

# *Southwestern Lehigh County Comprehensive Plan*

Alburtis, Emmaus and Macungie Boroughs  
and Lower Milford, Lower Macungie and Upper Milford Townships



# **Southwestern Lehigh County Comprehensive Plan**

## **Alburtis, Emmaus and Macungie Boroughs and Lower Milford, Lower Macungie and Upper Milford Townships**

This Plan was adopted by Alburtis Borough Council on February 17, 2005, Emmaus Borough Council on March 7, 2005, Macungie Borough Council on February 7, 2005, Lower Macungie Board of Supervisors on April 7, 2005, Upper Milford Board of Supervisors on April 21, 2005 and Lower Milford Board of Supervisors on May 19, 2005.

This Plan was Prepared by the Southwestern Lehigh County  
Comprehensive Plan Committee

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Community Planning Consultants  
Urban Research and Development Corporation  
Bethlehem, Pennsylvania

In Association With  
Keystone Consulting Engineers  
Wescosville, Pennsylvania

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Direction of the Southwestern Lehigh Comprehensive Plan Committee - 2004-5

Borough of Alburtis

Russell Afflerbach  
Steven Hill  
Steve Werley

Borough of Emmaus

Bruce Fosselman  
Phil Seibert  
Roger Witcomb  
Kathleen Gorr, Former Member

Borough of Macungie

Mic Seislove, Former Member  
Chris Boehm  
Cindy Hartzell  
Larry Hilliard  
Lucy Ackerman

Lower Macungie Township

Irv Keister  
Kenneth DeAngelis  
Maury Roberts

Lower Milford Township

Ann Frey  
Denise Holub  
Jean Schoch  
Joan Dreibelbis  
Susan Ritter

Upper Milford Township

Angelica Forndran  
Daniel DeLong  
Henry Kradjel  
Keith Huyett  
Mary Ann Stauffer

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## **INTRODUCTION**

### **What is the Comprehensive Plan?**

This Comprehensive Plan is intended to establish overall policies for the development and conservation of the Southwestern Lehigh County Region over the next 15 years. The Region includes the Boroughs of Alburts, Emmaus and Macungie and Lower Macungie, Lower Milford and Upper Milford Townships. This Plan is not by itself a regulation, but is intended to provide the policy direction for changes to the municipalities' development regulations.

The Comprehensive Plan includes the following major parts:

- The Overall Vision and Goals of the Plan
- The Natural Features and Agricultural Conservation Plan
- The Land Use and Housing Plan
- The Community Facilities and Services Plan
- The Plan for the Downtowns
- The Transportation Plan
- The Historic Preservation Plan
- Putting this Plan into Action
- Appendices

### **How Was this Plan Developed?**

This Plan was prepared by a Regional Comprehensive Plan Committee consisting of elected and appointed officials and other citizens from each of the municipalities. The Plan policies were developed at monthly workshop meetings that were open to the public.

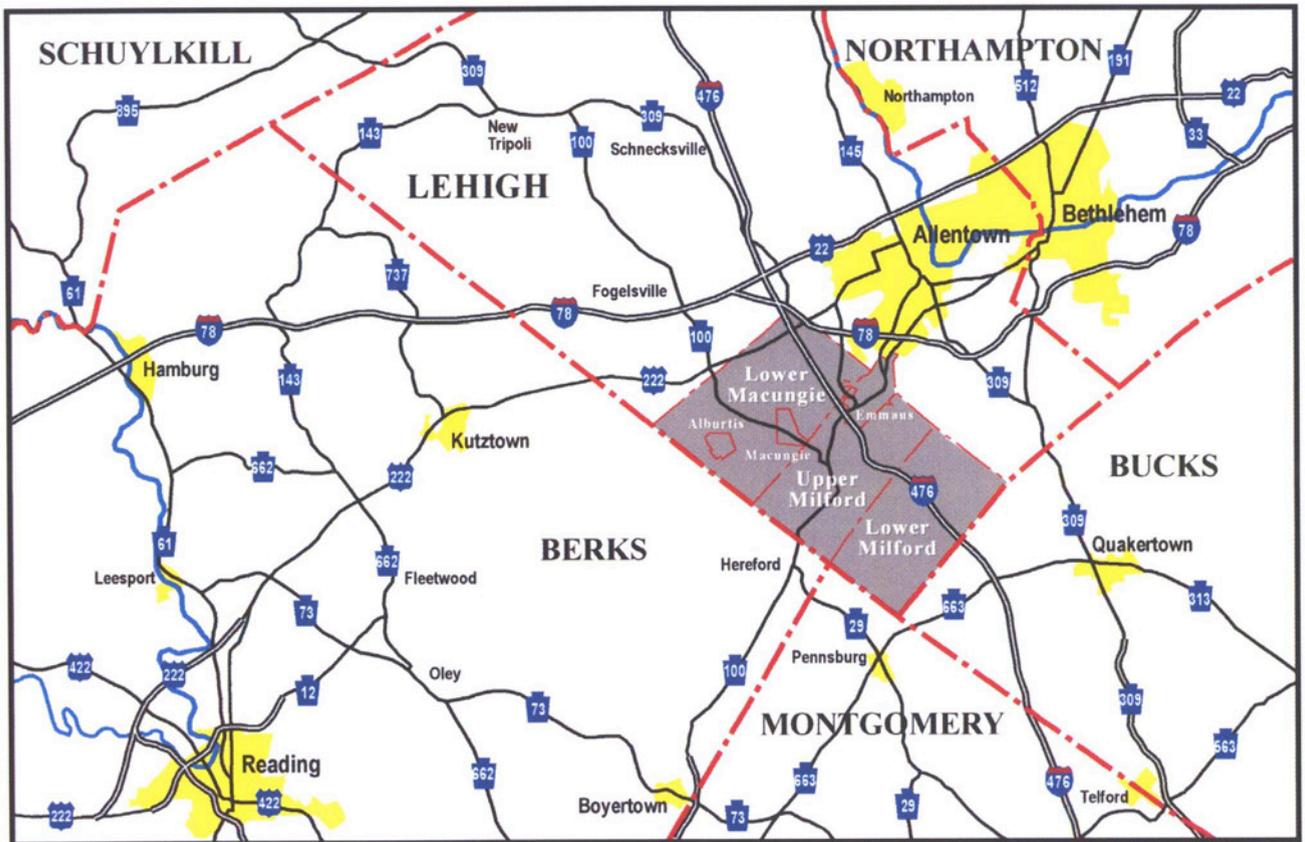
The first step in the process was the identification of major issues and concerns that needed to be addressed. The next step was an analysis and mapping of existing conditions and trends. The mapping started with computerized information provided by the Lehigh Valley Planning Commission and Lehigh County.

An "overall vision" was prepared and a set of goals were written to provide overall direction for the Plan. Then, a series of alternatives were considered to guide development in different areas of the Region. The Land Use Plan was then prepared, followed by recommendations concerning Community Facilities, Transportation, Historic Preservation and Natural Features. Public meetings were then held. After making revisions to respond to public input, the Plan is being considered for adoption by the elected officials of each municipality.

## **Regional Location**

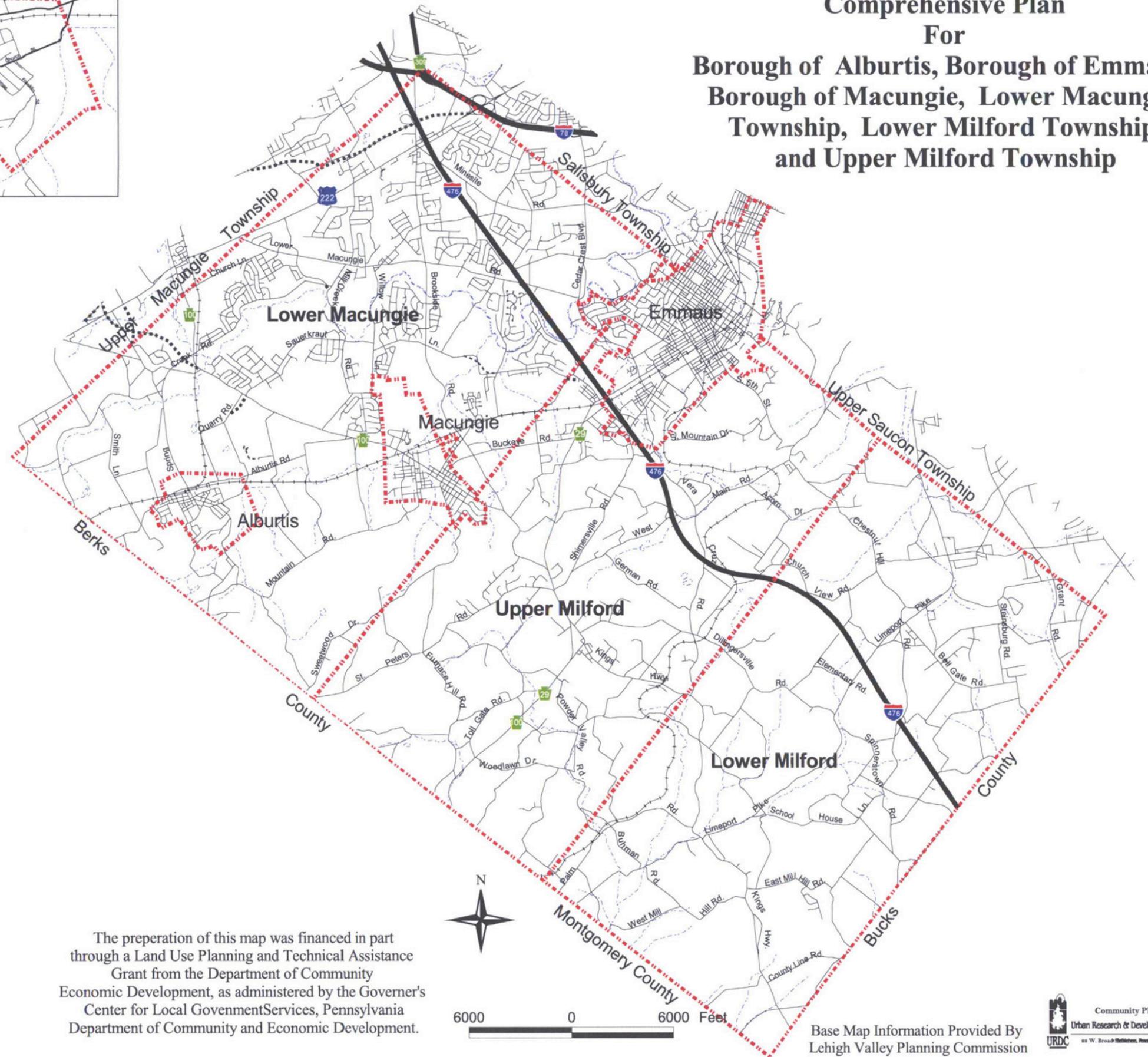
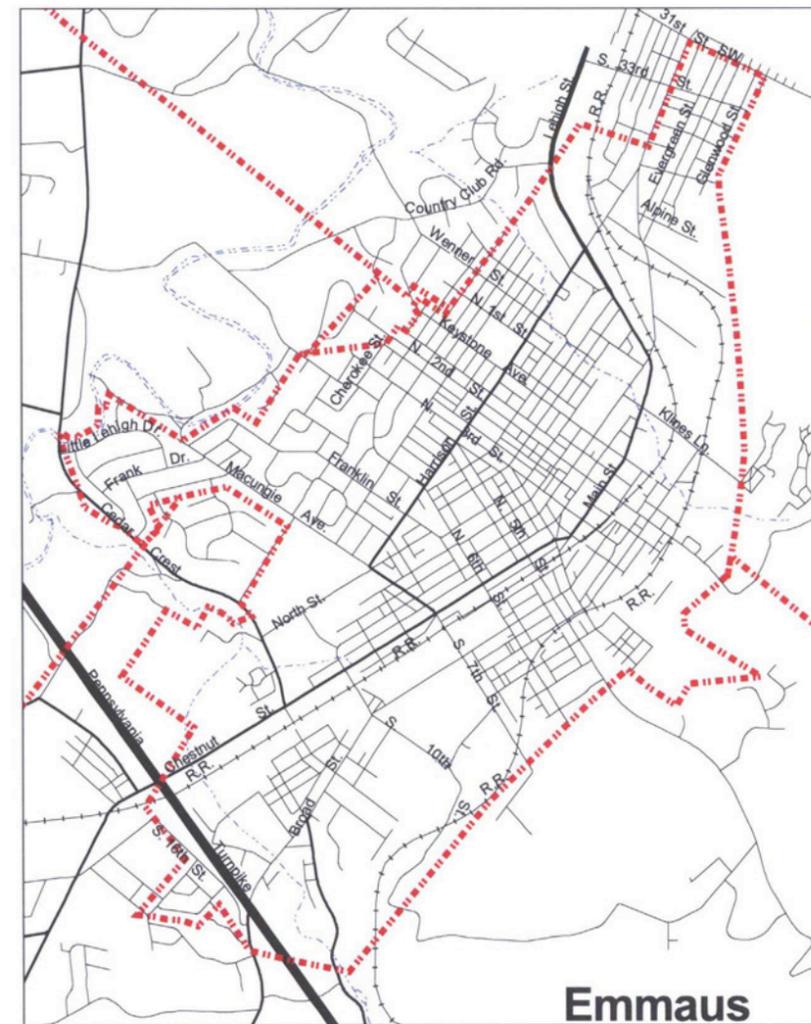
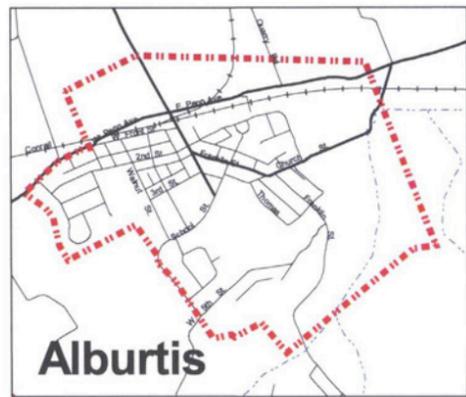
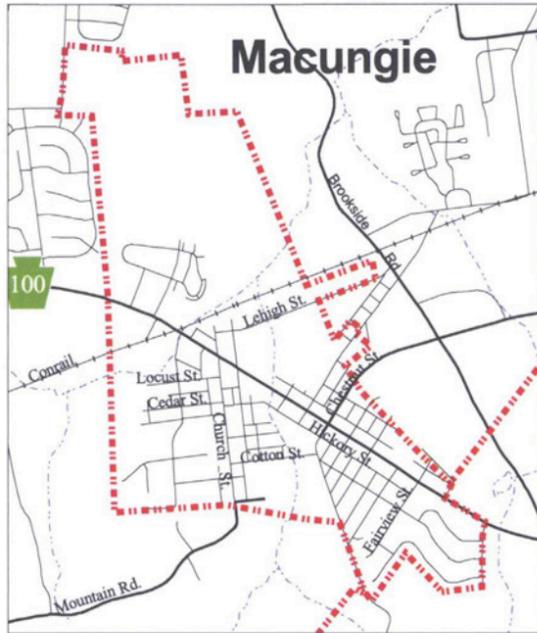
The Southwestern Lehigh County region is located several miles west of Allentown and borders Berks, Montgomery and Bucks Counties. The center of the region is approximately 50 miles north of Philadelphia and 30 miles east of Reading. Interstate 78 runs near the northwest corner of the region, and provides connections to Harrisburg to the west and New York City to the east. Interstate 476 (Northeast Extension of the PA. Turnpike) runs north-south through the region. There are interchanges north of the region at Route 22/Tilghman Street and south of the region at Route 663 west of Quakertown. Route 222 and Main Street/Chestnut Street in Emmaus serve as the major east-west route through the region, while Routes 100 and 29 (Cedar Crest Boulevard and Chestnut Street) serve as the major north-south routes through the region.

A base map of the Southwestern Lehigh region is included on the following page.



**Regional  
Comprehensive Plan  
For**

**Borough of Alburtis, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



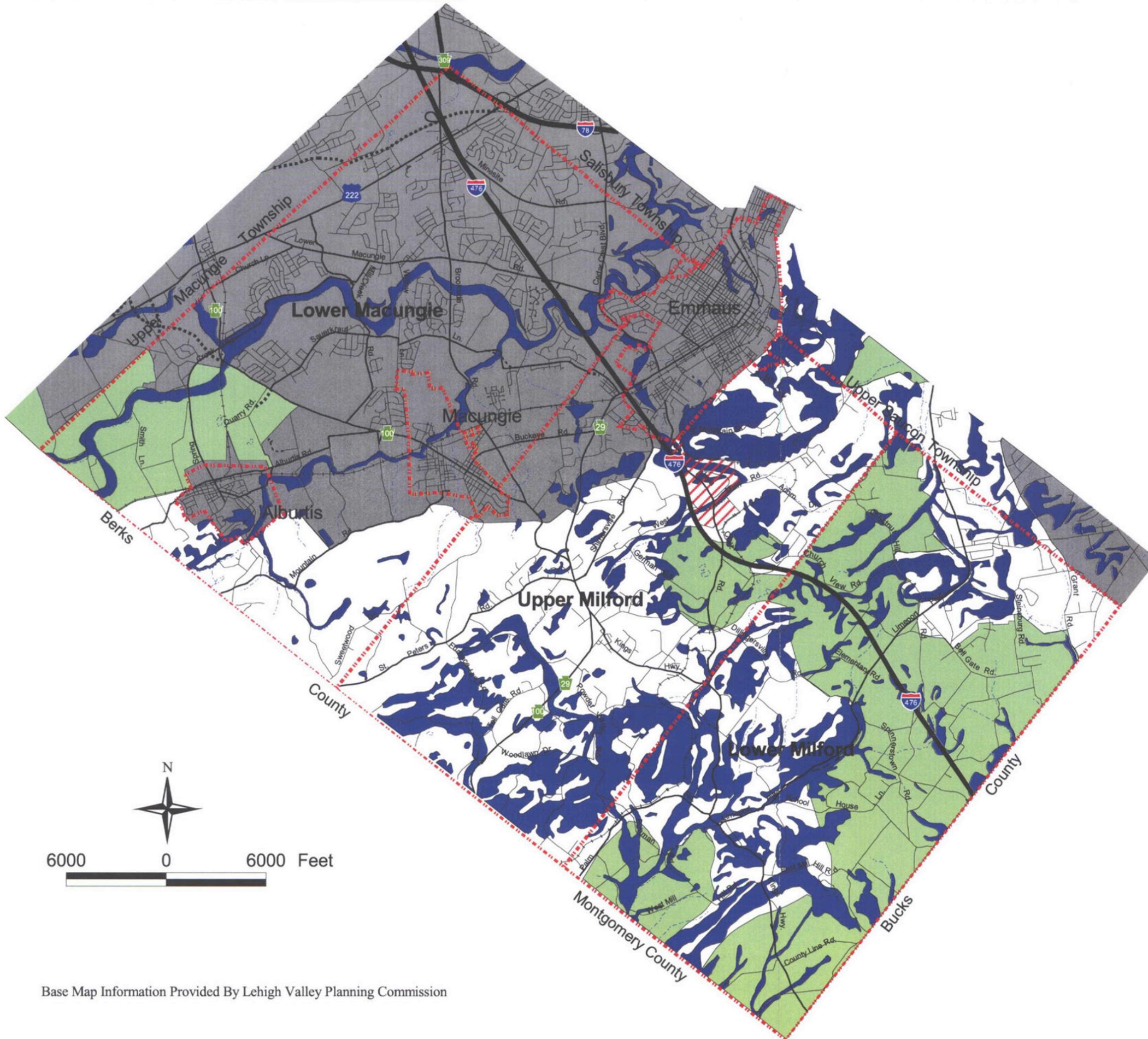
The preparation of this map was financed in part through a Land Use Planning and Technical Assistance Grant from the Department of Community Economic Development, as administered by the Governor's Center for Local Government Services, Pennsylvania Department of Community and Economic Development.

Base Map Information Provided By  
Lehigh Valley Planning Commission

**Regional  
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**Categories of the  
Comprehensive Plan for  
Lehigh-Northampton Counties, 1993**

-  Proposed Urban Development Subject to Road & Sewer Improvements
-  Natural Resources
-  Proposed Farmland Preservation
-  Proposed Urban Development
-  Rural Development



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Base Map Information Provided By Lehigh Valley Planning Commission



Community Planning Consultants  
**Urban Research & Development Corporation**  
URDC  
28 W. Broad St. • Bethlehem, Pennsylvania 18018 • 610-665-0701

The preparation of this map was financed in part through a Land Use Planning and Technical Assistance Grant from the Department of Community and Economic Development, as administered by the Governor's Center for Local Government Services, Pennsylvania Department of Community and Economic Development.

## **Coordination with the Regional Plan**

An emphasis is needed upon coordinating the region's development policies with policies of the Lehigh Valley Planning Commission (LVPC). Under State law, a municipal or joint municipal comprehensive plan must be generally consistent with the LVPC Plan. LVPC is charged with coordinating development, preservation and transportation policies across municipal borders throughout Lehigh and Northampton Counties.

LVPC is currently working to update the Comprehensive Plan for Lehigh and Northampton Counties ("the Regional Plan") and has been encouraging input from the municipalities on possible revisions. As of early 2004, the current Regional Plan is illustrated on the preceding page. As of this time, the Regional Plan recommends different areas of the region for different overall land use categories. The Regional Plan does not differentiate between residential, commercial or industrial land uses. The Urban Development areas are intended, when and if they are developed, to be served with public water and sewage services. The term Urban Development includes what is typically known as suburban development with public water and sewage services. In residential development, the term Urban Development is intended to mainly provide for housing at 4 or more homes per acre.

The LVPC Plan does not recommend Urban Development in areas designated as "Farmland Preservation", "Rural Development" and "Natural Resources."

The Natural Resource Areas mainly include creek valleys and very steeply sloped areas. These Natural Resource Areas are recommended for a maximum density of one home per 3 acres, except that one home per acre could be suitable with public water and sewage services. The Natural Resource Areas generally are not planned for central water and sewage services.

The Farmland Preservation Areas are mainly intended for agricultural uses and "housing on a very limited scale" - such as being limited to a maximum of 10 percent of the tract. These areas are intended to have on-lot wells and septic systems.

The Rural Development Areas mainly include lands that are not within the other three categories. These areas are mainly expected to be served by on-lot wells and septic systems. The overall density of approximately one home per acre is recommended in these Rural areas that are not steeply sloped or along creek valleys.

The Regional Plan recommends that almost all of the areas of the region that are intensely developed or are approved for intensive development (and immediately adjacent areas) be planned for "Urban Development."

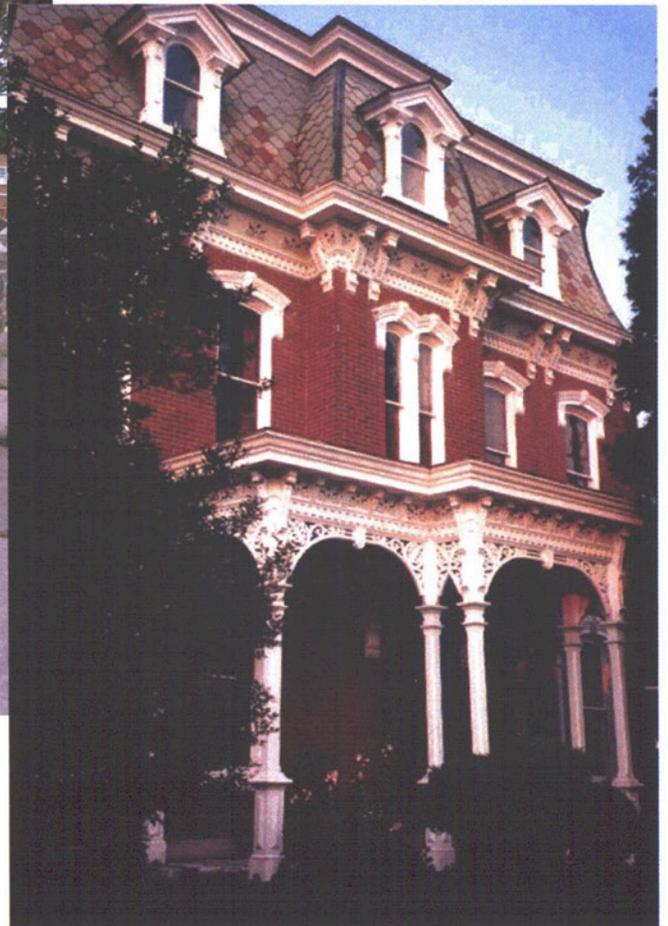
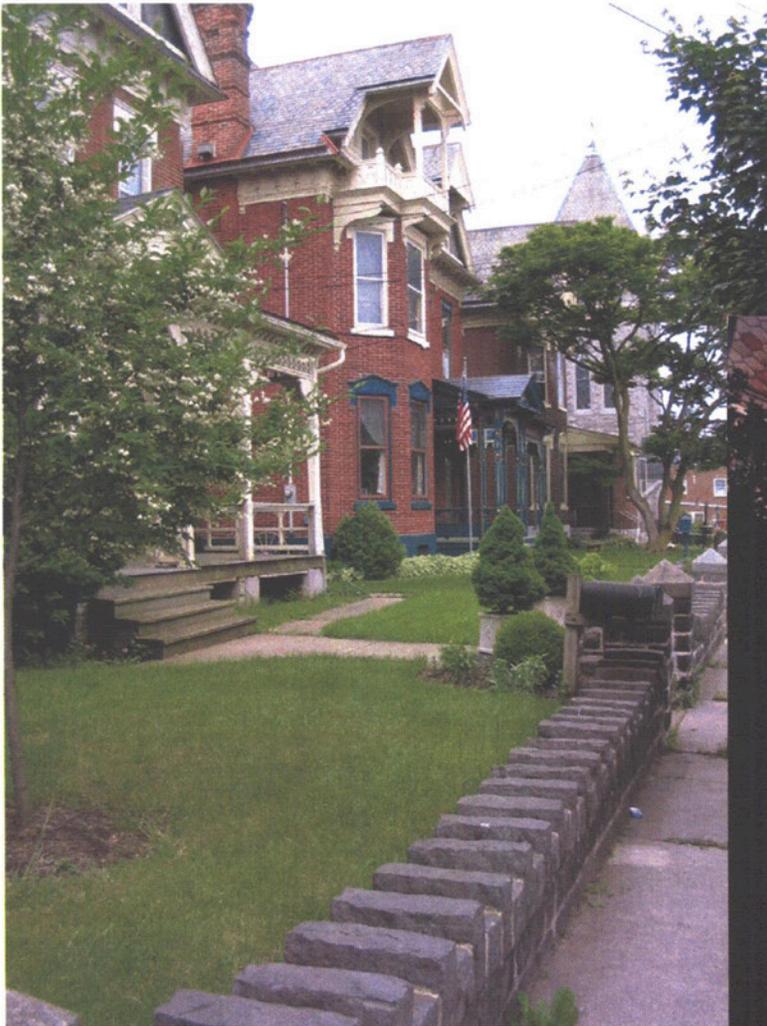
Almost all of Alburtis and Macungie are recommended for Urban Development, except for the creek valleys and very steeply sloped areas. In Lower Macungie, almost all of the lands east of Route 100 are recommended for Urban Development, as well as areas: a) southwest of Trexlertown/north of Spring Creek Road, b) immediately west of Alburtis, and c) between Alburtis and Macungie.

*Southwestern Lehigh County Comprehensive Plan of 2005*

In Upper Milford, the Urban Development Areas include the northern part of the Township closest to Macungie, Lower Macungie and Emmaus. One Farmland Preservation area is shown adjacent to Lower Milford west of the Turnpike. South Mountain and other areas of steep slopes and creek valleys are shown as Natural Resources Areas. The majority of Upper Milford is shown as Rural Development.

Furthermore, the LVPC Plan recommends that certain areas of the Lehigh Valley be planned for "Future" Urban Development. Future Urban Development is conditioned upon the availability of public water and sewage services and adequate road capacity. The Vera Cruz area was shown in this category, with the intent that public water and sewage services would be provided.

The majority of Lower Milford is recommended by LVPC as Farmland Preservation. These areas include the western, southern, south central and northern parts of Lower Milford. No areas of Lower Milford are recommended for Urban Development. Most of the eastern part of Lower Milford and areas along the Kings Highway are recommended for Rural Development.



## **EXECUTIVE SUMMARY OF RECOMMENDATIONS**

The major goals for this Plan are described on following pages. These goals include protecting natural features, preserving agriculture in key areas, providing for orderly development with compatibility between different uses, promoting the preservation of open space within new development, strengthening the downtowns, attracting new businesses into appropriate areas, minimizing traffic safety and congestion problems, and making sure there are high-quality community services and facilities.

The Plan includes recommendations to protect steeply sloped lands, wetlands, creek valleys and other important natural features. This includes strictly limiting the density of development on steep slopes and maintaining a buffer of natural vegetation along creeks.

The Plan recommends establishing an Agricultural Conservation zoning district in Upper Milford Township to work to preserve agricultural uses over the long-run. Owners of farms are encouraged to apply to the County to have their land preserved, while remaining in private ownership. A new County program is planned that would make funds available to purchase parkland in public ownership and preserve natural areas in private ownership.

The Land Use and Housing Plan section includes recommendations for revisions to the municipalities' development regulations.

This Plan includes recommendations to maintain an attractive rural character in much of the region. This includes using strong incentives and disincentives to promote "Open Space Development." Open Space Development involves clustering homes on the most suitable portions of a tract. In return for allow smaller lots on part of a tract, the developer would be required to permanently preserve a large portion of the total tract (such as 30 to 50 percent) in permanent open space. This open space could be maintained in public, homeowner association or private ownership, but could never be developed.

This Plan seeks to direct most development to locations that can be efficiently served by public water and sewage services. This will greatly minimize the total amount of land that is consumed by development and also works to direct most housing away from agricultural areas.

This Plan emphasizes directing new commercial uses to the downtowns and other selected locations that allow for safe and efficient traffic access. This Plan is designed to prevent long strip commercial development along major highways with individual driveways, where such development does not currently exist.

This Plan recommends ways to strengthen business activity, build historic community character and provide a pedestrian-friendly environment in the centers of Emmaus, Macungie and Alburtis.

It is essential to avoid excessive densities of development to avoid overwhelming the capacity of the road system, the public school system, other community services and the natural features of each site.

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This Plan recommends providing areas for a range of housing types and densities. State law requires the municipalities to meet certain obligations to provide opportunities for all types of housing and all legitimate types of land uses.

A number of recommendations are provided to strengthen older residential neighborhoods. This includes an emphasis upon encouraging home-ownership, rehabilitating older buildings, and avoiding incompatible development. This Plan also seeks to extend the best features of older development into newer development, in a concept named Traditional Neighborhood Development. Moreover, this Plan promotes compatible types "infill" development in villages and older parts of the boroughs.

Older buildings with significant architecture should be reused and rehabilitated. In historic areas, types of new construction should be encouraged that will be compatible with the historic surroundings.

New businesses need to be attracted into appropriate areas, and existing businesses should be encouraged to expand. This business development is essential to reduce the tax burden upon homeowners and to provide wider employment opportunities.

A number of road improvements are proposed to improve congested road segments and to improve traffic safety. Most of the recommended improvements involve widening, realignment or signal re-timing of intersections involving State roads. In order for improvements to State roads to occur in a timely fashion, in most cases it is critical for the municipality to take the lead in engineering improvements, seeking needed right-of-way and providing municipal funds or contributions from developers.

The Routes 222 and 100 bypasses are currently under construction, as well as several connecting road links. Moreover, this Plan also includes a full series of recommendations to improve opportunities throughout the region for safe bicycle and pedestrian travel, including a system of recreational trails.

## **THE VISION AND GOALS OF THIS PLAN**

### **The Overall Vision of this Plan**

As we look to the future, the best features of older development in the region will have been preserved and extended into new development.

The Downtowns of Alburtis, Emmaus and Macungie will be strengthened as active business centers for the region. Attractive streetscape improvements will make the downtowns more pedestrian-friendly.

Historic buildings will be preserved and many will be restored in a sensitive manner, with appropriate new uses. Older neighborhoods will remain strong and stable, with a high percentage of homes being owner-occupied.

Most new parking will be located to the rears or sides of buildings - allowing the front yards to be landscaped. New business development will have occurred in ways that fit into the character of the community. This will include reuse of older buildings and construction of newer buildings in the Downtowns and villages that are similar in character to older buildings.

Large areas will continue to be farmed, particularly in the western part of Lower Macungie, the southern part of Upper Milford and most of Lower Milford. Substantial areas of woodlands will be preserved, providing attractive visual relief between development. Roads and streets will be shaded by a canopy of street trees.

The creek valleys will be preserved, some in public greenways and trails, building upon the parks along the Little Lehigh Creek. Plentiful high-quality groundwater supplies will remain available, with large amounts of stormwater recharging into the ground. The creeks will also have high water quality, with the benefit of careful erosion controls. Conservation easements will have ensured the permanent preservation of large areas of open land.

Most new development will be served with public water and sewage service that will minimize the total amount of land that is consumed. Substantial areas of inter-connected open space will have been preserved within most new development, particularly through clustering.

