and use of regulatory land use ordinances. The general intent of the Municipalities Planning Code is to give municipalities the authority to guide coordinated development; guide uses of land, structures, streets and public facilities; and to promote preservation of natural and historic resources. Comprehensive plans and regulatory ordinances are often the primary means a municipality uses to both guide potential open space acquisitions and enforce the protection of natural features from the development or use of a property.

Comprehensive Plan: The municipal comprehensive plan, although not regulatory in and of itself, is a legal document that serves as a decision-making guide for both officials and citizens. It is intended to assist the municipality in making decisions about future growth and development. The process of developing the plan is perhaps as important as the final document. The process examines existing conditions and issues unique to the municipality and establishes goals and policies that support the municipality's desired future character and form. Relative to open space and environmental features protection, the comprehensive plan can include objectives, strategies and recommended actions designed to ensure the provision of open space in the municipality. Further, it can include observations on general open space deficiencies and potential acquisition sites that would serve as the foundation for a municipal open space plan. Essentially a roadmap for the future, the goals and policies of the comprehensive plan serve as the document that the official map and/or municipal ordinances are based upon.

Official Map: Article IV of the Pennsylvania Municipalities Planning Code enables municipalities to prepare an official map and take proactive measures in shaping important components of their future development, in contrast to reacting to developers' proposals. Adopted by ordinance, it serves as a visionary document that specifies properties the municipality wants to acquire for public improvements. The official map is a seldom used land use management tool that can help municipalities plan the location and layout of future roads and public areas and preserve rights-of-way. By doing so, it reserves this land for future public use. When consistent with a municipal subdivision and land development ordinance, zoning ordinance and comprehensive plan, the official map can give strength and validity to a municipality's wants and needs for future growth. Further, it is an excellent supporting document for grant applications involving land or easements intended for open space or park facilities. A wide variety of elements can be shown on the map as long as they are consistent with the Municipalities Planning Code, such as:

- Existing and proposed public streets, watercourses and public grounds
- Bikeway routes
- Existing and proposed public parks, playgrounds and open space reservations

- Railroad and transit rights-of-way and easements
- Stream valley corridors and other environmentally critical areas
- Flood control basins, floodways and floodplains, stormwater management areas and drainage easements
- Potential public well sites or groundwater resources areas
- Historical and archaeologically significant areas

The official map is not a taking of private land. If by virtue of the official map a landowner is denied reasonable use of his property, he or she can apply for a special encroachment permit that would allow them to build on the site. If a landowner notifies the municipality of their intention to develop a site identified on the map, the municipality has one year to acquire the site or the reservation of that land becomes invalid. The landowner is free to use any unmapped portions of the land in accordance with the municipality's zoning and subdivision regulations. Official maps adopted in Lehigh County include:

- Lehigh County, 1998
- Catasauqua Borough, 2007
- Lower Macungie Township, 2016
- South Whitehall Township, 2010
- Upper Milford Township, 2010
- Upper Saucon Township, 2010
- Whitehall Township, 1998, updated 2006

More information on official maps is available in the publication, *The Official Map: A Handbook for Preserving and Providing Public Lands + Facilities* (2011), written by the Pennsylvania Land Trust Association in partnership with the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Department of Transportation and the Pennsylvania Department of Community and Economic Development.

Municipal Ordinances: In addition to comprehensive planning, a municipality can enact regulatory measures to protect vulnerable natural resources through the following methods:

- **Subdivision and Land Development Ordinances** – When a piece of land is divided into two or more lots, the land is considered to have been subdivided. Subdivision ordinances specify certain minimum requirements and standards that all land divisions must include. The municipality's subdivision and land development ordinance can include a number of regulations that can preserve open space and protect environmental features.
- **Public Dedication of land/Fee in lieu** – The Municipalities Planning Code provides for the public dedication of lands suitable for recreation purposes or the payment of fees in lieu of such lands. Municipal subdivision and land development ordinances can require fees paid by the developer to be deposited into a fund specifically for the construction of recreational facilities, reservation of land for parks or open space or a combination thereof. The Municipalities Planning Code requires the formal adoption of a recreation plan as a prerequisite to implementation of these provisions. The fee in lieu of option ensures that all subdivisions provide for a proportionate share of the open space needs of the municipality. Both lands and fees obtained must be used to provide park or recreation facilities accessible to future residents of the development from which they were obtained. More information is available at: <http://conservationtools.org/guides/17-public-dedication-of-land-and-fees-in-lieu-for-parks-and-recreation>.
- **Stormwater Management Best Management Practices** – Preserving open space in a natural and undeveloped condition is an excellent best management practice for water quality protection, both for surface and groundwater supplies, by filtering runoff and pollutants from impervious areas. They capture, treat and infiltrate stormwater on-site, helping to maintain the natural hydrology as development occurs. Municipalities in Lehigh County have adopted best management practices provisions as part of ordinances created by the County and the Lehigh

Valley Planning Commission under the Pennsylvania Stormwater Management Act (Act 167 of 1978).

Zoning Techniques: The Pennsylvania Municipalities Planning Code designates zoning as a tool for regulating land uses. The primary function of zoning should be to implement the municipality's comprehensive plan by regulating the use of private property in the public interest.

- **Overlay districts** – An overlay district is a set of regulations in addition to the base zoning district and applied to specific locations within the municipality that directs development away from sensitive or environmentally important lands. Techniques such as conservation subdivisions, buffer strips and numerous performance standards are usually included in overlay district regulations.
- **Performance Standards** – “Performance zoning” is a flexible alternative to traditional land use zoning. Where traditional zoning specifies land uses within districts, performance zoning specifies the intensity of land use that is acceptable in consideration of the surrounding environment. With performance standards, municipalities can steer development away from natural features, limit the intensity of development and limit negative effects of development on public infrastructure. This option allows developers more flexibility in design since the use of a property is not restricted as long as the impacts to the surrounding land are not negative.
- **Sliding Scales** – Sliding scale zoning limits the number of times a parcel can be subdivided to a maximum number established by the zoning ordinance. This method prevents the complete residential subdivision of large parcels, because of the diminishing returns as tract size increases. Conventional zoning would permit a fixed number of lots per acre regardless of tract size. Sliding scale zoning allows some residential development without using the entirety of the land.
- **Conservation Subdivision Design** – A conservation

subdivision is a land development of common open space and clustered compact lots, with the purpose being to protect natural resources and allowing for the maximum number of residences under current municipal zoning and subdivision regulations. Conservation subdivision ordinances generally require permanent dedication of 40% or more of the total development parcel as open space. Open space design requirements often include contiguity and connection to other open space or conservation areas.

- **Planned Residential Development** – Planned residential development is a form of mixed use development that may include open space and may consist of single family dwellings, duplexes, multifamily dwellings or a mixture of housing types. Planned residential development encourages well-planned developments and is intended to give landowners greater flexibility in developing tracts of land by relaxing the area, width, setback, yard and other regulations.
- **Lot Averaging** – Lot averaging is a method that allows flexibility in lot size. This technique permits one or more lots in a subdivision to be undersized, as long as the same number of lots in the subdivision are oversized by an equal or greater area than what the zoning district permits. This allows a developer to work around existing natural features by making adjacent lots smaller and locating them in protected open space.
- **Transfer of Development Rights** – The transfer of development rights transfers development to another part of the municipality where development and infrastructure may already exist. Landowners of these properties, usually in farmland or rural areas (senders) sell development rights to developers in areas designated for higher density development (receivers). The municipality or a nonprofit agency can act proactively, by purchasing the development rights and “retire” them, making them unavailable for future use, or “bank” them, making them available to interested developers for their use in receiving areas.

An excellent resource on the option is Transfer of Development Rights by the Environmental Management Center of Brandywine Conservancy.

- **Protecting Environmental Features through Zoning** – Significant natural features can be protected by specific stand-alone ordinances or sections of the zoning ordinance. Across Lehigh County, zoning is the most proactive and successful approach a municipality can undertake in protecting natural features.
Floodplains – Floodplains, which include floodways and flood fringes, absorb and store large amounts of water, which is a source of aquifer recharge. The floodplain is defined by the 100-year or base flood, which has a 1% chance of being equaled or exceeded in a given year. Communities have floodplain regulations of varying restrictiveness. The intent of regulating development in floodplains is to eliminate loss of life, health hazards and property damage; to preserve the capacity of stream channels and adjacent floodplains to carry flood waters; and to encourage the use of flood prone land for open space uses.
- **Riparian buffers** – A riparian buffer is an area of trees and other vegetation adjacent to a watercourse that forms a transition area between land and the watercourse. The riparian buffer is designed to intercept runoff from upland sources to neutralize the effects of nutrients, sediment, organic matter, pesticides or other pollutants before they enter the watercourse. A riparian buffer ordinance regulates the size and permitted disturbances of the buffer. To be most effective, buffers should be considered along all streams, including intermittent and ephemeral channels. The effectiveness of a riparian buffer can be improved by limiting impervious surfaces and strictly enforced on-site sediment controls.
- **Steep slopes** – Steep slope regulations limit or prohibit development on steep slopes. The definition of steep varies from municipality to municipality, with 15% typically the minimum gradient classified as steep. Steep slopes are vulnerable to damage resulting from site disruption, primarily related to soil

erosion and is likely to spread to areas that were not originally disturbed. Erosion reduces the productivity of the soil and results in increased sedimentation in drainage ways, wetlands and streams. Increased sedimentation increases flood hazards by reducing the floodwater storage capacity and elevating the flood level of the drainage system in low-lying areas. Disruption of steep slopes also increases the likelihood of slippage and slumping—unstable soil movements, which may threaten adjacent properties.

