

Protect the Trail:

*A Guide to Protecting the Appalachian Trail
for Lehigh Valley Municipalities*

Lehigh Valley Planning Commission

October 2010

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BACKGROUND

The birth of the Appalachian Trail (the Trail) and the broader goal of conserving environmental resources in the United States largely began when Theodore Roosevelt became President of the United States in 1901. The conservation of resources was a cornerstone of Roosevelt's domestic agenda. There were many plans and proposals for a "super" trail that would run throughout the eastern part of the United States, but it wasn't until 1921 when forester Benton MacKaye wrote "An Appalachian Trail: A Project in Regional Planning" in the *Journal of the American Institute of Architects* that detailed a plan for a trail to extend from New Hampshire to North Carolina. The first section of the trail was completed from Pennsylvania to Connecticut in 1923.

In 1925, the Appalachian Trail Conference (ATC) was created, which proved to be the catalyst to complete the Appalachian Trail as it is seen today. Over the next twelve years, volunteers cleared and prepared over 1,900 miles of trail. On August 14, 1937 the trail was completed with the clearing of two miles in Maine. (The ATC Board of Directors voted to change the name of the organization from the Appalachian Trail Conference to the Appalachian Trail Conservancy in 2005.)

Due to weather, especially natural disasters such as the Great Hurricane of 1938, World War II and neglect, the Trail was being reclaimed by nature and fell into disrepair. The Category 3 hurricane destroyed the majority of the Trail in New England. The construction of the Blue Ridge Parkway between North Carolina and Virginia that began in 1935 required the Trail to be moved 120 miles to the west of its existing location. World War II meant that volunteers and material once dedicated to building the Trail were allocated to the war effort between 1941 and 1945.

Public and government interest in the Trail was renewed in 1948 when Earl Shaffer became the first person to walk the entire length of the Trail. One of the most significant events in the history of the Appalachian Trail occurred in 1968 when President Lyndon Johnson signed the National Trails System Act (NTSA) that aimed to provide recreation opportunities and to promote the preservation of the Trail. The Trails System began with two scenic trails, the Appalachian National Scenic Trail and the Pacific Crest National Scenic Trail, which extended from Canada to Mexico along the mountains of Washington, Oregon, and California. Today, the Trails System consists of twenty national trails (eight scenic trails, twelve historic trails) covering almost 40,000 miles. In addition, the Act has authorized 1,000 rails-to-trails conversions and more than 800 national recreation trails.

Since 1968, the National Park Service and state governments have acquired land to form a "protective" corridor around the Trail. The Trails System Act authorized the federal government and states to acquire a 200-foot wide corridor of land through condemnation. The Act was amended in 1978 to expand the role of the National Park Service in protecting the Trail and authorized a larger, 1,000-foot wide corridor to be acquired through condemnation. To date, approximately 98% of the Appalachian Trail is located on land owned by state or federal government.

The Appalachian Trail is managed cooperatively by the National Park Service, the Appalachian Trail Conservancy (ATC), volunteers from local Trail Clubs, the USDA Forest Service, and other public agencies. Today, the Trail passes through fourteen states and six national parks, eight national forests, two national wildlife refuges, and 67 state-owned greenways and parks. The Trail's protected corridor contains more than 250,000 acres.

There are 229 miles of the Appalachian Trail in Pennsylvania, and it ranges in elevation from 320 to 2,080 feet above sea level. The Trail crosses eleven counties, including Lehigh and Northamp-

ton counties. In addition to the federal legislation protecting the Trail, the Commonwealth passed the Pennsylvania Appalachian Trail Act (P.L. 87, No. 41), 64 P.S. §§ 801-805 in 1978. The legislation allowed the Department of Conservation and Natural Resources (DCNR) to acquire land, rights-of-way, and easements for the purpose of establishing, protecting, and maintaining the Appalachian Trail. This Act also gave municipalities along the Trail the authority to adopt zoning regulations to protect the Trail. However, municipalities were not required to adopt zoning regulations.

In 2002, a developer proposed a resort for automobile enthusiasts on 360 acres adjacent to the Trail in Eldred Township, Monroe County. The development would be located approximately 2,000 feet from the Trail. Eldred Township did not have a zoning ordinance at the time, and the use was not expressly prohibited. The Township approved the plans for the resort, and the Blue Mountain Preservation Association (BMPA) and the Appalachian Trail Conference (ATC) subsequently appealed the Township's approval of the plans to Monroe County Court which affirmed the decision of the Township. The BMPA and ATC then appealed that decision to Pennsylvania Commonwealth Court. In *Blue Mountain Preservation Association and Appalachian Trail Conference vs. Eldred Township and Alpine Rose Resorts*, No. 867 A.2d 692 (Pa.Cmwlt.2005), the Commonwealth Court affirmed the decision of Monroe County Court. The Commonwealth Court found that the Pennsylvania Municipalities Planning Code (MPC) allows, but does not require, municipalities to enact zoning ordinances and that:

"...While Section 604 of the MPC provides that zoning ordinances shall be designed to, inter alia, promote, protect and facilitate the "preservation of the natural, scenic and historic values in the environment and preservation of forests, wetlands, aquifers and floodplains," that provision is not applicable because Eldred Township has not enacted a zoning ordinance."

"...we do not construe the Trail Act to mandate, in the absence of a zoning ordinance, the enactment of zoning legislation to protect the esthetic values of the Trail. The express language of the Act requires municipalities only to take such action "consistent with applicable law." Thus, contrary to Appellants' assertion, we conclude that neither the constitution nor the Trail Act imposed an affirmative duty on the Board to enact legislation providing for noise regulation in or near the Trail."

In response to the decision of the Court, State Representative Robert Freeman, in 2007, sponsored House Bill 1281 that required the fifty-eight (58) municipalities that border the Appalachian Trail to enact zoning and other land use ordinances as part of their responsibility to protect the Appalachian Trail, regardless if the municipality has an adopted zoning ordinance. It also provided support to the municipalities from both the Department of Conservation and Natural Resources (DCNR) and the Department of Community and Economic Development (DCED) to assist them in developing regulations to protect the Trail. Governor Edward Rendell signed House Bill 1281 (upon passage, it became known as Act 24) amending the Appalachian Trail Act of 1978 in 2008. DCED began releasing information and resources to municipalities in 2009 in the form of a guidebook, model regulation and website to implement Act 24.

THE APPALACHIAN TRAIL IN THE LEHIGH VALLEY

Twenty-five (25) miles of the fifty-four (54) miles of the Appalachian Trail that run along the border of Lehigh, Schuylkill, Carbon and Northampton counties are located in northern Lehigh Valley municipalities. The Trail is located on the crest of the Blue Mountain at an approximate

elevation of 1,700 feet and is largely surrounded by land owned by the United States Department of Interior and the Commonwealth of Pennsylvania. The Trail is part of the Blue Mountain/Kitatinny Ridge Greenway. The Blue Mountain is the most extensive contiguous area of natural habitat and forest in the Lehigh Valley, serves as the headwaters for several creeks, and connects with ten other greenways located throughout the Valley.

The LVPC estimates that there are over 1,900 owners of property on the Blue Mountain adjacent to the Trail, encompassing over 2,700 individual parcels of land for a total of 31,318 acres. How this land is used and developed is of vital importance to the continued preservation of the Trail given that nearly half (49.4%) of the land is in private ownership (Table 1). The majority of the 31,318 acres of land adjacent to the Trail is covered by forest.

TABLE 1
OWNERSHIP OF PROPERTY ON BLUE MOUNTAIN
ADJACENT TO THE APPALACHIAN TRAIL
Lehigh and Northampton Counties

Ownership	Number of Parcels	Acreage	% of Total Acreage
Private	2,483	15,463	49.4%
Pennsylvania Game Commission	139	10,440	33.3%
Pennsylvania American Water Company	19	1,739	5.6%
National Park Service/Dept. of the Interior	48	1,679	5.4%
Lehigh/Northampton Counties	8	572	1.8%
Municipal	9	492	1.6%
Commonwealth of Pennsylvania	6	366	1.2%
Water Companies	7	277	0.9%
Non-Profit Conservancies	27	174	0.6%
Railroad	9	71	0.2%
Utility	12	44	0.1%
Total	2,767	31,318	100%

Source: Lehigh Valley Planning Commission.

The Trail crosses eight rural townships and one borough in the Lehigh Valley. For detailed information on the location of the Trail and land ownership along the Trail, please see the maps on pages 5 to 17. The maps illustrate two buffers of 1,000 and 2,500 feet. A buffer of 1,000 feet is the minimum corridor prescribed in the 1978 amendment to the National Trails System Act. Today, in the Lehigh Valley, there remains pockets of private property within 1,000 feet of the Trail. The 2,500 foot buffer represents a wider, conceptual buffer width found in the Appalachian National Scenic Trail Overlay District model regulation found on page A-32. Each municipality has zoning and subdivision ordinances. A summary of the zoning regulations that govern development along the Trail in each municipality can be found in Table 2 on page 4.

Overall, each municipality allows development on large lots in areas adjacent to the Trail and has regulations that protect natural features such as woodlands and steep slopes. However, there is little consistency in regulation from one municipality to the next, which ultimately leads to varying levels of natural feature protection on the Blue Mountain. Each municipality has adopted its own zoning ordinance, and each ordinance has different regulatory approaches and desired levels of protection. The degree of slope that can be developed or the number of trees preserved varies from one municipality to the next.

TABLE 2
SUMMARY OF ZONING REGULATIONS IN THE MUNICIPALITIES ADJACENT TO THE APPALACHIAN TRAIL
Lehigh and Northampton Counties

Municipality	Adoption Date	Zoning District Name	Minimum Lot Size	Uses Permitted	Natural Feature Protection	AT Buffer
Lynn Township	1982	Conservation	10 acres	Houses, commercial recreation areas	Yes	No
Heidelberg Township	1981	Blue Mountain	10 acres	Houses, public buildings, cluster development	Yes	No
Washington Township (Lehigh County)	1986	Blue Mountain	5 acres	Houses, greenhouses, agriculture	Yes	No
Lehigh Township	2002	Blue Mountain Conservation	10 acres	Houses, public buildings, agriculture	Yes	No
Moore Township	1980	Blue Mountain Conservation	10 acres	Houses	Yes	No
Bushkill Township	1994	Rural Conservation	2 acres/3 acres	Houses, churches, hospitals, schools	Yes	Yes (150 feet)
Wind Gap Borough	1993	R-12 Low Density Residential	12,000 sq. ft, 1-3 acre based on slopes	Houses, public buildings, churches	Yes	No
Plainfield Township	2000	Blue Mountain Conservation	10 acres	Houses, commercial recreation areas	Yes	No
Upper Mount Bethel Township	2004	Open Space Conservation	5 acres	Houses, rural commercial uses, agriculture	Yes	No

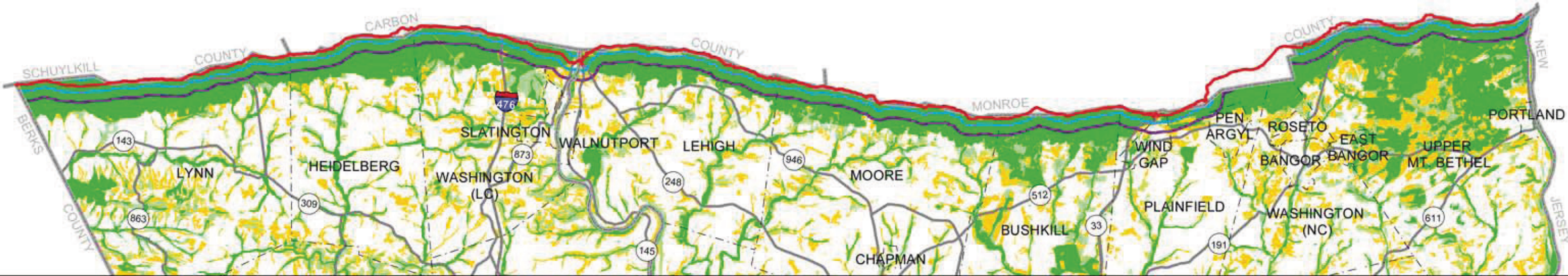
Washington Township (Northampton County) and Pen Argyl Borough are two municipalities that are adjacent to the Blue Mountain, but not along the Appalachian Trail. The Trail moves into Monroe County northeast of Plainfield Township before returning south through Upper Mount Bethel Township.

The uses permitted in the district are summarized.

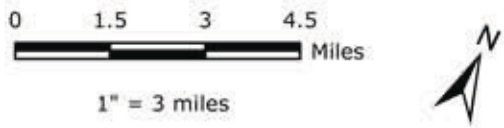
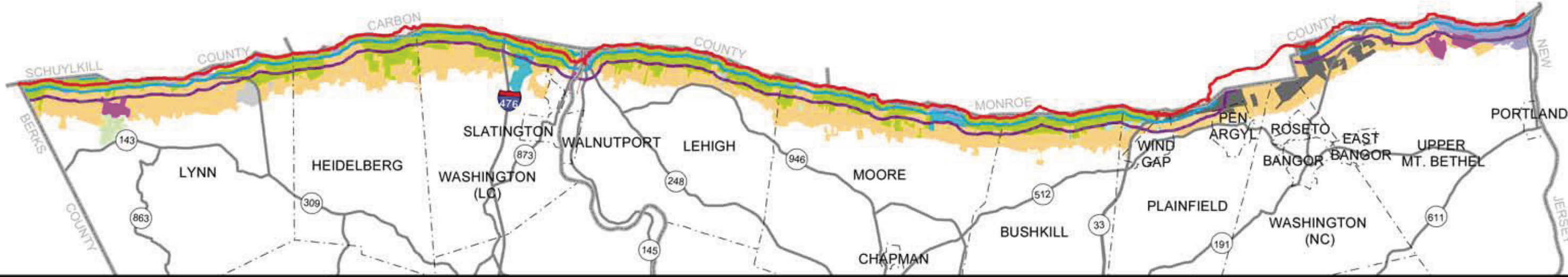
All of the municipalities have, to varying degree, regulations that protect natural features such as woodlands and steep slopes.

Source: *Lehigh Valley Planning Commission, municipal zoning ordinances.*

Natural Resources Plan



Ownership



- Appalachian Trail and Buffers**

 - Appalachian Trail
 - 1,000 ft. buffer
 - 2,500 ft. buffer
- Natural Resources Plan**

 - Very High Conservation Priority
 - High Conservation Priority
 - Medium Conservation Priority
- Ownership**

 - Federal--National Park Service
 - State Game Land
 - State--Other
 - County
 - Municipal
 - Conservation Non-Profit
 - Utility
 - Railroad
 - Pennsylvania-American Water Company
 - Water Company--Other
 - Private
- Major Road