Unsightly and inefficient "strip" commercial development of new commercial businesses with individual driveways along long stretches of major roads will have been avoided. Extensive landscaping will add to the attractiveness of new development.

Traffic will have increased but will be carefully managed, with improvements to smooth traffic along major corridors. As traffic is better managed along major roads, there will be less incentive for vehicles to travel on residential streets. Coordinated driveways and interconnected parking lots will be provided between adjacent businesses. Wider shoulders will be provided on roads to increase safety and promote bicycling and walking.

Signs will be of modest size and height. Lighting will be controlled to avoid nuisances to neighbors and motorists.

A wide variety of recreation opportunities will be available and the East Penn and Southern Lehigh School

Districts will continue to be known for high quality education.

**Direction: the Major Goals of this Plan**

The following goals provide overall direction for this Plan. The recommendations work to carry out these goals.

*Overall Goal: Continually strive to make the region an even greater place in which to live, work, learn, visit, shop and play, with a strong sense of community, scenic preserved open spaces, preserved agricultural areas, an attractive historic character, a vibrant economy, and an excellent quality of life.*

Natural Features and Agricultural Conservation

- Protect important natural features, with a special emphasis upon the creek valleys, wetlands and steeply sloped woodlands.
- Make sure that new development properly respects the natural features of a site.
- Seek to maintain agricultural activities in large portions of the region.
- Protect the amounts and quality of groundwater and creek waters.

Land Uses and Housing

- Provide for orderly patterns of development that provide compatibility between land uses, particularly to protect the livability of existing residential areas.
- Maintain an attractive rural character in much of the region. Promote use of the "Open Space Development" concept to cluster development on the most suitable portions of a tract, in order to permanently preserve important natural features and open spaces.
- Direct most development to locations that can be efficiently served by public water and sewage services, in order to minimize the total amount of land that is consumed by development and to direct most housing away from agricultural areas.
- Direct new commercial uses to the downtowns and other selected locations that allow for safe and efficient traffic access - as opposed to long strip commercial development along major highways with individual driveways.
- Strengthen business activity, historic community character and a pedestrian-friendly environment in the centers of Emmaus, Macungie and Alburtis.
- Promote the reuse or redevelopment of older industrial sites.
- Control the overall density of development on a tract of land based upon the natural features of that tract. Also, control the overall density of development in each part of the region based upon the ability of the road system in that area to handle additional traffic.

## *Southwestern Lehigh County Comprehensive Plan of 2005*

- Provide areas for a range of housing types and densities. Work to meet obligations under State law to provide opportunities for all types of housing and all legitimate types of land uses.
- Strengthen older residential neighborhoods, with an emphasis on encouraging home-ownership, rehabilitating older buildings, and avoiding incompatible development.
- Seek to extend the best features of older development into newer development and promote compatible "infill" development in villages and older parts of the boroughs.
- Encourage appropriate reuse and historic rehabilitation of older buildings, as well as encouraging new construction that is consistent with historic surroundings.
- Further improve the visual attractiveness of the region, with an emphasis upon the most highly visible corridors, and with an emphasis upon street trees, landscaping and preserved creek valleys.
- Stress a strong diversified economy that generates stability, sufficient tax revenues and wide employment opportunities.
- Emphasize tourism that is built upon the area's heritage, arts and culture, and recreational assets.

### Community Facilities and Services

- Provide high-quality community facilities and services in the most cost-efficient manner, including addressing needs for future growth.
- Provide for logical extensions of public water and sewage services to accommodate planned growth areas.
- Emphasize full cooperation and coordination of municipal and emergency services across municipal borders.

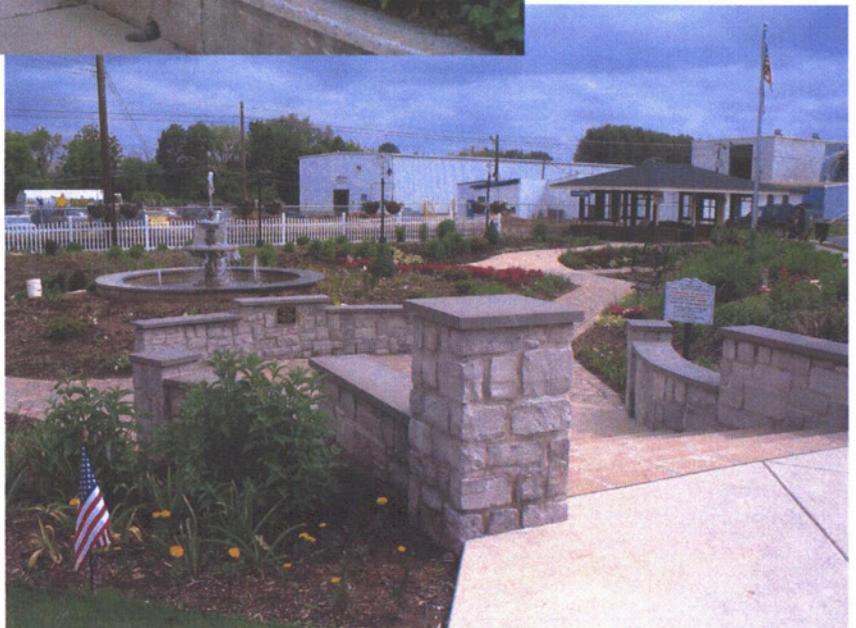
### Transportation

- Carefully plan road patterns and access from development according to the function each road is intended to serve within the overall road network.
- Work to control heavy truck traffic, through-traffic and higher speed traffic on residential streets/roads.
- Make well-targeted cost-effective improvements towards congested and unsafe road segments, in cooperation with PennDOT and adjacent landowners/developers.
- Improve opportunities throughout the region for safe bicycle and pedestrian travel, carpooling and public transit.

### Putting this Plan into Action

*Southwestern Lehigh County Comprehensive Plan of 2005*

- Update municipal development regulations to carry out this Plan, and periodically update the Plan and regulations as needed.
- Continually work to put this Plan into action - through a program of updated planning and many short-term actions within a long-range perspective.
- Promote substantial citizen input, including making sure residents are well-informed about community issues and encouraging volunteer efforts to improve the community.
- Maximize communications, coordination and cooperative efforts between the municipalities, the school districts, adjacent municipalities, the County and other agencies and organizations.



## **NATURAL FEATURES AND AGRICULTURAL CONSERVATION PLAN**

Land in the Region varies greatly in its suitability for different intensities of development. Some areas, such as flood-prone creek valleys, very steep sloped lands and wetlands, are not suitable for any development. Other areas are only suitable for very low-intensity development, such as moderately steep areas. Still other areas are appropriate for intensive development.

Open space can be preserved in public, semi-public or private ownership. It is important to preserve open space to:

- recharge groundwater supplies,
- protect the quality of creeks and the groundwater,
- provide an important visual relief between developments,
- preserve areas of scenic beauty, including scenic views,
- avoid development on lands that are prone to erosion or are otherwise not physically suitable for development,
- provide land for recreation, and
- preserve habitats and cover for birds, fish and wildlife.

The Land Use and Housing Plan recommends policies, such as promoting Open Space Development, that are intended to steer development away from the creek valleys and other important natural features.

**Take full advantage of all funding sources for land preservation, including connecting interested landowners with available resources, using "Conservation Easements," and using County and State funds.**

There are several other funding sources for land preservation. For example, municipalities, certain other organizations and land conservancies can apply for State grants for acquisition of recreation land.

Conservancy organizations can work with individual landowners to find ways to preserve their land. This often includes purchasing a property for a price that is lower than market value, and then helping the property-owner receive a Federal income tax deduction for the difference between the market price and the sale price. Conservancies also often work with landowners to find ways to sensitively develop part of their property, while permanently preserving other parts.

"Conservation easements" can be used to permanently preserve land without outright purchase of the land. With a conservation easement, the land remains privately-owned. The easement involves the property owner voluntarily agreeing to donate or sell the right to develop his or her land. The property owner agrees to place a restriction in the deed of the property which becomes binding on all future owners of the land. The easement can be written in many different ways to restrict or not restrict certain types of activities. Most conservation easements prohibit the construction of new buildings and subdivision of the land. Conservation easements also may prohibit intensive forestry and re-grading of the land.

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Often, a property-owner can receive Federal income tax benefits from donating a conservation easement. This could include a complete donation of the easement, or a sale of the easement for a price that is less than the value of the easement. For example, if an area of land is worth \$1 million, the development value might be \$800,000. The remaining \$200,000 would be the residual value of the property after the easement. If the landowner donates a conservation easement, it may be possible to deduct \$800,000 from their taxable income. If the landowner sells the easement for \$200,000, they may be able to deduct \$600,000 from their taxable income - \$800,000 of value minus the \$200,000 purchase price. This is known as a "bargain sale." The same type of deduction could apply if the land is sold outright to a municipality or conservancy for less than its market value.

Lehigh County voters approved the issuance of \$30 million of bonds for the Green Futures Fund. As of 2004, the intent is to use:

- one-third of the funding for the County's agricultural preservation easements (which is matched with State funds),
- one-third for purchase of parkland and open space (80 percent of which would be used by townships and 20 percent by the County), and
- one-third for improvements to existing parks (80 percent of which would be used by Allentown and the boroughs for recreation areas open to the public and 20 percent for County parks).

The dollars available to purchase land could be used to buy land outright or to buy conservation easements. The dollars available to improve parks could be used on land owned by non-profits if there is a binding commitment to make sure the land will be available for public recreation.

As of 2004, the grants to the municipalities would need to be matched dollar for dollar with other funding (such as municipal dollars, State grants, conservancy donations or developer recreation fees). However, this matching requirement could be reduced to 75 percent County funds vs. 25 percent other funds if certain additional criteria are met. A point system is used to determine the allowed ratio. For example, additional points are available if a project would involve two or more municipalities.

A variety of State funds are also available through the State Department of Conservation and Natural Resources for purchase of recreation land or conservation easements. Those programs typically require a 50-50 match with other sources of funding, and are competitive.

Municipalities have additional alternatives to raise money for purchase of recreation land and preservation of open space. A municipality is also allowed to use its own funds to buy easements on agricultural land. Township programs to preserve farmland are particularly worthwhile to preserve farms that do not rank highly under the County's easement program. These alternatives to raise funds should particularly be considered to provide matching dollars with State and County grants.

One alternative is to require developers to provide recreation land within new developments, or to pay recreation fees "in lieu of" providing recreation land. These types of requirements are allowed under the State Municipalities Planning Code. The Land Use and Housing Plan also describes incentives that can be used in zoning to result in higher percentages of open space within new development.

A second alternative is to set aside funds from the general fund budget or to issue a municipal bond for land purchase and preservation.

A third option is to ask voters if they wish to have the municipality issue a bond for land purchase and preservation. This referendum may also involve asking voters to approve an additional tax that would be dedicated to land purchase. A bond is typically issued, with the annual payments on the bond paid from the tax receipts. State law allows voters to approve an increase in their earned income tax ( up to 0.25 percent) or an increase in their real estate tax millage (up to 2 mills) or an increase in the real estate transfer tax (up to 0.25 percent).

The real estate transfer tax increase can be particularly attractive because it only affects properties that are sold, including new construction and re-sales. If a municipality is experiencing a high rate of construction, that tax increase can generate tremendous revenue without affecting most existing residents.

**Preserve areas along major creeks in as natural a condition as possible.**

Land along creeks can be preserved in private ownership, in public ownership or by homeowner associations. The municipalities should seriously consider opportunities to acquire additional land along creeks for public passive recreation, particularly for hiking trails and picnic areas. This can build, for example, upon the large amount of recreation land that has already been preserved along the Little Lehigh, Swabia and Liebert's Creeks.

The primary goal is to maintain thick natural vegetation along creeks, and to re-plant areas along creeks where thick vegetation does not exist. This thick vegetation is essential to provide high quality habitat for fishing and to filter out eroded soil and pollutants from storm water runoff. At best, to maintain the proper temperature of creeks and filter out pollutants, there should be mature canopy trees over a creek, plus thick underbrush.

To comply with State requirements, the municipalities already have regulations that limit buildings within flood-prone areas. These regulations apply within the "100-year floodplain," except Lower Macungie regulates the 500-year floodplain. The 100-year floodplain includes areas forecast to be flooded during the worst flood expected in an average 100-year period. The townships' provisions could be strengthened by prohibiting any new buildings in the 100-year floodplain, as opposed to allow new buildings in parts of the floodplain if they are flood-proofed. However, that type of provision is not recommended in the boroughs.

The municipal zoning ordinances could also be strengthened by requiring a setback of approximately 25 to 100 feet from the bank of major perennial creeks. These setbacks should vary by zoning district. A relatively narrow width (such as 25 feet) may be necessary in denser areas of the boroughs. A larger setback (such as 75 feet from the Little Lehigh Creek and 50 feet from other perennial creeks) would be appropriate in less densely developed areas. This setback should apply for buildings, parking areas and business storage. These distances assume that the setback would be measured from the top of the primary bank. If the distance would be measured from the centerline of a creek, then a larger setback could be appropriate.

The preservation and creation of vegetated drainage swales should be encouraged. These types of channels slow runoff, allow recharge and filter out pollutants.

As seen on the Water Resources Map, the northern two-thirds of this Region flows into the Little Lehigh Creek, which flows to the Lehigh River. The eastern-most parts of Upper and Lower Milford drains east to the Saucon Creek. The southern half of Upper Milford and the western two-thirds of Lower Milford eventually flow outside the Region to the Perkiomen Creek. A major tributary of the Perkiomen Creek is the Hosensack Creek in western Lower Milford.

Efforts are needed to put the Watershed Conservation Plan for the Upper Perkiomen into action, as well as similar policies for the Little Lehigh Creek. Most of the northern part of this region is in the Little Lehigh watershed, while most of the southern part of the region is in the Upper Perkiomen watershed.

For many years, the Wildlands Conservancy has taken the lead in working to manage the Little Lehigh Creek, including working with property-owners to stabilize the stream bank, plant near vegetative buffers along the creek and improve fish habitats. The Wildlands Conservancy also has a long-term program of monitoring the water quality of the Little Lehigh.

Emmaus Borough is providing leadership for two regional projects: 1) A Wellhead Protection Plan for the Borough's wells and 2) an Assessment of the Leibert Creek watershed. The locations of Emmaus' wells are shown on the Existing Central Water Service Map. The Leibert Creek watershed primarily involves areas in Emmaus and Upper Milford. Each of these projects will result in recommended policies and/or initiatives to protect and enhance the quality and quantity of the groundwater and surface waters. This Regional Plan is supportive of these types of initiatives.

Many of the policies described in the Land Use and Housing Plan section can work to preserve the creek corridors, including promoting Open Space Development and Transfer of Development Rights and establishing very low density conservation residential zoning where appropriate. Property-owners should also be encouraged to restore wetlands where they have been altered in the past.

As part of a Source Water Assessment and Protection study, the locations of potential chemical hazards to water supplies have been mapped. Local fire companies should be aware of these hazards and be well-trained and prepared to quickly address any potential leaks, spills or other emergencies.

Continued efforts are needed to educate owners of properties with on-lot septic systems about the need for proper operation and maintenance of these systems to avoid groundwater pollution. The municipalities should continue to work to identify malfunctioning septic systems and inadequate cesspools and require their repair or replacement. Lower income homeowners can be linked with low interest loans from PennVEST to help fund repairs.

Under the Federal "NPDES" program, the municipalities will need to work to improve the water quality of runoff that enters creeks from municipal storm sewers.

It may be appropriate to modify municipal Weed Ordinances to make sure that they do not prohibit appropriate natural landscaping (such as encouraging meadows that might only be mowed twice a year). Thick high vegetation is particularly appropriate along creeks. Furthermore, thick vegetation should be planted and allowed to grow along creeks and drainage swales in municipal parks.

**Consider seeking a higher water quality classification for creeks in the Region.**

The Pennsylvania Department of Environmental Protection (DEP) classifies all creeks according to water quality standards. The highest level of protection are "Exceptional Value" or "Outstanding Natural Resource Water" creeks. The next highest level of protection are "High Quality" creeks. The higher levels of protection involve much stricter regulations upon water quality, particularly for effluent from sewage systems. Then, a basic level of protection involves "Warm Water Fisheries" or "Cold Water Fisheries."

Consideration should be given to working with the Wildlands Conservancy to seek a higher level of water quality protection for creeks in the region. This would require the submission of water quality studies and a petition to DEP. As of 2003, there is an effort underway to change the classification of the Little Lehigh Creek from High Quality to Outstanding Natural Resource Water.

**Protect the amounts and quality of groundwater and creek waters. Stress recharge of storm water into the ground to maintain groundwater supplies and reduce storm water runoff.**

Too often, developments are engineered to channelize storm water runoff towards a creek, without encouraging recharge of groundwater into the ground. We should think of stormwater as a resource that should be managed, and not as something to be "gotten rid of." Groundwater recharge can be encouraged through the Manual entitled "Best Management Practices for Developing Areas in Pennsylvania," which is available through the County Conservation District. For example, storm water can be held within "retention basins" that allow some storm water to be absorbed into the ground. Depending upon soil conditions, infiltration trenches and french drains can be used to recharge some runoff into the ground. However, care is needed in areas with limestone-based geology to avoid sinkholes. The natural drainageways should be left in place as much as possible, with wide swaths of green space that allow storm water to be absorbed.

The total percentage of a lot that is covered by buildings and paving should be limited to make sure that there are areas available for absorption of groundwater. For parking areas that are not used on a daily basis, alternative surfaces and materials (such as "porous paving") should be considered that encourage groundwater recharge.

Ordinance provisions should be reviewed to make sure that they do not unintentionally increase the amount of land covered by paving. For example, sidewalks should only be required where they are truly needed. Front yard setbacks should be modest so that long driveways are not needed. Where cul-de-sac streets are used, a landscaped island should be considered in the middle of the cul-de-sac. Excessive amounts of parking should be avoided. Where there is a question about the amount of parking that may be needed, a developer can be allowed to reserve land for parking that would only be paved if the municipality determines it is actually needed after the use has been in operation. Adjacent businesses should be encouraged to share parking, which can reduce the total amount that is needed.

The Best Management Practices manual also includes recommendations of ways to control the water quality of runoff by avoiding the mixing of pollutants into runoff. For example, devices can be used to separate oils, greases and sediment from runoff. Whenever there is major earthmoving, a developer is required to prepare

an erosion control plan that meets the requirements of the County Conservation District. It is equally important to regularly inspect construction sites to make sure that these erosion control measures are actually carried out.

**Carefully manage wooded areas and avoid clear-cutting.**

Most forested areas of the region are located on areas that were too steep, too wet or too rocky for crop farming. The woodlands in the region add character to the landscape, help preserve the water quality of creeks and provide important wildlife habitats. Trees also are important to purify the air and control erosion. Forestry must be allowed under State law. However, clear-cutting of woods should be prohibited, proper erosion controls should be in place for any large-scale tree-cutting, and other appropriate forest management practices should be used.

In development plans, developers should be required to show that they have minimized the removal of woods as part of their project. Great care should be used during construction to minimize the number of trees that are removed. Trees can add substantial value to a residential lot. During construction, temporary wood fences should be placed around trees to prevent the compaction of root systems by equipment and to prevent damage to tree trunks.

Certain areas of the region should be considered for re-forestation – particularly steep lands and lands along creeks. Funding for tree-planting programs are available from a few sources, including the Federal Urban Forestry Program, the Federal Transportation Enhancement Program (along a major highway) and Federal and State water quality programs. Some programs are limited to public lands, while others provide funding to private property owners. A Federal conservation program also provides funding to farmers who take steep areas and areas along creeks out of crop production.

**Carefully control large-scale withdrawals of groundwater and spring water.**

The municipalities should consider regulations that require careful review of large withdrawals of groundwater and water from springs. The applicant should be required to provide professional hydrological studies showing that the withdrawals will not harm the water supplies of neighboring homes and farms, particularly during drought conditions. This concern particularly involves water bottling operations that remove large volumes of water out of the area. If a large water withdrawal is proposed, it should be accompanied by permanent preservation of substantial amounts of surrounding land to allow sufficient groundwater recharge.

However, municipalities need to recognize that Delaware River Basin Commission regulations and State law may pre-empt the ability of a municipality to prohibit or severely regulate a large water withdrawal.

**Carefully minimize sinkhole threats in limestone areas.**

Much of Lower Macungie, Emmaus, Alburdis and Macungie and part of Upper Milford has limestone-based geology that is prone to sinkholes. This is also known as "karst" or "carbonate" geology. Limestone-based areas can be particularly vulnerable to sinkholes when there are mining activities, which can affect changes to the groundwater levels.

Stormwater runoff has a major role in the creation of sinkholes and other subsidence. The most important issue is usually to carefully design stormwater facilities and to use great care near isolated low spots in the ground, which are known as topical depressions. Water line breaks also often result in very severe sinkholes.

Lower Macungie already has comprehensive development regulations to address limestone geology issues. It would be appropriate for other municipalities to include similar regulations in their Subdivision Ordinance that would apply within limestone areas. These regulations could require a study by a specialist in this type of geology before any significant development is approved. This type of study may require soil borings. This study should consider the most vulnerable locations for sinkholes and state what types of measures should be carried out during development to reduce the threat of sinkholes. This study should then be reviewed by a second expert selected by the municipality but funded by the developer.

In limestone-based areas, stormwater detention basins should be required to have an appropriate liner. Where development is proposed near a sinkhole, the sinkhole should be required to be remediated. This often involves excavating the area and filling it with concrete or other approved material. Sinkholes should be repaired as soon as possible before they expand in an uncontrolled manner. Stormwater should not be directed towards a sinkhole that has not been remediated.

**Make sure that any changes to suspected wetlands comply with state and federal regulations.**

It is extremely important to protect wetlands to protect water quality, control flooding, provide aquatic habitats and recharge groundwater. Wetlands are defined based upon the soil types, depth of the water table and types of vegetation. Wetlands not only include swamps, but also areas that are typically wet during parts of the year. The municipalities and local residents need to help State and Federal agencies make sure that there is compliance with wetland regulations. The Water Resources Map shows the locations of known wetlands. In addition, attention is needed regarding areas with "hydric soils" that are likely to include wetlands. Within these areas, an applicant for development should be required to provide a study by a qualified professional to determine whether wetlands will be impacted.

Each municipality should consider requiring a setback of at least 20 feet between a designated wetland and a proposed new building. This setback is valuable to help keep construction equipment out of the wetlands and to avoid other alterations to wetlands after construction.

**Minimize development on steeply sloped lands.**

As seen on the Steep Slopes Map on a following page, most steeply sloped lands are concentrated in the following areas:

- southwest of Alburdis, stretching into the southern part of the Borough,
- south and southwest of Macungie, south of Mountain Road,
- along Shimerville Road in Upper Milford,
- on South Mountain in Upper Milford south of Emmaus,
- north of Limeport, and
- scattered areas in southern Upper Milford and north-western Lower Milford.

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A 15 percent slope has a rise of 15 feet for every 100 feet of horizontal distance. Moderately steeply sloped lands (15 to 25 percent) are generally only suitable for low intensity development. Very steep lands (over 25 percent) are generally not suitable for any development. It is important to limit development on steep slopes to avoid the following: erosion problems, high speed storm water problems, overly steep roads and driveways, excessive costs to construct and maintain roads and utilities, and destruction of scenic natural resources.

Consideration should be given to strengthening zoning regulations to control development on steeply sloped lands. For example, if a new principal building would be proposed on steep slopes, larger lot sizes could be required. These additional requirements would not apply if a portion of a lot was steeply sloped but was not proposed for any development.

For example, in the townships, it would be desirable to require a minimum lot size of at least one or two acres if a principal building would be built on 15 to 25 percent slopes, and two to five acres if the building would be built on slopes over 25 percent.

### **Seek to maintain interconnected corridors for wildlife.**

Ideally, corridors along steeply sloped areas and along creeks would be permanently preserved as interconnected open space. In addition to the benefits of preserving natural features, these inter-connected corridors also provide cover for wildlife to move throughout the region. It is particularly important to have areas with woods or other thick natural vegetation that connect large areas that have been preserved. Too often, land preservation involves fragmented areas that do not allow for wildlife travel.

### **Work to conserve Outstanding Natural Areas.**

In 1999, the Pennsylvania Science Office of the Nature Conservancy prepared a Natural Areas Inventory (NAI) for Lehigh and Northampton Counties. The NAI identifies what they consider to be "critical areas" of plant and animal habitat, and also lists unique natural features.

These critical habitat areas are based on the Pennsylvania Natural Diversity Index (PNDI), a comprehensive database of outstanding natural habitats and sensitive plant and animal species on a state level. Species in the PNDI are given endangered, threatened, special concern or concern status. Natural areas are grouped into two categories in the NAI.

The Nature Conservancy then provided recommendations for priorities among different areas in the region. Those recommended priorities are not necessarily the highest priorities of the municipalities. The Conservancy classified certain sites to be of statewide significance for the protection of biological diversity. These sites contain exemplary natural communities and documented habitats for rare species listed in the PNDI. Those state-significant sites that are the most critical to biodiversity in the future have been labeled "top priority" by the Nature Conservancy. Sites that the Nature Conservancy categorized as "locally significant" are unique areas chosen because of size, diversity of wildlife and plant life, water quality protection, and recreation potential.

The Southwestern Lehigh Region includes the following natural areas, with two additional areas situated very close to the perimeter of the Region.

**Outstanding Natural Areas Southwestern Lehigh County**

<b>Natural Area</b>	<b>Location</b> (See Important Natural Areas Map)	<b>Nature Conservancy's Recommendation for Priority</b>	<b>Unique Feature</b>
East Texas - Little Lehigh Creek	Lower Macungie Township	Statewide significance	PA-threatened plant species.
Hosensack Marsh	Lower Milford Township	Top priority	Marsh and shrub swamp, several PA-endangered animal species.
Indian Creek Floodplain	Upper Milford & Lower Macungie Townships	Statewide significance	Floodplain, open marsh, evidence of PA-endangered animal species.
Area Southwest of Trexlertown (referred to as the Jungle in Natural Areas report)	Lower Macungie Township	Local significance	Saturated floodplain with creeks and springs, history of rare plant species.
Big Beech Woods	Lower Milford Township	Local significance	Maturing second growth forest. Some trees are over 2 feet in diameter.
Lower Milford Marsh	Lower Milford Township	Statewide significance	Fen (wetland) with potential for several plant and animal species of concern.
Macungie Watershed	Lower Macungie & Upper Milford Townships	Statewide significance	Seeps with potential to support several PA plant species of special concern.
Mill Hill	Lower Milford Township	Local significance	Ridge with diverse second-growth forest with potential for several plant species of special concern.
Big Beech Woods	Lower Milford Township	Local Significance	Southeast facing slope facing the Hosensack Creek with maturing 2 <sup>nd</sup> growth forest. Some trees are over 2 feet in diameter.
Mill Road Wetlands	Upper Saucon Township	Statewide significance	Wetlands with history of animal species of special concern.
Robert Rodale Reserve	Salisbury Township & City of Allentown	Top Priority	Seeps, vernal pools, two plant species of special concern.

Source: Natural Area Inventory, Nature Conservancy and the Lehigh Valley Planning Commission, 1999

The NAI provides several policy recommendations for the natural areas of Southwestern Lehigh County. In the Rodale Reserve and other areas on South Mountain, further forest fragmentation is discouraged to ensure the continuation of plant and animal species whose life cycles depend on this belt of wooded habitat. The NAI encourages renewed surveys for rare species at the Indian Creek Floodplain, Lower Milford Marsh, and Mill Road Wetlands. At the East Texas site, the report recommends the maintenance of wooded buffers along Little

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Lehigh Creek. Finally, it is noted that a majority of the portion of Mill Hill lying in Montgomery County has been acquired by Upper Hanover Township and designated for conservation and recreation purposes.

Other public and private organizations maintain lists of important natural areas. The Pennsylvania Department of Conservation and Natural Resources lists "outstanding scenic geological features" including the Vera Cruz Jasper Pits in Upper Milford. Native-Americans of the Lenape tribe extracted the redish-yellow quartzite rock here for making tools and weapons.

The Highlands Coalition also list individual sites as well as larger scale systems that are in great need of protection. In the area, the Coalition lists Hosensack Swamp, South Mountain, the Little Lehigh Creek Watershed and the Upper Perkiomen Creek Watershed. The latter two watersheds are major sources of drinking water for Allentown and Philadelphia, respectively.

The boundaries of the outstanding natural areas as delineated by the Nature Conservancy are shown on the following map. The sizes of the natural areas were intentionally exaggerated by the Conservancy to avoid the pinpointing of resources that may become vandalized.

The municipalities and the County should consider the use of the funding available through the County Green Future Fund to preserve these outstanding Natural Areas. This could include fee-simple acquisition or purchase of a conservation easement. Wetlands, flood-prone land and very steeply sloped lands can often be purchased at a low price because they have limited market value for development. The Open Space Development option (described in the Land Use and Housing Plan section) could also be useful to help permanently preserve these natural areas.

## **AGRICULTURAL CONSERVATION**

This section describes a variety of methods to encourage the continuation of farming in the townships. The Land Use and Housing Plan section further describes zoning incentives and disincentives that should be used to seek to preserve farmland.

The Prime Agricultural Soils and Preserved Farmland Map shows areas with the best soils for corn and similar crops, as estimated in the County Soils Survey. The vast majority of the undeveloped lands in the region (not including lands that are steeply sloped) include prime agricultural soils. The very best agricultural soils are called "Class I and II." These soils are mainly concentrated in western Lower Macungie, central Upper Milford and eastern Lower Milford Townships. The "Class III" soils are good agricultural soils, but not as productive as Class I and II. The Class III soils are spread throughout the region - mainly in Upper Milford and Lower Milford.

### **Encourage the designation of additional areas as agricultural security areas.**

Large areas of farmland in the region has been designated as "Agricultural Security Areas." A farmer voluntarily asks the Township Supervisors to include their land as a Security Area. A Security Area does not result in any additional regulations upon a private property owner, nor upon private development. Once designated, the landowner becomes eligible, if they wish, to ask to have their land preserved under an Agricultural Easement (as described below). Moreover, a Security Area provides a farmer with extra protection against nuisance lawsuits, municipal regulations of agriculture and government condemnation.

### **Continue to promote use of agricultural easements to preserve farmland.**

The most effective method to permanently preserve farmland is through purchasing the "development rights" of the land. This program uses funds from the State and the County to pay property owners to preserve their land. Property owners voluntarily apply to the County for consideration. The farms are then ranked according to a set of standards, such as the quality of the soils for crops and the proximity to other farms that have been preserved. If selected, the landowner is paid the difference between the market value of the land and the value as farmland. A landowner can voluntarily agree to a payment that is less than this value, particularly if insufficient funds are available to the County for the full amount. In that case, the landowner can deduct the difference on their Federal income tax as a charitable donation. A permanent "Conservation Easement" is then placed on the land that permanently prevents its use for non-agricultural uses. The land remains privately owned and can be sold to another farmer.

The Prime Agricultural Soils and Preserved Farmland Map shows areas that have been permanently preserved through agricultural easements. The majority of the preserved farms are concentrated in Lower Milford, with the largest concentration in the center of Lower Milford south of Limeport Pike.

That map also shows farmland that is owned by Lehigh County, most of which is currently leased for agriculture. Most of this County-owned land is in Upper Milford and most lies west of the Turnpike. This Plan recommends that the County establish conservation easements to permanently prohibit future development of that land for buildings. To avoid permanently closing opportunities for possible public recreation use, this County-owned land should not be restricted by a standard agricultural preservation easement.

There are limited funds available each year to buy easements to preserve farmland, and many farmers must sit on a waiting list for years. During the time it takes a farmer to rise up on the list, he/she may face pressure to sell for development. Also, some farms may not rank high enough according to the standards to be funded – particularly if a farm does not have the best soils for crop farming.

The State now allows the County to make installment purchases of farmland easements. This guarantees a farmer that they will receive certain payments in future years – which should increase participation. It also helps landowners to spread out the income over more than one year, which can reduce the tax rates.

**Consider permitting a wide range of farm-based businesses.**

Many farmers cannot earn a full-time living on their farm work. Instead, many farmers need supplemental jobs. To encourage the continuation of farming, the townships' zoning ordinances should offer reasonable flexibility to farmers on larger tracts to have small businesses. These businesses could include small engine repair, sharpening services, wood crafting, farm equipment repair, sale of seeds and fertilizers and similar activities. The number of employees and the sizes of the businesses should be limited to prevent it from becoming a major commercial business. These activities can also be useful to encourage the repair and reuse of old barns.