- **Woodlands and Trees** – Woodland and tree preservation regulations control and regulate the excessive removal, cutting and destruction of trees. Woodlands stabilize the soil, control water pollution, provide air quality benefits and provide a natural habitat for wildlife. Development can lead to tree loss, and the remaining trees may lose vigor if damage is sustained during construction. Municipalities can limit both tree loss and tree damage with well-conceived tree preservation ordinances or policies. The goals of tree preservation are twofold: 1) to protect designated trees, and 2) to minimize impact to trees during construction.
- **Wetlands** – Wetlands are all lands regulated as wetlands by the Pennsylvania Department of Environmental Protection and/or the United States Army Corps of Engineers. Such areas are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas. Many of these wetlands are seasonal (they are dry one or more seasons every year). The quantity of water present and the timing of its presence in part determine the functions of a wetland and its role in the environment. Even wetlands that appear dry at times for significant parts of the year (vernal pools) can provide habitats for wildlife.
- **Wellhead protection** – A wellhead protection ordinance regulates land use activities within defined

critical recharge areas surrounding public water supply wells. The ordinance is structured to prohibit certain land use types, which could contaminate the water supply, from locating within the defined critical recharge areas. It can be a stand-alone ordinance or be part of a zoning or subdivision and land development ordinance.

- **Sinkholes** – When areas within a municipality are underlain with carbonate bedrock, these areas are often unstable and susceptible to collapse and the formation of closed depressions and sinkholes. This process can threaten the local groundwater supply by leaving the water vulnerable to contamination that moves through the rock's fractures and openings. The goal of this type of regulation is to protect groundwater resources and reduce the frequency of property damage due to sinkhole collapse.
- **The “Net Out” of features** – The net out of features refers to the technique of deducting environmentally constrained lands from development density calculations. Netting out is intended to protect and preserve environmentally constrained areas by reducing or eliminating the credit given for these lands toward the amount of development permitted on a given site.

The Lehigh Valley Planning Commission has created a variety of natural resource protection guides/model ordinances for use by municipalities:

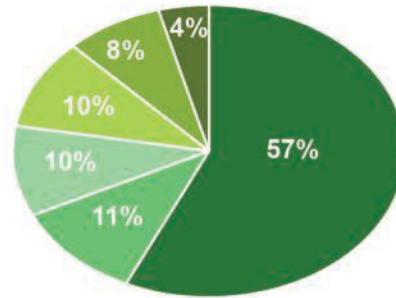
- Floodplains
- Steep Slopes
- Riparian and Wetland Buffers
- Woodlands
- Conservation Subdivisions
- Protect the Trail: A Guide to Protecting the Appalachian Trail for Lehigh Valley Municipalities
- Sinkhole Prevention
- Wellhead Protection



Farmers' Survey

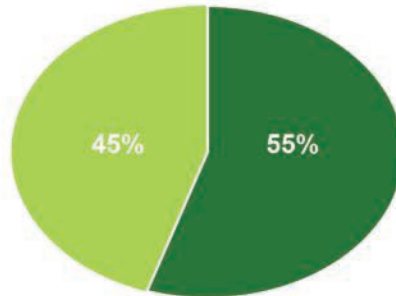
How long have you and your family been farming in Lehigh County?

- 1-5 years
- 11-20 years
- 6-10 years
- 21-34 years
- 35+ years
- Do not farm in Lehigh County

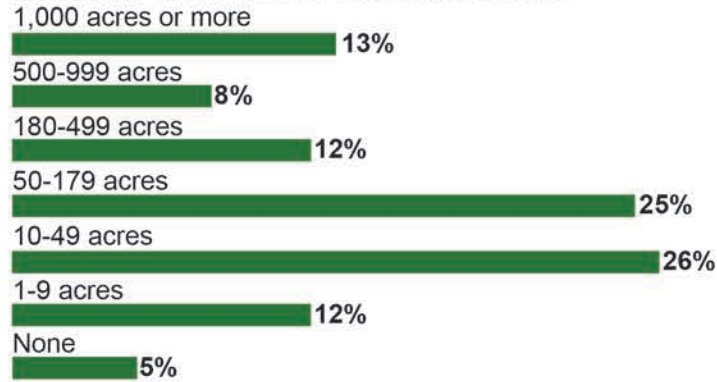


Do you farm part-time or full-time?

- Full-time
- Part-time



How many acres are you currently farming?



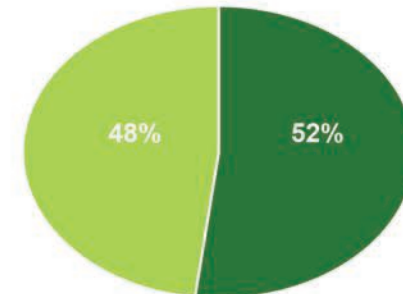
How much of the land you are farming do you own or lease?

- Own
- Lease



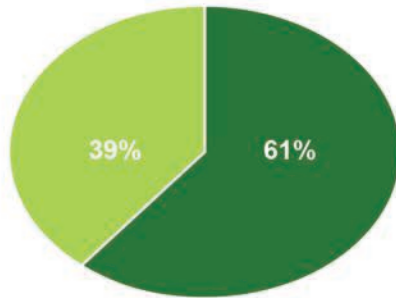
Do you feel you have enough land to make farming profitable for the long-term?

- No
- Yes



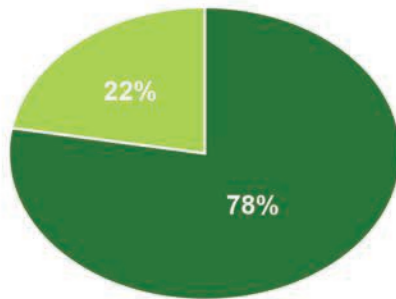
Do you have a succession plan?

- No
- Yes



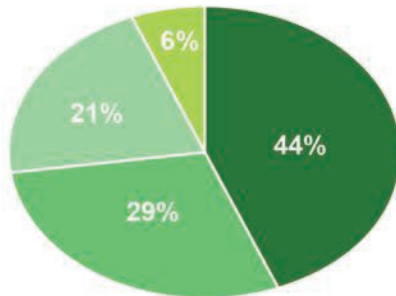
Do you have a written business plan?

- No
- Yes

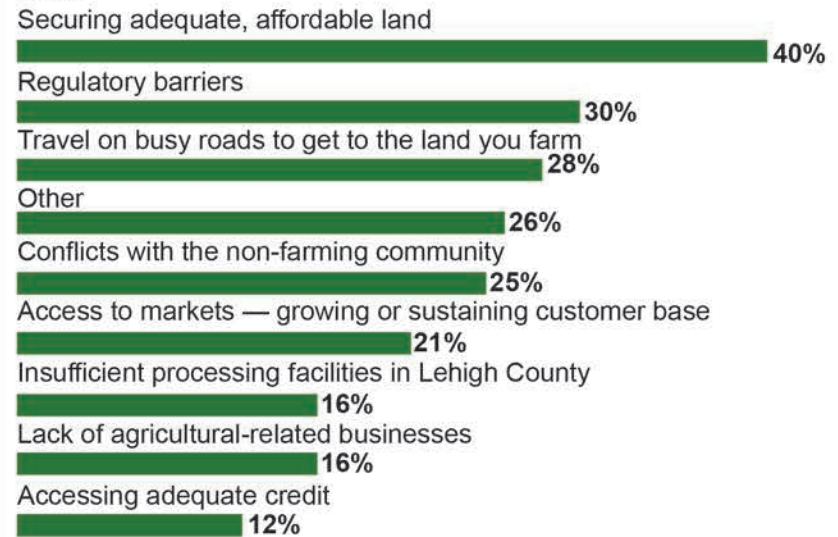


What percentage of your products do you sell within Lehigh County or adjacent counties?

- 75%-100%
- 50%-74%
- 25%-49%
- Less than 25%



What are the most critical issues that impact the operation of your farm?



“Other” critical issues that impact the operation of your farm

- Development and loss of agricultural land
- Securing qualified labor
- Wages, benefits, taxes and operational costs
- Commodity prices
- Weather and climate issues
- International relations
- Regulations (Pennsylvania Department of Conservation and Natural Resources Insect Control Programs)

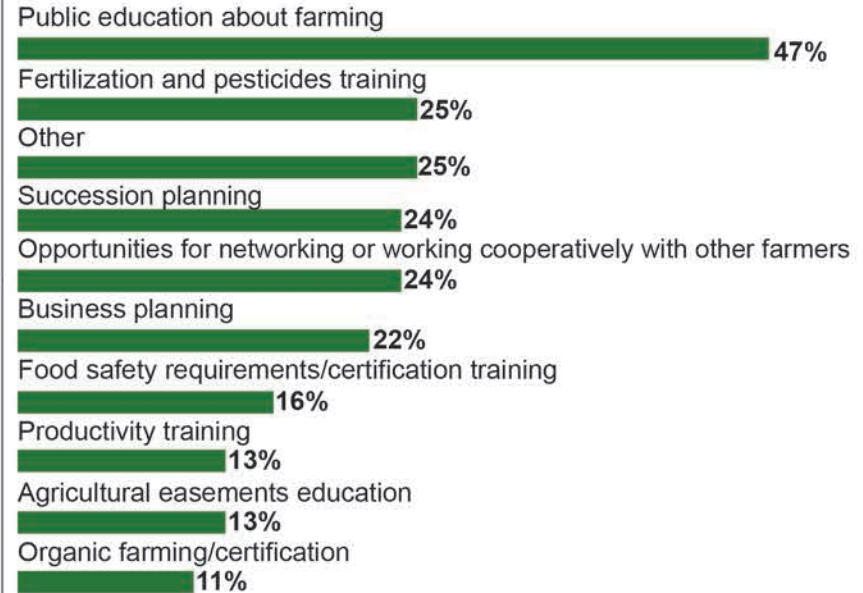
What opportunities do you take advantage of now or foresee in the future?