Municipal Boundary

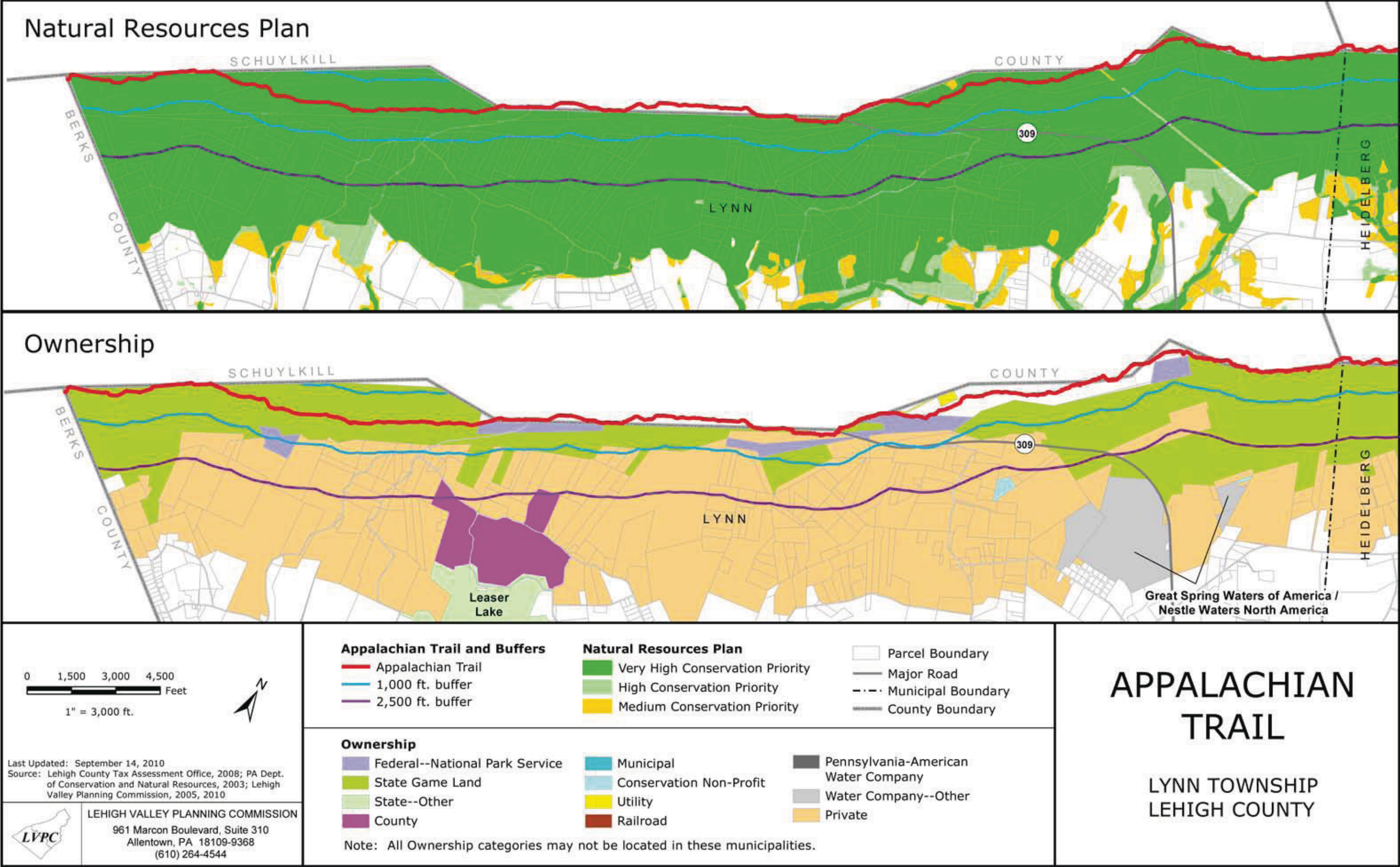
County Boundary

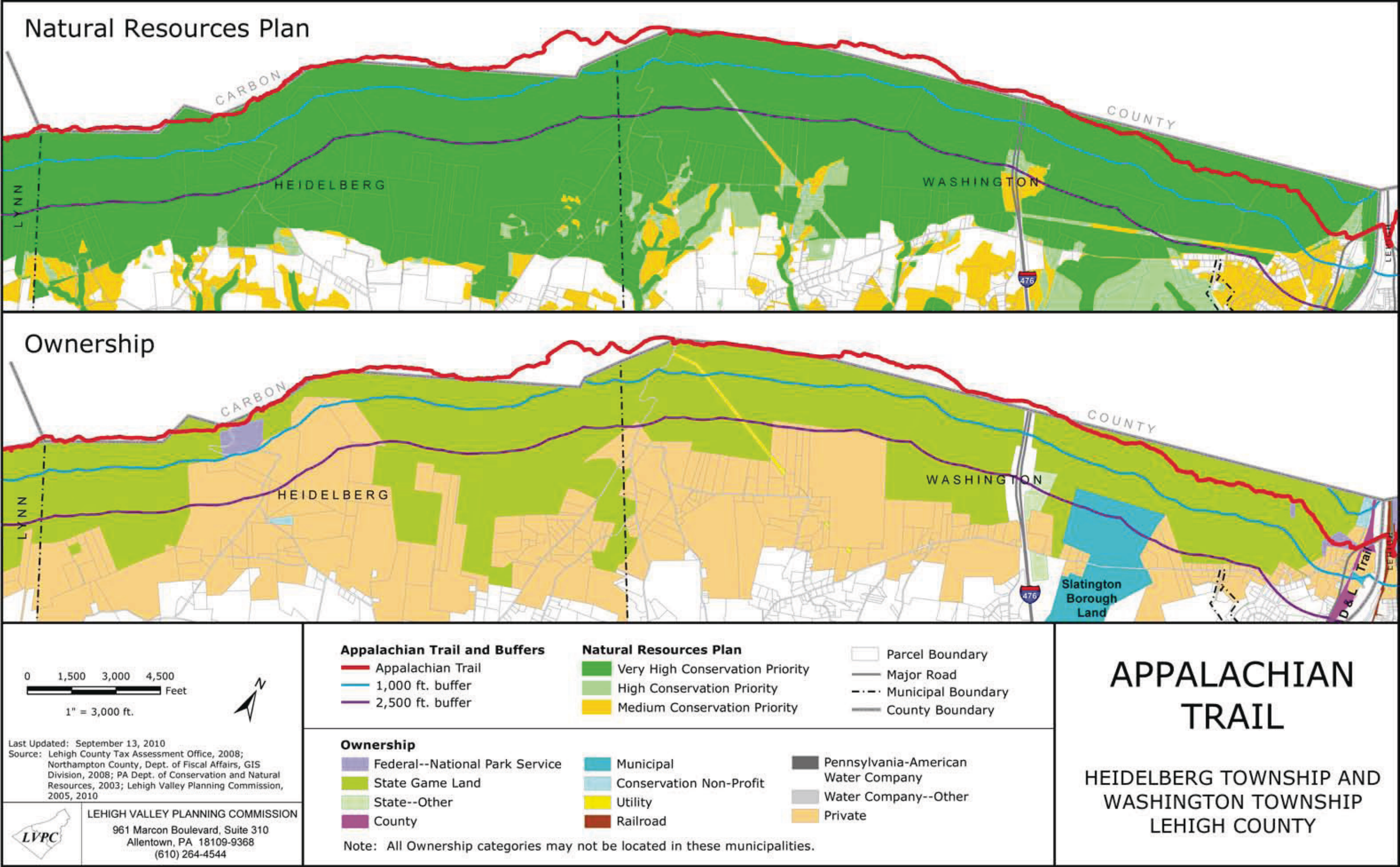
Last Updated: September 13, 2010
Source: Lehigh County Tax Assessment Office, 2008;
Northampton County, Dept. of Fiscal Affairs, GIS Dept.,
2008; PA Dept. of Conservation and Natural Resources,
2003; Lehigh Valley Planning Commission, 2005, 2010

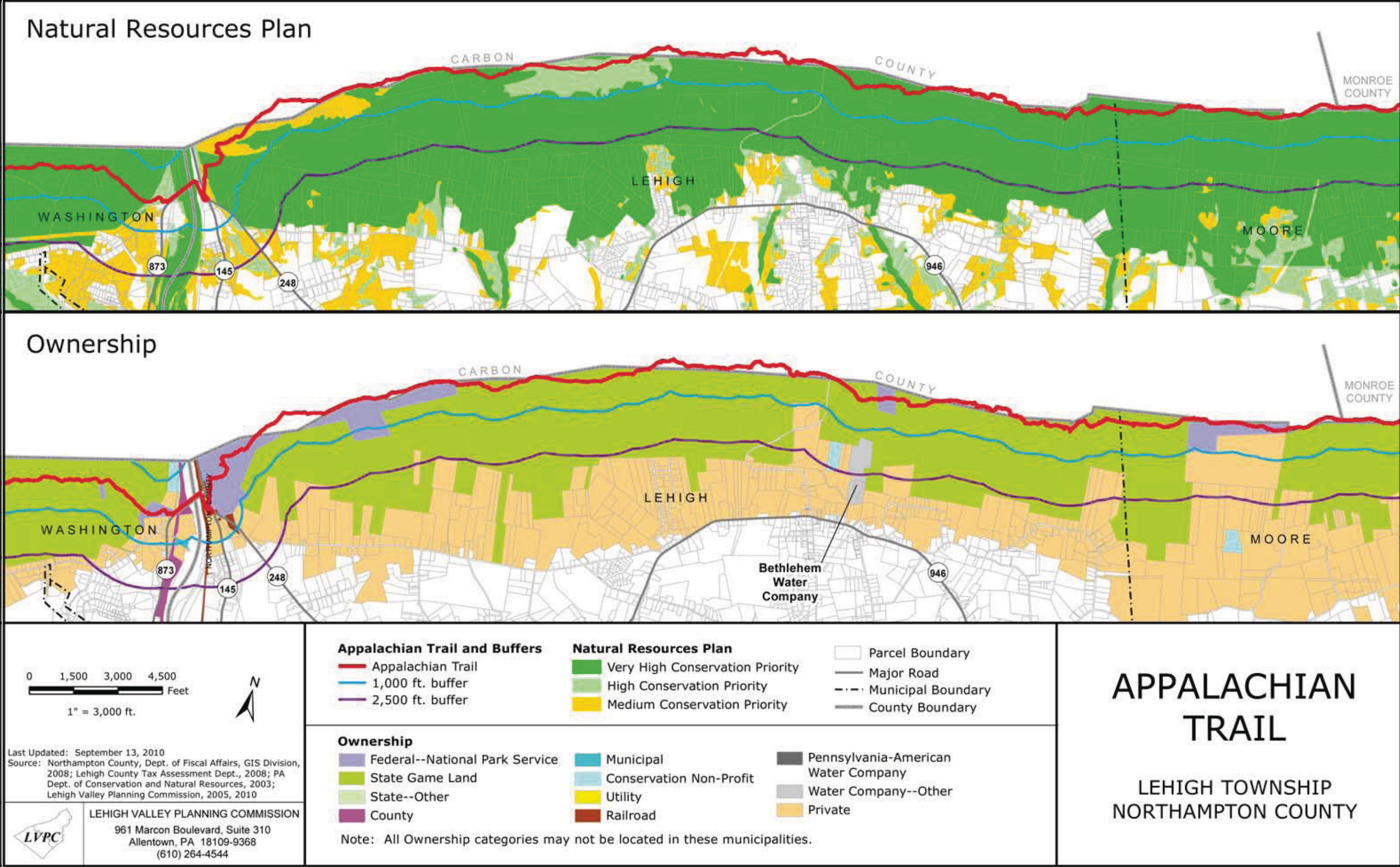
LEHIGH VALLEY PLANNING COMMISSION
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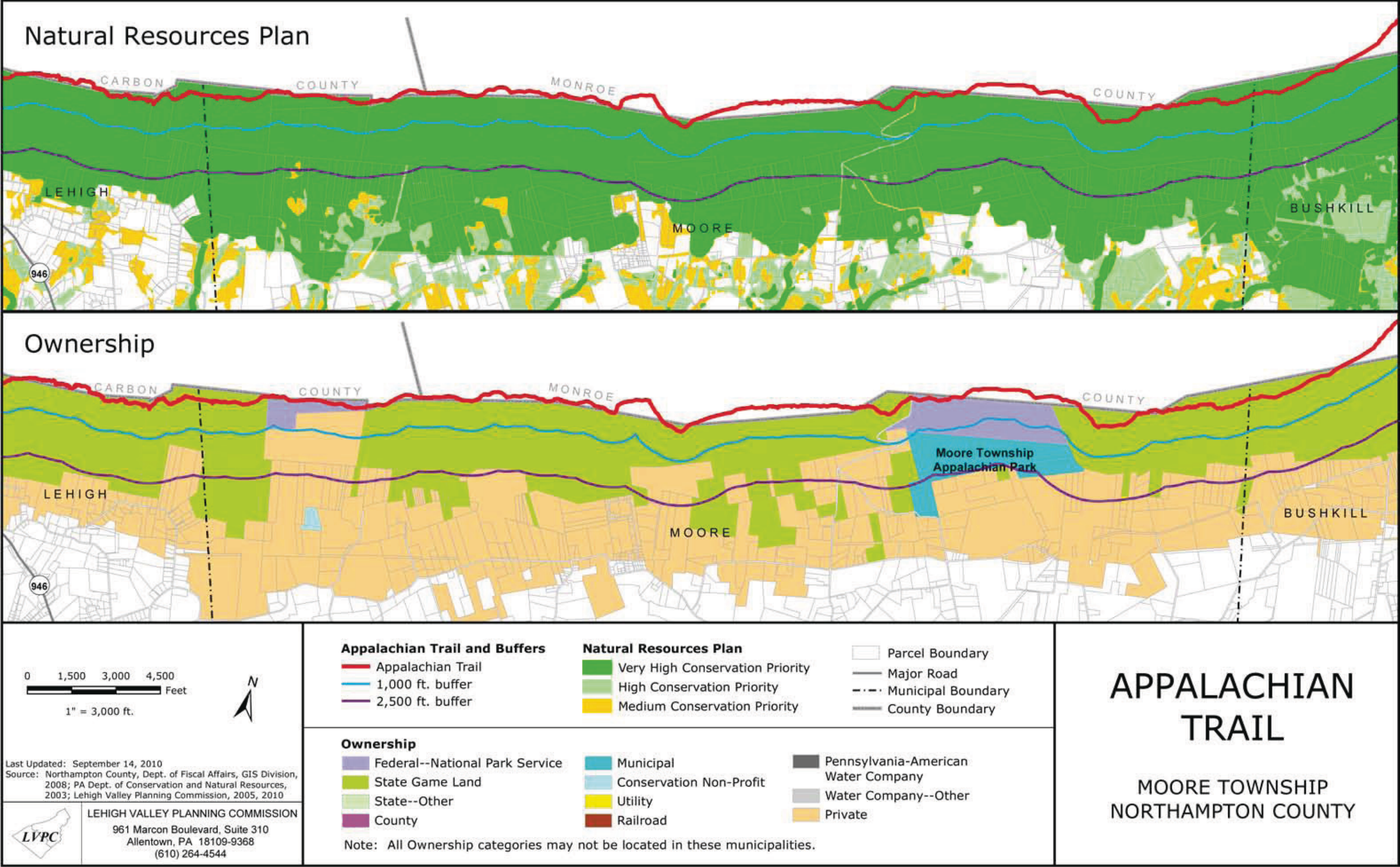
**APPALACHIAN
TRAIL**

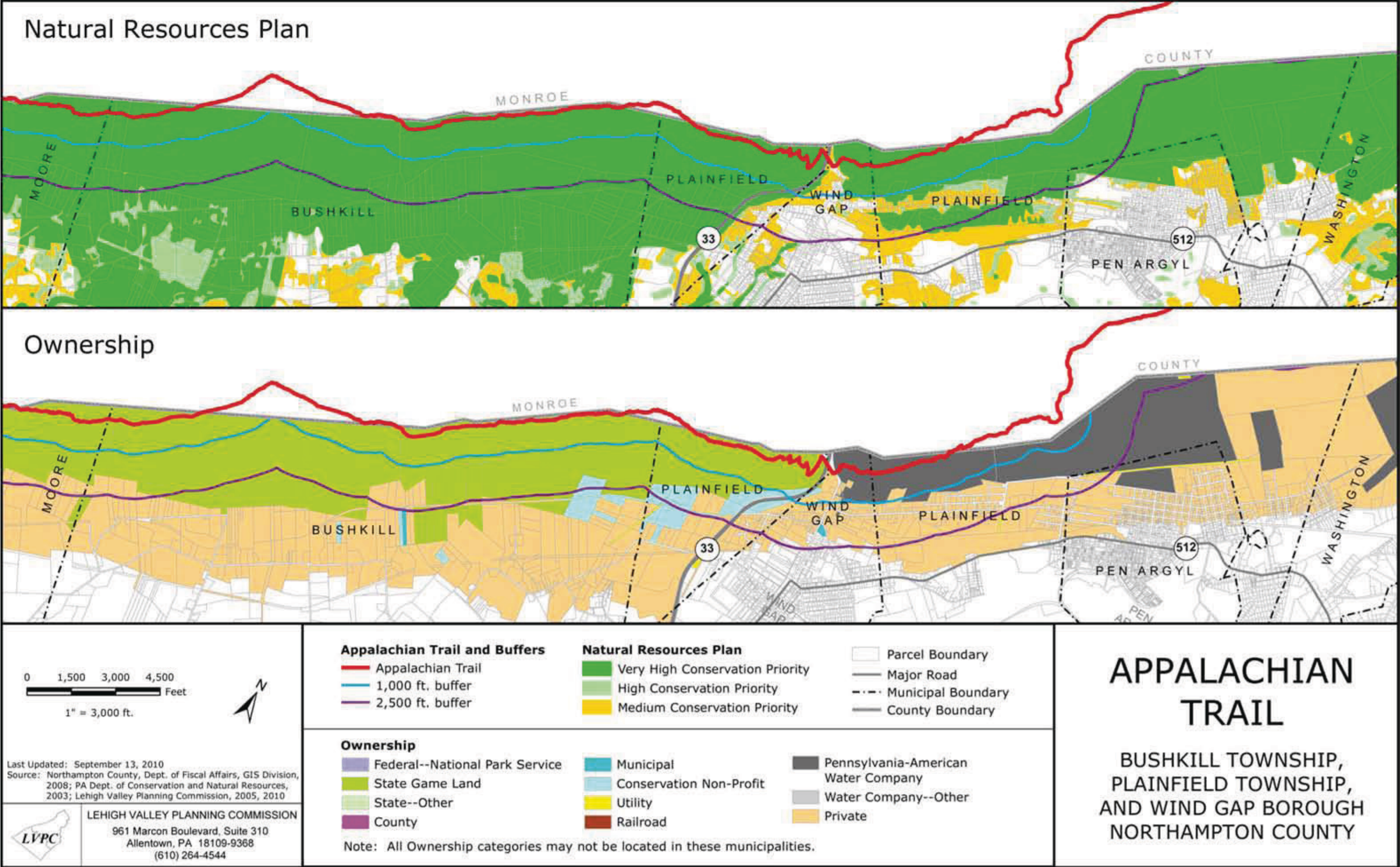
**LEHIGH COUNTY AND
NORTHAMPTON COUNTY**

