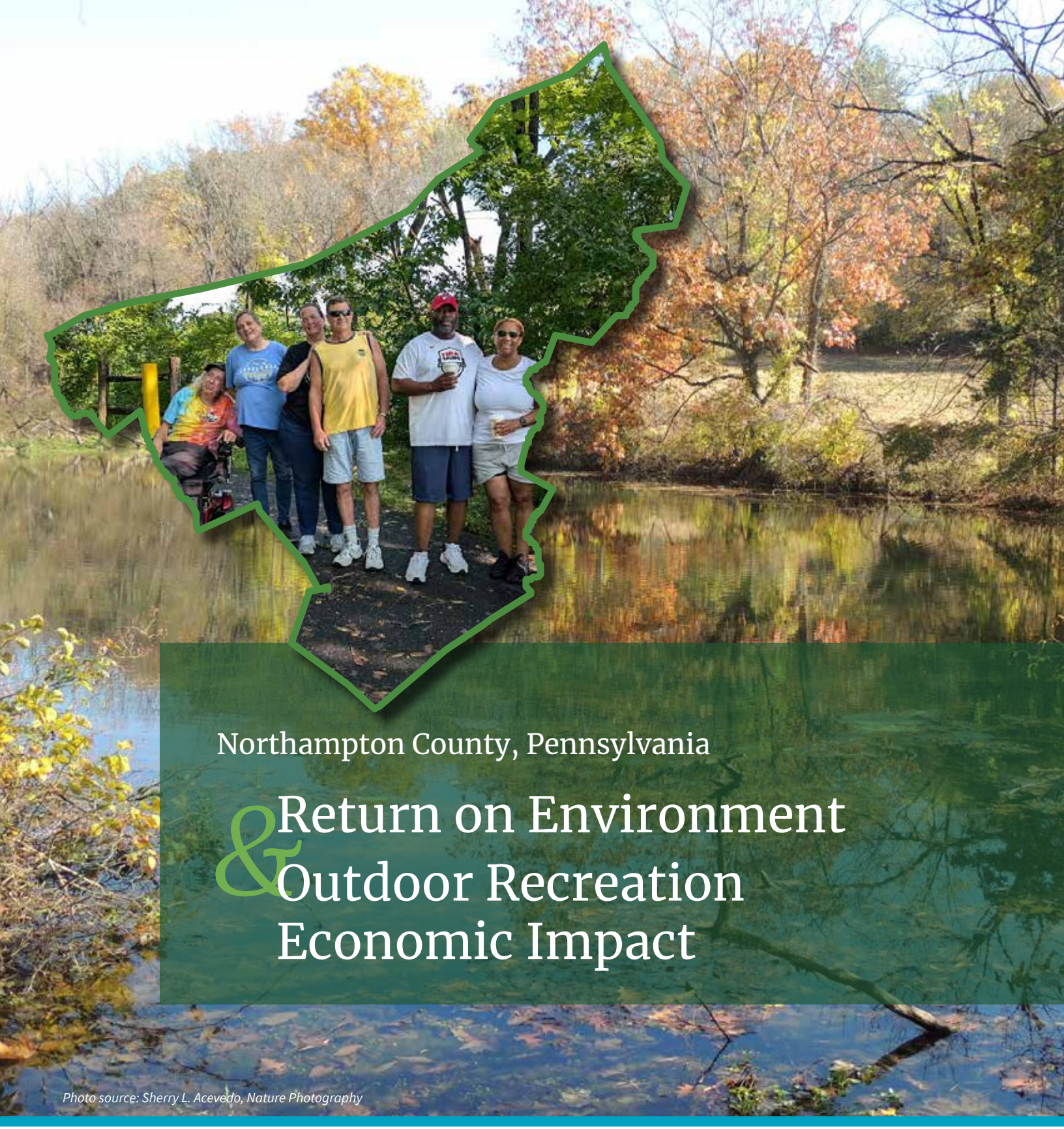


Northampton County, Pennsylvania

Return on Environment & Outdoor Recreation Economic Impact

Photo source: Sherry L. Acevedo, Nature Photography

NORTHAMPTON COUNTY
PARKS AND RECREATION

Northampton County
Parks and Recreation
669 Washington Street
Easton, PA 18042
www.norcopa.gov/parks-and-recreation

About the Report

The Northampton County Return on Environment (ROE) study presents an evaluation of the broad and measurable benefits that the County's investments in open space, parks, greenways, and conservation areas deliver to residents, businesses, and ecosystems. Building on two decades of planning and investment under the Livable Landscapes initiative, this report demonstrates how open space functions as essential infrastructure—supporting clean air and water, biodiversity, climate resilience, and recreational opportunities—while strengthening the County's competitiveness as a desirable place to live, work, and visit.



Acknowledgements

Study Committee

Thank you to our Study Committee members who committed their time, ideas, and feedback throughout the planning process.

Alex Michaels, Discover Lehigh Valley
Andrew Elliott, Northampton County
Bree Nidds, Discover Lehigh Valley
Brian Welsko, Northampton Borough
Brit Kondravy, D&L National Heritage Corridor and Lehigh Valley Greenways
Bryan Cope, Northampton County
Chris Kocher, Wildlands Conservancy
Claire Sadler, Northampton County Resident
Connor Moriarty, Reset Outdoors
Corey Gray, City of Bethlehem
Geoffrey Reese, Lehigh Valley Planning Commission
Jared Mast, Greater Easton Development Partnership
Kent Baird, Palmer Township
Lamont McClure, Northampton County Executive
Lorne Possinger, PA Department of Conservation and Natural Resources
Megan McBride, Nature Nurture Center
Michael Emili, Northampton County
Nate Pritchard, Lehigh Valley Conservation District
Paige Stefanelli, Plainfield Township
Robert Neitz, Jacobsburg Environmental Education Center
Susan Meyrov, Lehigh Valley Planning Commission
Tina Smith, Northampton County
Trevor Pinho, City of Easton

Stakeholders

Thank you to the stakeholders who shared their experiences and ideas through an interview or questionnaire.

AARP Lehigh Valley
Jacobsburg Environmental Education Center
Lehigh Gap Nature Center
Lehigh Valley Greenways
Northampton County Farmland Preservation
PA Game Commission
Watershed Coalition
Thank you to the organizations who allowed the consultant team to have a pop-up table at their event to get community feedback: Easton Farmers Market and Lehigh Valley Greenways (Greenways Jamboree).

Community Members

We appreciate every single community member who responded to the survey and stopped by one of the pop-up tables! Your lived experiences helped to inform and ground the study. We are also grateful for all the organizations and individuals who spread information about the survey to their networks and on their platforms throughout the planning process.

Project Consultants

Econsult Solutions, Inc.

Econsult Solutions, Inc. (ESI) provides non-profit organizations, businesses, and public policy makers with consulting and thought leadership services in urban economics, real estate, transportation, public infrastructure, economic development, public policy and finance, strategic planning, as well as expert witness services for litigation support.

ESI combines robust quantitative analysis with trusted expert insights to create sustainable solutions. The firm works collaboratively with its clients, and draws in expertise, when necessary, from its network of experts and partners across industries, regions, and management practices. Based in Philadelphia, the firm supports clients nationwide.

ESI ECONSULT SOLUTIONS INC.
economics | strategy | insight

Econsult Solutions, Inc.
1435 Walnut Street, 4th Floor
Philadelphia, PA 19020

Michael Baker International, Inc.

Michael Baker is a Pennsylvania-based corporation, founded in 1940, with its headquarters located in Pittsburgh, Pennsylvania and a local office in Allentown. Michael Baker is authorized to perform professional planning and engineering services in the Commonwealth of Pennsylvania and is incorporated under the laws of the Commonwealth. Michael Baker has nearly 4,000 employees in close to 100 offices located across the U.S.

The tagline “We Make A Difference” refers to the positive impact our projects have on the communities in which we service. From the beginning, Michael Baker, Jr., wove this culture into the fabric of his namesake firm and this spirit manifests itself here in numerous ways. The Allentown office staff is immersed in the Lehigh Valley, through professional and volunteer work, and strives to elevate the significance of the region’s issues, challenges, strengths, and assets.

Michael Baker
INTERNATIONAL

Michael Baker International, Inc.
645 Hamilton Street, Suite 206
Allentown, PA 18101

All images included in this report were provided by Northampton County Parks and Recreation; sources noted where provided.

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Executive Summary

Northampton County's network of parks, preserved lands, waterways, and agricultural landscapes delivers substantial value to residents, businesses, and the regional economy.

Beyond their quality-of-life benefits, these natural assets generate hundreds of millions of dollars in annual ecosystem services, strengthen property values, support local industries such as agriculture and outdoor recreation, and provide broad, equitable access to nature. Together, these impacts highlight the county's open space system as a critical economic, environmental, and public-health resource.

Summary of Analysis

Environmental Benefits

$434.6 M
Annual Ecosystem Benefits

$2.5 B
Lifetime Carbon Storage

Residential Property Value

$776.0 M
Total County Value

$12,852
Value Added per House within 1/4 mile of open space

Economic Impact of Agriculture

$43.2 M
Total Economic Impact

$38.3 M
Direct Output

~700 Jobs
Supported

Public Health

$14.4 M
Annual Healthcare Cost Savings due to Residents' Increased Physical Activity Usage of Northampton County Open Space

$1.6 M
Annual Mental Healthcare Cost Savings due to Residents' Usage of Northampton County Open Space

Outdoor Recreation Economy

$189.6 M
Estimate of Annual Expenditure on Soft & Hard Goods for Open Space Usage

$73.8 M
Additional Economic Activity Generated by Soft & Hard Goods Expenditures

$236.4 M
Total Output

1,980 Jobs
Supported Annually

Access to Open Space

Compared to statewide averages, Northampton water recreation, trailheads, parks, and open space are more assessable for both the total population and for low-income residents.

10-Minute Drive — Water Recreation

Northampton County	Pennsylvania
83% All Residents	61% All Residents
85% Low Income Residents	64% Low Income Residents

10-Minute Drive — Trailheads

Northampton County	Pennsylvania
99% All Residents	82% All Residents
99% Low Income Residents	83% Low Income Residents

10-Minute Walk — Walkable Parks / Open Space

Northampton County	Pennsylvania
64% All Residents	53% All Residents
72% Low Income Residents	60% Low Income Residents



Introduction

The Livable Landscapes Program in Northampton County

A History of Preservation and Progress

Northampton County has long recognized the value of its natural, recreational, and scenic assets. Through the Livable Landscapes program, the County has developed a forward-thinking strategy to preserve open space, enhance parks, expand trails, and improve ecological health. This initiative is rooted in decades of public planning, community engagement, and significant public investment.

Origins and Planning Framework

The foundation for Livable Landscapes was laid in 2004, when the Northampton County Council passed Ordinance #423-2004, launching a comprehensive Open Space Initiative[1] This ordinance marked the County's formal commitment to conserving farmland, protecting environmentally sensitive areas, and supporting local parks and greenways.

Over time, the County built upon this foundation. In 2019, the program was formalized under Ordinance #673-2019, creating the Livable Landscapes Grant Program.[2] This program provides financial support to municipalities and nonprofit organizations for projects related to land conservation, trail expansion, ecological restoration, and park development.

The strategic direction for Livable Landscapes is guided by the report Living Landscapes: An Open Space Plan for Northampton County, completed in January 2018 in partnership with the Lehigh Valley Planning Commission.[3] This plan outlines the County's conservation goals and was informed by stakeholder interviews, municipal input, and public workshops.

Funding and Implementation

Since 2006 through June 2025, Northampton County invested $23.39 million in 196 Livable Landscapes grant awards cumulatively in open space land conservation, ecological restoration, streambank stabilization, regional trails, parks, recreation, open space plans, and municipal park development and rehabilitation. This accomplishment reflects a long-standing commitment to preserving and enhancing the County's natural, open space, and recreational resources.

Open Space Conservation

Open space conservation includes fee simple acquisitions, conservation easements, regional trail and trailhead acquisitions and easements. The program has provided County Grant Awards of $10.21 million with $13.45 million Local Matches for 45 Grant Projects resulting in conservation of 3,511 acres.

Livable Landscapes and Municipal Parks

Development and rehabilitation, ecological restoration, regional trails and greenways, and open space planning are essential to the sustainability of the natural environment. The program has provided County Grant Awards of $13.18 million and Local Matches of $31.77 million resulting in 151 Grant Projects.

1 https://web.northamptoncounty.org/PublicDocs/MeetingPDFs/116/k.%20New%20Business%207e%20-%20Consideration%20of%20an%20Open%20Space%20Project%20-%20Pocket%20Parks%20in%20Easton.pdf

2 https://cms2.revize.com/revize/uppernazarethtwppa/Forms/Livable%20Landscapes%20Open%20Space%20Program%202019.pdf

3 Lehigh Valley Planning Commission. (2018). Livable Landscapes: An Open Space Plan for Northampton County. Retrieved from WeConservePA (Library Item #1751).; https://www.norcopa.gov/index.php?prrid=38&section=press-releases

Introduction



Strategic financial assistance is awarded to eligible grantees such as Northampton County municipalities and nonprofit organizations working together to implement local, regional, and state plans. Grantees demonstrate success in implementing not only their own municipal or regional plan, but also Northampton County's Livable Landscapes Plan. The County's Livable Landscapes Grant Guidelines provide consistency and strategic alignment of goals and priorities to partner's project intent and guides County department workplans as well.

Since 2019, Northampton County has expanded its system of parks, trails, and conservation areas by permanently protecting 382 acres through a $5.1 million County investment and a $730,000 Highlands Conservation Act grant award. The Highlands Conservation Act funding is provided by US Fish and Wildlife Service and locally administered through the PA Department of Conservation and Natural Resources to preserve land of high conservation value fulfilling the act's conservation objectives of clean water, healthy forests, thriving wildlife populations, agriculture, and recreation opportunities.

In June 2025, Northampton County Council voted unanimously to approve the 2025 Livable Landscapes Grant Award recommendations presented for a total grant award of $600,000. Five grant projects were awarded funding as they were consistent with the goals and recommendations of Livable Landscapes – An Open Space Plan for Northampton County and other local, regional, and statewide plans. Projects included municipal park rehabilitation in the Borough of Hellertown and Northampton, Stream Restoration project in Palmer Township, Phase I preserve development in Upper Mount Bethel Township, and the City of Bethlehem's Greenway Trail Gap Construction. The City of Bethlehem's Greenway Trail Gap Construction closes a Top 10 State Trail Gap recognized by the PA Department of Conservation and Natural Resources. The County's investment of $600,000 leveraged $3.97 million in local match from multiple sources. In 2024, a Livable Landscapes grant award supplemented the 0.9-mile trail gap acquisition to connect the South Bethlehem Greenway to the Saucon Rail Trail.

Livable Landscapes grants have helped Northampton County municipalities fulfill their phased implementation recommendations listed in adopted plans that align with strategic funding opportunities, goals, and priorities. In the history of the Livable Landscapes Grant Program, successfully completed projects include multiple phases throughout the process of acquisition, planning, and implementation in municipal parks, open space preserves, greenways, trails, streams, and watersheds. Strategic acquisition and conservation easements clustered in the region enable contiguous landscape scale conservation of natural areas to preserve habitat and provide contiguous corridors of open space, while providing connectivity and public access for passive recreation. Notable greenways include the Kittatinny Ridge, Delaware River, Lehigh River, Bushkill Creek Watershed (Two Rivers Area), Minsi Lake Greenway Corridor, Monocacy Creek Corridor, Martins Jacoby Watershed, Aquashicola Creek Watershed, Bertsch Hokendauqua, Catasauqua Watershed, and Schoeneck Creek Watershed.

Vision, Goals, and Outcomes

Over the past two decades, Northampton County has made substantial and sustained investments in preserving its natural and recreational assets. These investments have supported a broad array of projects across the county, from protecting farmland and wildlife habitats to upgrading local parks and expanding greenway systems.

The Livable Landscapes program mission is multifaceted: to preserve environmentally sensitive lands and agricultural heritage, enhance quality of life through recreational infrastructure, promote stormwater and water quality improvements, support community connectivity through trails, and increase climate resilience by protecting natural habitats. The program also plays a critical role in municipal planning and public engagement, ensuring that investments align with both long-term sustainability goals and immediate community needs.

Given this deep track record of investment and planning, now is a crucial moment to examine the return on these investments in open space and environmental preservation. The benefits of these initiatives go far beyond the boundaries of individual parks or trail systems. They contribute to cleaner air and water, mitigate flooding, support biodiversity, and absorb carbon—all essential services in the face of increasing environmental stress.

At the same time, these assets fuel economic activity by attracting visitors and residents, raise surrounding property values, and contribute to better mental and physical health outcomes by increasing access to nature and recreation.

Annual program priorities are consistent with the goals of the Livable Landscapes–An Open Space Plan for Northampton County. The grant program continues to provide grant funding opportunities to eligible applicants to support municipal parks, land preservation, and environmental services. Conducting a Return on Environment (ROE) study now allows the County to quantify and communicate the full range of benefits these investments deliver—environmental, economic, and social. It provides decision-makers, residents, and municipal partners with data-driven insights that can inform future land use planning, support funding strategies, and reinforce the value of open space as a core part of Northampton County's infrastructure and identity.

This study is not just a retrospective look at what has been achieved but can be used as a tool to ensure that the County's livable landscapes continue to grow in value, impact, and relevance for generations to come.

Organization of this Report

Section 2: Open Space Consumers profiles Northampton County's population, demographics, and market segments to understand who uses open space, how recreation preferences are changing, and what that means for inclusive planning.

Section 3: State of the Environment assesses the County's air and water quality, habitat health, land cover, and biodiversity, identifying environmental assets, threats, and restoration priorities.

Section 4: Open Space Trends highlights major trends, takeaways, and policy frameworks shaping local and regional open space conservation and recreation planning.

Section 5: Environmental Services quantifies the economic value of ecosystem services—such as air purification, water filtration, flood control, and carbon storage—provided by the County's natural lands.

Section 6: Residential Property Value estimates how proximity to open space enhances residential property values and local tax bases.

Section 7: Agricultural Impact evaluates agriculture's direct and indirect economic contributions and its interdependence with land conservation in Northampton County.

Section 8: Public Health measures the physical and mental health benefits associated with access to open space, including reduced health costs and improved well-being.

Section 9: Outdoor Recreation Economy calculates the economic output, employment, and spending generated by outdoor recreation using both production- and consumption-based approaches.

Open Space Consumers

Northampton County has both rich agricultural heritage and deep industrial roots, both are reflected in the open space opportunities available for residents and visitors to the county.

Overview

When it was founded in 1752, Northampton County was primarily farmland. The county industrialized in the mid-19th Century and came to be known for steel and cement manufacturing. Industrial growth resulted in rapid population increases. In the 21st century, the county has shifted its economic development strategies towards marketing its heritage, educational institutions, and arts and culture offerings. It is known for offering a high quality of life, with urban amenities nestled among scenic, rural landscapes.

The county offers a diverse natural and historical landscape with deep roots to the nation's industrial history. The natural landscape is characterized by winding streams, rolling farmlands, and wooded hills, and is complemented by historic attractions. This offers visitors and residents a unique mix of heritage sites and recreational amenities. Northampton County's proximity to major economic hubs in the Lehigh Valley and swaths of scenic open space position it as a key regional asset.

This chapter offers an overview of Northampton County's population and consumer landscape by addressing key questions related to demographic shifts, lifestyle patterns, and recreational preferences. It examines population growth, age distribution, and household composition, alongside dominant market segments and consumer behaviors. The chapter also explores how various demographic groups engage with parks and recreational amenities, highlighting trends across age, income, and cultural backgrounds. These insights inform open space planning by emphasizing the importance of accessible, passive recreation and culturally inclusive design, while also providing essential context for the accompanying economic value analysis.

This chapter provides a snapshot of the Northampton County population and consumer landscape by answering the following:

Who lives in Northampton County and how is the population changing? The demographic trends, including population growth, age distribution, and household composition are explored.

What are the dominant lifestyle and consumer behavior patterns in the county? Key market segments within the county are explained.

How do different demographics use and value parks and recreational amenities? The recreational preferences and participation trends across age groups, income levels, and cultural backgrounds are examined.

What are the implications of demographic changes for open space planning? The analysis of how these questions are answered highlights the growing need for accessible, passive recreation and culturally inclusive design.

By answering these questions, the evaluation aligns open space strategies with the evolving needs and values of Northampton County residents. It also provides important context for the economic value analysis.



Open Space Consumers

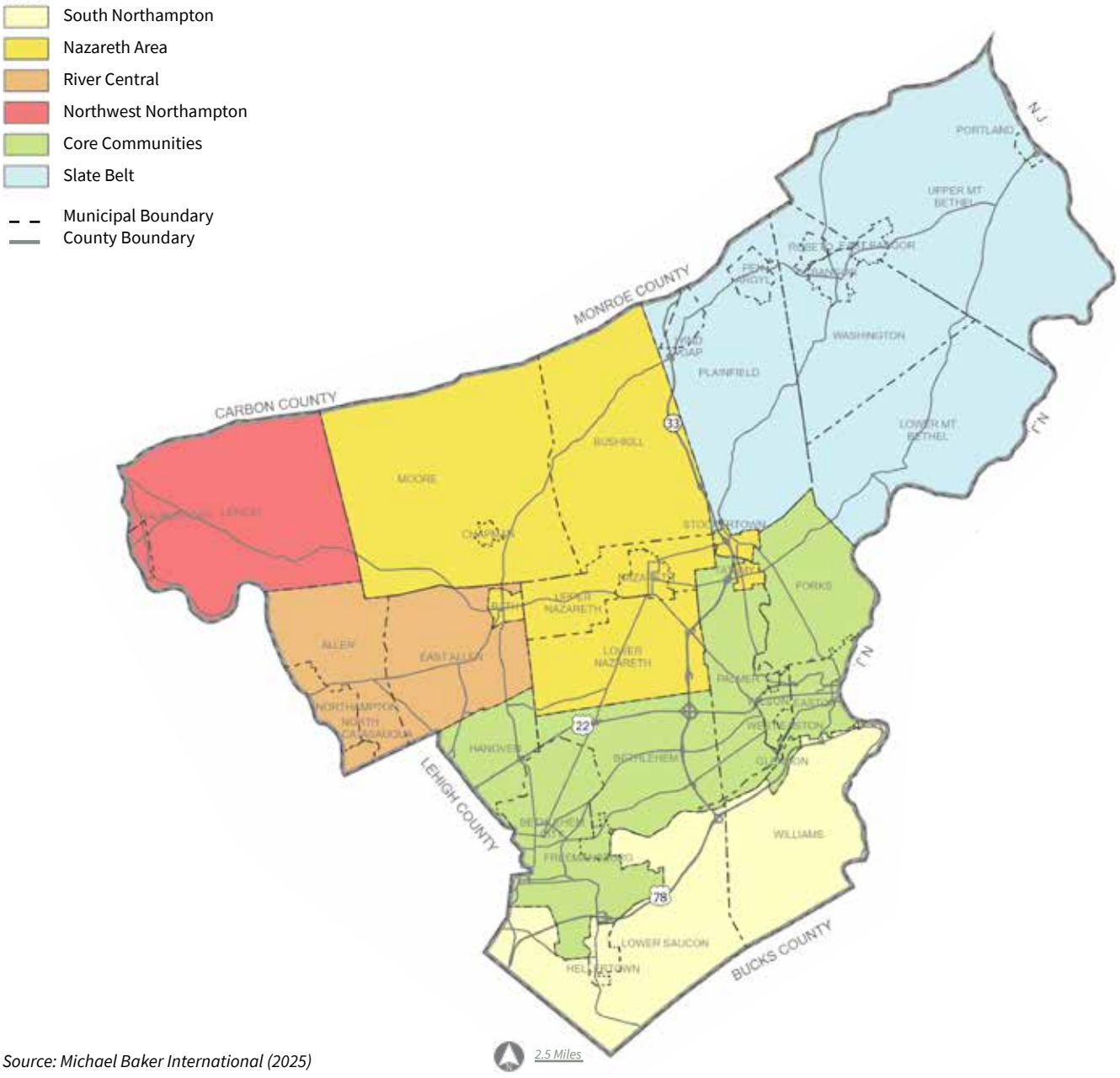
Demographic and Household Characteristics

The demographics of a region play an important role in identifying 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.

County Subregions

To better understand different areas of the county, subregions were created based on similarities in population and/or environmental landscape, and multi-municipal planning efforts (if applicable). This section provides a brief overview of the demographic and economic characteristics of the different subregions.

Northampton County Planning Regions



Source: Michael Baker International (2025)

Open Space Consumers

Core Communities

The Core Communities are comprised of Glendon Borough, West Easton Borough, Freemansburg Borough, Wilson Borough, Hanover Township, Forks Township, Palmer Township, Bethlehem Township, Easton City, and Bethlehem City represent the population and economic center of the region. With a total of 164,860 households, this area is highly developed and urbanized. This unemployment rate of 3.9% reflects a stable labor market, while the median household income of $87,388.82 indicates a relatively strong economic base. The core communities anchor much of the region's housing, employment, and cultural opportunities.

Nazareth Area

The Nazareth area includes Bath Borough, Chapman Borough, Moore Township, Lower Nazareth Township, Stockertown Borough, Tatamy Borough, Nazareth Borough, and Upper Nazareth Township. This subregion has 44,532 households. With an unemployment rate of 4 percent, it maintains near full employment. The median household income of $92,276 suggests an affluent, largely residential area with strong local economies and access to employment in nearby urban centers.

Slate Belt

The Slate Belt region encompasses Portland Borough, East Bangor Borough, Roseto Borough, Wind Gap Borough, Lower Mount Bethel Township, Pen Argyl Borough, Washington Township, Bangor Borough, Plainfield Township, Upper Mount Bethel Township, Bushkill Township. Together, these communities have 11,953 households. The unemployment rate is 3.6 percent, slightly below the regional average, and the median household income is $76,137.97. The slate belt has a strong small-town character with a mix of rural landscaped and traditional borough centers that contribute to its local identity.

River Central

The River Central area includes North Catasauqua Borough, East Allen Township, Allen Township, and Northampton Borough. The region has 23,965 households, with an unemployment rate of 3.4 percent. The median household income is $79,946, indicating a moderate-income level consistent with regional norms. River Central serves as a transitional area between more densely populated cores and outlying rural communities, offering a blend of suburban and small-town living.

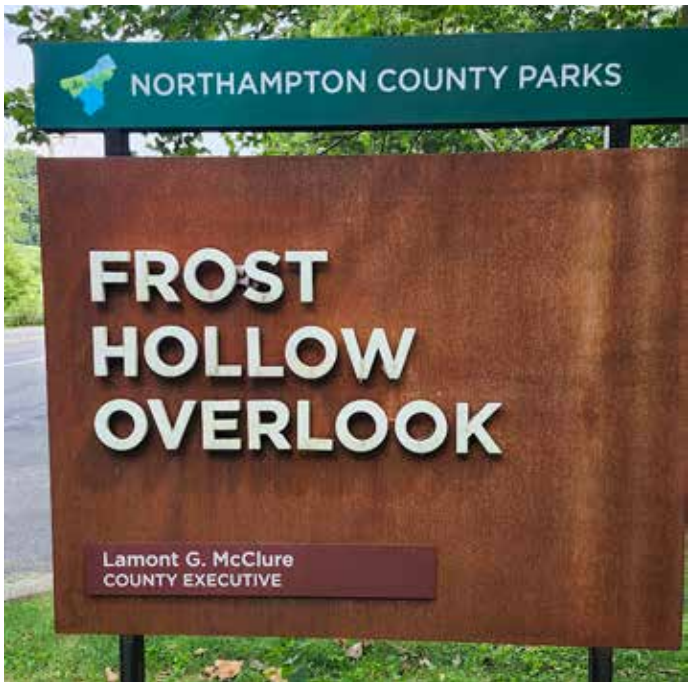
South Northampton

South Northampton consists of Lower Saucon Township, Hellertown Borough, and Williams Township. With a total of 9,483 households, it is one of the smaller planning areas but exhibits strong economic indicators. The unemployment rate of 4 percent is consistent with regional averages, while the median household income of $93,004.96 is among the highest in the county. This reflects a relatively affluent suburban area with close proximity to employment centers.

Northwest Northampton

Northwest Northampton covers Walnutport Borough and Lehigh Township. This region has a total of 5,199 households. The area has an unemployment rate of 3 percent, the lowest among all planning regions, suggesting strong local employment opportunities. The median household income of $84,773.19 points to economic stability and a comfortable standard of living. This subregion combines rural character with accessibility to regional job markets, appealing to residents seeking a balance between open space and community amenities.

For more information on some the county's population centers, including the City of Bethlehem, City of Easton, Palmer Township, Bethlehem Township, Forks Township, Hanover Township, Lower Saucon Township, Northampton Borough, Moore Township, Upper Mount Bethel Township, and Wind Gap please see the Appendix.



Open Space Consumers

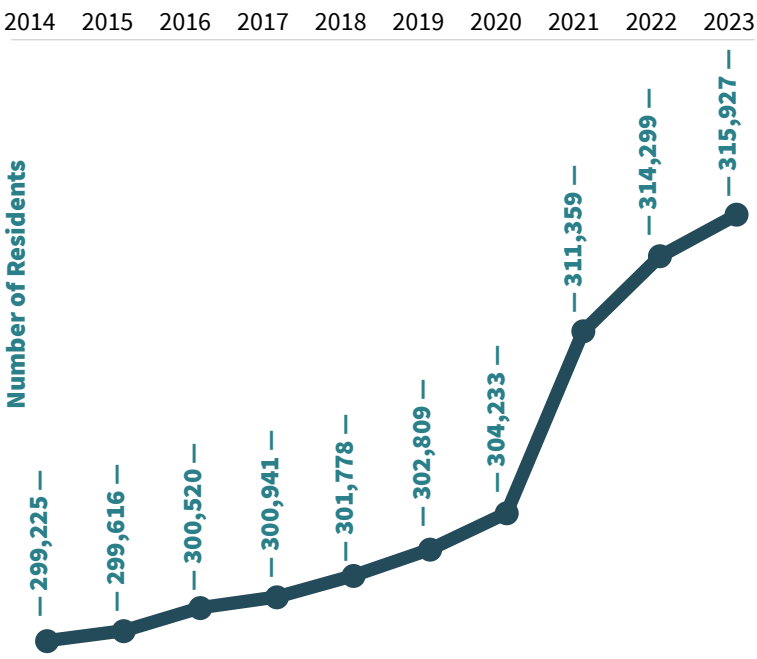
Population

Northampton County is home to 315,927 residents, making it a third-class Pennsylvania County (population between 250,000 and 500,000). It is comprised of 38 municipalities, including two cities, 17 townships, and 19 boroughs.[4]

This is an increase of just over 16,700 residents (5 percent) since the 2014 Lehigh Valley Return on Environment Study, when the population totaled 299,225. The Lehigh Valley Planning Commission (LVPC) projects the population to grow at a rate of 16 percent through 2050. By 2050, it is estimated that the county's total population will be 363,400.[5]

The population of the county is concentrated along the Route 22 and Route 33 corridors in the City of Bethlehem, Bethlehem Township, Palmer Township, and the City of Easton (see map below). Profiles of these population centers in the county are provided below.

Northampton County Population Trends, 2014 - 2023



Source: American Community Survey (2024)

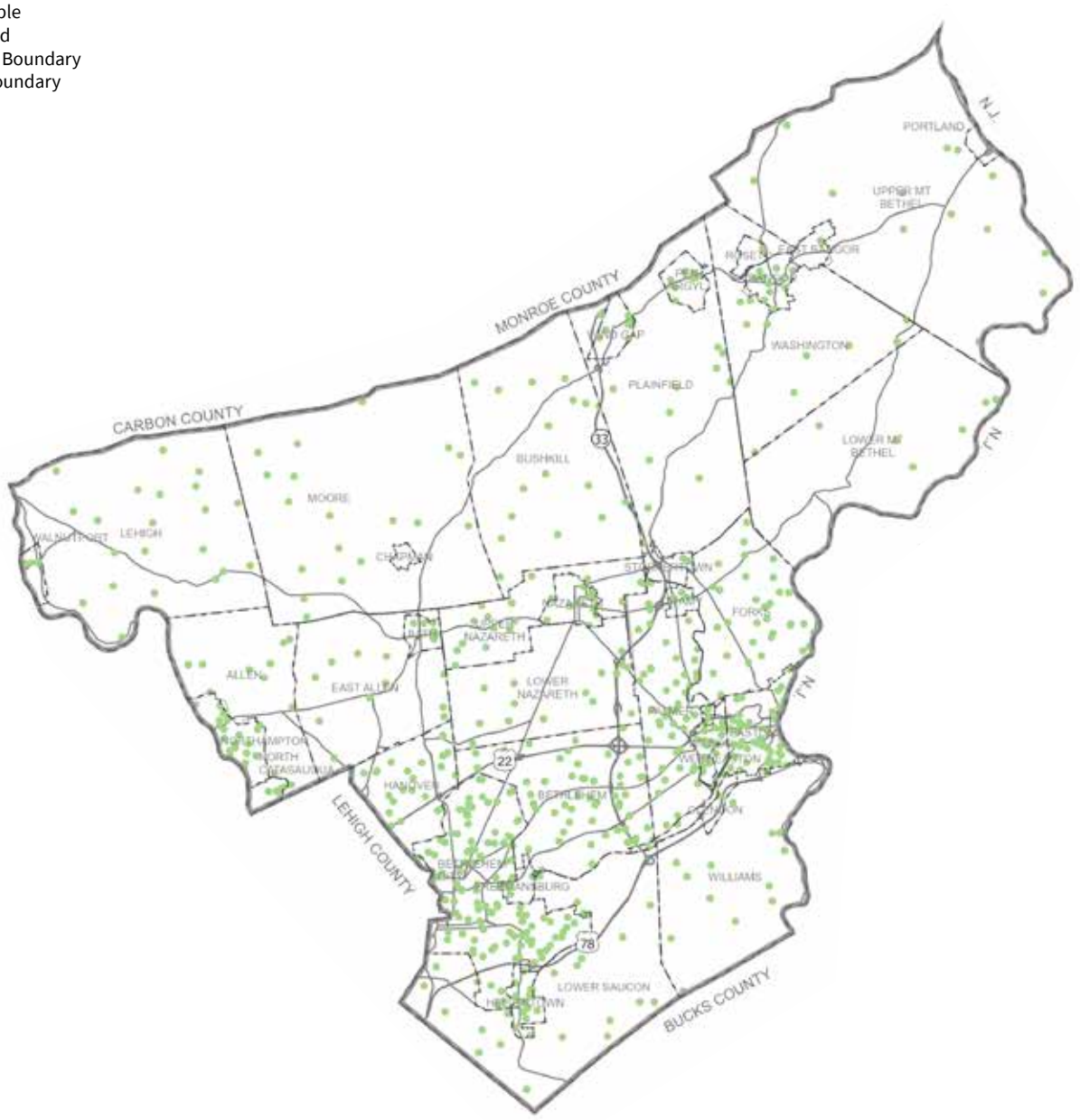


4 Northampton County. "Northampton County Communities". N.d. https://www.norcopa.gov/our-communities
5 Lehigh Valley Planning Commission. "Data LV Population & Employment Forecast. 2022. https://lvpc.org/datalv

Open Space Consumers

Northampton County Population Density

● = 500 People
Major Road
Municipal Boundary
County Boundary



Source: Esri (2024)

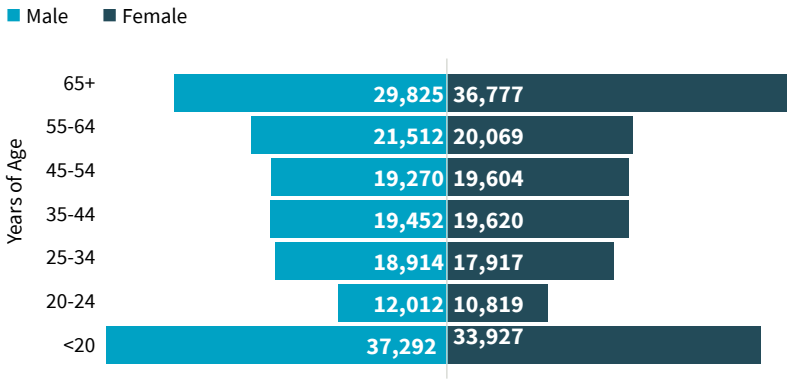
Open Space Consumers

Demographics: Age

The median age in Northampton County is over 42 years.[6] The median age in Northampton County has increased throughout the last two decades, from 40.9 years in 2010 to 42.6 years in the 2020 according to the U.S. Census. It is anticipated that the median age will be 43.6 years in 2029.[7]

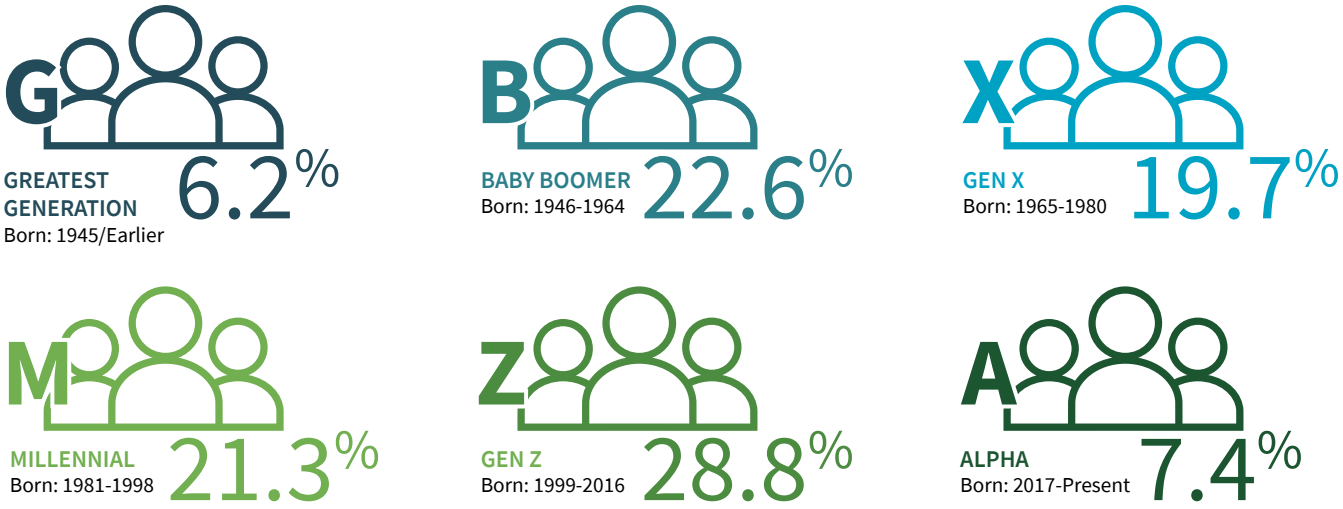
This trend reflects broader statewide demographics and points to a need for accessible and passive recreation opportunities in open space planning. The county also has a large proportion of families with children: a quarter of the county's 123,536 households have children under the age of 18.[8] A diverse age mix means that open spaces must serve a range of needs spanning from quiet trails and natural areas for older adults to active play areas for youth.