“Other” opportunities you take advantage of now or foresee in the future

- Retirement
- Composting
- Niche products
- Direct sales at roadside stand
- Recreation
- Community land trusts
- Selling horses
- Providing excellence in products and customer support and education

What type of assistance would be useful to you?



What agricultural-related businesses would you like to see come into the Lehigh Valley that would help you grow your own business?

Processing Facilities

- Meat and poultry (four specified USDA certified facilities)
- Grains, fruits, vegetables and other
- Dairy farms

New Markets

- Food co-op
- Non-franchise, farm to table restaurants
- Farmers’ markets

New Agricultural Products and Services

Organic Products, Businesses and Facilities

Farm Related Businesses

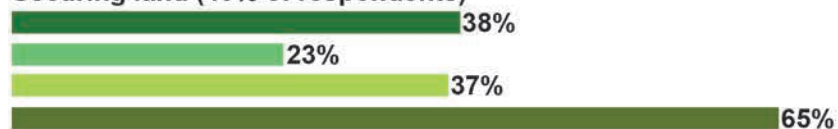
- Equipment sale, rental and repair
- Materials and supplies

Increase Profitability

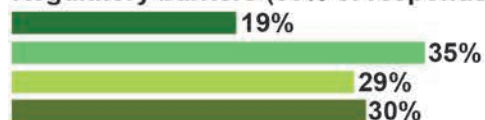
What are the most critical issues that impact the operation of your farm? (by number of acres farmed)

10 acres or less 11-49 acres 50-499 acres 500+ acres

Securing land (40% of respondents)



Regulatory barriers (30% of respondents)



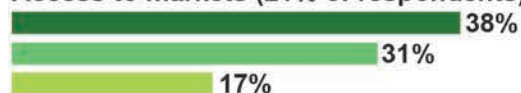
Travel on busy roads (28% of respondents)



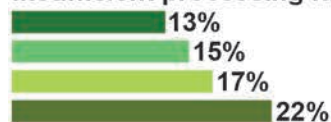
Conflicts with non-farming community (25% of respondents)



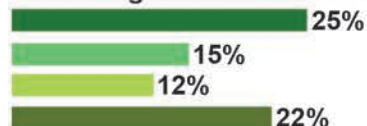
Access to markets (21% of respondents)



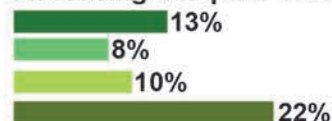
Insufficient processing facilities (16% of respondents)



Lack of agricultural-related businesses (16% of respondents)



Accessing adequate credit (12% of respondents)



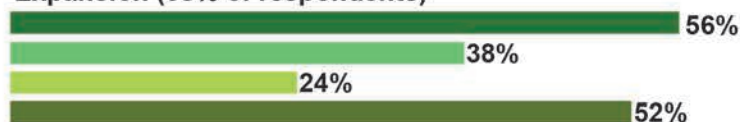
What opportunities do you take advantage of now or foresee in the future? (by number of acres farmed)

10 acres or less 11-49 acres 50-499 acres 500+ acres

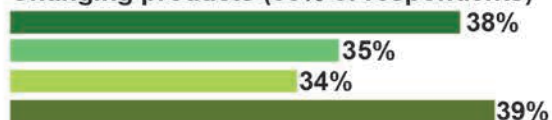
Land preservation (46% of respondents)



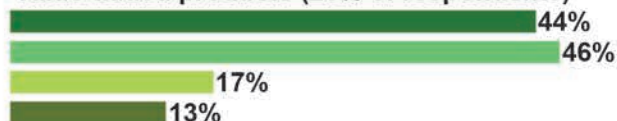
Expansion (38% of respondents)



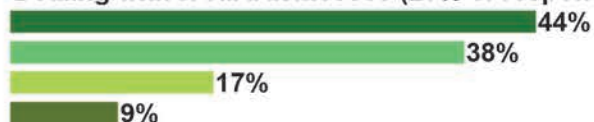
Changing products (36% of respondents)



Value-added products (26% of respondents)



Dealing with local businesses (25% of respondents)



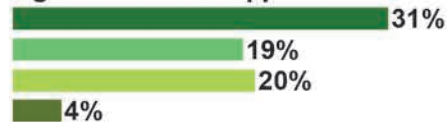
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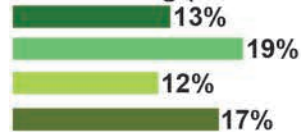
Organic farming (21% of respondents)



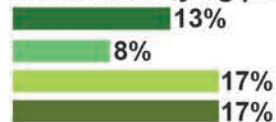
Agri-tourism or supplemental businesses (18% of respondents)



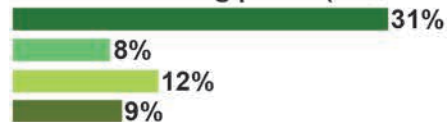
Cost-sharing (14% of respondents)



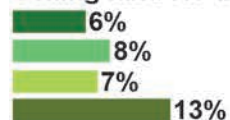
Collective buying power (13% of respondents)



Collective selling power (12% of respondents)



Selling land for development (11% of respondents)



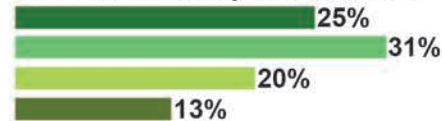
What type of assistance would be useful to you? (by number of acres farmed)

10 acres or less 11-49 acres 50-499 acres 500+ acres

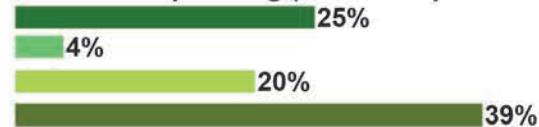
Public education (40% of respondents)



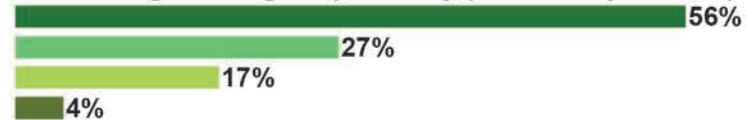
Fertilization and pesticides training (25% of respondents)



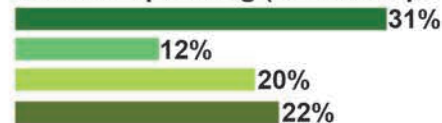
Succession planning (24% of respondents)



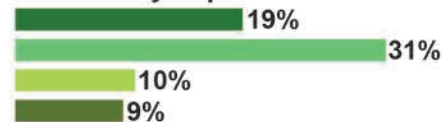
Networking/Working cooperatively (24% of respondents)



Business planning (22% of respondents)



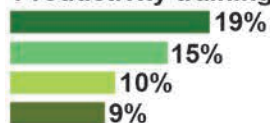
Food safety requirements/Certification training (16% of respondents)



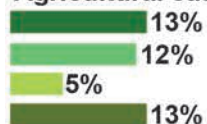
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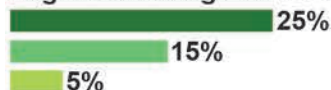
Productivity training (13% of respondents)



Agricultural easements education (13% of respondents)



Organic farming/Certification (11% of respondents)



What are the most critical issues that impact the operation of your farm? (by number of years farmed)

<35 years 35+ years

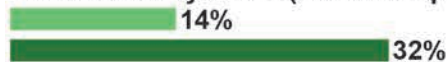
Securing land (40% of respondents)



Regulatory barriers (30% of respondents)



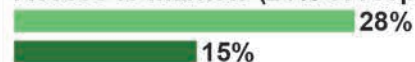
Travel on busy roads (28% of respondents)



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Access to markets (21% of respondents)



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Accessing adequate credit (12% of respondents)



What opportunities do you take advantage of now or foresee in the future? (by number of years farmed)

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Land preservation (46% of respondents)



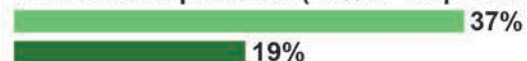
Expansion (38% of respondents)



Changing products (36% of respondents)



Value-added products (26% of respondents)



Dealing with local businesses (25% of respondents)



Organic farming (21% of respondents)



What opportunities do you take advantage of now or foresee in the future? (by number of years farmed)

■ <35 years ■ 35+ years

Agri-tourism of supplemental businesses (18% of respondents)