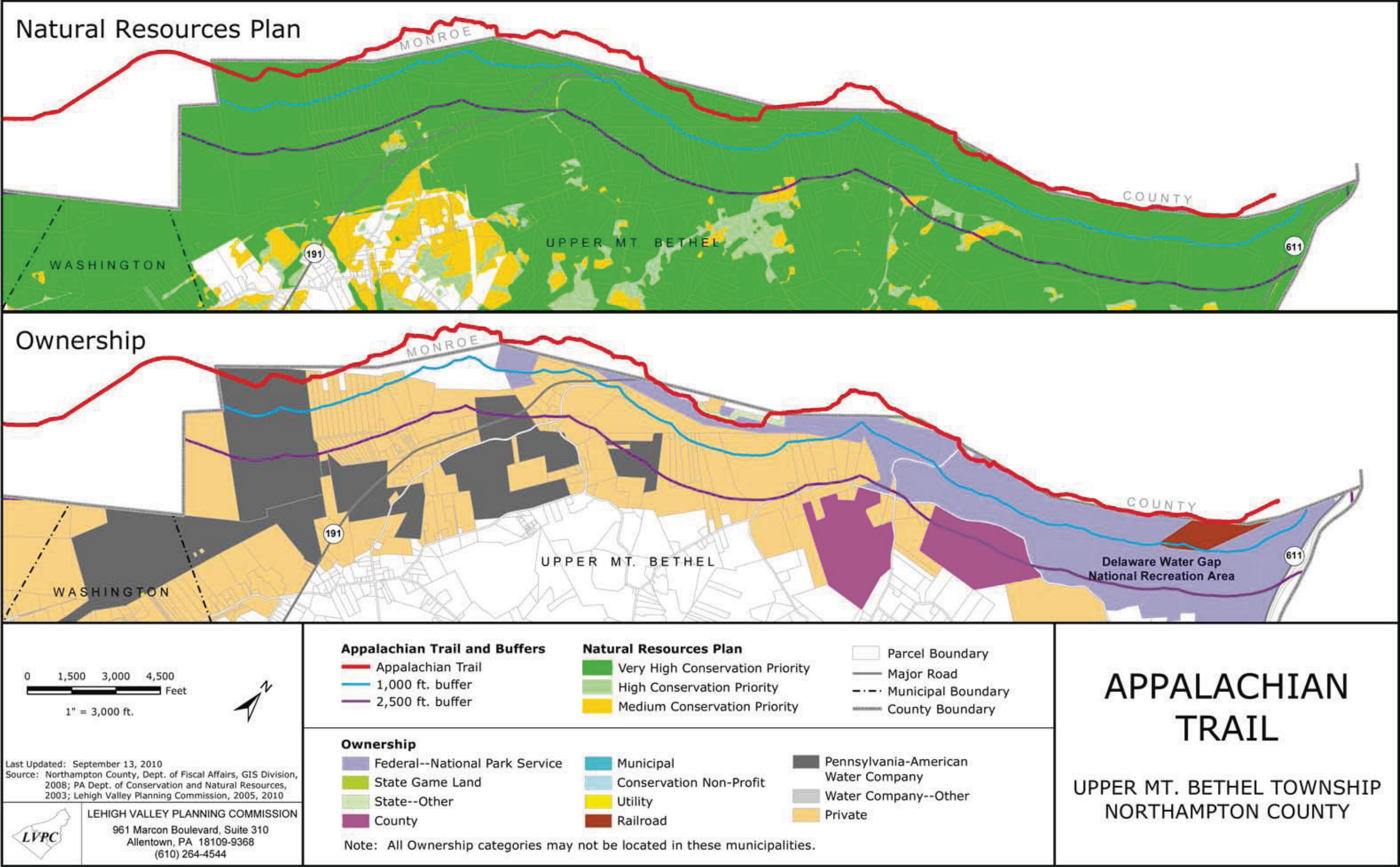












The Pennsylvania Turnpike Northeast Extension and Lehigh Tunnel run under the Blue Mountain/Appalachian Trail near Slatington. The Tunnel was opened to traffic in 1957. Over the next twenty years, the Turnpike Commission debated on whether to bypass the Tunnel with a four lane highway or “twin” it by adding an additional tunnel due to heavy traffic through the Tunnel. The bypass, while the most cost-effective measure to correct the traffic congestion through the Tunnel, was also very controversial. In 1985, the state Senate passed Act 61 which provided enough construction funding to construct an additional tunnel instead of the bypass. Construction began in 1989, and the new tunnel opened to southbound traffic in 1991.

ROLE AND INFLUENCE OF THE GAME COMMISSION

Sixteen (16) of the twenty-five (25) miles of the Appalachian Trail in the Lehigh Valley are located on Pennsylvania Game Lands. The Pennsylvania Game Commission (PGC, the Commission) is the largest owner of land adjacent to the Appalachian Trail in the Lehigh Valley with 10,440 acres. The Commission supersedes local (county and municipal) regulation over the administration and use of PGC land.

The authority to do so is found in Section 721 of the Game and Wildlife Code (Game Code), 34 Pa. C.S. Section 721, which provides that:

“The administration of all lands or waters owned, leased or otherwise controlled by the commission shall be under the sole control of the director, and the commission shall promulgate regulations consistent with the purpose of this title for its use and protection as necessary to properly manage these lands or waters. The acquisition, use and management of such lands or waters owned, leased or otherwise controlled by the commission, including timber cutting and crop cultivation, shall not be subject to regulation by counties or municipalities.”

The PGC added the last sentence in 1990 in response to a court case (*Department of General Services v. Ogontz Area Neighbors Association*, 505 Pa 614, 483 A.2d 448 (1984)). In *Ogontz*, the Court held that, absent a “clear legislative intent” to give a state agency preemptive land use powers, the state agency must comply with local zoning and land use regulations. The Commission added the sentence to specifically state that the use and management of land controlled by the Commission is governed by regulations promulgated by the Commission and is not subject to local zoning regulation.

Section 721 was largely upheld in a 1999 case (*Pacurariu v. Commonwealth*, 744 A.2d 389 (2000)). The Court held that while the Pennsylvania Game Commission need not obtain municipal zoning or building permits for construction of a shooting range on state game lands, the shooting range must nevertheless comply with local noise ordinances in existence when construction was initiated.

Any improvements, such as buildings, to Commission property are very limited in scope to the enhancement of wildlife or other purposes incidental to game or other wildlife. Further, the Commission cannot sell land for non-wildlife protection uses, such as to a developer to build houses.

The emergence of the wind energy industry in Pennsylvania was an issue unforeseen by the Commission. The Commission has no authority in either the State Code or Game Code to grant licenses for turbines on Commission owned land. This became an issue when the Commonwealth began supporting efforts to construct wind turbines in Pennsylvania.

Act 213 of 2004, the Alternative Energy Portfolio Standards Act, signed into law by Governor Rendell in 2004, required that 18% of the electricity sold to retail customers in Pennsylvania comes from renewable and advanced energy sources within 15 years. To assist in the development of wind energy in Pennsylvania and to address the loophole in the Game and Wildlife Code, Rendell assembled the Pennsylvania Wind & Wildlife Collaborative, which is a compilation of wind industry developers, state agencies, and organizations having a vested interest in wind development in Pennsylvania. The Collaborative develops specific principles, policies, best management practices, guidelines, and tools to assess risk and mitigate impacts to habitat and wildlife from wind power development.

The Commission, in conjunction with wind industry developers, established a wind energy voluntary cooperative agreement in April 2007 for the location and development of wind farms of five or more turbines. Entering into the agreement is voluntary for the development of a wind farm. The terms of the agreement state that the developer will inform the Commission of plans to develop 14 months before the start of construction to allow the Commission to review and detail the impacts of the turbine project. Within 45 days of notification, the Commission will provide the results of their reviews and information regarding the impacts of development. In addition, the Commission will provide methods to reduce the impact of development on affected species.

The agreement also requires both pre-and post construction monitoring of all bird and bat species. Risk levels are determined using criteria outlined in the agreement. The agreement requires the use of wind industry and Commission best management practices during construction and operation of the turbines.

The Commission requires Special Use Permits in order to conduct surveys for birds or mammals or to collect bird or mammal specimens. The Pennsylvania Game Commission Bureau of Wildlife Protection issues Special Use Permits. To date, there have been no permits approved for the state game lands in the Lehigh Valley.

LOCAL THREATS TO THE APPALACHIAN TRAIL

Nearly half (49.4%) of the 31,318 acres of land adjacent to the Appalachian Trail is privately owned. The uses of that land are largely regulated and influenced by municipal zoning and subdivision ordinances.

DEVELOPMENT PRESSURE

Over the past several decades, both Lehigh and Northampton counties have experienced a strong migration of people into the area. During the 1990s, Lehigh County added about 11,900 people from migration and Northampton County added about 13,300 people. Migration accounted for 57% of Lehigh County's total population growth of 20,959 during the 1990s and 67% of the 19,961 population growth in Northampton County during the decade.

From 2000 to 2005, Lehigh County added 15,005 people from migration and Northampton County added 18,111 people. These numbers reflect net migration, i.e. the difference between people moving in and people moving out. Migration accounted for more than 82% of Lehigh County's total population growth of 18,434 during the early 2000s and 88% of the 20,698 population growth in Northampton County during the five year period.

The Lehigh Valley population is projected to increase by 188,700 people from 2000 to 2030 or by 32.6% over three decades. This projected increase in population represents faster growth than experienced over the previous 30 years (1970-2000) during which the population increased by 23.3%. According to Table 3, the total population of all the municipalities along the Appalachian Trail is projected to increase 63% by 2030.

TABLE 3
POPULATION STATISTICS FOR THE MUNICIPALITIES
ADJACENT TO THE APPALACHIAN TRAIL
Lehigh and Northampton Counties

Municipality	2000 Population	2030 Population (est.)	Percent Change
Lynn Township	3,849	8,207	113%
Heidelberg Township	3,279	4,356	33%
Washington Township (LC)	6,588	9,498	44%
Lehigh Township	9,728	16,369	68%
Moore Township	8,673	13,698	58%
Bushkill Township	6,982	11,109	59%
Wind Gap Borough	2,812	2,827	1%
Plainfield Township	5,668	10,752	90%
Upper Mount Bethel Township	6,063	10,845	79%
Total	53,642	87,661	63%

Source: Municipal Profiles, Lehigh Valley Planning Commission, 2009

Population growth has produced a robust housing market, with over 23,000 housing units (ranging from single family homes to townhouses) approved by Lehigh Valley municipalities from 2000-2009. Table 4 shows the number of lots and building permits approved by the municipalities along the Appalachian Trail since 2000.

TABLE 4
APPROVED LOTS AND BUILDING PERMITS FROM 2000-2009
IN THE MUNICIPALITIES ADJACENT TO THE APPALACHIAN TRAIL
Lehigh and Northampton Counties

Municipality	Approved Lots	Building Permits
Lynn Township	175	205
Heidelberg Township	104	88
Washington Township (LC)	289	238
Lehigh Township	426	543
Moore Township	391	409
Bushkill Township	306	505
Wind Gap Borough	37	12
Plainfield Township	270	266
Upper Mount Bethel Township	476	859
Total	2,474	3,125

Source: Summary of Subdivision Activity 2000-2009, Lehigh Valley Planning Commission.

The proliferation of housing being constructed on large lots led to an increasing amount of land being consumed for development. In the decades prior to the 1990s, land was converted at a rate of three square miles per year in the Lehigh Valley. This increased to three and a half square miles per year during the 1990s and four square miles per year after 2000. The municipalities

along the Trail allow low-density development along the Trail, ranging from detached dwellings to schools and hospitals. These townships, like other townships in the Lehigh Valley, are under significant development pressure. As a result, over the last twenty years, scattered small subdivisions, strip commercial development and large residential developments have resulted in a fragmented, highly consumptive land use pattern. As the flat, easily accessible land has been purchased and developed, land that has environmental constraints has become attractive for development.

WIND TURBINES

Given that the Appalachian Trail runs along the ridge of the Blue Mountain, this area, because of its elevation, may be attractive for the placement of wind turbines. Wind turbines convert the energy in wind into electricity that can be harnessed for practical use. Wind turbines are typically described by their generating capacity, or power rating, in kilowatts (kW) or megawatts (MW). Generating capacity increases with the diameter of the rotor, which includes the turbine blades. Utility-scale wind turbines are large wind turbines that have rated capacities ranging from 100 kilowatts to several megawatts. The electricity produced from these turbines is usually fed into utility power lines where it is mixed with electricity from other sources and delivered to utility consumers through the power grid. According to the American Wind Energy Association (AWEA), utility-scale wind turbines, which are most commonly grouped together to form wind farms, can reach total heights of 442 feet.

The wind resource at a given site can be classified according to wind power classes, ranging from Class 1 (the lowest) to Class 7 (the highest). It is generally accepted by wind energy research and industry groups, including the United States Department of Energy National Renewable Energy Laboratory (NREL) and the AWEA, that sites with a Class 3 or greater wind power rating may be suitable, and sites with a Class 4 or greater wind power rating are preferred, for utility-scale wind energy facilities. Based on information contained in wind resource maps created by the NREL, Lehigh and Northampton counties are only marginally suitable for utility-scale wind energy facilities as they do not contain any large concentrations of land with a Class 3 wind power rating or any sites with a Class 4 or greater wind power rating.

The development of utility-scale wind energy facilities and their associated support infrastructure (e.g., support roads, storage and maintenance facilities, and power lines) can result in habitat destruction and fragmentation, threatening species survival and biodiversity. Scientific studies have documented that birds and bats are vulnerable to collisions with wind turbine blades, turbine towers and associated infrastructure. Utility-scale wind energy facilities can span hundreds of acres and can intrude upon significant portions of scenic landscapes.

Given the height of utility-scale turbines plus the amount of land free of obstructions required for turbine farms, the placement of turbines on the ridge of Blue Mountain may have considerable visual, auditory and ecological impacts on the Appalachian Trail. To date, none of the municipalities along the Appalachian Trail have adopted regulations specifically for wind turbines.

In January 2010, the Lehigh Valley Planning Commission (LVPC) adopted a resolution outlining policies regarding the construction of wind energy facilities in sensitive natural areas such as the Blue Mountain. The mountain is a recognized landmark, home to dozens of wildlife species, with extensive forests and water resources. The resolution contains a policy stating that areas of “very high or high conservation” priorities not be developed with wind energy facilities. The LVPC maintains that wind power development can be accomplished in other areas of the Lehigh

Valley, where an adequate wind resource is available and wind energy facilities are consistent with the local environment and municipal land use regulations. A copy of the resolution can be found beginning on page A-42 in the Appendix.

COMMUNICATION/CELLULAR TOWERS

Cellular towers may have significant impact on the land surrounding the Trail and the view from the Appalachian Trail itself. The tower may be higher than the existing tree cover along the Trail, and areas of woodlands will be removed for construction and development of the tower.

QUARRIES

The Blue Mountain's geology (Shawangunk conglomerate) contains rock that has value for gravel and aggregate. Aggregate mining is an intensive land use that has numerous impacts on the surrounding area. Rock, sand, and gravel products that are used in construction make up the majority of the mineral industry in Pennsylvania. This aggregate material must be excavated, sorted, crushed, washed, and/or stockpiled before the rock can be transformed into a product that meets the specifications for road and building construction. This processed material must then be transported, usually by truck or train, to the site of use.

Quarrying has substantial visual impacts from the removal of natural features on the surface such as woodlands and also soil for hundreds of feet below the surface, and visual and auditory impacts from blasting, truck traffic and dust created by the quarrying activity. Quarries can also contribute to changes in the flow of watercourses, contamination of the watercourse and draw-down of residential wells from cones of depression that may be created in the underlying aquifers. The Lehigh Valley is home to several quarry operations, and a recent proposal to quarry the Mill Hill mountain in Lower Milford Township, Lehigh County.

LAND PRESERVATION TOOLS

There are a variety of actions that municipalities can take to encourage protection and preservation of land surrounding the Appalachian Trail. These measures are outlined in the following sections of this report. The report also includes detailed maps that can guide municipalities in locating and prioritizing particular sections of Blue Mountain that are important for protection of the Appalachian Trail.

NATURAL RESOURCES PLAN

The maps on pages 5 through 17 show areas designated as very high conservation priority, high conservation priority, and medium conservation priority. Areas designated as very high conservation priorities are particularly important for conservation of Blue Mountain and the Appalachian Trail because they include multiple high value characteristics in the LVPC natural resource rating system. Most of Blue Mountain is highly rated for conservation because of the presence of steep slopes, large interior woodlands, wetlands, and habitats for plants and animals. An unrated factor is the scenic quality of the mountain from the top looking down or the bottom looking up. The maps also show the location of the Appalachian Trail relative to lands that are publicly owned by state, federal, municipal and conservation organizations. LVPC maps can be used to create boundaries of areas recommended for preservation in local comprehensive plans, zoning ordinances, and official maps.

OFFICIAL MAP

Municipalities should consider using this very powerful planning tool. An official map is a seldom used, but very effective land preservation tool. Authorized under the Pennsylvania Municipalities Planning Code, the official map provides a means for a municipality to consider future public improvement projects. It is a declaration (and notification) by the governing body that identifies projected locations in the municipality that the local government may need for public purposes. Although the map generally is used to guide and plan, it also has a significant regulatory purpose. For example, if a land development application is submitted for a property identified on the official map, the municipality has up to one year to consider and/or take action to acquire the property (including the use of eminent domain).

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

The Official Map can be an excellent supporting document for grant applications, considering that acquisition of land or easements are the most efficient means of preserving open space and environmental features. Mapping future open space areas demonstrates the municipality has proactively planned for these improvements, instead of reacting to unanticipated needs.

ZONING TECHNIQUES

A number of zoning techniques for preservation of land are discussed in following subsections of this report. Four zoning techniques are outlined: Improving existing ordinances by using the LVPC Model Regulations; using Net Out Zoning to prioritize the protection of environmental features; adopting specific Appalachian Trail regulations; and using Conservation Subdivisions to reduce the amount of land developed in residential subdivisions.

For communities that already have zoning ordinances, we believe the Model Regulations prepared by LVPC or the Net Out Zoning technique may be the best solution to protect the Appalachian Trail and Blue Mountain. The LVPC perspective is that protective measures that apply to all natural resources on Blue Mountain are the best comprehensive approach to preserving the mountain as well as the Appalachian Trail. The specific Appalachian Trail regulations outlined in the Model Appalachian National Scenic Trail Overlay District are another approach suitable for trail protection, but it is more limited in its regulation and geographic scope than the other approaches outlined by the LVPC. Conservation subdivision design is another means of protection, but it is limited to preservation of certain natural features that would be part of a property that is otherwise being subdivided. From our perspective, it has limited utility for protection of the Appalachian Trail.

1. LVPC MODEL ENVIRONMENTAL REGULATIONS

Municipalities can update their existing zoning and subdivision ordinances to protect natural features, not just for land near the Appalachian Trail and Blue Mountain, but across the entire municipality. The LVPC published model environmental regulations between 2007 and 2009 that covered the subject areas of floodplains, riparian/wetland buffers, steep slopes and

woodlands protection. They serve as excellent resources in this work since current literature on the topic and existing ordinances from other Pennsylvania municipalities were reviewed in the development of the models. The model regulations for riparian/wetland buffers, steep slope and woodlands can be found in the Appendix beginning on page A-3. The full guides can be found at www.lvpc.org.