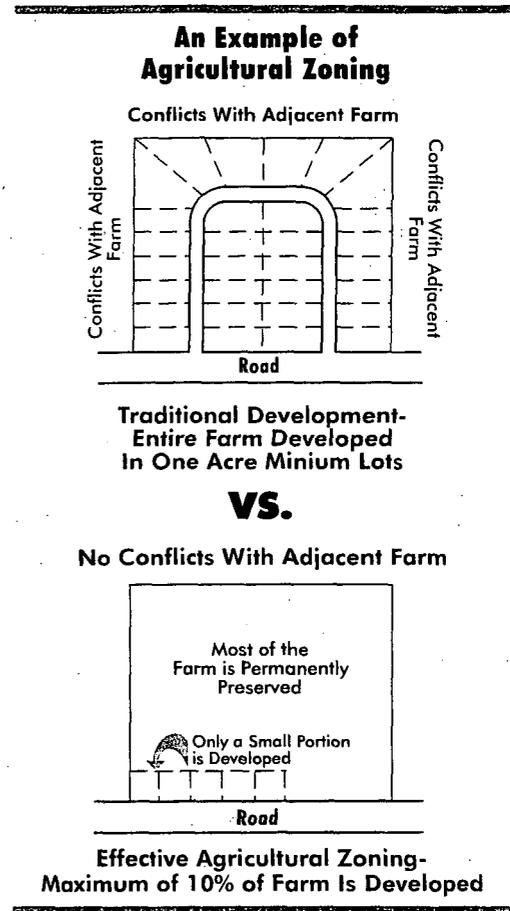
Farm-based tourism is also valuable to increase revenue to farmers, and thereby help farmers afford to farm. These activities can include Summer camps, Halloween events (such as haunted hayrides and corn mazes), bed and breakfast guest rooms, and other activities.

Furthermore, State law requires municipalities to allow farmers to conduct retail sales of their agricultural products on their property. In addition, Emmaus operates a Downtown Farmers Market on weekends. These types of sales should be encouraged to help farmers capture a higher percentage of the retail value of their products.

**Consider wider use of agricultural conservation zoning.**

Agricultural conservation zoning can be effective to preserve large contiguous areas of farmland. Generally, agricultural conservation zoning limits residential development to a portion of a tract (such as 10 percent of the tract), and then requires that the remaining land be kept in very large lots. This type of zoning is in place in the northwestern part of Lower Macungie. The Land Use and Housing Plan recommends that this type of zoning be considered on land in Upper Milford east and west of the Turnpike, which includes hundreds of acres of County-owned farmland.

The following sketch illustrates a typical site developed under agricultural conservation zoning.



Agricultural conservation zoning works best when there is grass-roots support among a number of adjacent farmers who intend to continue farming over the long-term. The major benefits of agricultural conservation zoning include:

- Protecting Public Investment in Easements - Agricultural conservation zoning is particularly important to protect the public investment that has been made in purchasing development rights of farmland. If a significant area of farmland has already been preserved, it is important to make sure that a large housing development will not occur immediately next door and create conflicts with the agricultural activities.
- School Taxes - Agricultural zoning can help moderate the rate of construction of new homes. Every major study in Pennsylvania has shown that the vast majority of new housing results in much higher school expenses than the housing generates in school taxes. These costs can be particularly dramatic if there is a need to construct new schools.
  - Therefore, if a school district experiences large amounts of new home construction, it will typically have to continually raise real estate taxes faster than inflation. Increased real estate taxes, in turn, can force farmers to sell their land.
- Priority in Development Rights Purchases - Lehigh County receives State funds each year to purchase "development rights" from farmers. Farmers voluntarily apply for the purchase. If the development rights are purchased, the farmer continues to own the land, can continue to farm it or can sell it to another farmer. However, the land cannot be developed, except for farm structures.
  - The number of applicants for this program exceeds the funding that are available. Applicants for the funding are ranked based upon a set of standards, such as the quality of

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the soils. The County also has a goal of preserving farms that are adjacent to each other. Therefore, the County provides extra points in its ranking system if a farm is adjacent to other farms that are in an agricultural zoning district.

- Therefore, if a farm in Lower Macungie Township is surrounded by an agricultural district, and a very similar farm in another township is not adjacent to an agricultural district, then the farm in Lower Macungie Township would probably receive priority for the funding. As a result, agricultural zoning may make it easier for farmers in the region to sell their development rights.

- Avoiding Nuisance Complaints - Agricultural zoning can reduce conflicts between homes and farming operations. Because fewer homes would be built near farms, there would be less potential for complaints about odors, flies, early morning and late night noise, and use of pesticides. This is particularly a concern to avoid one farm becoming intensely developed for homes in the middle of several active farms.
- Avoiding Crop Damage - Agricultural zoning works to avoid the construction of many homes near farms. As a result, increased problems can be avoided from young people and all-terrain vehicles damaging crops.
- Avoiding Traffic Problems - Agricultural zoning can avoid large numbers of new homes in agricultural areas, which helps to avoid large increases in the speeds and amounts of traffic. As a result, increased difficulties of operating farm equipment on roads can be avoided.
- Reducing Costs of Road Improvements - If large numbers of new homes are permitted, it would greatly increase traffic on rural roads and cause the need for major improvements. Agricultural zoning can reduce the need for a township to spend large amounts of tax dollars on major improvements to existing roads.
- Minimizing Regulations on Agriculture - Within an agricultural conservation zoning district, it can be appropriate to allow more intensive livestock and poultry operations than in other parts of a township. This is because the township would know that only limited numbers of houses would be allowed in these areas, which would reduce the potential for conflicts in the future. However, very intense types of concentrated animal feeding operations would still be carefully regulated to avoid major problems.
- Reducing the Costs of Subdividing Lots - If a township knows that the total number of homes in an agricultural area will be limited, it may be logical for the township to reduce certain regulations for new lots in that area. For example, the township could roads to be more narrow in the agricultural area than in a residential area. The township could permit subdivision plans in the agricultural area to be simpler, which saves engineering costs and time. Curbing can be waived in agricultural areas. As a result, it would be less expensive to create one, two or three new lots.
- Minimizing the Total Amount of Land that is Developed - Agricultural zoning can direct most homes to locations where they can be served by central water and central sewage services. This greatly minimizes the total amount of land that is developed, and avoids sprawl. For example, if

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there is demand for 50 new homes, and if the homes use wells and septic systems, the homes would typically consume 70 or more acres. However, if the same 50 homes are developed with central water and sewage services, they could easily be accommodated on 15 acres. Therefore, the sprawled development consumes 5 or more times as much land for the same number of homes.

- Making it Easier for Farmers to Expand their Farms - Many farmers find that they must farm larger amounts of land in order to be efficient. This becomes difficult when farmers find they are outbid by developers and speculators.

This type of agricultural zoning is in place in large areas of York and Lancaster counties and a few townships in Lehigh County (including western Lower Macungie and northwestern Upper Saucon). This type of zoning has also been upheld in several major court cases in Pennsylvania.

In agricultural areas, new homes should be carefully located so that conflicts with agricultural activities are minimized. A new home should be placed where it will be as far from livestock and poultry operations as possible. Home locations should also consider prevailing winds.

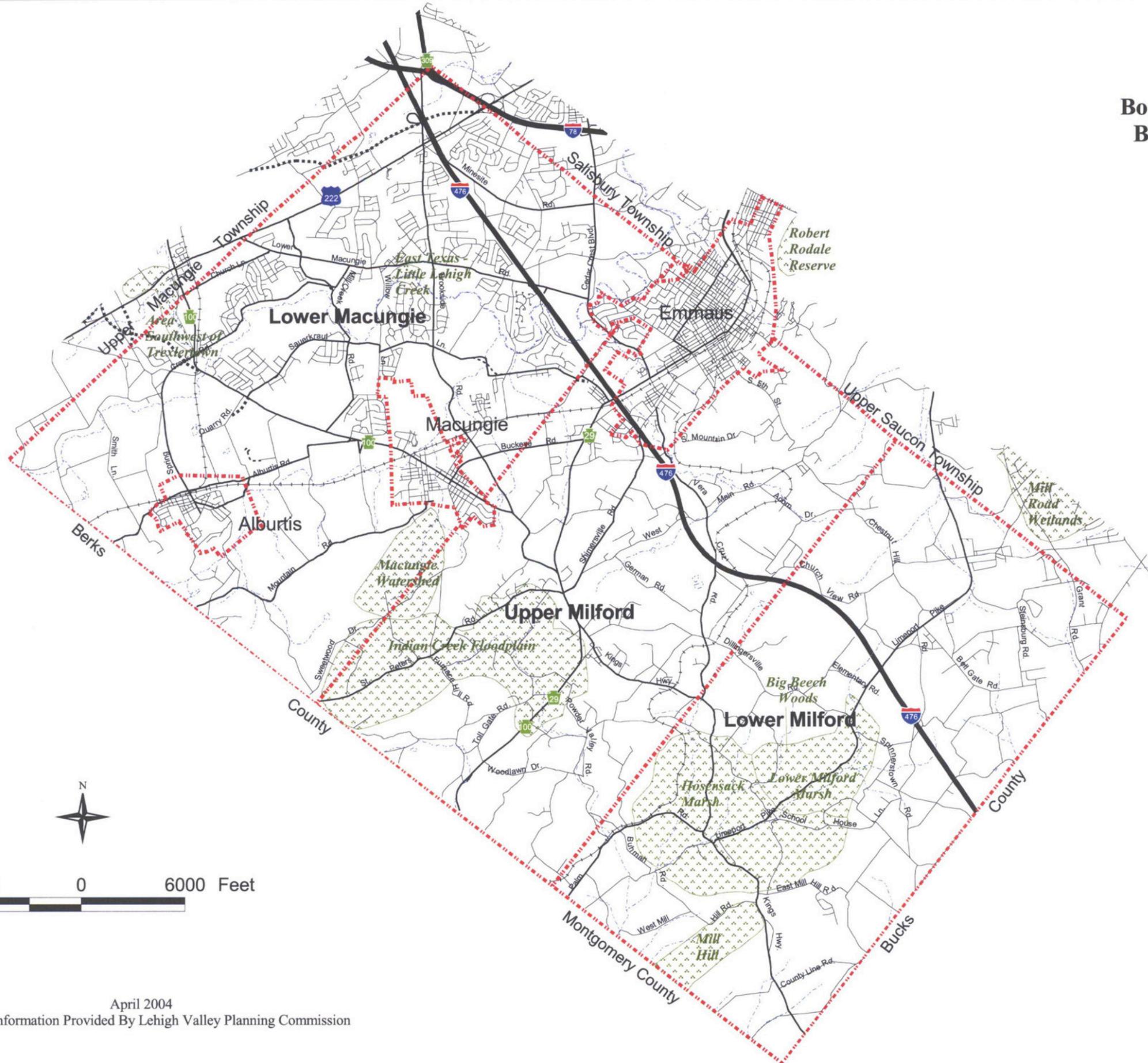
One goal of agricultural conservation zoning is to try to maintain farmland in large tracts (preferably over 50 acres) that can be efficiently farmed. The intent is to try to avoid the subdivision of farmland into 3 to 10 acre lots that waste land and are too small to farm. To minimize the consumption of land, each new home lots should have the smallest lot area that still meets septic requirements (which will typically be one to two acres).

As described in the Land Use and Housing Plan section, through Transfer of Development Rights, developers should be encouraged to pay property owners in these areas to preserve their land. In return, the developer could achieve a higher density in the residential areas. Owners of land in the Agricultural conservation area should be given a bonus if they sell their development rights. Therefore, for instance, for every housing unit that is not built in the Agricultural conservation area, a developer should be allowed to build 5 housing units in another location. This incentive would help to compensate landowners for preserving their land.

A range of livestock and poultry uses should be allowed throughout the townships. However, the most intensive types of livestock uses, especially large swine farms, need to be carefully controlled to prevent severe water pollution hazards and extreme nuisances. These very intense livestock uses should be limited to sites with very large setbacks from residential zoning districts and creeks.

For any new home in an agricultural area, a township could require that a notice be placed on the deed informing a purchaser that they are buying a home in an agricultural zoning district, and should expect some nuisances from routine farming operations.

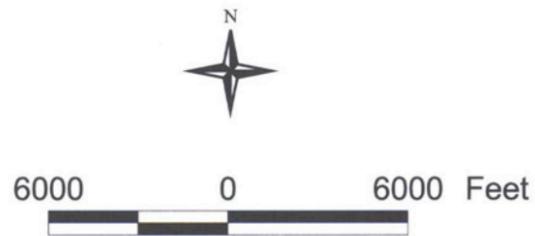
**Regional  
Comprehensive Plan  
For  
Borough of Albury, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



**Important Natural Areas**

 Natural Areas (generalized boundaries)

As categorized by the Nature Conservancy in A Natural Areas Inventory of Lehigh and Northampton Counties, 1999.

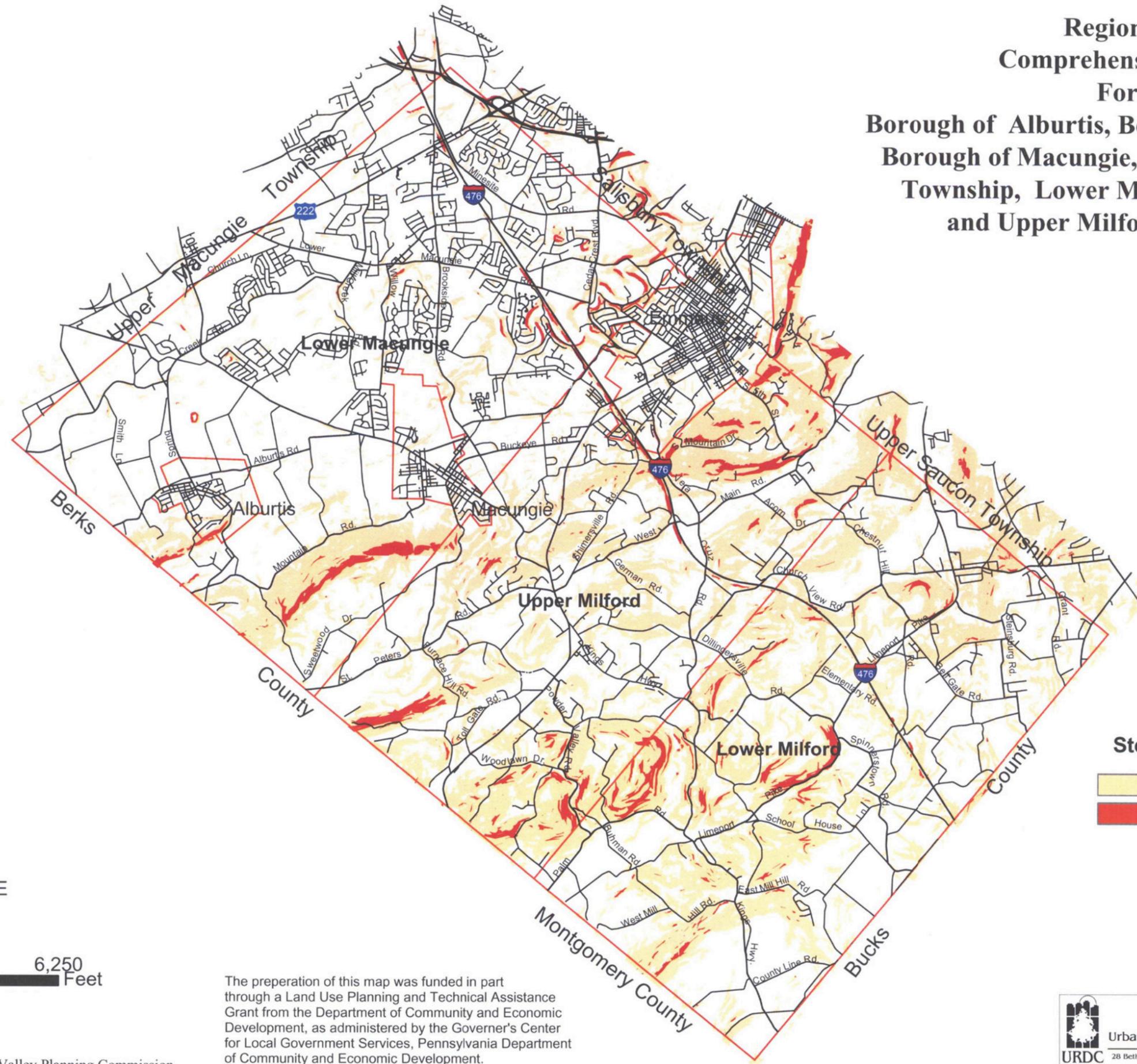


April 2004  
Base Map Information Provided By Lehigh Valley Planning Commission


 Community Planning Consultants  
**Urban Research & Development Corporation**  
 28 W. Broad St. • Bethlehem, Pennsylvania 18018 • 610-865-0701

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**Regional  
Comprehensive Plan  
For  
Borough of Alburtis, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



**Steep Slopes**

- Steep Slopes (15-24%)
- Very Steep Slopes (>25%)



6,250 0 6,250 Feet

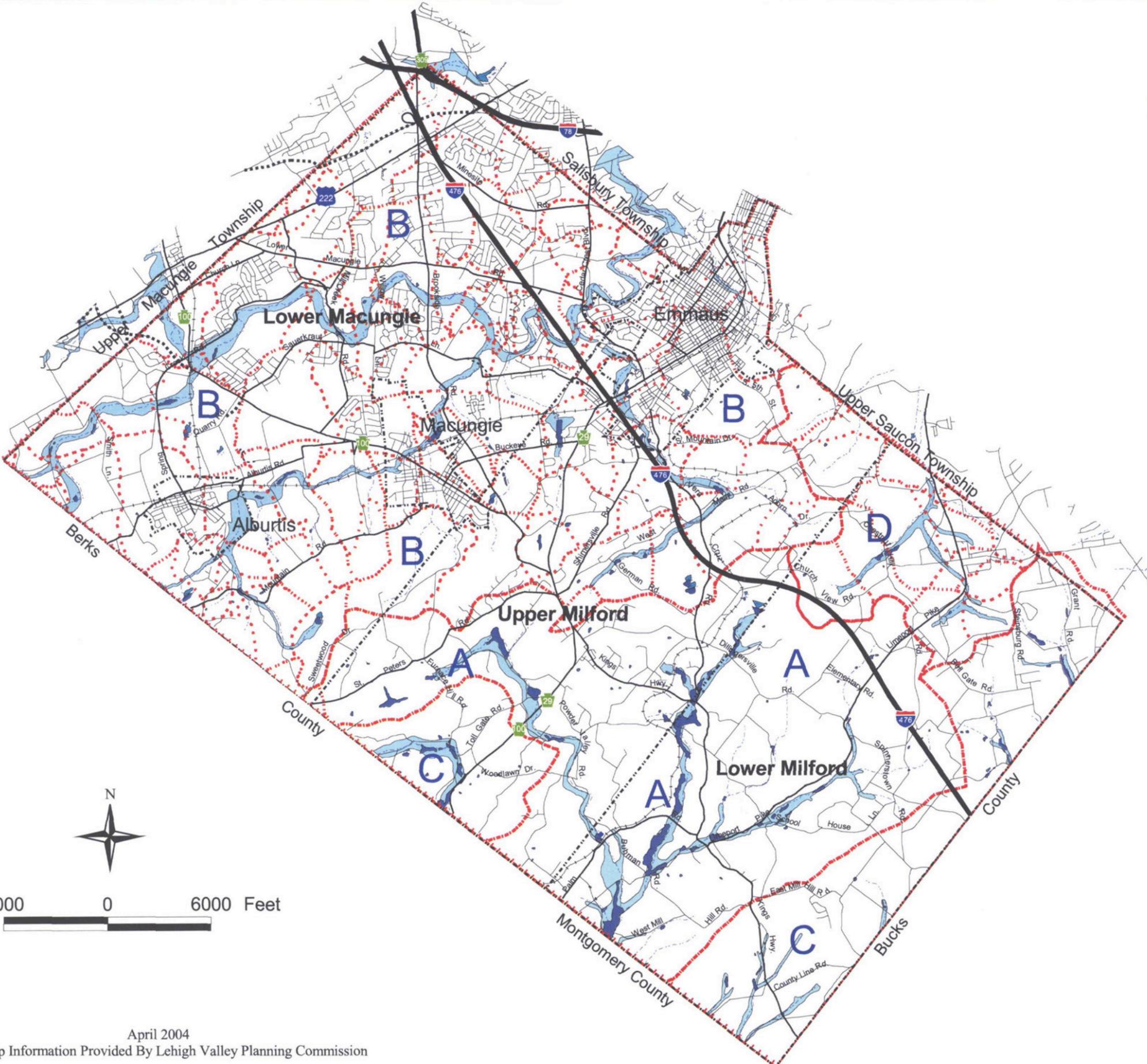
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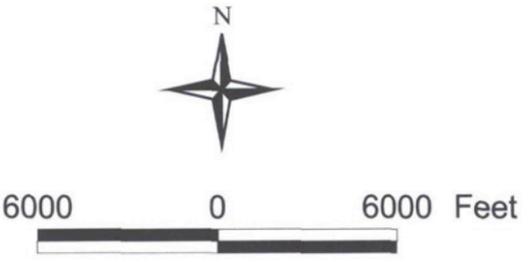


**Regional  
Comprehensive Plan  
For  
Borough of Alburdis, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



**Water Resources**

-  100 Year Floodplains
-  Known Wetlands (From National Wetland Inventory)
-  Watershed Boundary
-  Subwatershed Boundary
- A** Hosensack Creek
- B** Little Lehigh Creek
- C** Perkiomen Creek Headwaters
- D** Saucon Creek

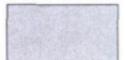


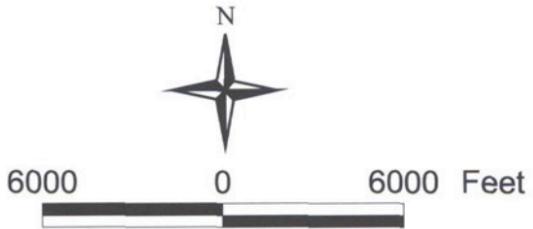
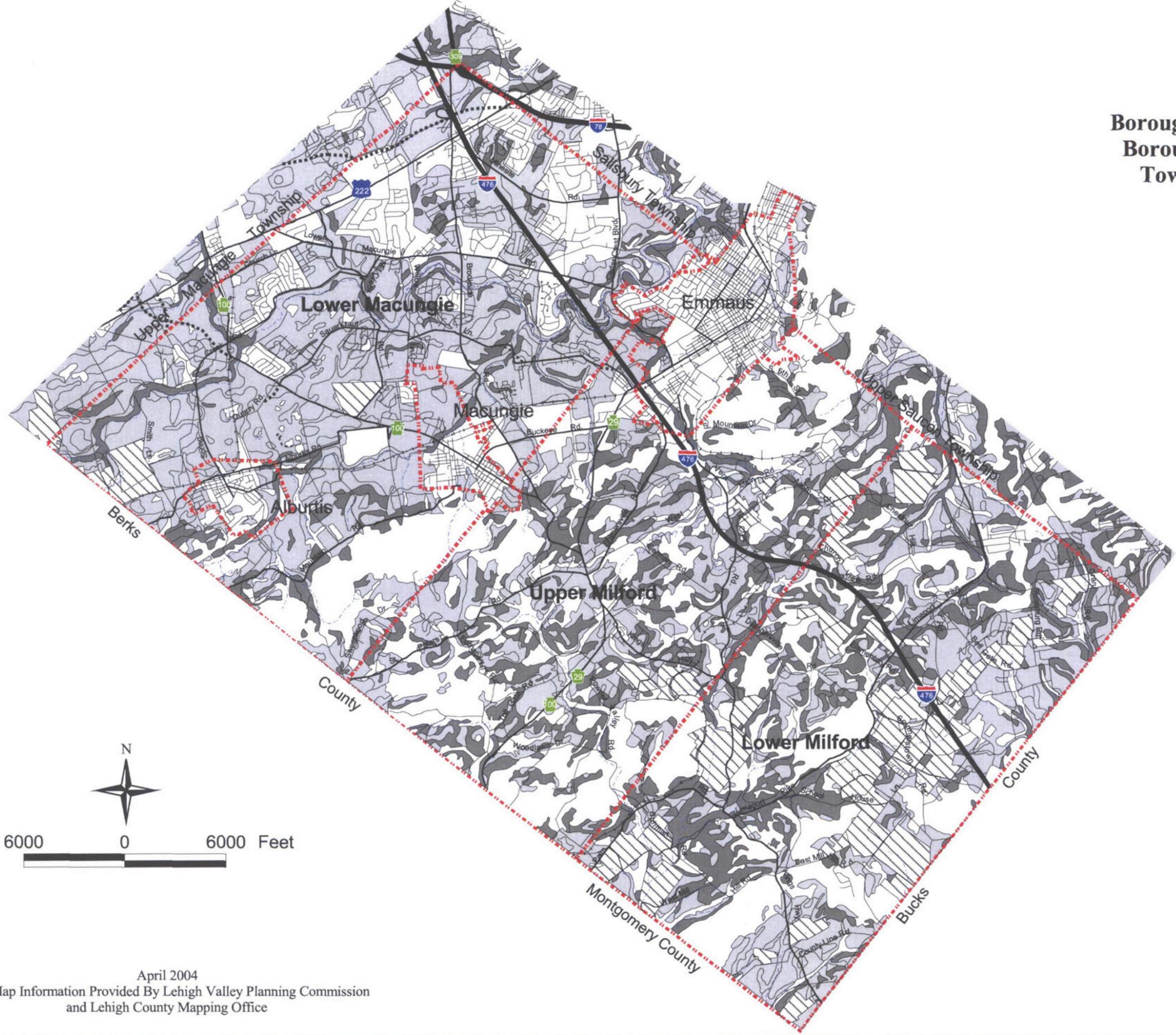

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The preparation of this map was financed in part through a Land Use Planning and Technical Assistance Grant from the Department of Community and Economic Development, as administered by the Governor's Center for Local Government Services, Pennsylvania Department of Community and Economic Development.

**Regional  
Comprehensive Plan  
For  
Borough of Alburdis, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**

**Prime Agricultural Soils  
and Preserved Farmland**

-  Class I & II (Very Good Soils)
-  Class III (Good Soils)
-  Land Permanently Preserved by Agricultural Easements



April 2004  
Base Map Information Provided By Lehigh Valley Planning Commission  
and Lehigh County Mapping Office


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## **LAND USE AND HOUSING PLAN**

This section recommends policies for land development and redevelopment throughout the region, including policies for different types of housing.

### **Housing Needs and Forecasted Growth**

Data from the U.S. Census about housing in the six municipalities is provided in the Appendices of this report. From 1990 to 2000, there was a dramatic increase of 17 percent in the number of housing units in Southwestern Lehigh County. The bulk of the increase (1,193 units) was in Lower Macungie Township.

The housing market in this region is skewed by the movement of new residents from outside of Lehigh County. Much of this market comes from persons moving from New Jersey and the Philadelphia suburbs. Therefore, the current housing construction is not simply meeting needs of local residents, and this trend is expected to continue. Many of these new residents are attracted by the ability to be able to buy "more house for the money" than they can in other areas. Also, the reputations of the East Penn and Southern Lehigh School Districts have helped to drive the housing market. The housing market in the boroughs has been much more stable in recent years, with little new construction.

Different types of households need different types of housing. For example, persons with lower incomes often cannot afford the closing costs to buy their own home, and therefore seek affordable rental housing. Older persons are often seeking low maintenance living arrangements, such as apartments, condominiums, assisted living centers or other types of developments where most outdoor maintenance is handled by a homeowner association. Persons with children are often seeking homes with larger yards.

Macungie, Alburtis and Emmaus are much older and denser municipalities than the townships, and therefore has a higher percentage of attached housing. However, Lower Macungie Township still has a diverse housing stock. In 2000, 34 percent of Lower Macungie Township's housing units were twins, townhouses, apartments, or manufactured homes. The percentage of twins, townhouses and apartments was much lower in Lower Milford and Upper Milford Townships because of the limited availability of central sewage service.

There has been a major increase in the number of smaller households. This increase arises from the facts that many persons are living longer, that divorce rates have increased, and that many persons are delaying marriage. The average number of persons per household ranges from 2.2 in Emmaus and Macungie to 2.7 in Upper Milford, Lower Macungie and Alburtis. The average persons per household can be directly correlated to the percentage of apartments in each municipality and the percentage of persons age 65 and older. For example, a very high 19 percent of Emmaus residents were age 65 or older in 2000. Fourteen percent of Lower Macungie's residents in 2000 were 65 or older, but that is skewed by a number of nursing homes and personal care centers.

In 2000, the Census reported low vacancy rates (2 to 4 percent) in each municipality among the housing units.

*Southwestern Lehigh County Comprehensive Plan of 2005*

In areas recommended by this Plan for higher densities, the private market should be allowed to determine the housing types that are built. As a general rule, newer homes are more expensive than older homes, and homes on larger lots are more expensive than homes on smaller lots. This Plan recommends an emphasis on encouraging Open Space Development. Open Space Development allows homes on modest sized lots with modest lot widths. This reduces the costs of improvements per home compared to larger lots.

The Lehigh Valley Planning Commission projects an increase in population of 4,777 persons for the Southwest Lehigh County Region from 2000 to 2010 and an further increase of 5,096 persons from 2010 to 2020. Using 2002 populations estimated by the U.S. Census, the population of the six municipalities is forecast to increase by 2,284 persons from 2002 to 2010. This 2,284 person increase is equal to approximately 914 housing units at an average of 2.5 persons per household. The acreages that are needed before 2010 can be easily accommodated by the land areas in this Comprehensive Plan, particularly considered the over 2,000 housing units that have been approved or submitted for approval, but which have not yet been built.

The following table converts the LVPC's projected population increase for 2020 into acreage needed for new housing development. At the forecasted average densities, a total of 1,321 acres of land would be needed for new residential development. That is equivalent to approximately three percent of the total land area of the six municipalities. The amount of land consumed by development would vary greatly with the allowed density. Much of the land consumption could occur in Lower Milford, because this Plan promotes Open Space Development in that Township with a low overall density of 0.5 dwellings per acre, but with 40 to 50 percent of a tract permanently preserved in open space.

This Comprehensive Plan is mainly intended to serve for a 10 to 12 year time frame. Therefore, this Comprehensive Plan should be re-examined in approximately 10 years to ensure that the acreages needed for 2020 can also be accommodated.

Municipality	2002 Census Estimate of Population	2020 LVPC Projected Population	Projected Population Increase 2002 to 2020	Estimated Average Density of New Development (Dwelling Units per Acre)	2000 Average Persons Per Household	Estimated Acreage Needed for New Development
Alburtis	2,098	2,202	104	4	2.7	9.6
Emmaus	11,250	11,313	63	4	2.3	6.9
L. Macungie	21,551	27,898	6,347	3	2.7	783.6
L. Milford	3,703	4,246	543	0.5	2.8	387.9
Macungie	3,076	3,039	- 37	4	2.2	0
U. Milford	7,010	7,370	360	1	2.7	133.3
Total	48,688	56,068	7,380			1,321.3

Southwestern Lehigh County Comprehensive Plan of 2005

The following are the total land areas of each municipality in acres:

Alburtis	397
Emmaus	1,812
Macungie	660
Lower Macungie	14,657
Lower Milford	12,620
Upper Milford	11,537
	-----
Total	41,683 acres

Several Pennsylvania court cases have looked at the following thresholds for the percentage of a municipality that allows various housing types:

- 1% of total land area = 416 acres
- 2% of total land area = 833 acres
- 3% of total land area = 1,250 acres

Several Pennsylvania court cases have upheld zoning where three percent or more of the municipality's total land area allowed attached housing. A reasonable argument could be made that unbuildable areas, such as steep areas of South Mountain and permanently preserved farmland, should be deleted from the total land area before calculating percentages allowing various housing types. This would result in increasing the percentage of the land area that allows attached housing. However, to be conservative and for the sake of simplicity, all of the acreages and percentages in this section are based upon total land area.

This Comprehensive Plan shows the following Medium High Density, High Density, Town Center and Village areas that are intended to allow mixed housing types, in acres:

Lower Milford	168
Lower Macungie	587 plus 85 acres in part of the Low Density Residential area of Lower Macungie where the Township is about to allow attached housing for age-restricted developments, plus another 25 acres in approved but nonconforming attached housing developments, plus 116 acres in existing but nonconforming manufactured home parks
Alburtis	141
Macungie	216
Emmaus	529
Upper Milford	189 plus 479 in Low Density Residential areas in Upper Milford that currently allow attached housing = 668

The above acreages total 2,535 acres, which is equivalent to 6 percent of the total land area of the region. That percentage is higher than the percentages that have typically been found to be exclusionary in previous court decisions.

To provide additional defense against exclusionary zoning challenges, this Plan recommends that the municipalities rezone existing non-conforming attached housing and manufactured home park

developments to make them conforming.

In addition, some additional commercial areas may allow apartments, and some additional lower density residential areas may allow attached housing/independent living units for seniors. Those areas are not included in the above acreages. For example, life care centers that include attached senior housing are currently allowed in many other low density residential areas in Lower Macungie.

The 2000 U.S. Census found the following breakdown of housing types in the region, as a percentage of total existing housing units:

Single family attached housing (twins and townhouses)	18%
Apartments with 2 to 4 units per building	3%
Apartments with 5 or more units per building	7%
Manufactured/mobile homes	3%
	-----
Total	31%

This 31% of the housing stock in twins, townhouses, apartments and manufactured/mobile homes is high for a mostly suburban area.

It will be important for the municipalities to jointly re-examine the Comprehensive Plan periodically (such as every 5 or 10 years) to consider whether additional areas should be zoned for various housing types. The goal is to have buildable land available to provide opportunities for all types of housing. However, if a landowner decides to build one type of use (such as single family detached housing) instead of another allowed use on the same land (such as apartments), then at least one court decision found that the burden of providing an opportunity had been met at that time. This is because the private market decided to build one housing type vs. another.