Cost-sharing (14% of respondents)



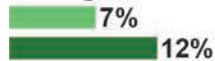
Collective buying power (13% of respondents)



Collective selling power (e.g., food hubs, co-ops) (12% of respondents)



Selling land for development (11% of respondents)



What type of assistance would be useful to you? (by number of years farmed)

■ <35 years ■ 35+ years

Public education (40% of respondents)



Fertilization and pesticides training (25% of respondents)



Succession planning (24% of respondents)



Networking/Working cooperatively (24% of respondents)



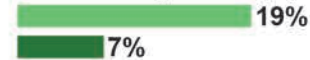
Business planning (22% of respondents)



Food safety requirements/Certification training (16% of respondents)



Productivity training (13% of respondents)



Agricultural easements education (13% of respondents)



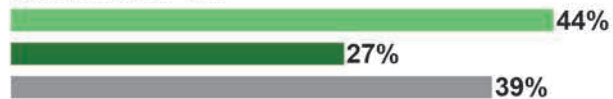
Organic Farming/Certification (11% of respondents)



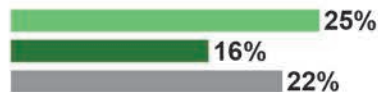
Succession and business plans by long-term profitability prospects

■ Enough land for long-term profitability ■ Not enough land for long-term profitability ■ All respondents

Succession Plan



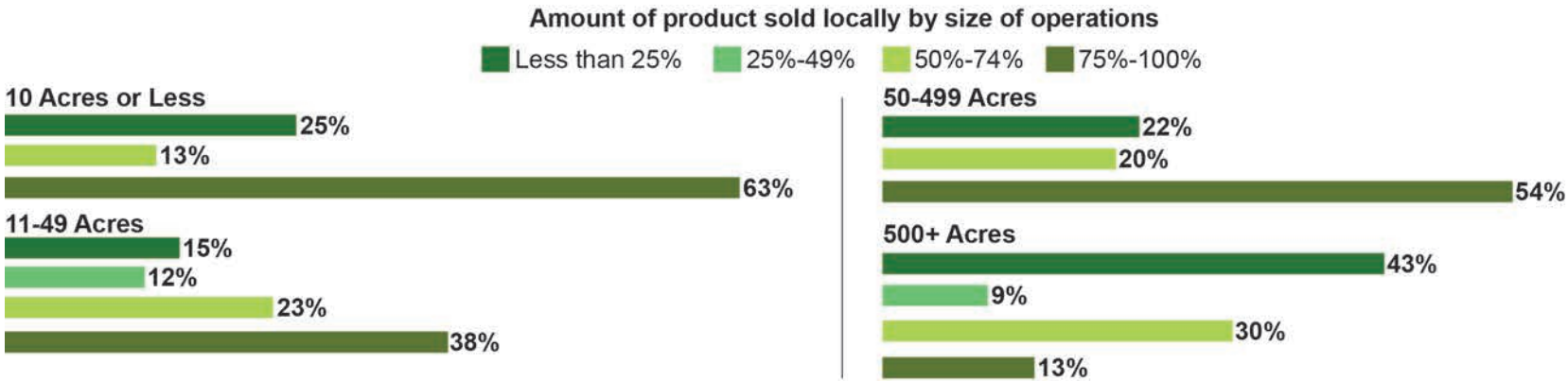
Business Plan







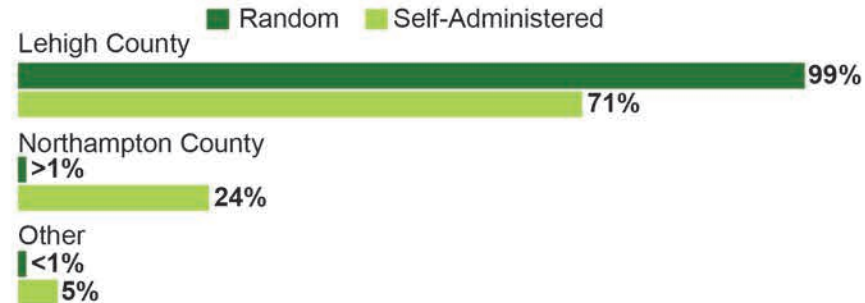
Seed Farm, photo by Becky Bradley, LVPC



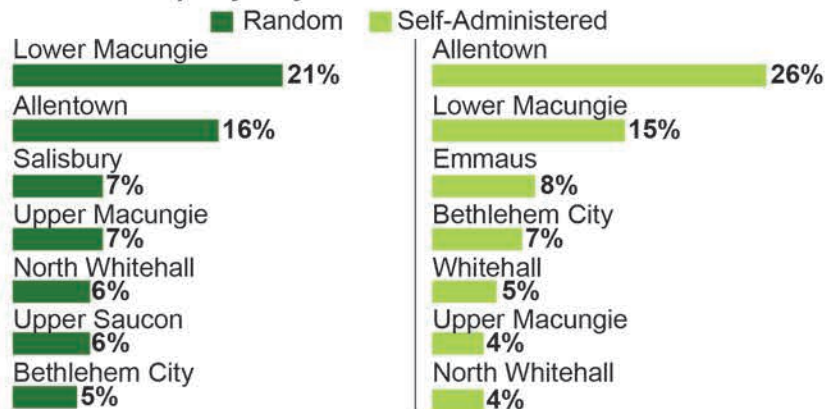


Community Survey

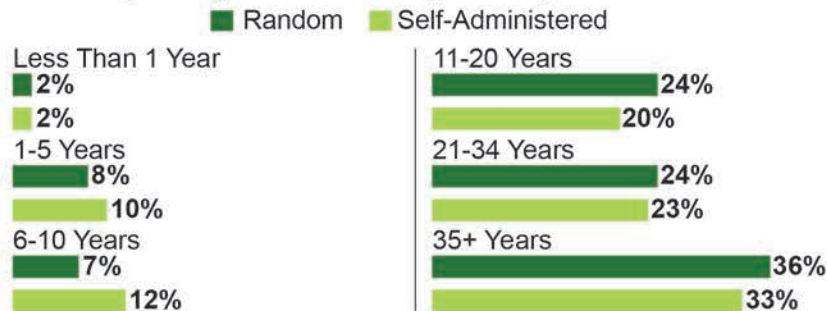
What County do you live in?



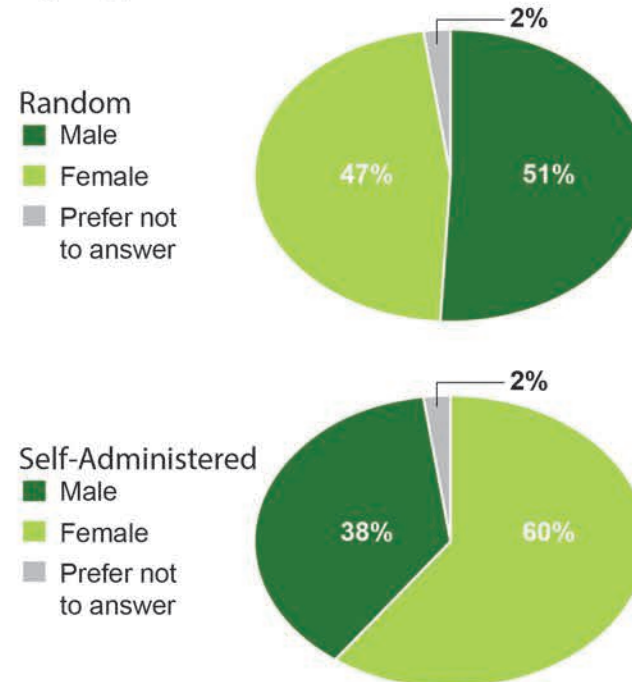
What Municipality do you live in?



How long have you lived in Lehigh County?



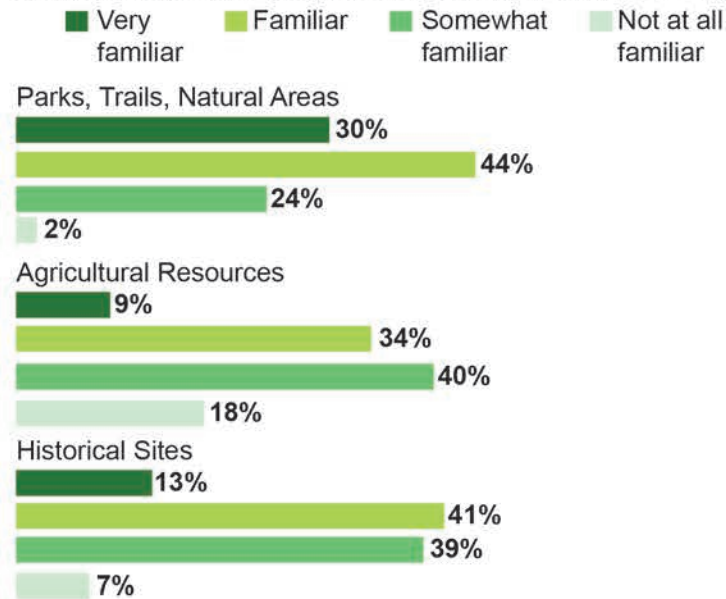
What is your gender?