2. NET OUT ZONING

Net Out zoning prescribes specific environmental features to be excluded from the buildable area on the site that could include the Appalachian Trail. These environmental areas become open space, protected from development. The density of proposed development is based on the remaining buildable area. The regulations apply to all land within the zoning district (whichever district the municipality chooses). Use, minimum lot size and setback requirements are set by the underlying zoning district.

Lower Saucon and Upper Mount Bethel townships have used this type of regulation for several years in their ordinances. The standards apply to all the land in the townships whenever a subdivision or land development is proposed. It is not zoning district specific. We have supported the approach of “netting out” environmental features in reviews of these ordinances. The Net Out approach is widely used in Bucks and Chester County municipalities. The model Blue Mountain Protection regulation, which utilizes the Net Out approach and prepared by the LVPC, can be found in the Appendix beginning on page A-25.

3. SPECIFIC APPALACHIAN TRAIL REGULATIONS

The Pennsylvania Department of Community and Economic Development (DCED) published a guidebook in 2009 to assist municipalities in implementing Act 24. The website can be found at <http://www.apptrailpa.org> and the Model Appalachian National Scenic Trail Overlay District regulation is included in the Appendix. The model regulation utilizes an overlay model based on regulating land use and activities within two zones, the Primary Conservation Zone and the Secondary Conservation Zone, to protect the area adjacent to the Trail. The width of and the uses in the zones are established by the municipality.

4. CONSERVATION SUBDIVISIONS

A conservation subdivision is a land development of common open space and clustered, compact lots. The purpose of a conservation subdivision is to protect natural resources while allowing for the maximum number of houses under the base zoning district.

Conservation subdivision ordinances generally require permanent dedication of 40% or more of the total development parcel as open space. Open space design requirements often include contiguity and connection to other open space or conservation areas. Conservation subdivisions represent a compromise between development and the desire to preserve sensitive natural features on the mountain. However, the use of conservation design in an area of such extensive natural features is not as effective as Net Out zoning or pursuing conservation easements.

5. WIND TURBINE REGULATIONS

The state of Pennsylvania has no wind-specific development authority at the state level; the placement of turbines is governed at the municipal level through zoning ordinances. Municipi-

palties can adopt ordinances related to wind turbines, detailing where turbines are desired and where they are not, namely the Blue Mountain. Municipalities must plan or “point” renewable energy development such as wind turbines to places with fewer impacts. Lehigh and Northampton counties do not have wind speeds that are attractive to wind turbine developers. The standard electricity generating wind turbine needs a Class 4 wind, commonly known as a “sufficient wind resource.” There are no Class 4 winds in the Lehigh Valley, not on Blue Mountain, South Mountain or the Highlands. According to all accessible wind data, the Lehigh Valley is marginal at best for wind turbine development.

Even though wind turbine technology is now beginning to have the capacity to harvest Class 3 winds, the Lehigh Valley does not have any large concentrations of land with Class 3 winds. While the likely location of turbines would be on the top of Blue Mountain, where the majority of the land is owned by state and federal agencies, municipalities should have adopted regulations for wind turbines in case a proposal is submitted for turbines on privately owned land.

6. CELLULAR TOWER REGULATIONS

Section 704 of the 1996 Telecommunications Act contains several key provisions affecting the authority of municipalities to regulate the placement of communication and cellular towers. The Act permits municipalities to regulate cellular towers through land use regulations, with three exceptions:

1. Local ordinances may not “unreasonably” discriminate among providers of functionally equivalent services. Tower siting policies must not favor one company, or one technology, over another;
2. Local government may not impose a blanket prohibition against the placement of telecommunications towers; and
3. Local ordinances may not impose more stringent “environmental effects” limits on radio frequency emissions than those adopted by the Federal Communications Commission (FCC).

A municipality can adopt a communications tower ordinance that identifies areas of the municipality where the placement of towers are permitted and where they are not, followed by specific guidelines relative to addressing environmental and aesthetic impacts. Municipal ordinances should be consistent with FCC regulations. A proactive approach would include creating a priority list of locations where antennas or cell towers would be most appropriate and where visual and aesthetic impacts would be minimized.

7. QUARRY REGULATIONS

Municipalities cannot prohibit quarrying outright, but they can regulate it. Section 603(i) of the Pennsylvania Municipalities Planning Code states that “zoning ordinances shall provide for the reasonable development of minerals in each municipality.” Section 603(b), however, allows zoning ordinances to regulate mineral extraction, but only to the extent that such uses are not regulated by the Pennsylvania Surface Mining Conservation and Reclamation Act, the Noncoal Surface Mining Conservation and Reclamation Act, and the Oil and Gas Act. These Acts regulate a variety of plan requirements such as setbacks, dust, noise, blasting, water supply effects, and reclamation plans.

Municipalities can adopt regulations that specify where quarries are permitted in the municipality and where they are not, followed by specific guidelines relative to the development and operation of quarries. In conjunction with developing quarry regulations and identifying where quarry activities would be appropriate, municipalities should collect and analyze data that describes the sand, gravel, and aggregate rock resources located within the municipality.

8. REVISING THE EXISTING ZONING DISTRICT REGULATIONS

Municipalities can revise the existing zoning district that regulates uses on the Blue Mountain. More specifically, municipalities can re-examine existing permitted and prohibited uses and make adjustments to the zoning district regulations where uses such as wind turbines and quarries would be expressly prohibited in the zoning district, due to their impact on the scenic and environmental resources of the Blue Mountain. Generally, in a zoning ordinance, any use not listed as “permitted” is prohibited. However, an ordinance may specifically prohibit a particular use in a district to avoid a finding that this use may be similar to a permitted use in the district.

Municipalities can also explore lowering impervious coverage thresholds for uses in the zoning district as a method of reducing the scale and size of development on the Blue Mountain. Schools and churches, for example, are permitted in the majority of existing municipal zoning districts along the Blue Mountain. Based on the review of plans for churches and schools throughout the Lehigh Valley over the last decade, these developments can require expansive amounts of impervious coverage for driveways, parking and structures. These uses, due to their size, can provide as significant of an impact to the Trail and the Blue Mountain as a wind turbine or quarry operation.

FEE SIMPLE ACQUISITIONS AND CONSERVATION EASEMENTS

Municipalities can establish a dedicated fund to acquire land adjacent to the Trail for conservation/open space purposes using fee simple or conservation easement techniques. There are several funding options for acquiring open space, ranging from a combination of a pay-as-you-go approach using tax revenues; borrowing funds via traditional loans or general obligation bonds; or federal, state and local grant programs.

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

Utilizing a borrowing approach, municipalities issue bonds or borrow from commercial lenders. It allows the municipality to expeditiously fund significant acquisitions or complete major projects. Borrowing spreads the cost of the open space over present and future residents of the municipality.

Municipalities can combine the two approaches, borrowing funds for acquisition debt and implementing a dedicated tax for open space acquisition. Revenues from the dedicated tax pay off the debt.

Another less commonly known method is the Installment Purchase Agreement (IPA). An IPA puts the purchase price into a tax-free annuity instead of giving the money directly to the landowner. The landowner receives tax-free interest from the annuity for a fixed number of years, and then at the end of the period, the full amount of the principal is transferred to the owner. In this way the landowner postpones the taxation of the principal amount, and in the interim, receives tax-free payments semiannually. The municipality typically purchases bonds to cover the payments. Deferral of payment of the purchase price for up to thirty years allows the municipality to make additional purchases or complete projects that could be done over the short term.

A conservation easement is a voluntary agreement that allows a landowner to limit the type or amount of development on the property while retaining private ownership of the land. The party that receives the easement can be the municipality or a non-profit organization like a land trust or conservancy. Easements are less costly than fee simple acquisitions.

ADDITIONAL RESOURCES

Arendt, Randall. *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks* (1996)

Frank, Michael. *Implementing a Municipal Open Space Program: A Guide for Pennsylvania's Municipalities* (2003)

Goldstein, Debra. *Using Conservation Easements to Preserve Open Space: A Guide for Pennsylvania's Municipalities* (2002)

Gordon, Gary. *Public Finance for Open Space: A Guide for Pennsylvania's Municipalities* (2003)

Lehigh Valley Planning Commission. *Lehigh Valley Greenways Plan* (2007)

For additional information on the Appalachian Trail, Act 24, and model regulations to assist municipalities in implementing the Act, please visit: <http://www.apptailpa.org>.

Appendix

LEHIGH VALLEY PLANNING COMMISSION MODEL REGULATIONS RIPARIAN AND WETLAND BUFFERS

A. PURPOSE

It is the purpose of this article to establish requirements for the establishment, maintenance and preservation of riparian buffers, as defined herein, to protect the watercourses and wetlands in (Municipality), and to limit the surface areas of buildings and structures within these areas.

B. AUTHORITY

This article is established in accordance with the Pennsylvania Constitution, Art. 1, Sec. 27 (the “Environmental Rights Amendment”), and Sections 301(a)(6), 503(2)(v), 603(c)(7), 605(2)(ii, iii, and vii), 606, 609.1c(3)(4), 916.1(c)(5)(iii and iv) of the PA Municipalities Planning Code, 53 P.S. § 10101 et seq.

C. APPLICABILITY

1. This article shall apply to all lands within (Municipality) that are adjacent to a watercourse or wetland.
2. This article shall apply to any subdivision plan, zoning permit or building permit not included in Section C.3 after the effective date of this article.
3. This article shall not apply to any application after the article’s effective date or to a development or land disturbance that:
 - a. Is covered by an approved plan in accordance with (Municipality) Subdivision and Land Development Ordinance; or
 - b. Is covered by a current, executed public works agreement; or
 - c. Is covered by a valid, unexpired (Municipality) Zoning Heard Board (ZHB) approval or building permit; or
 - d. Is a lot line adjustment plan; or
 - e. Is a zoning or building permit for accessory structures or improvements to existing primary or accessory structures that do not encroach upon the riparian buffer zone.¹

D. GENERAL DESIGN STANDARDS

1. For sites where a riparian buffer does not exist, it is acceptable to allow the buffer to succeed naturally through a “no-mow” area where native vegetation is able to establish itself naturally.
2. The riparian buffer shall be:
 - a. Seventy-five feet from the top of the streambank of a watercourse,
 - b. Seventy-five feet from the outer edge of a wetland.
3. Principal structures and areas of impervious coverage, unless permitted in Section E of this article, shall be set back from the outer edge of the riparian buffer a minimum of twenty-five feet.

¹ The intent of the regulations is to restrict development inside the riparian buffer zone and not the entirety of the site. Without specific exemptions, confusion can arise as to whether a property owner is required to have a riparian buffer on his property regardless of where development occurs on the property.

4. It shall be lawful, but not required, to supplement the riparian buffer with planting of native vegetation. Native plants can include ferns, shrubs and trees. Native vegetation (as defined in *The Plants of Pennsylvania: An Illustrated Manual*, (Ann Fowler Rhoads and Timothy A. Block, June 2000 or current version thereof) and *The Trees of Pennsylvania: A Complete Reference Guide* (Ann Fowler Rhoads and Timothy A. Block, May 2004 or current version thereof) must be used in such efforts. Any supplemental plantings shall be installed to allow for proper plant growth and maintenance.

E. PERMITTED USES/ACTIVITIES WITHIN THE RIPARIAN BUFFER

1. Roads, bridges, trails, storm drainage, stormwater management facilities and utilities are permitted within the buffer provided that an alternatives analysis has clearly demonstrated that no other feasible alternative exists and that minimal disturbance will take place.
2. Stream restoration projects and activities approved by (Municipality).
3. Horticulture practices used to maintain the health of vegetation in the riparian buffer.
4. Removal of non-native vegetation or trees in danger of falling, causing damage to dwellings or other structures, or the blockage of a watercourse.
5. Agricultural uses existing at the time of adoption of this article with best management practices.

F. PROHIBITED USES/ACTIVITIES WITHIN THE RIPARIAN BUFFER

1. All structures.
2. Impervious coverage unless permitted in Section E.
3. Creation of new lawn areas.²
4. Lawn care service.
5. Planting of non-native vegetation.
6. Removal, burning or mowing of native vegetation.³
7. Soil disturbance, inclusive of grading, stripping of topsoil, plowing, cultivating or other practices.
8. Septic systems.
9. The production, storage or use of a substance or material, underground or aboveground, that is buoyant, flammable, explosive, or injurious to property, water quality, or human, animal, plant, fish or aquatic life.
10. The production, storage or use of explosives.
11. The storage or disposal of materials used for snow and ice control including sand, salt and other deicing chemicals.
12. Sanitary landfills, dumps, junk and salvage yards, and outdoor storage of vehicles and/or materials.

² Lawn grass is shallow-rooted and provides very little in the way of erosion protection. Without vegetation having a deeper, well defined root structure, lawn along the streambank cannot withstand runoff, and erosion will occur.

³ Root growth stops when the above-ground portion of a plant is repeatedly removed. The roots die back, reducing plant vigor. The plants become weak, smaller in size and are more susceptible to bank erosion. Repeated cutting eventually kills trees and shrubs. Trees and shrubs, unlike grass, build on existing growth, and are not able to continually come back from the roots. The growing points of trees and shrubs are located on the tips of the branches, unlike grasses that have roots as growing points.

13. The storage or disposal of any soil, loam, peat, sand, gravel, rock, or other mineral substance, refuse, trash, rubbish, debris, or dredged/excavated spoil.
14. Draining, excavating, or dredging, or removal or relocation of loam, peat, sand, gravel, soil, rock, or other mineral substance, except as accessory to work permitted as of right or by special permit.
15. Manure storage facilities and manure stockpiles.
16. The maintenance, housing or grazing of animals.

G. PERMITTED USES WITHIN THE RIPARIAN BUFFER SETBACK

Lawns, lawn care service, accessory structures, roads, driveways, utilities and passive outdoor recreation and education facilities are permitted within the setback area provided any structure associated with such uses is located outside the riparian buffer.

H. BOUNDARY DETERMINATION

The developer, applicant, property owner or designated representative shall be responsible for the initial width determination of the riparian corridor and identifying this area on any plan that is submitted to the municipality for subdivision, land development, or other improvements that require plan submissions or permits. This determination shall be subject to review by the (Municipality) Zoning Officer.⁴

I. VARIANCES

Applications filed with the ZHB shall contain the basis for the appeal of the Zoning Officer or Engineer's decision and a description of the relief requested. Plans submitted shall be prepared by a licensed professional acceptable to the ZHB and shall include the following:

1. Location of streams, ponds or other water resources on the property to be developed;
2. Species, location and size of trees within the riparian buffer setback;
3. Location of any proposed building or structure; and
4. Any other information deemed relevant by the ZHB.

In addition to these standards and criteria, the following shall be considered by the ZHB in rendering affirmative decisions where applicable:

1. A showing of good and sufficient cause.
2. Whether strict application of this article would deny the applicant reasonable use of the property, or whether the article would have severe impact and would render the property unusable or unsuitable for development.
3. Whether plan modifications or conditions of approval can achieve conservation objectives of this article.

⁴ There are generally two approaches to regulating the width of riparian buffers. A fixed width, usually measured from the streambank or high water mark, is a popular method for ease of implementation and administration. A buffer width that varies depending on natural or built features adjacent to watercourses can allow for steep slopes or unique features of a site. However, this approach requires site visits by surveyors or other qualified persons in order to measure slopes or identify sensitive natural features. The LVPC regulations designate a municipal official to determine the riparian buffer area on a property using a fixed width of seventy-five feet from the defined edge of a watercourse or wetland.

4. That the relief granted is the minimum necessary and does not conflict with any municipal, state or federal regulations.

J. DEFINITIONS

Flood, One Hundred Year. A flood that has a 1% chance of being equaled or exceeded in any given year. Over a long period, it is a flood that is likely to occur, on average, once for every 100 years of record.

Floodplain Area. A relatively flat or low land area which is subject to partial or complete inundation from an adjoining or nearby stream, river or watercourse; and/or any area subject to the unusual and rapid accumulation of surface waters from any source.

Lawn. An area maintained with grass adjacent to a structure. The term does not include athletic fields, cemeteries, golf courses, fields, parks and public utility or highway right-of-ways.

Lawn Care Service. Providing services for lawn upkeep including fertilizing, mowing or performing other lawn treatment services.

Native Vegetation. Vegetation that has arrived and inhabited an area naturally, without deliberate assistance by man.

Natural Succession. The process by which a habitat or environment naturally rejuvenates itself.

Non-native Vegetation. Vegetation reproducing outside its native range and outside cultivation that disrupts naturally occurring native vegetation by altering structure, composition, natural processes or habitat quality.

Passive Outdoor Recreation. Recreational activities that do not involve a developed site, and have minimal impact on natural resources.

Riparian Buffer. An area of trees and other vegetation adjacent to a watercourse or wetland that forms a transition area between the aquatic and terrestrial environment, and designed to intercept runoff for the purpose of mitigating the effects of nutrients, sediment, organic matter, pesticides, or other pollutants before entry into surface waters and to provide control of water temperature.

Riparian Buffer Setback. The portion of a site where structures and uses of land are to be minimized expressly for the purpose of preserving and protecting a riparian buffer.

Streambank. The break in the slope between the waterline of a watercourse and the surrounding land area.

Watercourse. A watercourse is a channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow. Manmade swales, constructed specifically for stormwater management purposes, are excluded from this definition.

Waterline. The highest water level of a watercourse which is common and usual.

Wetland. All lands regulated as wetlands by the Pennsylvania Department of Environmental Protection and/or the United States Army Corps of Engineers. Such areas are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas.