Northampton County Population by Age



Source: American Community Survey (2023)

Percent of Northampton County Population by Generation



Source: Esri (2024)

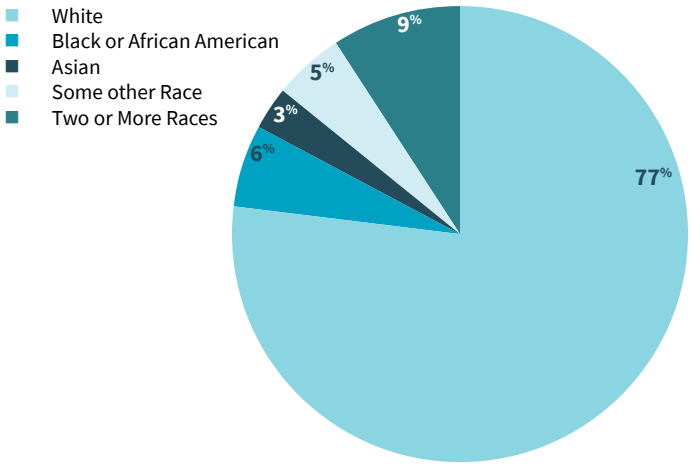
6 U.S. Census, American Community Survey. "Age and Sex". 2023. https://data.census.gov/table/ ACSST1Y2023.S0101?g=050XX00US42095
7 Esri Business Analyst. 2024.
8 US Census Bureau, American Community Survey. "Household and Families." 2023. https://data.census.gov/table/ACSST1Y2023.S1101?g=050XX00US42095&moe=false

Open Space Consumers

Demographics: Race and Ethnicity

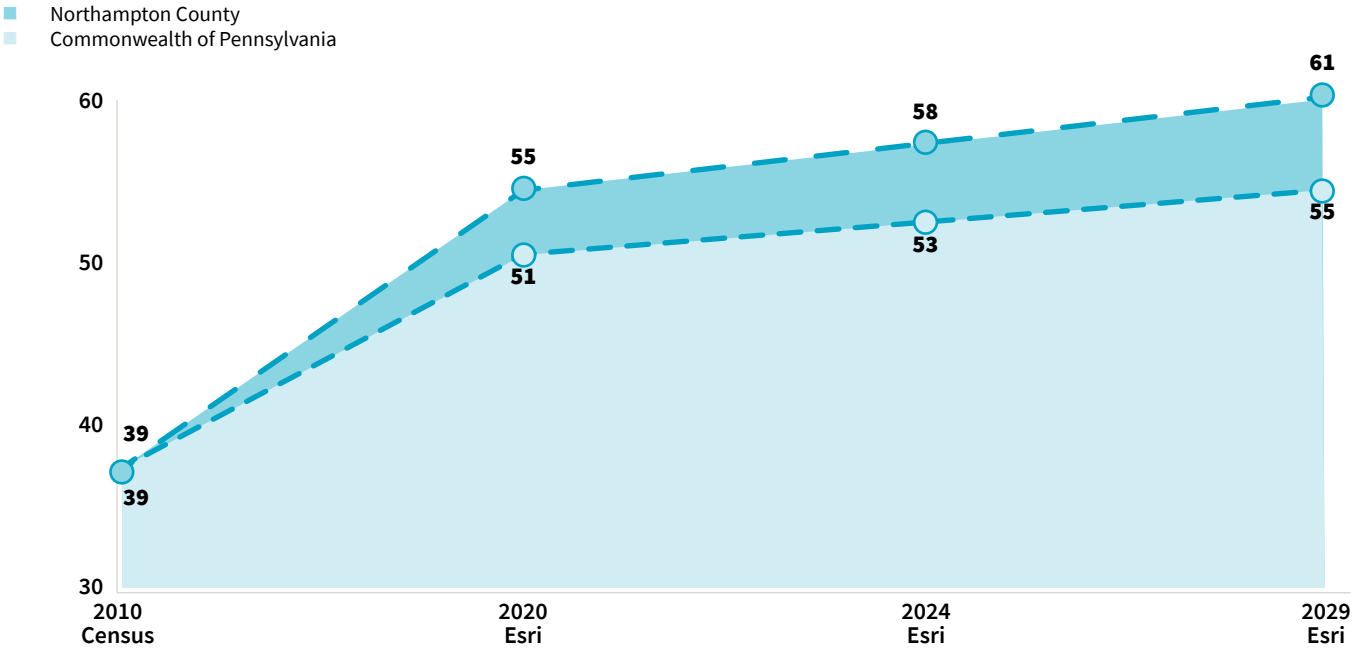
Northampton County is diversifying. While approximately 72 percent of residents identify themselves as White (non-Hispanic), the Latino/Hispanic population accounts for about 15 percent of the population, followed by 6 percent Black or African American, and 3 percent Asian. Northampton County is more diverse than the Commonwealth as a whole (see figure below). The Diversity Index of the area increased from 39 in 2010 to 53 in 2024, representing a 14-point rise. This indicates that the population has become more racially and ethnically diverse over time. One key factor contributing to the county's increasing racial and ethnic diversity is the growth in the Latino population which grew from 10.5 percent of the population in 2010 to around 15 percent in 2023. This growing diversity underscores the importance of inclusive planning for parks and open space that reflects cultural values, language accessibility, and equitable distribution of recreational resources.

Population by Race and Ethnicity, 2023



Source: American Community Survey (2023)

Northampton County vs. Commonwealth of Pennsylvania Diversity Index*



Source: Esri (2024)

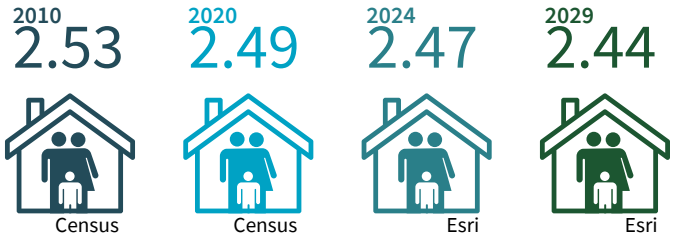
*The Diversity Index from Esri is a measure that represents the likelihood that two persons, chosen at random from the same area, belong to different races or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity). The Diversity Index captures the racial and ethnic diversity of a geographic area in a single number, offering an easy way to understand the shifting demographics of race and ethnicity in the U.S.

Open Space Consumers

Household Characteristics

There are 123,536 households in Northampton County, about a 10 percent increase from the number of households at the time of the *2014 Lehigh Valley Return on Environment Study*.[9] While the number of households are increasing, average household size has decreased to 2.47 persons in 2024. This reflects a trend of decreasing household sizes since 2010 (see figure on the right).

Average Household Size



Source: Esri (2024)

Public Health

According to a report by Lehigh Valley Health Network, Northampton County ranks 11th in overall health outcomes and 14th in overall health factors among Pennsylvania's 67 counties. Within the county, the cancer incidence rate stands at 523 cases per 100,000 residents. Approximately 25,134 adults aged 20 and older, representing nine percent of the surveyed population, have been diagnosed with diabetes. Additionally, 64 percent of the Medicare population in Northampton County has high blood pressure. The percentage of infants born with low birth weight is eight percent, which is lower than the statewide average of 12 percent. Between 2015 and 2019, the county recorded 263 deaths by suicide. Furthermore, 31 percent of the adult population is classified as obese.[10]



9 U.S. Census Bureau American Community Survey. "Households and Families". 2023. https://data.census.gov/table/ACSST1Y2023.S1101?g=050XX00US42095
10 2022 Community Health Needs Assessment Health Profile Northampton County. N18221_CHNA_Northampton_County_2022.pdf

Open Space Consumers

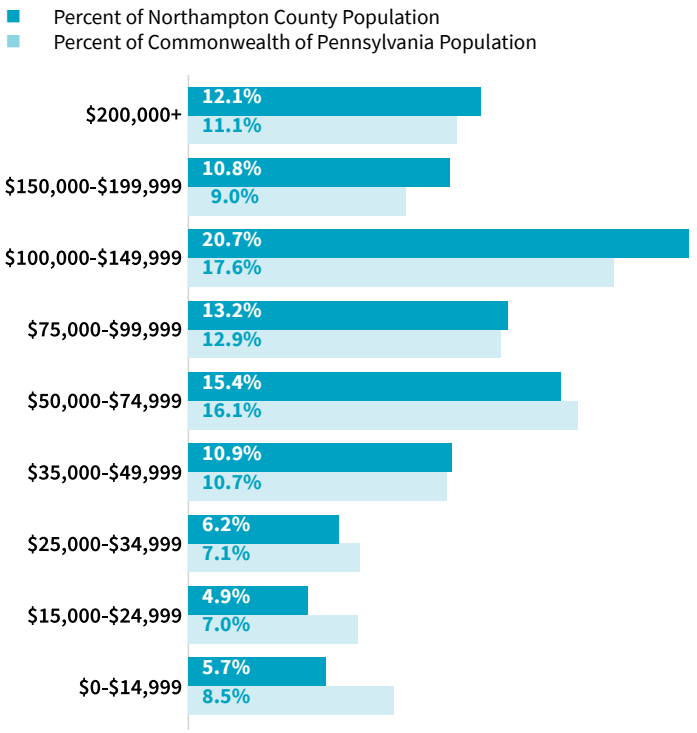
Income, Employment, and Business

The median household income in Northampton County is $86,687, which is higher than the statewide median household income of $76,081. Within the county, 41.8 percent of the households make over $100,000 a year compared to 36.6 percent of households statewide.[11] In 2025, the federal poverty level for an individual is $15,650 annually and $32,150 for a family of four, meaning 9.6 percent of the county is currently living in poverty. This is lower than the state poverty level of 12 percent.

In Northampton County, the workforce is predominantly employed in white-collar occupations or occupations that typically involve office work and professional or administrative tasks, which make up 61.3 percent of all jobs. Blue-collar roles, which are made up of jobs involving manual labor, account for 22.1 percent, while service-related positions represent 16.5 percent of employment (see figure below, right).[12]

The largest share of employment is in Health Care (16.6 percent), followed by Manufacturing (13.4 percent), Retail Trade (11.2 percent), and Educational Services (11 percent). Other notable sectors include Transportation, Construction, and Professional/Technical Services with around six to eight percent of the employment share each. Smaller portions of the labor force are engaged in industries like Agriculture, Management, and Utilities. This distribution highlights the strong presence of service-oriented and industrial sectors, with health care leading as the dominant industry (see figure below).

Average Household Income



Source: American Community Survey (2023)

Employment Snapshot



Source: Esri (2024)

Percent of Labor Force by Industry

16.6% Health Care	13.4% Manufacturing	11.2% Retail Trade	11.0% Educational Serv.	6.2% Transportation	6.1% Construction	5.7% Prof./Tech.	5.1% Accom./Food	4.2% Other Services	3.8% Finance/Ins.
3.4% Admin./Waste	3.1% Wholesale Trade	3.1% Public Admin.	2.3% Arts/Entertain.	1.6% Information	1.4% Real Estate	1.2% Utilities	0.4% Agriculture	0.2% Mining	0.1% Management

Source: Esri (2024)

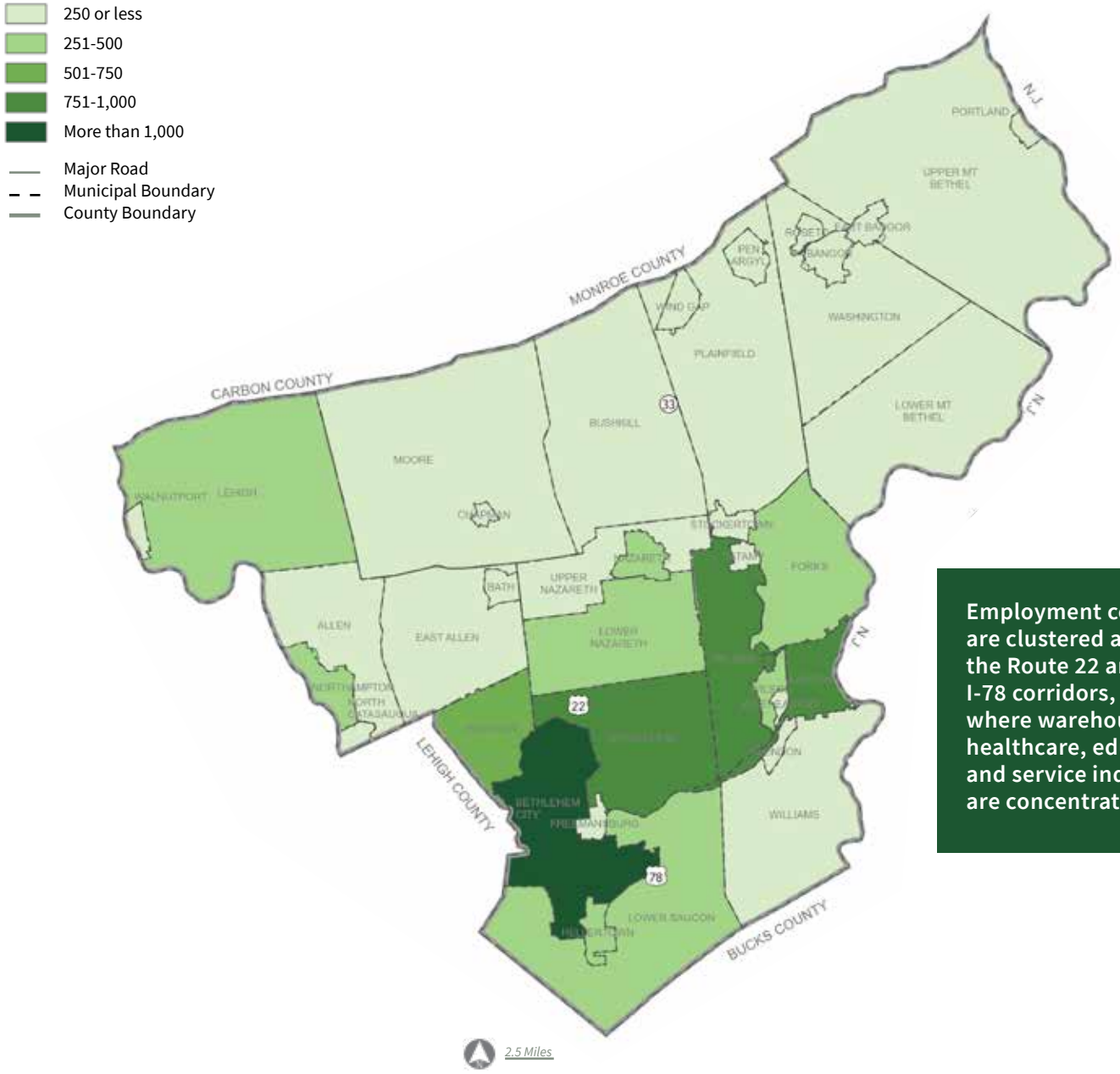
11 US Census Bureau American Community Survey. "Income in Past 12 Months". 2023. https://data.census.gov/table/ACSST5Y2023.S1901?q=income&g=040XX00US42_050XX00US42095

12 White Collar refers to professional occupations. Blue Collar refers to manual or skilled trades. Services refer to maintenance, healthcare support, and food service jobs. For more information on the definition of these categories, please visit https://doc.arcgis.com/en/esri-demographics/latest/get-started/faq.htm#anchor23.

Open Space Consumers

Northampton County Employment/Business Locations

Total (NAIC11-99) Businesses, 2024



Employment centers are clustered around the Route 22 and I-78 corridors, where warehousing, healthcare, education, and service industries are concentrated.

Source: Esri (2024)

Open Space Consumers

Market Segments

To gain a comprehensive understanding of a community's consumer landscape, it is essential to examine not only demographic data but also the underlying socioeconomic and lifestyle patterns that influence behavior. The Esri Tapestry Segmentation dataset provides a sophisticated framework for this analysis by categorizing residential areas into distinct market segments. This analysis is based on data from the American Community Survey, MRI-Simmons consumer surveys, and Esri's proprietary demographic research.[13] The top three segments present in Northampton County are:

Roam This segment makes up 17.4 percent of the county, totaling 21,661 households making it the top LifeMode subsegment in the County. These communities are mainly found within metropolitan areas but tend not to be in the mega metropolises. The highest concentrations are found in the Midwest and South. More than half of household heads are aged 55 and older, and one in five individuals are aged 65 and above. Married couples, often without children, form most households, while nonfamily households represent a quarter of the total households. Self-employment is notable, and employment tends to be in manufacturing, health care, and retail. Most housing in this market consists of owner-occupied, single-family homes rather than rentals, with housing built primarily between 1970 and 2000 and generally priced lower than the national average. Owning multiple vehicles is typical, with driving alone as the primary means of commuting.

Savvy Suburbanites This segment makes 13.1 percent of the county, totaling 16,321 households. These neighborhoods tend to be concentrated in New England and the Mid-Atlantic. Some couples have children who have grown up and left the house, and around a quarter still have kids at home. Residents work in professional fields such as management and finance. The combined wages of both spouses position these families solidly in the middle to upper income tiers. Investments, retirement income, and valuable properties also contribute to the high net worth of households commonly found in these neighborhoods. Residents in this segment gravitate toward suburban communities, which include both newly developed and well-established areas, within major metropolitan areas. Nearly all homes are single-family and owner-occupied, with very few rental properties available, and most homes were built between 1970 and 2000.

Classic Comfort The third most common segment is Classic Comfort and makes up 11.6 percent or 14,509 households in Northampton County. These neighborhoods are typically found in the suburbs of major metropolitan areas, particularly in the South and Midwest, including states such as Michigan, Illinois, and Texas. The median age is slightly above that of the U.S. Most households earn middle-tier incomes, and labor force participation is high; most work full-time jobs, and many families are supported by multiple earners. Employment is mostly in wholesale trade, health care, education, and manufacturing sectors. Affordable housing is prominent, with most homes valued between $150,000 and $300,000 and rental prices below the national average. Homeowners significantly outnumber renters, and many homes were built between 1950 and 2000. Short, solo commutes are common, with households typically owning several vehicles. During the day, the residential population exceeds the working population.

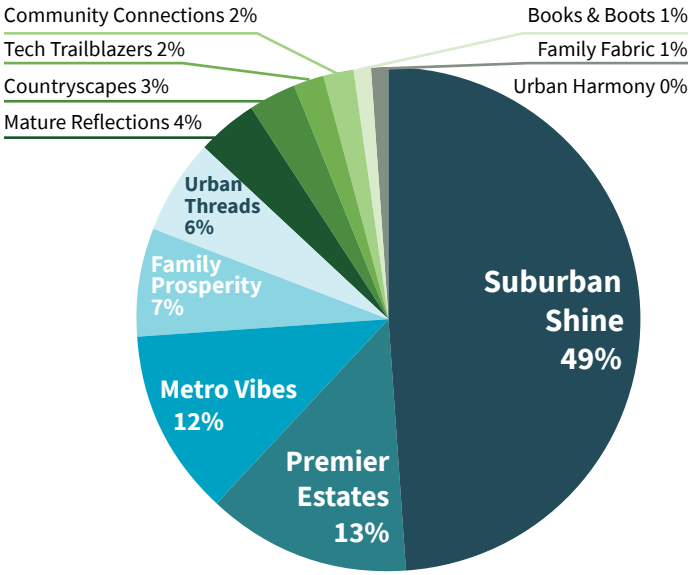
13 Esri. "Esri Tapestry Segmentation." 2024. https://doc.arcgis.com/en/esri-demographics/latest/esri-demographics/tapestry-segmentation.htm

Open Space Consumers

The 67 unique tapestry segments are further grouped into broader categories called LifeMode Groups. These groups reflect the overarching lifestyle patterns based on demographic traits, socioeconomic status, and consumer behavior. Essentially, it is a way to understand how different segments of the population live, what they value, and how they are likely to behave as consumers and community members.

The majority of Northampton County is made up of two LifeModes: Suburban Shine and Premier Estates (see figure to the right and the table below).

Breakdown of LifeMode Groups in Northampton County



Source: Esri (2024)

Top 5 LifeMode Groups in Northampton County

Suburban Shine
49.1% HH in Northampton Co.
21.1% HH in U.S.

This group consists of residents aged 45 years and older. Housing is predominantly single-family detached homes built before 2000, and home values tend to be above the national average. Labor force participation is high, with most households earning middle-tier incomes in professions such as social work, skilled trades, health care, and manufacturing. Residents commute alone by car. There are eight segments in this LifeMode group (K1-K8).

Premier Estates
13.1% HH in Northampton Co.
9.2% HH in U.S.

This group consists of residents aged 45-64, and many households consist of families. Residents are often retired or work from home and are employed in management, finance, technology, and engineering. Net worth is high, and most residents hold a bachelor's or graduate degree. These neighborhoods tend to consist of newly constructed, single-family homes. There are three segments in this LifeMode group (L1-L3).

Metro Vibes
11.6% HH in Northampton Co.
8.4% HH in U.S.

This group consists of a mix of families and individuals in their 30s, and there is a notable presence of recent immigrants. Employment is primarily in health care, retail, and food services. Residents typically live in urban rental housing, and some own single-family homes. Home values and rents tend to be below the national average. There are six segments in this LifeMode group (C1-C6).

Family Prosperity
6.7% HH in Northampton Co.
10.2% HH in U.S.

This group mainly consists of married couples with or without children. They live primarily in single-family homes in newer suburban developments, and households typically own multiple vehicles for commuting and accessing entertainment and amenities. Incomes often exceed the national average by a significant margin. There are four segments in this LifeMode group (H1-H4).

Urban Threads
6.0% HH in Northampton Co.
4.3% HH in U.S.

This group mainly consists of individuals in their 30s, including many recent immigrants, single parents, and families with young children. This community also has the largest population of children under 5. Residents live primarily in rental housing in urban centers and suburbs, often in close proximity to jobs, community centers, and public transportation. There are six segments in this LifeMode group (A1-A6).

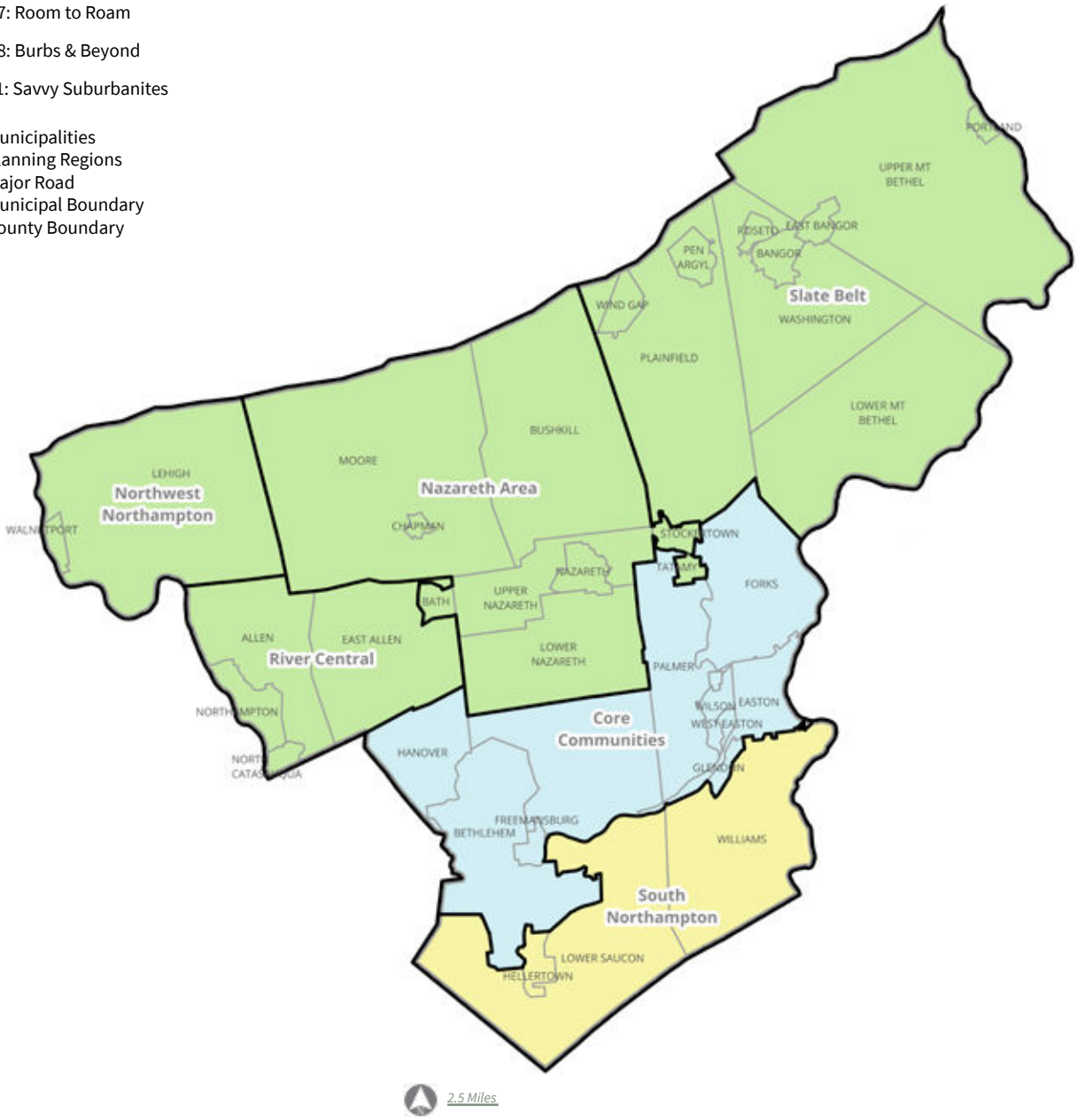
Open Space Consumers

Dominant LifeMode by Region within Northampton County

LifeModes

- K7: Room to Roam
- K8: Burbs & Beyond
- L1: Savvy Suburbanites

- Municipalities
- Planning Regions
- Major Road
- Municipal Boundary
- County Boundary



Open Space and Consumer Trends

The National Recreation and Park Association states that six out of seven U.S. adults support local parks' environmental initiatives like wildlife conservation, environmental education, resource management, climate change mitigation, pollinator habitats, and flood control. Ninety-three percent of U.S. adults agree that it is critical that their local government develops local parks, trails, and green spaces near bodies of water for the purpose of protecting natural resources in their community. These activities enhance social ties, improve mental and physical health, and reduce social isolation. Time in nature boosts cognitive performance and well-being while easing depression, attention deficit disorders, and Alzheimer's symptoms.[14]

According to the Outdoor Industry Association's 2024 Outdoor Participation Trends Report, more Americans, especially those over 55, are engaging in outdoor activities than any previous year. The top passive activities include hiking, walking, birdwatching, camping, scenic drives, and community gardens.[15] This trend is especially relevant to Northampton County as population trends show an aging population.

In 2023, 175.8 million Americans (57.3 percent of those aged six and older) engaged in outdoor activities, a four percent increase from last year. Participation rose in hiking, biking, camping, running, and fishing. Additionally, 7.7 million people tried outdoor recreation for the first time.[16]

The draft 2025-2029 PA Statewide Comprehensive Outdoor Recreation Plan by the Bureau of Recreation and Conservation shows that in Pennsylvania the outdoor open space recreational activities in priority are listed below. Respondents also showed interest in kayaking, cycling, pickleball, and climbing.[17]

The survey coducted for the Recreation Plan also found that, since the COVID-19 pandemic, outdoor recreation has increased in frequency and duration. Nearly half of respondents now recreate two or more times per week. The COVID-19 pandemic significantly reshaped outdoor recreation patterns across the United States. As indoor venues closed and people sought safe ways to stay active and manage stress, participation in outdoor activities surged. In Northampton County, this trend mirrored national patterns, with local parks and trails seeing increased use as residents turned to nature for physical and mental well-being.

Open space use and trends are explored on a county-scale in the *2015 Livable Landscapes Plan*. A central theme of the plan is the community's strong and sustained support for preserving open space, farmland, and natural resources. The Plan notes the popularity of trails and greenways, with residents expressing a strong desire for improved connectivity, signage, and accessibility. The Plan also found that outdoor recreation is a major driver of open space use in the county. Activities such as walking, hiking, biking, birdwatching, and fishing are widely enjoyed.

Top Recreational Activities in Pennsylvania, 2025

70% WALKING/RUNNING	69% HIKING/BACKPACKING	50% CAMPING	49% PASSIVE RECREATION	48% SCENIC DRIVING
47% VISITING NATURE CENTERS	46% VISITING HISTORIC PLACES	46% KAYAKING/CANOEING/ PADDLEBOARDING	45% WILDLIFE WATCHING/ PHOTOGRAPHY	44% CYCLING

Source: Survey results for Outdoor Placed, Shared Spaces: Pennsylvania's 2025-2029 Statewide Comprehensive Outdoor Recreation Plan (2025)

14 National Recreation and Park Association. *Parks and Recreation is Essential*. 2024. https://www.nrpa.org/our-work/building-a-movement/parks-and-recreation-is-essential/

15 Outdoor Industry Association. *2024 Outdoor Participation Trends Report*. 2024. https://outdoorindustry.org/article/2024-outdoor-participation-trends-report/

16 Ibid.

17 Commonwealth of Pennsylvania. *Pennsylvania's Outdoor Recreation Plan, 2025*. https://www.pa.gov/agencies/dcnr/recreation/pa-outdoor-rec-plan.html

State of the Environment

The natural landscape of Northampton County supports a rich mosaic of forests, rivers, wetlands, and wildlife habitats.

The environment of Northampton County is both a defining feature of its identity and critical determinant of its residents' health, quality of life, and economic vitality. Nestled between Blue Mountain and South Mountain, Northampton County is a vital part of the state's environmental patchwork. It lies within the Pennsylvania Highlands region, a nationally significant corridor of forested ridges and valleys that stretches from Connecticut to Maryland, and is part of the Lehigh Valley Greenways Conservation Landscape, one of eight in the state. The county is bordered by the Delaware River to the east and traversed by the Lehigh River, both of which have shaped its ecological and cultural identity. The Blue Mountain ridge, forming the county's northern boundary, is part of the Kittatinny Ridge, an essential migratory flyway for raptors and songbirds along the Atlantic Flyway. This ridge also carries the Appalachian Trail, linking Northampton County to a vast network of protected lands and outdoor recreation opportunities that span the eastern United States.

Beyond its rivers and ridges, Northampton County contributes to the health of the Delaware River Watershed, which supplies drinking water to over 15 million people. Its mix of fertile farmland and forested landscapes supports regional biodiversity and sustainable agriculture, aligning with broader conservation goals. The county is also integrated into a growing network of green infrastructure and recreational trails, including the D&L Trail, which connects communities while preserving natural corridors. These features position Northampton County not only as a steward of its own natural resources but also as a key player in regional and interstate conservation efforts.

Yet, this same geography also experiences environmental challenges such as air pollution, waterway impairment, and habitat fragmentation. As the county continues to grow and develop, the pressures on its natural systems intensify. Air quality remains a persistent concern, with ozone and particle pollution posing serious health risks. Waterways, though abundant and ecologically diverse, are increasingly impaired by pollutants such as mercury and pathogens. Forests and wetlands, vital for biodiversity and climate resilience, face threats from invasive species, overabundant deer populations, and land conversion. Meanwhile, climate change and urban sprawl compound these challenges, altering ecological processes and straining infrastructure.

This chapter provides a comprehensive overview of Northampton County's environmental conditions, drawing on the latest data and research to assess air and water quality, land cover, habitat health, and conservation efforts and compare it to the data in the 2014 Lehigh Valley Return on Environment Study. By recognizing both the environmental assets and challenges facing Northampton County, this chapter, alongside the Open Space Consumers and Open Space Trends chapters, builds understanding of the county's ecological context for the Return on Environment and Outdoor Recreation Economic Impact Study. As demonstrated in the Economic Value Analysis, strategic investment in environmental preservation not only addresses these challenges but also generates measurable, long-term economic returns for the county.

State of the Environment

Air Quality

Air quality affects the health of Northampton County residents and their quality of life. As the population of the county increases and open space is gradually being transformed by development, air quality is expected to decrease. The increase in population and development leads to a higher number of vehicles on the road. Northampton County has experienced air quality challenges over the years, occasionally falling short of the standards set by the Federal Clean Air Act. According to the American Lung Association's (ALA) national 2025 State of the Air report, Northampton County received a "C" grade for high ozone days and an "F" grade for particle pollution.[18]

Ozone and particle pollution harm human health in several ways, such as causing or worsening lung and heart disease, and increasing the risk of premature birth and death.[19] Ozone, often called "smog," is formed when the resulting gases from fossil fuel (gasoline, oil, coal) combustion react with sunlight.[20] Particle pollution is defined as a mixture of tiny bits of solids and liquids in the air we breathe. Various sources emit particle pollution including but not limited to; factories, power plants, diesel- and gasoline-powered vehicles and equipment, wildfires, and burning wood in wood stoves or residential fireplaces. Particles are categorized according to size, grouping them as coarse or fine. Coarse particles, called PM10, can include wind-blown dust, ash, pollen and smoke. Fine particles, PM2.5, are most often a by-product of burning wood or fossil fuels, and may include toxic compounds, salts and metals. There is also ultrafine, which is included in the larger category of PM2.5 and is also produced by combustion.

In a press release on April 23, 2025, the ALA ranked the Allentown-Bethlehem-East Stroudsburg, PA-NJ metro area as the 105th worst in the nation for ozone pollution, 50th worst in the nation for short-term particle pollution, and 103rd worst in the nation for the year-round average level of particle pollution.[21] This is an improvement from the statistics reported in the 2014 Lehigh Valley Return on Environment Study, which used the Allentown-Bethlehem-Easton Metropolitan Statistical Area instead. In 2014, the ALA ranked this area as the 42nd worst for ozone pollution, 22nd worst for short-term particle pollution, and 14th worst for year-round particle pollution (LVPC, 2014).[22]

The ALA provided two graphs with data from 1996 to 2023 for high ozone days and from 2000 to 2023 for particle pollution. This data is highlighted in the figures on the following page, for ozone pollution on the left, and for particle pollution on the right.

Northampton County's number of high ozone days per year has, on average, decreased significantly since 2000, as well as the number of days with unhealthy particle pollution levels. The peak recorded number of high ozone days occurred throughout the 1997-1999 data years with a total weighted average of 44 days; this has decreased to 1.8 as of 2021-2023. Similarly, particle pollution levels have reduced from a weighted average of 15.7 days in the 2001-2003 data years to 3.8 days in 2021-2023. This decrease overtime has resulted in Northampton County meeting the federal standards for the Clean Air Act for ozone in 2018 and in 2014 for particle pollution. However, the 3.8 days in 2021-2023 did not meet the federal standards for particle pollution.

In addition to the ALA's data, Lehigh Valley Breathes provides real-time monitoring of air quality in the region. This community-driven initiative empowers residents with localized data, helping them make informed decisions about outdoor activities and health.[23]

18 American Lung Association (ALA). *Pennsylvania: Northampton*. 2025. https://www.lung.org/research/sota/city-rankings/states/pennsylvania/northampton.
19 American Lung Association (ALA). *Health Impact of Air Pollution*, 2025. https://www.lung.org/research/sota/health-risks.
20 American Lung Association (ALA). *Ozone*. 2025. https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/ozone#:~:text=Watch%20Video-,What%20Is%20Ozone%3F,it%20causes%20serious%20health%20problems
21 Gleason, Valerie. April 23, 2025. *New 'State of the Air' Report Finds Allentown-Bethlehem-East Stroudsburg, PA-NJ Metro Area Worsens for Daily Particle Pollution, Dropping from C to F Grade; Measures Best-Ever for Year-Round*. https://www.lung.org/media/press-releases/allentown-sota-2025.
22 Lehigh Valley Planning Commission. *Lehigh Valley Return on Environment. 2014*.
23 *Lehigh Valley Breathes. 2025*. https://lvbreathes.norcopa.gov/#:~:text=Lehigh%20Valley%20Breathes%20is%20a%20project%20led%20by,to%20help%20improve%20the%20air%20we%20all%20breathe.

State of the Environment

CASE STUDY

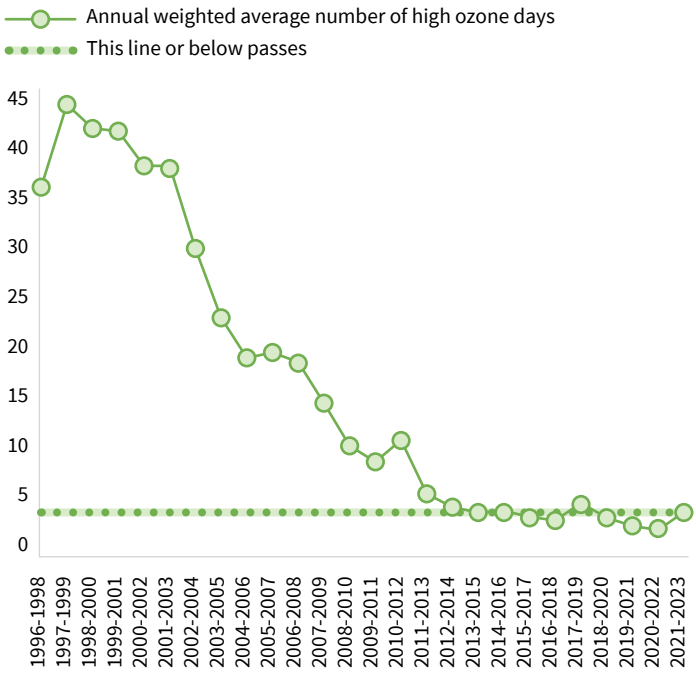
LV Breathes

LV Breathes is a regional initiative in the Lehigh Valley to collect and communicate localized information about particulate air pollution. The goal is to provide policy makers and community members with the information they need to help improve air quality. The project deployed 40 sensors across the region that to provide real-time data. Prior to the deployment of these monitors, air quality information in the Lehigh Valley came from two monitoring sites that are used by the PA Department of Environmental Protection. While these monitors measure a variety of air pollutants, they are not able to capture how air pollution is distributed across the region. The information gathered from the 40 sensors helps address gaps left by state monitoring and improves the information needed for local decision making.