Number of people by age within respondents' households

| | Random | Self-Admin. | | Random | Self-Admin. |
|-------|--------|-------------|--------------|------------|--------------|
| 0-5 | 34 | 156 | 50-64 | 162 | 398 |
| 6-12 | 44 | 148 | 65-74 | 78 | 238 |
| 13-17 | 53 | 93 | 75-84 | 90 | 23 |
| 18-24 | 47 | 156 | 85+ | 1 | 5 |
| 25-34 | 90 | 220 | TOTAL | 726 | 1,893 |
| 35-49 | 127 | 456 | | | |

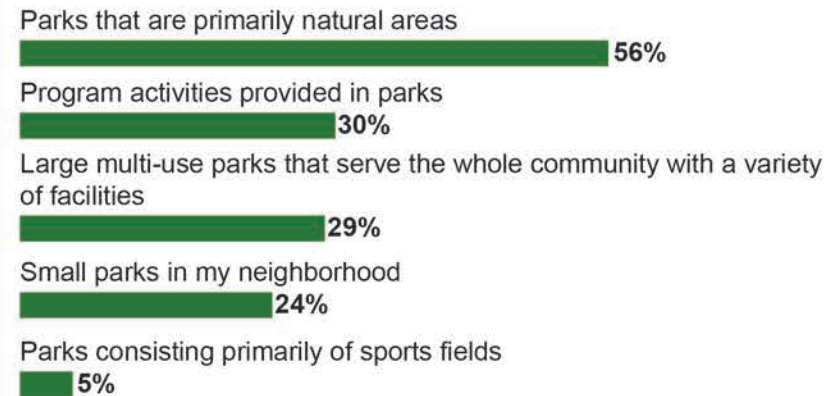
How familiar are you with the following in Lehigh County?



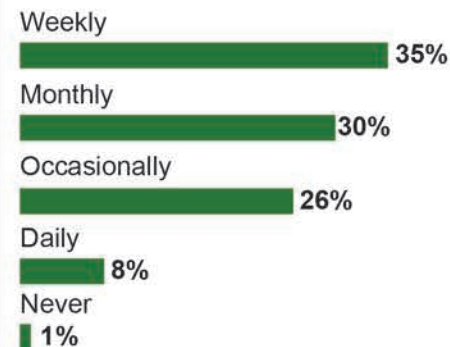
Most frequently ranked statements as highest priority for Lehigh County



Respondents saying there were too few of the following park resources

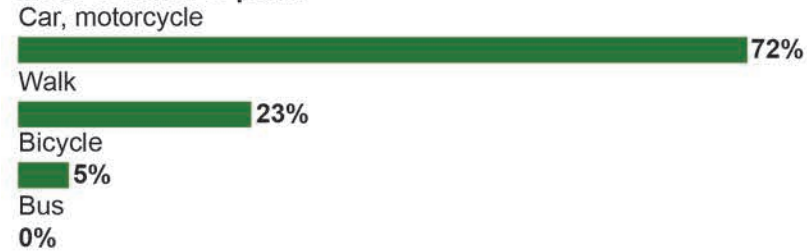


Frequency of visits to parks, trails and natural areas in Lehigh County

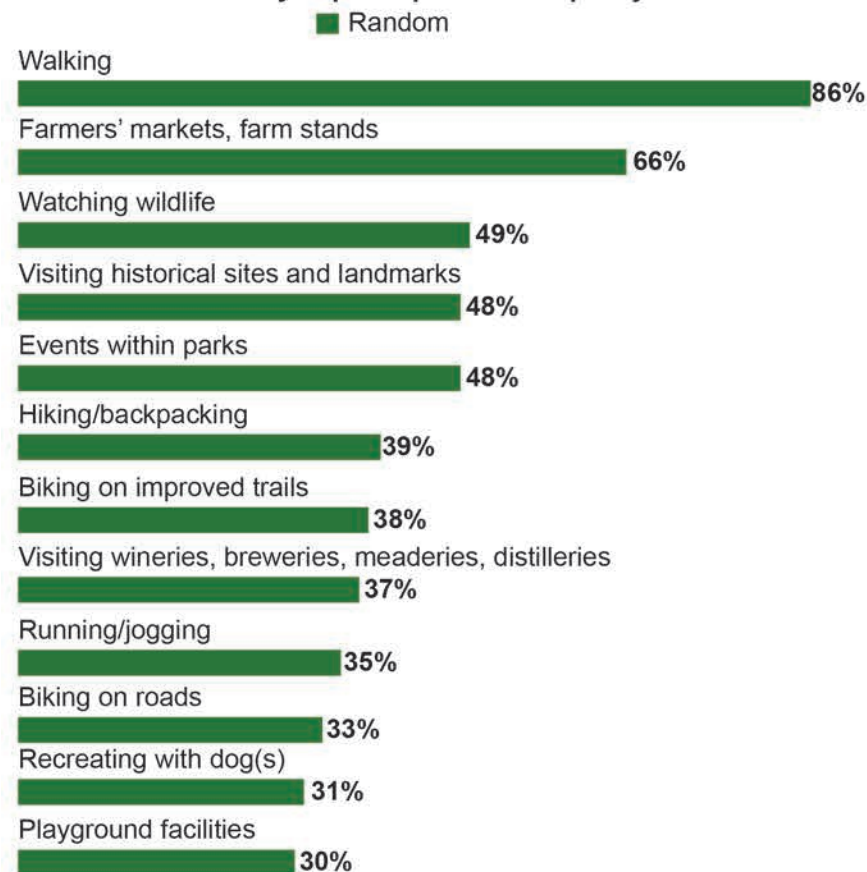


Lehigh County Livable Landscapes

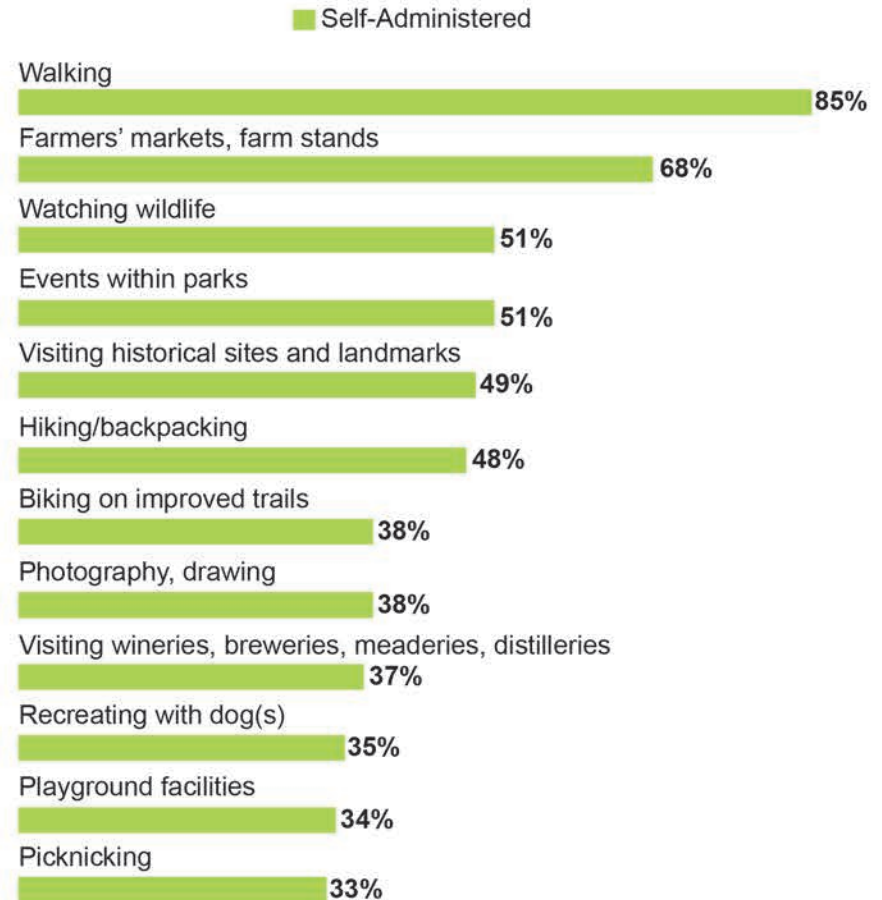
Mode of travel to parks



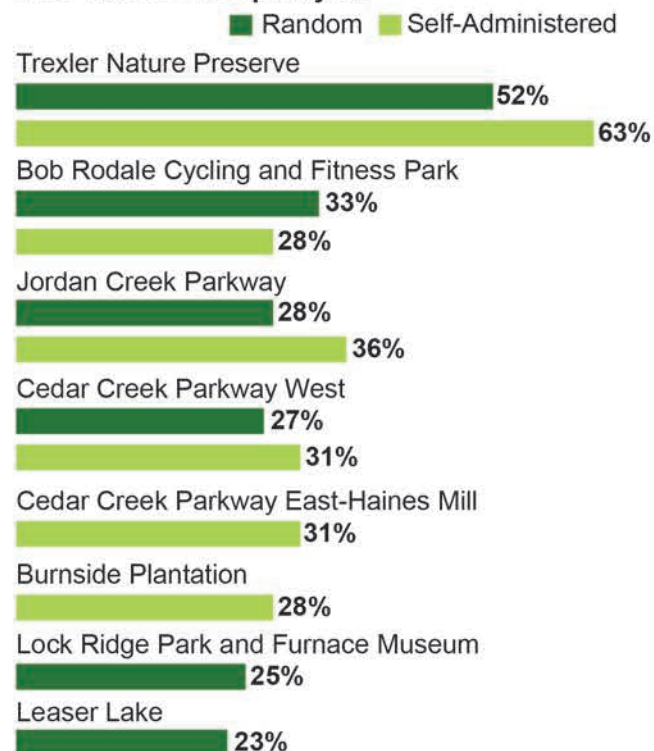
What activities have you participated in the past year?