LEHIGH VALLEY PLANNING COMMISSION MODEL REGULATIONS STEEP SLOPE OVERLAY DISTRICT

ARTICLE ____

SECTION 100. PURPOSES

The purpose of this Article is to provide for the reasonable use of steep slopes while ensuring development will not induce soil erosion, require excessive grading, increase slope instability, or create sewage disposal problems and shall be in conformance with the following objectives:

- A. Guard against property damage and personal injury, and minimize the potential for erosion, slope failure, stream siltation, increased runoff, flooding and contamination of surface waters caused by the adverse effects of site preparation and construction on steep slopes.
- B. Conserve existing woodlands for air and water quality benefits.
- C. Permit land uses by right that are compatible with protection of steep slope areas, and encourage the use of steep slope areas for open space and conservation uses.
- D. Require development to avoid steep slope areas wherever possible, and require all land use, clearing, grading, and construction to satisfy development standards.
- E. Regulate expansion of land use or development that existed on steep slope areas prior to enactment of these requirements.
- F. Protect adjoining properties from harmful consequences of development permitted under these requirements.

SECTION 200. IDENTIFICATION AND ESTABLISHMENT OF THE STEEP SLOPE OVERLAY DISTRICT

- A. The Steep Slope Overlay District is defined and established as those areas having slopes of 15% or greater as delineated on a map(s) prepared for (Municipality).
- B. The boundaries shown on the Steep Slope Overlay District Map may be supplemented or modified by examination of one or more of the following sources by (Municipality) whenever a subdivision or land development plan is submitted for review:
 - 1. Soil Survey of Lehigh/Northampton counties, Pennsylvania, USDA Soil Conservation Service.
 - 2. Contour maps prepared from aerial photography.
 - 3. On-site survey prepared by a Registered Professional Engineer or Surveyor.
- C. The Steep Slope Overlay District shall be further divided into the following two categories:¹

¹ The model regulations use the classifications as specified in the *Comprehensive Plan The Lehigh Valley ... 2030*.

1. Slopes of 15% but less than 25%. Slopes of fifteen (15) percent or greater slope (e.g., sloping fifteen (15) feet or more vertical per one hundred (100) feet horizontal) when there are five (5) adjacent contour intervals² of two (2) feet each such that, in aggregate, they delineate a slope of at least fifteen (15) percent.
 2. Slopes of 25% or more. Slopes of twenty-five (25) percent or greater slope (e.g., sloping twenty-five (25) feet or more vertical per one hundred (100) feet horizontal) when there are five (5) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope of at least twenty-five (25) percent.
- D. The (Municipality) Engineer shall decide whether or not the Steep Slope Overlay District has been shown with sufficient accuracy on the applicant's plans. Based on the Municipal Engineer's advice, (Municipality) may require applicants to revise the boundaries shown on the plans.
- E. The burden of proving the correct boundary shall be on the applicant, supported by engineering and/or surveying data or mapping, testimony of a soil scientist, or other acceptable evidence.

SECTION 300. GENERAL PROVISIONS

- A. The Steep Slope Overlay District shall be an overlay on all zoning districts. For any lot or portion thereof lying within the Steep Slope Overlay District, the regulations of the overlay district shall take precedence over the regulations of the underlying district.
- B. These regulations apply to lots where the proposed land disturbing activity is greater than 5,000 square feet³.
- C. All uses, activities and development occurring within any Steep Slope Overlay District shall be undertaken only in strict compliance with the provisions of this Article, with all federal and state laws, and with all other applicable (Municipality) codes and ordinances.
- D. No building lot shall be created unless it contains at least one (1) acre of area with slopes less than 25%.⁴ If it is infeasible to provide this area in accordance with the setbacks required by the underlying district, the lot area shall be increased as necessary to provide a minimum area equal to one (1) acre of area with slopes less than 25%.

² A contour interval is the change in elevation represented by the space between two adjacent topographic "rings" on a topographic map. For example, if there is a contour interval of 20 feet, each topographic line on the map represents going either up or down by 20 feet of elevation. Most maps include numbers every four or five lines to tell you what elevation is represented by that line.

³ The square footage of a land disturbing activity is variable. If the square footage is smaller, the regulations apply to more projects, and vice versa. We chose 5,000 square feet because State law requires that an E&S Plan, which meets the requirements of Chapter 102 (Erosion and Sediment Control Regulations), be properly designed, implemented and available on site for all earth disturbance activities that disturb 5,000 square feet or more.

⁴ This regulation aims to prevent the creation of lots that likely would require a request for relief from the steep slope regulations.

- E. Finished slopes of all cuts and fills shall not exceed thirty three (33) percent, unless the applicant can demonstrate that steeper slopes can be stabilized and maintained adequately to the satisfaction of (Municipality).
- F. All cuts shall be supported by retaining walls or other appropriate retaining structures when, depending upon the nature of the soil characteristics, such structures are approved by the Municipal Engineer in order to prevent erosion.
- G. Any fill placed on the lot shall be properly stabilized and, when found necessary depending upon existing slopes and soil types, supported by retaining walls or other appropriate structures as approved by the Municipal Engineer.
- H. No retaining wall shall exceed the height prescribed in Section __ (Section of Municipal Ordinance regulating fences and walls) of the Zoning Ordinance, and there shall be at least 10 feet between stepped retaining walls. All retaining walls require a certification by a professional engineer that the wall was constructed in accordance with approved plans and applicable building codes.
- I. Any disturbance of steep slopes shall be completed within one construction season, and disturbed areas shall not be left bare and exposed during the winter and spring thaw periods. Permanent vegetative cover shall be planted within three days after completion of grading.
- J. No trees with a diameter at breast height (DBH) of eight (8) inches or more shall be removed from steep slope areas unless in accord with Section __ (Section of municipal zoning ordinance regulating forestry).⁵
- K. The alignment of roads and driveways shall follow the natural topography, minimize re-grading and comply with design standards for maximum grades set forth in (Municipality) Subdivision and Land Development Ordinance.
- L. The maximum grade of a road or driveway shall not exceed ten percent (10%).⁶
- M. The degree of steep slope protection sought by the provisions of this Article is considered reasonable for regulatory purposes. This Article does not imply that areas outside the Steep Slope Overlay District or permitted uses within the zoning district will be free from erosion or slope instability. This Article shall not create liability on the part of (Municipality) or any officer or employee thereof for any damages that result from reliance on this Article or any administrative decision lawfully made hereunder.

⁵ The model regulations use the DBH as specified in the Lehigh/Northampton County Subdivision and Land Development Ordinance. Section 603(f) of the Municipalities Planning Code (MPC) permits forestry activities as a right in all zoning districts in every municipality.

⁶ Appendix D of the International Fire Code limits driveway grades to 10%. This portion of the International Fire Code has not been adopted by Pennsylvania and cannot be enforced. However, since emergency access to steeply sloped lots is an important consideration, we recommend municipalities consider adopting the 10% maximum in any regulation of steep slopes.

SECTION 400. PERMITTED USES AND DEVELOPMENT ON SLOPES OF 15% BUT LESS THAN 25%

- A. Open space and conservation uses are permitted by right on steep slopes, provided that they shall not include any structures, roads, driveways, parking areas, construction, or other development, or grading, or clearing of vegetation.
1. Wildlife sanctuary, woodland preserve, arboretum, and passive park and recreation areas.
 2. Forestry and reforestation in accordance with recognized natural resource and soil conservation practices, and as permitted by municipal and state regulations.
 3. Pasture and grazing land in accordance with recognized natural resource and soil conservation practices.
 4. Outdoor plant nursery or orchard in accordance with recognized natural resource and soil conservation practices.
 5. Cultivation and harvesting of crops in accordance with recognized natural resource and soil conservation practices.
 6. Front, side, or rear yards, and required lot area for any underlying zoning district, subject to the requirements of Section 300 General Provisions, herein, and provided such yards shall not be used for any use prohibited under Section 500, herein.
 7. Non-structural accessory uses necessary to the operation and maintenance of the above permitted uses.

SECTION 500. PROHIBITED USES AND DEVELOPMENT ON SLOPES OF 15% BUT LESS THAN 25%

- A. The following uses are specifically prohibited on slopes of 15% but less than 25%:
1. Removal of topsoil except when related to an approved conditional use.
 2. Solid waste disposal, recycling uses, junk yards, or other outdoor storage uses.

SECTION 600. CONDITIONAL USES AND DEVELOPMENT ON SLOPES OF 15% BUT LESS THAN 25%

- A. The following uses and activities may be permitted by Conditional Use provided that they are in compliance with the provisions of the underlying district and are not prohibited by any other Ordinance:
1. Structures, roads, driveways, parking areas, construction or other development.
 2. Clearing of vegetation or grading, including the addition of fill.

3. Sealed public water supply wells⁷ with approval of the Pennsylvania Department of Environmental Protection.
 4. Sanitary or storm sewers and stormwater detention basins with the approval of the (Municipality) Engineer and the Department of Environmental Protection.
 5. On-lot sewage disposal systems, when approved by the (Municipality) Sewage Enforcement Officer and/or the Pennsylvania Department of Environmental Protection.
 6. Utility transmission lines and above ground utility line structures unless upon petition of a public utility corporation, the Pennsylvania Public Utility Commission shall, after a public hearing, decide that the present or proposed situation of the lines or structures in question is reasonably necessary for the convenience or welfare of the public.⁸
 7. Extractive uses in accordance with recognized conservation practices and regulations of the state Department of Environmental Protection.
- B. Applications for conditional uses shall provide the following information and documentation:
1. A plan by a Registered Professional Engineer or Surveyor which accurately locates the proposed use with respect to the Steep Slope Overlay District boundaries, with all pertinent information describing the proposal, and a topographical survey with contour elevations at no greater than 2-foot intervals, where feasible.
 2. A plan of proposed development or use of the site, conforming to the preliminary plan requirements of the Subdivision and Land Development Ordinance, with contours shown at 2-foot intervals, where feasible, throughout the steep slope areas proposed for development or use. Contours shall be accurately drawn from on-site survey or aerial photographic sources.
 3. Proposed modifications to the existing topography and vegetative cover, as well as the means of accommodating stormwater runoff.
 4. Specifications for building construction and materials, including filling, grading, storage of materials, and water supply and sewerage facilities.

⁷ A sealed well has design features that prevent contamination of groundwater.

⁸ Electric transmission line permitting has been exclusively a state function to date, and construction of transmission lines ordinarily requires a utility or private transmission developer to obtain a “certificate of public convenience and necessity” from each state or states in which the lines would be located. The Federal Energy Regulatory Commission (FERC) has no authority to approve transmission siting.

Section 619 of the MPC provides an exemption from municipal zoning regulation for “any existing or proposed building, or extension thereof” of a public utility (i.e., the limited extent to which municipal zoning regulation by law applies to the placement of public utility facilities), upon a finding and determination by the Public Utility Commission (PUC) “that the present or proposed situation of the building in question is reasonably necessary for the convenience or welfare of the public.” A utility company must request that the PUC enter an order granting it an exemption from local zoning regulation.

5. Documentation of any additional engineering and/or conservation techniques designed to alleviate environmental problems that may be created by the proposed activities, in compliance with municipal sedimentation and erosion control regulations.
6. Written confirmation from (specific name of local fire department) that emergency access is satisfactory to provide adequate fire protection.

SECTION 700. PERMITTED USES AND DEVELOPMENT ON SLOPES OF 25% OR MORE

- A. Open space and conservation uses are permitted by right on slopes of 25% or more, provided that they shall not include any structures, roads, driveways, parking areas, construction, or other development, or grading, or clearing of vegetation.
 1. Wildlife sanctuary, woodland preserve, arboretum, and passive park and recreation areas.
 2. Forestry and reforestation in accordance with recognized natural resource and soil conservation practices, and as permitted by municipal and state regulations.
 3. Pasture and grazing land in accordance with recognized natural resource and soil conservation practices.
 4. Outdoor plant nursery or orchard in accordance with recognized natural resource and soil conservation practices.
 5. Cultivation and harvesting of crops in accordance with recognized natural resource and soil conservation practices.
 6. Front, side, or rear yards, and required lot area for any underlying zoning district, subject to the requirements of Section 300 General Provisions, herein, and provided such yards shall not be used for any use prohibited under Section 800, herein.
 7. Non-structural accessory uses necessary to the operation and maintenance of the above permitted uses.

SECTION 800. PROHIBITED USES ON SLOPES OF 25% OR MORE

- A. The following uses are specifically prohibited on slopes of 25% or more:
 1. Removal of topsoil.
 2. Solid waste disposal, recycling uses, junk yards, or other outdoor storage uses.
 3. Structures, roads, driveways, parking areas, construction or other development.
 4. Clearing of vegetation or grading, including the addition of fill.
 5. Sealed public water supply wells.

6. Sanitary or storm sewers and stormwater detention basins.
7. On-lot sewage disposal systems.
8. Utility transmission lines and above ground utility line structures.
9. Extractive uses.

SECTION 900. CONDITIONAL USE STANDARDS AND CRITERIA

- A. In considering a conditional use application, the (Municipal Governing Body) shall consider the following:⁹
1. Relationship of the proposed use to the objectives set forth in Section 100.
 2. Adverse effects on abutting properties.
 3. The need for a woodland management plan on wooded steep slope areas.
 4. Proposed roads, driveways and parking areas are designed so that land clearing and/or grading will not cause accelerated erosion. Both vertical and horizontal alignment for such facilities shall be so designed that hazardous conditions are not created.
 5. Alternative placements on non-steep slope areas were carefully evaluated for structures, including buildings, retaining walls, swimming pools, roads, access driveways, parking facilities and other development, and can be shown to be inappropriate or infeasible to the satisfaction of (Municipality).
 6. Proposed on-lot sewage disposal facilities are properly designed and constructed in conformity with applicable regulations.
 7. Proposed non-agricultural displacement of soil is for purposes consistent with the intent of this Article and will be executed in a manner that will not cause erosion or other unstable conditions. The applicant shall provide an erosion and sediment control plan and supporting evidence.
 8. Surface runoff of water will not create unstable conditions, including erosion, and appropriate stormwater management facilities will be constructed as necessary.

SECTION 1000. DEFINITIONS

Diameter at Breast Height (DBH). The diameter of a tree trunk measured at a point four (4) feet above ground level.

⁹ A conditional use is a discretionary use specifically provided for in a given district in a zoning ordinance. Conditional uses are to be approved upon demonstration that the specific standards contained in the ordinance pertaining to the use have been met. Conditional uses are acted upon by the elected officials of a municipality after a public hearing has been held.

Disturbance. Any physical activity which results in the modification of topography by cutting or filling, stripping of topsoil, and/or placing of physical structures or improvements thereon.

Drip Line. An imaginary circular line on the soil around a tree that mirrors the circumference of the tree's canopy. The tree's roots usually extend well beyond this line.

Fill. Any clean soil or rock materials (sand or clay) used to raise the ground elevation.

Forestry. The management of forests and timberlands when practiced in accordance with accepted silvicultural principles, through developing, cultivating, harvesting, transporting and selling trees for commercial purposes, which does not involve any land development.

Land disturbing activity. Any change of the land surface including removing vegetative cover, excavating, filling, grading, and the construction of any structure. An agricultural activity such as the planting, growing, cultivating and harvesting of crops is exempt from this definition.

Open space. An area of land or water, or a combination of land and water on a parcel of land that is free of improvement and impervious surfaces.

Slopes of 15% but less than 25%. Slopes of fifteen (15) percent but less than 25% (e.g., sloping fifteen (15) feet or more vertical per one hundred (100) feet horizontal) when there are five (5) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope of at least fifteen (15) percent but less than 25%.

Slopes of 25% or more. Slopes of twenty-five (25) percent or greater slope (e.g., sloping twenty-five (25) feet or more vertical per one hundred (100) feet horizontal) when there are five (5) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope of at least twenty-five (25) percent.

Woodland. A plant community where tree species are dominant or co-dominant and the branches of the trees form a complete or nearly complete aerial canopy. Any area, grove or stand of mature or largely mature trees (larger than six inches DBH) covering an area of one-quarter acre or more, or consisting of ten (10) individual trees larger than eight (8) inches DBH, shall be considered a woodland. The extent of any woodland shall be measured from the outer-most drip line of all the trees in the community.

LEHIGH VALLEY PLANNING COMMISSION MODEL REGULATIONS TREE PROTECTION AND TIMBER HARVEST MANAGEMENT

SECTION 100. PURPOSES

The purpose of this Article is to preserve, protect, replace and properly maintain trees within (Municipality) to aid in the stabilization of soil by the prevention of erosion and sedimentation; reduce storm water runoff and the costs associated therewith and replenish ground water supplies; aid in the removal of carbon dioxide and generation of oxygen in the atmosphere; provide a buffer and screen against noise pollution; provide shade; provide protection against severe weather; aid in the control of drainage and restoration of soil subsequent to construction or grading; conserve and enhance (Municipality) physical and aesthetic environment; promote good forest stewardship; avoid unreasonable and unnecessary restrictions on the right to practice forestry; and generally protect and enhance the quality of life and welfare of (Municipality).

SECTION 200. APPLICABILITY

- A. For purposes of this Article, trees shall include all trees now or hereafter growing in any public right-of-way or on public or private lands within (Municipality).
- B. Trees within existing conservation and other protective easements, floodplains or wetlands shall be preserved unless the removal of trees is for the purpose of managing or improving the natural habitat with approval of the municipality.
- C. Except as otherwise provided herein, it shall be unlawful for any person to cut down any tree in (Municipality) that measures eight (8) inches or more in diameter at breast height (DBH).¹

SECTION 300. EXEMPTIONS

- A. The following shall be exempt from this Article:
 - 1. Commercial nurseries and fruit orchards.
 - 2. Christmas tree farms.
 - 3. Trees directed to be removed by municipal, county, state or federal authority pursuant to law.
 - 4. Removal of trees that appear to cause structural damage to buildings or foundations.
 - 5. Tree maintenance and landscaping on residential and commercial lots.
 - 6. Any tree determined to be causing a danger or be in hazardous condition as a result of a natural event such as tornado, storm, flood or other act of God that endangers the public health, welfare or safety and requires immediate removal.

¹ The model regulations use the DBH as specified in the Lehigh/Northampton County Subdivision and Land Development Ordinance.