A municipality that is in the "path of growth" has much more obligation to provide for various housing types than a municipality that is not in the path of growth. A reasonable argument could be made that Lower Milford Township is not in the path of growth. One issue in the 2003 State Supreme Court case of Dolington Land Group was how to treat a situation in which one municipality in a region is not "in the path of growth." Should the land area of that municipality be considered separately from land area of more suburban municipalities? That issue was unresolved in that case. In that case and in a recent Commonwealth Court case, there also was an issue of whether land that is actively farmed should be considered as developed or undeveloped.

In Pennsylvania, there is no direct requirement that housing must be provided in certain price ranges. Instead, the test is whether various housing types are allowed in sufficient areas and in sufficient numbers.

A good faith effort has been made by providing for the following developments of attached housing in recent years. This list includes developments that were recently completed, are underway, or have been actively proposed but not yet built:

Alburtis Borough:

- Greentree Townhouses: 96 townhouses are proposed on an 18.06 acre parcel on the north side of Church Street in the northeastern portion of the Borough.
- Also land on the eastern edge of the Borough is being considered for a townhouse development.

Lower Macungie Township

- Brookside Farms: Approximately 175 units, some detached and some attached, near the intersection of Willow and Sauerkraut Lanes.
- Village at Farmington: A new age-restricted condominium complex of 256 units, north of Sauerkraut Lane.
- Harris York: Condominium complex being completed on the east side of Macungie Road adjacent to Millbrook Chase subdivision.
- Heritage Heights: Approximately 350 townhouses are being completed north of Spring Creek Road west of Route 100.
- Penn's West: Townhouse and apartment development of approximately 300 units on Mill Creek Road.
- Spring Creek Estates (multiple): Off Lower Macungie Road, includes townhouse sections, over 200 apartments, and an adjacent subdivision of duplexes, named the Landings.
- Spring Ridge Crossing: Several hundred townhouse units on the west side of Wild Cherry Road.
- Townes at Krocks: A townhouse development on east side of Krocks Road south of Hamilton Boulevard.
- Traditions at Wild Cherry Knolls: Mix of over 150 singles and attached units that are age-restricted that is being completed on east side of Wild Cherry Road.
- Village at Caramoor: Area north of Route 100 between Mill Creek Road and Willow Lane. Includes Legacy Oaks retirement community of attached housing and Penn Meadows assisted living center.
- Waterford Place: South side of Lower Macungie Road between Mill Creek and Spring Creek Roads - 202-unit apartment complex.
- Hills at Loch Ridge - 258 twins were approved south of the railroad east of Alburtis.

In recent years, Indian Creek Village was also completed in Lower Macungie Township, which included almost 200 mobile homes. Millbrook includes approximately 180 recently built twin homes on Lower Macungie Road at Wild Cherry. 80 condominiums were also built several years ago in Spring Creek Village east of Route 100 south of Trexlertown.

In 2001, for example, there were approximately equal number of attached housing units versus single family detached homes built in the Southwest Lehigh Region: 227 single family detached houses built versus 222 attached units.

In 2003, in the Southwest Lehigh Region, new subdivisions were approved for 467 attached housing units. This data shows a clear ability of the market to provide for attached housing in the region.

## 2002 Existing Land Uses Maps

Maps on the following pages illustrate the existing uses of different areas of the region, as of 2003.

## Summary of 2003 Existing Zoning Policies

The 2003 Existing Zoning Map on a following page illustrates the existing development regulation policies of the six municipalities. Some residential zoning districts are blended into the same category because they allow similar densities of housing.

Environmental Protection - This includes the South Mountain Conservation District in eastern Upper Milford, which requires a 2 acre minimum lot size. The current zoning (as of 2003) allows the lot size to be reduced to 1.1 acre through clustering.

Agricultural Conservation - This includes the far western part of Lower Macungie, where residential development is generally restricted to a maximum of 10 percent of a tract of land.

Rural - This includes the majority of the land area of Upper Milford, Lower Milford and southern Lower Macungie. These areas of Lower Macungie (including many areas of steep slopes) require a 2 acre minimum. This district also includes an area along Grange Road around the planned Route 222 bypass. These areas of Upper Milford require a 1.1 acre lot, which can be reduced to about 0.9 acre through clustering.

- These areas of Lower Milford (which are within the AR district) require a 2 acre lot size. However, a larger lot size is typically required in Lower Milford if a tract includes large areas of steep slopes, floodprone land, wetlands or similar natural features.
- Care is needed to make sure that intensive non-residential uses are properly controlled in rural areas, such as quarries, airports and landfills. If these uses need to be located in a rural area, the rural district should be separated into two districts so that these uses can be prohibited in most of a municipality.
- Lower Milford and Lower Macungie do not have provisions for clustering of housing. The provisions that had been in effect in Lower Macungie were removed because the standards in place were not adequate to meet Township objectives.

Low Density Residential - These areas provide for development at approximately 2 to 3 homes per acre, if there are central water and sewage services. This includes the eastern part of Lower Milford, which requires 1.5 acre lots if on-lot well and septic are used. The Low Density Residential areas of Upper Milford also allow for mixes of housing types, and clustering of housing on smaller lots. The village of Vera Cruz (which is planned to be sewerred) is in this category. These areas also include most lands east of Route 100 and south of Spring Creek Road in central Lower Macungie.

Medium Density Residential - These areas provide for residential development at approximately 3 to 4 homes per acre. These areas include most of the existing single family subdivisions in Lower Macungie and some lands in Upper Milford west of Emmaus. Lower Milford Township recently added a new Village Residential zoning district along the east side of Limeport Pike in the far eastern part of the Township. That district allows a mix of housing

types, and increased density if standards are met for a "Traditional Neighborhood" development.

High Density Residential - These areas provide for residential development at 5 or more homes per acre. These areas also provide for a mix of housing types.

Retail Commercial - These areas mainly provide for commercial development.

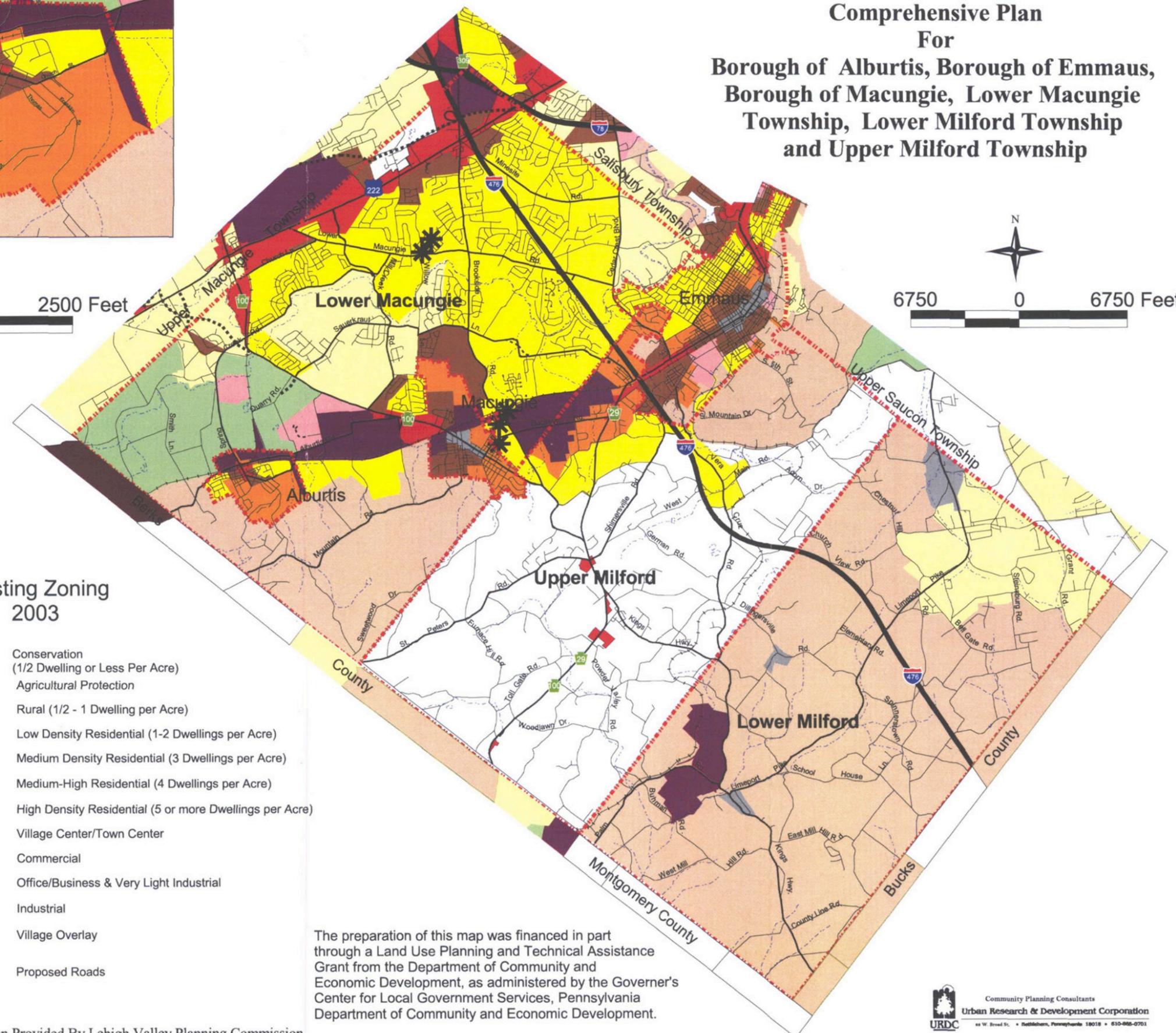
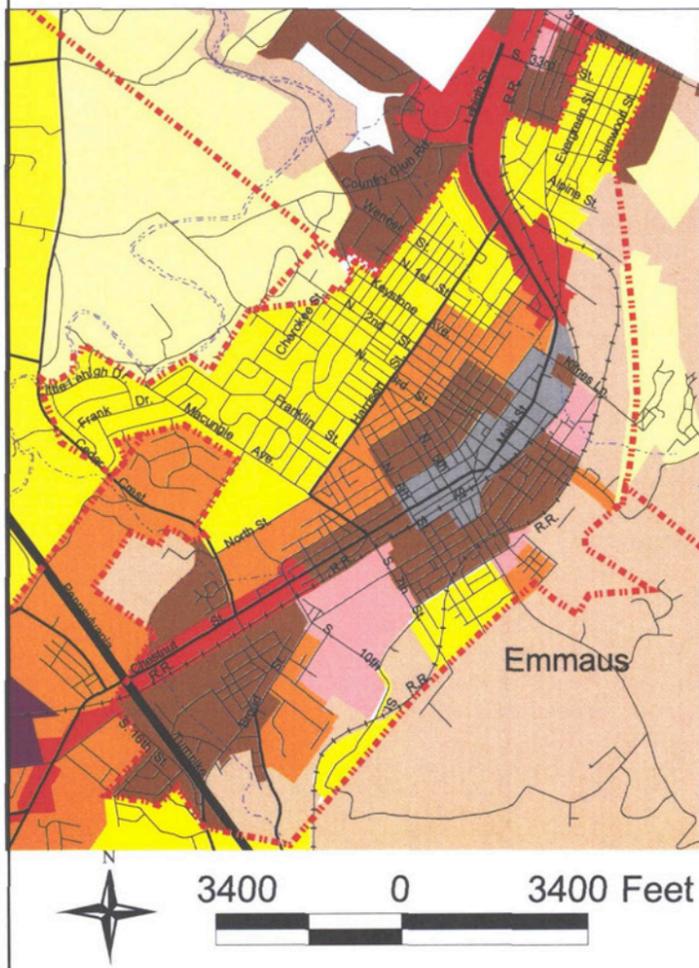
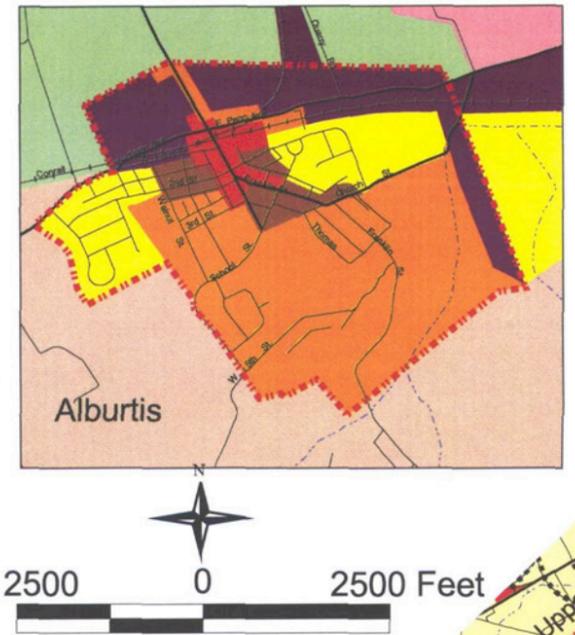
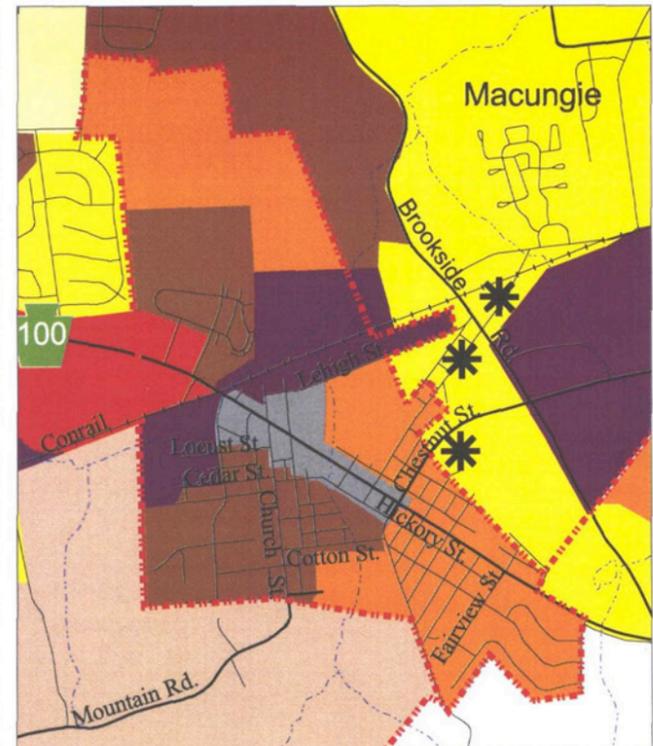
- In Alburtis's commercial district, heavier commercial uses (such as gas stations) need conditional use approval from Borough Council. Macungie has divided their commercial districts into two types: the older downtown areas are "Town Center" which does not allow heavier commercial uses such as gas stations, and the other areas (around the Weis) are "General Commercial" allowing a wide range of commercial uses.
- Outside of the downtowns, most commercially-zoned land in the region is concentrated along Route 222, along Route 100 north of Macungie and along Chestnut Street in Emmaus. Upper Milford has several relative small nodes of commercial zoning along Route 29.
- The townships have resisted establishing commercial zoning along a large number of other heavily traveled roads, such as most of Brookside Road, Cedar Crest Boulevard, Lower Macungie Road, Limeport Pike, Route 29 and Route 100.

Office/Business - This category includes land in Lower Macungie that is: 1) around the Lutron plant east of Spring Creek Road, and 2) along Schoeneck Road west of Route 100. This zoning district allows a mix of offices and very light industrial uses.

Light Industrial and Heavy Industrial - The largest industrially-zoned areas include: 1) the Mack plant and land along Alburtis Road to the northwest, 2) along the north side of the railroad tracks in Alburtis, 3) the Buckeye Pipeline complex, 4) the huge Hosensack electric station in Lower Milford, and 5) lands along Schantz Spring Road around Eastern Industries east of the Turpike. A thin strip of land in Alburtis between the County's Furnace Park and the new Jaindl development in Lower Macungie is zoned Light Industrial. We recommend it be changed to residential.

Mixed Uses - These are Village Center districts in Lower Milford. These are located in Hosensack, Dillingersville and Limeport. These areas allow a mix of single family homes, two family homes and light commercial uses. Some heavier uses (such as gas stations and auto sales) are allowed with Zoning Hearing Board approval.

# Regional Comprehensive Plan For Borough of Alburts, Borough of Emmaus, Borough of Macungie, Lower Macungie Township, Lower Milford Township and Upper Milford Township



- Existing Zoning 2003**
- Conservation (1/2 Dwelling or Less Per Acre)
  - Agricultural Protection
  - Rural (1/2 - 1 Dwelling per Acre)
  - Low Density Residential (1-2 Dwellings per Acre)
  - Medium Density Residential (3 Dwellings per Acre)
  - Medium-High Residential (4 Dwellings per Acre)
  - High Density Residential (5 or more Dwellings per Acre)
  - Village Center/Town Center
  - Commercial
  - Office/Business & Very Light Industrial
  - Industrial
  - Village Overlay
  - Proposed Roads

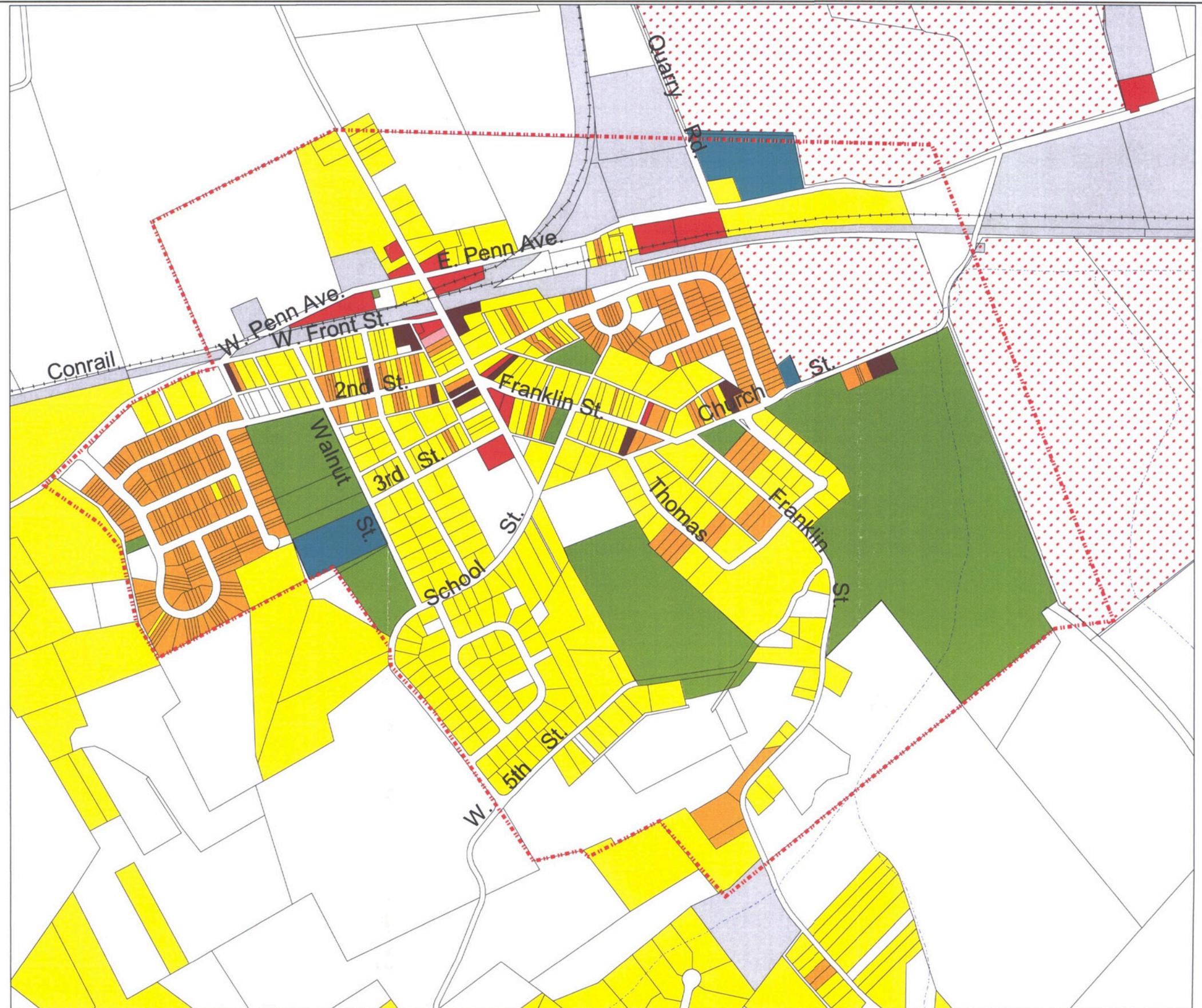
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Base Map Information Provided By Lehigh Valley Planning Commission

# Borough of Alburtis Lehigh County, PA

## Existing Land Use

-  Single Family Residential
-  Townhouses and Duplexes
-  Apartments
-  Commercial
-  Commercial/Residential
-  Industrial
-  Private Recreation
-  Public Buildings & Parks
-  Institutions & Schools
-  Agriculture & Vacant
-  Proposed Developments

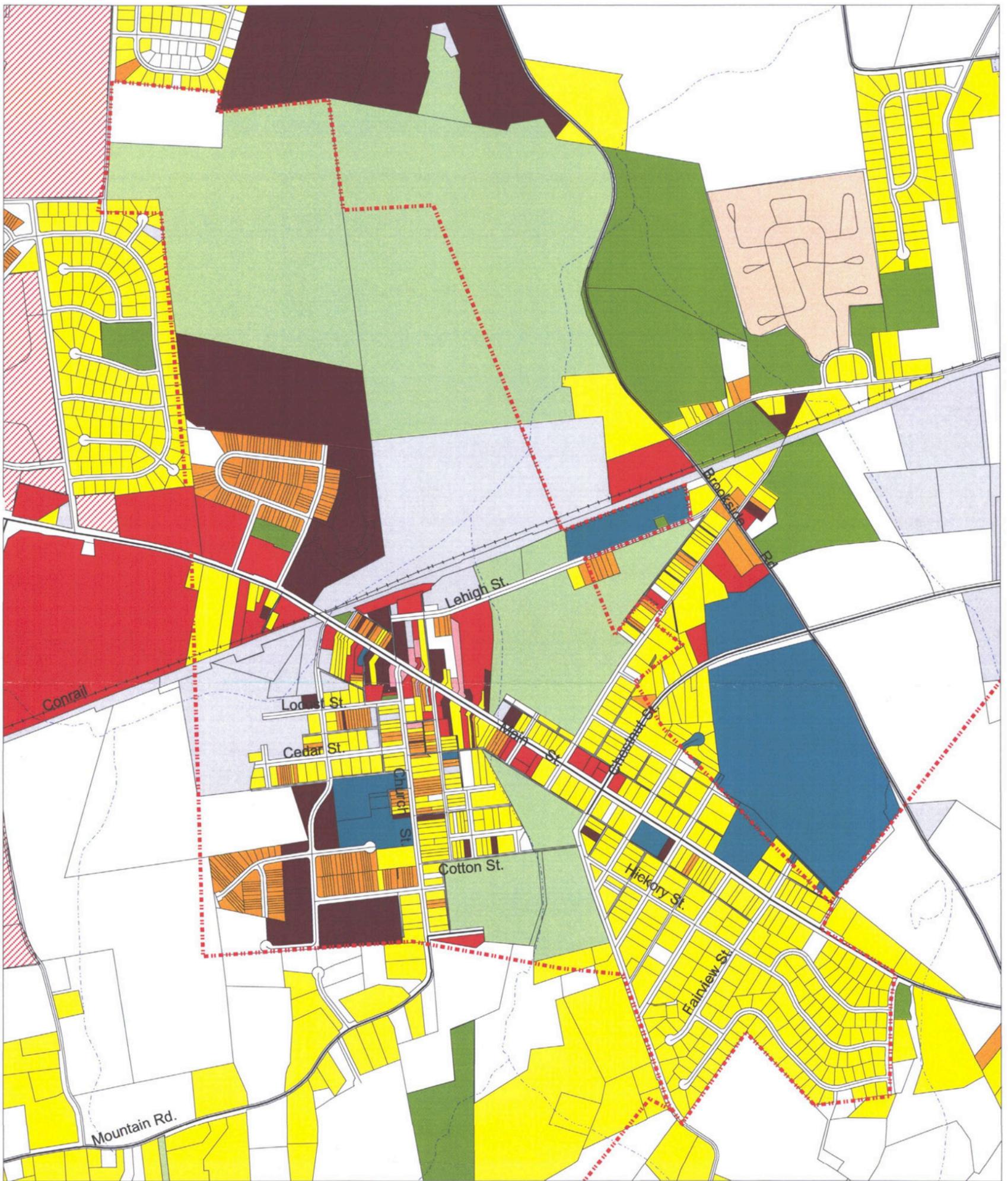


Base Map Information Provided By Lehigh Valley Planning Commission



# Borough of Macungie

## Lehigh County, PA



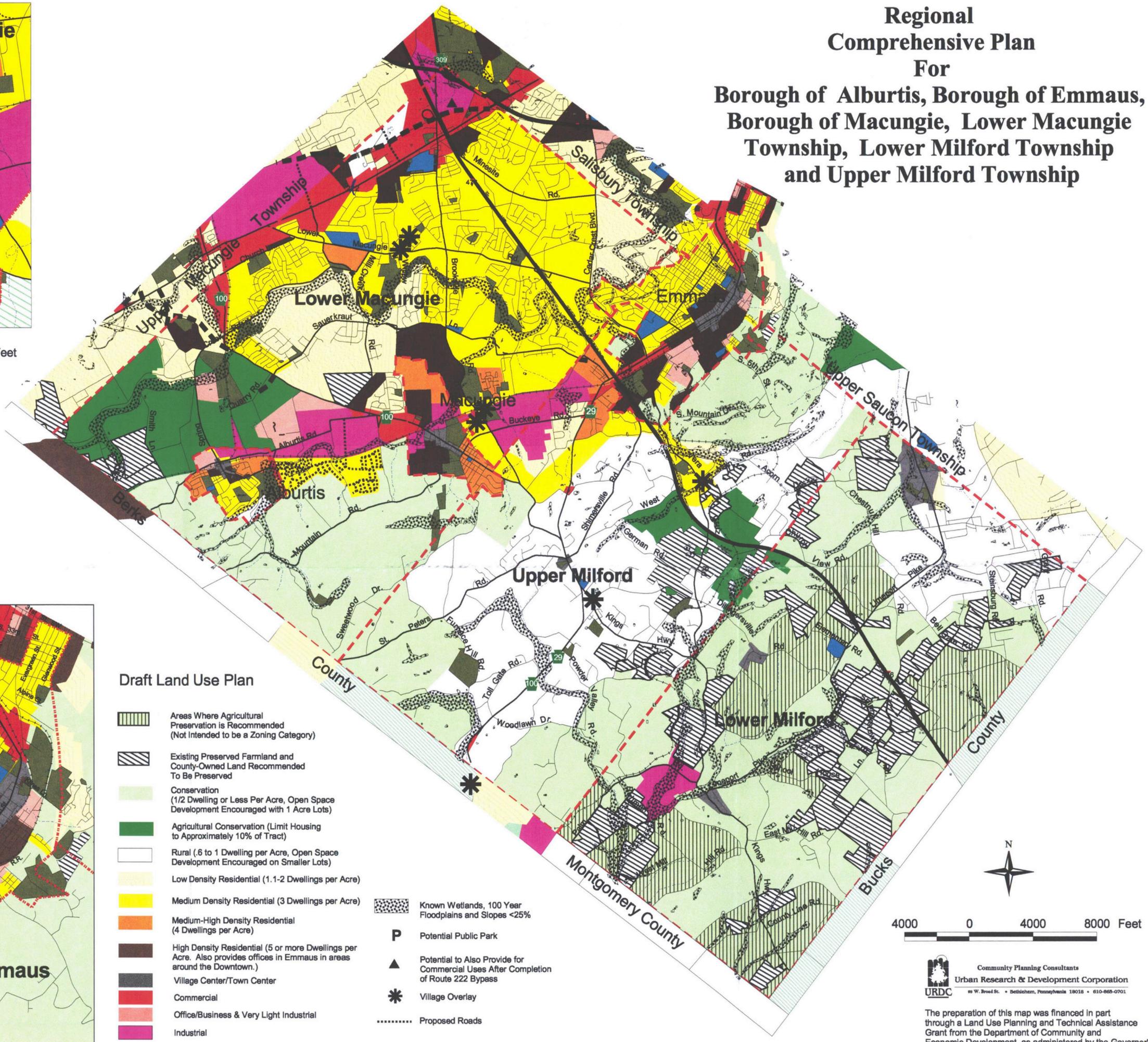
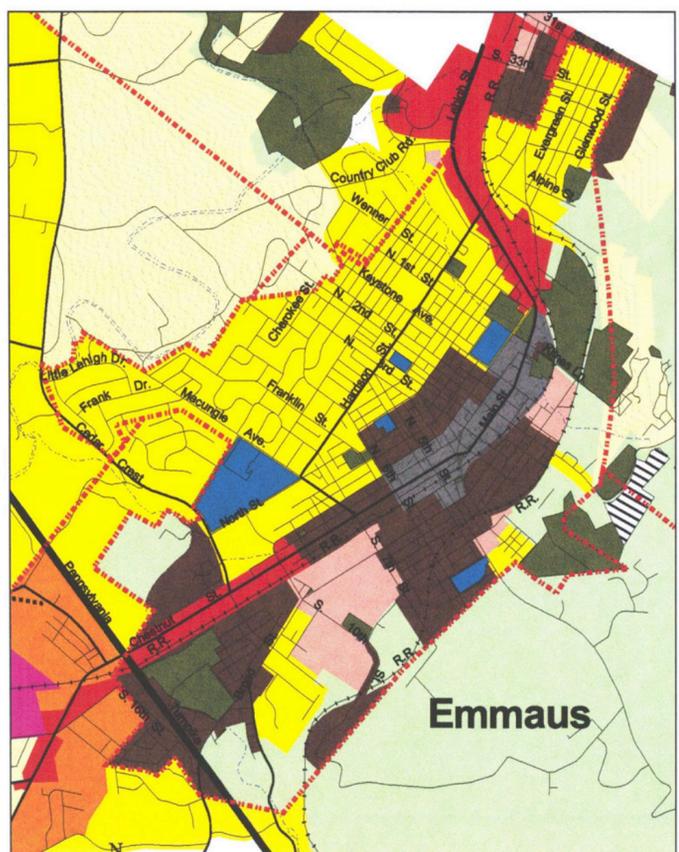
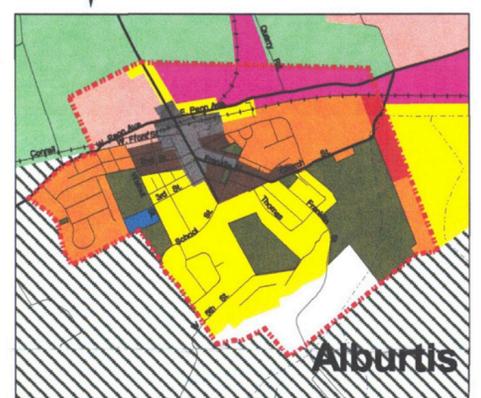
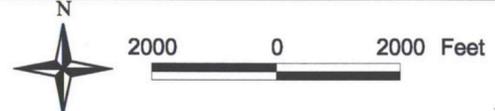
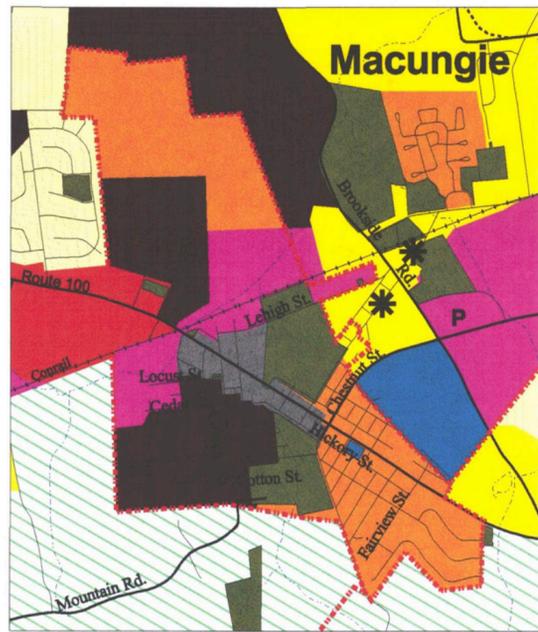
### Existing Land Use

- |   |                           |   |                          |
|---|---------------------------|---|--------------------------|
|  | Single Family Residential |  | Public Buildings & Parks |
|  | Townhouses and Duplexes   |  | Institutions & Schools   |
|  | Apartments                |  | Agriculture & Vacant     |
|  | Commercial                |  | Proposed Developments    |
|  | Commercial/Residential    |   |                          |
|  | Industrial                |   |                          |
|  | Private Recreation        |   |                          |