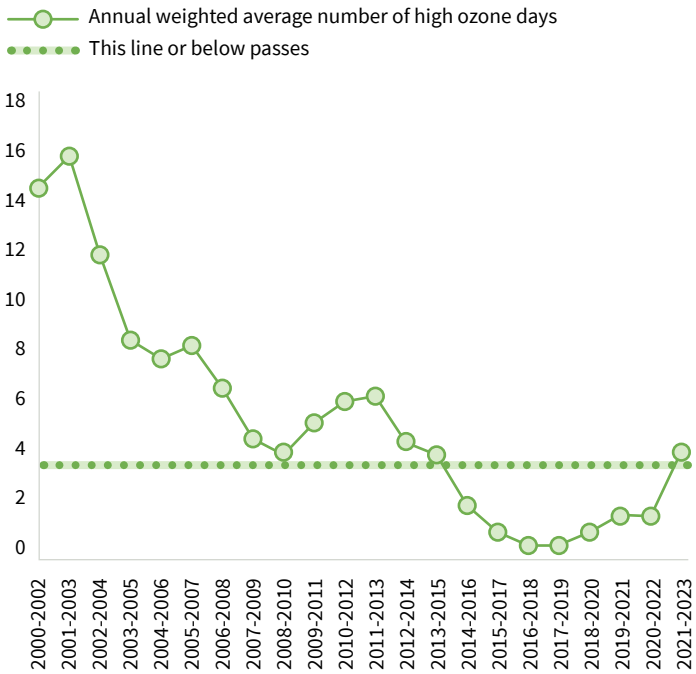
State of the Environment

Annual Weighted Average Number of High Ozone Days Throughout 3-Year Intervals



Source: American Lung Association (2025)

Annual Weighted Average Number of High Particle Pollution Days Throughout 3-Year Intervals



Source: American Lung Association (2025)

Northampton County's air quality problem is partially due to natural circumstances from being a valley. The surrounding mountain ranges, Blue Mountain to the north and South Mountain to the south, form a bowl-like shape. This natural process, coupled with temperature inversion and climate change, worsens the county's air quality by trapping pollutants within the region and contributes to elevated levels of natural allergens.[24] Furthermore, Northampton County's air quality was negatively impacted by smoke flowing south from the rampant Canadian wildfires in 2023, leading to days that were covered in a heavy haze.[25] However, Northampton County also has many industrial air emission sites with manufacturing as the second largest employment industry in the County.[26]

According to the *2024 Greater Lehigh Valley Greenhouse Gas Inventory*, the industrial sector was the number one emitter of greenhouse gases, contributing to 32.2 percent of all emissions in the region. Similarly, the transportation sector constitutes 32.1 percent of all emissions, making it the second largest emitter in the region. Northampton County specifically emitted 1,284,998 metric tons CO_2e in 2024 due to transportation.[27] Traffic continues to grow in the County with most individuals commuting alone, an average commute time of 27.3 minutes, and the average household owning two cars in 2023.[28]

24 Malhotra, Nik. *The tipping point: The Lehigh Valley faces environmental and public health crises*. January 20, 2021. https://thebrownandwhite.com/2021/01/20/the-tipping-point-the-lehigh-valley-faces-environmental-and-public-health-crises/.
25 Bilinsky, Molly. *The science behind the smoke: Here's how Canadian wildfires are choking the Lehigh Valley's residents*. June 7, 2023. https://www.lehighvalleynews.com/environment-science/the-science-behind-the-smoke-heres-how-canadian-wildfires-are-choking-the-lehigh valleys-residents.
26 DATAUSA. "Northampton County, PA". 2025. https://datausa.io/profile/geo/northampton-county-pa
27 Lehigh Valley Planning Commission. *Greater Lehigh Greenhouse Gas Inventory. 2024*. https://content.lvpc.org/Publications/Environment/2024%20Greater%20Lehigh%20Valley%20Greenhouse%20Gas%20Inventory.pdf.
28 DATAUSA. "Northampton County, PA". 2025. https://datausa.io/profile/geo/northampton-county-pa

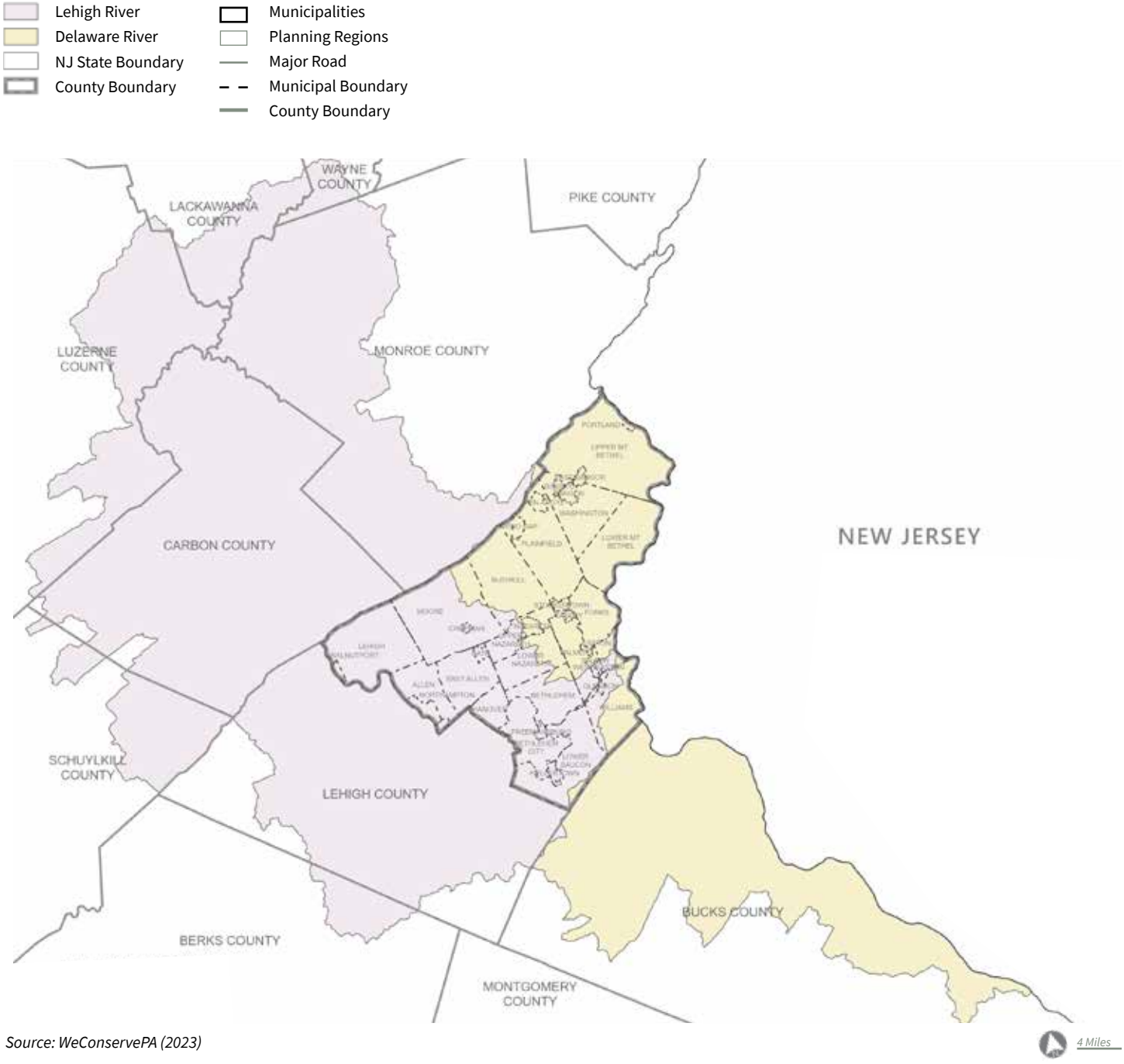
State of the Environment

Water Resources

The county contains about 548 miles of streams and rivers that drain the county's 380 square miles of land. The Lehigh River flows throughout Northampton County with approximately 47 percent of Northampton County streams draining into the Lehigh River.

The eastern portion of Northampton County drains directly to the Delaware River (see map below). The Lehigh River forms part of the boundary between Lehigh and Northampton Counties, and the Delaware River forms the boundary between Northampton County and New Jersey.

Watersheds that Drain Northampton County



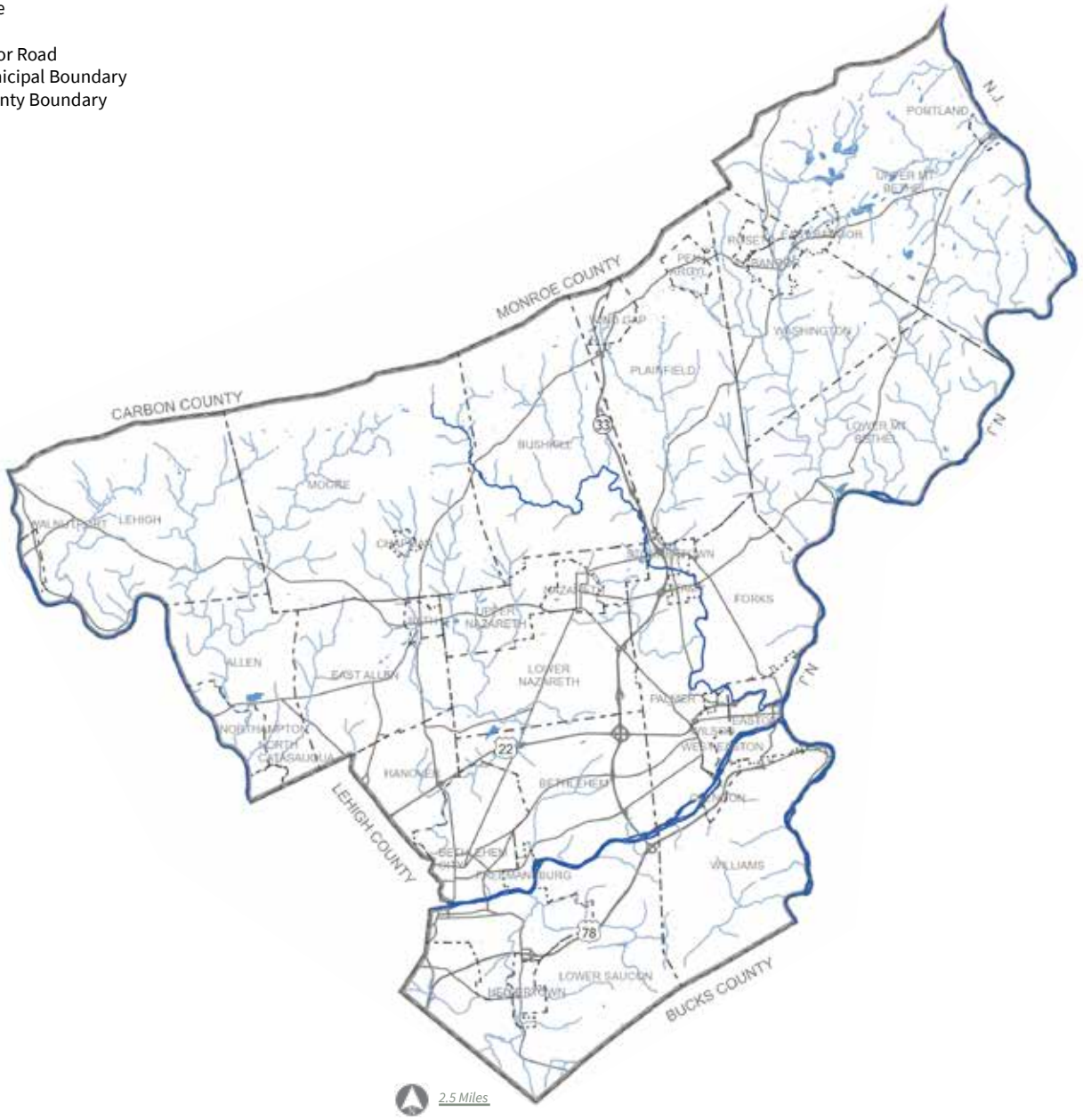
Source: WeConservePA (2023)

State of the Environment

Northampton County Water Networks

River
Stream
Lake

Major Road
Municipal Boundary
County Boundary



Source: PA DEP (2025)

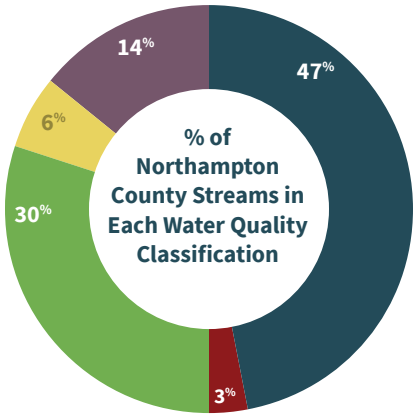
State of the Environment

Water Quality Classification

Chapter 93 of the Pennsylvania Code sets forth water quality standards for the waters of the Commonwealth that are based on water uses that are to be protected. Protected uses are aquatic life, water supply, recreation and fish consumption, and special protection. The aquatic life classifications of waterways are described below. In addition, streams can be afforded special protection if they are classified as Exceptional Value or High Quality.[29]

About 30 percent of all county streams are classified as High Quality-Cold Water Fishes, and almost half (47 percent) are classified as Cold Water Fishes (see below).[30] The Pennsylvania Department of Environmental Protection (PA DEP) classifications for the waterways of Northampton County are shown on the map on the following page.

Water Quality Classifications and Descriptions for Streams in Northampton County



Source: PA DEP (2025)

30%
of Northampton County streams are High Quality/Cold Water Fisheries

- **Cold Water Fishes (CWF) 47%**
  Maintenance or propagation, or both, of fish species including the family Salmonidae and additional flora and fauna which are indigenous to a cold water habitat.
- **Exceptional Value Waters (EV) 3%**
  Waters that meet one or more of the following: an outstanding National, State, regional or local resource water, has exceptional recreational significance, a score of at least 92 percent, designated as a "wilderness trout stream" by the PFBC, or is of exceptional ecological significance. Along with this, waters are EV if located in a National wildlife refuge, State game propagation and protection area, State park natural area or State forest natural area, National natural landmark, Federal or State wild river, Federal wilderness area or National recreational area.
- **High Quality Waters/Cold Water Fishes (HQ) 30%**
  Surface waters having quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water.
- **Trout Stocking (TSF) 6%**
  Maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.
- **Warm Water Fishes (WWF) 14%**
  Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.
- [n/a] **Migratory Fishes (MF)**
  Passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which move to or from flowing waters to complete their life cycle in other waters.

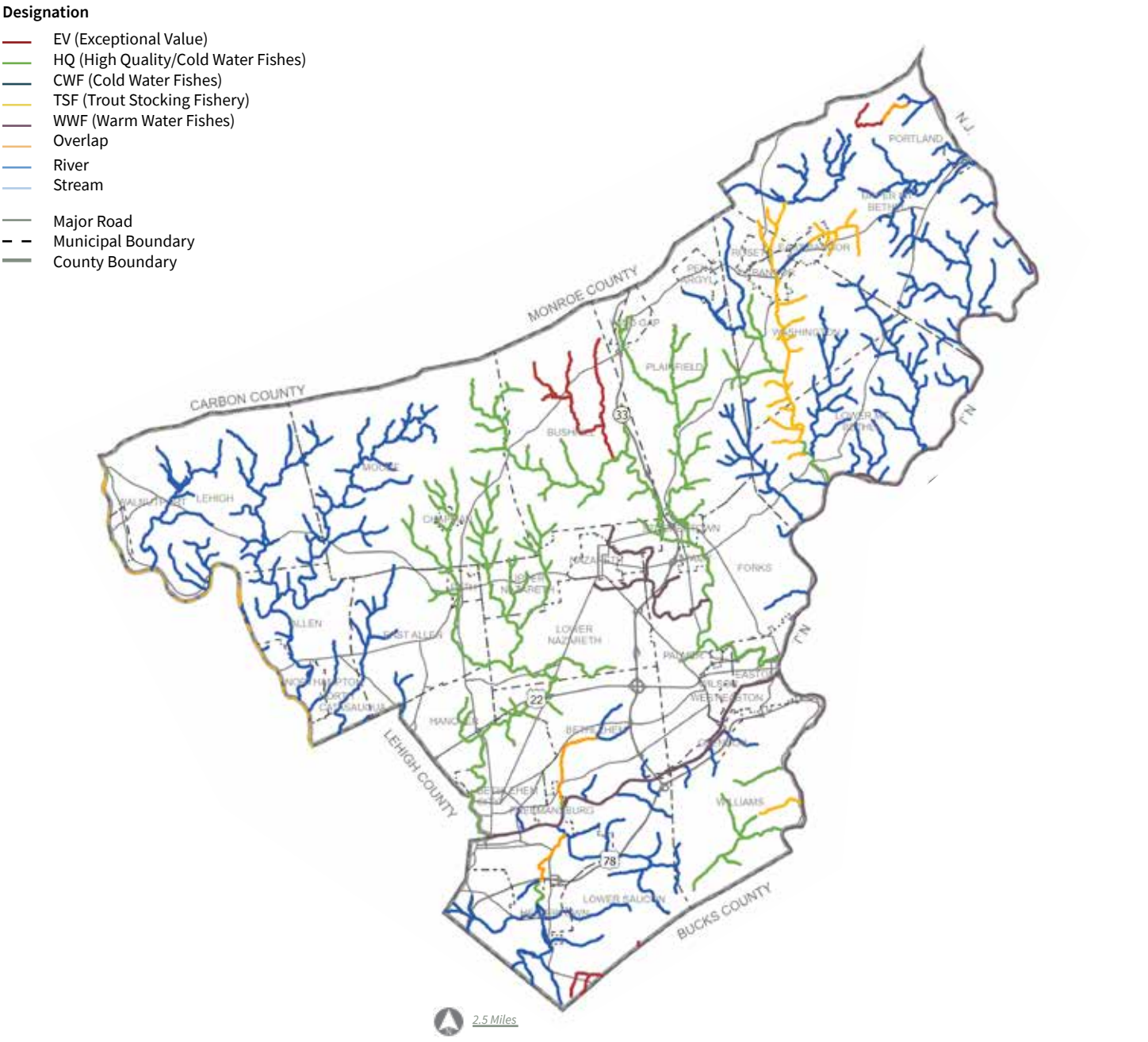
Source: Commonwealth of Pennsylvania (2025)

29 Commonwealth of Pennsylvania. February 22, 2025. Chapter 93. *Water Quality Standards*. https://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/025/chapter93/chap93toc.html&d=

30 PA DEP. "Streams Chapter 93 Designated Use". 2025. https://www.pasda.psu.edu/uci/DataSummary.aspx? dataset=1098.

State of the Environment

Water Quality Classifications for Streams in Northampton County



Source: PA DEP (2025)

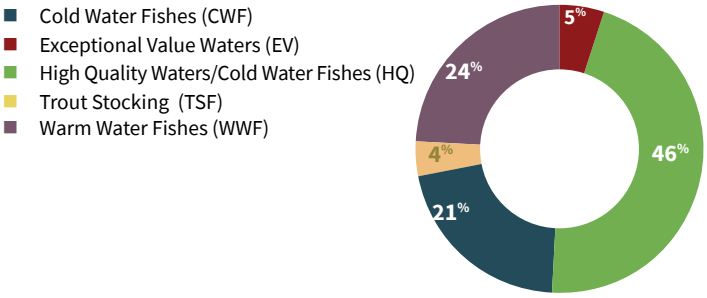
State of the Environment

Water Quality Assessment

The PA DEP has an ongoing program to assess the quality of Pennsylvania's waters. Water bodies that do not meet the water quality standards necessary to protect them for their designated use are classified as "impaired".[31] Almost half, 48.5 percent, of all the county's streams are classified as impaired (see the figure below and the map on the following page).

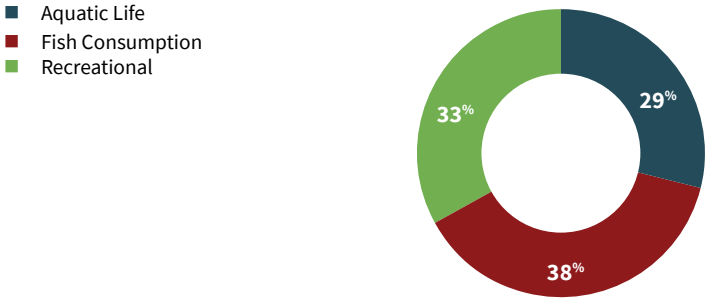
Roughly half (46 percent) of the impaired streams in the county are considered High Quality-Cold Water Fishes with about a fourth (24 percent) characterized as Warm Water Fishes (fgure below). Of the impaired streams, about 29 percent are impaired for aquatic life, 32 percent are impaired for recreational use, and 38 percent are impaired for fish consumption (see figure below).

% of Stream Impairment by Water Quality Classification



Source: Commonwealth of Pennsylvania (2025)

% of Use Impacts due to Stream Impairment



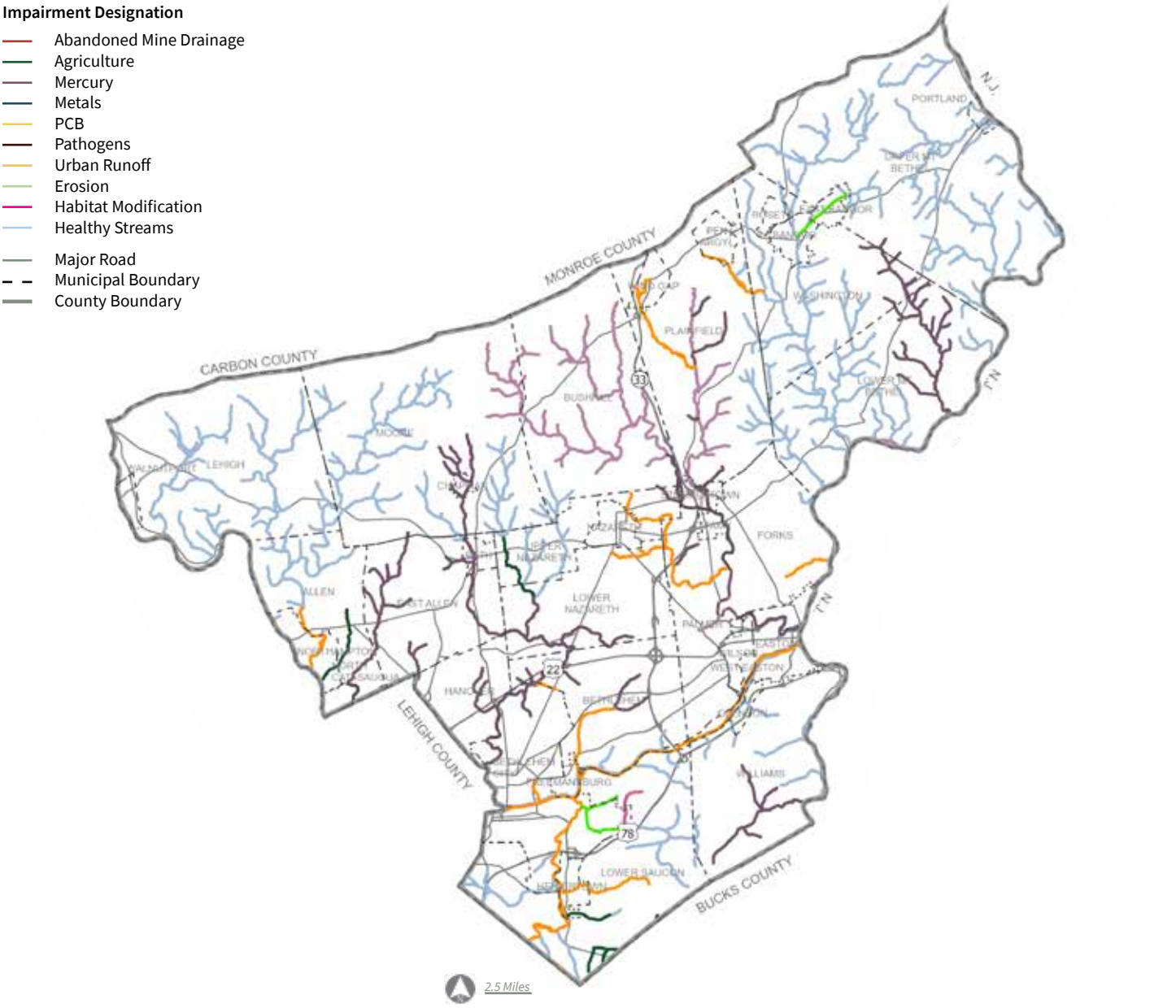
Source: PA DEP (2024)



31 PA DEP. *2024 Pennsylvania Integrated Water Quality Report.* 2024. https://storymaps.arcgis.com/stories/ 7af67824d6924b88b544dbad302ebc4f.

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Northampton County Streams Designated by Water Quality Impairment



Source: PA DEP (2025)

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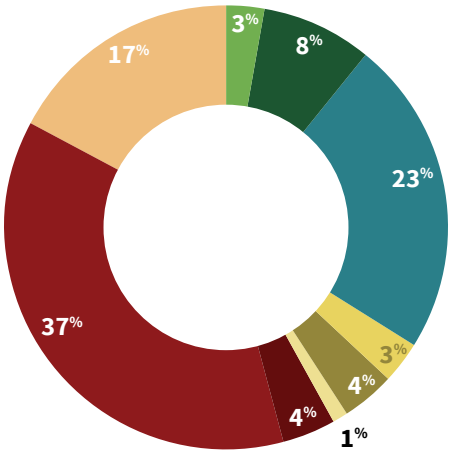
The major sources of impairment to tributary streams are atmospheric deposition, urban runoff/storm sewers, and agriculture (see map on page 31 and figure below). However, the source is largely unknown for many of the streams, especially those suffering from mercury contamination. As for causes, mercury is the top contributor for stream impairment in the county with most of the Delaware River classified as impaired by mercury and does not meet standards for fish consumption. Pathogens (28 percent) and siltation (19 percent) are the other two significant impairment causes in the county (see figure below right).[32]

The *2014 Lehigh Valley Return on Environment Study* noted that Bushkill Creek, considered a High-Quality stream, met the federal Clean Water Act standards.

However, since 2022, Bushkill Creek and some of its tributaries are considered unfit for fish consumption and fails to meet federal Clean Water Act standards now due to mercury contamination. A possible reason for this increase in mercury is from the up-stream coal-fired power plants that release mercury into the atmosphere.[33] This atmospheric mercury is then released back down to earth's surface through wet (rain, snow, etc.) or dry deposition into the waterways. Furthermore, runoff can flush accumulated mercury from the soil into the streams. Bacteria in the water convert mercury to the more toxic form of methylmercury. Methylmercury bioaccumulates in organisms, including humans and fish, and moves up the food chain through this process.[34]

% of Waterway Impairment by Source

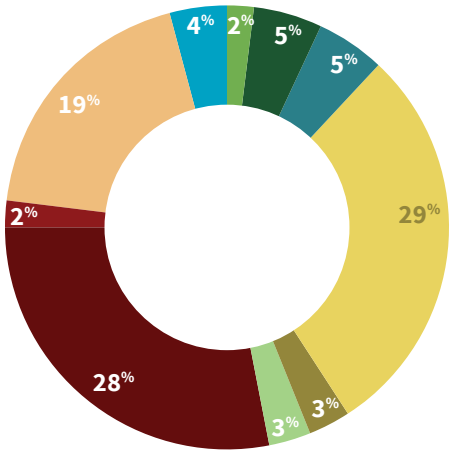
- Acid Mine Drainage: 3%
- Agriculture: 8%
- Atmospheric Deposition: 23%
- Combined Sewer Overflows: 3%
- Erosion from Derelict Land/Barren Land: 4%
- Habitat Modification (other than Hydromodification): 1%
- Municipal Point Source Discharges: 4%
- Source Unknown: 37%
- Urban Runoff/Storm Sewers: 17%



Source: PA DEP (2024)

% of Waterway Impairment by Cause

- Cause Unknown: 2%
- Flow Regime Modification: 5%
- Habitat Alterations: 5%
- Mercury: 29%
- Metals: 3%
- Organic Enrichment: 3%
- Pathogens: 28%
- Polychlorinated Biphenyls (PCBs): 2%
- Siltation: 19%
- Total Suspended Solids (TSS): 4%



Source: PA DEP (2024)

32 PA DEP. *2024 Integrated Report Viewer*. 2024. https://experience.arcgis.com/experience/ 368a9200df5e43eb8267dcbdb34a0ccc/page/Page?views=Export-Statewide-Dataset.
33 Kornfeind, Nathan. "Is there something in the water? Environmental report details 'impairments' of Bushkill Creek". February 11, 2022. https://lafayettestudentnews.com/128739/news/is-there-something-in-the-water-environmental-report-details-impairments-of-bushkill-creek/
34 National Atmospheric Deposition Program. "Mercury Deposition Network". 2025. https://nadp.slh.wisc.edu/networks/mercury-deposition-network/.

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The *2014 Lehigh Valley Return on Environment* report mentioned that the Lehigh River is adversely impacted by acid mine drainage (AMD) emanating from the Eastern Middle and Southern coalfields in Carbon and Luzerne counties. In 2024, this is still true with certain reaches of the Lehigh River in Northampton County contaminated with metals due to AMD, thus, the River does not meet standards for aquatic life.

Throughout Northampton County, 25 stream miles are designated by the Pennsylvania Fish and Boat Commission (PFBC) as Class A Wild Trout Streams[35] (see map on the following page). These waters are considered those that "support a population of wild (natural reproduction) trout of sufficient size and abundance to support a long-term and rewarding sport fishery."

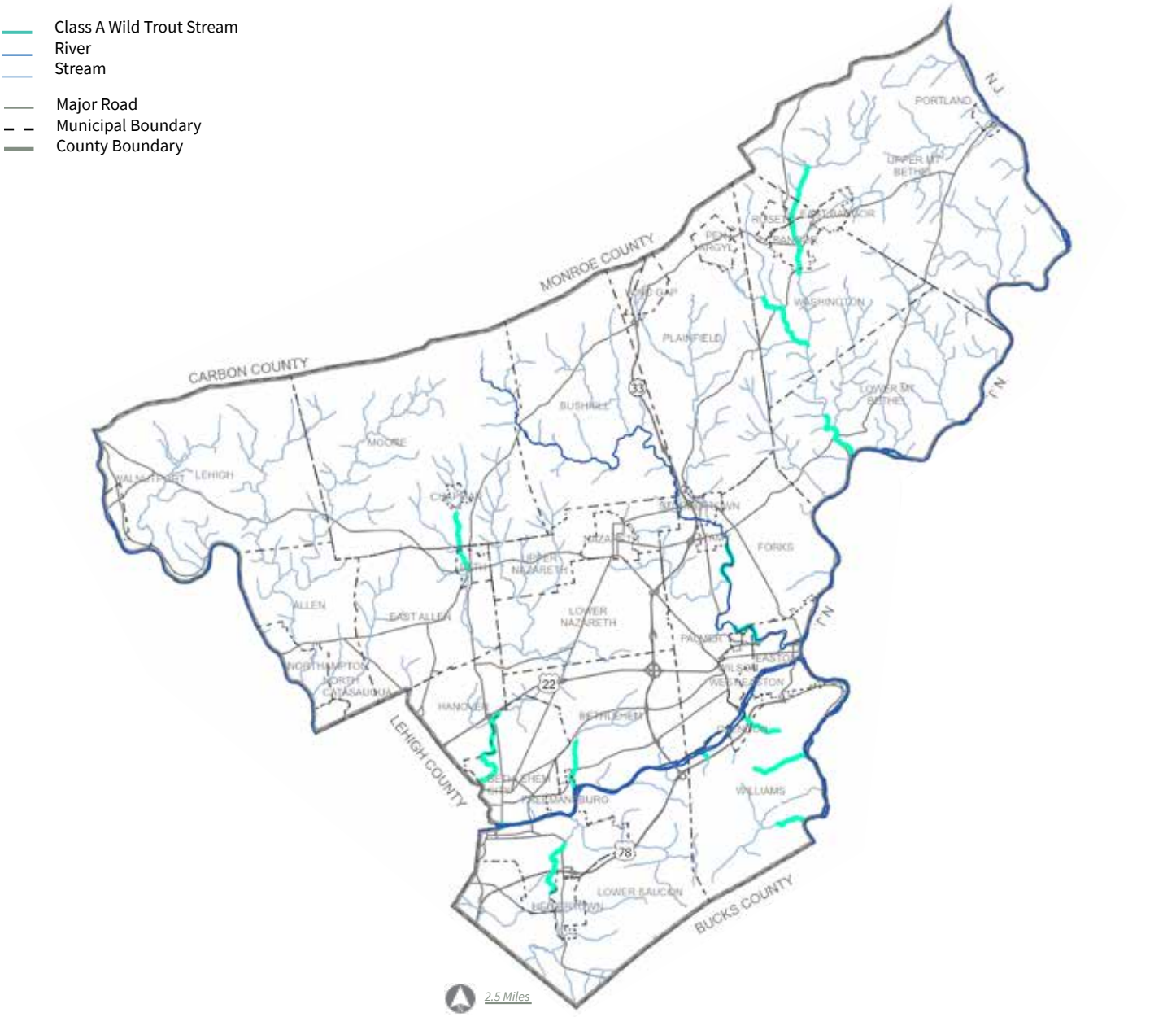
The PFBC stocks a few Class A waters.[36] In Northampton County, 67 miles of streams are trout-stocked.[37] Furthermore, 25 miles of stream are considered Wild Trout Waters in Northampton County, supporting naturally reproducing populations of trout.[38] Sport fishing holds significant recreational and cultural value across Pennsylvania. According to the 2025–2029 PA Statewide Comprehensive Outdoor Recreation Plan, fishing ranks among the most popular outdoor activities.[39] To protect trout during critical life stages, Pennsylvania enforces seasonal in-stream construction restrictions. These are particularly relevant for both Wild Trout Waters and Stocked Trout Streams.



35 Pennsylvania Fish and Boat Commission (PFBC). "Class A Wild Trout Streams". 2025. https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=986.
36 Pennsylvania Fish and Boat Commission (PFBC). "Trout Water Classifications". 2025. https://www.pa.gov/agencies/fishandboat/fishing/all-about-fish/catch-pa-fish/trout/trout-water-classifications.html.
37 Pennsylvania Fish and Boat Commission (PFBC). "Stocked Trout Waters (Flowing Waters)". 2024. https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=963.
38 Pennsylvania Fish and Boat Commission (PFBC) "Class A Wild Trout Streams". 2025. https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=986
39 Pennsylvania Department of Conservation and Natural Resources. "Outdoor Places, Shared Spaces: Pennsylvania's 2025-2029 Statement Comprehensive Outdoor Recreation Plan." 2025. elibrary.dcnr.pa.gov/GetDocument?docId=9137016&DocName=2025_SCORP_Plan_Draft.pdf

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Pennsylvania Fish and Boat Commission Class A Wild Trout Streams in Northampton County



Source: PA Fish and Boat Commission (2025)

Aquatic Communities Restoration Needs and Strategies

The 2013 update of the *Natural Heritage Inventory of Northampton and Lehigh Counties* by Western Pennsylvania Conservancy included an analysis of stream quality. Streams were evaluated on eight variables related to land use, road crossings and point source discharges. The headwater streams that originate on the Kittatinny Ridge were ranked as the highest conservation priority, while areas of the Coplay, Jordan, Little Lehigh, and Monocacy Creeks have the greatest restoration needs.

Stream habitat degradation and water quality impairment can be addressed with targeted restoration strategies, such as dam removal and riparian buffer re-establishment.

Dam Removal: There are 57 dams in Northampton County, including four on the main stem of the Lehigh River and multiple dams on every major tributary to the Lehigh and Delaware rivers (see map on the following page). Most of these dams no longer serve any purpose. Dams are ubiquitous on streams and rivers but degrade the health of ecosystems converting environments of flowing water to ones of still water. This conversion leads to increased warmer waters, reduced flow of nutrients, increased sediment, and degradation of both spawning habitat and structural habitat.[40] Dams disconnect upstream habitats from downstream ones and virtually erase the natural flow of species and nutrients. They can also worsen flooding. Dam removal is a cost-effective way to improve water quality, while restoring habitat connectivity. There are over 40 small, low-hazard dams in Northampton County that represent opportunities for removal. Dam removals can also promote more recreational opportunities for fishing and paddling along with their environmental impacts. This work can also eliminate liability concerns for dam owners, many of which are private owners who may not be able to support continual maintenance and upkeep.

Removing dams and restoring floodplains can return rivers and streams to their natural width and depth and allow them to rise and fall at a slower, more natural rate. Pennsylvania led the nation in dam removals in 2024 with 27. Northampton County partnered with Wildlands Conservancy, a nonprofit, to remove seven dams on the Bushkill and Monocacy Creeks.[41]

Bushkill Creek Dam Removal in Process



Bushkill Creek Dam Removal Complete

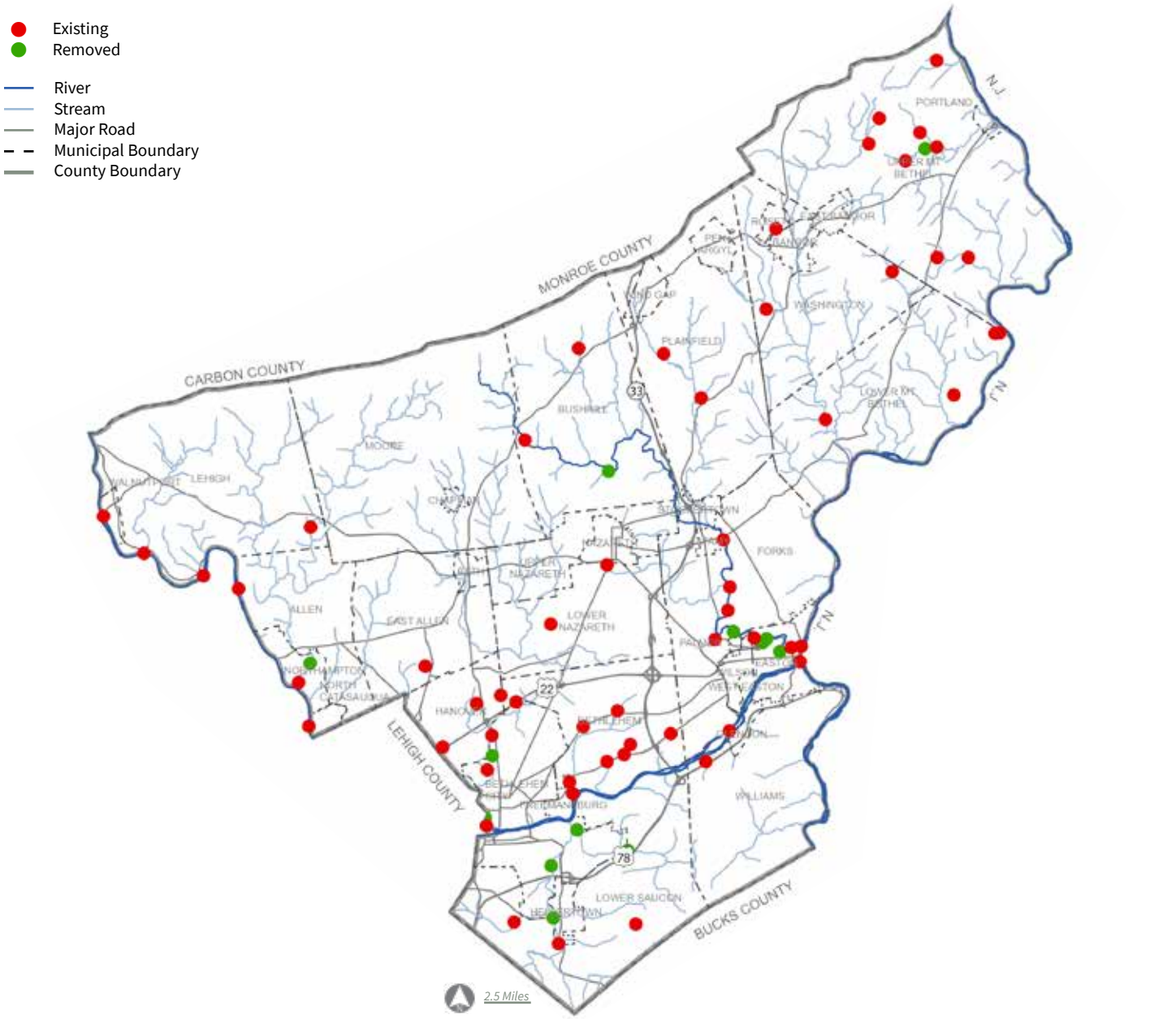


40 Arora, A. "Dams: Economic Assets or Ecological Liabilities?" 2024. https://earth.org/dams-economic-assets-or-ecological-liabilities/

41 Bresswein, K. "Free flowin': Pennsylvania led nation with 27 dams demolished in 2024, report says". 2025. https://www.lehighvalleylive.com/outdoors/2025/03/free-flowin-pennsylvania-led-nation-with-27-dams-demolished-in-2024-report-says.html

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Dams and Small Barriers



Source: United States Department of Homeland Security (2025)

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CASE STUDY

Bushkill Creek Corridor Restoration: Reconnecting Waterways and Wildlife

The Bushkill Creek Restoration, undertaken from 2021 to 2024, is one of the region's most ambitious aquatic restoration efforts and stands as a model of community-driven environmental stewardship. Centered in Easton and Palmer Township, the project removed historic dams that had long obstructed fish passage and degraded stream function. Through the removal of seven obsolete dams along Bushkill and Monocacy Creeks, the project reconnected the stream to the Delaware River for the first time in over two centuries, revitalizing aquatic habitats and improving water quality.