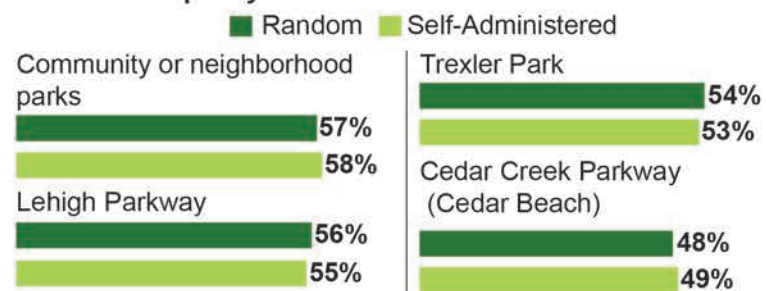
What activities have you participated in the past year?



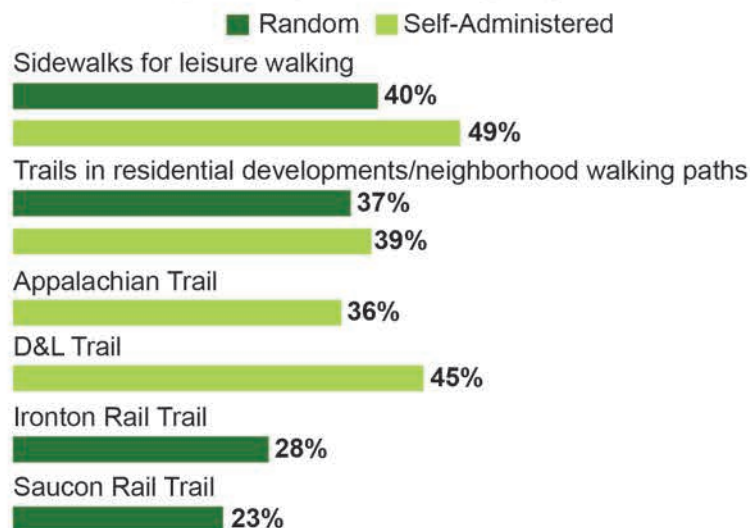
Lehigh County-owned or managed parks, natural areas and historic sites visited in the past year



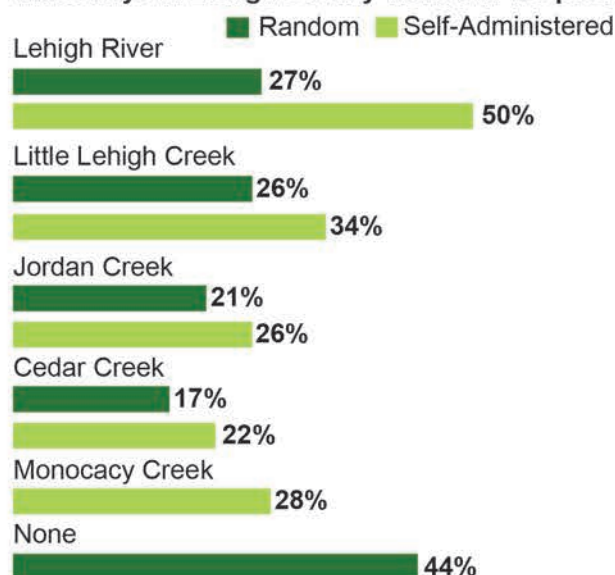
Municipal-, state-, or privately-owned parks and natural areas visited in the past year



Trails in Lehigh County visited in the past year



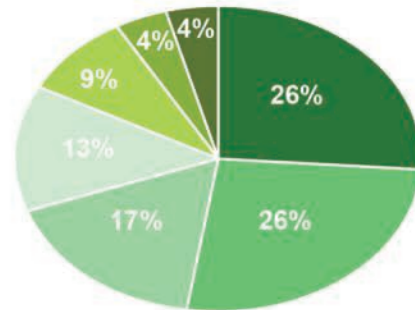
Waterways in Lehigh County visited in the past year



Lehigh County Livable Landscapes

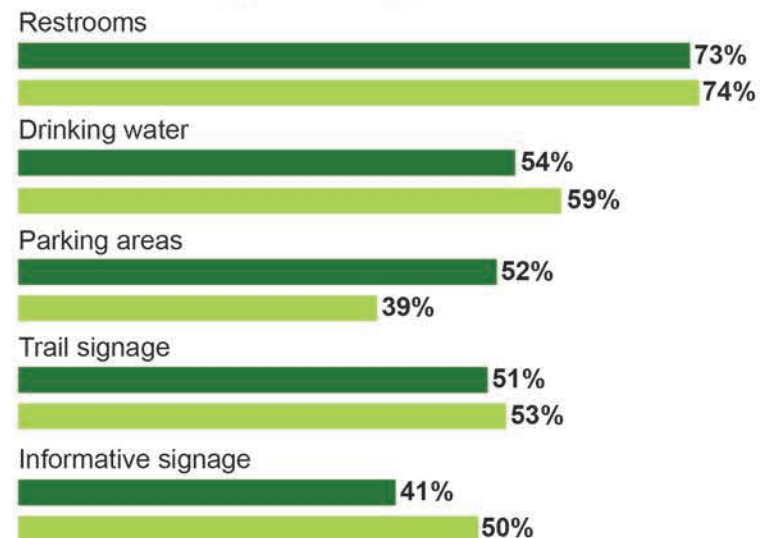
Reasons for not visiting parks, trails or natural areas

- Too far from home
- No time
- Not aware of parks, trails or natural areas
- Do not have the programs or facilities I want
- No interest
- Feels unsafe
- Prefer other parks/locations outside the County



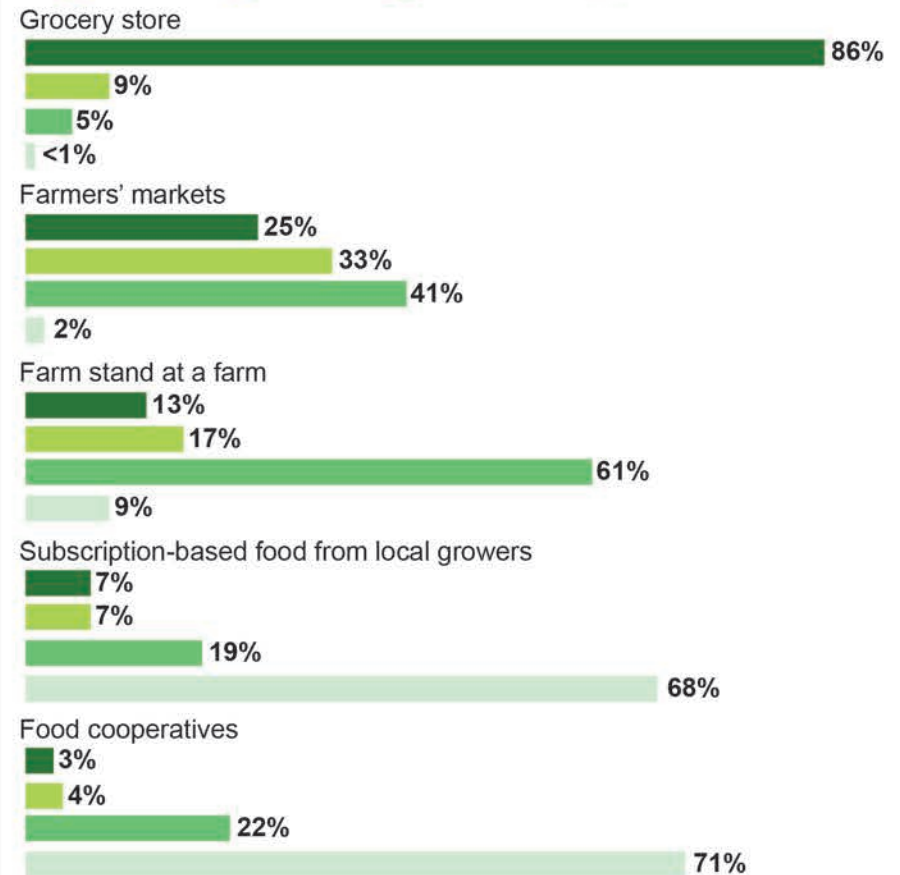
What amenities and facilities are needed at Lehigh County parks and natural areas?