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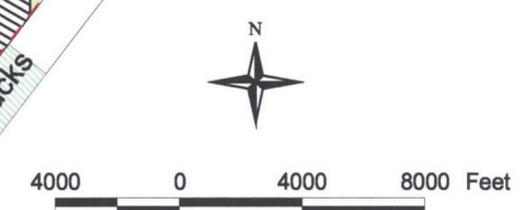
# Regional Comprehensive Plan For Borough of Alburdis, Borough of Emmaus, Borough of Macungie, Lower Macungie Township, Lower Milford Township and Upper Milford Township



## Draft Land Use Plan

- Areas Where Agricultural Preservation is Recommended (Not Intended to be a Zoning Category)
- Existing Preserved Farmland and County-Owned Land Recommended To Be Preserved
- Conservation (1/2 Dwelling or Less Per Acre, Open Space Development Encouraged with 1 Acre Lots)
- Agricultural Conservation (Limit Housing to Approximately 10% of Tract)
- Rural (.6 to 1 Dwelling per Acre, Open Space Development Encouraged on Smaller Lots)
- Low Density Residential (1.1-2 Dwellings per Acre)
- Medium Density Residential (3 Dwellings per Acre)
- Medium-High Density Residential (4 Dwellings per Acre)
- High Density Residential (5 or more Dwellings per Acre. Also provides offices in Emmaus in areas around the Downtown.)
- Village Center/Town Center
- Commercial
- Office/Business & Very Light Industrial
- Industrial
- Community Facilities and Parks
- Public Schools
- Known Wetlands, 100 Year Floodplains and Slopes <25%
- Potential Public Park
- Potential to Also Provide for Commercial Uses After Completion of Route 222 Bypass
- Village Overlay
- Proposed Roads

Base Map Information Provided By Lehigh Valley Planning Commission

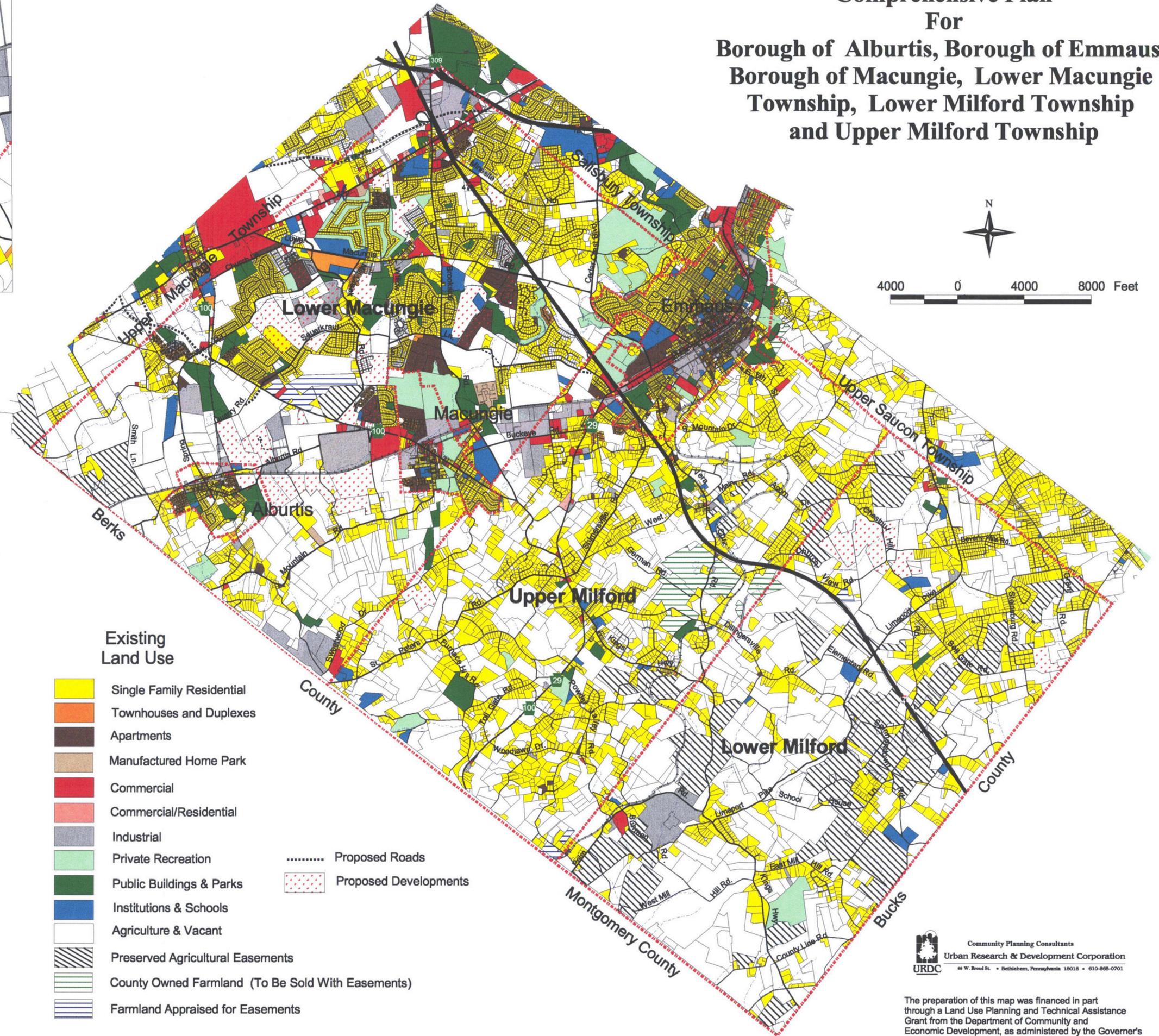
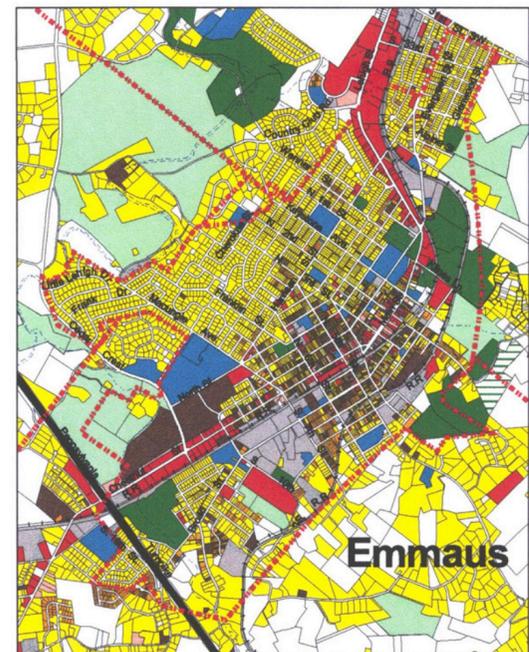
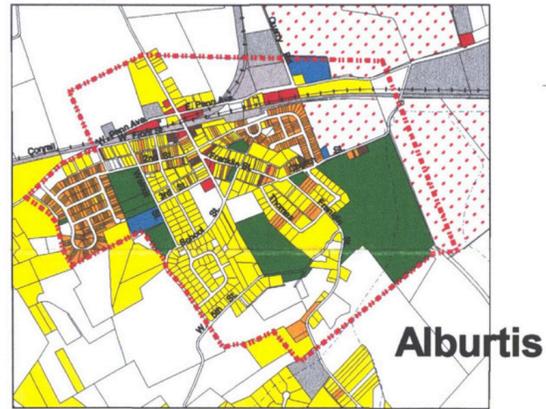
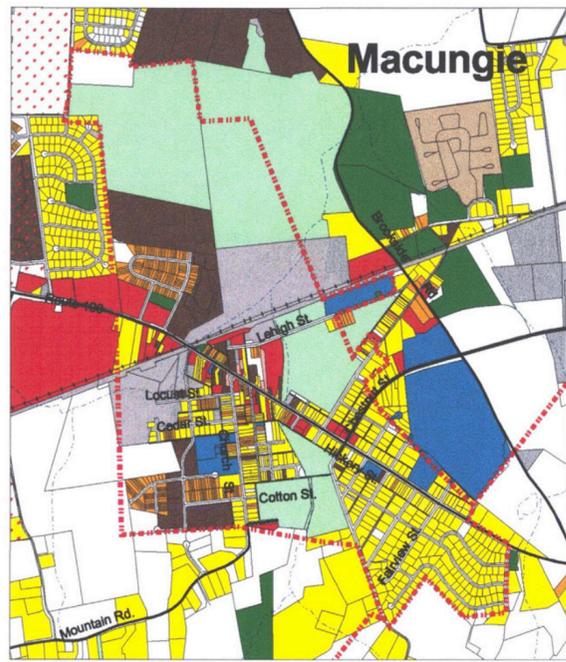


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# Regional Comprehensive Plan For

## Borough of Alburts, Borough of Emmaus, Borough of Macungie, Lower Macungie Township, Lower Milford Township and Upper Milford Township



### Existing Land Use

- Single Family Residential
- Townhouses and Duplexes
- Apartments
- Manufactured Home Park
- Commercial
- Commercial/Residential
- Industrial
- Private Recreation
- Public Buildings & Parks
- Institutions & Schools
- Agriculture & Vacant
- Preserved Agricultural Easements
- County Owned Farmland (To Be Sold With Easements)
- Farmland Appraised for Easements

- Proposed Roads
- Proposed Developments

Base Map Information Provided By Lehigh Valley Planning Commission

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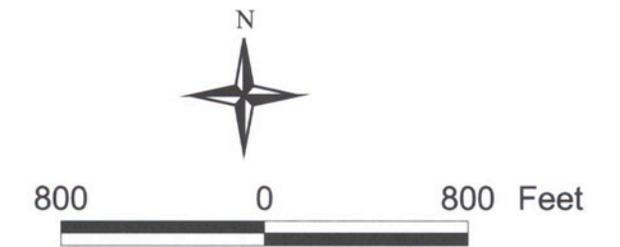
# Borough of Alburdis

## Lehigh County, PA



### Draft Land Use Plan

-  Conservation (1/2 Dwelling or Less Per Acre, Open Space Development Encouraged with 1 Acre Lots)
-  Agricultural Conservation (Limit Housing to Approximately 10% of Tract)
-  Rural (.6 to 1 Dwelling per Acre, Open Space Development Encouraged on Smaller Lots)
-  Medium Density Residential (2 to 4 Dwellings per Acre)
-  Medium-High Density Residential (4 to 5 Dwellings per Acre)
-  High Density Residential (5 or more Dwellings per Acre. Also provides offices in Emmaus in areas around the Downtown.)
-  Village Center/Town Center
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-  Office/Business & Very Light Industrial
-  Industrial
-  Community Facilities and Parks
-  Public Schools



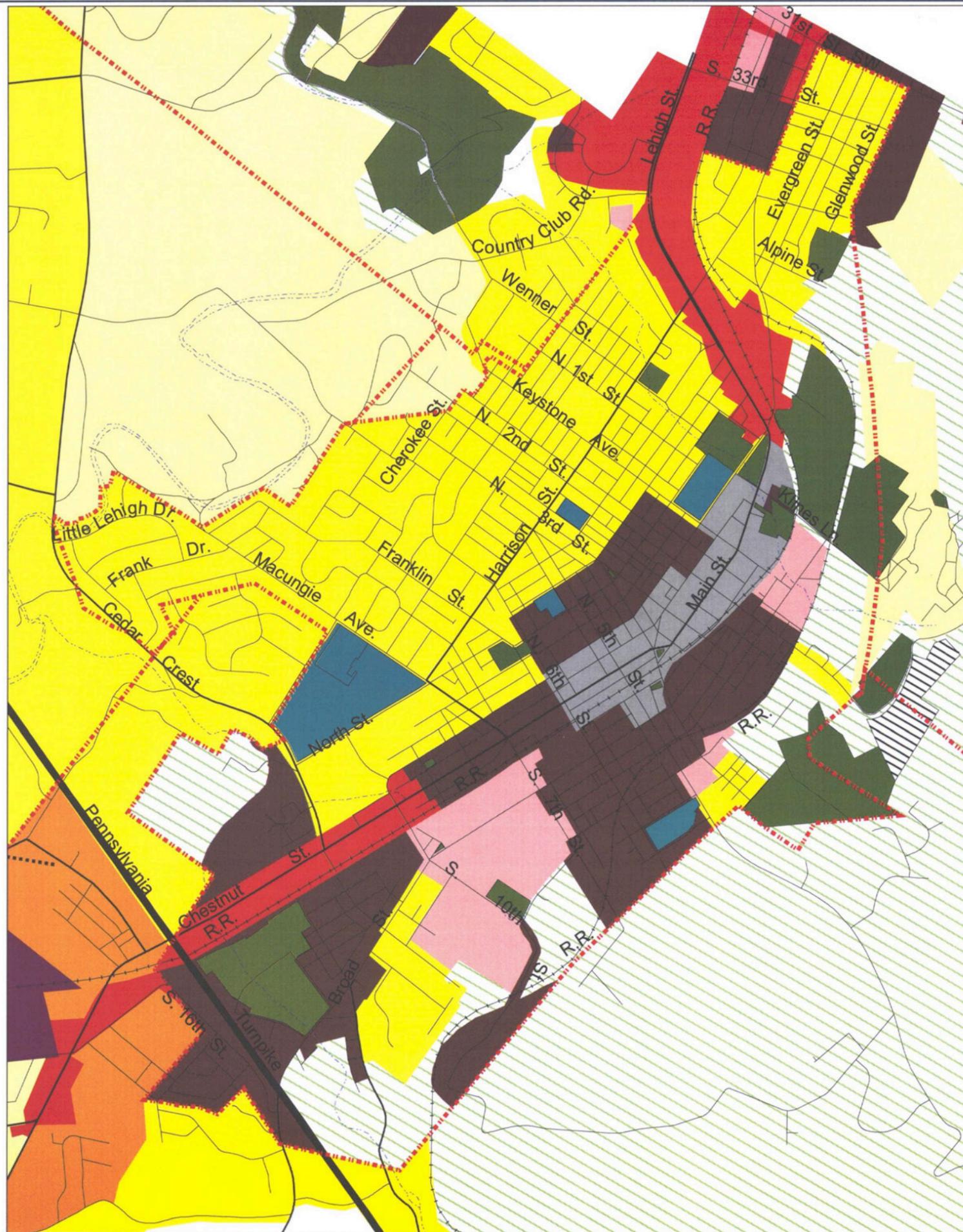
Base Map Information Provided By Lehigh Valley Planning Commission

# Borough of Emmaus

## Lehigh County, PA

### Draft Land Use Plan

-  Existing Preserved Farmland (Includes County-Owned Land To Be Sold With Easements)
-  Conservation (1/2 Dwelling or Less Per Acre, Open Space Development Encouraged with 1 Acre Lots)
-  Agricultural Conservation (Limit Housing to Approximately 10% of Tract)
-  Rural (.6 to 1 Dwelling per Acre, Open Space Development Encouraged on Smaller Lots)
-  Low Density Residential (1.1-2 Dwellings per Acre)
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-  Industrial
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-  Public Schools



Base Map Information Provided By Lehigh Valley Planning Commission



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# Borough of Macungie

## Lehigh County, PA

### Draft Land Use Plan

-  Conservation (1/2 Dwelling or Less Per Acre, Open Space Development Encouraged with 1 Acre Lots)
-  Low Density Residential (1.1 - 2 Dwellings per Acre)
-  Medium Density Residential (3 Dwellings per Acre)
-  Medium-High Density Residential (4 Dwellings per Acre)
-  High Density Residential (5 or more Dwellings per Acre)
-  Village Center/Town Center
-  Commercial
-  Industrial
-  Community Facilities and Parks
-  Village Overlay



1000 0 1000 Feet




Base Map Information Provided By Lehigh Valley Planning Commission



Community Planning Consultants  
**Urban Research & Development Corporation**  
 28 W. Broad St. • Bethlehem, Pennsylvania 18018 • 610-865-0701

## **Land Use Plan Recommendations**

The following describes land use categories, as shown on the Land Use Plan Maps on the preceding pages. In most cases, these categories are intended to generally relate to zoning districts. The Land Use Plan is primarily intended to:

- a) protect existing residential neighborhoods,
- b) moderate the rate of housing construction to avoid overloading the public school systems, roads, utilities and groundwater supplies,
- c) coordinate development across municipal borders, including municipalities that are not part of the Regional Comprehensive Plan,
- d) avoid serious traffic congestion and safety problems, particularly by avoiding new commercial strip development along major roads,
- e) promote new business development in appropriate locations, particularly by strengthening older business areas, with careful attention towards the types of businesses allowed in areas near homes, and
- f) make sure development properly relates to the natural features of the land, particularly to protect steeply sloped areas, major water supplies and creek valleys.

## Policies Affecting Many Land Use Categories

- In many residential areas, it would be desirable to provide a density bonus if housing is limited to persons age 55 and older. Also, in the boroughs and the more developed areas, it may be desirable to allow taller building heights (such as 6 stories) if an apartment building is limited to persons age 55 and older and if fire safety issues are fully addressed. In most other cases, outside of the downtowns of the boroughs, a maximum building height of 2 and 1/2 or 3 stories is recommended.
- To promote home ownership and neighborhood stability, and to avoid parking problems, the conversions of existing one family homes into additional numbers of housing units should be prohibited or very strictly regulated in most of the region.
- If any lot is not served by both central water and central sewage service, then a minimum lot size of at least one acre is recommended. Where higher densities are described in this Plan, they assume that both central water and central sewage services would be provided. If a new lot will be served by an on-lot septic system, the lot should be approved for both a primary and an alternative drain field location before the lot is created.
- It is recommended that places of worship (such as churches) and public and primary schools be allowed in most areas, except possibly some conservation and agricultural conservation areas. (Note - Federal and State law control the ability of a municipality to limit locations of religious activities. There are differing court opinions about whether a municipality can limit the location of a public school).
- To promote use of Transfer of Development Rights (described below), it would be appropriate to consider reducing the maximum densities of some of the residential districts in the townships if transfer of development rights is not used. The lower base densities should generate stronger interest in using TDRs.
- Interconnecting recreation trails should be sought, particularly to connect existing trails, the Little Lehigh Creek valley, the downtowns, neighborhoods, parks and schools. These trails will not only be beneficial for recreation, but also could be useful for bicyclists to reach work. An

emphasis should be placed on developing off-road trails that run parallel to roads that are unsafe for pedestrians and bicyclists and which cannot be easily improved, such as along Vera Cruz Road. These trails are described further in the Community Facilities and Services section.

- Thick natural vegetation should be preserved or planted along creeks to filter out pollutants from runoff, avoid erosion and maintain good water quality.

#### Existing Preserved Farmland and County-Owned Land Recommended to be Preserved

This category includes farmland that has already been permanently preserved by County conservation easements. These easements permanently preserve the land, although the land typically remains privately owned. This category also includes County-owned land, which this Plan recommends be protected by easements to prevent its future use for buildings. All of the lands in this designation are also recommended to be part of the Agricultural Conservation land use category, which is described below. In addition, the Existing Land Uses Map shows additional lands for which the County is considering for purchase of agricultural easements. As much as practical, farmland should be preserved adjacent to previously preserved farmland to result in large contiguous blocks with few homes.

#### Agricultural Conservation

The need for agricultural preservation and the method of agricultural conservation zoning are described in more detail in the Natural Features and Agricultural Conservation section of this Plan.

In these areas, residential development is recommended to be limited to approximately 10 percent of a tract of land. The remaining land would need to remain in large tracts. The intent is to preserve large contiguous areas of prime farmland, and to protect the public investment in conservation easements. One goal is to avoid a dense residential subdivision in the middle of permanently preserved farmland - to protect the investment of the public and the adjacent farmers.

Owners of land in these areas are strongly encouraged to sell conservation easements to the County. As an alternative, owners of land are encouraged to consider selling conservation easements to a developer in return for a "transfer of development rights" (as described later in this chapter).

In addition to controlling the number of homes in prime agricultural areas, it is also important to carefully locate new homes on a tract to minimize conflicts with agricultural activities.

This Plan recommends continuing the Agricultural Conservation zoning that exists in western Lower Macungie. This Plan also recommends adding Agricultural Conservation zoning on land in Upper Milford east and west of the Turnpike. Agricultural Conservation zoning should also be considered in the future in other areas of Upper Milford and Lower Milford, particularly where there is grass roots support among the majority of the property-owners.

Lower Macungie Township could provide an incentive to promote the preservation of land in the Agricultural areas through TDR (described later in this chapter). For example, for every home that would have been allowed on an Agricultural Conservation-zoned tract, the landowner could be allowed to sell the rights to a developer to build 2 additional homes in a more appropriate area of the Township.

Also in Lower Macungie, consideration should be given to allowing the Open Space Development option (see below), particularly in areas that are at the edges of the Agricultural Conservation areas. This could utilize extensions of a very limited extension of nearby public water and sewage services to allow clustering of homes. This option would guarantee permanent preservation of the majority of the land through permanent easements, as opposed to the temporary preservation that arises from zoning regulations. This option could also result in substantial areas of public parkland.

### Conservation

This category is mainly intended to include areas that are not logical locations for development. These areas are highly unlikely to ever be served by public water and sewage services. Most of these areas include sensitive natural features, including steeply sloped lands, creek valleys and wetlands. Portions of these areas have poor road access. Many of these roads would be extremely difficult, expensive or impossible to improve because of the presence of buildings, wetlands or cliffs close to the road.

These areas are intended to provide for approximately 2 or more acres per home, without open space preservation. A 3 acre or more minimum would be appropriate if a principal building is proposed on very steep slopes (over 25 percent). Stricter standards may be appropriate where there are large concentrations of steep slopes, particularly on the South Mountain in Upper Milford Township.

However, if an applicant chooses to use the Open Space Development option (described below), then approximately one or 1.5 acre minimum lots should be allowed, if 40 to 50 percent of the tract is permanently preserved in open space. Where farmland preservation is not feasible and a public park is not desired, then alternative open space uses could be appropriate, such as homeowner association open space, Christmas Tree Farms, plant nurseries, hayfields, golf courses, and horseback riding academies. Open Space Development is described later in this section.

Policies for the conservation of natural areas and agricultural preservation are described in the Agricultural and Natural Features Conservation Plan section. Where concentrations of prime agricultural soils exist in the Conservation areas, an emphasis should be placed upon agricultural preservation. A sub-category is shown on the Land Use Plan that is identified as "Areas Where Agricultural Preservation is Recommended." This is a sub-category of the Conservation land use category. This sub-category is not intended to result in a separate zoning district, but is instead intended to highlight some contiguous areas where agricultural preservation is most likely to be viable over the long-term.

This Plan recommends an emphasis upon encouraging the selling of agricultural easements to the County or the municipality. On large tracts, it may be desirable to use the Open Space Development option to lands for agriculture, such as tree farms. Where there is grass roots support among the majority of the affected property owners, then additional areas should be considered for Agricultural Conservation zoning, which includes stricter limits on the numbers of homes and their location on a tract.

### Rural

These areas are mainly intended to provide for agricultural uses and single family homes on 1 to 1.5 acre minimum lots. In most cases, these areas are not intended for public water and sewage services. If 1.5 acre minimum lots would be required, then under the Open Space Development option, 1 acre

minimum lots could be allowed with 30 percent open space. If appropriate central water and sewage services would be provided, it may be appropriate to consider allowing Open Space Development with 1/2 acre lots and 40 to 50 percent of the tract permanently preserved in open space.

#### Low Density Residential

This category is primarily intended to provide for single family detached development at approximately 1.1 to 2.9 homes per acre. With central water and sewage services, a lot size of approximately 1/2 acre to 1/3 acre would be appropriate in most areas. Through the Open Space Development option, approximately 1/3 to 1/4 acre lots could be provided, with 30 percent of the tract preserved in open space. Also, lot sizes as small as 1/4 acre could be appropriate through the Transfer of Development Rights (described below).

#### Medium Density Residential

This category is primarily intended to provide for single family detached homes, twin houses and townhouses. With central water and sewage services, an average of approximately 3 to 4 homes per acre would be appropriate. The Open Space Development option could provide for approximately 1/4 or 1/5 acre average lot sizes with 30 percent of the tract preserved as open space. All developments of attached housing should include some recreation land or open space in any case. Also, lot sizes as small as 1/5 acre average lot sizes could be appropriate through the Transfer of Development Rights.

#### Medium High Density Residential

This category is intended to provide for a mix of housing types at an average of 4 to 5 homes per acre. A maximum density of 5 to 6 homes per acre could be appropriate through the Transfer of Development Rights option. All apartment and townhouse developments (except the smallest) should be required to include some recreation or open space area for residents.

#### High Density Residential

This category is intended to provide for a mix of housing types at densities at over 5 homes per acre. Higher densities (such as 8 or 9 homes per acre) could be appropriate if the housing was limited to persons age 55 and older or through transfer of development rights (described below). These areas should allow for all housing types. These areas are particularly important to meet obligations under State law to offer opportunities for all types of housing. It also is important to provide opportunities for various housing types in order to meet the needs of different types of households, such as empty nesters, singles, and senior citizens. All apartment and townhouse developments (except the smallest) should be required to include some recreation or open space area for residents.

#### Town Center/Village Center

This category is intended to provide for a mix of light businesses and a mix of housing types. These areas should provide for retail stores, offices, personal services, day care centers, banks, exercise clubs and similar uses. The intent is to prohibit the heaviest commercial uses that are most likely to spur demolition or create nuisances for neighbors, such as 24 hour convenience stores, gas stations, vehicle repair, restaurants with drive-through service and vehicle sales.

In the downtowns and older villages, development should be encouraged that complements, rather than detracts from, the existing character of historic areas. In older areas, buildings should be placed with setbacks from the road/street that are similar to nearby older buildings. To the maximum extent feasible, parking should be located to the rear or side of buildings.

The densities of housing in the "Town Centers" of Macungie, Alburtis and Emmaus should be approximately 10 to 20 homes per acre. Upper story apartments should be encouraged above street-level business uses. In the Village Center in Limeport, a density of approximately one home per acre is appropriate with wells and septic systems, and approximately 2 to 4 homes per acre with central water and sewage. In the Village Centers of Dillingersville and Hosensack, central water and sewage services are not recommended. Therefore, the maximum density should not be greater than one home per acre.

The Historic Preservation Plan section discusses methods that can be used to control demolition of historic buildings, particularly in the downtowns and villages.

#### Village Overlay

The Village Overlay areas are intended to promote new development that is compatible with older villages, including promoting front yard setbacks that are similar to nearby older buildings. However, the Village Overlay is intended to remain primarily residential. The Village Overlay is not intended to provide for the same range of business uses as the Village Center (described above). An "overlay" means that additional zoning provisions are provided in addition to the provisions of the underlying regular zoning district. Therefore, the densities of housing should be the same as the adjacent residential areas. In the Village Center of Old Zionsville, central sewage service is not currently recommended. Therefore, a maximum density of one home per acre would be appropriate.

#### Commercial

This category is intended to provide for a wide range of commercial development, particularly in areas of more "highway" oriented commercial development. As opposed to the Village Center/Town Center areas described above, these areas should provide opportunities for uses such as gas stations, vehicle sales and auto sales. A careful set of standards are needed to require coordinated traffic access among different uses.

If an excessive amount of commercial zoning is allowed at one time, it may encourage sprawled development, with businesses simply relocating from one business site to a new site, leaving the old site vacant. There are a number of shopping centers with large vacant spaces in the surrounding region, as new stores have decided to build on new sites instead of reusing sites of stores that have closed. However, if the supply of commercially zoned land is held to a moderate amount, it will encourage rehabilitation and redevelopment of older commercial sites.

#### Office/Business and Very Light Industrial

These areas are intended to provide for certain business uses such as offices, very light industrial uses, day care centers and similar uses. In most cases, these areas are not suitable for types of industries that would generate significant hazards, nuisances or tractor-trailer traffic.

## Industrial

Industrially-zoned areas should be separated into a Light and a General Industrial district. Most industrially-zoned areas should be within the Light Industrial district. The Light Industrial areas would provide for a range of light industrial uses that are not likely to cause significant nuisances or hazards, in addition to providing for offices and a few types of related businesses.

The General Industrial areas are intended to provide for a wide range of industrial uses. These areas are particularly important to meet obligations under State law to provide opportunities for all types of business uses, including some uses that are less desirable. The heaviest industrial uses should need special exception from the zoning hearing board or conditional use approval.

Because this plan involves multiple municipalities, it will not be necessary for each municipality to provide for all types of industrial uses. It is recommended that the heavier industrial uses be concentrated along Schantz Road east of the Turnpike, and that heavy industrial uses be prohibited in other industrial areas. These heavy industrial uses could include petroleum tank farms, asphalt plants, cement plants, trash transfer stations and hazardous chemical plants.

A careful set of performance standards should be used to control noise, dust, vibration and other nuisances and hazards, especially from industrial uses. The types of uses that are most likely to cause nuisances or hazards should require special exception approval from the zoning hearing board or conditional use approval from the borough council/supervisors. Extensive landscaped buffers should be required next to homes. Where a very intensive use is proposed next to homes, a landscaped earth berm and/or solid fencing should also be required.

A high quality setting will help to attract additional desirable types of business development and higher paying types of jobs. In most business areas, a set of site design regulations should be used to promote a landscaped campus-like environment. Truck parking and outdoor storage areas should be required to be screened from view from roads. The majority of the first 30 feet along a road should be landscaped, with truck loading docks and truck parking located to the side or rear of buildings.

Some or all of the General Industrial areas east of the Turnpike should also provide opportunities for commercial development as an option.

### **Extend the best features of older development into newer development.**

Consideration should be given to strongly encouraging forms of "traditional neighborhood development." This involves extending the best features of the older areas into new neighborhoods. As discussed later in this Chapter, this concept also involves making sure that development or redevelopment of lots within older neighborhoods occurs in a way that fits within the "urban fabric." This concept is illustrated on the sketch on the following page. Traditional neighborhood development primarily involves the following:

- Street trees should be planted to eventually provide a canopy of shade over streets. Studies show that mature street trees can increase the value of homes up to 10 percent. If it is not appropriate to have shade trees in the right-of-way, they can be required immediately outside of the right-of-way.

- Requiring that new street lights meet a certain design standard that is similar to older styles of street lights.
- Sidewalks should be provided (or asphalt paths along main roads in rural areas). There should be an orientation to pedestrians, with an ability to walk or bicycle to stores, schools and parks. Overly wide residential streets and intersections should be avoided to discourage speeding and to make it easier for pedestrians to cross the street.
- A modest density should be encouraged that is similar to the typical development that occurred during the 1930s through 1940s. This density (such as 5 to 8 homes per acre) should make best use of available land, while avoiding overly dense development and parking problems.
- Whenever practical, parking should be located to the rear or side of buildings, so that the front yard can be landscaped. At best, parking and garages would be placed to the rear of lots, with access using alleys. This design avoids conflicts between sidewalks and vehicles backing into the street, and allows the entire curbside to be available for on-street parking.
  - If rear access to garages is not practical, then garages should enter onto the side of homes whenever possible, particularly on corner lots. If a front-entrance garage is proposed, it should be designed so that it is not an overly prominent part of the street. For example, a one lane driveway can pass along the side of a house and then widen to enter a two-car garage that is setback from the front of the house. "Snout" houses should be avoided that have a front entrance garage as the home's most prominent feature.
  - Care is needed to discourage new twin and townhouse development that has numerous driveways entering directly onto a street from the front. Garage doors should not be an overly prominent part of the views of housing from the front. Where garages and parking cannot be avoided in the front yard, larger lot widths should be required to make sure that there is green space in the front yard. Regulations are needed to make sure that the majority of the front yards of housing developments are not covered by paving.
- Buildings should be placed relatively close to the street, with front or side porches, to encourage interaction among neighbors. On a corner lot, a side porch can have the same effect. If residents spend time on their front porch, they can help oversee the neighborhood and report suspicious activity to the police.

Under the State Planning Code, a municipality can require some of these features in zoning ordinances. Or, a municipality could offer density incentives for this type of traditional development.

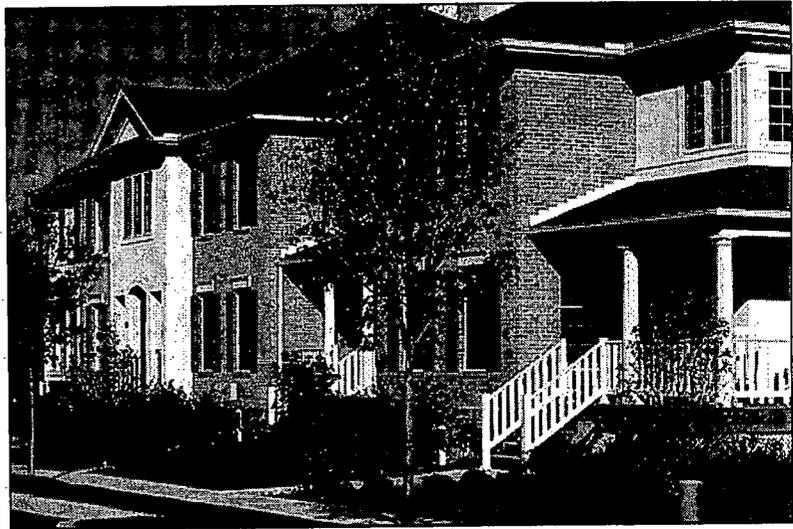
A density bonus could be provided if a development incorporates the features of a "Traditional Neighborhood." Traditional Neighborhood Development can be particularly attractive to developers by allowing single family lots that are more narrow than would otherwise be allowed. This reduction in lot width can result in dramatic reductions in the average costs of improvements per housing unit. Allowing relatively narrow single family detached lots can also provide an alternative to building townhouses - at the same density.