7. Any tree growing on or over a public right-of-way.
8. Pruning or removal of trees within the right-of-way by utility companies for maintenance of utility wires or pipelines and the pruning of trees within sight easements.²
9. Those projects that have received major subdivision or site plan approval prior to the effective date of this Article and amended major subdivision and site plans.

SECTION 400. CONSTRUCTION-RELATED TREE CUTTING

- A. Every existing tree, eight (8) inches or more in DBH, that is removed because of a land disturbing or land developing activity shall be replaced on a 1:1 basis with a native tree that has the same maximum height and growth rate of the tree to be removed. Where large maturing trees are required and overhead utility lines exist, smaller native trees shall be substituted. If the number of trees removed that are at least eight (8) inches DBH cannot be identified, each stump (if available) will be inspected and the width of each tree removed will be determined by an ISA certified arborist.³
- B. The replacement trees shall be selected from the (Municipality) Subdivision and Land Development Ordinance.⁴ The trees shall be not less than two (2) inches caliper.⁵ The trees shall be at least ten (10) feet tall after planting and trimming. Trees shall not be planted within the tree protection zone of another tree. A maximum of 30% of the required trees may be replaced as evergreen trees.

² Tree trimming is very important. For example, the August 14, 2003 blackout that affected the Northeastern United States was caused in part by lax tree trimming near and under high voltage power lines. Three of First Energy's major 345-kV lines in Ohio malfunctioned due to hitting an overgrown tree that should have been trimmed. Utility companies can trim trees under franchise and easement agreements with the municipality. If municipalities are concerned with how utility companies trim existing trees in the right-of-way, they can add design standards to their ordinance. An excellent reference on the subject is "Pruning Trees Near Electric Utility Lines: A Field Pocket Guide For Qualified Line-Clearance Tree Workers" by Dr. Alex L. Shigo.

³ The International Society of Arboriculture (ISA) identifies professional arborists who have a minimum of three years full-time experience working in the professional tree care industry and who have passed an extensive examination on several significant areas of arboriculture.

⁴ Guidance on the "type" of tree can usually be found in the municipal Subdivision and Land Development Ordinance.

⁵ Larger trees take longer to establish than smaller ones. Many people assume that the larger the tree, the better. While larger, more expensive trees create an instant landscape, they are slower to establish and grow. While roots of large and small trees grow at the same rate (roughly 18 inches a year), it takes the large tree several years longer to regain the size of its original root system. The larger the tree, the longer the period of slow top growth after replanting. For example, a 2-inch caliper tree will reestablish its root system in two years; a 4-inch caliper tree will take four years. A 4-inch caliper tree will not grow much in the first few years. During that time, it allocates all of its energy to root development. In most cases it is better to require a smaller tree that will quickly establish and grow to the size of the bigger, more expensive tree.

- C. Where ten (10) or more replacement trees are required, not more than fifty (50) percent of the replacement trees shall be of the same species of tree without the approval of (Municipality).
- D. The replacement trees may be placed on the site at any location selected by the property owner as long as such location does not violate any other provision of this Article.⁶
- E. Any replacement tree which is not alive or healthy, as determined by (Municipality), or which subsequently dies due to construction activity within one (1) year after the date of project closure, shall be removed by the Applicant and replaced with a new healthy tree meeting the same minimum size requirements within six (6) months of removal.

SECTION 500. TREE PROTECTION STANDARDS

- A. No change in existing grade shall be permitted within the tree protection zone. Appropriate fencing or other means of demarcation acceptable to (Municipality) shall be placed for the duration of construction at the tree protection zone of trees being retained and that are adjacent to construction. Roots of trees being retained shall not be cut.
- B. No boards or other materials shall be nailed or otherwise attached to trees during construction.
- C. Construction materials, equipment, soil and/or debris shall not be stored nor disposed of within the tree protection zones of trees being retained, except for mulched vegetative matter used to prevent soil compaction.
- D. Tree trunks, limbs and exposed roots damaged during construction shall be protected from further damage by being treated immediately in accordance with ISA standards.
- E. Any clearing within the tree protection zone shall be done by hand-operated equipment.

SECTION 600. TIMBER HARVESTING GENERAL REGULATIONS

- A. When a property owner wishes to conduct, or permit to be conducted, a timber harvesting operation on his or her property, such owner shall obtain a timber harvesting permit from (Municipality).
- B. A timber harvesting permit shall not apply to:
 - 1. Work performed on clearing subdivision roads and rights-of-way approved by (Municipality).

⁶ A municipality should not require a landowner to plant replacement trees offsite. It should be voluntary. In *John Trojnacki v. Solebury Township Board of Supervisors*, No. 1389 C.D. 2003 (Pa Cmwlth. 2003), the Commonwealth Court ruled that the required offsite tree replacement is invalid under the Pennsylvania MPC. We discuss this case in the narrative.

2. Work performed in accordance with a land development plan approved by (Municipality).⁷
 3. The cutting of trees for the personal use of the landowner or for pre-commercial timber stand improvement⁸ on lots less than one acre in size. Timber harvested for the above stated purposes will not leave the site.
- C. (Municipality) shall be notified in writing before any timber harvesting operation begins and terminates. (Municipality) shall be notified five (5) business days prior to starting the timber harvest and five (5) business days prior to terminating the operation.

SECTION 700. SUBMISSION REQUIREMENTS FOR PERMIT APPLICATION FOR TIMBER HARVESTING OPERATIONS

- A. Any timber harvesting operation shall be undertaken in accordance with a Timber Harvesting Plan approved by (Municipality). All Timber Harvesting Plans shall be submitted to (Municipality) for review for compliance with the standards for timber harvesting operations set forth herein not less than forty-five (45) days prior to commencement of the timber harvesting operation. Within thirty (30) days of submission to (Municipality), a Timber Harvesting Plan shall be approved, denied or approved subject to reasonable conditions and the Applicant so notified in writing.
- B. Any Timber Harvesting Plan submitted to (Municipality) for review and approval shall include a plan or plans indicating the following information:
1. Purpose of the proposed operation.
 2. Name, address and telephone number of forestry operator.
 3. Total land area involved in the proposed timber harvesting operation.
 4. Total number of trees selected for harvesting.
 5. Erosion and sedimentation plan.
 6. Reforestation narrative outlining the revegetation of the land area, skid trails and harvest areas.
 7. A chart indicating the quantity of trees and the species of trees selected for harvesting.

⁷ Article I, Section 107 of the Pennsylvania Municipalities Planning Code defines “forestry” as the management of forests and timberlands when practiced in accordance with accepted silvicultural principles, through developing, cultivating, harvesting, transporting, and selling trees for commercial purposes, which does not involve any land development.

⁸ The regulations have been drafted with commercial timber harvesting in mind, and on small sites, timber harvesting is generally reserved for personal uses such as firewood and limited cutting associated with stand improvement, the impacts of which are minimal on the municipality. If a municipality is concerned, for example, that a property owner is in the business of selling firewood for profit, the municipality could enforce the onsite provision.

8. Site location and boundaries of both the entirety of the property upon which the timber harvesting operation shall occur and the specific area proposed for timber harvesting.
 9. The general location of the proposed operation in relation to municipal and state roads and any proposed accesses to those roads.
 10. Existing watercourses, floodplains and wetlands.
 11. The required fifty-foot (50) buffer along any harvesting area, landing area, public road, watercourse or wetland as specified in Section 800 (A).
 12. Topography of the property, including all slopes of 25% or greater.
 13. Earth disturbance locations, including skid trails and landing areas.
 14. Design, construction, maintenance and retirement of the access system, including haul roads, skid roads, skid trails and landings.
 15. Design, construction and maintenance of water control measures and structures.
 16. Design, construction and maintenance of proposed stream and wetland crossings.
- C. Before any permitted timber harvesting operation begins, all trees that are at least eight (8) inches DBH to be felled in connection therewith shall be clearly marked on the trunk and the stump so that the same may be easily identified both before and after a tree has been felled. No tree or stand of trees shall be felled that has not been designated for removal on the approved Timber Harvesting Plan.
- D. Any permits required by any other agency under any applicable regulation shall be the responsibility of the landowner or timber harvesting operator as applicable. Copies of all required permits shall be submitted to (Municipality) at least twenty (20) days prior to commencement of the timber harvesting operation.

SECTION 800. TIMBER HARVESTING OPERATION REGULATIONS

- A. A fifty-foot (50) buffer zone, within which no timber harvesting shall occur, shall be required between the boundary of any timber harvesting area and any public street, road, or watercourse or wetland.
- B. Timber harvesting is prohibited within a floodplain and wetlands.
- C. Clear-cutting is permitted on slopes of 15% but less than 25% where it is done for the purposes of managing or improving the natural habitat. Clear-cutting is prohibited on areas with slopes of 25% or greater.⁹

⁹ This particular regulation is discussed on page 12 in our summary of *Chrin Brothers, Inc. v. Williams Township ZHB*. The regulation is consistent with our model regulations on steep slopes. Clear-cutting is only one method to harvest timber on a site. Other methods are available and are discussed on pages 13-15.

- D. Trees falling on adjacent properties as a result of a timber harvesting operation shall be returned immediately to the landowner's property, who shall be responsible for any damage, cost or restoration to the affected adjacent property.
- E. Felling or skidding on or across any public road or right-of-way is prohibited without the express written consent of (Municipality) or the Pennsylvania Department of Transportation, whichever is responsible for maintenance of such public road or right-of-way.
- F. No treetops or slash shall be left:
 - 1. Within fifty (50) feet of any public road, street, adjacent property or private roadway providing access to any adjoining property.
 - 2. On or across the boundary of any property adjoining the timber harvesting operation without the written consent of the owner thereof.
 - 3. In a floodplain or wetland.
- G. All tree tops, limbs and slash shall be cut to a height of no more than four (4) feet above ground level.
- H. The stumps of all felled trees shall be permitted to remain for soil stabilization provided that they extend no more than two feet (2') above grade.
- I. Littering is prohibited and litter resulting from a timber harvesting operation shall be removed from the site on a daily basis.
- J. During the periods of abnormal forest fire danger, as determined by (Fire Company that serves the site of the timber harvest), (Municipality) shall have the authority to order a suspension of timber harvesting operations until the danger subsides.
- K. (Municipality) shall have the authority to order the suspension of any timber harvesting operation if, in the opinion of (Municipality), conditions created by the spring thaw, adverse weather or any other cause makes soil erosion likely.
- L. Upon completion of the timber harvesting operation, all disturbed areas including, but not limited to, the landing areas and skid trails shall be revegetated pursuant to the Timber Harvesting Plan approved by (Municipality).
- M. A timber harvesting operation shall not include any onsite processing of harvested trees or manufacturing except as defined in a Timber Harvesting Plan approved by (Municipality).¹⁰
- N. Pursuant to Title 75 of the Pennsylvania Consolidated Statutes, Chapter 49, and Title 67 Pennsylvania Code, Chapter 189, the landowner and the operator shall be responsible for repairing any damage to (Municipality) roads caused by traffic associated with the timber harvesting operation, to the extent the damage is in excess of that caused by normal traffic,

¹⁰The definition of forestry in the MPC does not include onsite processing of the harvested trees or manufacturing of wood products from those trees. Municipalities should define these activities as separate uses, with design standards, and when defining timber harvesting, to exclude tree processing and manufacture of wood products.

and shall be required to furnish a bond to guarantee the repair of such potential damages, as determined by the (Municipality) with advice from the Municipal Engineer.

SECTION 900. RIGHT TO INSPECT

- A. (Municipality), by its own personnel or outside agent, may enter upon the site of any proposed timber harvesting operation after an application to conduct such operation has been filed for the purpose of reviewing the plans for the proposed operation and thereafter recommending or opposing the proposed operation or recommending or requiring changes or modifications thereto.
- B. After a permit for a timber harvesting operation has been issued, (Municipality) shall have the right by its own personnel or agent, to enter upon the site before, during and after the timber harvesting operation to ensure and require compliance with both the plans for said operation as finally approved and all of the terms and provisions of this Ordinance.

SECTION 1000. VIOLATIONS

- A. Upon finding that a timber harvesting operation is in violation of any provision of this Article, (Municipality) shall issue the logging operator and the landowner a written notice of violation in accordance with the provisions of this Ordinance regarding enforcement notices¹¹, describing each violation and specifying a date by which corrective action must be taken.
- B. (Municipality) may order the immediate suspension of any timber harvesting operation and may institute any appropriate action to prevent, restrain, correct or abate the violation of this Article upon finding that:
 - 1. Corrective action has not been taken by the date specified in a notice of violation.
 - 2. The operation is proceeding without a Timber Harvesting Plan.
- C. Suspension orders shall be in writing and shall be issued to the forestry operator and the landowner and shall remain in effect until the timber harvesting operation is brought into compliance with this Article or other applicable statutes or regulations.

SECTION 1100. DEFINITIONS

Caliper. The diameter of a tree trunk measured in inches, six (6) inches above ground level for trees up to four (4) inches at DBH and twelve (12) inches above ground level for trees over four (4) inches at DBH.

Diameter at Breast Height or DBH. The diameter of a tree is measured at a height of 4.5 feet above the ground, on the uphill side of the stem, using a tree caliper, a diameter tape or a Biltmore stick.

¹¹ This section provides some specific language relative to violations of a timber harvesting permit. A zoning ordinance usually has a section on violation notices and enforcement procedures that should be followed or referenced. Any enforcement action taken by the municipality should be consistent with Section 616.1, 617 and 617.2 of the Pennsylvania MPC.

Dripline. The outside edge of the area located directly beneath the canopy of a plant upon which rain is intercepted before it falls to the ground.

Evergreen tree. A tree having foliage that persists and remains green throughout the year.

Felling. The act of cutting a standing tree so that it falls to the ground.

Forestry Operator. An individual, partnership, company, firm, association or corporation engaged in timber harvesting, including the agents, subcontractors and employees thereof.

Haul road. A constructed road of dirt and/or gravel utilized for moving cut trees from the point where they are loaded on a truck to exit from the site.

Invasive Species. Any species of tree that has been introduced to an environment where it is not native, and that has since become a nuisance through rapid spread and increase in numbers, often to the detriment of native tree species.

ISA. International Society of Arboriculture.

Land disturbing activity. Any change of the land surface including removing vegetative cover, excavation, filling, grading and/or the construction of any structure. An agricultural activity such as the planting, growing, cultivating and harvesting of crops is exempt from this definition.

Landing. The place where logs, pulpwood or firewood are assembled for transportation to a processing facility.

Landscaping. The design, location, planting and removal of vegetation on a lot by a landowner for the purposes of achieving a desirable appearance.

Landowner. The legal or beneficial owner or owners of land.

Litter. Discarded items not naturally occurring on the site.

Personal Use. A good, product or resource used for personal consumption and not in a trade or business.

Pre-Commercial stand improvement. A forest practice such as thinning or pruning that results in better growth, structure, species composition or health for the residual stand but that does not yield a net income to the landowner.

Skid road. An improved road that is used by forestry equipment to transport felled trees to the landing site and can be used by other vehicles.

Skid trail. A path travelled by ground skidding equipment while moving trees or logs to a landing.

Skidding. The dragging of felled trees on the ground from the stump to the landing by any means.

Slash. Woody debris left in the woods after timber harvesting, including logs, chunks, bark, branches, uprooted stumps, and broken or uprooted trees or shrubs.

Stand. Any area of forest vegetation whose site conditions, past history and current species composition are sufficiently uniform to be managed as a unit.

Stump. The base part of a tree that remains standing after the tree has been felled.

Thinning. The systematic removal of selected trees to improve the health and growth of the residual stand.

Timber Harvesting Operation. Process of cutting down trees, removing logs from the forest for the primary purpose of sale or commercial processing into wood products.

Tree. Any self-supporting woody plant, not less than a two (2) inch caliper.

Tree maintenance. An operation performed on a tree for the removal of any branches, alive, diseased, or dead, in order to prevent or suppress diseases or to balance or shape the tree for any reason.

Tree Protection Zone. An area that is radial to the trunk of a tree in which no construction activity shall occur. The zone shall be at least five (5) feet beyond the dripline of the tree. Where there is a group of trees or woodlands, the zone shall be the aggregate of the protection zones of the trees.

Treetop. The upper portion of a felled tree that is not merchantable because of small size, taper or defect.

Vegetation. Trees, shrubs, ground cover and other plants that stabilize the soil.

LEHIGH VALLEY PLANNING COMMISSION MODEL REGULATIONS NET OUT ZONING REGULATION FOR THE BLUE MOUNTAIN

SECTION 100. PURPOSES

- A. (Municipality) recognizes that the Blue Mountain 1) is an exceptional natural feature in the Lehigh Valley; 2) has the most extensive, relatively contiguous area of natural habitat in the two counties; 3) is one of the major corridors for the movement of biota in eastern Pennsylvania; 4) has extensive forests, streams, seeps, vernal pools, rock outcrops and boulder fields; 5) contains other natural areas of statewide or local significance¹; and 6) includes approximately twenty-five (25) miles of the Appalachian Trail within the Lehigh Valley.
- B. The purpose of this Article is to define, delineate, protect and preserve the environment and character of the Blue Mountain through the preservation of natural resources, including but not limited to the Appalachian Trail, floodplains, surface waters, riparian and wetland buffers, slopes of 15% or greater, and woodlands.

SECTION 200. APPLICABILITY

- A. This article shall apply to all applications for earth disturbance permits, grading permits, subdivision and land development applications in the __ zoning district.
- B. The landowner or applicant shall be required to identify all environmental features on a lot. This inventory shall include the following resources: the Appalachian Trail, floodplains, surface waters, riparian and wetland buffers, slopes of 15% or greater, watercourses, wetlands, environmentally sensitive woodlands and woodlands.
- C. For any subdivision or development of a parcel equal to or greater than five² acres in area, an aerial photo showing features within 1,000 feet of the parcel shall also be submitted.
- D. Maps and accompanying calculations shall be submitted with the site plan and shall include the following:
 - 1. All encroachments and land disturbance activity necessary to establish the proposed use on the site.
 - 2. Calculations which indicate the area of the site with environmental features; the area of environmental features that would be disturbed or encroached upon; and the area of the site which must be left undisturbed to protect environmental features under this section.
- E. Site alterations, regrading, filling, or clearing of any environmental features prior to the submission of plans for subdivision or land development shall be a violation of this Article.