Led by a coalition including Wildlands Conservancy, Lafayette College, Northampton County, and engaged residents, the project restored approximately three miles of free-flowing stream. Lafayette College played a pivotal role, contributing research and removing its own dam to support ecological goals. Alongside dam removals, the team installed in-stream habitat features, replanted riparian buffers, and conducted scientific monitoring to assess changes in water quality and biodiversity. Results were swift: dissolved oxygen levels improved, and migratory species such as American eels and native mussels began returning. The project also enhanced flood resilience and improved public safety by removing aging infrastructure.

Community engagement was central, with events like wildflower plantings and restoration celebrations drawing volunteers and fostering public pride. The project also enhanced recreational access via the Two Rivers Trail and Karl Stirner Arts Trail, creating new opportunities for outdoor activity and tourism. The adjacent Simon Silk Mill redevelopment benefited from the improved stream corridor, aligning environmental restoration with economic revitalization. Funding came from multiple sources, including a $1 million legal settlement from a coal ash spill and over $2 million in grants from state and federal agencies. Together, these efforts have transformed the Bushkill Stream Corridor into a vibrant, accessible, and ecologically healthy asset for the region.

Sources: https://magazine.lafayette.edu/a-watershed-moment/; https://www.lehighvalleynews.com/easton/easton-damdemolitions-begin-reconnecting-bushkill-delaware-for-first-time-in-acentury

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Riparian Buffer Re-Establishment: Additional opportunities to address aquatic habitats exist through re-establishing riparian buffers. Riparian buffer zones are areas of undeveloped land near water that are home to trees, shrubs, and other plants. These areas provide habitat to wildlife, regulate water temperatures, absorb runoff, remove pollutants, and help decrease soil erosion. It is estimated that riparian buffers in the Delaware River Basin provide around $9,400 per acre in carbon storage benefits each year.

Studies have also shown that watershed conservation is a cheaper option to address water quality than treatment plants on a per-pound basis.[42]

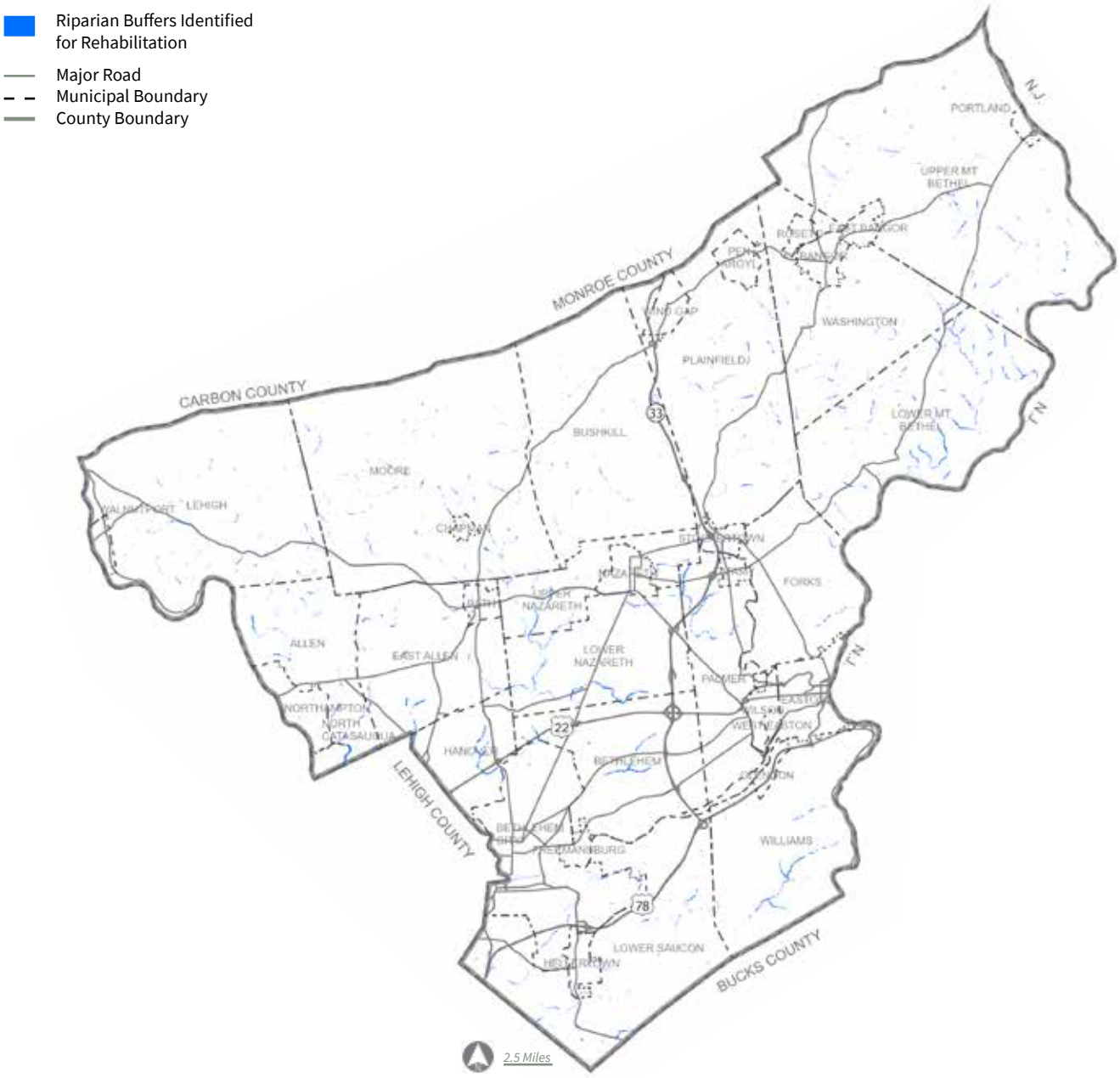
Roughly one-third of Lehigh Valley stream miles have riparian zones that are too narrow or completely lack riparian vegetation. Generally, riparian buffers are lacking along streams in the urban Bethlehem and Easton areas; in agricultural areas and along many headwater streams (see map on following page).



42 Jones, A. and Kohut, D. “Riparian Buffers: a Natural, Inexpensive, and Crucial Way to Protect and Improve Water Quality”. 2023. https://www.pennfuture.org/Blog-Item-Riparian-Buffers-a-Natural-Inexpensive-and-Crucial-Way-to-Protect-and-Improve-Water-Quality

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Riparian Buffer Assessment



Source: Wildlands Conservancy

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Land Cover and Habitat

Overview

Northampton County is bordered to the north by the Kittatinny Ridge, better known as the Blue Mountain, and to the south by South Mountain. Northampton County's metropolitan areas of Bethlehem and Easton are highly urbanized and expanding. A little more than one-third of the county's land is now developed (see map on following page). More than 140,000 acres can still be classified as open space land cover (i.e., Open Water, Developed Open Space, Barren Land, Forest, Shrub/Scrub, Grasslands/ Herbaceous, Pasture/Hay, Woody Wetlands, and Emergency Herbaceous Wetlands). The primary land covers in Northampton County are forest and agriculture, both accounting for around 30 percent of land cover. They are primarily in the northern and southeastern areas of the county. The largest contiguous forests are found along the Kittatinny Ridge and are primarily owned and managed by the Pennsylvania Game Commission. Williams Township, located in the Highlands region, is also home to large areas of forestland. Recent development patterns have led to conversion of forests and farms to more developed uses, and the trend is not anticipated to end as population in the county is expected to grow. The LVPC reports that the Lehigh Valley, consisting of Lehigh and Northampton Counties, is one of Pennsylvania's most rapidly expanding areas and population is expected to grow by 14.4 percent by 2050.[43]

Forest Fragmentation and Wildlife Impacts

Northampton County's forests are very fragmented (see map on page 41). This fragmentation is caused by roads, utility lines, and other development, and poses significant danger to wildlife. Habitat change and fragmentation are considered the primary cause of biodiversity loss in the world.[44]

Large areas of forest create better conditions for species to survive and reproduce. Fragmenting these habitats can lead to issues with important ecological processes such as resource collection, mating, migration, and competition.[45] These issues can impact the long-term viability of populations. Reptiles and amphibians are small and slow moving, which makes traveling between suitable habitats dangerous. Amphibians frequently move to new habitats to align with different needs for each stage of their lifecycle.[46] That said, there are species, such as the whitetail deer, that can persist or even thrive in these fragmented environments.



43 Lehigh Valley Planning Commission and Lehigh Valley Transportation Study. "2023 FutureLV The Regional Plan," November 15, 2023. https://drive.google.com/file/d/12oez71k4EV1c2npS-Su6liTT0cZLvl_h/view

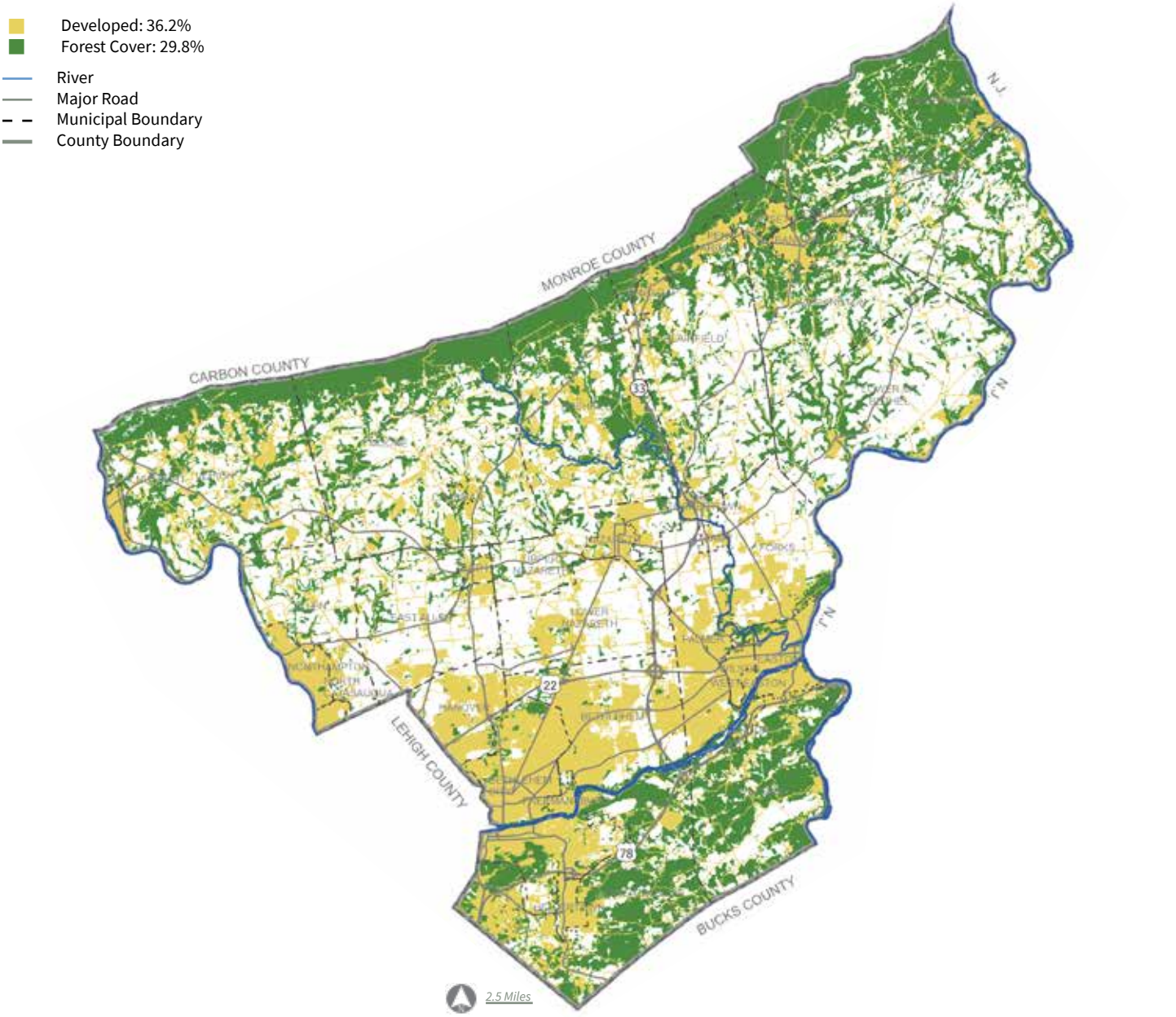
44 Tan, W.C., Herrel, A. & Rödder, D. A global analysis of habitat fragmentation research in reptiles and amphibians: what have we done so far?. Biodivers Conserv 32, 439–468 (2023). https://doi.org/10.1007/s10531-022-02530-6

45 International Fund for Animal Welfare. "How habitat fragmentation affects animals". 2024. https://www.ifaw.org/journal/habitat-fragmentation-affects-animals

46 Pryce, M and Butler, P. "Habitat loss and climate change make it tough to be an amphibian. Some humans are helping". 2025. https://www.whec.com/national-world/habitat-loss-and-climate-change-make-it-tough-to-be-an-amphibian-some-humans-are-helping/

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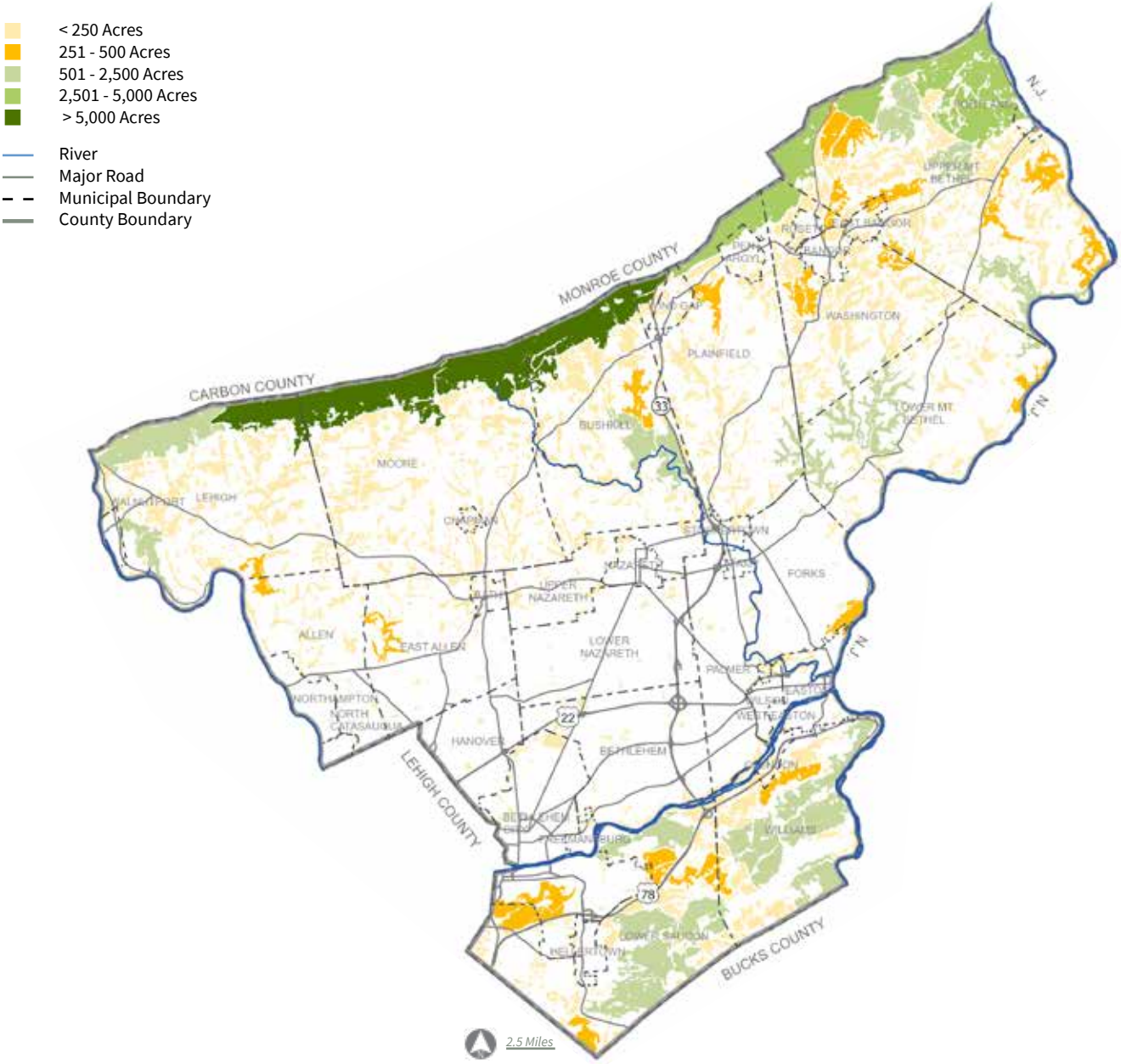
Developed and Forested Land Areas



Source: Michael Baker International, using 2023 National Land Cover Database (2025)

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Forest Fragmentation



Source: National Land Cover Database (2023)

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Forest Health and Natural Resource Management

Forests cover about 72,100 acres and represent approximately 30 percent of the total land cover in Northampton County. It is important to think about the health of these forests. One indicator of a healthy forest is the understory—the younger trees and plants that cover the ground. The plants here impact water availability, decomposition, and nutrient cycling. This is often where the most biodiversity is found in forests. A well-developed understory contains many native species, provides habitat diversity, and contributes to healthy ecological cycles for a forest. These all ensure a forest can regenerate and sustain itself in the future.[47] Most of the forests in the county lack quality understory, and old trees that die are not adequately replaced with young trees.

The predominance of invasive species and abundant deer populations are two additional factors that greatly impact the county's forests. Non-native, invasive species are ones that did not evolve with native wildlife, plants, or insects but compete for resources and potentially crowd out those native species. Typically, they are not suitable food sources for wildlife and can then continue to outcompete native species that are. The predominance of invasive plants can significantly degrade wildlife habitat and forest health by disrupting established ecological processes. Invasive plants in Northampton County include autumn olive, Japanese hops, purple loosestrife, multiflora rose, and Tartarian honeysuckle. Invasive insects include spongy moth, hemlock woolly adelgid, Asian tiger mosquito, brown marmorated stink bug, emerald ash borer, and spotted lanternfly.[48]

Deer feed on the shrubs, young trees, and other plants that make up forest understories. When their population eclipses what a forest can sustainably support, forest health declines as older trees are no longer replaced. At these higher populations, deer can have devastating long-term impacts on both the appearance and ecology of forest vegetation by disrupting natural regeneration cycles.[49]

Wetlands

Wetlands are extremely important for water quality protection and for wildlife habitat. They are natural purifiers, provide flood control, stabilize streambanks, and offer habitats for amphibians, reptiles, birds, and mammals. About one-third of all plants and animals listed as threatened or endangered in the United States depend on wetlands.[50] According to the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), a little over 4,000 acres of land use within Northampton County are classified as wetlands (see map on following page).

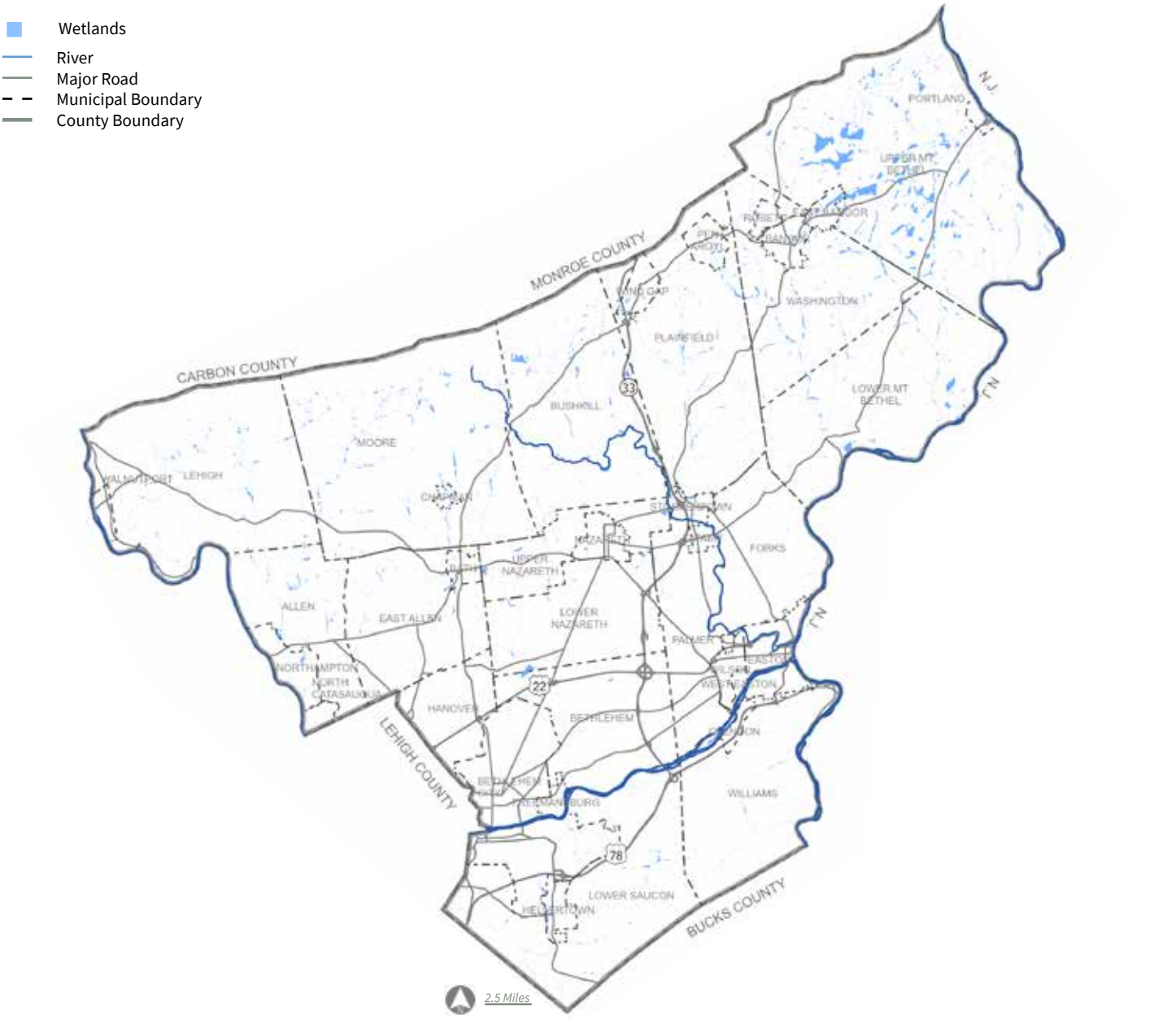
Major wetland complexes are located along the base of the Kittatinny Ridge and in Upper Mount Bethel Township. Pennsylvania has lost more than half of its original wetland acreage since the 1700s. The primary causes include cropland conversion, forestry, mining, and urban development.[51] That said, Pennsylvania has instituted programs to achieve no net loss of wetland resources by requiring wetland replacement of at least a 1:1 ratio when impacts to an existing wetland cannot be prevented.



47 De Stefano, A. "Promoting understory for sustainable forest management." 2023. https://www.lsuagcenter.com/articles/page1685722875400
48 Bresswein, K. 2023. "A look at 9 invasive plants and bugs in the Lehigh Valley. And what you can do about them.". https://www.lehighvalleylive.com/news/2023/07/a-look-at-9-invasive-plants-and-bugs-in-the-lehigh-valley-and-what-you-can-do-about-them.html
49 Rawinski, T. "Impacts of White-Tailed Deer Overabundance in Forest Ecosystems: An Overview". 2008. http://www.northforkdeer.org/files/80704231.pdf
50 National Park Service. "Why are Wetlands Important?". 2025. https://www.nps.gov/subjects/wetlands/why.htm
51 National Association of Wetland Managers. "Pennsylvania & The National Wetlands Inventory". 2013. https://www.nawm.org/pdf_lib/mapping_2013/pennsylvania.pdf

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Wetlands



Source: USFWS NWI Wetlands Mapper (2025)

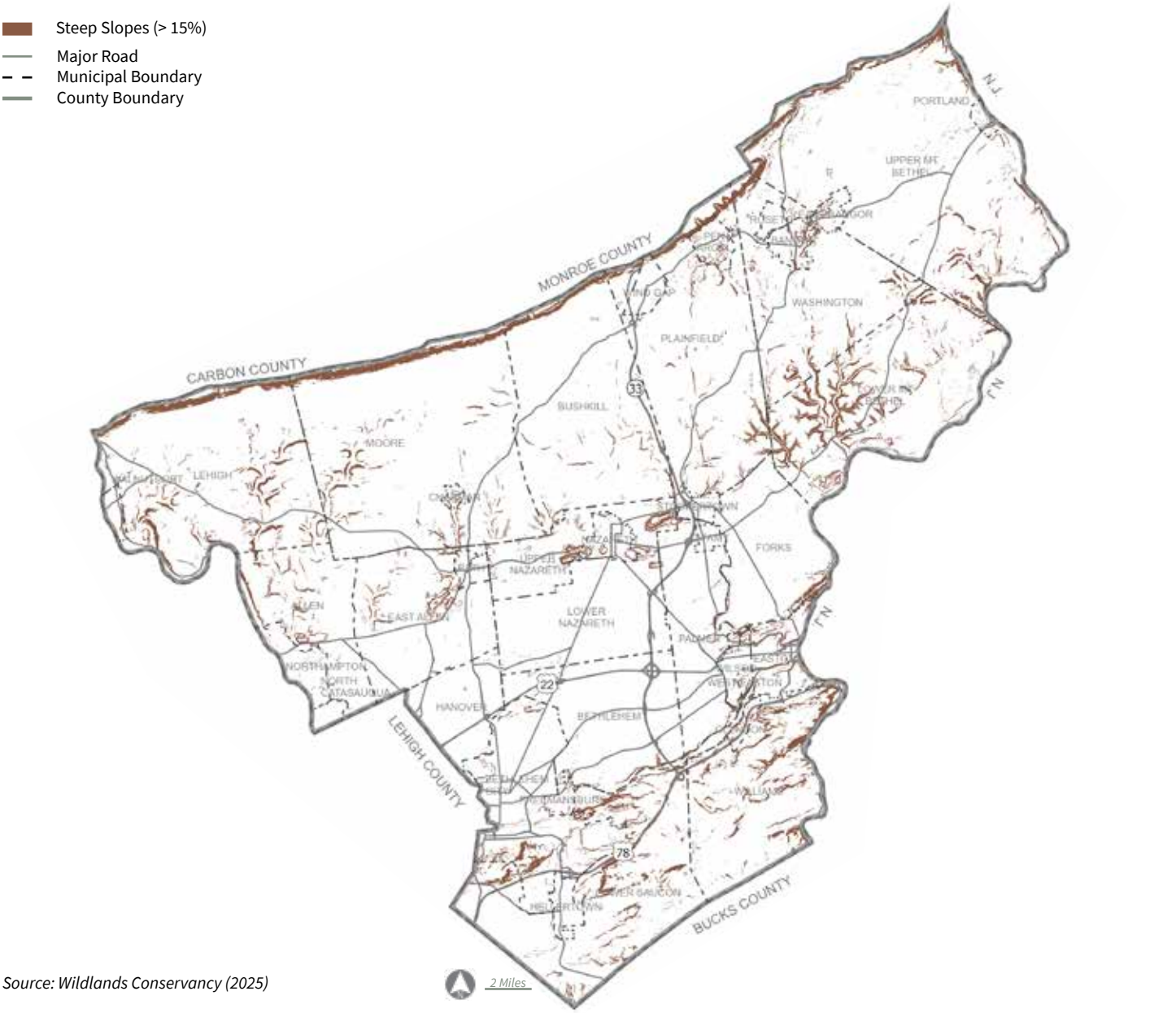
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Steep Slopes

Steep slope conservation helps prevent erosion and protects water quality. Steeply sloped areas tend to be areas of high biodiversity, largely related to the presence of the microhabitat and microclimate gradients.[52] A large portion of Natural Heritage Areas in Northampton County are located on steep slopes, which also add greatly to the scenic character of the region. Both South Mountain and Blue Mountain provide picturesque backdrops for both residents and visitors to the Lehigh Valley (see map below).

The contrast between the steep hillsides and flatter, rolling farmland in eastern Northampton County makes these areas particularly scenic and desirable. Steep slopes are typically unsuitable for development and agriculture, but population and development pressures may create incentives to explore the possibility. Several municipalities in Northampton County have regulations for steep slope development in their zoning ordinances, and the LVPC offers a steep slope model regulation.

Steep Slopes



Source: Wildlands Conservancy (2025)

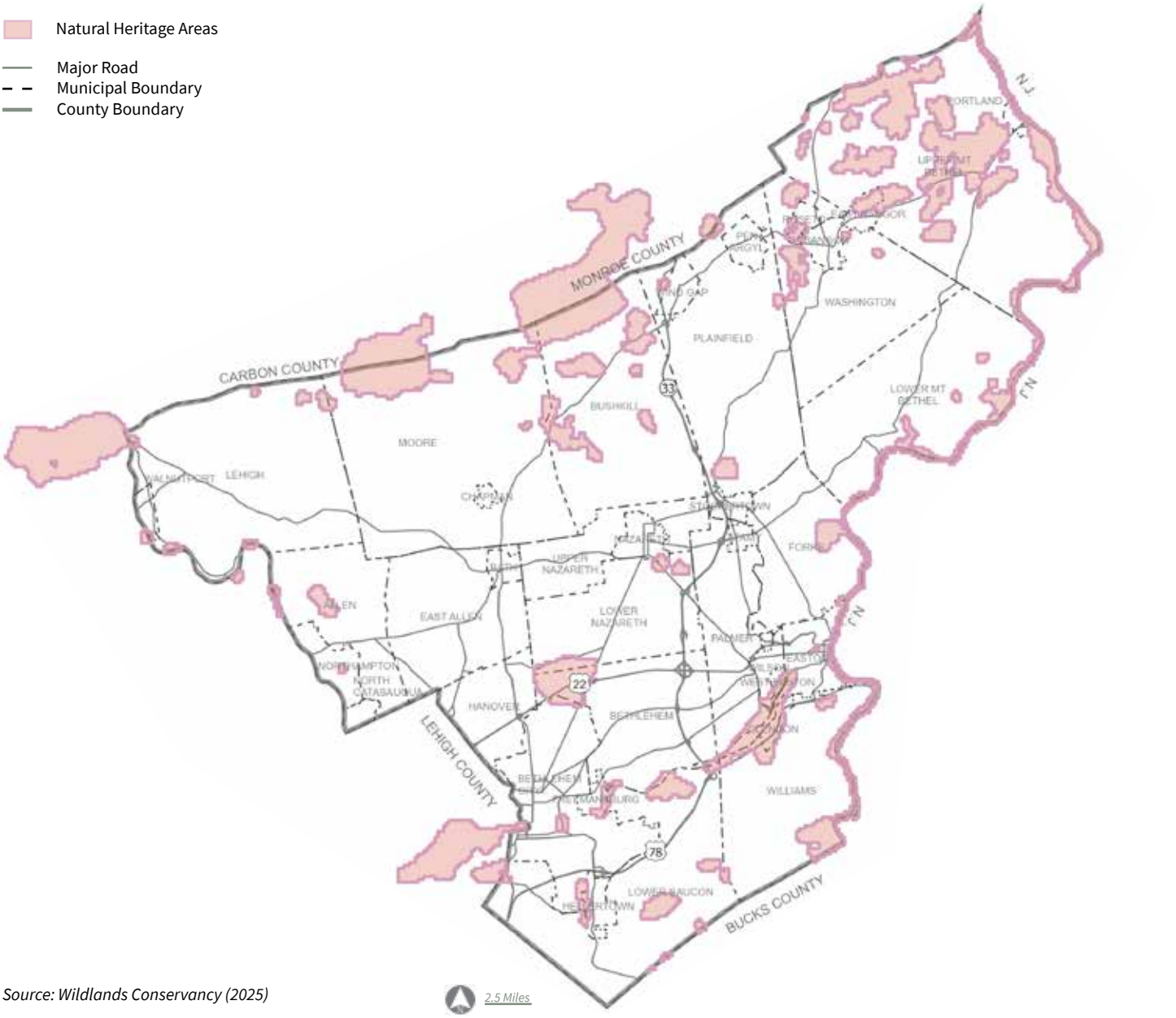
52 Anderson. "Steep Slope Ecosystems in the Northern Appalachian/Acadian Ecoregion". 2006. https://conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/Documents/EcoregionalPlans/NAP/Steep.pdf

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Important Natural Areas and Natural Heritage Areas

The latest update to the Natural Heritage Inventory (NHI) for Northampton County in 2013 identified 89 sites (see map on page 46). These sites are known to contain the plants, animals, natural communities and habitats most at risk of extinction at the local or global level. The county ranked 29th in the Commonwealth for the number of species of concern documented in each county. The Kittatinny Ridge is classified by the Audubon Society as an Important Bird Area, providing large areas of unfragmented forests for both migratory and interior-forest birds. Cherry Valley National Wildlife Refuge extends into northeastern Northampton County. The refuge area includes wetland and forest habitats that support federal trust and threatened or endangered species.[53] These areas represent important natural resources in the county that support local ecology and species biodiversity.

Important Natural Areas and Natural Heritage Areas



Source: Wildlands Conservancy (2025)

53 U.S. Fish & Wildlife Service. "Cherry Valley National Wildlife Refuge". N.d. https://www.fws.gov/refuge/cherry-valley

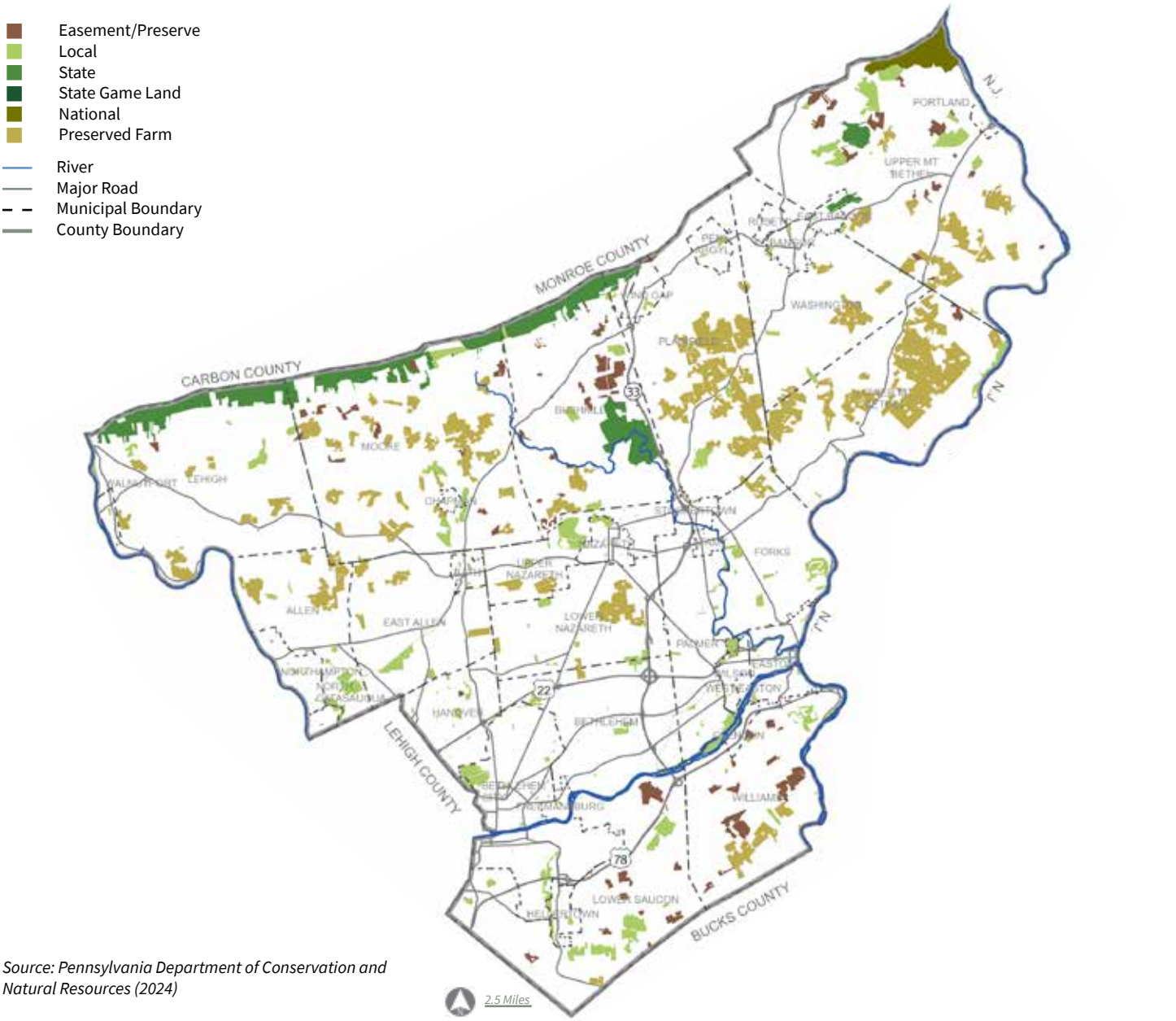
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Land Protection

The Lehigh Valley is fortunate to have more than 69,000 acres of permanently protected open space (see map on page 47). The largest protected land use is agriculture, with a little more than 16,000 acres (nearly 230 farms) protected by easements (see map below).

Approximately 8,600 acres are dedicated to local parks. The Valley has about 5,600 acres of game lands (all along the Kittatinny Ridge) and one 430 acre state park, the Lehigh Valley Greenways, PA Highlands. Approximately 4,000 acres are protected as nature preserves or with conservation easements.