The following photos provide examples of Traditional Neighborhood Development of homes.

These photos are from the largest Traditional Neighborhood Development in Pennsylvania - Eagleview, which is west of Route 100 south of the Pennsylvania Turnpike. The majority of the front yards are maintained in landscaping, with street trees and sidewalks. Most driveways pass to the side of homes or provide access from rear alleys or side streets.



This development of townhouses in Eagleview uses rear alleys, allowing the front yards to be landscaped with front porches.



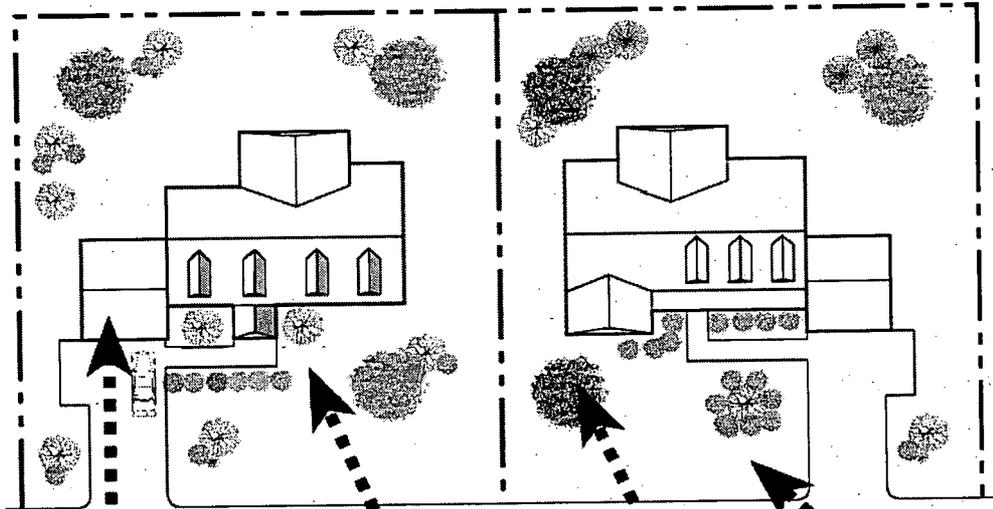
This photo of Celebration in Orlando, Florida shows a new single family housing development that re-creates the best features of older neighborhoods in boroughs.

The following photos illustrate how the Traditional Neighborhood Development concept can also apply to commercial development.



# Suburban vs. Neotraditional Design

## Suburban Design

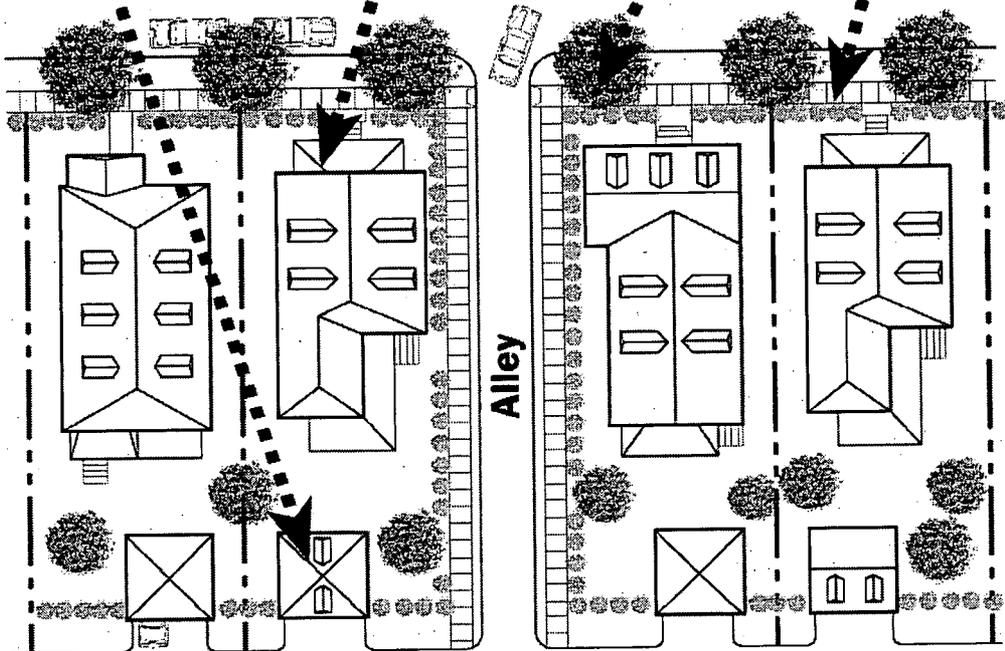


Garages forward  
Garages on alleys

Deep front yards  
Shallow yards, porches

Trees in yards  
Trees along street

No Sidewalks  
Sidewalks



Alley

## Neotraditional Design



### **Traffic Access Control**

If traffic access onto a major road is properly managed, the road will be able to safely handle large volumes of traffic. However, if a road combines a large number of business driveways entering a road at many locations, there will be right-hand turns and left-hand turns at many locations. The constant stopping and starting from these turns greatly affect the smooth flow of vehicles and create safety hazards. This is known as “strip” commercial development.

At best, intense business development should be concentrated in well-planned developments with internal roads that access a major road with a traffic signal and turn lanes. Where a traffic signal is not warranted at the present time, there should still be a plan for where traffic signals are intended to be built in the future. This will allow driveways and street intersections to be directed towards those intersections so that the traffic signal will be well-placed in the future. Where traffic signals are not appropriate, adjacent commercial uses should have shared driveways and interconnected parking lots. The interconnected parking lots are particularly valuable so that a person can visit more than one adjacent business without having to enter and re-enter a major road.

### **Traffic Impacts of Various Types of Development**

Various types of development generate differing amounts and types of development. For example, the average apartment or townhouse generates less traffic than the average single family detached dwelling. The average age-restricted housing unit generates less traffic than a home that is not age-restricted.

The amounts of traffic generated from development is typically measured as peak hour traffic and total average weekday traffic. Some uses, such as shopping centers and places of worship, may generate their own peak traffic during weekends. Peak hour weekday traffic deserves the most attention. Business offices typically have some of the highest peak hour traffic generation.

Particular care needs to be taken in the location of industrial uses. Most industrial uses generate tractor-trailer truck traffic, which consumes a great amount of capacity on the road system and at intersections. Also, tractor-trailers need sufficient maneuvering space to turn at intersections. Because of the inadequacy of the road system, few new land areas are proposed in this Plan for new industrial development.

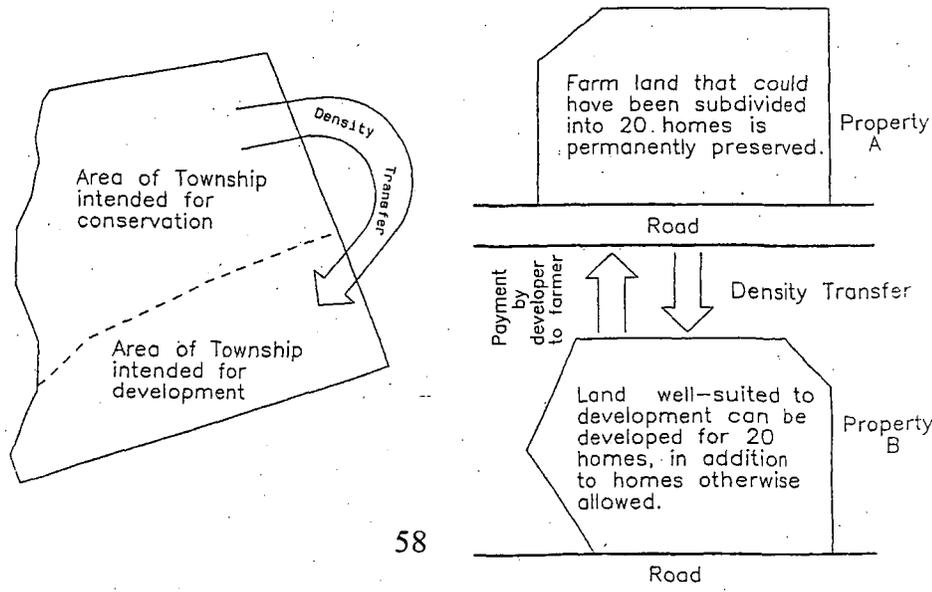
The majority of the traffic impacts from future development are expected to be within Lower Macungie Township because that is where the majority of the development is occurring. Macungie and Emmaus will see increased traffic simply because they are crossroads that must be traversed to travel throughout the region. To a lesser extent, Alburtis will experience increased traffic, particularly for residents of Berks County to reach jobs in western Lehigh County. Upper Milford will experience increased traffic, particularly along Routes 29 and 100 for residents of the Lehigh Valley to reach jobs to the south. Lower Milford will continue to see increased traffic on various roads, particularly from residents of the Lehigh Valley traveling to the Northeast Extension of the Turnpike and jobs to the south.

Additional traffic studies will be needed to monitor traffic impacts that occur from the opening of the new Route 222 and the new Route 100 segments, and the new interconnecting roads. Great care is needed to make sure that the new Route 222 boulevard is not overwhelmed with new commercial development to the point where it cannot serve its primary purpose of carrying through-traffic.

Ordinances of each municipality should require a traffic impact study for all major developments. That study should also address traffic safety hazards, and require that the applicant state whether they agree to fund or construct any road improvements.

### Transfer of Development Rights (TDRs)

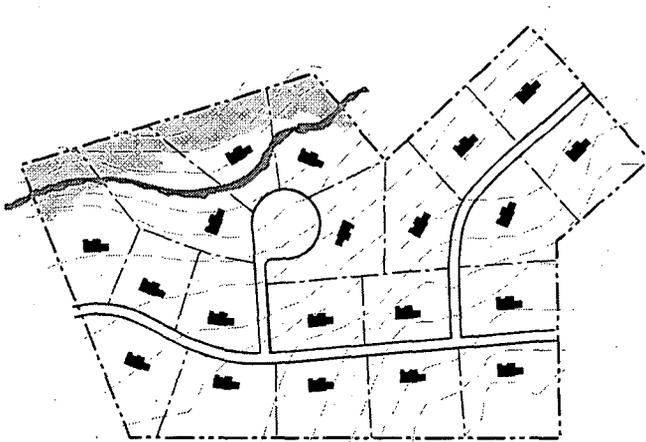
This concept should be a voluntary option in the Zoning Ordinances of the townships. TDRs offer incentives for private developers to pay to preserve land. If a developer of one tract of land pays an owner of another tract to permanently preserve their land, then the developer could receive approval to build at a higher density on the developer's tract. The tract that receives the higher density would need to be in an area that the township has designated as being suitable for a higher density. The tract that would be permanently preserved would need to be in an area that the township has targeted for preservation. The developer and the owner of the open land would negotiate on their own to determine how much the developer pay to the other landowner for the preservation.



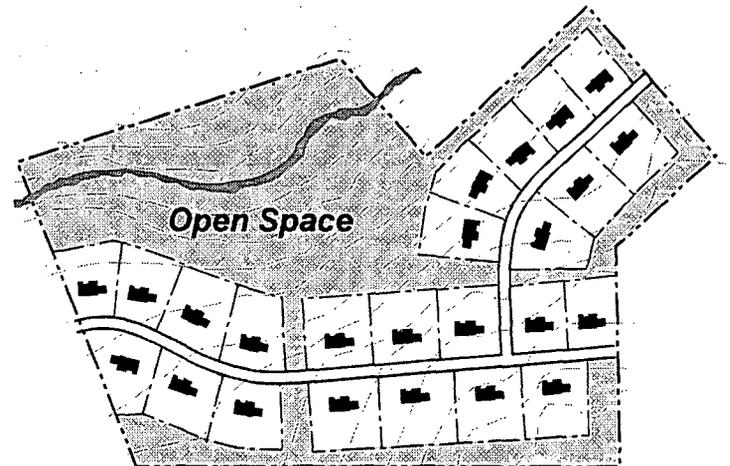
- This method allows development to be shifted from locations where preservation is desired to allow a higher density on other tracts in a township that are well suited for development.
- The township would then approve the development at a higher density at the same time as a conservation easement went into effect to preserve the other land. The preserved land would remain privately owned but could never be developed. The preserved land could be re-sold and could be used for agriculture or certain open space uses.
- For example, this process might allow preservation of land in the Agricultural Conservation or Conservation-Residential District, in return for allowing a higher density in a Low Density Residential or Medium Density Residential District. Or, density might be transferred from one part of a Rural District to another part of the Rural District.
- The number of homes that could be transferred from one tract to another tract would be based upon a "Yield Plan." This sketch plan would show how many homes would have been permitted on the tract that is to be preserved. Once the township accepts this Yield Plan, that number of homes could be transferred from one tract to another tract. However, there would still be limits on the density of the tract being developed to make sure that it is not excessive.
- TDR can also be used in combination with commercial development. For example, for every housing unit that is transferred from one area of a township, an additional amount of building coverage or impervious coverage could be allowed in a business district.

### Open Space Residential Development

The use of Open Space Development should be strongly encouraged, including strong incentives to promote the permanent preservation of substantial portions of a tract in open space. Conservation easements would be used to preserve the open space. Homes should be clustered on the most suitable portions of a site, and important natural areas should be planned for preservation before any lot lines are proposed. Greater attention should be paid to the standards for the open space - to avoid narrow and unusable areas counting as open space.



Example of Conventional Development



Example of Open Space Development

Open Space Residential Development involves development in which a substantial percentage of the land area of the tract is permanently preserved as open space. For example, many Open Space Developments are designed with 25 to 60 percent of the total land area of a development preserved in some form of open space. Open Space Development typically allows smaller lots and smaller setbacks than would be allowed under conventional development without open space. This concept is also known as "Conservation Design" Development.

The use of Open Space Development should be strongly encouraged with attractive incentives and strong disincentives for developers. The overall number of homes possible on a tract is intended to be slightly higher (such as 15 or 20 percent higher) in an Open Space Development than what is possible under conventional development. This modest density bonus is valuable to encourage developers to choose to preserve the open space.

To make sure that Open Space Development is not mis-used to result in a dramatic increase in the number of homes allowed on a tract, a "Yield Plan" should be used. This involves requiring a developer to submit an accurate sketch plan showing the number of homes that would be possible under conventional development. The accuracy of this Plan would be subject to acceptance by the municipality. Once the Yield Plan was accepted, then the developer would be allowed to build a certain percent increase in density - such as 15 or 20 percent higher than was possible under the conventional development. Proper standards are also needed to make sure that the open space serves a public purpose, as opposed to simply being fragments of "leftover" lands with little development or recreation value.

If a density incentive is not provided, developers may decide to propose conventional subdivisions with little or no open space, and with all lots being the same size and shape regardless of the features of the land.

Legally binding conservation easements would be used to permanently preserve the open space. The areas of the tract that are to be preserved as open space should be determined very early in the site design process—not as an afterthought. Great attention should be paid to the standards for the open space—to avoid narrow and unusable areas counting as open space.

Throughout the nation, this concept has been promoted by the Natural Lands Trust and the Pennsylvania Department of Conservation and Natural Resources.

Advantages of Open Space Developments - Based upon the work of the Natural Lands Trust, the following are some of the major advantages of Open Space Developments:

- *Important natural features can be preserved.* Open Space Developments should include standards that direct buildings away from steep slopes, wetlands, waterways and other important natural features. As a result, homes are placed on portions of the tract that are most environmentally suitable for development—as opposed to being evenly spread across the land. Large contiguous areas can remain in woods and other natural vegetation—which are important as wildlife corridors. Thick natural vegetation can be preserved along creeks—which is essential to filter out eroded soil and other pollutants from runoff before it enters the creek. This vegetation along creeks is also important to maintain high quality fishing habitats.

- In comparison, if an entire tract is divided into lots, it is likely to mostly be in mowed grass—which is a “mono-culture” that does not have the same environmental benefits.
- With open space preservation, stormwater runoff can be managed in a more natural manner that encourages recharge into the groundwater.
  
- *Scenic features can be preserved.* Open Space Developments can place homes on less visible portions of a tract, while maintaining scenic views. For example, many open space subdivisions setback homes from main through-roads and limit placement of homes on major ridgelines. As a result, the main angle of vision along major roads involves green space.
  - Mature woods can be preserved in locations that hide views of development. The preservation of open space also provides visual relief from seeing continuous development.
  - Stormwater runoff can also be managed in a more attractive manner—as opposed to within deep man-made channels and detention basins.
  
- *Recreational opportunities can be increased.* Open Space Developments typically include attractive areas for walking, jogging, cross-country skiing and nature study. In some cases, active recreation facilities can be included. These open space can also increase interaction among neighbors.
  
- *Developers can achieve lower costs for grading, lengths of roads, lengths of utilities and other improvements.*
  - Developers may also be able to save time and money by avoiding wetland alterations and waterway crossings.
  - Open Space Developments can provide the flexibility in layout to move homes off of steep slopes, which are more expensive to build upon. Avoiding steep slopes can also reduce the need for blasting.
  - By allowing flexibility in placement of buildings, it is easier to find suitable sites for septic systems.
  
- *The townships can save on maintenance costs.* Shorter lengths of roads, utilities and other improvements mean there is less to maintain. It is expensive to maintain and plow snow from steeply sloped roads. Open Space Developments can result in roads being placed at more modest slopes.
  
- *Developers can often achieve higher sales prices.* More and more developments are stressing in their advertising that homes are adjacent to preserved open spaces. Developers can often receive a premium price for lots that are adjacent to or overlook preserved open space. The presence of trails and other open space amenities can also spur sales.
  - Studies have also shown that homes near preserved open space are likely to increase in value faster than other homes.
  
- *Reliable central water and sewage services can be extended.* It is usually uneconomical to provide central water and sewage services with lot sizes of 2 acres or larger. However, if homes are clustered on a tract, then it is often possible and/or necessary to provide central water and sewage services. Public water and sewage services typically are more reliable than individual wells and septic systems.

- ± Central sewage service avoids the threat of groundwater contamination from failing malfunctioning septic systems. Central water service avoids the risks of well water contamination from various sources.

Proper standards are needed to make sure that the preserved open space is well-located and improved so that it serves important public functions. In many cases, mature woods, steep slopes and creek valleys should simply be preserved in their natural state. In other cases, the open spaces may be intended for active recreation. In still other cases, trees should be planted in the open spaces and trails should be installed. The key is to avoid a process in which the "open space" is simply the land that is left over after the most economical set of lots and roads are laid out. Narrow strips of open space should be avoided, unless they would preserve a scenic tree line or provide an important trail link.

**Use a four-step process to result in conservation-oriented design in development.**

The Natural Lands Trust promotes the following four-step process in the design of new development in order to emphasize land conservation principles. The townships' development regulations and procedures should require that this process be followed. These steps should be accomplished at the sketch plan stage - before any detailed engineering is completed.

**1. Identify Lands that Should Be Preserved.**

The mapping should not only consider the area proposed for development, but also any future phases of development, plus the areas that are immediately adjacent to the development site on other lots.

First, the areas that are most worthy of preservation should be mapped, including wetlands, flood-prone areas, creek valleys, and very steeply sloped lands. These are known as the Primary Conservation Areas.

Then, other features that are important for conservation should be mapped, such as woodlands, tree lines, scenic views, historic buildings, and prime farmland. These are known as the Secondary Conservation Areas.

Then, the most important areas for preservation should be identified.

The areas with the fewest important natural, scenic and historic features should be considered the "Potential Development Area."

**2. Locate Home Sites.**

Next, the most appropriate locations for homes should be chosen. The zoning ordinance should establish a maximum overall density for the site, but should not include overly strict lot requirements that would prevent reasonable flexibility in the site layout. Home sites should be chosen to avoid the important features mapped in the first step. Home sites should also work to take advantage of scenic views within the tract.

**3. Locate Roads and Trails.**

After the home sites are selected, then a road system should be designed that serves those homes. A trail system should also provide links between homes and to destinations outside of the tract.

**4. Draw in the Lot Lines.**

The last sketch plan step is to draw in lot lines. In conventional development, with strict standardized minimum lot requirements, this is often the first step - before any consideration of natural features of the site.

**Use great care in the design and location of preserved open space areas within development.**

In addition to preserving agriculture, a priority of this Plan is to have substantial amounts of permanently preserved open spaces that create a true feeling of open space. The goal is to have open space that truly serves a public purpose, as opposed to areas that are simply "leftover" after a developer's preferred pattern of roads and lots are laid out.

Valid public purposes for open space include:

- To preserve land for agriculture, hayfields, orchards and tree farms.
- To preserve environmental sensitive areas, particularly creek valleys and concentrations of mature woods.
- To manage stormwater in a more attractive and naturalistic manner that protects water quality, as opposed to engineered channels and traditional fenced-in detention basins.
- To provide usable recreation areas and important links in a trail system.
- To preserve large contiguous swaths of open space in visible locations that maintain a feeling of open space and that provide a visual relief between developments. At best, some open space would be preserved along exterior roads.

In most cases, at least half of the required open space should be in one contiguous area. Isolated areas (such as less than one acre) and narrow areas of land (such as less than 75 feet wide) should not be counted as open space. However, more narrow stretches may be suitable as open space if they truly serve as part of a regional trail system. Detention basins should not be considered open space unless they are designed as a major scenic asset (such as a natural appearing pond) or are clearly suitable for recreation. Roads and parking should not count as open space, even if the parking is intended to serve recreation uses. Narrow buffers should not count towards open space, but wider buffers may be appropriate. It may be appropriate to establish a maximum percentage of open space that can be covered by impervious surfaces.

To count towards the required open space, land should need to:

- be landscaped in trees, shrubs and other attractive vegetation,
- be maintained in agricultural uses, which may include a tree farm,
- be preserved in woods or natural wetlands vegetation,
- not be used for commercial recreation, other than a golf course, and/or
- be developed as recreational facilities, but not including buildings (other than pavilions).

Open Space should be interconnected with common open space areas on abutting parcels where possible, including provisions for public trails to link trail systems within the municipalities.

### **Strengthening Older Areas of the Region**

It is extremely important that the older areas of the Southwestern Lehigh County Region remain strong and viable business and residential areas. This includes the older areas of Alburtis, Emmaus and Macungie, as well as villages throughout the region. The goal is to make sure that older areas remain healthy and desirable places in which to live and conduct business.

### **Strengthening Older Residential Areas**

This section recommends actions to stabilize and improve older residential neighborhoods. Stable neighborhoods are not only important to provide desirable places to live, but also to protect the health of nearby business areas. If the residential areas deteriorate, they will cause crime and vandalism problems that will discourage business activity. If the surrounding residential areas are strengthened, they will provide a strong base of customers who will hopefully find the downtowns a convenient place to serve their shopping and service needs.

To maintain its economic health, it is important to continually work to attract and retain middle-income households in older areas. This is particularly true because there will always be existing residents moving into newer and more expensive houses, and because there will always be older residents who will be moving to nursing homes, personal care centers or retirement communities. To maintain the same owner-occupancy rate, there needs to be a continual stream of new home-buyers.

This Plan supports the Borough of Emmaus' application to the Pennsylvania Elm Street Program. This program provides funding to assist in strengthening older residential areas that are near older commercial areas. The program offers funding for local staff, studies and physical improvements to support revitalization. Macungie and Alburtis should also consider seeking to take advantage of this program in the future.

Promoting Home Ownership - Many households could afford the monthly costs of owning a home, but do not have sufficient savings for the closing costs and downpayment. These households need to be linked with available programs to help them achieve home ownership. Many of these programs are operated in Lehigh County by the Neighborhood Housing Services of Allentown.

However, care is needed to avoid placing very low-income households in subsidized home-ownership. In too many cases, these households do not have the funds to pay for repairs that are periodically needed in an older home. If they have no equity in the home, they may be tempted to walk away from the mortgage. As a result, a property can stand vacant for months until foreclosure occurs and the property is resold. During this time, the property can deteriorate and/or be vandalized.

Maintaining Housing Conditions - It is important to prevent blight and deterioration before it occurs. A single problem property can encourage responsible residents of nearby properties to move out of the neighborhood and can discourage new home-buyers from investing in the neighborhood. A problem property can also discourage homeowners from investing in improvements to their home because they do not believe they will be able to see any return on their investment if they sell.

To promote home ownership and neighborhood stability, and to avoid parking problems, the conversions of existing one family homes into additional numbers of housing units should be prohibited or very strictly regulated in most areas. This policy is already in effect in most of Emmaus and Macungie. Owner-occupied housing typically has a much higher level of property maintenance than older renter housing. Types of new housing should be promoted that are most likely to be owner-occupied, such as singles, side-by-side twin homes and townhouses, as opposed to apartments or one unit above another unit. Exceptions could be provided in zoning regulations to allow limited conversions of unusually large existing homes.

The municipalities must continue to emphasize enforcement of the basic property maintenance codes to require property-owners to: a) properly maintain their buildings or b) sell the buildings to another party who will make the needed improvements. The goal in code enforcement must be to intervene before buildings deteriorate to the point where it is no longer cost effective to repair them. If property-owners are forced to complete basic maintenance and repairs in a timely manner, severe deterioration can be avoided.

Many older communities have adopted programs for the periodic inspection of rental properties to make sure they meet basic safety standards. To target an inspection program to the properties that are most likely to involve fire and safety hazards, inspections could be limited to buildings that were constructed prior to the enforcement of any comprehensive building codes. This would avoid the need for regular inspection of apartment buildings built during the last few decades, because those buildings typically have fire-resistant construction and safe means of access.

One option would be to require inspections when there is a change in tenants. This would make the program less intrusive to tenants. This option would also target the program to the housing units with the most turnover, which often are the units that need the most improvements. The cost of inspections can be covered by an annual license fee.

Emphasize housing rehabilitation - Most housing efforts primarily involve low-interest loans to rehabilitate homes owned by households with low or moderate incomes. Expanded marketing efforts are needed to make sure that eligible owners of properties in need of rehabilitation are aware of the financing programs that are available. Particular attention needs to be paid to low-income resident owners of property who need to make improvements to comply with municipal codes.

The County Office of Aging also offers a "Home Modification" program for minor household repairs and safety modifications. In most cases, the homeowner only pays for the cost of materials. The program is mainly aimed towards older persons with limited incomes and persons with disabilities.

Buyers of older homes should be encouraged to take advantage of the Federal Housing Administration's 203(k) program. This allows a homebuyer to receive a single loan to purchase a home and to complete a major rehabilitation of it.

It would be desirable to combine job training funding with County housing rehabilitation programs. The Federal Government has provided greater flexibility to use Federal job training dollars in ways that address local needs. Local non-profit housing organizations should work with job training agencies to design programs to meet mutual needs. Residents can learn useful job skills, while the job training programs help provide funding for needed housing rehabilitation.

Densities - This Plan does not recommend providing areas for new high density residential development. Instead, the intent is to maintain a moderate density in most of the older areas. Higher densities should only be considered for: a) housing developments that are limited to senior citizens and the physically handicapped, and b) the conversions of older non-residential buildings (such as old mills) into apartments.

Density bonuses should be considered for developments limited to persons age 55 and older and their spouses, with no children under age 18. These density bonuses are logical because the typical household of older persons generates less traffic, less need for parking and less water and sewage usage compared to other types of housing. Housing for older persons also does not generate additional public school students, thereby avoiding negative impacts upon school finances.

Compatibility in Uses - It is important to protect older residential areas from incompatible development. This is a particularly a concern in older areas where there is typically a relatively dense mix of commercial, industrial and residential uses, with small setbacks.

In commercial areas near neighborhoods, the types of commercial uses should be carefully controlled. Most commercial areas near neighborhoods should not allow for heavy commercial uses, such as gas stations, 24 hour convenience stores, taverns, nightclubs and auto repair. Where practical, the hours of operation and hours of trucking activities should be controlled (such as conditions upon any zoning hearing board approval that is needed). Other problem uses should be very carefully controlled or prohibited, such as after hours clubs that are open after 2 a.m. The zoning hearing boards should carefully review changes to existing business uses in residential zoning districts (which are called "nonconforming uses") to make sure they will not harm the neighborhood.

In industrial areas near neighborhoods, great care is needed about the types of uses that are allowed. The heavier types of industrial uses should be prohibited from these areas or need special exception or conditional use approval.

Neighborhood Character - Zoning provisions can be put into place to require that new buildings in older neighborhoods, downtowns and villages be compatible to nearby buildings. This is known as "Traditional Neighborhood Development" and is illustrated on a previous page of this Chapter. For example, driveways can be required to access onto an alley or side street where it is available, as

opposed to having a front garage and driveway. This design avoids conflicts between sidewalks and vehicles backing into the street, and allows the entire curbside to be available for on-street parking. Otherwise, new driveways may remove as many parking spaces as they create.

New buildings can be required to have a maximum setback from the street that is similar to other buildings on the block. New buildings can also be required to include front porches. Front porches encourage interaction among neighbors, which builds more of a community spirit. If residents spend time on their front porch, they can help oversee the neighborhood and report suspicious activity to the police.

Most new parking can be required to be placed to the rear or side of the main building on the lot, which makes the building and not parked cars the most visible feature along the street.

New street trees can be required by a zoning ordinance as part of the construction of any new principal building, instead of only being required for new subdivisions. Neighborhood character can also be established with older styles of street lights and street name signs.

### **Strengthening Older Business Areas**

One goal of this Plan is to strengthen the downtowns of all three boroughs as business, cultural and civic centers for the region. Emmaus for a number of years has conducted a very successful "Main Street Program," based upon a set of Main Street programs that are underway in towns across the country. While Emmaus is larger than Macungie and Alburty, many of the same types of policies could be applied to strengthen their downtowns.

The Main Street Program stresses four major approaches:

- Organization and Cooperation - To have a strong organization of all interested parties working cooperatively in partnerships to carry out needed actions.
- Design and Renewal - To improve the physical environment including the "streetscape" and the attractiveness of the fronts of buildings (particularly through rehabilitation of historic features), and providing adequate parking.
- Economic Development - To recruit and retain businesses and investors to expand job opportunities and generate additional local tax revenue. To provide information to support new business development. To maintain regular contacts with existing businesses to help them remain and grow in the downtowns.
- Promotion - To market the downtowns with a unified identify. To use special events to attract new customers and businesses. To emphasize high-quality distinctive products and services, including businesses serving a special market niche that is not served by mass-market discount retailers.

Improving Appearance - The appearance of an older commercial area can impact the ability to attract businesses and customers. Appearance is particularly important for destination-oriented businesses, such as antique shops, gift shops and clothing stores. Special attention is needed to the major entryways to each Borough - because first impressions matter. For most people, the Main Streets represent the

most highly visible "face" of each town and the surrounding region.

A set of public improvements should be selected, such as street lights, street trees, traffic signal poles, benches, trash cans and sidewalk paving accents. This could allow some features to be replaced gradually over time, following a pattern that will eventually be consistent. For example, if an existing unpainted aluminum traffic signal post needs to be replaced in the future, it should be replaced with a post that is coated with a dark color. On their own property, property-owners can also be encouraged to plant species of trees and install light fixtures that follow the overall scheme.

A Facade Improvement Program involves working with private property-owners to encourage them to improve the appearance of the fronts of their buildings. Many boroughs (including Emmaus) offer matching grants or low-interest loans for this purpose. The funding typically is provided by a State grant or a loan pool by banks. The improvements typically must be approved by a local committee. The emphasis should be placed upon improvements that restore or uncover historic architectural features or that are generally consistent with the historic architecture of the corridor. The goal is not only to make buildings more attractive, but also to make business entrances more inviting to customers. Many types of facade improvements can be made with a low cost, such as a well-chosen color scheme or addition of awnings.

Decorative banners are being used in Macungie and Emmaus. Banners add a great deal of color and help to provide a sense of unified identity.

Street Trees - Street trees are important to make older areas more attractive and to make walking more pleasant during the Summer. Species of street trees can be chosen that do not obstruct the visibility of businesses and do not cause damage to sidewalks.

One ideal species is Zelkova. The Zelkova species includes strong well-shaped attractive trees that is similar in appearance to an Elm. Because they have a medium mature size, they are less likely to create conflicts with the many overhead utility lines or grow against buildings than larger trees (such as oaks). At the same time, Zelkovas are large enough to create a shaded canopy effect and to not obstruct pedestrians with low horizontal branches. Another ideal species is Little Leaf Lindens.

In some places, there may not be enough room within the right-of-way to plant new trees. In these cases, cooperative efforts could be made with property owners to plant trees just outside of the right-of-way.

One way to carry out a street tree planting program at little public expense would be to ask adjacent property-owners to pay the purchase price of street trees. The borough would then buy the trees in bulk, select the best locations for the trees considering underground utilities, and then have a contractor do all of the planting at one time. This would minimize the costs and paperwork for each homeowner. It also would ensure that the street trees would be located where an adjoining property-owner is interested in helping to maintain the tree - because that landowner volunteered to pay for it.

Pedestrian Safety - The Main Streets in Emmaus and Macungie are both heavily traveled. It is often very difficult for pedestrians to cross these Main Streets and some cross-streets. Pedestrian crossings are particularly troublesome for senior citizens and persons with disabilities who cannot walk very fast.