¹ This is from the *Lehigh Valley Greenways Plan*, page 69.

² This number can be the minimum lot size in the zoning district, or no number at all. By removing an acreage requirement from this subsection, all subdivisions and land developments, regardless of tract size, would have to comply with the regulation.

SECTION 300. GENERAL REGULATIONS

- A. Areas of environmental features listed in Section 400 shall be subtracted from the gross area of the tract after the environmental features are multiplied by the resource protection factor in Section 500. This will result in two areas: 1) Buildable area and 2) Areas of environmental features.
- B. Environmental features shall not be altered, filled, regraded, cleared or developed unless permitted by Section 400.
- C. Environmental features shall be counted towards recreation land dedication or recreation fee requirements that may be required under another section of this Ordinance or the (Municipality) Subdivision and Land Development Ordinance.³
- D. No building lot shall be created unless it contains sufficient buildable area to satisfy the minimum lot size of the use in the zoning district.⁴
- E. For uses with on-lot sewage systems, a minimum area as required by *PA Code, Title 25, Chapter 73.16*, shall be identified for the location of the absorption area. Such area shall not include environmentally constrained land with a 100 percent (100%) protection standard or the portion of those natural features that may not be developed as specified in Section 400.

SECTION 400. ENVIRONMENTAL FEATURE PERFORMANCE STANDARDS

- A. The applicant shall determine the presence of environmental features on the site and shall meet the following standards for environmental protection:
 - 1. 100-year Floodplains. Such areas shall not be altered, filled, regraded, cleared or developed.
 - 2. Slopes. In areas of 15-25% and 25% or greater slope, the following standards shall apply:
 - a. Slopes of 15% but less than 25%. No more than thirty percent (30%) of such areas shall be developed and/or regraded or stripped of vegetation.
 - b. Slopes of 25% or more. Such areas shall not be developed and/or regraded or stripped of vegetation.

³ Most subdivision ordinances require recreation land or fee in lieu of land dedication for residential subdivisions. Under this ordinance, in most cases, a property owner is already required to set aside natural features as open space. This specific provision does not permit the municipality to “double dip” on recreation land or fees by requiring recreation land or fees in lieu in addition to the land already set aside for open space as required in this model regulation.

⁴ This regulation aims to prevent the creation of lots through subdivision or lot line adjustment plans that likely would require a request for relief from the Blue Mountain Protection regulations.

- c. Steep slope standards do not apply to isolated steep slope areas that are less than 5,000 square feet in land area.⁵
3. Woodlands. The following standards shall apply to woodlands:
 - a. Environmentally Sensitive Woodlands. Woodlands located in environmentally constrained areas shall not be altered, regraded, cleared or developed.
 - b. Other Woodland areas. No more than fifty percent (50%) of woodlands which are not located in environmental features shall be altered, regraded, cleared or developed.
4. Surface Waters. Such areas shall not be altered, filled, regraded, developed, piped or diverted except where approval is obtained from (Municipality), the Pennsylvania Department of Environmental Protection, and the U.S. Army Corps of Engineers (for wetlands).
5. Riparian Buffer. Such areas shall not be altered, filled, regraded, cleared or developed except as permitted below:⁶
 - a. Roads, bridges, trails, storm drainage, stormwater management facilities and utilities are permitted within the buffer provided that an alternatives analysis has clearly demonstrated that no other feasible alternative exists and that minimal disturbance will take place.
 - b. Stream restoration projects and activities approved by (Municipality).
 - c. Horticulture practices used to maintain the health of vegetation in the riparian buffer.
 - d. Removal of non-native vegetation or trees in danger of falling, causing damage to dwellings or other structures, or the blockage of a watercourse.
 - e. Agricultural uses existing at the time of adoption of this article with best management practices.
6. Wetland Buffer. Such areas shall not be altered, filled, regraded or developed.
7. Appalachian Trail Buffer. Such areas shall not be altered, regraded, cleared or developed.⁷

⁵ The use of a minimum area of steep slope provides for some flexibility in site design and allows the local municipality flexibility in implementing the desired level of stringency.

⁶ The uses are consistent with the uses found in the LVPC model regulation for riparian buffers.

⁷ In the event that there is private property adjacent to the Appalachian Trail, a 1,000 foot buffer shall be provided between the Trail and any proposed development. The *Appalachian National Scenic Trail Overlay District* model ordinance, prepared by Wallace Roberts & Todd for the DCED Act 24 Implementation program, recommends a buffer of 500-2,500 feet.

SECTION 500. SITE CAPACITY CALCULATIONS

A. For all subdivisions and land developments, the following calculations shall be submitted with the site plan:

B. Calculate Base Site Area.

Gross site area (from property survey):	_____ ac.
Subtract: Land within existing rights-of-way:	- _____ ac.
Subtract: Land within required rights-of-way of existing streets:	- _____ ac.
Equals base site area:	= _____ ac.

C. Calculate Environmental Resource Land. Calculate environmental resources within the base site area. Should two or more features overlap, only the constraint with the highest protection factor shall be used.⁸

Resource	Resource Protection Factor	X	Acres of Land In Resource	=	Resource Protection Land
Floodplain	1.00	X		=	acres
Surface Waters	1.00	X		=	acres
Riparian Buffer	1.00	X		=	acres
Wetland Buffer	1.00	X		=	acres
Slope (25% or more)	1.00	X		=	acres
Slope (15% to 25%)	.70	X		=	acres
Woodlands					acres
Environ. Sensitive	1.00	X		=	acres
Other	.50	X		=	acres
Appalachian Trail Buffer	1.00	X		=	acres
Total Land With Resources				acres	
Total Land for Resource Protection					acres

D. Calculate net buildable site area.

(1)	Base site area (500B)	_____ ac.
(2)	Subtract total environmental resources (500C)	- _____ ac.
(3)	Equals buildable site area	= _____ ac.

⁸ There will be many areas where natural features will overlap one another. Given that a factor of 1.00 is 100% preservation of a natural feature, a woodland located in the Appalachian Trail buffer would be 100% protected. In the example of other woodlands being located on a slope of 18%, 70% of the woodlands would have to be preserved.

SECTION 600. VARIANCES

- A. Should a dispute concerning the presence, extent and/or location of a particular environmental feature arise, the initial determination of the Zoning Officer may be appealed to the (Municipality) Zoning Hearing Board (ZHB). The burden of proof shall rest with the applicant.
- B. The Zoning Hearing Board may determine that limited areas of environmental resources may be disturbed in order to secure a reasonable development of the site.
- C. Applications filed with the ZHB shall contain the basis for the appeal of the Zoning Officer or Engineer's decision and a description of the relief requested. Plans submitted shall be prepared by a licensed professional acceptable to the ZHB and shall include the following:
 - 1. Maps and accompanying calculations consistent with Section 200(D)(1) and (2);
 - 2. Location of any proposed building or structure; and
 - 3. Any other information deemed relevant by the ZHB.
- D. In addition to these standards and criteria, the following shall be considered by the ZHB in rendering affirmative decisions where applicable:
 - 1. A showing of good and sufficient cause.
 - 2. Whether strict application of this article would deny the applicant reasonable use of the property, or whether the article would have severe impact and would render the property unusable for development.
 - 3. Whether plan modifications or conditions of approval can achieve conservation objectives of this article and the (Municipality) Comprehensive Plan.
 - 4. That the relief granted is the minimum necessary and does not create additional threats to public safety, extraordinary public expense, nuisances or conflict with any other municipal state or federal regulations.

SECTION 700. DEFINITIONS

Appalachian National Scenic Trail (or Appalachian Trail). A 2,178 mile long trail extending from Maine to Georgia owned by the National Parks Service. The Appalachian Trail is maintained by the Appalachian Trail Conservancy and volunteer trail management groups.

Appalachian Trail Buffer. A minimum width of one thousand (1,000) feet from the Appalachian Trail centerline as designated by the Appalachian Trail Conservancy.

Appalachian Trail Conservancy. A volunteer-based organization dedicated to the preservation and management of the natural, scenic, historic, and cultural resources associated with the Appalachian National Scenic Trail.

Buildable Area. The amount of land available for development or uses permitted in the ___ zoning district after the areas of environmental features have been deducted from the gross area of the tract.

Encroachment. Construction, placement of fill or similar alteration of topography into an environmental feature.

Environmental feature. Any land or water area containing one or more of the following: the Appalachian Trail, floodplains, surface waters, riparian and wetland buffers, steep slopes, watercourses, wetlands and woodlands.

Environmentally sensitive woodlands. Areas of woodlands that are located in any or a combination of floodplains, wetlands, riparian and wetland buffers and slopes of 25 percent or greater.

Floodplain. A relatively flat or low land area which is subject to partial or complete inundation from an adjoining or nearby stream, river or watercourse; and/or any area subject to the unusual and rapid accumulation of surface waters from any source. For the purpose of this Ordinance, the floodplain area shall include the following areas:

1. The Floodway Area (FW) - The areas identified as "Floodway" in the AE Zone in the Flood Insurance Study prepared by FEMA. The term shall also include floodway areas which have been identified in other available studies or sources of information for those floodplain areas where no floodway has been identified in the Flood Insurance Study. Such studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough technical review by (Municipality).
2. The Flood-Fringe Area (FF) - The portion of the AE Zone not included in the Floodway. The basis for the outermost boundary of this area shall be the base flood elevations shown in the flood profiles contained in the Flood Insurance Study.
3. The General Floodplain Area (FA) - The areas identified as A Zone in the Flood Insurance Study for which no base flood elevations have been provided.

Land development. Any of the following activities: (1) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving: (i) a group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure; or (ii) the division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features; (2) A subdivision of land.

Land disturbance activity. Any change of the land surface including removing vegetative cover, excavation, filling, grading and/or the construction of any structure. An agricultural activity such as the planting, growing, cultivating and harvesting of crops is exempt from this definition.

Riparian Buffer. Measured seventy-five (75) feet from the top of the streambank of a watercourse, an area of trees and other vegetation adjacent to a watercourse or wetland that forms a

transition area between the aquatic and terrestrial environment, and designed to intercept runoff for the purpose of mitigating the effects of nutrients, sediment, organic matter, pesticides, or other pollutants before entry into surface waters and to provide control of water temperature.

Slopes of 15% but less than 25%. Slopes of fifteen (15) percent but less than 25% (e.g., sloping fifteen (15) feet or more vertical per one hundred (100) feet horizontal) when there are five (5) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope of at least fifteen (15) percent but less than 25%.

Slopes of 25% or more. Slopes of twenty-five (25) percent or greater slope (e.g., sloping twenty-five (25) feet or more vertical per one hundred (100) feet horizontal) when there are five (5) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope of at least twenty-five (25) percent.

Subdivision. The division or redivision of a lot, tract or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisees, transfer of ownership or building or lot development provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwelling, shall be exempted.

Surface waters. Perennial and intermittent watercourses such as streams, rivers, lakes, reservoirs, ponds, wetlands, springs, natural seeps and estuaries, excluding water at facilities approved for wastewater treatment such as wastewater treatment impoundments, cooling water ponds and constructed wetlands used as part of a wastewater treatment process.⁹

Watercourse. A watercourse is a channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow. Manmade swales, constructed specifically for stormwater management purposes, are excluded from this definition.

Wetland. All lands regulated as wetlands by the Pennsylvania Department of Environmental Protection and/or the United States Army Corps of Engineers. Such areas are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas.

Wetland Buffer. Measured seventy-five (75) feet from the outer edge of a wetland, a transitional area extending from the outer limit of a wetland.

Woodland. A tree mass covering an area of 10,000 square feet or more, in which tree species are dominant, and the branches of the trees form a complete, or nearly complete aerial canopy. The extent of any woodland or any part thereof shall be measured from the outermost drip line of all the trees in such woodland.

⁹ This definition is consistent with the definition of surface waters found in *PA Code, Title 25, Chapter 93.1*.

Model Appalachian National Scenic Trail Overlay DistrictPrepared by Wallace Roberts & Todd; Revised 11/9/09

ORDINANCE NO. _____ OF 2009

AN ORDINANCE OF _____ TOWNSHIP AMENDING THE _____ TOWNSHIP ZONING ORDINANCE OF _____, AS HERETOFORE AMENDED, BY ADOPTING AN “APPALACHIAN TRAIL OVERLAY DISTRICT,” DESIGNED TO (i) COMPLY WITH ACT 24 OF 2008 AND (ii) ADD ADDITIONAL PROTECTIONS TO THE PORTION OF THE APPALACHIAN NATIONAL SCENIC TRAIL WHICH TRAVERSES THE TOWNSHIP.

UNDER AND BY VIRTUE OF THE AUTHORITY OF THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, 53 P.S. SECTION 10101, ET. SEQ., AND ACT 24 OF 2008, THE BOARD OF SUPERVISORS OF _____ TOWNSHIP DOES HEREBY ENACT AND ORDAIN THE FOLLOWING AMENDMENTS TO THE _____ TOWNSHIP ZONING ORDINANCE OF _____.

Note:

This model overlay district is one of many tools described by “A Conservation Guidebook for Communities along the Appalachian National Scenic Trail.” More information specific to base zoning, natural resource zoning districts, overlay districts, and performance standards is located in Section 3 of the Conservation Guidebook. <http://www.apptrailpa.org>

Section 1. General Purposes

- a. Meet the Act 24 requirements that Pennsylvania municipalities along the Appalachian National Scenic Trail take such action consistent with applicable law, as at least an interim measure, to preserve the natural, scenic, historic, and aesthetic values of the Trail and to conserve and maintain it as a public natural resource.
- b. Protect important natural and historic resources by maintaining a natural resource buffer along the Appalachian Trail. This natural resource buffer is intended to provide a physical and visual screen from the impacts of new development along the Appalachian Trail.

Note: each municipality adopting this Overlay District may tailor its natural resource buffer based on local conditions and environmental resources. The natural resource buffer may be more specifically defined as woodlands, tree cover, steep slopes, open space and fields, farmland, riparian resources, etc. based on the local context.

- c. Preserve the scenic and topographic conditions along the Appalachian Trail that are vital to the Trail's natural and scenic quality by maintaining the existing tree canopy and protecting viewsheds.
- d. Prevent negative noise, light, or other environmental impacts associated with land uses near the Appalachian Trail.
- e. Promote connections with municipal trails and greenways and integration with a community's natural resource system.
- f. Provide benefits to communities along the Appalachian Trail often associated with greenways (e.g., improve community health, increase recreational opportunities such as biking and hiking, and increase property values, etc.).

Section 2. Applicability. For any lot or portion thereof within the Appalachian Trail National Scenic Trail Overlay District, the regulations of the Overlay District shall take precedence over any regulations of the underlying district which are in conflict with those of the Overlay District.

***Note:** The Overlay District regulations do not cover all aspects of zoning, such as impervious cover limits. Therefore, certain provisions (e.g., area and bulk requirements) of the underlying district regulations will still be applicable.*

Section 3. Primary Conservation Zone. A lot or property located within the Primary Conservation Zone as hereinbelow delineated shall be used only in accordance with the following regulations.

***Note:** The Primary Conservation Zone is intended to conserve the environmental, agricultural, and recreational resources and scenic quality of the land immediately surrounding the Appalachian Trail and protected corridor.*

- a. **Delineation.** A minimum width of ____ feet from the **protected corridor**, or ____ feet from the **Appalachian Trail centerline** (as designated by the Appalachian Trail Conservancy), whichever is greater, or an area equal to the extent of steep slopes over 15% (or other natural features) measured from the Appalachian Trail Centerline.¹

Note: each municipality should determine an area appropriate for the Primary Conservation Zone on the basis of the municipality's review of natural features such as slopes, soils, vegetation, streams and existing land use patterns. A municipality has the option to choose either the distance

¹ Include language requiring that applicants accurately show the alignment of the Appalachian Trail and existing protected lands, at a level of accuracy acceptable to the municipality. An aerial photograph with GIS file showing the Trail alignment is recommended and available online from the Appalachian Trail Communities Network website.

method (e.g., minimum of 100' from the protected corridor, or 500' from the AT centerline) or an area defined by its review of natural features (e.g., steep slopes, agricultural soils, etc.). Within a borough or village setting the primary conservation zone may be quite narrow following a street or sidewalk.

b. Permitted Uses.

Note: each municipality can tailor this list based on local conditions and the width of the Primary Conservation Zone that is being regulated. Permitted uses may include:

- i. Open space, primarily passive recreational uses (e.g., public or private trail, parkland, nature preserves, forest preserves, fishing areas)
- ii. Forestry (without structures and as approved by the County Conservation District), reforestation, in accordance with the requirements of Section ____ of the Zoning Ordinance

Protecting Forestlands

Regulating forestry practices and preservation of trees is essential in many communities for protecting the environment of the Appalachian Trail. The MPC allows municipalities to regulate timber harvesting and other similar **Forestry uses. See an excellent local example for protection/model woodlands regulations, Lehigh Valley Planning Commission.**

[Model Woodland Regulations](#)

Note: Section 603(f) of the Pennsylvania Municipalities Planning Code mandates that “forestry activities, including but not limited to, timber harvesting, shall be a permitted use by right in all zoning districts in every municipality.” That section of the MPC also states that “zoning ordinances may not unreasonably restrict forestry activities.” This clause c.ii is intended to refer to the provision in the existing zoning ordinance of the municipality that regulates forestry activities in the municipality.