Protected Open Space



Source: Pennsylvania Department of Conservation and Natural Resources (2024)

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CASE STUDY

Transfer of Development Rights, Lancaster County

Lancaster County, Pennsylvania, faces a pressing challenge: the loss of approximately 8 acres of farmland per day due to rapid development. To address this, the county has embraced Transferable Development Rights (TDRs) as a strategic tool to balance farmland preservation with urban growth.

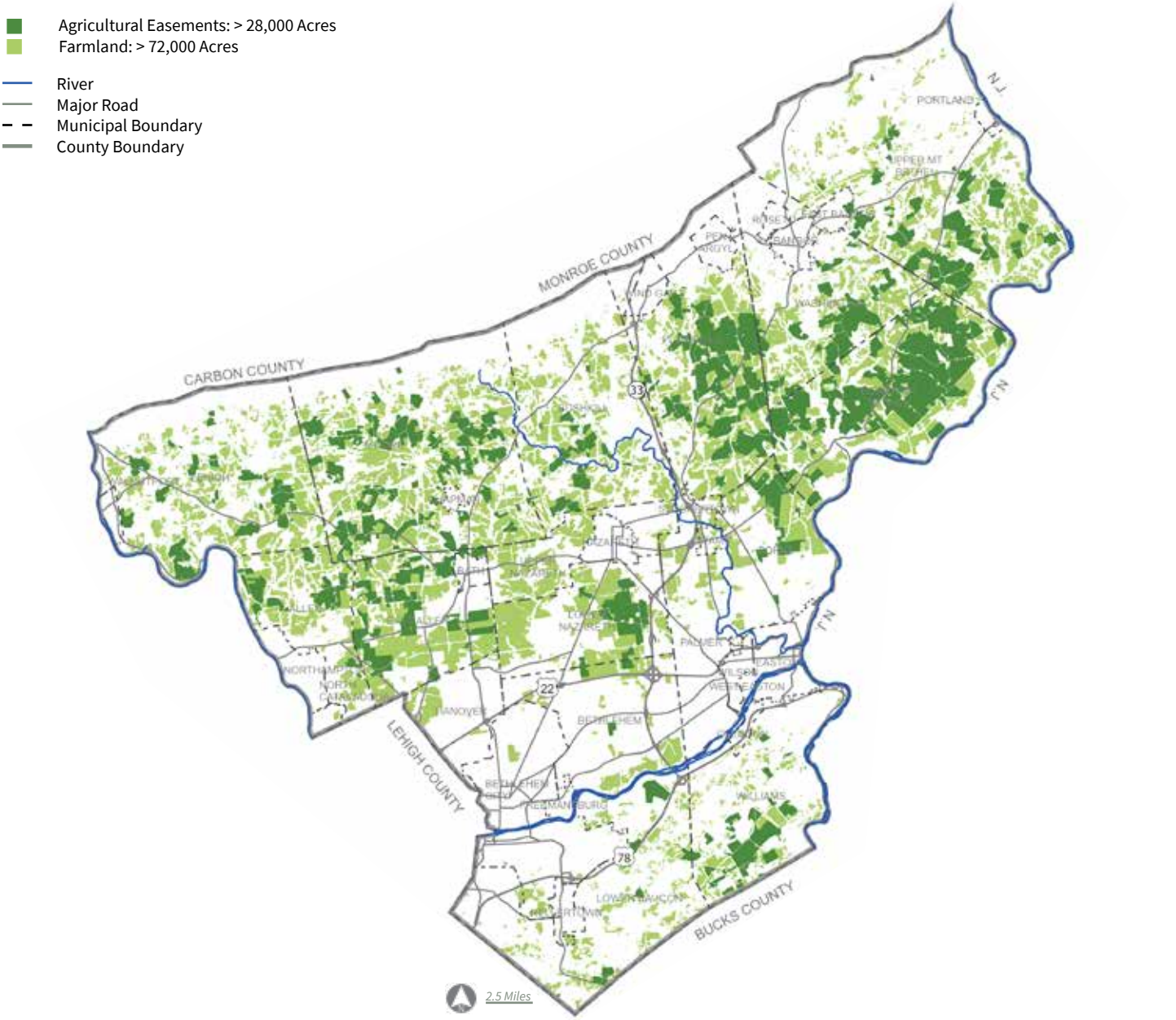
Under Lancaster's TDR framework, farmers who preserve their land receive development rights they can sell. These rights are then purchased by developers seeking to build at higher densities in designated urban growth areas. For example, a developer zoned for 10 units might buy TDRs to build 20 units, effectively shifting development pressure away from rural lands.

Lancaster's TDR program stands as a model of market-driven land conservation, demonstrating how thoughtful planning can preserve agricultural heritage while accommodating growth.

Source: https://lancasterfarmlandtrust.org/blog/wheat-a-minute-what-are-tdrs/

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Farmland and Agricultural Easements



Source: National Land Cover Database (2023) and Pennsylvania Department of Agriculture (2020)

Land Preservation Strategies

Connectivity: Maintaining land connectivity helps mitigate the effects of habitat fragmentation, habitat loss, and land-use and climate change impacts. Conservation efforts usually focus on adding to existing protected lands. Over time, this can lead to connecting large, protected lands to each other. Land connectivity contributes to ecological connectivity, which supports biodiversity by allowing wildlife to have greater freedom of movement and access to food, water, shelter, and breeding habitats. When land and habitats are connected, it helps facilitate shifts in the ranges of plants and wildlife which can help them better respond to environmental changes.[54] Land connectivity also benefits residents and visitors. Connected landscapes support important ecological processes that impact humans, such as water quality, carbon sequestration, and soil stability.[55] In addition, contiguous open space creates opportunities for recreational trail networks, which bring economic benefits to communities and can even spur further investment in connectivity efforts. In the Lehigh Valley, land preservation efforts aimed at improving habitat connectivity are principally focused on the Kittatinny Ridge and on South Mountain.



Photo source: Sherry L. Acevedo, Nature Photography

Rare, Threatened and Endangered Species Protection: Protection and preservation efforts can be focused on areas and properties that contain, or are critical to, plants and animals that are rare, threatened, or endangered. According to data from the Center for Biological Diversity, there are seven federally-listed threatened and endangered species in Northampton County as well as several state-listed threatened and endangered or sensitive species. The federally-listed species include the Bog Turtle (Glyptemys muhlenbergii), Indiana Bat (Myotis sodalist), Monarch Butterfly (Danaus plexippus), Northeastern Bulriush (Scirpus ancistrochaetus), Northern Long-eared Bat (Myotis septentrionalis), Small Whorled Pogonia (Isotria medeoloides), and the Tricolored Bat (Perimyotis subflavus).[56] Each of the three bat species spend winter hibernation in caves and mines, called hibernacula. Their spring, summer, and fall habitats include forest areas of dense growth trees and underbrush where they can roost in or near both live and dead trees. Habitat disruption and a fungal pathogen are leading threats to these species.[57, 58, 59] The Pennsylvania Department of Conservation and Natural Resources developed new regulations around firewood collection to protect these habitats as part of their Bat Habitat Conservation Plan.[60] Further regulations around tree-cutting, such as a restriction on excessive clearing during land development, could help to further this goal.

54 Cornell University. “Connectivity Planning”. N.d. https://hudson.dnr.cals.cornell.edu/conservation-planning/inventory-and-planning/connectivity-planning
55 Ibid.
56 Center for Biological Diversity. “Map: U.S. Threatened and Endangered Species by County”. 2025. https://center.maps.arcgis.com/apps/webappviewer/index.html?id=def877f10b304220beab7ee8b19f1533
57 Commonwealth of Pennsylvania. “Indiana bat”. N.d. https://www.pa.gov/agencies/pgc/wildlife/discover-pa-wildlife/indiana-bat.html#accordion-60059df833-item-11909293d8
58 U.S. Fish & Wildlife Service. “Tricolored Bat”. 2025. https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus
59 U.S. Fish & Wildlife Service. “Northern Long-eared Bat”. 2025. https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis
60 Fishman, K. “New Firewood Cutting Rules In PA State Forests To Protect Bats”. 2021. https://patch.com/pennsylvania/across-pa/new-firewood-cutting-rules-pa-state-forests-protect-bats

State of the Environment



Water Quality Protection: Land preservation strategies can also be focused on protecting and improving water quality. Protecting forests, riparian areas, and wetlands helps them maintain their ecological functions, which include filtering pollution from water. LVPC has a model regulation for riparian buffer protection that can help safeguard these areas from development and other impacts. In addition to regulations, there are watershed groups and nonprofit organizations that work to protect riparian buffers. Land acquisition or conservation easements are effective ways to safeguard habitats for the future. In Northampton County, 88 stream miles are surrounded by protected land. County and local parks along stream corridors can create both recreational opportunities and protect natural resources and are heavily supported by residents. A public survey from the *2015 Livable Landscapes: An Open Space Plan for Northampton County*[61] resulted in 71 percent of respondents ranking protecting water quality as the highest priority for the county, and a public survey from the *2019 Future LV: The Regional Plan* revealed that 95 percent of respondents want to preserve and protect natural resources.[62]

Private Conservation: While the Lehigh Valley is fortunate to have so much open space in public ownership (i.e., game lands; federal, state, county and local parks) and in privately-owned but publicly accessible preserves, some open space such as farmland and forests are privately owned.

How these private landowners choose to manage their property will impact the local environment. Between 2001 and 2017, over 75 percent of the natural areas lost to development in the Unites States were privately-owned.[63] Regulations can be seen as overly burdensome and restrictive for landowners and funding for private conservation is scarce. Local governments and organizations can work with landowners to identify options, resources, and incentives for conservation. These may include acquisitions, easements, or tax benefits. NHI properties are usually targets of these acquisition efforts or conservation easement projects.

61 Lehigh Valley Planning Commission (LVPC). "Northampton County Living Landscapes". 2015. https://content.lvpc.org/Publications/Environment/Northampton%20County%20Livable%20Landscapes%202015.pdf

62 Lehigh Valley Planning Commission (LVPC). "2023 Future LV: The Regional Plan". 2023. https://content.lvpc.org/Publications/General%20Organizational/2023%20FutureLV%20The%20Regional%20Plan.pdf

63 Lehigh Valley Planning Commission (LVPC). "2023 Future LV: The Regional Plan". 2023. https://content.lvpc.org/Publications/General%20Organizational/2023%20FutureLV%20The%20Regional%20Plan.pdf

State of the Environment

Wildlife

Habitat Types

Wildlife habitats in Northampton County today are dominated by forests, which cover about 72,100 acres (Figure 3.24) and represent approximately 30 percent of the total land cover according to the Multi-Resolution Land Characteristics Consortium (MRLC) National Landcover Database (NLCD) Viewer. The majority of the forests (96 percent of total forest cover) are primarily deciduous. Roughly 3,100 acres are classified as mixed forest (deciduous and evergreen), and the County only has 94 acres of evergreen forest. Northampton County has about 300 acres of shrub-scrub habitat and about 400 acres of grassland. Regarding aquatic habitats, Northampton has 548 miles of streams and rivers and approximately 4,200 acres of wetlands[64] (see map, page 53). Furthermore, about 36 percent of Northampton County is developed, and roughly 11 percent of the land is impervious.[65]

Habitat Loss & Degradation

Maintaining wildlife diversity and abundance requires conserving all habitat types in sufficient amounts and in strategic configurations. Habitat loss due to development and degradation are the primary causes of species decline and higher extinction rates. The consumption of open space, and hence the destruction of wildlife habitat, in Northampton County has historically far outpaced population growth. Approximately 22.5 percent of Northampton County's land cover changed between 1985 and 2023.73 Northampton County has been losing roughly 617 acres of open space to development per year over the past ten years. In Northampton County, development primarily occurs on, but is certainly not restricted to, farmland and forests. Forest habitats, and consequently forest species, have declined most dramatically, losing about 1,958 acres of forest to mostly development by 2023. Similarly, wetland habitats have decreased by 38 acres since 1985. Unlike natural land cover changes, lost land to development tends to be permanent.

Between 1985 and 2023, Northampton gained about 26,048 acres of developed land and 9,606 acres of impervious surfaces.73 Urban sprawl, also referred to as "sprawl", is defined as the rapid expansion of cities and towns and often features low-density residential housing, single-use zoning, and increased use of private vehicles for transportation. Although this increase in urbanization is caused, in part, by an increasing population, in many metropolitan areas it results from a desire for increased living space and other residential amenities. The effects on wildlife habitat from urban sprawl extend far beyond direct consumption for development. Sprawl also causes the indirect degradation of remaining habitat through runoff, pollution, invasive species spread, and of course, fragmentation. Additionally, sprawl is correlated with an increase in energy use and traffic congestion, contributing to global emissions and climate change.[66]

Mammals

There are 66 species of mammals thought to occur in Pennsylvania. While the state's large mammals are easily recognizable and well-studied, most Pennsylvania's mammal species are small and have not been extensively studied. The Pennsylvania Game Commission lists 19 mammal species that need enhanced conservation measures in the *2015-2025 Pennsylvania Wildlife Action Plan*. Many of these species are bats, rodents and shrews. The decline of these populations are directly linked to the declining availability of specialized habitat types, particularly grasslands, wetlands and interior forests. Five out of the 19 mammal species reside in Northampton County, these species are the Allegheny Woodrat (*Neotoma magister*), Big Brown Bat (*Eptesicus fuscus*), Tricolored Bat (*Perimyotis subflavus*), Northern Long-eared Bat (*Myotis septentrionalis*), and Little Brown Bat (*Myotis lucifugus*).[67]

64 Multi-Resolution Land Characteristics Consortium (MRLC). "National Landcover Database (NLCD) Viewer". 2023. https://www.mrlc.gov/viewer/.
65 Multi-Resolution Land Characteristics Consortium (MRLC). "Land Cover Data Sheet". 2023. https://www.mrlc.gov/eva/.
66 Rafferty, John. "The Problem of Urban Sprawl". 2025 https://explore.britannica.com/explore/savingearth/urban-sprawl.
67 Pennsylvania Fish and Boat Commission (PFBC) & Pennsylvania Game Commission (PGC). 2015-2025 Pennsylvania Wildlife Action Plan. September 2015. https://www.pa.gov/agencies/fishandboat/conservation/pennsylvania-wildlife-action-plan.html.

Birds

More than 400 species of birds can be found in Pennsylvania.[68] Maintaining species diversity requires maintaining habitat diversity. Unfortunately, many of the habitat types that support large numbers of bird species are in dramatic decline throughout the state, most notably grasslands, wetlands, riparian forests and early successional habitats. Furthermore, diseases, predation from outdoor cats, window collisions, windmills, and mass spraying of insecticides also contribute to the declining bird population.[69] The Pennsylvania Game Commission lists 90 bird species in the *2015-2025 Pennsylvania Wildlife Action Plan* that warrant enhanced conservation measures. The vast majority of these species are dependent on grassland, wetland and interior forest habitats. Northampton County contains 62 out of the 90 bird species either during their breeding season, nonbreeding season, or both.

Reptiles and Amphibians

Reptiles and amphibians are perhaps the most sensitive and vulnerable groups to the environmental issues facing Northampton County, namely habitat loss, degradation, and fragmentation (especially wetlands), and declining water quality. Illegal collection, direct persecution, and disease are also significant sources of population decline among reptiles and amphibians.[70] Reptiles and amphibians are far more cryptic in nature than birds and mammals. As a result, far less is known about their abundance, distribution and habitat requirements. Twenty-two species of salamanders, 18 species of frogs and toads, 13 species of turtles, 21 species of snakes and four species of lizards can be found in Pennsylvania.[71] The 2015-2025 Pennsylvania Wildlife Action Plan lists 18 amphibian species (nearly half) and 22 reptile species (roughly 58 percent) that warrant enhanced conservation measures in Pennsylvania. Of the 18 amphibian species, four reside in Northampton County, these species are Jefferson Salamander (*Ambystoma jeffersonianum*), Marbled Salamander (*Ambystoma opacum*), Fowler's Toad (*Anaxyrus fowleri*), and Northern Leopard Frog (*Lithobates pipiens*). Similarly, eight of the 22 reptile species have been documented in Northampton County.

These species include the Spotted Turtle (*Clemmys guttata*), Wood Turtle (*Glyptemys insculpta*), Bog Turtle (*Glyptemys muhlenbergii*), Eastern Redbelly Turtle (*Pseudemys rubriventris*), Eastern Box Turtle (*Terrapene carolina carolina*), Eastern Hognose Snake (*Heterodon platirhinos*), Copperhead (*Agkistrodon contortrix*), and Timber Rattlesnake (*Crotalus horridus*).[72]

Fish

Pennsylvania is home to a great diversity of fish species, in part because Pennsylvania has more stream miles than any other state in the continental U.S.[73] Several major issues threaten the state's fish populations, including nonpoint source pollution, stream channel modification, and habitat destruction. An increase in development has led to more impervious surfaces, allowing for a greater risk of increased flooding and decreased water quality.[74]Sixty-five species of fish are listed in the state *2015-2025 Pennsylvania Wildlife Action Plan* that are in need of enhanced conservation measures. The majority of these species are found in watersheds west of Northampton County, in the Ohio River, Allegheny River, and Lake Erie watersheds. However, several species of concern are found in the Delaware River basin. Northampton County is home to 13 of these species, which are the Atlantic Sturgeon (*Acipenser oxyrhynchus*), Bowfin (*Amia calva*), American Eel (*Anguilla rostrata*), Blueback Herring (*Alosa aestivalis*), Alewife (*Alosa pseudoharengus*), American Shad (*Alosa sapidissima*), Cutlip Minnow (*Exoglossum maxillingua*), Allegheny Pearl Dace (*Margariscus margarita*), Swallowtail Shiner (*Notropis procne*), White Catfish (*Ameiurus catus*), Margined Madtom (*Noturus insignis*), Brook Trout (*Salvelinus fontinalis*), and Tessellated Darter (*Etheostoma olmstedi*).[75]

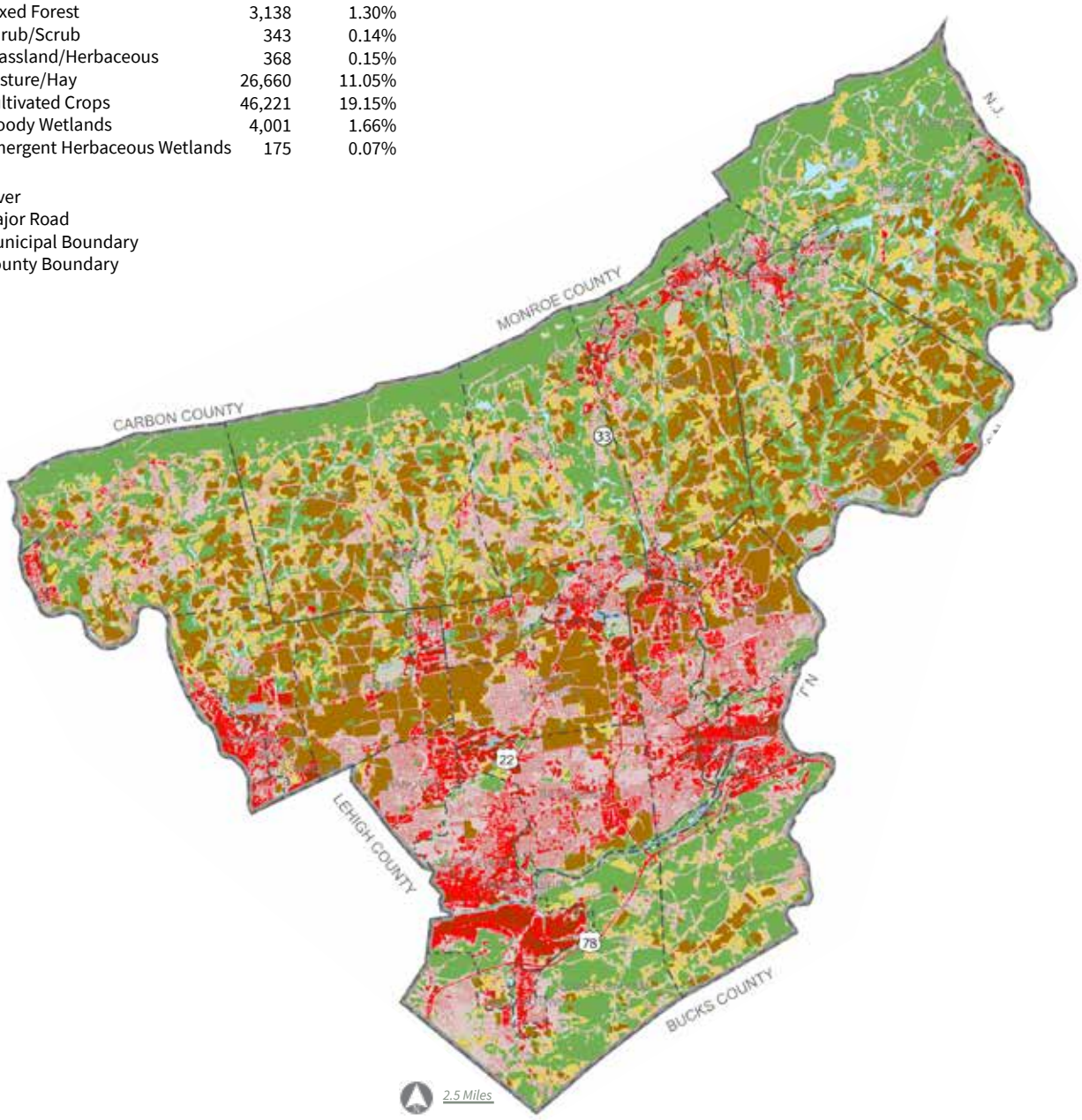
68 Pennsylvania Game Commission (PGC). "Birding and Bird Conservation". 2025. https://www.pa.gov/agencies/pgc/wildlife/wildlife-viewing/birding.html.
69 Western Pennsylvania Conservancy. "Species at Risk: Forest Birds". 2025. https://waterlandlife.org/wildlife-pnhp/species-at-risk-in-pennsylvania/forest-interior-birds/#:~:text=broad%2Dwinged%20hawk.-,Threats,temperature%2C%20humidity%20and%20wind%20exposure.
70 National Park Service (NPS). "Reptiles and Amphibians - Threats and Concerns". May 20, 2015. https://www.nps.gov/articles/reptiles-and-amphibians-threats.htm#:~:text=Declines%20in%20amphibian%20and%20reptile,%2C%20drought%2C%20and%20illegal%20collecting.
71 Pennsylvania Fish and Boat Commission (PFBC). "Pennsylvania Native Reptile and Amphibian Species". 2025.
72 Pennsylvania Fish and Boat Commission (PFBC) & Pennsylvania Game Commission (PGC). 2015-2025 Pennsylvania Wildlife Action Plan. September 2015. https://www.pa.gov/agencies/fishandboat/conservation/pennsylvania-wildlife-action-plan.html.
73 PA DEP. "Advice on Flood Prevention and Management on Streams". 2025. https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-and-wetlands/stream-and-wetland-regulatory-program/advice-on-flood-prevention-and-management-on-streams/advice-on-flood-prevention-and-management-on-streams.html#:~:text=Pennsylvania%20has%2086%2C000%20miles%20of,state%2C%20any%20time%20of%20year.
74 National Park Service (NPS). "Reptiles and Amphibians - Threats and Concerns". May 20, 2015. https://www.nps.gov/articles/reptiles-and-amphibians-threats.htm#:~:text=Declines%20in%20amphibian%20and%20reptile,%2C%20drought%2C%20and%20illegal%20collecting
75 Pennsylvania Fish and Boat Commission (PFBC) & Pennsylvania Game Commission (PGC). 2015-2025 Pennsylvania Wildlife Action Plan. September 2015. https://www.pa.gov/agencies/fishandboat/conservation/pennsylvania-wildlife-action-plan.html.

State of the Environment

Land Cover in Northampton County

Land Cover Type	Acres	Percentage
Open Water	2,286	0.95%
Developed Open Space	33,987	14.08%
Developed Low Intensity	32,504	13.47%
Developed Medium Intensity	15,919	6.59%
Developed High Intensity	4,994	2.07%
Barren Land	1,811	0.75%
Deciduous Forest	68,873	28.53%
Evergreen Forest	94	0.04%
Mixed Forest	3,138	1.30%
Shrub/Scrub	343	0.14%
Grassland/Herbaceous	368	0.15%
Pasture/Hay	26,660	11.05%
Cultivated Crops	46,221	19.15%
Woody Wetlands	4,001	1.66%
Emergent Herbaceous Wetlands	175	0.07%

River
Major Road
Municipal Boundary
County Boundary



Source: National Land Cover Database (2023)

State of the Environment

Built Environment

Cultural Heritage

Northampton County's cultural heritage is shaped by its location in the Lehigh Valley, whose geography and natural landscapes have fundamentally shaped the region's history and development patterns. Before the arrival of European settlers, the Delaware and Lenape tribes inhabited the valley and hunted the bear, fish, and other wildlife thriving in the area's natural environment. In the 1730s, Scotch-Irish and German settlers began the agricultural development of the Lehigh Valley. The rich soils have supported an agricultural economy that has been essential to the region's identity for nearly 300 years.

Northampton County was home to one of the most significant events in our country's history during the American Revolution. The first public proclamation of the Declaration of Independence took place on the Easton Court House steps on July 8, 1776. It was one of the three simultaneous proclamations, with others occurring in Philadelphia and in Trenton, New Jersey at the same time.

In the 19th century, canals and railroads in the area were used for transporting anthracite from the Coal Region in northern Pennsylvania. The county's location between the mineral deposits and major cities of New York and Philadelphia created an economic opportunity that shaped the future of the Lehigh Valley.

In addition to coal transporting, other mineral deposits in the Lehigh Valley created the conditions for major extractive and manufacturing industries in cement and slate to develop and thrive. Iron ore mining led to iron and steel production along the Lehigh River at Catasauqua, Allentown, and, most notably, Bethlehem.[76]

For over 100 years, from the late 19th century until the 1990s, the Lehigh Valley was an economic powerhouse known for manufacturing at the Bethlehem Steel Plant and production of the world-famous Portland Cement. The steel and cement created in the area provided the resources for cities and transportation systems across the United States to develop and grow. Lately, Northampton County has promoted the historic appeal and small-town charm of the area as the extractive industries and manufacturing production have either disappeared or waned significantly. Reminders of the industrial past can be seen throughout the area, including the SteelStacks in Bethlehem, the Coplay Cement Kilns, Lock Ridge Iron Ore Furnace, the Slate Belt quarries, the Lehigh and Delaware canals, and the Simon Silk Mill.[77]

Historic sites in Northampton County play a vital role in the region's outdoor recreation landscape by blending exploration of nature and culture. Many of these sites, such as the Delaware and Lehigh Canals, are integrated into extensive trail systems like the D&L Trail, offering opportunities for hiking, biking, and kayaking alongside historic towpaths and locks. Historic districts like Central Bethlehem and Easton serve as walkable hubs where visitors can enjoy heritage tourism while accessing nearby parks, riverfronts, and greenways. The Moravian Church Settlements in Bethlehem are UNESCO's World Heritage Sites. They attract and provide educational opportunities for those interested in learning about living cultures and traditions of the Moravians.



76 Lehigh Valley 2024 Multijurisdictional Hazard Mitigation Plan. 2024. 2024-Lehigh-Valley-Multijurisdictional-Hazard-Mitigation-Plan-updated-10-11-2024.pdf
77 Northampton County. N.d. "A Brief History of Northampton County". https://www.norcopa.gov/county-history

State of the Environment

Transportation Networks

The roadway network is the dominant transportation system in Northampton County. It serves passenger vehicles, trucks, and public bus transportation needs. PennDOT's 2023 Highway Statistics Report detailed there are over 523 linear miles of highway, and 5,047,921 daily vehicle miles traveled (DVMT) in the county. I-78 is the major interstate that runs east and west through the south of the county. Other expressways are Route 22 and Route 33, a portion of Route 309, and a portion of Route 378 through the City of Bethlehem. The area is also served by several smaller highways, including Route 248, Route 329, Route 512, and Route 611. There are 356 bridges in Northampton County, owned by several entities that include the Commonwealth of Pennsylvania, Northampton County, municipalities, railroad companies, and private entities.[78] Bridges with high traffic volumes in the area include the Route 33 Lehigh River Bridge, Route 329 Cementon Bridge, and the Route 145 Treichlers Bridge. Also, the Hill-to-Hill, Fahy, and Minsi Trail bridges in the City of Bethlehem, the 25th Street Bridge in Palmer Township, and the 3rd Street Bridge in the City of Easton.

The Lehigh and Northampton Transportation Authority (LANTA) operates the LANTA bus and van systems. LANTA bus service includes 28 fixed-service routes that complete almost five million trips each year. LANTA serves the Lehigh Valley metropolitan area, including the cities of Bethlehem and Easton and their adjacent municipalities. LANTA van system provides over 400,000 door-to-door trips a year and services the region's elderly and those with disabilities.

Both Bethlehem and Easton have transportation hubs. Easton's hub was built in 2015 and is used by Trans-Bridge Lines, Inc., Greyhound, New Jersey Transit, LANTA, and Fullington Trailways.[79] Rail traffic has been freight-only in the Lehigh Valley since 1981.



78 Federal Highway Administration. "Bridge Condition by County 2024". 2024.
79 Lehigh Valley 2024 Multijurisdictional Hazard Mitigation Plan. 2024. 2024-Lehigh-Valley-Multijurisdictional-Hazard-Mitigation-Plan-updated-10-11-2024.pdf

State of the Environment

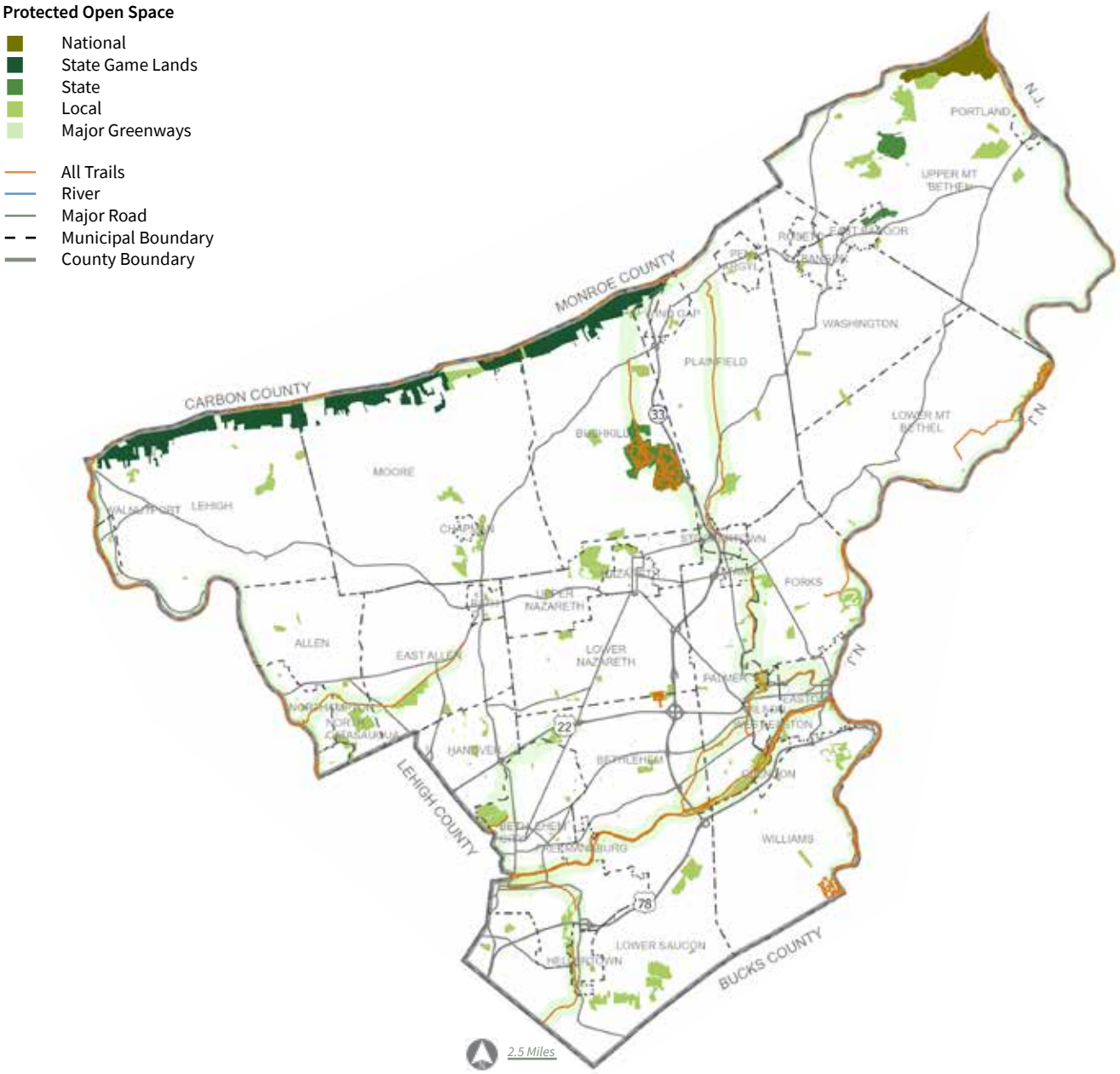
Trail Network

The extensive trail network of both rail-trails and multi-use pathways in Northampton County offers an increasingly practical form of alternative transportation for those traveling on foot or by bike. Trails like the Nor-Bath Trail connect residential areas such as Northampton and Bath to the broader Delaware and Lehigh (D&L) Trail, enabling commuters and recreational users to travel car freely. Central to this regional connectivity is The LINK Trail Network, a growing network of over 125 miles across Lehigh and Northampton Counties. Designed for year-round-use, The LINK links local communities, workplaces, transit hubs, and cultural sites via continuous paved and crushed-stone corridors, promoting healthier, cleaner, and accessible travel and recreational opportunities. Additionally, the Lehigh and Delaware rivers are state designated water trails.



State of the Environment

Northampton County Trail Network



Source: DCNR (2024), The Link Trail Network (2025)

Recreational Sites

Northampton County's Parks, Trails and Open Space system consists of 23 county owned parks, trails and conservation lands that showcase all of the natural abundance the county has to offer. Each municipality in the county also has its own collection of parks, open space, trails, and other recreational offerings. County-owned and operated recreational sites include:

- Wayne A. Grube Memorial Park
- Wy-Hit-Tuk Park
- Frost Hollow Overlook
- Fry's Run Park
- Gall Farm
- Gerald E. Seyfried Bear Swamp Park and Archery Complex
- Gertrude B. Fox Conservation Area
- Louise W. Moore Park
- Gracedale Open Space Lands
- Minsi Lake Corridor Greenway
- Monocacy Meadow
- Mount Jack
- Mud Run Conservation Area
- Twin Lakes
- Bauer Preserve
- Portland Waterfront Park

The Parks and Recreation Division manages and maintains the 2,400-acre county park system and both the Human Services Complex and the County Government Center. This work includes conservation projects to ensure proper stewardship of these resources. The division also delivers community outdoor recreation and environmental education programs for the public.[80]

Several of these sites listed above provide access points to Delaware Canal State Park and the D&L Trail. Delaware Canal State Park is an 830-acre park located in both Northampton County and Bucks County. Jacobsburg Environmental Education Center is an additional state park in the county, situated west of Route 33 between Belfast and Bushkill Center. The center is 1,168 acres of forests, fields, and creeks where people can visit and explore, and staff members also provide educational programs.

State Game Lands 134 is an approximately 9,000-acre area of protected land for recreation. Kittatinny Ridge and Cherry Valley National Wildlife Refuge, mentioned in another section as conservation areas, also provide recreational opportunities for hikers, photographers, and others looking to explore nature in the county. Trails have been constructed in the City of Easton, Palmer Township, Bushkill Township, Tatamy Borough, and Stockertown Borough to connect the City of Easton to the Kittatinny Ridge.

In addition, the Delaware Water Gap National Recreation Area boarders New Jersey and Pennsylvania where the Delaware river cuts through a large ridge of the Appalachian Mountains. The Appalachian National Scenic Trail and the Delaware Water Gap have historically been major recreational spaces for people coming from all over the nation. They draw millions of visitors every year and serve as a critical wildlife corridor and refuge for thousands of diverse species. They play a vital role in driving climate resilience and economic vitality in neighboring communities. A recent National Park Service report indicates that in 2024, 4.1 million people visited Delaware Water Gap National Recreation Area and produced a total economic impact of $211 million on the local economy.[81]

Municipal resources are where most residents engage in outdoor recreation. As of the *2015 Livable Landscapes Plan*, there are 4,655 acres of municipal parkland in Northampton County. These parks range in size from less than one-half acre to over 200 acres and can be found in all 38 municipalities in the county. More information on park and trail offerings in the county's major population centers can be found in the section below. Public school districts are also a source of recreational land that may be open to the public, and the eight school districts own 515 acres of recreational facilities. In addition, private land is a component of county recreational lands through private nonprofit and for-profit entities. There are 6,509 acres of private parkland and natural areas with recreational components in the county. This type of land use can be found in all of the 38 municipalities and ranges from less than one-half acre to more than 387 acres. These include golf courses, gun clubs, camps and campgrounds, picnic areas, preserves, reservoirs, and other facilities located on land owned by churches, private schools, neighborhood associations, and individual landowners with conservation easements.[82]

80 Northampton County. "Our Park System". N.d. https://www.norcopa.gov/parks-and-recreation
81 National Parks Service, "Visitor Spending Effects" . https://www.nps.gov/subjects/socialscience/vse.htm
82 Lehigh Valley Planning Commission. "Livable Landscapes: An Open Space Plan for Northampton County," November 19, 2015. https://conservationtools-production.s3.amazonaws.com/library_item_files/1751/1979/livable_landscapes.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIQFJLILYGVDR4AMQ%2F20250602%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20250602T201511Z&X-Amz-

State of the Environment

Development and Growth Areas

The Lehigh Valley is one of Pennsylvania's quickest growing areas, with an expected population growth of 14.4 percent by 2050. New residents are moving to the area to take advantage of a high quality of life, bolstered by relatively lower cost living and an advantageous location with abundant natural resources and access to economic opportunities. In addition to overall population growth, there will be important shifts in demographic patterns that warrant close attention. The trend indicates a continuous influx of working-age adults. By 2050, the population will grow older as the number of residents aged 65 years is projected to increase by 33 percent while the number of those aged 25-64 is an expected rise to 14.8 percent. The youth population is expected to remain relatively stable. For the past 70 years, the area has averaged over 4,000 new inhabitants annually. This pattern is expected to persist due to both domestic and international migration. This influx is supported by the municipal, business, government, and planning leaders, who are focused on fostering sustainable job creation and economic development.[83]

Northampton County should expect to see a continued trend of urbanization, which will lead to land value increases and land use competition that necessitates prioritization to balance development pressures with environmental and culture goals.

Most urban development in the region has occurred in the area around Route 22 between Easton and Bethlehem, including the rapidly developing suburbs of Hanover and Bethlehem Townships. Since its completion in 2002, Route 33 has also spurred significant commercial and industrial growth.