Until the installation of the Chestnut Street traffic signal, Downtown Macungie did not have any traffic signals, and therefore had few breaks in traffic and no pedestrian crossing signals. In the future, it would be desirable to install an additional set of traffic signals at Main and Church Streets in Macungie to provide for pedestrian crossings towards the center of town.

Pedestrian crossings are especially difficult when there are large numbers of vehicles making right-hand turns onto a street that a pedestrian is trying to cross. Unfortunately, few motorists comply with the State law regarding pedestrian crossings. Most turning vehicles do not wait for pedestrians to cross. Prohibitions on right turns on red can be helpful in this regard, particularly during hours when pedestrians are more common.



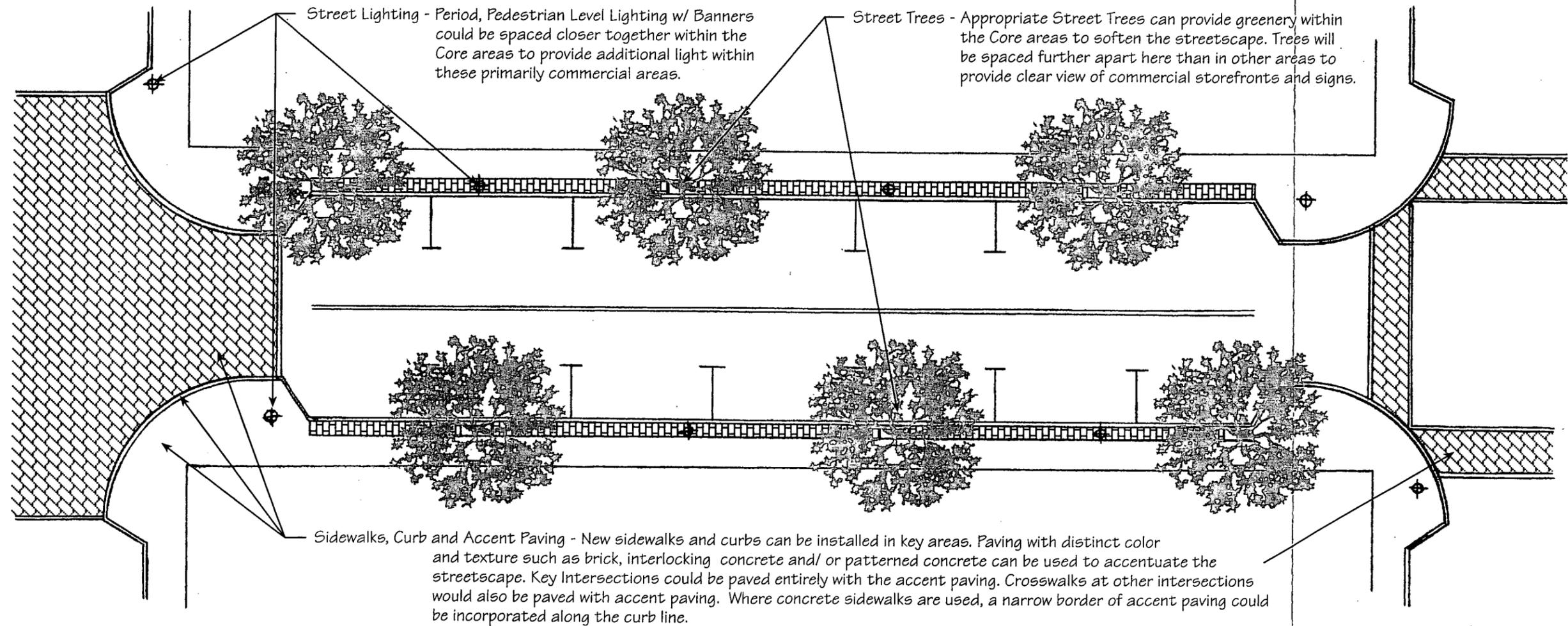
Crosswalks should be highly-visible. Where the most pedestrian crossings occur, it is desirable to use different paving patterns to make the crosswalks very visible. As seen on the attached sketch, it is desirable to extend curbs outward at intersections so that pedestrians do not have as long a length of street to cross. These extended curbs may also slow down the speed of vehicles that are turning, which reduces hazards to pedestrians. These curbs are known as "Bulb-Out Curbs" and are illustrated on a sketch on the following page and in the photo to the left. These extended curbs should be avoided at intersections with heavy truck or bus traffic.

A landscaped center median can be helpful in some instances to provide pedestrians a safe refuge while crossing a main street. The median allows pedestrians to cross one lane of traffic at a time, as opposed to having to wait for both directions to be clear. This type of median may be logical in part of Macungie's Main Street where there is little need for a turn lane, and as an extension of the Triangle in Emmaus.

Sidewalks - This Plan does not recommend multi-million dollar expenditures on entirely new brick sidewalks and placing utilities underground. However, if a sidewalk does need to be replaced, consideration should be given to adding some decorative paving patterns, such as a row along the curb that has the appearance of red brick. (Note - In downtowns, patterned concrete is often used in place of actual brick, because it is likely to break apart.)

# CONCEPT SKETCH

## Possible Streetscape Improvements



Urban Research & Development Corporation  
Bethlehem, Pennsylvania

**ALBURTIS - EMMAUS - MACUNGIE**

Utility Lines - The placement of all utility lines underground is typically so expensive that it should not be considered unless large areas of sidewalk are being replaced. The boroughs should work with utility companies to try to persuade them to move some overhead utility lines over time from the front sidewalks to rear alleys. This change can most easily be accomplished by cable television lines.

Parking - It is essential to not only provide sufficient amounts of parking, but also to properly manage the spaces that are available. Many persons have come to expect a parking space close to their destination. It is desirable to limit the most sought after parking spaces to a reasonable time limit (such as 2 hours) so that they are available for high turnover use by many persons throughout the day. As unpopular as parking tickets can be, they are essential to avoid use of the best parking spaces by a single car for an entire day. If this is routinely allowed to happen, persons wishing to visit a downtown business for a quick trip will turn away and not return.

In addition, it would be desirable to provide additional numbers of public spaces in Macungie and Emmaus. In Macungie, this could include purchasing underused property towards the center of town. In Emmaus, this may involve purchasing private parking that it is available for public use. At best, underutilized rear yards would be acquired for public parking because it would result in a total increase in the number of available spaces. If adjacent rear yards are combined into one coordinated parking area, it often results in a much higher number of parking spaces because they layout is more efficient.

The boroughs should not try to replicate suburban parking or it will destroy the historic character and streetscape that makes the towns special. However, there may be additional opportunities over time to provide additional parking, particularly by demolishing accessory buildings and underused rear extensions of buildings in the inside of blocks. This is a method to increase parking supply without harming the "face" of the downtown along streets.

It is difficult to find suitable locations for new municipal parking lots in Macungie because the business district is relatively long and linear. Also, it is important to avoid demolition of buildings along Main Street that are historic or add to the character of the street. The parking areas in Macungie Memorial Park are available most of the year, but are not widely used because they are not close enough to most businesses. Unfortunately, many shoppers have become spoiled and expect to be able to park within a very close distance and within eye-sight of their destination.

Marketing and Promotion - Marketing efforts are needed to persuade employees of nearby businesses to regularly visit downtown businesses, particularly during lunch-times and immediately after work. Once tourists are visiting one attraction (such as the events at Macungie Park), it is critical to encourage them to visit downtown businesses. These visitors need to be made aware of the locations and types of businesses that are available. Furthermore, it should be easy to walk from these events to local businesses. Some activities and marketing can be aimed towards wives and kids of persons attending the auto shows. Some late evening activities may be desirable after the auto show closes.

Markets for Downtown Businesses - Several markets exist for Downtown businesses, including:

- People who work within each town or nearby, especially over lunch-time and immediately after work. For example, in Macungie, this includes employees of the public schools, Allen Organ and Mack. In Emmaus, this includes employees of Rodale and area offices.

- Persons traveling the Route 100 corridor or Main Street/Chestnut Street corridor in Emmaus who can be encouraged to stop on their way to and from their destination
- People who live nearby
- Visitors to the region, particularly persons visiting events at the Macungie Memorial Park and Kalmbach Memorial Park.
- Persons who are already visiting another business in the Downtown, and might be encouraged to visit additional businesses
- Lastly, persons who are encouraged to make a special visit to the Downtown, or who are looking for a pleasant and interesting experience, or who desire items or services they cannot easily obtain elsewhere

It is difficult for a business to be successful if it is not open during the hours when most people have free time to shop - which is evenings and weekends. At the same time, operators of small family businesses often are over-extended with long hours. One option on weekdays would be to shift from 10 a.m. to 5 p.m. to 11 a.m. to 6 p.m. business hours. Moreover, it may be possible to emphasize a single weekday shopping night when most businesses would be open.

Special Events - Special events are important to bring people into a downtown so that they can see what is available. Even if these visitors do not purchase many goods or services on the day of the event, they are much more likely to come back another day. Many area residents have gotten out of the habit of shopping in a downtown. Special events can provide the motivation for them to return.

Organization and Promotion - It is important that downtown businesses and property-owners be organized, particularly to put together joint promotions, joint marketing and special events. Many individual businesses have little money to advertise individually, but when their resources are pooled together, they can afford joint advertisements and flyers and other promotions. This type of advertising is particularly important because the goal is to get customers to visit more than one downtown business at one time.

Financing - Any grants and low-interest loan programs should be geared towards physical improvements that will have long-term benefits, regardless of what business occupies a particular space. Low interest loans and grants are particularly valuable for improvements that are appearance-oriented, such as historic rehabilitation.

Financing programs can be valuable to spur intensified use of upper story spaces, such as for market-rate apartments or offices. Large expenses can be needed to meet fire safety requirements if the use of upper story space is changed. For example, if storage space is proposed to be converted to apartments, then a second fire-safe stairwell and fire-resistant wall and ceiling separations are often needed.

Moderate the Supply of Commercial Zoning - If an excessive amount of commercial zoning is allowed at one time, it may encourage sprawled development, with businesses simply relocating from one business site to a new site, leaving the old site vacant. There are a number of shopping centers with large vacant spaces in eastern Pennsylvania, as new stores have decided to build on new sites instead of reusing sites of stores that have closed. However, if the supply of commercially zoned land is held to a moderate amount, it will encourage rehabilitation and redevelopment of older commercial sites.

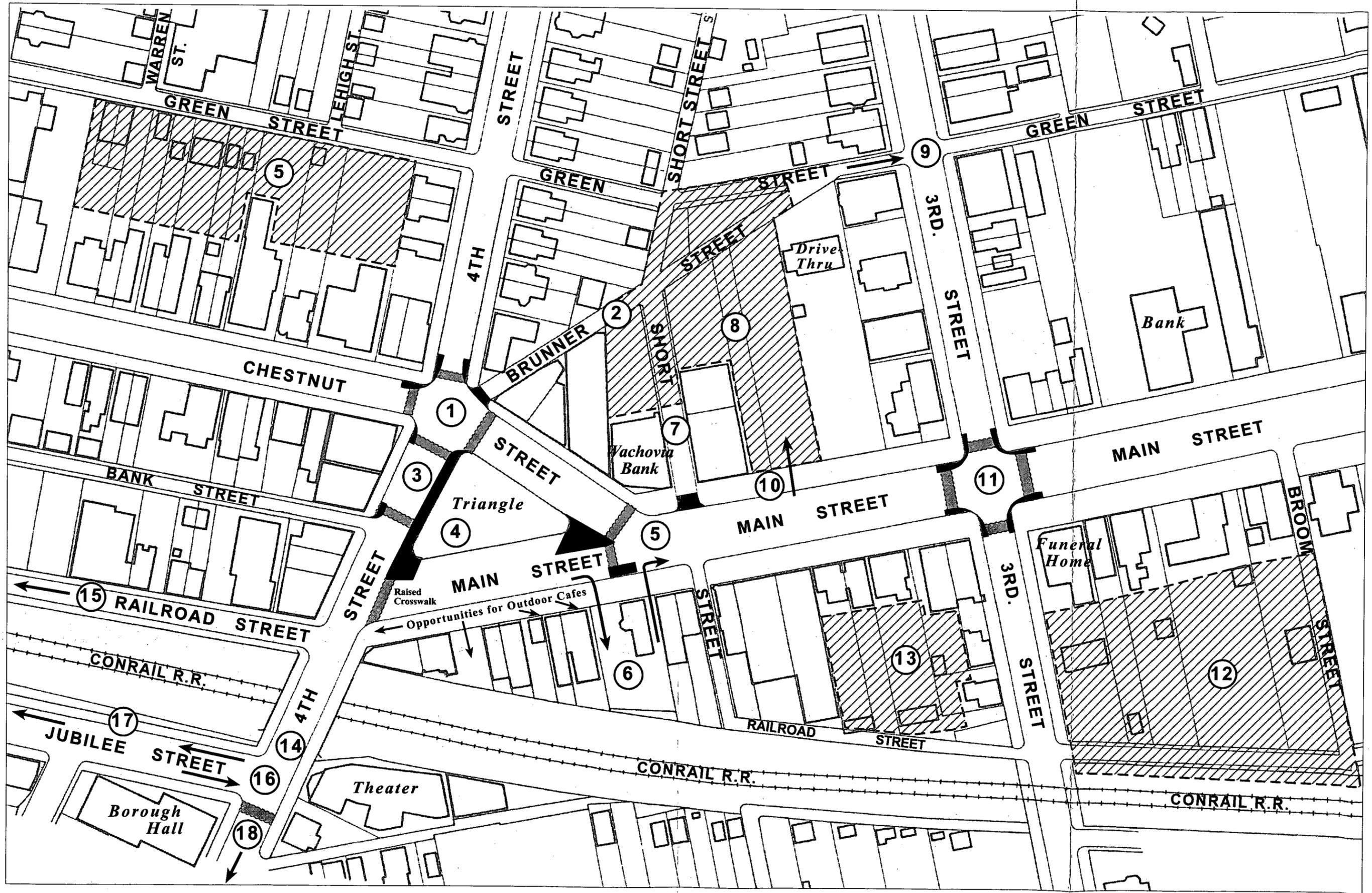
### **Concept Plan for Downtown Emmaus**

The following ideas relate to numbers shown on the attached map.

1. Add exclusive "Walk" signals at the intersection of 4<sup>th</sup> and Chestnut. Extend the curbs outward in a manner that does not reduce the turning radius and does not remove on-street parking. These are known as "bulb-outs" and are intended to reduce the length of street that a pedestrian must cross.
2. Investigate the proper treatment of the alley known as "Brunner Street." One option would be to close the alley to most traffic, and improve it as a pedestrian pathway from the parking to Downtown stores. The alley should still be accessible by service vehicles and fire trucks. This closing would simplify pedestrian crossings at 4<sup>th</sup> and Main because the curb could be extended. It may also be possible to gain an extra on-street space.
3. The northbound travel lane of 4<sup>th</sup> St. now must shift over to the left as traffic passes through the Chestnut Street intersection. If the diagonal parking on 4<sup>th</sup> is converted over to parallel parking, then there would be space to move the travel lanes away from the Triangle. As a result, a sidewalk and street trees could be added along the 4<sup>th</sup> Street side of the Triangle without reducing the current green space. The sidewalk and curbing should also be extended further south from the Triangle (towards the Emmaus Theater) so that pedestrians do not have to cross as a wide a lane of traffic.
4. The Triangle should be landscaped using canopy shade trees that are trimmed so that people can walk under them. These trees should eventually provide a canopy over the adjacent streets. This similar to the central green space in Nazareth. We are not proposing the removal of the existing evergreen tree in the center, unless it would be replaced by another tall evergreen tree.
5. The Borough of Emmaus has designed a new alignment for traffic on the south side of the Triangle. A Federal Transportation Enhancement Grant has been approved to help fund improvements around the Triangle and the Downtown to improve pedestrian safety. A new crosswalk is being proposed with bulb-out curbs to reduce the length of street that pedestrians need to cross.
6. Adjacent to the crosswalk at the east end of the Triangle, the directions of the driveways on the south side should be reversed. The in would become an out and the out would become an in. This would reduce conflicts between turning vehicles and pedestrians.
7. If the parking adjacent to Buss Paints would be reconfigured, it might be possible to close the alley next to the Wachovia Bank building to traffic. Instead, this alley could mainly serve pedestrians and service vehicles. This would move some of the traffic and turning movements away from the crosswalk.
8. The parking area between Buss Paints and the Wachovia Drive-Through could be laid out in a manner that would allow more spaces. The alleys running through the area could be vacated. Ideally, some or all of these parking spaces should be acquired for public parking (possibly with meters with 2 hour limits)

9. To improve sight distances for the parking exit onto 3<sup>rd</sup> Street, consideration should be given to restricting parking close to the corner on the west side.
10. As much as possible, turning movements should be concentrated at a spot that is not close to crosswalks. Ideally, pedestrians would be encouraged to cross the street at the marked crosswalks.
11. The intersection of 3<sup>rd</sup> and Main should have exclusive "Walk" pedestrian signals. The curblines should be extended outward in a way that does not reduce the turning radius and does not remove any on-street parking spaces. This reduces the length of street that must be crossed by pedestrians. Also, narrower streets psychologically help to encourage motorists to slow down.
12. It would be desirable to have a new municipal parking area, if it is cost-effective. The largest and most under-utilized area for a potential parking area would be east of 3<sup>rd</sup> Street behind the buildings on Main Street. Most of this land is not currently used for parking during most of the week - so any parking would be a net gain to the town.
13. Adjacent property-owners should be encouraged to coordinate their rear parking lots. This will increase the total number of spaces by having a more efficient layout. In addition, different businesses have different peak hours of demand. Therefore, if businesses share the spaces, there will be more efficient use. For example, an office may need parking from 8 a.m. to 5 p.m. weekdays, while a restaurant needs the most parking on weekends and after 5 p.m. on weekdays.
14. If Railroad Street would be made one-way westbound, it would minimize traffic hazards at the railroad bridge where there are limited sight distances and large numbers of pedestrians crossing at night to reach the Theater.
15. Diagonal parking does not work well on heavily traveled streets, but can work well on low-traffic streets. If Railroad Street between 4<sup>th</sup> and 5<sup>th</sup> would be made one-way, it could allow diagonal parking on one side. This could result in many more spaces. It may be possible to lease a couple feet of land from the railroad for a widened street if it is necessary.
16. The intersection of Jubilee and 4<sup>th</sup> Streets at times is a difficult pedestrian crossing - mainly because of the speed of traffic along 4<sup>th</sup> St. Over the long-term, consideration could be given to a 3 way stop, with well-marked crosswalks.
17. Over the long-term, if part of Jubilee Street might be made one-way, it could allow diagonal parking on one side or both sides. This could result in many more spaces. It probably would be necessary to start any one-way restriction west of Borough Hall, to avoid difficulties for the Police Department.
18. The intersection of Broad and 4<sup>th</sup> Sts. should be considered for a 4 way stop, as opposed to the current 3 way stop. This would reduce speeding on 4<sup>th</sup> St. and make pedestrian crossings easier. In addition, signs could be posted designating Broad Street as a "Bike Route." The width of Broad Street makes it the best route towards the Community Park. However, a bike lane should not be painted on the street because studies show that can result in a false sense of security among bicyclists.

# Emmaus Downtown Concept Plan



## Concept Plan for Downtown Macungie

### Pedestrian Safety

There is a need to improve the convenience and safety for pedestrians and bicyclists in the Downtown. This includes making it easier to cross Main Street, particularly to reach schools, Macungie Park, the Macungie Institute and downtown businesses.

A traffic signal should be sought at Church and Main Streets, with walk signals. This signal will not only help bicyclists and pedestrians, but also result in breaks in traffic that will make it easier for vehicles to turn on Main Street at other locations.

- Curbs can be extended outward at intersections where there is little truck traffic. This provides pedestrians with a safe area to wait and reduces the width of the roadway that they need to cross.
- Where there is little need for a turn lane, a concrete center median might be considered. This can serve as a refuge for pedestrians so they only need to cross one direction of traffic at a time.
- Well-marked crosswalks can be helpful when combined with other measures. Crosswalks can be constructed of textured colored concrete that has the appearance of brick. The color increases the visibility and the texture makes a noise that discourages speeding.
- Some municipalities have crosswalks that are raised slightly above the road pavement. These are called "speed tables." They work to slow traffic down like a speed bump, but they are much less abrupt.
- Crosswalk ahead signs and flashing lights could be placed over a crosswalk to increase their visibility.
- Some communities even have lights built into the crosswalk that are activated when a "Walk" signal is on.
- Some boroughs place plastic "Stop-Pedestrian Crossing" signs in the middle of streets at key crosswalks during peak periods of activity, such as special events.
- Continued efforts are needed to make sure that sidewalks are in reasonably safe condition.

### Parking Issues (Other than Zoning Regulations)

All downtowns face a similar problem. Most Americans have become much more auto-dependent in recent years. Most people have become "spoiled" in having parking spaces within eyesight of their destination, and are not in the habit of walking a full block from a parking space to a store. This trend is most pronounced in the growth of drive-through restaurants, banks and pharmacies.

There appears to be plentiful parking in the Downtown during most periods of the week. However, it is not always as close to and as visible from destinations as some persons would like.

The key in downtown parking is not to only provide sufficient amounts of parking, but to make sure it is properly managed. This involves making sure that the most convenient parking spaces are available for high-turnover by customers. This is usually achieved through time limits on the best parking spaces (which does not require parking meters).

Then, there should be no time limits where there are excess parking spaces. This encourages employees of downtown businesses and residents to park in these locations. There also can be exceptions on time limits for persons who live within a block.

## HISTORIC PRESERVATION PLAN

Southwestern Lehigh County has a rich heritage, as described in the "Overview of the Region's History" section in the Appendix.

### **Consider historic zoning provisions to protect the most important historic buildings.**

Some form of zoning provisions should be considered by each municipality to protect important historic buildings. This could include historic building provisions that would create a layer of provisions that apply in addition to standard zoning. These provisions could be created under the authority of the State Municipalities Planning Code (MPC), as opposed to the State Historic District Act (which is much more difficult to use).

Unlike a historic district ordinance, zoning regulations on demolition would not regulate changes to buildings, such as window replacements or installation of siding. These zoning provisions also would not regulate the architecture of new construction or building additions. Instead, these historic zoning provisions could be limited to only regulating demolitions of the most important buildings. For example, the zoning ordinance could require that any demolition of a very significant historic building need zoning approval from the Board of Supervisors or Borough Council as a "conditional use." The demolition would only be allowed if the applicant proved that the building could not be economically reused or that the demolition is necessary to allow a project of special public importance (such as an intersection improvement needed to improve public safety). This prohibition on demolition would only apply to buildings listed by the municipality as the most significant.

In addition, a municipality's ordinance could require that any application for a proposed subdivision, land development, conditional use or special exception use must include a full description of any historic building on the property and how the application may adversely affect the building. The Zoning Hearing Board could also be authorized to consider impacts upon historic buildings in determining whether to approve a special exception use.

An alternative to regulating demolition could involve a simple delay of up to 90 days from the time a person applied for a demolition permit until it could be approved. This delay would only apply to a list of important historic buildings. This delay is intended to provide time for interested persons to convince a property owner that there are alternatives for demolition. For example, a new buyer might be found who would be willing to restore the building, or the owner might be persuaded to incorporate the building into their plans for the property.

In any case, an exception should be allowed where a building inspector certifies that a building needs to be demolished because of an imminent public safety hazard.

**Consider zoning incentives for rehabilitation of historic buildings.**

If a designated building is preserved and rehabilitated in a sensitive manner, the zoning ordinance could allow the building to be used for certain additional uses beyond those uses that are normally allowed under zoning. Therefore, for example, an historic building in a non-commercial zoning district should be allowed to be used as a bed and breakfast inn, office, day care center, antique store, funeral home or similar light commercial use. This should help create a stronger market to encourage investment in the restoration of these buildings. These uses would only be allowed within existing buildings, plus modest-sized building additions that are designed to be compatible with the historic building as viewed from the road. The zoning provisions could require an applicant to submit plans prepared by a registered architect showing that the important features of the building that are visible from a public road will be preserved and rehabilitated. Modern features could be added in areas that are not visible from a public road or street.

**Promote increased interest and awareness in historic resources, and more detailed identification of historic buildings.**

Increased public interest in historic buildings can help spur interest in persons buying and rehabilitating historic properties.

The Lehigh County Historical Society is the lead historic organization in the County. There are also several volunteer local historic organizations, including in Alburdis and Macungie. These volunteer organizations mainly collect information on the history and of the region and collect historic materials and photos. Each municipality has the option of establishing a formal Historic Commission that would provide advice to the municipal government and to property-owners.

Efforts should be considered to list additional buildings on the National Register of Historic Places. Listing on the Register does not by itself involve any additional regulations upon a private property owner. It does offer public recognition of the importance of a building, and can provide limited Federal income tax benefits as part of a major historic rehabilitation of an investment property. Listing on the National Register provides protection against actions involving Federal or State funds in ways that would adversely affect the building.

**Encourage property-owners to follow proper standards in making changes to older buildings.**

It is important to make property-owners aware of appropriate ways that old buildings can be modernized or rehabilitated in ways that retain their historic appearance as viewed from a road or street. The following are recommended advisory guidelines (not regulations) for older buildings in the region:

1. Modern uses should be found for historic buildings that require minimal changes to the exterior features of the building that define the building's character.
2. Historic exterior materials and features should be preserved and not be removed or covered.
3. A new building in a historic area does not need to appear old, but should include features that respect nearby historic buildings, such as similar massing, materials, window openings and scale.

4. If deteriorated historic features cannot be repaired, they should be replaced with new features having the same appearance.
5. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials should not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
6. The proportional relationship between the width and the height of the front of historic buildings should be maintained.
7. If doors or windows are replaced, the window and door openings should remain the same size.
8. Any rhythm of solid wall areas vs. windows and doors should be maintained.
9. Any new construction or additions should seek to continue setbacks from a road that are similar to nearby historic buildings.
10. Any rhythm of building projections should be maintained.
11. Materials should be used (such as brick, stone and older styles of siding), that is similar in appearance to authentic materials of surrounding buildings.
12. Roof shapes and roof lines should be maintained, and new buildings should have similar roof lines to nearby historic buildings.
13. Barn walls should be maintained in wood, preferably painted red, white or other historic colors.
14. Views of outdoor storage from roads and residential properties should be minimized.

## COMMUNITY FACILITIES AND SERVICES PLAN

Community facilities include parks, fire stations, municipal buildings, public schools and similar facilities. Community services include police and fire protection, sewage and water services and municipal government.

**GOAL:** Provide high-quality community facilities and services in the most cost-efficient manner, including addressing needs for future growth.

### **Improve parks and playgrounds to meet a wide variety of recreational needs.**

The locations of existing recreation areas are shown on the Existing Recreation Areas and Proposed Trails Map. The numbers on that map relate to the listing on the following pages.

Most of the Region is well-served by existing parks that are properly distributed to serve concentrations of residents. The Region's park system includes an appropriate variety of facilities, including playgrounds in denser areas, athletic fields, passive natural areas along creeks and other facilities. Continued efforts are needed to rehabilitate older recreation areas, particularly to make sure they meet modern safety standards.

It generally is most efficient and most convenient to concentrate most new athletic facilities for organized sports in a few centralized parks, preferably adjacent to a public school.

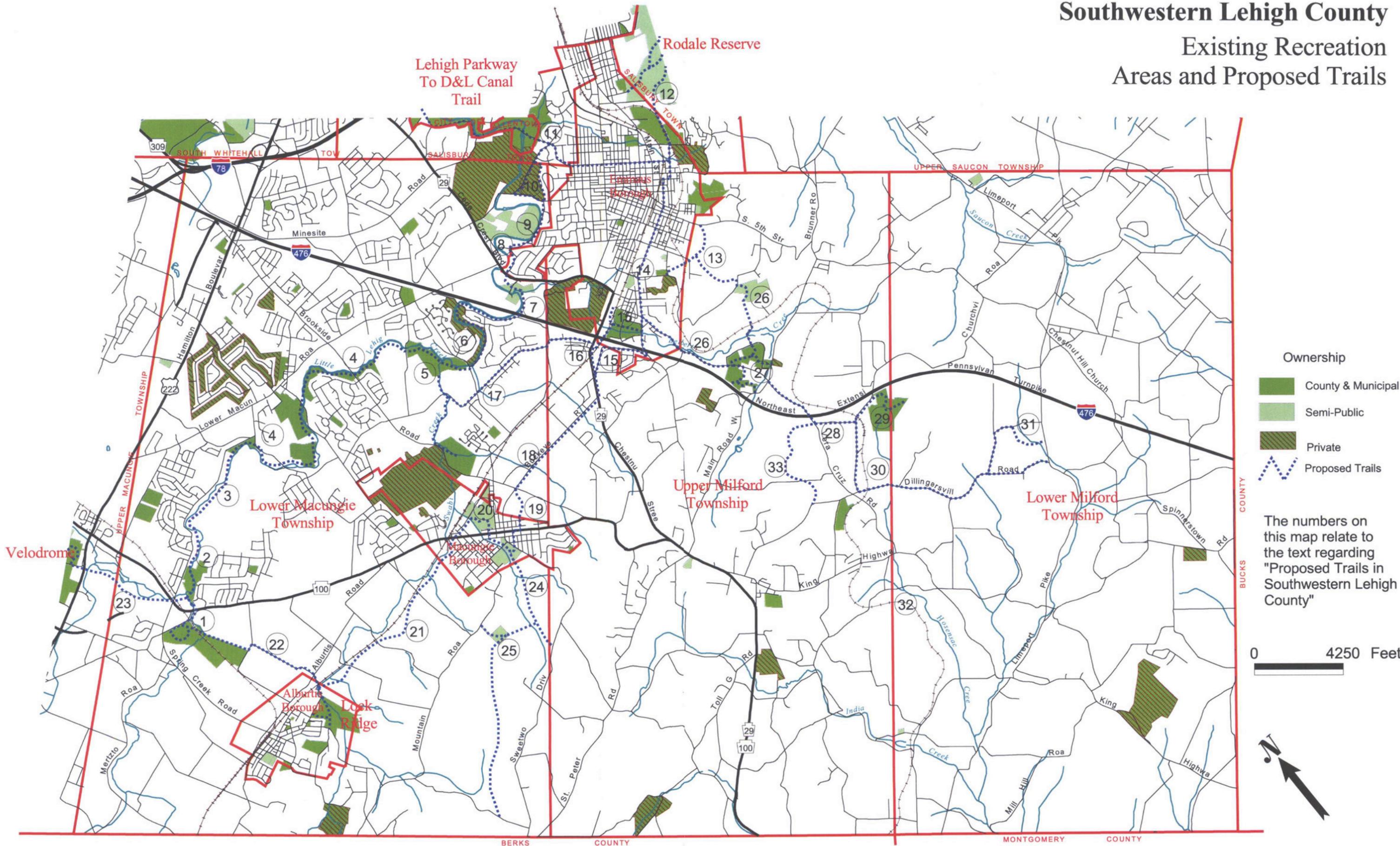
Greater cooperation and cooperation among the municipalities would be valuable in providing recreation facilities and services. A Recreation Coordinating Council should be formed within the borders of each school district. This Council should meet as needed and include representatives of the municipalities, the school district and the major non-profit recreation groups. The goal should be to:

- 1) collect basic data on the sizes of each recreation program and trends in their growth,
- 2) identify the greatest needs for recreation facilities, based upon actual use and current trends,
- 3) identify opportunities to share or jointly provide recreation facilities and programs, particularly to meet times of peak demand and avoid over-use of facilities, and
- 4) identify recreation programs that are needed but are currently not being provided. For example, it may be found that inadequate attention is being paid to recreation programs for adults.

There currently are indoor recreation facilities at the public schools, at the Alburts Community Center, at the Macungie Park Building, and at the Lower Macungie Township Community Center. Consideration should be given to seeking an additional indoor recreation center, particularly in Emmaus. In addition, opportunities should be sought to maximize use of indoor facilities of the school district during hours when the facilities are not needed for school use.