- Random
- Self-Administered

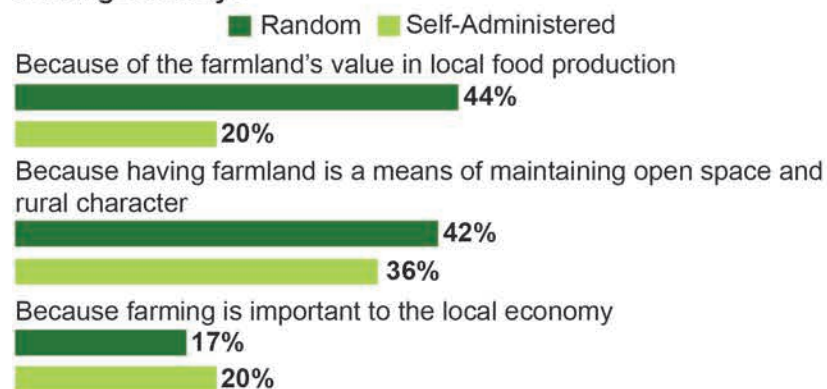


How often do you purchase food from any of the following?

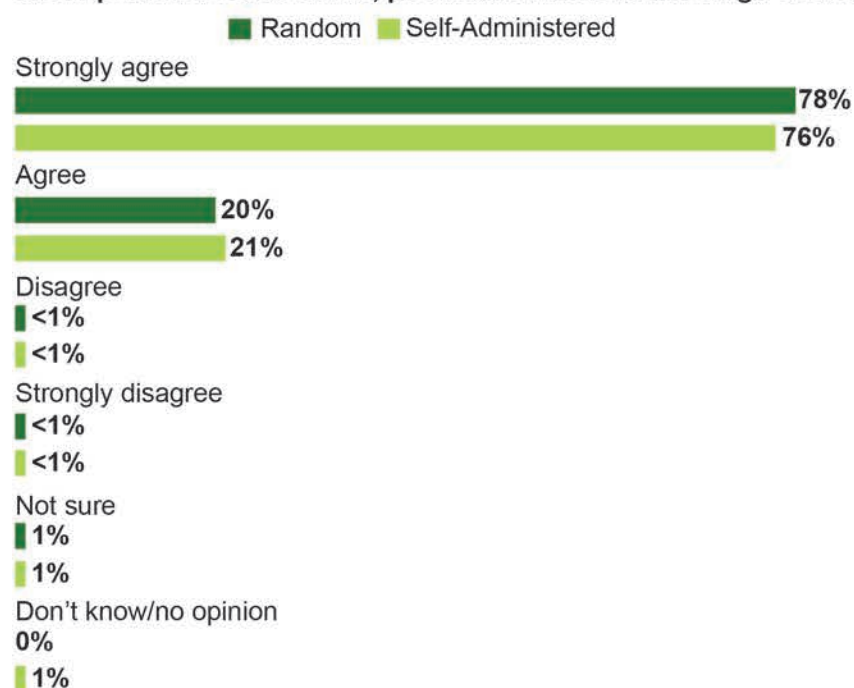
- Weekly
- Monthly
- Occasionally
- Never



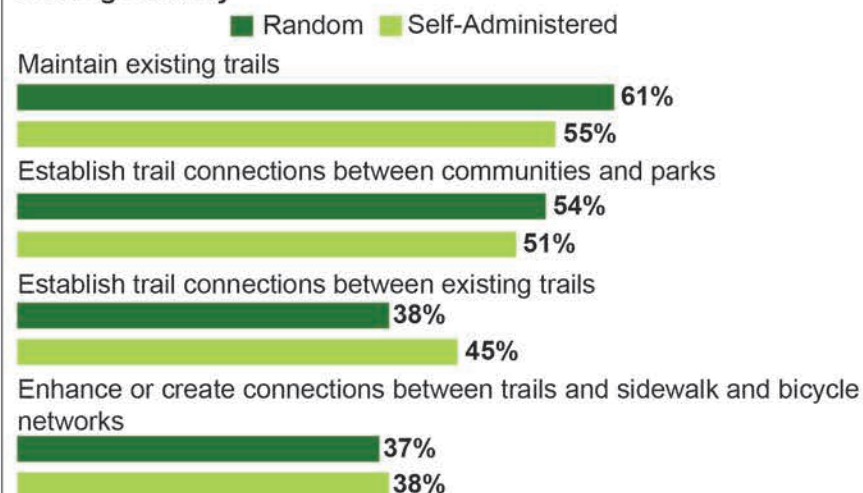
Why is it important to have active, productive farmland in Lehigh County?



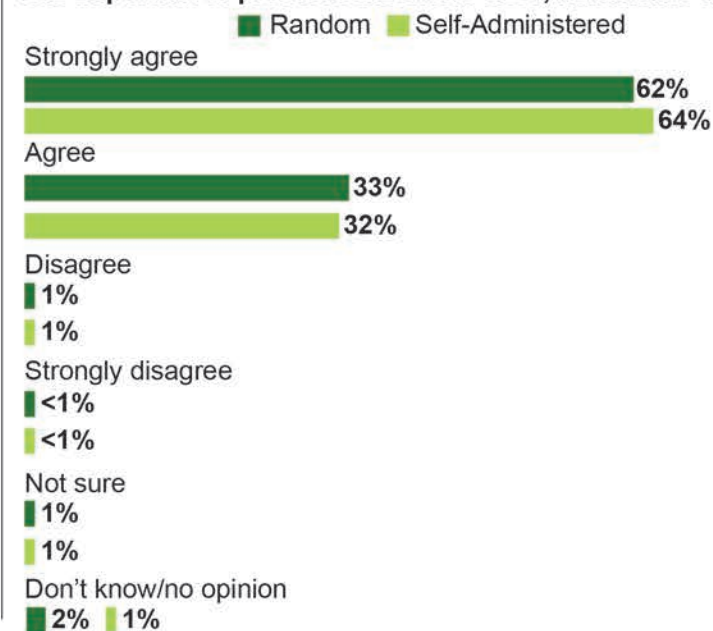
It is important to have active, productive farmland in Lehigh County



Select the three most important trail priorities you would like to see in Lehigh County



It is important to preserve historical sites, landmarks and districts

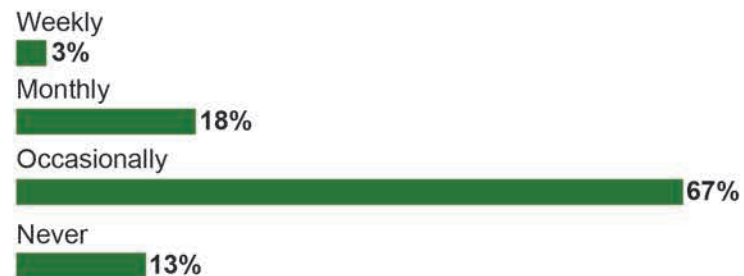


Lehigh County Livable Landscapes

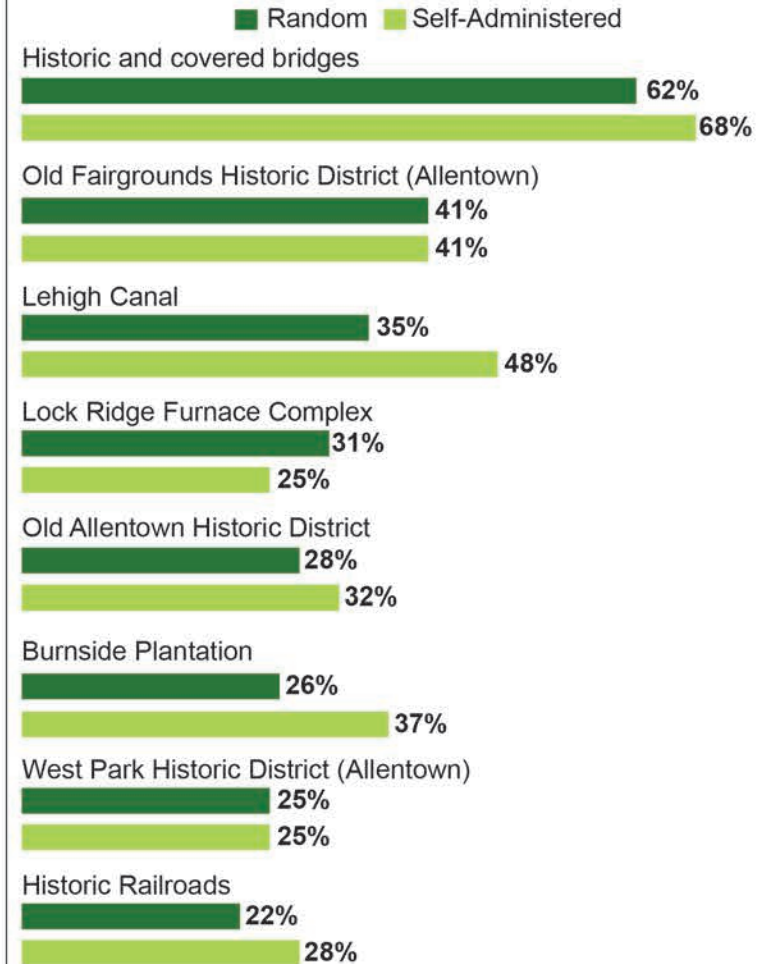


Schlicher Covered Bridge, photo by Craig Kackenmeister, LVPC

Frequency of visits to historical sites, landmarks and districts in Lehigh County