An additional significant trend in development is the rapid expansion of warehousing operations. Major corporations have built warehouses in the area, including Amazon and FedEx, to take advantage of the same strategic location benefits that led to canal development and the manufacturing boom throughout the late 1800s and early 1900s. Just in 2023, the Lehigh Valley Planning Commission reviewed 5.1 million square feet of warehouse space proposed for construction in both Lehigh and Northampton counties.[84]

The Lehigh Valley Planning Commission maintains interactive maps that show residential development,[85] nonresidential development,[86] and designated land development areas and preservation buffers.[87]



Photo source: Sherry L. Acevedo, Nature Photography

83 Lehigh Valley Planning Commission and Lehigh Valley Transportation Study. "2023 FutureLV The Regional Plan," November 15, 2023. https://drive.google.com/file/d/12oez71k4EV1c2npS-Su6liTT0cZLvl_h/view

84 Lehigh Valley Planning Commission (LVPC). "2023 Future LV: The Regional Plan". 2019. https://content.lvpc.org/Publications/General%20Organizational/2023%20FutureLV%20The%20Regional%20Plan.pdf

85 Lehigh Valley Planning Commission. 2025. Residential Development Map. https://lvpc.maps.arcgis.com/apps/webappviewer/index.html?id=4396be91aa804cda96d8c187089ef811

86 Lehigh Valley Planning Commission. 2025. Nonresidential Development Map. https://lvpc.maps.arcgis.com/apps/webappviewer/index.html?id=89efd9eca6324bf6ace286e06e9de339

87 Lehigh Valley Planning Commission. 2025. Future LV Maps. https://lvpc.maps.arcgis.com/apps/webappviewer/index.html?id=84579ab81ed7497d942e834f1986b8f6

State of the Environment

Environment Trends

From mineral deposits and strategic water bodies helping to establish an economic and cultural identity throughout the 19th century, to beautiful landscapes and natural areas attracting residents and visitors today, to the balance of conservation and development that will be considered as the county continues to grow in the future, natural resources have and will play a critical role in Northampton County's past, present, and future.

The continued population growth the county has experienced has put pressure on open space resources and led to additional impacts beyond just the changing of land uses. The impacts of development can be observed through air quality, stream impairment, forest and habitat fragmentation, wetland loss, and other environmental impacts. Some work has and will continue to address these issues, but the continued urbanization of the county has led to even-greater competition between land uses.

The county has consistently been losing forest and farmland to development, as about 1,958 acres of forest has been lost since 2023, wetland habitats have decreased by 38 acres since 1985 and developed land and impervious surfaces have increased by around 26,000 and 9,600 acres, respectively, since 1985. Different surveys over the years have shown that communities in Northampton County want to preserve and protect the county's natural resources and the recreational opportunities they provide, but the county must also consider residential and economic opportunities for the thousands of residents that choose Northampton County as their future home each year. The county's convenient location on transportation networks and its reputation for living alongside historic and natural resources will only continue to attract both individuals and families. The growth seems to be inevitable, but it can be managed sustainably.

As the FutureLV: The Regional Plan states, "Development patterns are changing, there is less available land and the region's population continues to grow—all increasing pressure on farms and open space. Striking a balance between growth and preservation will be key to meeting the needs of tomorrow, while retaining our identity." This regional plan has five stated goals, four of which are directly related to coordinating development in a way that protects the environment, promotes sustainable growth, and creates healthy and livable communities. There is ample opportunity to do that.

Land prioritization is crucial as environmental and cultural assets will continue to be challenged, but existing natural areas and farmlands can be preserved and growth directed to suitable areas. The county recognizes that agriculture and open space are essential components to life in the area and can be seen as unique competitive advantages. There are opportunities to promote sustainable ecotourism and recreation through additional trail connections, diversifying outdoor recreation opportunities, preserving watersheds, and creating more public spaces.

Conclusion

Northampton County stands at a pivotal moment where the environmental, economic, and social landscape is for generations to come. This State of the Environment chapter has illustrated the county's rich natural assets from its forest and waterways to its wildlife and recreational spaces, while also confronting the emerging challenges of pollution, habitat loss, and unsustainable development. As the county continues to grow, it must embrace a balanced approach that prioritizes environmental stewardship alongside economic opportunity. Strategic investments in conservation, restoration, and sustainable land use are not only essential for protecting the county's ecological integrity but also yield measurable returns in public health, quality of life, and economic resilience. By aligning with regional planning goals and community values, Northampton County can ensure continued growth is balanced with environmental preservation.



Open Space Trends

Different demographic groups have differing needs when it comes to open space and recreational opportunities.

Top Ten Takeaways

1 → Demographic changes will increase competition for land and open space needs.

The Lehigh Valley is one of Pennsylvania's most rapidly developing areas. Its population is expected to grow by 14.4 percent by 2050.[88] In addition to overall growth, demographic trends indicate a continuous influx of working-age adults moving to the area to enjoy it's quality of life. By 2050, the share of adults aged 25-64 is expected to rise 14.8 percent. The area is also seen as a place for residents to spend their retirement and others to migrate to do the same. The number of residents aged 65 years or older is projected to increase by 33 percent.[89] The county is also expected to become more racially and ethnically diverse.

Different demographic groups have differing needs when it comes to open space and recreational opportunities. Working-age adults that migrate to the country for its economic opportunity and high quality of life may bring families or start families in the county. Families with children have different preferences and needs than the county's other growing demographic: retired residents. Open space plays a crucial role in the physical, mental, and social well-being of seniors, and their needs may be different than those of a young family. More diverse populations may bring new cultural ideas and preferences around recreation. Northampton County will need to understand how these communities perceive and utilize open space to ensure that recreational opportunities meet their needs.

The county will also need to support this growing, aging, and diversifying population with housing and economic opportunities. This will create competition for land uses that will require proper planning to balance development with environmental and community goals. Demand for housing will put pressure on farms and open space to accommodate the needs of a growing community. Developed land and impervious surface are increasing, largely from forests and farmland being converted. Since 2023, 1,958 acres of forest have been converted to other uses. Between 1985 and 2023, the county added 26,048 acres of developed land and 9,606 acres of impervious surface.[90] Large-scale warehousing and logistics developments are a primary driver of forest and farmland losses.[91] Just in 2023, the Lehigh Valley Planning Commission reviewed over 100 acres of warehouse space proposed for construction in both Lehigh and Northampton counties.[92] While not all of this development will be at the expense of open space, it highlights the ongoing competition between land uses.

2 → Outdoor recreation has increased post-pandemic and provides residents with many benefits.

According to the 2024 Outdoor Participation Trends Report, outdoor recreation participation grew 4.1 percent in 2023 to a record 175.8 million participants, amounting to 57.3 percent of all Americans. Prior to COVID in 2019, there were 153.6 million participants, this means 22.2 million more Americans are participating in outdoor recreation post-COVID. However, the average number of outings per person decreased 11.4 percent from 70.5 outings in 2022 to 62.5 outings in 2023.[93]

Based on our survey data, Northampton County residents' weekly visits to open spaces within their county are common. Nearly half of survey participants said they visited open

88 Lehigh Valley Planning Commission and Lehigh Valley Transportation Study. "2023 FutureLV The Regional Plan," November 15, 2023. https://drive.google.com/file/d/12oez71k4EV1c2npS-Su6liTT0cZLvl_h/view

89 Ibid.

90 Multi-Resolution Land Characteristics Consortium (MRLC). "Land Cover Data Sheet". 2023. https://www.mrlc.gov/eva/.

91 Northampton County. "Northampton County Receives a Highlands Conservation Act Grant Award". 2025. https://www.norcopa.gov/index.php?section=press-releases&prrid=182

92 Lehigh Valley Planning Commission (LVPC). "2023 Future LV: The Regional Plan". 2019. https://content.lvpc.org/Publications/General%20Organizational/2023%20FutureLV%20The%20Regional%20Plan.pdf

93 Outdoor Foundation. "2024 Outdoor Participation Trends Report". 2024. https://outdoorrecreation.wi.gov/Documents/Research%20Library%20Page%20files/US%20-%20Demographics%20%26%20Participation/2024_OutdoorFoundation_Participation_Report%20Exec%20Summary.pdf

spaces in the County weekly, while 18 percent reported daily and 23 percent monthly. Only a small percentage of county residents say they never visit open spaces.

Residents of Northampton County rely on open spaces to live a healthy and happy life. Survey participants reported that being in open spaces had a positive impact on their mental and physical health. Survey participants were asked to share their perceptions on the impacts of open space. Ninety percent of survey participants felt that open spaces had a positive impact on their mood and physical health.

They stated that nature makes them feel calmer, happier, and motivated them to be more physically active. Most of the respondents primarily make use of open spaces for physical activities, such as running, walking, or playing sports. The number one activity engaged in when visiting open spaces in the county was walking/hiking (87 percent). Although less common, the other physical activities that residents engaged with while visiting open spaces included running/jogging (20 percent) and playing sports (17 percent).

Residents also utilize open spaces in Northampton County as a community hub. Although only five percent of participants reported their primary purpose to visit open spaces as socializing, 39 percent of respondents claimed they typically engage in socializing and 31 percent picknick when visiting open spaces. Open spaces are essential social outlets for residents to spend time with friends, family, and other residents. A reported 78 percent of respondents feel closer to their communities when making use of open space. They expressed that open spaces are essential to creating good communities and provide substantial community benefit.

3 → Residents would like increased access and improved facilities.

A wide variety of recreational opportunities are available for Northampton County residents. The county manages and maintains a 2.300-acre county park system that includes 22 county-owned parks. There are also several trails that traverse the county. The municipalities within the county manage an additional 4,655 acres of parkland. Nearly all residents in major population centers have a park within a 15-minute walk from their home.

However, over 46 percent of survey participants said they lacked the time to enjoy these resources. The distance to open space was tied for the second-most reported barrier to enjoying the county's recreational amenities. Despite the Park Scores reported in the Population Centers section earlier in the document, residents still expressed that being too far from open space resources prevents them from using them.

The next most common answers for barriers to use were distance and a lack of facilities in recreation areas, as a little over 20 percent of respondents supported each answer. This relates directly to which factors would increase usage, as respondents supported better information about where to access recreational opportunities and improved facilities, amenities, and parking more than any other option as factors. The next most popular answer was increasing the overall number of recreational opportunities. This is also supported by the 2019 Comprehensive Plan, which reported nearly 90 percent of survey participants wanted more social, cultural, and recreational opportunities in their communities.

As trends point to increased usage of open space and recreational facilities, Northampton County residents reported they would like to see improved access and improved facilities at existing resources and would support additional recreation options.

4 → Residents continue to support open space, farmland, and natural resource preservation.

Northampton County and Lehigh Valley residents have expressed longstanding support for open space preservation. The 2015 Livable Landscapes Plan reported that 71 percent of survey participants valued the protection of lakes, rivers, streams, and water quality.[94] There was even more support for farmland protection, with 95 percent of respondents being in favor. In the 2019 Comprehensive Plan, 95 percent of survey participants stated that they want government to preserve and protect natural resources in the area. The plan also includes several goals and objectives around preserving natural areas and minimizing environmental impacts. These aim to protect ecosystems as well as ensure residents are able to enjoy their benefits.

A 2023 survey administered by the Muhlenberg College Institute of Public Opinion reported that Lehigh Valley residents are concerned with open space loss in the region. Over three-fourths of Northampton and Lehigh county residents reported they were at least

94 Lehigh Valley Planning Commission. "Livable Landscapes: An Open Space Plan for Northampton County," November 19, 2015. https://conservationtools-production.s3.amazonaws.com/library_item_files/1751/1979/livable_landscapes.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIQFJLILYGVDR4AMQ%2F20250602%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20250602T201511Z&X-Amz-

somewhat concerned, with 47 percent of respondents stating they were "very concerned". Respondents that lived in suburban or rural areas in the region and those with higher annual incomes were more likely to express concern about open space losses.[95]

5 → Air quality has improved but is still a concern.

The air quality of Northampton County has improved since the late 1900s and early 2000s. Northampton County has received better rankings for ozone pollution, short-term particle pollution, and year-round particle pollution compared to the 2014 Lehigh Valley Return on Environment Study rankings. Similarly, Northampton County met the federal standards for the Clean Air Act for ozone in 2018 and in 2014 for particle pollution. However, the American Lung Association's (ALA) assigned the county with a "C" grade for high ozone days and an "F" grade for particle pollution in 2025.[96] Particle pollution is a greater concern for Northampton County than ozone. Ozone has continuously met the Clean Air Act standards since 2018, while particle pollution has not. Based on 2021-2023 data, particle pollution did not meet the federal Clean Air Act standards.

Both natural and manmade factors influence air quality in Northampton County. The county is situated between two mountains, creating a valley that traps pollutants.

Along with this, manufacturing is the second largest industry in the county with the industrial sector being the largest emitter of greenhouse gases. Similarly, transportation is the second largest greenhouse gas emitter with the increase in population causing an increase in private vehicle usage.

However, Northampton County residents have expressed a positive correlation between air quality and open spaces. Eighty-nine percent of survey participants noted that open spaces have a positive impact on air quality, stating that the existence of open spaces and trees helped capture carbon and keep the air cleaner. Similarly, 85 percent of survey participants reported that open spaces have a positive impact on the climate. They indicated that open spaces provide natural air and water filtration. They allow habitats for wildlife. Trees provide shade and capture carbon.

6 → Water quality impacts on aquatic life and recreation continue.

Northampton County is home to over 540 miles of streams. Nearly half of these waterways are considered "impaired" under the Pennsylvania Department of Environmental Protection (DEP) water quality standards. Of the impaired streams, about 29 percent are impaired for aquatic life, 32 percent are impaired for recreational use, and 38 percent are impaired for fish consumption.

The top three sources of impairment for waterways are atmospheric deposition (pollutants in the air landing on the ground and making their way into waterways), urban runoff/storm sewers, and agriculture. The top three causes for impairment are mercury, pathogens, and siltation. Bushkill Creek was recently classified as impaired due to mercury and atmospheric deposition. Since 2022, Bushkill Creek and some of its tributaries have been considered unfit for fish consumption and fail to meet federal Clean Water Act standards now due to its mercury contamination. Similarly, most of the Delaware River in the county is contaminated with mercury and does not meet standards for fish consumption.

The residents of Northampton County rely on these waterways for recreational activities. Fishing is one of the most popular outdoor recreation activities in Pennsylvania and in Northampton. Nearly half of survey participants use open spaces for recreational activities such as leisurely strolls with pets, fishing, or boating.

A total of 17 percent of participants engage in fishing and hunting on a regular basis. Furthermore, 85 percent of survey participants perceive that open spaces have positive impact on water quality in their community. They stated that open spaces helped capture water runoff and trees helped clean water bodies close to them.

Dam removal could increase the utility residents get from recreational waterways. Most dams in the county no longer serve an purpose, and the dams disrupt the natural flow of aquatic species and nutrients. Removal of these dams would improve water quality and habitat connectivity. Increasing waterway connectivity would also increase recreational opportunities for fishing and paddling along these waterways. Another option would be to re-establish riparian buffers along waterways; it is estimated

95 Muhlenberg College Institute of Public Opinion. "Lehigh Valley Quality of Life Survey". 2023. https://www.lehighvalleynews.com/sfksfkfkfsjsfsorvmieudk101010238754753939202078393 8

96 American Lung Association (ALA). "Pennsylvania: Northampton". 2025. https://www.lung.org/research/sota/city-rankings/states/pennsylvania/northampton.

that riparian buffers in the Delaware River Basin provide around $9,400 per acre in carbon storage benefits each year. Other benefits of riparian buffers include habitat for wildlife, water temperature regulation, runoff absorption, pollutant removal, and reduction in soil erosion.[97] As for Northampton County, roughly one-third of Lehigh Valley stream miles have riparian zones that are too narrow or completely lack riparian vegetation. Riparian buffers are lacking along streams in the urban Bethlehem and Easton areas; in agricultural areas and along many headwater streams. Improvement of these waterways with riparian buffers are a cheaper alternative to treatment plants that could improve water quality, increase recreational activities for residents, and increase business in the affected areas.

7 → Habitat loss is impacting wildlife diversity in open space.

According to the 2015-2025 Pennsylvania Wildlife Action Plan, Northampton County is home to five mammal species, 62 bird species, four amphibian species, eight reptile species, and 13 fish species that need specific environmental protection.[98] The availability and health of specialized habitat types, such as grasslands, wetlands, and forests, play an important role in preserving these species. Development in the county isolates these habitats, making smaller, isolated patches of ecosystem that may not be suitable habitats for these species. This could lead to species decline and threaten the vitality of protected species.

Northampton County residents value the wildlife in the county and are in favor of protecting their habitats. Ninety percent of survey participants believe that open spaces have a positive impact on habitat for wildlife. They responded that open spaces provided habitat for wildlife they value. Nearly 68 percent of survey participants reported that nature preserves were their preferred type of open space, second only to trails (75 percent). Both preferences express support for either protecting habitats or a desire to enjoy nature alongside wildlife. In addition, bird watching was tied for second as the most common activity people engaged in when visiting open spaces in Northampton County, with a total of 39 percent of those who described their activity stating they bird watch.

8 → Partnerships between Northampton County with state and local organizations are working to preserve open space.

Northampton County and its municipalities have made efforts to address public concerns regarding open space losses with preservation initiatives. As of December 12, 2024, the county has preserved over 260 farms and 19,505 acres through conservation easements.[99] Additional conservation efforts have been made for forests and other open space land. Recent progress includes:

June 2025: Northampton County invested $515,808, in tandem with a $21,331 investment from the state, to purchase the development rights of three farms totaling 69 acres. The farms are located in Washington Township, East Allen Township, and Moore Township.[100]

April 2025: A Highlands Conservation Act Grant Award provided $730,000 to protect 43 acres in Stockertown Borough, which will join the 2,380 acres of open space owned and managed by Northampton County.[101]

January 2025: Moore Township partnered with the Heritage Conservancy to preserve 24 acres of meadow, shrubland, young forest, and stream habitat in the township through a conservation easement.[102]

May 2024: Northampton County established a partnership with neighboring Carbon County in which Northampton's Farmland Preservation and Open Space Program will work with Carbon County on expanding its own preservation program by providing technical and administrative assistance.[103]

97 Jones, A. and Kohut, D. "Riparian Buffers: a Natural, Inexpensive, and Crucial Way to Protect and Improve Water Quality". 2023. https://www.pennfuture.org/Blog-Item-Riparian-Buffers-a-Natural-Inexpensive-and-Crucial-Way-to-Protect-and-Improve-Water-Quality

98 Pennsylvania Fish and Boat Commission (PFBC) & Pennsylvania Game Commission (PGC). 2015-2025 Pennsylvania Wildlife Action Plan. September 2015. https://www.pa.gov/agencies/fishandboat/conservation/pennsylvania-wildlife-action-plan.html.\

99 Pennsylvania Department of Agriculture. "Bureau of Farmland Preservation 2024 Annual Report". 2025. https://www.pa.gov/content/dam/copapwp-pagov/en/pda/documents/plants_land_water/farmland/documents/2024%20annual%20report.pdf

100 Deegan, J. "These 6 Lehigh Valley farms are latest to be preserved from development". 2025. https://www.lehighvalleynews.com/lehigh-county/these-6-lehigh-valley-farms-are-latest-to-be-preserved-from-development

101 Northampton County. "Northampton County Receives a Highlands Conservation Act Grant Award". 2025. https://www.norcopa.gov/index.php?section=press-releases&prrid=182

102 WeConservePA. "Heritage Conservancy preserves 24 acres of diverse wildlife habitat in Northampton County". 2025. https://weconservepa.org/blog/heritage-conservancy-preserves-24-acres-of-diverse-wildlife-habitat-in-northampton-county/

103 Bresswein, K. "Land development threats in rural county to the north prompt Northampton County to lend help". 2025. https://www.lehighvalleylive.com/outdoors/2024/05/land-development-threats-in-rural-county-to-the-north-prompt-northampton-county-to-lend-help.html

The success of these initiatives indicate that local, regional, and state partnerships are effective. By sharing resources and matching funds, Northampton County has been able to preserve more open space and provide more recreational opportunities to residents than it would on its own. The county will continue to seek partnerships with these organizations in the future and track their success through ongoing monitoring and evaluation.

9 → Open space and other recreational amenities are valued by both residents and visitors. They also raise property values.

Northampton County is proud of how its history is built into its beautiful natural environment. These historic features and scenic landscapes contribute to the quality of life enjoyed by residents, as well as increasing tourism revenue that grows the county's tax base. The 2019 Comprehensive Plan states that the "waterways and topographic features create natural landscapes and scenic beauty that are treasured by the region's residents". Several objectives in the plan are focused on preserving environmental, historic, cultural, scenic, and agricultural assets in order to maintain the cultural and economic character of the county. These efforts also provide quality open space to residents and visitors.

This historic appeal, natural beauty, and small-town charm can also increase migration to the county. Around 70 percent of anticipated population growth will be attributable to migration.[104] Both residents and potential residents value the natural and recreational assets available in the county, leading to increased demand for housing. As a result, both housing demand and property values are projected to increase.

Eighty five percent of survey participants believe that open spaces have a positive impact on property values. Respondents indicated that having open space near your property is attractive to buyers and increases property value. The specific impacts of this for Northampton County are discussed in a later section of this report.

10 → Open spaces help local businesses.

Open spaces attract more people to the local businesses around it. When people visit open spaces, they are likely to spend money on businesses that exist around those open spaces. More than half (55 percent) of survey participants stated that they sometimes spend money at local businesses during their visits to recreational spaces, while nine percent reported always. The average amount spent during a visit to a park, open space, or trail was around $32 according to survey participants.

The average consumer spends an average of $325 during a trip to one of the County's parks/open spaces, or trails in terms of gear (bikes, kayaks, running shoes, fishing, and hunting gear etc.). Many of these purchases can be made locally, helping the local economy and creating jobs for residents. Local businesses can also cater to tourists, who are drawn to the county for its mix of history and natural beauty.Federal



104 Lehigh Valley Planning Commission (LVPC). "2023 Future LV: The Regional Plan". 2019. https://content.lvpc.org/Publications/General%20Organizational/2023%20FutureLV%20The%20Regional%20Plan.pdf

Relevant Federal, State, and Local Initiatives

Explore Act
The Expanding Public Lands Outdoor Recreation Experiences (EXPLORE) Act was a bi-partisan bill passed in December 2024 and signed into law in January 2025. It is a diverse piece of legislation that addresses many aspects of outdoor recreation. It aims to improve recreational permitting processes for commercial and not-for-profit entities, funds accessible trail construction and promotion of recreation for veterans and codifies the relationship between the Federal Interagency Council on Outdoor Recreation (FICOR) and the Outdoor Recreation Legacy Partnership (ORLP). ORLP funds the development of green spaces through grant awards.[105]

Land and Water Conservation Fund
The Land and Water Conservation Fund (LWCF) has been a staple of the federal government's commitment to protecting natural resources across the country since 1964. The fund not only protects federal public resources but also provides grants to states for acquiring and developing public parks and outdoor recreation sites, including baseball fields, community green spaces, public river access, historic and cultural site protection, and natural landscape conservation. The LWCF State and Local Assistance Program has supported more than 46,000 projects in every county in the country over the past 60 years.[106]

Wildlife Crossing Pilot Program
The Infrastructure Investment and Jobs Act of 2021 established the Wildlife Crossing Program to help address the issues of wildlife vehicle collisions. These collisions, both their rate of occurrence and locations, are influenced by habitat fragmentation. Congress reported that there are more than 1,000,000 of these collisions each year that result in over $8 billion in damages and hundreds of fatalities. This program provides discretionary grants to reduce these collisions and improve habitat connectivity. The Federal Highway Administration is also working on best practices studies, transportation and wildlife action plans, technical training, collision data methodologies, mitigation threshold guidance, and wildlife crossing design standards to support this work.[107] Advocacy groups have been campaigning for additional funding for this program as the original legislation set aside $350 million for five years, but all of that money could have been disbursed during the first funding round and the total funding requests for the 2022-2023 application cycle was five times higher than what was made available.[108]

U.S. Department of Agriculture Conservation Programs
The U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) has several voluntary conservation programs that assist farmers in addressing conservation problems, such as drinking water protection, soil erosion, habitat preservation, and forest and wetland management. Most programs are focused on providing farmers with yearly rent payments in exchange for conservation work. This includes ceasing agricultural production on environmentally sensitive land, planting native species that promote environmental quality, wetland and buffer zone restoration, and voluntarily limiting development on grazing and pastureland. In addition, the Source Water Protection Program works with local governments, organizations, and farmers to develop plans and actions to reduce and prevent pollution of surface and groundwater from agricultural operations.[109]

Department of the Interior Invasive Species Coordination
The Department of the Interior (DOI) recognizes the impacts that invasive species have on their ability to maintain water quality, conserve biodiversity, protect heritage areas, and support sustainable ecosystems on the lands, waters, and facilities they manage. To address this, the DOI's Office of Policy Analysis (PPA) ensures that all DOI Bureaus and Offices are coordinating on their approach to invasive species. They have developed a DOI-wide Invasive Species Plan, and Invasive Species Policy, and have identified interdepartmental opportunities to cooperate in efforts to address invasive threats, such as early occurrence and rapid response frameworks. They have also created an Invasive Species Task Force to promote strategic processes and advance the priorities identified in the Invasive Species Plan.[110]

105 Martin, J. "EXPLORE Act expands access for WA outdoor recreation". 2025. https://www.cascadiadaily.com/2025/feb/11/explore-act-expands-access-for-wa-outdoor-recreation/
106 U.S. Department of the Interior. "Land and Water Conservation Fund." N.d. https://www.doi.gov/lwcf
107 U.S. Department of Transportation Federal Highway Administration. "Wildlife Crossings Program". N.d. https://highways.dot.gov/federal-lands/wildlife-crossings
108 Milloway, O. "Wildlife Crossing Program Reduces Crashes, Saves Lives". 2025. https://wildlife.org/wildlife-crossings-program-reduces-crashes-saves-lives/
109 U.S. Department of Agriculture. "Conservation Programs". N.d. https://www.fsa.usda.gov/programs-and-services/conservation-programs-old
110 U.S. Department of the Interior. DOI Invasive Species Coordination. N.d. https://www.doi.gov/ppa/what-we-do/natural-cultural-resources/invasive-species-coordination

Open Space Trends

Green Infrastructure Federal Collaborative
The EPA launched the Green Infrastructure Federal Collaborative in 2021 after the Water Infrastructure Improvement Act of 2019 directed the agency to coordinate efforts with federal, state, tribal, and local governments on increasing green infrastructure investments. Agencies across the federal government support green infrastructure, also referred to as nature-based solutions or low impact development, in their operations. According to the EPA, the following federal departments and agencies have committed to promoting green infrastructure, also referred to as nature-based solutions or low impact development, through their work:

- American Association for the Advancement of Science
- Executive Office of the President, Council on Environmental Quality
- U.S. Agency for International Development
- U.S. Department of Agriculture
- U.S. Department of Commerce
- U.S. Department of Defense
- U.S. Department of Energy
- U.S. Department of Homeland Security
- U.S. Department of Housing and Urban Development
- U.S. Department of the Interior
- U.S. Department of State
- U.S. Department of Transportation
- U.S. Environmental Protection Agency
- U.S. General Services Administration
- U.S. Global Change Research Program
- U.S. Millennium Challenge Corporation
- World Health Organization[111]

State

ELEVATE Initiative
The outdoor recreation industry is a vital component to both the state and its local communities, accounting for nearly $862 billion in gross economic output nationally in 2021. The Pennsylvania Office of Outdoor Recreation partnered with the Southern Alleghenies Planning and Development Commission to produce the ELEVATE Initiative.[112] This initiative proposes the creation of an organization to represent the outdoor recreation industry and its businesses in Pennsylvania. The organization will be an effective advocate and act as a state government partner for outdoor recreation development. Overall, ELEVATE has the potential to enhance outdoor recreation by:

- Providing a unified voice for the needs of the industry
- Expanding opportunities for networking
- Working with the Commonwealth to adapt policies and regulations to better meet industry needs
- Benefiting all businesses through joint marketing efforts
- Raising the profile of the outdoor recreation industry as a key contributor to the state's economy
- Collectively solving issues such as workforce development needs, accessing affordable health benefits and housing for workers, and other challenges
- Developing a collective marketing strategy and brand for the industry

Community Conservation Partnerships Program
The Community Conservation Partnership Program[113] is a grant program managed by the DCNR's Bureau of Recreation and Conservation. The program tends to award about $50 million for projects annually with county and municipal governments, municipal agencies, non-profit organizations, pre-qualified land trusts, state-designated heritage areas, and for-profit businesses all considered eligible for funding. In addition, the program provides support for park rehabilitation and development, recreation and conservation planning, land acquisition and conservation, river access and conservation, trail planning and construction, ATV and snowmobile projects, statewide and regional partnerships, and community and riparian tree planting.

111 Environmental Protection Agency (EPA). "Green Infrastructure Federal Collaborative". N.d. https://www.epa.gov/green-infrastructure/green-infrastructure-federal-collaborative
112 Pennsylvania Department of Conservation and Natural Resources (DCNR). Community Conservation Partnerships Program. N.d. https://elibrary.dcnr.pa.gov/GetDocument?docId=4593578&DocName=C2P2%20Brochure%20FINAL.pdf
113 Pennsylvania Department of Conservation and Natural Resources (DCNR). Community Conservation Partnerships Program. N.d. https://elibrary.dcnr.pa.gov/GetDocument?docId=4593578&DocName=C2P2%20Brochure%20FINAL.pdf

Open Space Trends

Pennsylvania Conservation Landscapes Program
Established in 2004, the Pennsylvania Conservation Landscapes Program[114] works with eight regions throughout PA and their stakeholders to drive strategic investment and actions around sustainability, conservation, community revitalization, and recreational projects. Founded on each region's sense of place, conservation landscapes motivate citizens, agencies, and elected officials to address challenges like effective land planning, asset investment, civic engagement, and sustainable tourism. The eight state conservation landscapes include Kittatinny Ridge, Laurel Highlands, Lehigh Valley Greenways, Pennsylvania Wilds, Poconos Forests and Waters, Schuylkill Highlands, South Mountain, and Susquehanna Riverlands.

Pennsylvania Rivers Conservation Program
Administered by the DCNR's Bureau of Recreation and Conservation, the main objective of the Pennsylvania Rivers Conservation Program[115] is to protect and enhance PA waterways. The program provides technical and financial assistance to partners to carry out activities that improve watershed health and/or provide water-based outdoor recreation opportunities. Initiatives included in the program are:

- Grants for projects to restore and protect rivers and watersheds
- Scenic Rivers
- Rivers Registry
- River of the Year and sojourns
- Water trails

Greenways, Trails, and Recreation Program
The Greenways, Trails, and Recreation Program[116] (GTRP) is administered by the Pennsylvania Department of Community and Economic Development. Act 13 of 2012 establishes the Marcellus Legacy Fund and allocates funds to the Commonwealth Financing Authority for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects. Organizations that are eligible include:

- For-Profit Businesses
- Municipalities
- Councils of Governments
- Authorized Organization
- Institution of Higher Education
- Watershed Organization

Local

Community Development Block Grant Program
The Community Development Block grant program is a federal program that provides funding through U.S. department of Housing and Urban Development. It allows the County of Northampton Department of Community and Economic Development (DCED) to assist in the development of viable communities by funding activities that assist people with low incomes in meeting their needs for housing or services. All 37 boroughs of Northampton, including the city of Easton, are participating in Northampton County's Urban County CDBG Entitlement Program and non-profit organizations providing services to residents of participating municipalities are eligible for participation. Starting 2024, projects that impact lower to moderate income and sensitive populations will be prioritized.

114 Pennsylvania Department of Conservation and Natural Resources (DCNR). Conservation Landscapes. N.d. https://www.pa.gov/agencies/dcnr/programs-and-services/community-outreach-and-development/conservation-landscapes.html
115 Pennsylvania Department of Conservation and Natural Resources (DCNR). Rivers Conservation. N.d. https://www.pa.gov/agencies/dcnr/conservation/water/rivers-conservation.html#:~:text=The%20Pennsylvania%20Rivers%20Conservation%20Program,Water%20trails
116 Pennsylvania Department of Community and Economic Development. Greenways, Trails, and Recreation Program (GTRP). N.d. https://dced.pa.gov/programs/greenways-trails-and-recreation-program-gtrp/

Open Space Trends

Livable Landscapes Grant Program
The Livable Landscapes Grant Program[117] provides grant opportunities for eligible applicants in land conservation, ecological restoration, education and outreach, park rehabilitation and development, and regional trails in Northampton County. The purpose of the grant program is to protect the county's important natural features by assisting municipalities and organizations in acquiring, restoring, and enhancing permanently protected lands to conserve natural resources and provide outdoor recreation for future generations. The 2024 grant recipients had projects such as improvement of Tumminello Park, Refurbishing of Fourth Street Playground in Northampton, restoration of Fox Run Park at Palmer Township, Construction of a preserve in Upper Mount Bethel Township, and Greenway Trail Gap.

Northampton County Grow NORCO Grant Program
The Grow NORCO Program[118] (GNP) is designed to be a flexible source of capital that will assist Northampton County municipalities and not-for-profit organizations to grow Northampton County's economic prosperity and quality of life. The program helps Northampton County prioritize and allocate funding for holistic development of the County. Federally registered non-profit agencies or municipality entities located in Northampton Country are eligible to apply.

Northampton is currently encouraging community-based organizations and public agencies to work in partnership with the local government to develop a comprehensive approach that meets the county's needs. The program aims to increase and encourage business retention, expansion, and job-creation in the County to make it a more attractive place to live. Capital Improvement projects, Quality of life projects, Façade Program Projects, Operations Projects, and Community Planning projects are eligible to receive the funding.

Northampton County Affordable Housing Program Grant
The Northampton County Affordable Housing Program Grant[119] is designed to fund projects that maintain or increase the availability of quality affordable housing for residents in Northampton County whose annual incomes are at or below 80% of the household median income for the County. The fund supports projects that create, retain or improve rental units or owner-occupied housing, costs of emergency housing resources, and assists transitional housing facilities and Affordable housing. The funds for this program are generated through the implementation of Ordinance 322 of 1998, as authorized by PA Act 1992-137. Federally registered non-profit entities (501(c)(3) or 501(c)(4)), Public agencies, Local governments, Government authorities, and Private, low-income housing providers are eligible to apply.

Northampton County Hotel Tax Grants
Northampton County Resolution No. 440 of 2005, as authorized by P.L. 307 of 2000 and amended by Act 12 of 2005, imposes a Hotel Room Rental Tax of 4% on hotel guests. This tax thus collected is used for tourism and community development initiatives. Only registered non-profit organizations or a municipal entities located within Northampton County are eligible to apply for a Northampton County Hotel Tax Grant[120] to help fund a project. The grant supports programs that promote tourism in Northampton, improve public health or wellness, support historic preservation, and collaborate with other Northampton County entities.

Future LV Regional Plan
Future Lehigh Valley Regional Plan[121] is a comprehensive plan for the region. It was first released in 2019 and was updated with the Long-Range Transportation Plan in 2023 after an additional public engagement campaign that included a second regionwide survey, and meetings with all 62 municipalities, community organizations, government agencies and residents. It is among the first comprehensive plans in the nation that merges the land use, economic, environmental, housing, preservation and farming policies with the transportation planning and investment policies of the Lehigh Valley Transportation Study (LVTS). *FutureLV* covers both Lehigh and Northampton counties, creating a forward-thinking strategy that leads the region into the future, while addressing the needs of today.

117 Northampton County. (2024). Northampton County Livable Landscapes FINAL Plan. Northampton County Livable Landscapes FINAL Plan_377.pdf
118 Northampton County (2025). Grow NORCO Grant Program. 2025 Grow NORCO Grant Guidelines_1500.pdf
119 Northampton County (2023). Affordable Housing Program. 2023 Affordable Housing Program Grant Guidelines FINAL_522.pdf
120 Northampton County (2026). Hotel Tax Grants. 2026 Hotel Tax Grant Guidelines_1597.pdf
121 Lehigh Valley Planning Commission (2019). FutureLV: The Regional Plan Update (2023). Community Plans + Guides

Environmental Services

The natural lands, woodlands, waterways, and undeveloped parcels provide significant environmental value to the Northampton County communities they serve.

This section evaluates the economic contribution of ecosystem services generated by these landscapes including air pollution removal, water supply provision, water quality improvement, flood mitigation, wildlife habitat conservation, and carbon sequestration and storage. Drawing on established methodologies, the analysis quantifies these benefits in monetary terms, emphasizing the high cost that municipalities would face to replicate these ecosystem functions if lost. This analysis focuses on the natural landscapes adjacent to trails and preserved lands, excluding any paved or built surfaces. The continued preservation and maintenance of open space throughout Northampton County ensures these services remain intact and valuable over time.

Understanding recent changes in the county's land cover provides important context for assessing the scale and nature of these benefits. Between 2011 and 2023, Northampton County's land cover shifted in ways that reflect both development pressures and conservation gains. The most notable increases occurred in developed land—particularly low- and medium-intensity areas—as well as in forest and pasture, suggesting a mix of suburban expansion, reforestation, and active land management. In contrast, cultivated cropland saw a steep decline, likely due to changes in agricultural practices and conversion to other uses. Wetlands and riparian areas also experienced substantial losses, underscoring the need for continued preservation of these sensitive ecosystems. Overall, the landscape has moved toward more developed and wooded conditions, with important implications for the types and value of ecosystem services the county's open spaces can provide.

Land Coverage Acreage, 2011 and 2023

Land Coverage	2011	2023	Change
Barren	1,232	1,816	47%
Cultivated Crops	76,973	46,223	(40%)
Developed High Intensity	3,397	4,995	47%
Developed Low Intensity	21,828	32,503	49%
Developed Medium Intensity	10,217	15,918	56%
Developed Open Space	32,272	33,989	5%
Forest	62,771	70,965	13%
Open Water	2,394	2,138	(11%)
Pasture	22,696	27,292	20%
Wetlands	5,081	4,185	(18%)
Riparian	2,630	1,462	(44%)
Total	**241,492**	**241,487**	

Note: The difference in the total acres of land coverage is within the plausible error range for remote sensing/GIS classification, pixel rounding, etc. The spatial grids or raster alignments used in classification do not exactly overlay between two time periods.
Source: Multi-Resolution Land Characteristics (MRLC) 2023 National Land Use Land Cover, Econsult Solutions, Inc. (2025)



Environmental Services



Photo source: Sherry L. Acevedo, Nature Photography

Methodology

To translate Northampton County's diverse natural landscapes into measurable economic terms, we analyzed the composition of its preserved open space and applied established economic values associated with each ecosystem service to estimate their total environmental value. Dollar values representing the economic impact of services such as air pollution removal, water provision, flood mitigation, and carbon sequestration are derived from peer-reviewed per-acre estimates. These totals reflect the costs avoided by not having to artificially replicate the ecological functions currently provided by Northampton County.