- iii. Agriculture (without structures)
- iv. No structures other than federal, state, or municipally-owned structures are permitted in the Primary Conservation Zone
- iii. Municipal uses

c. Prohibited Activities. The following activities are prohibited within the Primary Conservation Zone.

Note: each municipality can tailor this list based on local conditions and the width of the Primary Conservation Zone. Prohibited activities may include:

- i. Clearing of vegetation, other than (i) maintenance by a federal, state, or municipal agency, the Appalachian Trail Conservancy (ATC), or Trail Club (partnered with the ATC), and (ii) permissible timber harvesting as authorized in subsection c.ii above
- ii. Storage of hazardous/noxious materials
- iii. Use of motor or wheeled vehicle traffic, except for agriculture, recreation, or forestry uses
- iv. Construction of parking lots, except for federal, state, or municipally-owned lots
- v. Construction of any type of permanent structure, except for federal, state, or municipally-owned structures
- vii. Installation of above-ground utilities including cell and wind towers
- viii. *Other uses as defined by individual municipalities*

Section 4. Secondary Conservation Zone. A lot or property located within the Secondary Conservation Zone as hereinbelow delineated shall be used only in accordance with the following regulations.

Note: The Secondary Conservation Zone is intended to conserve the environmental, agricultural, and recreational resources and scenic quality of the land immediately surrounding the Primary Conservation District. Establishing a Secondary Conservation Zone is optional, but strongly recommended for each municipality adopting this overlay district. In rural locations conservation subdivision design with permanently preserved open space should be encouraged where appropriate. Within a borough or village setting the secondary conservation zone may be adjusted based on the local built environment and visibility from the Appalachian Trail.

- a. **Delineation.** A minimum width of ___ feet from the edge of the Primary Conservation Zone or an area equal to the extent of steep slopes over 15% (or other natural features) from the edge of the Primary Conservation Zone.

Note: Similar to the Primary Zone, each municipality should determine an area based on the municipality's review of natural features such as slopes, soils, vegetation, streams and existing land use patterns. A municipality has the option to choose either the distance method (e.g., 2,500' from the edge of the Primary Conservation Zone) or an area defined by its review of natural features (e.g., steep slopes). In a borough or village setting the zone may also be defined by the dimensions of an historic building pattern or maintaining the consistency of another physical feature (e.g., a wall, street or treeline)

- b. **Permitted Uses.**

Note: Each municipality can tailor this list based on local conditions and the width of the Secondary Conservation Zone. Permitted uses may include:

For rural districts:

- i. Open space, primarily passive recreational uses (e.g., public or private parkland, nature preserves, forest preserves, fishing areas), reforestation, and steep slope stabilization
- ii. Forestry operations, as approved by the County Conservation District, in accordance with Section _ of the Zoning Ordinance.
- iii. Agricultural uses (*municipality may consider limiting size of any structure*) conducted in compliance with best practices as prescribed by the Pennsylvania Department of Agriculture

Note: Agriculture operations must have a current conservation plan or NRCS approved grazing 528 plan, an agricultural erosion and sedimentation control plan, and a nutrient management plan, if applicable for a CAO or CAFO.

- iv. Residential Structures; permitted using the **Conservation Subdivision Design** process and standards.

Note: Each municipality will need to include a definition and standards for Conservation Subdivision Design.

Conservation Subdivision Design

This type of residential development allows residential dwellings on smaller lots than otherwise permitted by base zoning in exchange for setting aside a significant portion of a development as open space. This approach achieves densities similar to conventional subdivisions through use of a compact development pattern and permanently preserves open space. The **four-step conservation design process** requires the applicant:

- 1) Identify environmentally sensitive or other lands that should be permanently protected and identify potential development areas
- 2) Locate housing units within the potential development area so that open space views are maximized
- 3) Connect future lots with streets and trails
- 4) Draw lot lines fronting street network

For an example see the Paradise Township Conservation Subdivision Ordinance at http://www.apptailpa.org/tools/examples/4/Conservation%20Design_ParadiseTownshipMonroeCounty.pdf

Traditional Neighborhood Development (TND)

TND promotes compact, mixed-use, pedestrian-friendly development patterns modeled after traditional American towns as an alternative to suburban style development. Typical TND characteristics include interconnected streets, buildings oriented toward the street, walkable streets with sidewalks and street trees, accessible public space, and mixed-use buildings (e.g., residential above office building).

For examples of successful TND Ordinances, see the Cranberry Township TND Overlay and Guiding Principles and the Lansdale TND Ordinance:

[Cranberry Township TND](#)
[Lansdale TND Ordinance](#)

- v. Residential Structures; permitted by **conditional use** according to underlying zoning district

For borough or village locations:

- i. Open space, primarily passive recreational uses (e.g., public or private parkland, nature preserves, forest preserves, fishing areas), reforestation, steep slope stabilization
- ii. Residential Structures; permitted using Traditional Neighborhood Development standards
- iii. Commercial and Mixed-use structures; permitted using Traditional Neighborhood Development standards

c. Prohibited Activities. The following activities are prohibited within the Secondary Conservation Zone.

Note: Each municipality has the option to tailor this list based on local conditions and the width of the Secondary Conservation Zone. Prohibited activities may include:

For rural districts:

- i. Clearing of vegetation, other than (i) maintenance by a federal, state or municipal agency, the Appalachian Trail Conservancy (ATC), or trail club (partnered with the ATC), and (ii) permissible timber harvesting as authorized in subsection b.ii above.
- ii. Storage of hazardous/noxious materials
- iii. Construction of parking lots, except for federal, state, or municipally-owned lots
- iv. Installation of above-ground utilities
- v. Construction of any industrial or commercial structures
- vi. *Other activities as defined by individual municipalities*

For borough or village locations:

- i. Storage of hazardous/noxious materials
- ii. Installation of above-ground utilities
- iii. Construction of parking lots, except for federal, state, or municipally-owned lots
- iv. *Other activities as defined by individual municipalities*

Section 5. Development Standards for the Primary and Secondary Conservation Zones. Any use or development of a lot within either the Primary or the Secondary Conservation Zone shall comply with the following development standards:

Note: Municipalities with satisfactory standards for activities such as timber harvesting, agricultural activities, protection of environmentally sensitive areas, landscaping, and viewsheds may not need additional standards in this section.

a. Rural Districts Site Design Standards.

- i. For any structure other than federal, state, or municipal structures constructed within the Secondary Conservation Zone, the minimum setbacks from the edge of the Primary Conservation Zone shall vary by the size of the footprint of the structure, as follows:
 - a. A structure 750 square feet or less shall have a minimum setback of 50 feet
 - b. A structure more than 750 square feet and less than 1,500 square feet shall have a minimum setback of 75 feet
 - c. iii. A structure 1,500 square feet or greater shall have a minimum setback of 100 feet
- ii. Buildings shall be screened with landscaping (native species are preferred) and located on the site in such a way that best preserves viewsheds from the Appalachian Trail

Note: Based on local ordinances and context, potential standards include:

- iii. Any building should be sited in the least visually prominent location of a site;
- iv. Any building shall not be located at the top of a ridgeline or silhouetted against the sky
- v. The scale of any new building should be compatible with existing, adjacent structures
- vi. Buildings shall preserve existing trees 6" caliper DBH (Diameter Breast Height) to the extent possible
- vii. Steep Slope Requirements
 - a. No regrading is permitted on slopes over 15%
 - b. No clear cutting of vegetation on slopes over 15%

Steep Slope Requirements

Steep slopes provide significant groundwater recharge areas and benefits to local water supplies, in addition to natural beauty and vistas. These areas are generally wooded and not suitable for agricultural uses such as pastures or cropland. Wooded steep slopes areas can also be attractive for low-density residential development. The Lehigh Valley Planning Commission's Model Steep Slope Regulations are an excellent source to assist municipalities in regulating development in these areas and protecting regional water supply, natural habitat, and natural beauty. The model regulations limit the type of activities that can occur at varying degrees of steep slope terrain (e.g., 15-25% slopes).

See the Model Steep Slope Ordinance developed by the Lehigh Valley Planning Commission: [Model Steep Slope Ordinance](#)

b. Borough or Village Location Site Design Standards.

- i. Buildings shall be located on the site in such a way that best preserves viewsheds from the Appalachian Trail and is consistent with Traditional Neighborhood Development (TND) practices

Note: Based on local ordinances and context, potential standards include:

- ii. Building Placement: Buildings should be sited close to streets with their primary entrance facing the street
- iii. Building Articulation: Building materials, dimension, and architectural variety should promote an attractive and comfortable pedestrian walking environment
- iv. Parking: Limited parking should be located between the curb and the front of any building. All parking areas should be visible from the street should be screened
- v. Service Areas: all loading docks, trash dumpsters/enclosures, and utility equipment should be prohibited along the front facades of buildings and screened from view at the side or rear of buildings

c. Light and Noise Requirements.

- i. No direct or indirect glare illumination is permitted to spillover from to another property or to measure more than 0.1 footcandles (fc) along a property line
- ii. Any parking lot light fixtures must direct light downward at a 45-degree angle and not project at an angle or up toward the sky
- iii. Limit sound levels to 55 dBA for daytime and 50 dBA for Sundays, holidays and night hours

Section 6. Submissions and Review Process. The following procedures shall apply in any case of a proposed use or development of a lot located entirely or partially within a Primary Conservation Zone and/or the Secondary Conservation Zone.

Note: Municipalities with existing standards for submission and review of development applications may not need additional standards in this section. The following example is an excerpt taken directly from the Eldred Township, Monroe County Zoning Ordinance (See §1202.3 for full text) and can be tailored or may not be necessary based on a municipality's local ordinances.

- a. Applications.** Any request for a decision, interpretation or variance by the Zoning Hearing Board, application for a conditional use, or for a permit under this Ordinance shall be made in writing on a form provided by the Township and in accord with the procedures established by the Township. Such completed application, with any required fees, and with any required site plans or other required information, shall be submitted to the Township employee responsible for processing such application. The applicant is responsible to ensure that a responsible Township official notes the date of the official receipt on the application.

b. Number of Copies. Unless waived by the Zoning Officer, five (5) copies of a site plan shall be submitted if an application requires action by the Zoning Hearing Board or Board of Supervisors, and two (2) copies shall be submitted if action by the Zoning Hearing Board or Board of Supervisors is not required.

c. Information Required. The following information shall be submitted with any application hereunder.

Note: Basic information required includes names, address, location map, adjacent property owners, proposed and existing street and lot layout.

When a “Plot Plan” is required by the Zoning Officer, Planning Commission, Board of Supervisors, etc., the following information is needed:

- i. Existing and proposed man-made and/or natural features: (1) Water courses, lakes and wetlands (with names); (2) Rock outcrops, ledges and stone fields; (3) Buildings, structures, signs and setbacks required by the Zoning Ordinance; (4) Approximate location of tree masses; (5) Utility lines, wells and sewage system(s); (6) Entrances, exits, access roads and parking areas including the number of spaces; (7) Drainage and storm water management facilities; (8) Plans for any required buffer plantings; (9) Any and all other significant features.
- ii. Appalachian Trail Alignment, Protected Corridor, Distance from the Appalachian Trail.

Note: As noted in Section 2 above, a municipality should include language requiring that applicants accurately show the alignment of the Appalachian Trail and existing protected lands, at a level of accuracy acceptable to the municipality. An aerial photograph with GIS file showing the Trail alignment is recommended and available online from the Appalachian Trail Communities Network website.

Definitions

Act 24: An amendment to the 1978 Pennsylvania Appalachian Trail Act, authorizing the PA Department of Environmental Conservation and National Resources to acquire an interest in lands, as may be necessary, to establish, protect, and maintain the Appalachian Trail.

Appalachian National Scenic Trail (or Appalachian Trail): a 2,178.3 mile long trail extending from Maine to Georgia owned by the National Parks Service. The Appalachian Trail is maintained by the Appalachian Trail Conservancy and volunteer trail management groups.

Appalachian Trail Conservancy: a volunteer-based organization dedicated to the preservation and management of the natural, scenic, historic, and cultural resources associated with the Appalachian National Scenic Trail.

<http://www.appalachiantrail.org>

Overlay District: a set of development standards and regulations applied to a delineated area over the area's underlying zoning district regulations. Overlay districts are used for many purposes. Examples include conservation of sensitive environmental features (e.g., waterways) or to encourage mixed-use development (e.g., downtown overlay district).

Protected Corridor: permanently protected federal, state, or municipal land surrounding the Appalachian Trail. Pennsylvania's 229-mile segment of the Appalachian National Scenic Trail is within a protected corridor of varying dimensions that includes National Park Service (NPS) land and state public land (e.g., gamelands). The *Appalachian Trail Communities Network website includes GIS data showing the boundaries of the Protected Corridor.*

<http://www.apptrailpa.org/>

Sources used in developing this Model Overlay include: Appalachian Trail Overlay District - Eldred Township, Monroe County; Montgomery County, PA Riparian Corridor Model Ordinance; Farmington River Overlay Protection Districts in Connecticut; New River Parkway Regulations in West Virginia; and Hillside and Ridgetop Regulations, Asheville, NC Planning Department.

RESOLUTION NO. 2-10**RESOLUTION OF THE LEHIGH VALLEY PLANNING COMMISSION
ADOPTING POLICIES RELATED TO THE PLACEMENT OF WIND ENERGY
FACILITIES IN AREAS DESIGNATED FOR NATURAL RESOURCE
PROTECTION IN THE LEHIGH VALLEY COMPREHENSIVE PLAN.**

WHEREAS, the Lehigh Valley Planning Commission (LVPC), the official planning commission for Lehigh and Northampton counties, was formed in 1961 for the purpose of creating a comprehensive plan to guide orderly growth in the Lehigh Valley region; and

WHEREAS, the Lehigh Valley comprehensive plan entitled *Comprehensive Plan The Lehigh Valley ... 2030* identifies significant natural resources that should be conserved based upon careful studies by the LVPC, the Pennsylvania Science Office of the Nature Conservancy and others, and the installation of wind energy facilities may modify the natural habitat and can have significant adverse impacts on wildlife, especially when located in sensitive natural areas; and

WHEREAS, scientific studies have documented that birds and bats are vulnerable to collisions with wind turbine blades, turbine towers and associated infrastructure, and the Kittatinny Ridge (also known as Blue Mountain) is a significant fall migration flyway used annually by tens of thousands of birds and has been designated as an Important Bird Area by the Pennsylvania Audubon Society; and

WHEREAS, the development of wind energy facilities and their associated support infrastructure (e.g., support roads, storage and maintenance facilities, and power lines) can result in habitat destruction and fragmentation, threatening species survival and biodiversity; and

WHEREAS, wind energy facilities, with their long rows of wind turbines, can span hundreds of acres and could intrude upon significant portions of the Lehigh Valley's scenic landscapes if placed upon scenic greenways such as Blue Mountain or South Mountain; and

WHEREAS, the wind resource at a given site can be classified according to wind power classes, ranging from Class 1 (the lowest) to Class 7 (the highest), and it is generally accepted by wind energy research and industry groups, including the United States Department of Energy National Renewable Energy Laboratory (NREL) and the American Wind Energy Association, that sites with a Class 3 or greater wind power rating may be suitable, and sites with a Class 4 or greater wind power rating are preferred, for wind energy facilities; and

WHEREAS, based upon information contained in wind resource maps created by the NREL, Lehigh and Northampton counties are only marginally suitable for wind energy facilities as they do not contain any large concentrations of land with a Class 3 wind power rating or any sites with a Class 4 or greater wind power rating; and

WHEREAS, the LVPC is concerned that the placement of wind energy facilities within the natural resource protection areas identified in the Comprehensive Plan will create a potential danger to natural landmarks, natural resources, wildlife and scenic views;

NOW, THEREFORE BE IT RESOLVED that the Lehigh Valley Planning Commission hereby adopts the following policies related to the placement of wind energy facilities to promote consistency with the natural resource protection policies of the *Comprehensive Plan The Lehigh Valley ... 2030*.

**LEHIGH VALLEY PLANNING COMMISSION
WIND ENERGY FACILITIES POLICIES**

Goal

To minimize the adverse environmental impacts of wind energy facilities and to protect and preserve very high and high priority natural resources as depicted in the Comprehensive Plan The Lehigh Valley ... 2030.

Definitions

- WIND ENERGY FACILITY – An electric generation facility, whose main purpose is to supply electricity, consisting of one or more wind turbines and other accessory structures and buildings, including substations, meteorological towers, electrical infrastructure, transmission lines and other appurtenant structures and facilities. The term does not include stand-alone wind turbines constructed primarily for residential or farm use.
- WIND TURBINE – A wind energy conversion system that converts wind energy into electricity through the use of a wind turbine generator and includes the nacelle, rotor, tower and pad turbine, if any.

Policies

- Wind energy facilities should not be developed in areas designated as very high or high conservation priorities in the Comprehensive Plan. These areas are identified on Map 8 – Natural Resources Plan in the Comprehensive Plan.
- Depending on local conditions, wind energy facilities may be appropriate in agricultural and rural areas with an adequate wind resource if they are compatible with the local environment and land use regulations and consistent with the standards of the Pennsylvania Wind and Wildlife Collaborative.


Implementation

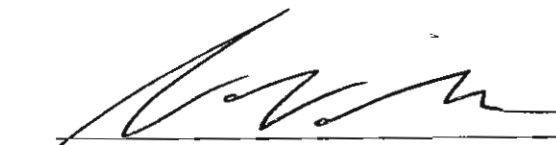
- During the review of local comprehensive plans, zoning ordinances, and subdivision and land development ordinances, the LVPC will recommend natural resource protection policies as they relate to wind energy facilities, as needed.
- Any conflicts with policies on wind energy facilities will be noted during LVPC reviews of subdivisions and land developments.

Adopted by the Lehigh Valley Planning Commission this 28th day of January, 2010.

ATTESTED BY:

LEHIGH VALLEY PLANNING COMMISSION


Michael N. Kaiser, Executive Director


Steven L. Glickman, Chair