Historic resources in Lehigh County visited in the past year



MUNICIPAL SURVEY

| Municipality | Planning | | | Land Preservation | | | |
|--|--|--------------------------|--------------|------------------------|---------------------|----------------------|--------------------|
| | Park, Recreation and Open Space Plans | | Official Map | Actively Pursuing | Method | Held by/ Owned by | Public Access |
| | Name | Date Adopted | | | | | |
| Alburtis | Not Available | June 1991 | No | Not Available | Not Available | Not Available | Not Available |
| Allentown | 1) Allentown Parks and Recreation Master Plan 2) Connecting our Community (Bicycle and Pedestrian Trail Network Plan) | 2006 2010 | No | Not Available | Not Available | Not Available | Not Available |
| Bethlehem City | Parks and Recreation section within Comprehensive Plan | 2008 | No | No | ---- | ---- | ---- |
| Catasauqua | Recreation, Park, and Open Space Plan | March 2009 | January 2007 | No | ---- | ---- | ---- |
| Coopersburg | Uses municipal comprehensive plan | 2010 | | No | ---- | ---- | ---- |
| Coplay | None | ---- | No | No, none available | ---- | ---- | ---- |
| Emmaus - Survey not returned | Southwestern Lehigh County Area Parks, Recreation, & Open Space Plan | 2008 | No | Not Available | Not Available | Not Available | Not Available |
| Fountain Hill | | April 2007 | No | Yes | Not Available | Municipality | Yes |
| Hanover | Recreational Facilities Plan | August 1991 | No | No | ---- | ---- | ---- |
| Heidelberg | Northern Lehigh County Multi-Municipal Park, Recreation, and Open Space Plan | February 2009 | No | No | ---- | ---- | ---- |
| Lower Macungie | 1) Greenway Plan 2) Comprehensive Recreation, Parks and Open Space Plan | August 2012 June 2014 | June 2016 | Yes | Varies by property | Varies by property | Varies by property |
| Lower Milford | 1) Southwestern Lehigh County Area Parks, Recreation, & Open Space Plan 2) Park, Recreation and Open Space Plan | 2008 April 2009 | No | Yes | Through zoning only | Private ownership | No |
| Lowhill | Northern Lehigh County Multi-Municipal Park, Recreation, and Open Space Plan | February 2009 | No | No | ---- | ---- | ---- |
| Lynn | Northern Lehigh County Multi-Municipal Park, Recreation, and Open Space Plan | February 2009 | No | No, done through SALDO | ---- | ---- | ---- |
| Macungie | 1) Southwestern Lehigh County Area Parks, Recreation, & Open Space Plan 2) Trail Master Plan Macungie Area Regional Trail Network | 2008 July 2004 | No | No | ---- | ---- | ---- |

Lehigh County Livable Landscapes

| Municipality | Planning | | | Land Preservation | | | |
|---|---|-------------------------------------|----------------|-------------------|----------------------|---------------------------|-----------------------------------|
| | Park, Recreation and Open Space Plans | | Official Map | Actively Pursuing | Method | Held by/ Owned by | Public Access |
| | Name | Date Adopted | | | | | |
| North Whitehall - Survey not returned | Joint Comprehensive Parks, Recreation and Open Space Plan (with South Whitehall) | October 2009 | No | Not Available | Not Available | Not Available | Not Available |
| Salisbury | Park, Recreation, and Open Space Plan | December 2005 | No | No | ---- | ---- | ---- |
| Slatington | Northern Lehigh County Multi-Municipal Park, Recreation, and Open Space Plan | February 2009 | December 2009 | No | ---- | ---- | ---- |
| South Whitehall | Joint Comprehensive Parks, Recreation and Open Space Plan (with North Whitehall) | October 2009 | October 2010 | No | ---- | ---- | ---- |
| Upper Macungie | Park and Recreation Plan | April 2011 | No | Yes | Easements, ownership | Municipality | Yes |
| Upper Milford | 1) Southwestern Lehigh County Area Parks, Recreation, & Open Space Plan 2) Open Space Plan "Natural Areas and Working Farms Action Plan" 3) Upper Milford Park, Recreation, Open Space and Environmental Plan | 2008 March 2009 February 2004 | March 2010 | Yes | Easements, ownership | Municipality, conservancy | Limited - Depends on the property |
| Upper Saucon | Saucon Region Official Comprehensive Recreation & Open Space Plan | October 2006 | January 2010 | Yes | Easements, ownership | Municipality, conservancy | No |
| Washington (LC) | Northern Lehigh County Multi-Municipal Park, Recreation, and Open Space Plan | February 2009 | No | No | ---- | ---- | ---- |
| Weisenberg | Northern Lehigh County Multi-Municipal Park, Recreation, and Open Space Plan | February 2009 | Not Available | Yes | Easements, ownership | Municipality | Depends |
| Whitehall | 1) Park, Open Space and Recreation Plan 2) Northern Tier Open Space Strategy 3) Whitehall Parkway Plan 4) Ironton Rail Trail Plan | November 2004 June 2011 | September 2006 | Sporadic | Ownership | Municipality | Yes and Limited |

| Municipality | Staff / Boards / Councils | | | | Funding | | | | |
|------------------------------|---------------------------|--|------------------------------|-------------------------|--|---------|--|---|--|
| | Staff | Recreation Board | OS / Land Preservation Board | EAC | % of Annual Budget | EIT (%) | Public Dedication | | Other |
| | | | | | | | Amount of Land/Dwelling Unit (DU) | Fee-in-Lieu | |
| Alburtis | Not Available | Yes | No | Yes | Not Available | No | Yes (amount not provided) | Not Available | Recreation account with Pennsylvania Local Government Investment Trust |
| Allentown | Yes | Yes | Yes | Yes | Not Available | No | No | No | City tax, Trexler Trust, & Allentown Municipal Golf Course |
| Bethlehem City | Yes (website - 3) | Yes | No | Yes | Not Available | No | No | \$1,200 | Bond |
| Catasauqua | Yes | Yes | No | No | 8.00 | No | Yes (amount not provided) | Not Available | None |
| Coopersburg | No, use Public Works | No | No | No | <1.00 or as needed | No | Not Available | \$500 | None |
| Coplay | No | Yes | No | No | 4.20 | No | Not Available | \$2,000 | General Funds |
| Emmaus - Survey not returned | Not Available | Yes | No | Yes, with Upper Milford | Not Available | No | Not Available | Not Available | Not Available |
| Fountain Hill | Not Available | Yes | No | No | 0.74 | No | No | No | None |
| Hanover | No | Yes | No | No | 0.04 | No | 1,000 square feet | \$1,200 | None |
| Heidelberg | Not Available | Yes | No | Yes | 0.75 open space preservation; 0.42 recreation | No | 3 acres/DU (26 to 50 DUs); 6 acres/DU (51-100 DUs); 9 acres/DU (101-150 DUs); 2 acres/DU (for each additional 50 DUs) | \$2,434 required for subdivisions <25 DUs | None |
| Lower Macungie | No | Yes | Yes | Yes | 30%, including the recreation center | No | 3,400 square feet | \$3,800 | None |
| Lower Milford | No | Combined Recreation and Open Space Board | | No | % not reported; \$20,000 - Coopersburg Community Park; \$5,000 - Limeport Stadium; \$3,000 - Lower Milford Park maintenance | No | No | No | None |
| Lowhill | | Yes | No | No | Not Available | No | Not Available | \$2,500 | General Funds |
| Lynn | Part-time maintenance | Yes | No | Currently no members | 0 | No | Not Available | \$3,000 | None |

Lehigh County Livable Landscapes

| Municipality | Staff / Boards / Councils | | | | Funding | | | | |
|---------------------------------------|--------------------------------------|---|------------------------------|------------|--------------------|---------|---|--|--|
| | Staff | Recreation Board | OS / Land Preservation Board | EAC | % of Annual Budget | EIT (%) | Public Dedication | | Other |
| | | | | | | | Amount of Land/Dwelling Unit (DU) | Fee-in-Lieu | |
| Macungie | No | No | No | No | 0 | No | 2,000 square feet | \$2,000 | None |
| North Whitehall - Survey not returned | Not Available | Yes | Yes | No | | No | Yes | | General Funds |
| Salisbury | Recreation Director (website) | Adv. Comm. | No | Yes | Not Available | No | 1,200 to 2,000 square feet (depending on % of prime land) | \$1,500 | None |
| Slatington | No | Yes | No | No | 1.80 | No | No | No | None |
| South Whitehall | Yes | Yes | No | Not active | 1.50 | No | Residential: 1,200 to 2,000 square foot/DU; Non-residential: 1,600 to 2,400 square foot/acre | \$2,500 | None |
| Upper Macungie | Yes, Recreation & Events Coordinator | Yes | No | No | Undecided | No | 7,800 square foot | \$3,500 | General Funds |
| Upper Milford | No | Yes | Yes | Yes | 3.45 | 0.139 | 1,250 to 5,000 square foot | \$3,150 | None |
| Upper Saucon | No | Yes | No | Yes | 5.00 | No | 3,000 square foot | \$5,000 | General fund transfers and interest earnings |
| Washington (LC) | No | No | No | No | 0.40 | No | 1,500 square foot | Not Available | None |
| Weisenberg | Not Available | Part of Northwestern Lehigh Recreation Commission | Yes, with EAC | Yes | Not Available | No | Not Available | \$2,500/DU (residential) or fee per square foot of building (commercial) | General fund |
| Whitehall | 7 FT, several PT | Board and Commission | No | Yes | 4.30 | No | 1,107 square feet | \$2,000 | Recreation Escrow Fund |

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