To begin, the acreage of each ecosystem type within the county's open space portfolio was identified using land cover imagery from the Multi-Resolution Land Characteristics (MRLC) 2023 National Land Use Land Cover dataset. Each identified land cover type was then paired with per-acre ecosystem service values from a landmark 2006 study by Costanza et al.,122 which estimated the economic value of various ecosystem functions.

These values were applied to the respective acreage in Northampton County to calculate total environmental service benefits. Since different ecosystems provide different services, the total value reflects the specific mix of ecological assets in the county's preserved lands.

To estimate benefits related to air pollution removal and carbon storage, we used the U.S. Forest Service's i-Tree Vue model. This tool assesses tree canopy coverage using the National Land Cover Dataset (NLCD) and applies pollution removal and carbon sequestration rates to determine the environmental value of tree cover. The model calculates how much society would otherwise need to pay—such as in healthcare costs—if trees did not naturally remove pollutants. It also estimates both annual carbon sequestration and the total carbon stored in existing tree canopy. The model's flexibility in adjusting pollution removal rates allows for a refined estimate aligned with Northampton County's landscape characteristics.

Natural System Services Provided by Different Land Cover Types

WATER SUPPLY	WATER QUALITY	DISTURBANCE (FLOOD) MITIGATION	BIOLOGICAL CONTROL	WILDLIFE HABITAT	SOIL FORMATION/ RETENTION	POLLINATION
Forests	Forests	Developed Open Space	Cultivated Crops	Cultivated Crops	Forests	Cultivated Crops
Open Fresh Water	Pasture	Pasture	Forests	Forests	Pasture	Forests
Riparian Buffers	Wetlands	Riparien Buffers	Pasture	Wetlands		Pasture
Wetlands		Wetlands				

Source: Constanza, et al. (2006)

122 https://www.sciencedirect.com/science/article/abs/pii/S0959378014000685

Environmental Services

Northampton County Environmental Services Analysis

The ecosystem services surrounding Northampton County include benefits such as air pollution removal, replenishment of the water supply, water quality improvement, preservation of wildlife habitat, and carbon sequestration and storage. It should be noted that some types of landscapes are more valuable than others for specific types of benefits: air pollution removal and carbon sequestration are primarily a function of tree cover, while wetlands and riparian forests are major drivers of water supply, water quality, and flood mitigation benefits.

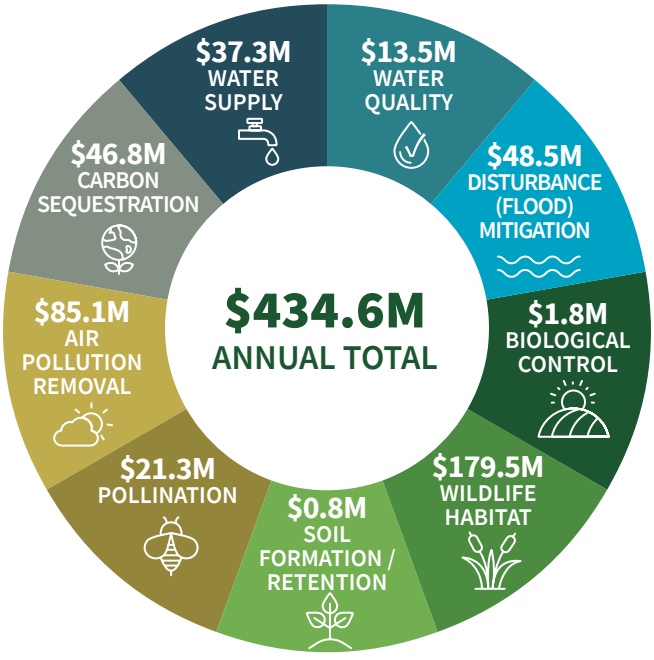
Across approximately 241,487 acres of open space in Northampton County, the preserved ecosystems—particularly the 101,212 acres of tree cover—deliver measurable environmental services.

Although open space may include some developed or maintained areas, the surrounding natural landscapes are the primary generators of these ecosystem benefits, which are preserved and enhanced through the County's conservation efforts.

In total, the ecosystem services and environmental benefits provided by Northampton County are estimated at $434.6 million in annual value across a range of services (see Figure 5.3), with an additional $2.5 billion in lifetime cost savings from carbon storage associated with the county's tree canopy.

The following subsections provide additional detail on the calculations of these ecosystem services, how they were calculated, and their total cost savings impact on the region.

Annual Environmental Benefits by Type



Source: Costanza (2006), Multi-Resolution Land Characteristics Land Cover (2023), Econsult Solutions, Inc. (2025), Northampton County (2025)

CASE STUDY

Livable Landscapes: Regional Land Management and Wildlife Habitat Improvements

Northampton County is set to restore 125-acres of native meadow habitat in 8 parks, starting in 2025. The County received a grant from PA DCNR and signed a 25-year partnership agreement with the PA Game Commission. These two initiatives have spearheaded this major investment in wildlife habitat improvements throughout the County.

Ensuring a long-term commitment to land preservation and environmental stewardship. The Division of Parks & Recreation and the Division of Farmland Preservation will combine in 2026. This new endeavor has already provided success to a combined agriculture, wildlife habitat and recreation opportunity at the newly preserved 43-acre Bauer Tract.

Environmental Services

Water Supply

The soil of undeveloped land stores water and helps replenish streams, reservoirs, and aquifers—forming a natural system that continuously recharges groundwater and surface water. Forests and wetlands are particularly effective land covers for supporting water provision. The larger and more intact the land covers, the greater the benefits derived. If this ecosystem were compromised, water would either need to be imported or undergo more extensive treatment, both of which are costly alternatives. It is estimated that Northampton's acreage provides approximately $37.3 million annually in cost savings by supporting natural water supply functions. Conservation efforts reduce the likelihood of development that could disrupt these ecosystems, thereby maintaining their long-term value and function.

Water Quality

Forests and wetlands provide a natural protective buffer between human activities and water supplies. This service is driven largely by the proportion of forest, wetland, and riparian buffer within Northampton County. This riparian buffer filters and stops several types of waste, including pathogens, excess nutrients, metals, and sediments, from entering the water supply. Without the riparian buffer, residents would be forced to pay for alternative groundwater filtration or water treatment methods. In sum, the buffer provided by Northampton's forests, wetlands, and riparian buffers generate approximately $13.5 million annually in water quality benefits from the ability to naturally maintain water quality.

Disturbance (Flood) Mitigation

Many natural landscapes serve as a buffer protecting people and properties from destructive natural events. The absorptive capacity of these landscapes helps to mitigate the risk of flood during storm events by trapping and containing stormwater. If the region were to be deprived of this natural service, residents and local governments would be forced to undertake costly measures to protect the built environment from further damage as a result of flooding, such as constructing dams or reservoirs. In sum, the buffer provided by Northampton's natural landscapes generate approximately $48.5 million annually from natural flood mitigation services.

Biological Control

Natural landscapes such as forests and meadows support species that act as biological controls by keeping pests in check. Birds, bats, and insects such as ladybugs and dragonflies naturally reduce the population of agricultural and forest pests, lessening the need for chemical pesticides. This not only supports healthier ecosystems and crop yields but also reduces costs for local farmers and landowners. The biological control benefits from Northampton County's landscapes are valued at approximately $1.8 million annually, representing the avoided cost of pest management that would otherwise be necessary without these ecosystems.



Environmental Services

Wildlife Habitat

Northampton County ecosystems serve as habitats for a diverse array of plants and animals. Intact forests and wetlands harbor species that people value for both aesthetic and functional purposes. Values for this ecosystem service estimate the amount of money that people would be willing to pay to preserve wildlife. It is important to note that the value associated with wildlife habitat is of a different nature than the values associated with the other ecosystem services included in this section–it does not represent an avoided cost. To ensure a conservative valuation of the benefit derived from the preservation of wildlife habitat within Northampton County, the estimates in this section are based on minimum willingness-to-pay values from the research literature.[123] In sum, the wildlife habitats located in Northampton County have an estimated annual value of $179.5 million.

Soil Formation/Retention

Undisturbed ecosystems, especially those with tree canopy and ground vegetation, play a vital role in forming and retaining topsoil. This ecosystem service minimizes erosion, maintains soil fertility, and prevents sedimentation in waterways, which can harm aquatic habitats and increase water treatment costs. Areas such as forest floors, meadows, and riparian zones are especially effective in preserving soil health. In Northampton County, these ecosystems are estimated to contribute approximately $0.8 million annually in cost savings from reduced soil erosion and sediment control efforts.

Pollination

Pollination is essential for the reproduction of many crops and native plants. Natural landscapes provide critical habitat for pollinators such as bees, butterflies, and other insects, many of which are in decline due to habitat loss. These natural pollinators contribute directly to agricultural productivity and biodiversity. In Northampton County, these support robust pollinator populations, helping maintain ecosystem health and food supply chains. The estimated annual value of this service is $21.3 million, representing the economic benefit of natural pollination services that would otherwise require artificial methods or result in crop yield losses.

123 Ibid.

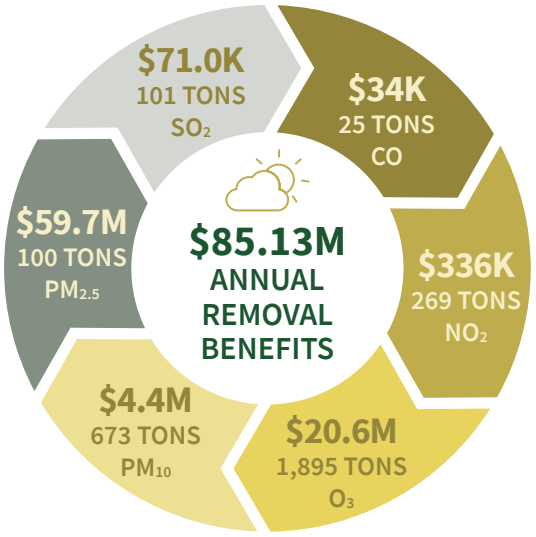
Air Pollution Removal

Poor air quality is common in many urban and suburban areas and can lead to a variety of human health problems, including asthma and other respiratory ailments. The pollutants that affect air quality also can damage buildings and plants, give rise to smog, and contribute to climate change. Trees mitigate significant amounts of air pollution through botanic respiration processes that remove pollutants from the air. This naturally occurring air pollution removal process contributes to environmental quality and health.

Northampton County provides approximately 101,212 acres of tree canopy. Based on total tree canopy acreage and established estimates of the per-ton benefits of removing various airborne pollutants, trees within these preserved areas provide approximately $85.1 million annually in air pollution removal services.

This analysis includes benefits derived from the removal of five key pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10}), and sulfur dioxide (SO_2). The figure below shows the estimated annual value associated with the removal of each pollutant.

Annual Air Pollution Removal Benefits



Source: i-Tree (2021), Multi-Resolution Land Characteristics Land Cover (2023), Econsult Solutions, Inc. (2025)

Environmental Services

Carbon Sequestration and Storage

Trees mitigate the impacts of climate change by sequestering and storing atmospheric carbon from carbon dioxide. Carbon storage is an estimate of the total amount of carbon stored in the existing biomass of trees, both above and below ground. In other words, if the carbon currently stored in trees on protected open space were released into the air, it would cause damages that would require a significant cost to mitigate, such as damages to agricultural productivity, human health, and property damages. Note that the estimate of the value of stored carbon is not annual; the storage of carbon in a tree represents a one-time benefit—the carbon is kept out of the atmosphere until the tree dies.

The social cost of carbon is the value of carbon sequestration and storage is $433 per ton.[124] Using this social cost of carbon, it is estimated that within Northampton County, trees store 5.8 million tons of carbon, equating to $2.5 billion within existing biomass. In other words, if carbon currently stored in trees within Northampton County were released into the air, it would cause climate change damages that would cost $2.5 billion to mitigate.

Carbon Sequestration

Carbon sequestration is the process of removing carbon dioxide from the atmosphere and transferring it into a reservoir, such as plants, soils, oceans, or underground geologic formations. It refers to the action or flux of capturing carbon, whether through natural processes like photosynthesis or engineered methods like carbon capture and storage. Carbon storage refers to the amount of carbon held in a reservoir at a given time, such as the carbon contained in forests, soils, or deep underground formations. Unlike sequestration, which is dynamic, storage is a snapshot of the stock of carbon, though it can be temporary if that carbon is later released through processes like decomposition or disturbance.

Source: https://www.energy.gov/science/doe-explainscarbon-sequestration

Carbon Sequestration and Carbon Storage in Northampton County

ANNUAL CARBON SEQUESTRATION	**$46.8M** COST SAVINGS
LIFETIME CARBON STORAGE	**$2.5B** COST SAVINGS

Source: i-Tree (2021), Multi-Resolution Land Characteristics Land Cover (2023), Econsult Solutions, Inc. (2025), Northampton County (2025)

As a tree grows, it pulls carbon from the air. New growth on trees is responsible for carbon sequestration, which is measured on an annual basis. This estimate controls for the yearly release of stored carbon through the death and decay of trees. Like the carbon storage estimate, this estimate measures the monetary damages associated with each ton of carbon that is sequestered. Because this carbon is taken out of the air by trees on Northampton County, these damages are avoided, representing savings for communities across the county. Every year, new growth on the trees within Northampton County sequesters an additional $46.8 million.

The figure below shows estimates of the tons of carbon annually sequestered and tons stored by trees for their lifetime within Northampton County, along with the benefits derived from the storage and sequestration of carbon by these trees.

124 I-Tree, USDA Forest Service, https://www.itreetools.org/.

Residential Property Value

Open space plays a vital role in shaping community character, enhancing quality of life, and contributing to regional economic value.

Among the many benefits, one of the most measurable is the impact that proximity to open space has on residential property values. Homebuyers often place a premium on access to recreational and scenic amenities, and local governments benefit from the increased property tax revenues such premiums can generate.

This section draws on existing literature and findings from prior regression-based studies to estimate the potential impact of open space on residential property values in Northampton County.

CASE STUDY

URBAN AND SUBURBAN RESIDENTIAL DEVELOPMENT NEAR OPEN SPACE

The Fields at Brookside in Lehigh County is a suburban neighborhood that integrates open space into residential design. The community incorporates green corridors, sidewalks, and open fields that retain the feel of the natural landscape while offering residents meaningful recreational opportunities. Marketing for the neighborhood highlights its open layout and natural setting, positioning proximity to preserved space

In Bethlehem, there is a planned 120-apartment project near the South Bethlehem Greenway. By locating housing directly beside a regional trail system, the project provides residents with immediate access to walking and biking routes. The Greenway acts as both a recreational resource and a transportation corridor that demonstrates the role of open space in transforming underused land into vibrant residential districts.

Together, these examples highlight how suburban and urban housing projects benefit from a deliberate connection to open space. Open space in both contexts provides lasting value and supports the creation of communities that are livable, marketable, and well-positioned for the future.

Sources: https://www.lehighvalleynews.com/bethlehem/bethlehem-officials-announce-120-apartment-project-near-south-bethlehem-greenway https://www.kaybuilders.com/communities/macungie-pa/the-fields-at-brookside#description

A wide body of research has examined how proximity to parks, trails, and conserved natural areas can enhance home values, generating both individual homeowner benefits and broader public revenue gains. By synthesizing these findings, we can assess how similar dynamics may play out in Northampton County and quantify the potential economic value tied to local open space preservation efforts.

According to a 2020 study by the National Association of Realtors, people with more walkable amenities near their homes were more satisfied with the quality of life in their neighborhood.



Residential Property Value

Literature Review

Multiple studies have attempted to quantify this premium and while results vary by geography, open space type, and methodology, there is broad consensus that the effect is both measurable and significant. A 2019 review of 33 U.S. studies found that property values generally increase with proximity to parks with estimated premiums of 8 to 10 percent for homes adjacent to such spaces.

The review also noted that larger parks generate broader value impacts, premiums tend to be higher for multifamily or small-lot homes, and permanently protected lands yield greater value than developable ones (Crompton & Nicholls, 2019).[125] The table below summarizes findings from a range of studies, providing estimated property value premiums associated with nearby green amenities.

Estimated Impact of Open Space on Property Values

Source	Author	Year	Geography	% Estimated Property Value
"A Dynamic Approach to Estimating Hedonic Prices for Environmental Goods: An Application to Open Space Purchase" (Riddel, 2001)	Riddel	2001	Boulder, CO	3.75%
"Influence of Trees and Landscaping on Rental Rates at Office Buildings"	Laverne & Winson -Geideman	2003	Cleveland, OH	7%
"The Economic Impact of the Catawba Regional Trail"	Campbell & Monroe	2004	North Carolina	4%
"The Potential Economic Impacts of the Proposed Carolina Thread Trail"	Econsult Solutions, Inc.	2007	North Carolina	4%
"City Trees and Property Values"	Wolf	2007	–	5%
"The Potential Economic, Environmental, Health, and Quality of Life Benefits of a Fully Connected Waterfront Greenway in Philadelphia"	Econsult Solutions, Inc.	2010	Philadelphia	6%
"Quantifying the Economic Value of Protected Open Space in Southeastern Pennsylvania"	Econsult Solutions, Inc.	2010	SE Pennsylvania	3.75%
"Valuing the Conversion of Urban Green Space"	Econsult Solutions, Inc.	2010	Philadelphia	7.20%
"Ecusta Rail to Trail Economic Impact Analysis"	Econsult Solutions, Inc.	2011	North Carolina	4%
"New York City Property Values: What Is the Impact of Green Roofs on Rental Pricing?"	Ichihara & Cohen	2011	New York City	16%
"Impact on property values of distance to parks and open spaces: An update of U.S. studies in the new millennium"	Crompton & Nicholls	2020	–	8% to 10%
"The Green Edge: How Commercial Property Investment in Green Infrastructure Creates Value"	Clements, Juliana & Davis	2013	–	2% to 5%
"The Economic Impact of Green City, Clean Waters: The First Five Years"	Econsult Solutions, Inc.	2016	Philadelphia	11.5% to 12.7%
"The Economic Impact of Open Space in Chester County"	Econsult Solutions, Inc.	2019	Chester County	3.6%

Source: Econsult Solutions, Inc. (2025)

125 Crompton et. al. (2019), Impact on property values of distance to parks and open spaces: An update of U.S. studies in the new millennium. https://college.agrilife.org/rptsweb/wp-content/uploads/sites/21/2020/01/Impact-on-property-values-of-distance-to-parks-and-open-spaces-An-update-of-U-S-studies-in-the-new-millennium.pdf

Residential Property Value

The Impact of Open Space on Property Value

When a home is situated close to open space, part of its value can be directly attributed to this proximity. Using the methodology and regression results from the Chester County open space valuation study—where hedonic modeling was applied—we estimate that homes within a quarter mile of open space in Northampton County realize a 3.6 percent increase in total home value. Chester and Northampton Counties share several key characteristics that support this comparison: both are part of the greater Philadelphia metropolitan region, have experienced steady population growth, contain a mix of rural, suburban, and urban land uses, and maintain active open space preservation initiatives. These similarities make Chester County's empirical findings a reasonable benchmark for estimating potential value impacts in Northampton County.

There are roughly 60,000 homes in Northampton County located within a quarter mile of open space. Together, these homes have an estimated $21.7 billion in total market value. Based on previous regression analysis, it is estimated that approximately 3.6 percent of property value is linked to the proximity of open space, which amounts to approximately $776 million in added value across the county.

On a household level, this relationship represents an average increase of $12,852 in market value per home for those located near open space. This shows that open space is not only a community amenity but also a significant driver of residential property values.



Northampton County Open Space Property Value Impact

60,381
Total Number of Homes within 1/4 mile of Preserved Open Space

$21.7B
Total Property Value within 1/4 mile of Preserved Open Space

3.6%
Total % Value of Preserved Open Space

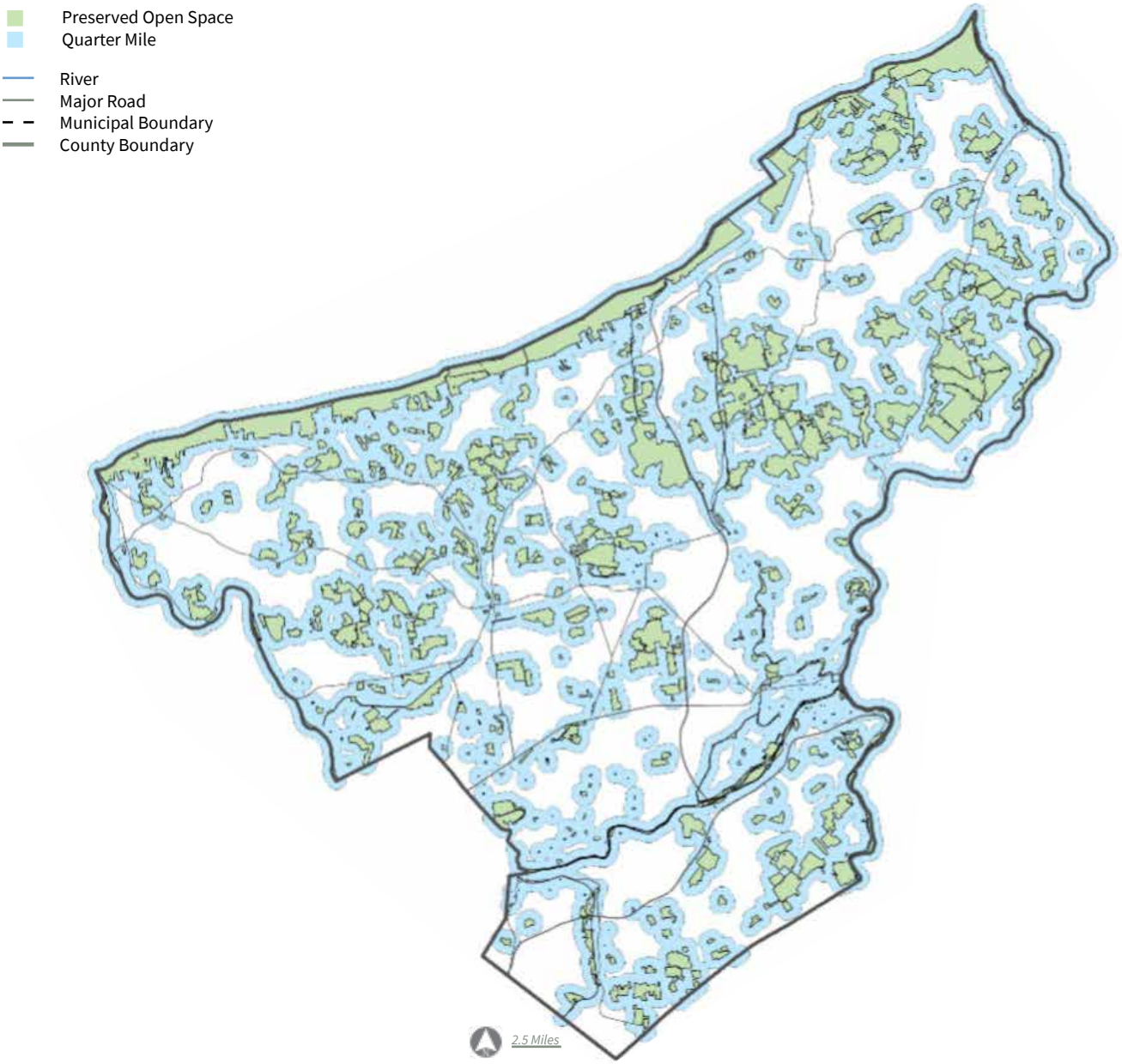
$776.0M
Total Market Value of Preserved Open Space

$12,852
Average Market Value Increase of Homes within 1/4 mile of Preserved Open Space

Source: Econsult Solutions, Inc. (2025)

Residential Property Value

Premium Impact Areas (Quarter Mile) in Northampton County



Source: Econsult Solutions, Inc. (2025)

Agricultural Impact

Over the past decade, Northampton County has experienced notable shifts in how its land is used.

Changes in how land is used frame the current state of the agricultural economy in the county. Development has steadily expanded, reflecting both population growth and suburbanization. At the same time, forest cover, open space, and grasslands have increased, suggesting that conservation efforts, changing land management practices, and the reforestation of previously cleared areas are playing a role in balancing growth with environmental preservation.

Within agriculture, the story is one of both stability and adaptation. Large-scale row crops such as grains, beans, and oilseeds remain the dominant land use within farming, but the acreage devoted to these crops has contracted. In their place, certain specialty crops—particularly vegetables, fruits, and floriculture—have grown in prominence. These shifts hint at evolving market demands, opportunities for higher-value production, and a diversification of the county's agricultural portfolio.

Together, these changes reveal a dynamic and responsive agricultural landscape—one shaped by market forces, land stewardship choices, and regional development pressures. This context is critical to understanding the role agriculture plays in Northampton County's economy, both in its direct contributions to output and employment, and in the broader ripple effects it creates through supply chains, labor income, and trade flows.

CASE STUDY

AGROTOURISM IN NORTHAMPTON COUNTY

Agritourism has become an important way for farms to strengthen their economic stability while contributing to the broader local economy. By inviting visitors onto farms and providing opportunities to purchase goods directly, agritourism operations generate new revenue streams and extend the reach of agricultural businesses.

Klein Farms, Seiple Farms, and Unangst Tree Farms provide clear examples of how agritourism operates at a local scale. Klein Farms has combined dairy production with a retail store, ice cream sales, and on farm tours that attract residents and visitors alike. Seiple Farms has built seasonal programming such as pick your own crops, hayrides, and festivals that draw significant attendance and create dependable income beyond traditional harvest sales. Unangst Tree Farms has developed a year-round schedule of attractions, from fall corn mazes and pumpkin patches to winter Christmas tree sales, maintaining steady visitor traffic and employment opportunities across multiple seasons.

Sources: https://kleinfarms.com/; https://seiplefarms.com/; https://www.unangst-treefarm.com/



Agricultural Impact

The Direct Economic Impact of Agriculture in Northampton County

The agriculture industry in Northampton County directly accounts for approximately $38.3 million in direct economic output. Of this total, crops account for $30.5 million, while livestock, poultry, and related products contribute $7.8 million. Within crop production, grains, oilseeds, dry beans, and peas are the leading contributors, generating nearly $19.9 million in output. Other significant crop segments include nursery and greenhouse production ($2.5 million), fruits and berries ($2.3 million), and vegetables and melons ($2.3 million).

Livestock production is led by milk from cows ($3.8 million) and cattle and calves ($3.2 million), together accounting for most of the animal-based output. In contrast to broader statewide trends where chicken farming is often dominant, poultry and egg production in Northampton accounts for just $243,000, representing a relatively small share of total agricultural output.

In recent years, sales of grains, oilseeds, dry beans, and dry peas in Northampton County have been trending upwards to $19.9 million, underscoring the growing prominence of this crop group within the county's agricultural sector. This gain reflects both favorable market conditions and the continued efficiency and specialization of local farms. As the dominant crop category, these commodities now account for nearly half of total crop-related output, positioning Northampton as a key contributor to Pennsylvania's grain and oil-seed supply.



Total Direct Output in Northampton, by Commodity

Impact Type	($M)
Crops	**$30.5**
Grains, oilseeds, dry beans, dry peas	$19.9
Vegetables, melons, potatoes, sweet potatoes	$2.3
Fruits, tree nuts, berries	$2.3
Nursery, greenhouse, floriculture, sod	$2.5
Cultivated Christmas trees, short rotation woody crops	$1.0
Other crops and hay	$2.5
Livestock, poultry, and products	**$7.8**
Poultry and eggs	$0.3
Cattle and calves	$3.2
Milk from cows	$3.8
Hogs and pigs	$0.2
Sheep, goats, wool, mohair, milk	$0.2
Other animals and animal products	$0.1
Total	**$38.3**

Source: USDA (2022), IMPLAN (2025)

Agricultural Impact

The Spillover Impacts of Agriculture in Northampton County

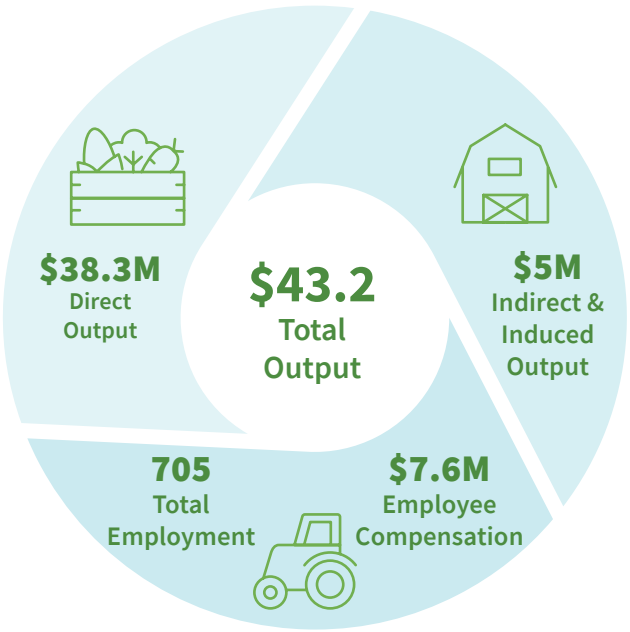
The direct economic impact of agriculture does not tell the full story of what agriculture means to Northampton's economy, as inter-industry links between the agricultural sectors and other sectors of the economy that generate spillover impacts. These impacts, combined with the direct impacts, provide the complete picture of the agricultural sector's contribution to the state's economy. There are two types of spillover impacts:

- First, some proportion of the amount of the expenditure that goes to the purchase of goods and services gets circulated back into an economy when those goods and services are purchased from local vendors, defined as any vendors in Pennsylvania. This represents what is called the "indirect effect."
- Second, some amount of the proportion of that expenditure that goes to labor income gets circulated back into an economy when agricultural employees spend some of their earnings on various goods and services. This represents what is called the "induced effect."

Using standard input-output modeling techniques, we estimate the full range of economic, employment, and labor income impacts associated with the direct activity attributable to the agriculture industry. The role of input-output models is to determine the linkages across industries to model the magnitude and composition of the spillover impacts (see Appendix B for more information on economic impact modeling).

Northampton's agriculture industry accounted for approximately $43.2 million in total economic output, when accounting for the indirect and induced impacts, in 2025. In addition, the industry supported over 705 jobs and over $7.6 million in employee compensation.

Total Economic Impact of Agricultural Production in Northampton County



Source: USDA (2022), IMPLAN (2023), Econsult Solutions, Inc. (2025)

Agricultural Impact

Northampton County Agricultural Sector Trade Flows

Trade flows provide important insights into how much of Northampton County's agricultural output is consumed within Pennsylvania versus exported to other states or regions. Overall, about 61 percent of the County's agricultural trade value is retained within Pennsylvania, reflecting strong intrastate demand for many agricultural products.

The highest in-state retention is seen among grains, vegetables, fish, and beef cattle, with over 90 percent of these products staying within Pennsylvania. This indicates that local and regional food systems in the state are heavily reliant on Northampton's production of these staples. Grains and oilseeds—two of the County's most prominent outputs—show a striking contrast: while 99 percent of grains remain in-state, only 43 percent of oilseeds do, suggesting broader national markets or processing needs for oilseed crops.

Northampton Agricultural Commodity Trade Flows

Commodity Type	PA Trade ($M)	Total Trade ($M)	% PA Trade
Oilseeds	$1.2	$2.9	43%
Greenhouse, nursery, and floriculture products	$0.9	$2.6	33%
Grains	$1.1	$1.1	99%
Beef cattle	$0.9	$1.0	98%
Animal products, except cattle and poultry and eggs	$0.8	$0.9	93%
Poultry and egg products	$0.2	$0.6	33%
Dairy cattle and milk products	$0.2	$0.6	28%
Vegetables and melons	$0.4	$0.4	91%
Fish	$0.4	$0.4	99%
Fruit	$0.3	$0.4	88%
Logs and roundwood	$0.1	$0.2	73%
All other crops	$0.2	$0.2	99%
Wild game products, pelts, and furs	$0.1	$0.2	91%
Forest, timber, and forest nursery products	$0.1	$0.2	95%
Total	**$7.0**	**$11.5**	**61%**

Source: IMPLAN (2025), Econsult Solutions, Inc. (2023)

Agricultural Impact

Greenhouse, nursery, and floriculture products, although important to the local economy, show a much lower in-state trade share of 33 percent, implying that a large portion of these goods are sold to out-of-state markets. A similar pattern is observed in dairy products, where just 28 percent of trade value remains in Pennsylvania, likely due to broader distribution networks and market structures.

Other notable trends include:

- Fruit and vegetables and melons exhibit strong local retention at 88 and 91 percent, reinforcing their importance in regional food supply chains.
- Animal products excluding cattle and poultry/eggs also show a high in-state trade share at 93 percent, indicating robust demand for niche or specialty animal products within the Commonwealth.
- Conversely, logs and roundwood and wild game products show moderate retention (73–91 percent), potentially driven by regional forest and habitat conditions influencing local demand and supply.

These trade patterns underscore the dual nature of Northampton's agricultural economy: one that both sustains local and regional markets and competes in broader national commodity systems. Understanding these flows can help policymakers, producers, and economic developers identify opportunities to strengthen local supply chains, capture more value in-state, and plan for future infrastructure and logistics needs.

CASE STUDY

AGRICULTURAL PRESERVATION IN NORTHAMPTON COUNTY

Northampton County has deepened its commitment to farmland preservation, recognizing these working landscapes as core assets with long-term value for the region.

In June 2024, a 56-acre farm in Plainfield Township entered the Pennsylvania Agricultural Conservation Easement Purchase Program. The property, which grows corn and soybeans and supports hay and livestock operations, will remain in agricultural use in perpetuity. State and local officials underscored that the farm's preservation not only protects high-quality soil but also strengthens local food security.

A second preservation milestone followed in July 2024, when a 52-acre grain farm in Upper Mount Bethel Township was permanently protected from development. The farm sits adjacent to other preserved properties, creating a contiguous area of protected agricultural land. These preservation actions are part of a broader countywide strategy to balance growth with conservation. Both farms are in areas identified as priority preservation zones due to their productive soils, existing agricultural activity, and proximity to other protected lands. They highlight the role of targeted investment in preserving the viability of the county's farming economy and the ecological services that agricultural lands provide.



Public Health

The network of parks, trails, and open spaces in Northampton County plays a vital role in supporting the health and well-being of residents.

The open space assets provide easily accessible, low-cost opportunities for physical activity, enabling individuals of all ages and abilities to engage in walking, biking, running, and other forms of recreation close to home.

Regular physical activity is associated with a wide range of health benefits, including reduced risk of cardiovascular disease, diabetes, depression, obesity, and certain cancers. Just as important, open spaces provide residents with opportunities for stress relief, restoration, and social connection—factors that are closely tied to mental health. Time spent outdoors has been shown to reduce anxiety and depression, improve mood, enhance focus, and support overall emotional well-being. For families, seniors, and young people alike, nearby open spaces offer a safe, restorative environment that promotes both physical and mental resilience.

Access to safe, well-maintained outdoor spaces makes it more likely that residents will incorporate movement into their daily routines while also benefiting from the calming and restorative qualities of nature. In turn, increased physical activity and reduced stress contribute not only to better individual health outcomes, but also to lower public and private healthcare costs.

Communities with active, healthy populations also experience broader economic benefits. Physically and mentally healthy individuals are more likely to maintain higher levels of productivity, have fewer missed workdays, and require fewer medical interventions over time. By investing in parks, greenways, and trail connectivity, Northampton County is not just preserving land—it is creating health infrastructure that reduces long-term costs, fosters community well-being, and enhances overall quality of life.

This section provides estimates of the health-related cost savings associated with the County's trail and park users, reflecting the tangible return these open space investments deliver for both individuals and the broader community.

How Open Space Contributes to Positive Public Health Outcomes

According to the 2018 Physical Activity Guidelines for Americans, individuals who engaged in at least 150 minutes of moderate to strenuous physical activity each week are considered to be physically active.[126] In order to quantify the health benefits, this section will measure the impacts of frequent users of open space who are healthy and active because of the presence of the open space amenities within their community.

We utilized data from the U.S. Census regarding residents within one mile of the open space as well as primary survey data collected to estimate frequent open space users and active adults. Measures from the CDC's report *Inadequate Physical Activity and Health Care Expenditures in the United States* were used to quantify the estimated value of an active lifestyle.[127] These statistics highlight one of the many returns generated by the County's investments in open space: not only do trails and parks enhance quality of life and environmental resilience, but they also deliver measurable cost savings by improving public health.

126 Centers for Disease Control and Prevention (2021), Physical Activity Basics. https://www.cdc.gov/physicalactivity/basics/adults/index.htm.
127 Carlson et al. (2013), Inadequate Physical Activity and Health Care Expenditures in the United States. https://www.cdc.gov/nccdphp/dnpao/docs/carlson-physical-activity-and-healthcare-expenditures-final-508tagged.pdf.

Public Health

Estimated Active Users of Northampton Open Space

It is estimated that Northampton County open spaces support nearly 12,000 active residents in the county. The following steps were taken to arrive at this count:

First, a recent survey from the National Recreation and Park Association found that approximately 61 percent of U.S. adults have used a park or recreational facility in the last month.

2024 National Recreation and Park Association Park and Recreation Facility Usage Frequency

Frequency	% of Respondents
Within the Past Month	61%
Within the past 2-3 months	9%
Within the past 4-6 months	7%
Within the past 7-12 months	5%
More than a year ago	14%
Never	4%

Source: National Recreation and Park Association (2024)



A survey conducted specifically for this study asked respondents about their use of open space in Northampton County. Because the survey was administered at or near trailheads and recreational areas, there is a likelihood that it oversampled individuals who are already frequent users of open space. To correct for this potential bias, we applied usage proportions from the National Recreation and Park Association's 2024 survey, which found that 61 percent of U.S. adults used a park or recreational facility in the past month. Using this national benchmark as a base, we then redistributed the frequency of use reported in our local survey to align with the national figure.

2025 Northampton Open Space Survey, Adjusted to National Metrics

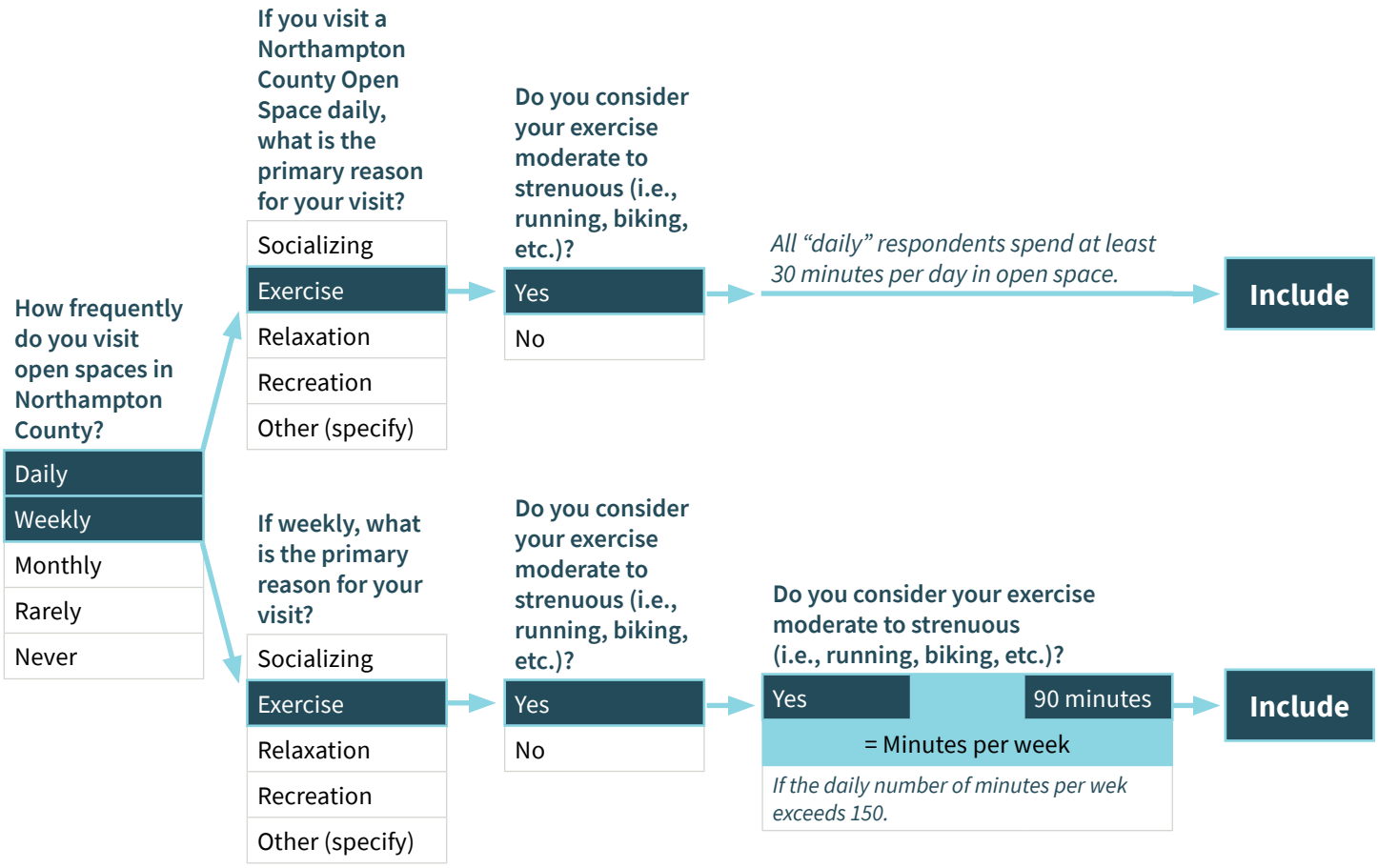
Frequency	Northampton County Survey	Adjusted to National Survey
Daily	18%	12%
Weekly	51%	34%
Monthly	22%	15%
Rarely	8%	35%
Never	1%	4%

Source: National Recreation and Park Association (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025)

Next, using the Northampton County survey data, we estimated the number of frequent open space users who meet recommended physical activity levels established by the CDC: 150 minutes of moderate to strenuous physical activity a week. The flowchart on the following page illustrates the series of questions users answered to qualify to meet the CDC guidelines. To get to the estimate of number of user residents that meet these requirements, respondents that met the criteria listed in the flowchart were included.

Public Health

Open Space User Survey Flowchart



Based on the survey data, 8.2 percent of Northampton residents meet CDC guidelines for physical health through the usage of open space.

Percent of Northampton residents meeting CDC guidelines through open space usage

Daily users meeting CDC guidelines	3.9%
Weekly users meeting CDC guidelines	4.3%
Percent of total residents meeting guidelines	8.2%

Source: CDC (2018), Michael Baker (2025), Econsult Solutions, Inc. (2025)

Given these percentages, we estimated that approximately 12,700 adult residents in Northampton County meet CDC guidelines for physical activity utilizing open space.

Number of Northampton residents meeting CDC guidelines through open space usage

Northampton Adult Residents	254,400
Estimated Regular Users (at least monthly)	155,200
Daily users meeting CDC guidelines	3.9%
Weekly users meeting CDC guidelines	4.3%
Users Meeting Activity Required Due to Open Space	12,700

Source: CDC (2018), Michael Baker (2025), Econsult Solutions, Inc. (2025), U.S. Census Bureau (2025)

Public Health

Potential Physical Health Value of Northampton Open Space

Residents who achieve physically active lifestyles due to Northampton County's open space system yield a range of personal health benefits as well as broader public health benefits for the region. Physically active lifestyles are linked to positive health outcomes including reduced risk of chronic diseases, improved mental health, and reduced prevalence of rheumatic conditions and injury.[128] These positive individual outcomes yield public health value by reducing strain on the health system and lowering overall health care expenditures.

The economic value of these health benefits can be quantified in terms of the healthcare costs avoided by physically active trail users. We developed lower bound, average, and upper bound estimates of the potential health care expenditure reductions achieved by active users on the completed trail network. These estimates were developed by applying potential healthcare savings per active individual—based on findings from a CDC study—to the estimated number of active open space users in the county.[129] Based on this analysis, Northampton County's open space system could yield between $9.1 million and $20.6 million in annual healthcare cost savings for the region.

Estimated Value of Healthcare Savings from Active Trail Users

	Lower Bound	Mean	Upper Bound
Average Annual Savings per Active Individual ($)	$656	$1,181	$1,691
Northampton Physical Health Savings ($M)	$9.1	$14.4	$20.6

Source: CDC (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025), U.S. Census Bureau

Potential Mental Health Value

According to the Medical Expenditures Panel Survey (2022), it is estimated approximately 10.7 percent of the U.S. adult population have expenditures for anxiety treatment. However, the study Spending at least 120 minutes a week in nature is associated with good health and well-being found that spending time outdoors and in nature has a statistically significant impact on individuals' overall sense of well-being.

Additionally, research underscores the financial and social implications of isolation for older adults. AARP has estimated that social isolation among older adults accounts for $6.7 billion in additional Medicare spending each year, driven largely by higher rates of hospitalization and skilled nursing care.[130] These findings highlight the importance of local investments in community assets that reduce isolation and strengthen social connections. In the survey of Northampton County open space users conducted for this report, 30 percent of older adults (age 65 and over) reported using open space specifically to socialize. This demonstrates that parks, trails, and natural areas are not only places for recreation, but also essential venues for building and maintaining social connections that help mitigate isolation and its associated health costs.

The first step in assessing how Northampton's open space can lead to mental health benefits and cost savings is to estimate the number of users that are utilizing it frequently for mental health purposes. To do so, we start with 10.7 percent of the adult population in Northampton County as the starting population. From here, the following survey questions were utilized to estimate the number of residents meeting the 120-minute threshold per week through open space usage for mental health.

- 'Do you use open space?'
- 'Do you use open space specifically for the positive mental health benefits you receive?'
- 'How often do you use open space?'
- 'How many hours do you spend on open space each time you use it?'

128 Centers for Disease Control and Prevention (2021), Benefits of Physical Activity. https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm.
129 Carlson et al. (2013), Inadequate Physical Activity and Health Care Expenditures in the United States. https://www.cdc.gov/nccdphp/dnpao/docs/carlson-physical-activity-and-healthcare-expenditures-final-508tagged.pdf.
130 https://www.hhs.gov/sites/default/files/surgeon-general-social-connection-advisory.pdf

Public Health

Respondents were included as "facing anxiety disorders and frequently using trails for mental health purposes" if they responded that they use trails for mental health reasons for daily or weekly for at least 120 minutes. Given these parameters, it is estimated that the Northampton County open space supports roughly 3,800 adults using the open space frequently for mental health purposes, or roughly 1.5 percent of the adult population.

Estimated Number of Users with Anxiety or Mood Disorders Who Are Utilizing Northampton's Open Space for Mental Health Benefits

Northampton Adult Residents	254,400
Estimated Regular Users	155,200
Percent of Americans with Anxiety	10.7%
Estimated Regular Users with Anxiety	16,678
Percent of resident respondents that use open space at least 120 min per week for mental health purposes	22.7%
Residents receiving mental health savings from open space	**3,800**

Source: Econsult Solutions, Inc. (2025), Michael Baker (2025), CDC (2025)

A recent study[131] found that spending roughly 120-179 minutes in nature was associated with 23 percent greater odds (1.23 odds ratio, with a confidence interval of 1.08 to 1.40) of having a "high" level of well-being compared to residents that spent no time in nature.[132] Given this odds ratio, we estimate the number of users that have increased odds of "high" well-being due to their frequent usage of the open space. In total, it is estimated that roughly 870 Northampton residents per year have "high" well-being due to their frequent usage of open space. To quantify these impacts, the total estimated annual direct costs of anxiety from the Medical Expenditures Panel Survey were used. Annual costs associated with anxiety treatment, adjusted for inflation, were included in the total cost ($1,774 annually). Together, it is estimated that the Northampton County open space affords residents nearly $1.6 million in mental healthcare savings annually.

Estimated Value of Mental Healthcare Savings from Northampton Open Space Users

Adults facing anxiety and frequent users of open space for mental health	3,800
Increased odds of "High" well-being with sufficient time in nature	23%
Potential number of people with decreased anxiety	870
Average cost of mental health medical expenditures for anxiety	$1,774
Total potential cost savings	**$1,550,000**

Source: MEPS (2022), Bureau of Labor Statistics (2025), Econsult Solutions, Inc. (2025), Michael Baker (2025)

CASE STUDY

RESET OUTDOORS: NATURE-BASED MENTAL HEALTH SUPPORT IN BETHLEHEM

Located in Bethlehem, Pennsylvania, Reset Outdoors is a nature-based mental health organization that offers individual counseling, community partnerships, and organizational well-being programs—all rooted in the belief that time in nature can improve emotional resilience and reduce stress.

Their clinical services include flexible therapy sessions conducted in a variety of settings. These sessions are often used to support individuals managing anxiety, trauma, and chronic stress, aligning with growing evidence that regular exposure to nature can significantly improve mental health outcomes.

In addition to individual therapy, Reset Outdoors partners with nonprofits and employers to deliver programs that foster psychological safety, reduce burnout, and build interpersonal trust—often through facilitated outdoor activities and strengths-based coaching.

Reset Outdoors' work reinforces the value of open space as a public health asset. Their success demonstrates how accessible natural areas, when paired with intentional programming, can generate meaningful improvements in well-being—complementing the mental health benefits quantified in this chapter.

131 https://www.researchgate.net/publication/333761194_Spending_at_least_120_minutes_a_week_in_nature_is_associated_with_good_health_and_wellbeing

132 Zhang, Y., Pan, X.-F., Chen, J., Xia, L., Cao, A., Wang, J., Wu, Y., & Tang, J.-L. (2019). Combined lifestyle factors and risk of incident cardiovascular disease and diabetes in Chinese adults: A population-based cohort study. Heart, 105(9), 686–692. https://doi.org/10.1136/heartjnl-2018-314253

Outdoor Recreation Economy

Northampton County's open space resources function as economic drivers—stimulating commerce and supporting local businesses.

In addition to enhancing quality of life and ecological health, Northampton County's parks, natural areas, and other open space recreational assets generate meaningful economic activity. Individuals engaging in outdoor recreation—such as walking, hiking, biking, picnicking, or nature observation—often make purchases related to these activities, including food, beverages, gear, and services. Much of this spending occurs at businesses located near parks, preserves, and other open space access points, with the majority driven by local residents who incorporate recreation into their routines. In this way, Northampton County's open space resources function not only as environmental and public health assets but also as economic drivers—stimulating commerce and supporting local businesses.

This activity can be measured in two distinct ways:

Production Approach (BEA) – Uses the U.S. Bureau of Economic Analysis's Outdoor Recreation Satellite Account (ORSA) to estimate the value of outdoor recreation as part of the overall economy. This method is based on where goods and services are produced and apportions state-level data down to the county.

Consumption Approach (Survey) – Uses survey data on trip frequency and spending patterns to estimate the local economic activity generated by residents' actual spending when they use open space. This method focuses on how recreation stimulates local business activity and generates multiplier effects.

These methods are complementary but measure different aspects of the outdoor recreation economy. The production approach reflects Northampton's share of economic output tied to outdoor recreation industries, while the spending approach captures the direct impact of user expenditures in and around open space areas.



Outdoor Recreation Economy: BEA/Production Approach

According to the U.S. Bureau of Economic Analysis (BEA), the Outdoor Recreation Satellite Account (ORSA) measures economic activity—such as value added, gross output, employment, and compensation—generated by outdoor recreational activities. The BEA defines outdoor recreation through two scopes: a conventional scope, which focuses on nature-based physical activities like hiking, camping, and fishing; and a broad scope, which includes any leisure activity occurring outdoors, such as gardening or attending outdoor festivals.

The BEA further categorizes this economy into two types of activity. Core activities refer to the production and consumption of goods and services directly used in outdoor recreation, such as gear, equipment, fuel, food concessions, and maintenance. Supporting activities include services that facilitate outdoor recreation, such as travel and tourism, local trips, trail construction, and government spending on recreational infrastructure.

Importantly, the BEA's ORSA estimates are based on the place of production, not the residence of the consumer. For example, spending on manufactured goods like bicycles is attributed to the location where they are produced, while service-related spending—such as outdoor lessons or park fees—is counted where the service is delivered. As such, this methodology does not explicitly estimate economic activity generated by residents or non-residents visiting Northampton's open spaces; instead, it focuses primarily on economic contributions tied to local production and resident participation.

To estimate the size of Northampton County's Outdoor Recreation Economy, we apportion Pennsylvania's statewide ORSA data to the county using industry composition—aligning the statewide outdoor recreation shares for each sector (e.g., manufacturing, retail, arts and entertainment) with Northampton's own sector-specific GDP profile.

Apportioning Northampton County's Outdoor Recreation Economy

According to the U.S. Bureau of Economic Analysis (BEA), the outdoor recreation economy accounted for a significant share of national economic activity in 2023. Across the United States, outdoor recreation contributed approximately $639.5 billion in value added, representing 2.3 percent of total U.S. gross domestic product (GDP). This sector also supported nearly 5 million jobs—3.1 percent of all wage and salary employment nationally—and generated $293.9 billion in compensation, or 2.1 percent of total U.S. labor income.

State-level contributions vary widely, reflecting differences in geography, climate, tourism, and industry structure. The highest absolute contributions came from large, populous states such as California ($81.5 billion), Florida ($57.8 billion), and Texas ($55.8 billion). However, when measured as a percentage of each state's total economy, the most recreation-dependent states included Hawaii (6.3 percent), Vermont (4.8 percent), Alaska and Montana (4.6 percent), and Wyoming (4.1 percent). These states also had the highest shares of employment and compensation tied to outdoor recreation, underscoring the sector's role as a core economic driver in more rural and tourism-oriented areas.

In Pennsylvania, the outdoor recreation sector contributed approximately $18.9 billion in value added, accounting for 1.9 percent of the state's total GDP. It supported an estimated 168,322 jobs—2.7 percent of all wage and salary employment—and generated $8.74 billion in compensation, or 1.7 percent of total labor income. While the relative share of outdoor recreation in Pennsylvania's economy is slightly below the national average, the absolute size of the sector remains substantial, indicating its importance both for resident quality of life and for broader regional economic vitality.

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Outdoor Recreation Economy

While county-level data on the outdoor recreation economy is not published directly by the U.S. Bureau of Economic Analysis (BEA), it is possible to estimate Northampton County's contribution by apportioning the statewide figures for Pennsylvania using county-specific data.

In 2023, outdoor recreation in Pennsylvania generated approximately $18.9 billion in value added, accounting for 1.9 percent of the state's total gross domestic product (GDP). Nearly all of this output (97 percent) was attributed to private industry, and activity was distributed across sectors such as manufacturing, retail trade, arts and entertainment, accommodation and food services, and related industries. Two methods were used to estimate the county's share:

First, applying the statewide outdoor recreation share (1.9 percent) to Northampton's total GDP of $20.7 billion, we estimate the county's outdoor recreation economy at approximately $402 million.

Second, we performed a more detailed apportionment using industry-specific breakdowns of GDP and their associated outdoor recreation shares from the ORSA framework. This includes sectors such as manufacturing (3 percent of GDP), retail (8 percent), arts and entertainment (27 percent), accommodation and food services (8 percent), and others. By aligning these proportions with Northampton's own sector-specific GDP profile, we arrive at a slightly higher estimate of approximately $436 million, or 2.1 percent of the county's total GDP.

Estimated Value of Outdoor Recreation Economy in Northampton County

Northampton Outdoor Recreation Economy GDP based on percent of total GDP	$401.6 M
Northampton Outdoor Recreation Economy GDP based on percent of industry-specific GDP	$436.0 M

Source: Bureau of Economic Analysis (2025), Econsult Solutions, Inc. (2025)

These two estimates provide a reasonable range for the size of Northampton County's outdoor recreation economy and reinforce its relevance to the region's economic landscape. While this approach is rooted in Pennsylvania's overall economic data, it is important to note that Northampton County's actual outdoor recreation economy could be even larger, given its exceptionally strong access to outdoor recreation amenities compared to the state as a whole. For example, 83 percent of Northampton County residents live within a 10-minute drive of water recreation, compared to just 61 percent statewide. Access is even more equitable among low-income residents, with 85 percent served in Northampton versus 64 percent across Pennsylvania. Similarly, 99 percent of residents (including low-income populations) are within a 10-minute drive of trailheads, far exceeding the statewide figure of 82 percent. Walkability to parks, trails, and open space is also notably higher in Northampton, where 64 percent of residents—and 72 percent of low-income residents—are within a 10-minute walk, compared to 53 percent and 60 percent, respectively, across the state. These high levels of access suggest that Northampton residents may engage in outdoor recreation more frequently than the statewide average, potentially driving greater local spending and economic activity than captured in the baseline estimates.

Access to Open Space, Northampton County and Statewide

		Northampton County	Statewide
10 Min. Drive Access to Water Recreation	% of Population Served	83%	61%
	% of Low-Income Population Served	85%	64%
10 Min. Drive Access to Trailheads	% of Population Served	99%	82%
	% of Low-Income Population Served	99%	83%
10 Min. Walk Access to Parks, Trails, & Open Space	% of Population Served	64%	53%
	% of Low-Income Population Served	72%	60%

Source: Outdoor Recreation Access in Pennsylvania (2025), Econsult Solutions, Inc. (2025)

Outdoor Recreation Economy: Consumption/Survey Approach

Unlike the BEA production-based method, which measures the value of outdoor recreation by where goods and services are produced, the survey approach captures the economic activity generated by residents actually using Northampton County's open spaces. It focuses on the direct consumption by residents (and some visitors) when they engage in outdoor activities—purchases such as food, beverages, and gear—and the ripple effects that spending creates in the local economy.

This method is grounded in data from the Northampton Open Space Survey, which asked respondents about how often they use local parks, trails, and other natural areas, and how much they spend during those outings. By combining survey results with national recreation usage benchmarks, we estimate total annual trips, associated per-trip spending, and yearly expenditures on recreation-related equipment. This spending profile is then modeled to determine the overall economic and employment impact of open space use in the county.

To do so, we first applied usage proportions from the National Recreation and Park Association's 2024 survey, which found that 61 percent of U.S. adults used a park or recreational facility in the past month. Using this national benchmark as a base, we then redistributed the frequency of use reported in our local survey to align with the national figure, as shown in the table below:

2025 Northampton Open Space Survey, Adjusted to National Metrics

	Northampton Survey	Adjusted to National Survey
Daily	18%	12%
Weekly	51%	34%
Monthly	22%	15%
Rarely	8%	35%
Never	1%	4%

Source: National Recreation and Park Association (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025)

Based on this information and Northampton County's adult population, we calculated the total number of trips made annually. Frequent users, particularly daily and weekly visitors, account for the vast majority of open space visits—together totaling over 16 million trips per year.

2025 Northampton Frequent User Resident Trips

	Adjusted Open Space Usage	Number of Residents	Number of Days Used by Residents	Total
Trips	12%	30,530	365	11,142,700
Weekly	34%	86,500	52	4,497,800
Monthly	15%	38,200	12	457,900
Total		155,200		16,098,400

Source: National Recreation and Park Association (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025)



Outdoor Recreation Economy



To estimate the economic impact of open space usage, we analyzed how often users reported spending money during their visits. According to survey responses, 5.6 percent of users said they always spend money on open space trips, with an average spend of $50 per trip, while 54.7 percent said they sometimes spend, averaging $28 per trip. The remaining 39.7 percent reported rarely or never spending money during their outings. Applying these proportions to the estimated 16.1 million open space trips made annually in Northampton County, we calculated that approximately 5.3 million trips—or about 33 percent—include some level of spending. These spending trips are estimated to generate $162.2 million in annual soft goods spending, such as food, beverages, and services purchased during open space outings.

2025 Northampton Frequent User Resident Trip Spending

	Percent of Respondents Who Spend	Average Trip Spend	Number of Spending Trips*	Estimated Annual Spending
Always Spend	5.6%	$50	902,000	$44.9 M
Sometimes Spend	54.7%	$28	4,406,300	$122.3 M
Rarely/ Never Spend	39.7%	$–	--	$–
Total			5,308,300	$162.2M

**Note: For the "sometimes spend" category, only 50 percent of trips were categorized as a "Spending Trip."*
Source: National Recreation and Park Association (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025)

Additionally, we asked frequent resident users about their annual spending on the gear—also referred to as hard goods—needed to support their use of open space, such as bicycles, walking shoes, fishing equipment, or other recreational gear. On average, daily users reported spending $399 per year on such items, weekly users spent $341, and monthly users spent $217. When applied to the estimated number of residents in each usage category, this translates to approximately $25.2 million in annual hard goods spending across Northampton County.

2025 Northampton Frequent User Resident Hard Good Spending

	Annual Average Spend on Equipment	Number of Residents	Estimated Annual Spending ($M)
Daily	$399	30,530	$12.2
Weekly	$341	86,500	$13.0
Monthly	$217	38,200	$18.8
Total		155,200	$44.0

Source: National Recreation and Park Association (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025)

Outdoor Recreation Economy

Taken together, open space users in Northampton County generate substantial annual economic activity through both soft goods and hard goods spending. Soft goods—such as food, beverages, and services purchased during trips—account for an estimated $162.2 million annually, or approximately $31 per spending trip. Hard goods, which include equipment and gear required for open space activities, contribute an additional $44.0 million per year, averaging $283 per frequent user. In total, the annual spending of Northampton resident frequent users is estimated at $211.1 million.

2025 Northampton Frequent User Total Annual Spending

	Estimated Annual Spending	Per Trip/ Per Capita
Soft Goods	$167.2 M	$31
Hard Goods	$44.0 M	$283
Total Spending	$211.1 M	
Retail Margin	*-$21.5 M*	
Direct Impact	$189.6 M	

Source: National Recreation and Park Association (2024), Michael Baker (2025), Econsult Solutions, Inc. (2025)

Input-output modeling is undertaken to estimate the potential economic impacts associated with this local spending by frequent open space users. Northampton County spending by frequent open space users is adjusted down in this model from $211.1 million to $189.6 million in direct spend as some of this spending immediately leaves the region and does not have the multiplier effect in the regional economy. For example, a large proportion of retail spending goes toward manufacturers and wholesalers outside the region. To account for this, the model used in this analysis includes only the retail margin, or the difference between the purchase price for the retailer and the sales price for the customer. Accounting for this adjustment, the modeled local expenditures generate approximately $263.4 million in economic impact in Northampton County, supporting 1,980 jobs and $82.0 million in wages.

Potential Annual Economic Impact from Local Spending by Open Space Users

Impact Type	Northampton County
Direct Output	$189.6 M
Indirect and Induced Output	$73.8 M
Total Impact	**$263.4 M**
Employment Supported	**1,980 FTE**
Employee Compensation	**$82.0 M**

Source: IMPLAN (2023), Econsult Solutions, Inc. (2025)

CASE STUDY

MMY PADDLEBOARDS AND MISS MELANIE YOGA

Outdoor recreation opportunities support new and growing businesses. MMY Paddleboards & Miss Melanie Yoga was founded in 2014 as a mobile business with roots in Hunterdon County, New Jersey and Eastern Pennsylvania. Today this local, woman-owned, family-run business operates out of six water access locations, including the Lehigh River near downtown Easton and the Route 33 boat launch in Northampton County. The business mixes paddleboarding with yoga, hiking, biking, sound baths, and exercise classes. Additionally, MMY Paddle boards offers social paddles and organizes waterway cleanups.

MMY Paddleboards and Miss Melanie Yoga is among many businesses in Pennsylvania centered on outdoor recreation. The recently founded Outdoor Business Alliance of Pennsylvania (OBA PA) seeks to elevate and support outdoor business development, innovation, and growth by convening outdoor businesses, technical assistance organizations, economic developers, funders, conservationists, local officials, and other stakeholders across the state.

Appendix

Natural System Services

Studies report a range of values estimating the economic benefit of natural system services. Values in this report are based on the mean. The figure below shows the range for services where multiple estimates were available.

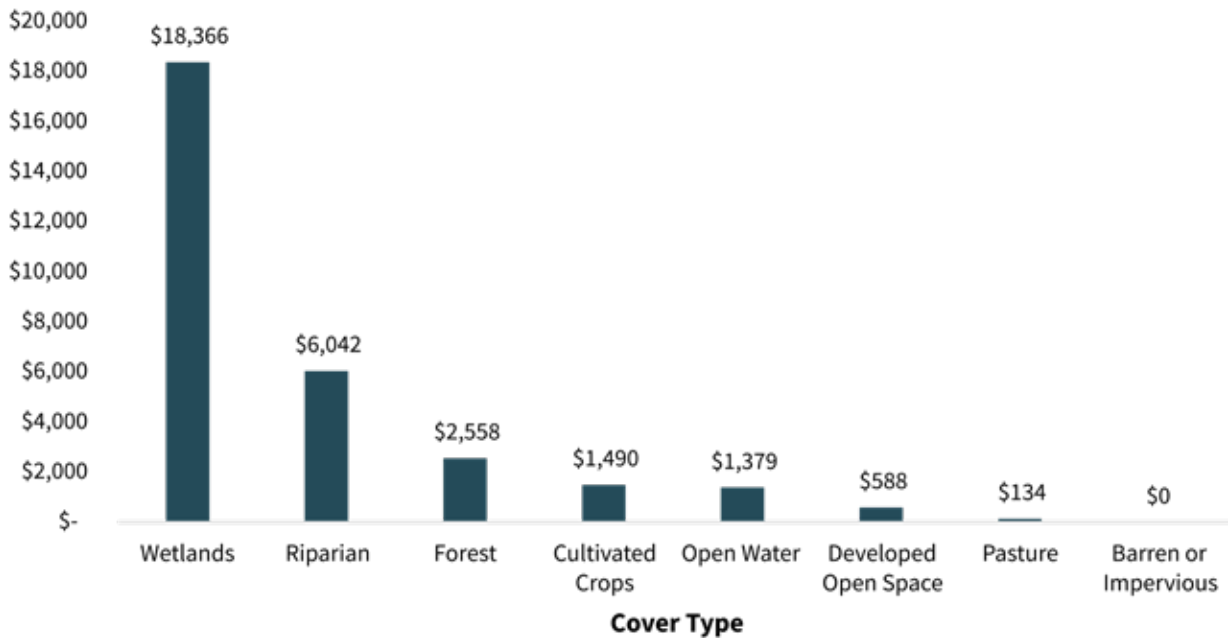
Environmental Benefit Range by Type ($M per year)

Ecosystem Service	Minimum	Mean	Maximum
Water Supply	$1.2	$37.3	$105.2
Water Quality	$11.4	$37.3	$13.5
Disturbance (Flood) Mitigation	$26.9	$48.5	$70.2
Biological Control	–	$1.8	-
Wildlife Habitat	$33.5	$179.5	$513.3
Soil Formation/Retention	$0.7	$0.8	$0.9
Pollination	$8.0	$21.3	$33.8
Air Pollution Removal	-	$85.1	-
Carbon Sequestration	-	$46.80	-

Source: Costanza (2006), Multi-Resolution Land Characteristics Land Cover (2023), Econsult Solutions, Inc. (2025), Northampton County (2025)

The economic value per acre varies by cover type with wetlands representing the highest economic value per acre from natural system services.

Natural System Services Mean Economic Value Per Acre of Land Per Year



Source: Econsult Solutions, Inc. (2025)

Appendix

Population Center Profiles



City of Bethlehem

The City of Bethlehem is the center of population and economic activity in Northampton County. It has a population of 79,453, a 4.8 percent increase from 2020.[133] The city is located in both Lehigh and Northampton Counties. The Lehigh River runs through the middle of the city, with Monocacy Creek and Saucon Creek also flowing within city limits. Bethlehem is a diverse city with a median age of 36.2 years old.[134]

Bethlehem has over 40 parks, 5 swimming pools, a splash park, and a 27-hole golf course. According to the Trust for Public Land's ParkServe analysis, 87 percent of residents live within a 10-minute walk of a park.[135] Compared to the national average for all urban cities and towns (57 percent), Bethlehem has a significantly higher percentage of residents within a 10-minute walk of a park.

Significant cultural and historical resources include the Smithsonian Museum of Industrial History, ArtsQuest Steelsacks Campus, the Historic Moravian Campus, the Bethlehem Moravian Settlement of UNESCO World Heritage Sites, and the Wind Creek Casino & Resort. Major employers include Lehigh Valley Industrial Park, Just Born, Lehigh Valley Health Network Muhlenberg, Lehigh University, and Wind Creek Casino. Rehabilitation of old industry buildings like Bethlehem Steel into Steel Stacks allows them to host events like Musikfest, the largest free music festival in the United States every year. Bethlehem is also referred to as Christmas City USA and hosts Christkindlmarkt weeks prior to Christmas.



Bethlehem Township

Bethlehem Township, a suburb of Bethlehem to the east, has a population of 26,723. This represents a 3.3 percent increase from 2020. It is a mainly residential township, but does have some agricultural, industrial, and commercial areas. The most notable of these are Lehigh Valley Industrial Parks IV and VI. Its southern border is created by the Lehigh River, with the Monocacy Creek and Nancy Run Creek flowing through township limits. Bethlehem Township is less diverse than nearby Bethlehem and Easton and has a median age of 41.8 years old.[136]

There are seven parks and three trails/greenways in Bethlehem Township. A ParkServe score could not be found for the township. Significant cultural and historical resources include the Janet Johnston and William D. Housenick Memorial Park, the Delaware and Lehigh National Heritage Corridor Trail, and the Locktender's House at Lock 44.

133 [Applies to all population data in the Population Centers section] U.S. Census Bureau. "QuickFacts". 2024. https://www.census.gov/quickfacts/fact/table/palmertownshipnorthamptoncountypennsylvania,bethlehemtownshipnorthamptoncountypennsylvania,eastoncitypennsylvania,bethlehemcitypennsylvania,US/PST045224

134 Data Commons. 2025. "Bethlehem". https://datacommons.org/place/geoId/4206088?q=Bethlehem%2C+PA%2C+USA

135 Trust for Public Land. "ParkServe". 2024. https://parkserve.tpl.org/mapping/#/?CityID=4209506088

136 World Population Review. 2025. "Bethlehem Township". https://worldpopulationreview.com/us-cities/pennsylvania/bethlehem-township

Appendix



Hanover Township

Hanover Township, in western Northampton County, has a total population of 11,703. This is representative of a 1.2 percent decrease in population since 2020. Hanover Township is a suburb of Bethlehem City and includes four villages, Hanoverville, Schoenersville, Stoke Park, and Westgate Hills. Hanover Township is less diverse than the metropolitan areas of the county but remains higher than nearby municipalities of Lower Saucon and Moore townships. The median age is older than all major hubs and the County at 50.7 years old.

Hanover Township has 15 parks with a total of 193 acres. According to the Trust for Public Land's ParkServe analysis, about 85 percent of residents live within a 10-minute walk of a park. In addition to ample park space, Hanover has precious historical resources including the three one room schoolhouses, Shortz School House, Knaus School, and Rudolph School.



Moore Township

Moore Township is home to 9,333 residents, which represents a slight decrease of .4 percent since 2020. Moore Township is also the least diverse out of all the major population centers within the county with 93 percent of residents being white. The median age is 45.9, which is slightly higher than the County's median age.

Moore Township has a total of 32 parks with over 2,193 acres of park land. However, only 8 percent of residents live within a 10 minute walk of a park. The majority of the parkland is made up by the State Game Lands to the north of the township. In addition to the park network, the Township has access to the Appalachian Trail.



City of Easton

The City of Easton, located to the east of Bethlehem, has a population of 30,432. This represents an 8.2 percent increase from 2020. It is the smallest of the three cities that make up the urban core of the Lehigh Valley, Bethlehem and Allentown being the other two. It is located at the confluence of the Lehigh River and Delaware River, with the Delaware forming its eastern border. Bushkill Creek flows through the city as well. Easton has a median age of 33.5 years.[137]

Easton has 31 parks and a section of the Two Rivers Trailway. According to the Trust for Public Land's ParkServe analysis, 100 percent of residents live within a 10-minute walk of a park.[138] Significant cultural and historical resources include State Theatre, the Easton Public Library, Hugh Moore Park, Delaware and Lehigh National Heritage Corridor, the Crayola Experience, Bachmann Publik House, Cottingham Stadium, and the Signal Museum, which is home to the Northampton County Historical and Genealogical Society. Easton is also home to Lafayette College. Major employers include Lafayette College, Crayola, and EPS Financial.



137 Data Commons. 2025. "Easton". https://datacommons.org/place/geoId/4221648?q=Easton%2C+PA%2C+USA
138 Trust for Public Land. "ParkServe". 2024. https://parkserve.tpl.org/mapping/#/?CityID=4209521648

Appendix



Palmer Township

Palmer Township, a suburb of Easton to the northwest, has a population of 22,606. This represents a 1.3 percent increase from 2020. It is also adjacent to Bethlehem Township. The Lehigh River forms the township's southern border while Bushkill Creek forms its eastern border. The Schoeneck Creek also flows through the township limits. Palmer Township is less diverse than Easton and Bethlehem and has a median age of 46.7 years old.[139]

There are 12 parks, four neighborhood tot lots, and roughly 12 miles of trails in Palmer Township. According to the Trust for Public Land's ParkServe analysis, 91 percent of residents live within a 10-minute walk of a park.[140] Significant cultural and historical resources include Blue Easel, Seip House, 1818 Tavern, and Seipsville Inn.



Forks Township

Forks Township, a suburb to the south of the City of Easton, has a population of 16,247, approximately a 2.4 percent increase since 2020. Forks Township got its name due to its geographic location at the "fork" of the two prominent rivers in the region, the Delaware and Lehigh. The township is more diverse than Hanover Township and Lower Saucon, but not comparable to the two larger cities of Bethlehem and Easton. The median age is 44.7 years old.[141]

There are 12 parks within Forks Township which include a total of 158 acres. According to the Trust for Public Land's ParkServe analysis, about 53 percent of residents live within a 10-minute walk of a park. The Township is home to the Crayola global headquarters which was founded in 1885.



Lower Saucon Township

Lower Saucon Township is in the southern portion of Northampton County. The township has a population of 11,072 which is a .2 percent change since 2020. In terms of diversity, Lower Saucon is one of the least diverse of the populous areas with 10 percent being a race other than white. The median age is 47.4 years old, which is five years higher than the County median.

Lower Saucon Township has 16 parks within its boundaries, a total of 726 acres of parkland. According to the Trust for Public Land's ParkServe analysis, about 41 percent of residents live within a 10-minute walk of a park. In addition to park areas, the township has a number of historical places connected to recreation areas including the Lutz Franklin School, the Ehrhart's Mill Historic District, and the Michael and Margaret Heller House all of which lie closely to the Saucon Rail Trail.



Northampton Borough

Northampton Borough lies on the western border of Northampton County and has a total population of 10,366 people, which represents a .2 percent decrease since 2020. Diversity in Northampton is the second least diverse, second to Moore Township. The median age is 42.4 years old, which is comparable to the County median age of 42.1 years old.

The borough has six parks that take up a total of 59 acres. According to the Trust for Public Land's ParkServe analysis, 96 percent of residents live within a 10-minute walk of a park. In addition, to open space the Borough has access to both the Nor-Bath multi-use rail trail and the D&L Trail.

139 Census Reporter. "Palmer Township, Northampton County, PA". 2025. https://censusreporter.org/profiles/06000US4209557672-palmer-township-northampton-county-pa/

140 Trust for Public Land. "ParkServe". 2024. https://parkserve.tpl.org/mapping/#/?CityID=4209557672

141 United States Census. "Forks Township, Northampton County, PA". 2025. https://data.census.gov/profile/Forks_township,_Northampton_County,_Pennsylvania?g=060XX00US4209526728

Appendix



Wind Gap Borough

The borough of Wind Gap is located in Northampton County, within the Lehigh Valley region, and lies about 15 miles north of Easton. Wind Gap was incorporated in 1893. It has a population of 3,202 residents, an increase of 13.5 percent from 2020. Wind Gap is located at the base of the Blue Mountain and offers a denser suburban feel within a small footprint.

The Borough is conveniently located along PA Route 512 and near Route 22 provides access to larger employment centers such as Bethlehem and Easton. Wind Gap has a median age of about 45.5 years, reflecting a mix of families, working professionals, and older residents who value its small-town character and proximity to outdoor recreation opportunities.

Wind Gap maintains a balance of residential neighborhoods and small businesses, with the downtown area hosting local shops, restaurants, and community services. The borough is part of the Pen Argyl Area School District and offers several parks and open spaces that serve as gathering spaces for residents. According to the Trust for Public Land's ParksServe data, 82 percent of residents live within a short walk of a local park or playground. With a median household income of about $78,000 and a high rate of homeownership, Wind Gap reflects a stable community with a strong sense of local identity.



Upper Mount Bethel

Upper Mount Bethel Township is a rural municipality located along the Delaware River in northeastern Northampton County. With a population of roughly 6,400 residents, the township has a largely agricultural and residential character, complemented by scenic riverfront views and rolling countryside. The township covers about 44 square miles, making it one of the largest municipalities in the county by area. Its proximity to the Delaware Water Gap and nearby Route 611 provides residents with convenient access to both regional natural resources and transportation routes. The median age in Upper Mount Bethel Township is approximately 52 years, reflecting a population that includes many long-term residents and retirees attracted to the area's peaceful setting and open space.

Upper Mount Bethel offers a variety of recreational and cultural amenities that highlight its rural heritage and natural beauty, with 30% of residents living within a 10 minute walk of a park. Residents enjoy access to township parks, the Delaware River, and numerous trails and preserves that support hiking, boating, and wildlife observation. The township is home to small businesses, farms, and light industrial operations located primarily near Route 512 and 611 corridors. With a median household income of about $83,000 and strong rates of homeownership, Upper Mount Bethel combines rural tranquility with access to nearby job centers in the Lehigh Valley and New Jersey. Its historic communities, such as Mount Bethel village, contribute to the township's unique identity and connection to its colonial-era roots.





Photo source: Sherry L. Acevedo, Nature Photography

NORTHAMPTON COUNTY
PARKS AND RECREATION

Northampton County
Parks and Recreation
669 Washington Street
Easton, PA 18042
www.norcopa.gov/parks-and-recreation