# Southwestern Lehigh County

## Existing Recreation Areas and Proposed Trails



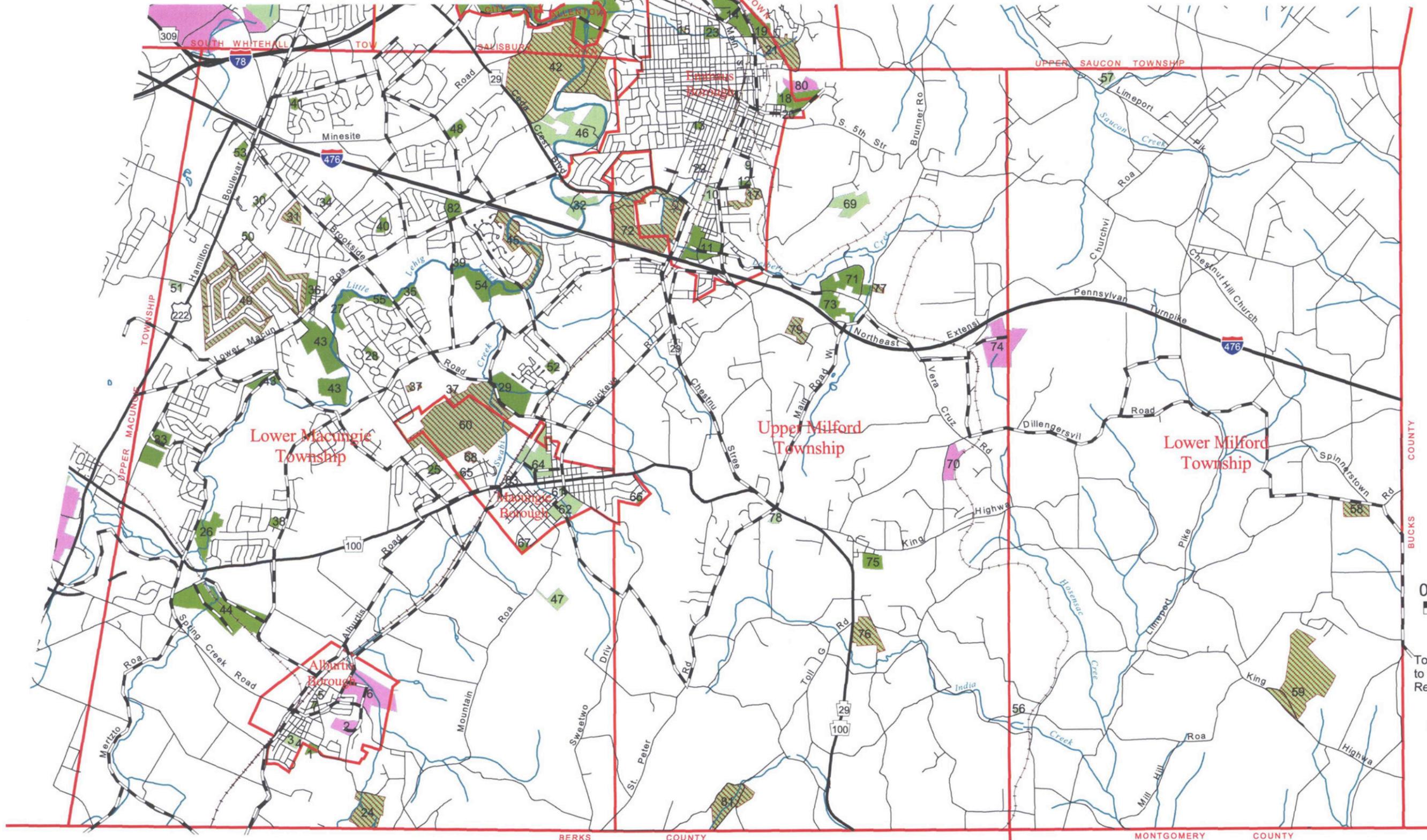
- Ownership**
- County & Municipal
  - Semi-Public
  - Private
  - Proposed Trails

The numbers on this map relate to the text regarding "Proposed Trails in Southwestern Lehigh County"

0 4250 Feet



# Southwestern Lehigh County Existing Parks, Recreation and Open Space With Potential Bicycle Routes



**Park Ownership**

- County & Municipal
- Other
- No Public Access
- Bicycle Routes

The numbers on this map relate to the table of "Existing Major Recreation Areas".



To Rt. 663 to Green Lane Reservoir



EXISTING MAJOR RECREATION AREAS - 2003

The map numbers on this table relate to the locations on the Existing Major Recreation Areas and Bicycle Routes Map.

Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE*
1	Alburtis Field	Alburtis	Neighborhood	Ball Field	Municipality	Public	5.50
2	Alburtis Mountain Road Tract	Alburtis	Conservancy	County Natural Area	County	Public	14.50
3	Alburtis Recreation Association	Alburtis	Neighborhood	Ball Field	Other	Public	5.60
4	Alburtis Swimming Pool	Alburtis	Neighborhood	Outdoor Swimming Pool	Other	Public	2.00
5	Cobblestone Court Recreation Area	Alburtis	Neighborhood	Sub-Neighborhood Park	Municipality	Public	0.40
6	Lock Ridge Park and Furnace Museum	Alburtis	Special Use	National Register Historic Site	County	Public	59.50
7	Playground of Adventures	Alburtis	Neighborhood	Sub-Neighborhood Park	Municipality	Public	1.00
8	Borough Line Park	Emmaus	Neighborhood	Neighborhood Park / Playground	Municipality	Public	5.50
9	Catholic War Vets Field	Emmaus	Neighborhood	Sub-Neighborhood Park	Other	Public	1.50
10	Citizens Fire Company Number 2 Ballfield	Emmaus	Neighborhood	Ball Field	Other	Public	5.80
11	Community Park (Emmaus Borough)	Emmaus	Neighborhood	Community Park	Municipality	Public	35.00
12	Furnace Dam Park	Emmaus	Neighborhood	Fishing (Public Access)	Municipality	Public	3.50
13	Lions Field	Emmaus	Neighborhood	Neighborhood Park / Playground	Municipality	Public	2.20
14	Marks Farm Tracts / Knauss Homestead	Emmaus	Special Use	Ball Fields / Historic Site	Municipality	Public	36.58
15	Meadow Pool Association	Emmaus	Neighborhood	Outdoor Swimming Pool	Other	Private	2.00
16	Robert Rodale Reserve	Emmaus	Conservancy	Land Preserve	Other	Public	465.50
17	Rodale Press Recreation Area	Emmaus	Neighborhood	Private Multi-Purpose Park	Other	Private	10.00
18	Shelter House	Emmaus	Special Use	National Register Historic Site	Municipality	Public	25.70
19	Soccer Field (Emmaus)	Emmaus	Neighborhood	Multi-purpose Field	Municipality	Public	3.00

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Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE*
20	South 4th Street Field	Emmaus	Neighborhood	Multi-purpose Field	Other	Public	2.30
21	Unami Fish and Game Association	Emmaus	Special Use	Sportsman Club	Other	Private	45.50
22	West End Playground	Emmaus	Neighborhood	Sub-Neighborhood Park	Municipality	Public	0.30
23	Williams Street Playground	Emmaus	Neighborhood	Neighborhood Park / Playground	Municipality	Public	7.10
24	Alburtis Rod and Gun Club	Lower Macungie	Special Use	Sportsman Club	Other	Private	42.30
25	Ancient Oak South Park	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	3.70
26	Ancient Oak West Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	26.90
27	Bridal Path West Passive Recreation Area	Lower Macungie	Conservancy	Open Space	Municipality	Public	14.80
28	Brookfield Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	4.00
29	Brookside Municipal Complex	Lower Macungie	Neighborhood	Community Park	Municipality	Public	30.00
30	Brookside Villas Open Space	Lower Macungie	Conservancy	Open Space	Municipality	Public	2.60
31	Calvary Jubilee Park Camp	Lower Macungie	Special Use	Church Camp	Other	Private	11.30
32	Camp Olympic	Lower Macungie	Special Use	Specialized Recreation Camp	Other	Private	20.30
33	Church Lane Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	13.60 (+expansion)
34	Cross Timbers Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	2.60
35	Danfield Run Passive Recreation Area	Lower Macungie	Conservancy	Open Space	Municipality	Public	9.20
36	East Texas Playground	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	9.10
37	Fairways-at-Brookside Recreation Areas	Lower Macungie	Neighborhood	Homeowner's Association Land	Other	Private	5.00

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Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE*
38	Farmington Hills Active Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	3.30
39	Harris-York Public Open Space	Lower Macungie	Conservancy	Open Space	Municipality	Public	3.60
40	Hidden Valley Recreation Area	Lower Macungie	Neighborhood	Homeowner's Association Land	Municipality	Public	5.70
41	Joseph M. Prater Memorial Park	Lower Macungie	Neighborhood	Homeowner's Association Land	Municipality	Public	3.80
42	Lehigh Country Club	Lower Macungie	Special Use	Golf Course	Other	Private	242.20
43	Little Lehigh Creek Flood Plain	Lower Macungie	Conservancy	Open Space	Municipality	Public	90.20
44	Lower Macungie Township Community Park	Lower Macungie	Neighborhood	Community Park	Municipality	Public	90.80
45	Millbrook Farms Recreation Area	Lower Macungie	Conservancy	Homeowner's Association Land	Other	Private	37.10
46	Pool Wildlife Sanctuary	Lower Macungie	Special Use	Land Preserve	Other	Semi-Public	70.40
47	Reimert Memorial Bird Haven	Lower Macungie	Conservancy	Land Preserve	Other	Public	10.80
48	Rodale Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	10.20
49	Shepherd Hills Country Club	Lower Macungie	Special Use	Golf Course	Other	Public	106.10
50	Shepherd Hills Recreation Area	Lower Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	1.40
51	Trexlerstown Grange	Lower Macungie	Special Use	Picnic Grove	Other	Public	5.30
52	Watermill Recreation Area	Lower Macungie	Conservancy	Open Space	Municipality	Public	5.20
53	Wescosville Park	Lower Macungie	Neighborhood	Neighborhood Park / Playground	Municipality	Public	6.20
54	Wild Cherry Park	Lower Macungie	Special Use	Ball Field	Municipality	Public	41.62

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Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE*
55	Winding Brook Manor Recreation Area	Lower Macungie	Neighborhood	Neighborhood Park	Municipality	Public	11.30
56	Ballfield (Lower Milford Township)	Lower Milford	Neighborhood	Ball Field	Other	Public	3.20
57	Limeport Stadium (Fegley Stadium)	Lower Milford	Neighborhood	Ball Field	Other	Public	5.70
58	Picnic Grove and Ballfield (Trinity Church)	Lower Milford	Neighborhood	Picnic Grove	Other	Private	15.00
59	Twin 'S' Gun Club	Lower Milford	Special Use	Sportsman Club	Other	Private	171.30
60	Brookside Country Club	Macungie	Special Use	Golf Course	Other	Private	140.00
61	Firehouse Ballfield	Macungie	Neighborhood	Ball Field	Other	Public	2.00
62	Kalmbach Memorial Park	Macungie	Neighborhood	Community Park	Other	Public	19.00
63	Macungie Flower Park	Macungie	Special Use	Open Space	Municipality	Public	0.20
64	Memorial Park (Macungie Borough)	Macungie	Neighborhood	Community Park	Other	Public	37.95
65	Playlot (250 Village Walk Drive)	Macungie	Neighborhood	Sub-Neighborhood Park	Municipality	Public	1.70
66	Playlot (976 Hillcrest Drive South)	Macungie	Neighborhood	Open Space	Municipality	Public	1.30
67	Playlot (Spruce Street)	Macungie	Neighborhood	Open Space	Municipality	Public	3.30
68	The Ridings Recreation Area	Macungie	Neighborhood	Sub-Neighborhood Park	Other	Private	2.00
69	B. Leroy and Elizabeth Burkhart Preserve	Upper Milford	Conservancy	Land Preserve	Other	Public	25.30
70	Churchview Park	Upper Milford	Neighborhood	Community Park	County	Public	17.00
71	Fulmer Tract	Upper Milford	Conservancy	Open Space	Municipality	Public	35.30
72	Indian Creek Golf Course	Upper Milford	Special Use	Golf Course	Other	Private	75.00
73	Jasper Park	Upper Milford	Neighborhood	Community Park	Municipality	Public	26.70
74	Lehigh County Conservation Demonstration Project	Upper Milford	Conservancy	County Natural Area	County	Public	61.00
75	Lenape Park	Upper Milford	Neighborhood	Neighborhood Park / Playground	Municipality	Public	12.10
76	Milford Park Bible Camp	Upper Milford	Special Use	Church Camp	Other	Private	31.00
77	Mystic Chain Park	Upper Milford	Neighborhood	Open Space	Other	Private	3.40
78	Shimerville Recreation	Upper Milford	Special Use	Miniature Golf	Other	Public	4.20
79	Upper Milford Field and Stream Association	Upper Milford	Special Use	Sportsman Club	Other	Private	14.90

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Map #	NAME	MUNICIPALITY	CLASS	TYPE	OWNER	ACCESS	ACREAGE*
80	Upper Milford South Mountain Property	Upper Milford	Conservancy	County Natural Area	County	Public	15.60
81	Victory Valley Camp	Upper Milford	Special Use	Church Camp	Other	Private	40.30
82	Hidden Valley Farms Park	Lower Macungie	Neighborhood	Neighborhood Park	Municipality	Public	Approx. 8

Source - Lehigh Valley Planning Commission, 2003, with revisions by URDC.

**Complete a system of bicycle and pedestrian trails.**

A trail and greenway system should be developed over time, especially along the Little Lehigh Creek. This greenway and trail should interconnect the existing parks along the creek, and where practical should ideally include a trail on both sides of the creek to allow "loops." A set of recommendations are illustrated on two maps on preceding pages.

Wherever practical, new developments should be required to include pedestrian and bicycle connections with nearby parks, residential developments and existing trails. These trail easements are particularly valuable to connect the end of one cul-de-sac street with another cul-de-sac street. This allows bicyclists and pedestrians to travel on wider low-traffic roads within newer developments, as opposed to being forced to walk and bicycle along older heavily traveled through-roads.

Lower Macungie Township has been requiring the construction of asphalt paths along major through-roads when the adjacent land develops. This is valuable not only for local residents, but also to allow employees of businesses to walk over their lunch-time.

In addition to serving local residents, trails can be valuable in attracting tourists to the region, particularly considering the dramatic increase in the popularity of mountain biking.

**Proposed Trails in Southwestern Lehigh County**  
(The numbers provided below relate to the  
"Existing Recreation Areas and Proposed Trails Map" on page 82)

Please note that some of the trail alternatives would need cooperation from private landowners. If permission would not be forthcoming, then the trail would need to be within a right-of-way of a public street.

Little Lehigh Trail

- 1) Connection between Creamery Road and Quarry Road through Lower Macungie Community Park. It would be desirable to eventually have a pedestrian bridge over the railroad, which would allow more efficient use of the east and west sections of the Park. If a bridge is not practical, then a pathway connection could be made along Creamery Road on the north side of the Park.
- 2) Trail eastward through Ancient Oaks West Recreation Area.
- 3) Inclusion of designed bike paths along creek in proposed developments.
- 4) Trail through Township-owned open space parcels in floodplain.
- 5) Trail through Township-owned Wild Cherry athletic fields.

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- 6) Trail through Millbrook Farms Recreation Area (Homeowner's Association Land), if permission granted.
- 7) Crossing of Pennsylvania Turnpike underneath Little Lehigh Creek bridge.
- 8) Use portions of Little Lehigh Drive, Little Lehigh Drive North, and existing gravel road along creek.
- 9) Trail through privately-owned Pool Wildlife Sanctuary (not suitable for bicycles), or along Orchid Lane.
- 10) Trail along eastern boundary of Lehigh Country Club or along Country Club Road.
- 11) Bike lane / trail along Keystone Road and/or Little Lehigh Creek, connecting northward to the Lehigh Parkway, City of Allentown, and the Delaware & Lehigh Canal Towpath. Southward connection to downtown Emmaus using Keystone Avenue, which is wide.

Emmaus-Macungie-Alburtis Trail

- 12) Connection from Emmaus soccer field parking lot to existing trails in Robert Rodale Reserve, City of Allentown parkland and open space on South Mountain.
- 13) Trail along base of South Mountain, through Unami Fish & Game land (private) or along railroad right-of-way. Southward to county-owned property and borough-owned Shelterhouse. Continuing across 5<sup>th</sup> Street, past water tanks, to power line easement. Follow easement downslope to Rodale Press Recreation Area (private, company-owned).
- 14) Alternative to South Mountain trails - bike lane along Broad Street, Pennsylvania Avenue, and Shimerville Road.
- 15) Trail through Emmaus Community Park, along Leibert Creek under railroad bridge. Connection to Weis and adjacent commercial areas.
- 16) Trail along north side of Norfolk Southern, underneath Pennsylvania Turnpike and Route 29. Alternative - bike lane along Shimerville Road, 16<sup>th</sup> Street, Ramer Road, across Route 29 at traffic light at Colebrook Avenue to a pathway parallel to Buckeye Road (Another alternative would be to rebuild a pedestrian bridge over the railroad at Tank Farm Road to provide another north-south link. However, Norfolk Southern may not be cooperative in building a trail along the edge of the railroad right-of-way.)
- 17) Use existing roads for connections - Allen Road, Sauerkraut Lane, Macungie Road, Indian Creek Road to Lower Macungie Library/Community Center/Pool complex. As lands are developed, a north-south pathway connection would also be desirable along the Swabia Creek to connect to the Little Lehigh Creek paths. In addition, a pathway northward along Macungie Road would also be desirable to connect to the Little Lehigh Creek trails.

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- 18) Paved pathway parallel to Buckeye Road adjacent to Buckeye Pipeline property.
- 19) Trail through / around East Penn Eyer school campus.
- 20) Inclusion of Macungie Borough trails (portions existing), connecting Macungie Memorial Park, Kalmbach Park, the Macungie Institute and the Flower Park. More detail is provided in the Macungie Trails Plan. Westward through Allen Organ property to Gehman Road.
- 21) Connection to paths being constructed as part of the Lock Ridge Farms development, along the south side of railroad. Connection to Lock Ridge County Park and Alburtis Borough.

North-South Connector

- 22) Existing bike path along Quarry Road, connecting Lock Ridge Park with Lower Macungie Community Park, completing loop.
- 23) Northward spur along west side of Spring Creek, through proposed developments and future Township land. Trail would skirt a wetland natural area. Connection to Lehigh Valley Velodrome and Rodale Cycling and Fitness Park (cross Hamilton Boulevard at Weilers Road, which is to be signalized).

South Mountain Trails

- 24) Inclusion of existing gravel drive from Kalmbach Park, through Macungie Borough Water Authority land, to Sweetwood Drive.
- 25) Pedestrian-only trail through Reimert Memorial Bird Haven. Eastward spur through private property (owner permitting) to Water Authority trail. Westward spur climbing to ridgeline, connecting to transmission line and substation on Reservoir Hill Road.

Upper and Lower Milford Trails

- 26) Connection from Emmaus to Jasper Park and Fulmer Tract. Eastern option cresting South Mountain at radio tower, descending through Burkhart Preserve to Leibert Creek and Fulmer Tract. Western option parallel to Vera Cruz Road and/or Leibert Creek.
- 27) Trail improvements at Jasper Park and Fulmer Tract, connecting all adjacent roads.
- 28) Bike lane / trail southward parallel to Vera Cruz Road, over Turnpike, left on Geho Road, left on Churchview Road.
- 29) Trail through county-owned conservancy tract.
- 30) Trail along a widened shoulder along Dillingersville Road (Alternative route - Trail southeastward along electric transmission line easement if permission granted by landowner) to right-of-way of the Turnpike).

- 31) Bike lane / trail along Elementary Road to Lower Milford Elementary School. (Note - A connecting nature trail along the Hosensack Creek would be desirable if permission could be obtained from property-owners. That include use of a trail along a transmission line easement that runs parallel to part of the Hosensack Creek. Also a transmission line right-of-way exists that might be used in the future over Mill Hill to connect to Kings Highway.).

A trail link would be desirable to the Pennsburg area (2 miles from Lehigh County border) where it can link with existing trails on public parkland around the Green Lane Reservoir. Those trails link to the northern terminus of the Perkiomen Trail (approximately 8 miles from Lehigh County border). The Perkiomen Trail travels over 20 miles southward to Valley Forge National Military Park, where it connects to the Schuylkill River trail that extends to Center City Philadelphia. An on-road bicycle route is suggested on the Parks, Recreation and Potential Bicycle Routes Map on a following page.

- 32) Trail improvements along perimeter of county-owned Seem Seed Farm.
- 33) Consider trail parallel to the Perkiomen Branch Railroad, an active freight corridor with light usage.

**Work to provide safer bicycling opportunities throughout the Region.**

Local interest in bicycling is spurred by the presence of the Lehigh Valley Velodrome, a County-owned bicycle race track west of Trexlertown. The Velodrome sees nearly 60,000 visitors annually in the form of race participants, spectators, and bike riders.

Many riders, including organized groups like the Lehigh Wheelmen, meet at the Velodrome as a starting point for bike rides in the western Lehigh Valley. The Velodrome draws a significant amount of program participants from this Region, and has created a local enthusiasm for biking. This, combined with the abundance of gently-sloped rural roads here and westward, has resulted in an unusual concentration of bicycling activity on local roads. In addition, there is a significant number of mountain bikers in the area, who are attracted by the Robert Rodale Reserve on South Mountain, Bear Creek Ski Area in neighboring Longswamp, and other nearby off-road biking venues.

The increasing traffic is posing a challenge to safe bike riding. The following is a summary of some key concerns and desired improvements voiced by the Velodrome Director and other area riders.

- Rural local roads in the area were once a safe haven for cyclists. Now, all roads are heavily traveled by vehicles, with many former bike-friendly routes now seeing large volumes of traffic and/or high speed traffic at all hours of the day. This is true on Lower Macungie Road, Spring Creek Road and Willow Lane in Lower Macungie Township, Kings Highway, Vera Cruz Road and Limeport Pike in Upper and Lower Milford, and many others.
- With some exceptions, most roads in the Region have limited or no shoulders for safe cycling. Fortunately, all new roadways associated with the 222/100 bypass will have 8-10' shoulders, as

well as realigned portions of Sauerkraut Lane. Some roads lack white edge lines, which serve as visual barriers that help motorists and cyclists maintain their own domain. The area also lacks designated on-road bike routes with painted lanes and symbols. While the cyclist does not need paint symbols for safe riding, these improvements create known routes, increase motorist awareness of bicycle activity on the roadway, and can attract additional funding if design guidelines are followed.

- The few straight, gentle-grade roads in the area see excessive vehicular speeding, which creates a very dangerous situation for cyclists. Such roads include Buckeye Road, Brookside Road, Cedar Crest Boulevard in Lower Macungie Township, where vehicle speeds often exceed 60 MPH. The hazards from speeding are greatest when there is not a defined shoulder, and when there are curves and hills that limit motorist's visibility of bicyclists.
- Certain dangerous structures or places serve as choke points in bicycle safety. These include the Route 29 overpass over the Reading Railroad, the Brookside Road underpass of the same railroad, the Church Lane railroad bridge in Trexlertown, village areas such as East Texas, Wescosville, East Macungie, Vera Cruz and Shimerville, and numerous bridges over streams.
- Road and trail improvements for cyclists should consider different groups:
  - Higher speed cyclists who always use existing paved roads,
  - Lower speed and less experienced leisure riders, who may use roads or bike paths,
  - Children, who would be best directed onto separate bike paths with few road crossings, and
  - Mountain bikers that seek "singletrack" and other unpaved trails,.
- The Robert Rodale Reserve on South Mountain in Emmaus features mountain bike trails with a very high level of technical difficulty. While the trails here have gained regional fame and appear in many mountain biking books, these trails are not fit for the novice biker. The area should supplement this resource with trails that are both easier to ride, and can serve as alternate transportation links. These could be an assortment of dirt, gravel, and paved trails, and could exist in floodplains, utility right-of-ways, and other where it is easier to obtain permission for the trails because the areas cannot be developed.
- Lower Macungie Township typically requires developers to include paved paths along collector and arterial streets in their subdivision plans. While these paths are not used by serious road bikers, these paths are very attractive to other bicyclists, joggers and walkers. This municipal requirement is a forward-thinking effort. Different segments are now becoming inter-connected over long distances. It may be necessary for the Township to expend municipal funds to complete key links, particularly along segments that were developed before the requirement was in place.
- Many area roads are owned and maintained by PennDOT. If a municipality wants to widen and/or add bike lanes to a PennDOT road, the process is often more lengthy and difficult than it would be for a local road. There is the option of municipalities acquiring ownership of selected roads from PennDOT through the "turnback" process. This would make it easier and cheaper for a municipality to make all types of changes along the road, including adding

shoulders and improving pedestrian safety. Macungie Borough is in the process of acquiring Lehigh Street from PennDOT, in order to accommodate their plan for a borough-wide trail with portions on roadways.

- Some trail planning is already in progress, such as Macungie's trail linking three parks and proposed connections to Alburtis and Eyer Middle School, and several developer-built trails in Lower Macungie Township. Desired trail destinations in the area include the Emmaus Community Park, Lower Macungie Community Park at Creamery Road, and the Lehigh Valley Velodrome/Rodale Fitness Park in Upper Macungie.
- There is interest in a Little Lehigh Creek greenway trail. Much of the land along the creek is already protected as Township parkland or open space, and homeowner's association land. The configuration of the creek makes an ideal route from Lower Macungie Community Park, eastward to Ancient Oaks West Recreation Area, then through various open space parcels from Willow Lane to Cedar Crest Boulevard, along an edge of the Poole Wildlife Sanctuary, and finally connecting to the City of Allentown's Lehigh Parkway. The most difficult stretch to gain permission for public access may be through the Lehigh Country Club. A northward spur could connect to the Velodrome.
- The former closed Tank Farm Road bridge crossed the railroad to connect with Indian Creek Road in Lower Macungie Township. Right-of-way and abutments still exist here, and a simple bicycle/pedestrian bridge could be placed to serve as a trail link. While this link is not a high priority, it could serve as a safe alternative to several road overpasses and underpasses where the roadway is narrow and cyclists must share a travel lane with heavy traffic.
- A bicycle committee is regularly meeting with PennDOT to satisfy the safety and accessibility needs of cyclists during and after the Route 222/100 Bypass construction. As a result, shoulders are intended to remain open in the area, and flashing signs advise motorists to be wary of bicycle traffic on Route 222. Such cooperation should occur on any major road improvement project to insure the safety of cyclists, pedestrians and motorists alike.

The goal is to improve paths and trails building upon key destinations (such as parks, villages and shopping areas). Then, the appropriate road and parcel links between these destinations need to be identified, taking in consideration both physical limitations. Some improvements, such as trails within municipal park land, could be initiated immediately, while others would be a collaboration with PennDOT, private owners, and other entities. PennDOT may be more willing to "fill in the gaps" if they are presented with a formal plan for a workable and useful path network, and proof of local initiative is shown. Some projects can be awarded federal funding if certain design guidelines are followed. The end result would be an interconnected network of trails, paths and bike lanes that would serve both recreational and alternate transportation needs.

**Provide central water and sewage services in the most cost-efficient manner, with regular investments to provide reliable services.**

Care is needed to avoid pollution of water supplies, including areas around wells of central water systems. Recommendations to protect existing groundwater supplies and creeks are included in the

Natural Features Plan section. Central sewage issues are also addressed on page 95.

This Plan emphasizes coordination between central water and sewage services and the future land use plan. The Existing and Potential Central Sewage Service Areas Map highlights areas that are recommended by service by central sewage systems. Central sewage service should generally be avoided in other areas of the region unless it is necessary to support an Open Space Development that will preserve the majority of the land. The costs of utility extensions should be funded by developers whenever feasible.

The Existing and Potential Central Water Service Areas Plan recommends areas where central water service should be provided. Zoning regulations should not encourage intensive development and residential lots smaller than one acre in an area simply because central water service is available, if central sewage service is not available. Extensions of a public water system are particularly valuable for firefighting.

Business uses that involve process wastes generally are not appropriate unless central sewage service is provided.

Unless there is no logical alternative, new private sewage and water systems in isolated locations should generally be avoided because of concerns that they may not be financially viable and properly operated over the long-term. Where a new private water or sewage system is allowed, it should be designed so that it could be incorporated into a larger public system in the future, where feasible. If a new central water or sewage system is approved, consideration should be given to asking the Lehigh County Authority to operate it to ensure proper maintenance and operation.

The following statements are required to be included in the Comprehensive Plan under State law:

1. This Plan is generally consistent with the State Water Plan and water resources planning of the Delaware River Basin Commission.
2. Lawful activities, such as extraction of minerals, impact water supply sources. Such activities are governed by statutes regulating mineral extraction that specify replacement and restoration of water supplies affected by such activities.
3. Commercial agriculture production and livestock operations may impact water supply sources.

#### **Work to protect water supplies.**

Great care is needed to provide adequate water services and to protect the water quality of groundwater and creeks. For the vast majority of the Southwestern Lehigh County region, drinking water supplies come from groundwater within the region. This includes many scattered public water supply wells, as well as individual wells serving homes, farms and businesses. In addition, the Little Lehigh Creek and the Schantz Spring in Lower Macungie west of I-78 along Schantz Road are two of the major water supplies for the entire Allentown region.

The underground geology greatly affects the vulnerability of water supplies to contamination. Particularly in limestone/carbonate areas, underground voids and cracks can allow contaminants to quickly travel from the surface to the groundwater. Once contamination occurs, it can be extremely expensive to clean up, and may require that a well be abandoned. Emmaus, for example, had to

install expensive equipment on some of its wells to address contamination from an industrial use.

The following recommendations should be carried out to protect water supplies:

- The public and private central water systems should prepare "Wellhead Protection Plans" to protect the quality of water near major water supply wells. A State grant program is available that could help to fund these efforts. A wellhead protection plan identifies the land areas around a well that are most likely to contribute towards contamination of the well, considering the underlying geology. The plan then recommends methods that can be used to avoid contamination in these areas, such as purchasing a conservation easement around the water supply to keep the land in open space or to limit the types or intensities of development. This type of planning is particularly important for future well sites in areas that have not yet been developed.
  - The primary area of concern is a 400 feet radius around a well. The secondary area of concern around a well is typically determined by a hydro-geological study.
  - Emmaus is currently completing a wellhead protection plan for its six wells.
  - The goal is to avoid uses near wells that are most likely to cause contamination. If a source of contamination cannot be avoided, then the goal is to make sure that structures and procedures are in place to contain and address any spills.
  - The Lehigh Valley Planning Commission has prepared a model Wellhead Protection Ordinance that should be considered for adoption in some form by the municipalities. That ordinance is intended to prohibit uses with moderate hazards within 400 feet of public water supply wells. As written, within the 400 feet radius, the draft ordinance would prohibit most industrial uses that use hazardous materials, as well as prohibiting vehicle repairs. Uses with the greatest hazards would be prohibited within both the 400 feet radius and a much larger "secondary area." These uses with the greatest hazards include underground injection wells, pesticide dealers and distributors, land application of sewage sludge, mining and chemical manufacturers.
- Opportunities should be considered to combine acquisition of land for public recreation with purchase and/or preservation of public well sites. Where it does not make sense to acquire land, a "conservation easement" could be donated or purchased that would prevent most types of development of the land while it remains privately owned.
- High intensity development should be prohibited in areas that are particularly important as water supplies. This includes in key locations promoting land uses with a low percentage of the lot being covered by buildings and paving. In areas where there is the greatest threat to contamination of public water supplies, land uses that have the highest risks of causing contamination should be prohibited in zoning ordinances.
- Because of possible drought conditions and the threat of contamination, each water system needs excess water supplies. Ideally, each water system would have wells that are constructed but held in reserve until they are needed and/or have an emergency interconnection with a system with plentiful excess capacity. It is essential that every water system be able to serve its customers if one or more of its water sources would not be available. Well sites should also be sufficiently scattered so that a contamination problem would not threaten more than one well. The amount

of storage is also critical to avoid shortages in case a short-term problem arises, such as a mechanical problem.

- Wherever feasible, each private and public central water system should have an emergency interconnection with another water system. The interconnection would only be opened with the consent of each water supplier. These emergency interconnections are essential to make sure that another water source is available in case a primary water source is limited because of drought or contamination.
  - The greatest need for interconnections are with the Alburdis and Macungie water systems. Emmaus already has two emergency interconnections with Allentown's system. The Lehigh County Authority water system has interconnections with Allentown, Salisbury and South Whitehall's systems.
- Water systems and fire companies should update their emergency response and emergency operations plans, and complete related training. This is particularly important to know how to respond in case of a spill of a hazardous substance that could contaminate groundwater or a creek, especially near a public water source.
- The most likely sources of potential water contamination should be identified so that proper measures can be instituted with the business owner to avoid problems. This has already been accomplished along the Little Lehigh Creek.
- Open Space Development is described in the Land Use and Housing Plan section. This involves providing incentives so that homes are clustered on a portion of a tract of land, with large percentages of the tract being permanently preserved in some form of open space. This approach can be beneficial to provide a natural recharge and protective area near well sites.
- When a new development proposes to connect into a central water system, attention should be focused upon whether the system will have enough capacity and pressure. If not, the developer should be required to fund improvements to the system. For example, a developer might be required to provide a new well that provides sufficient capacity (particularly during droughts) to serve the additional development, or to fund improvements to increase the pressure.
- Whenever a new water or sewage system is approved, it should be required to be designed so that it could be efficiently incorporated into a larger system in the future. For example, easements should be provided to allow future connections from neighboring properties.
- It is desirable to use types of wastewater treatment that recharge water into the ground, after the water is treated. This particularly includes spray irrigation or drip irrigation (which involves underground hoses to distribute the treated water). These methods keep the water in the same watershed. This method also helps to preserve large areas of land, and works particularly well with a golf course. In comparison, most central sewage systems result in water being transported out of the watershed. For example, most water in the Little Lehigh Watershed is pulled out of the ground by wells, used by homes and businesses, and then transported to the Allentown sewage treatment plant. The treatment plant empties into the Lehigh River. This effectively transports millions of gallons of water a day from groundwater out of the watershed - without recharging the groundwater.

- Stormwater runoff should be considered a resource, instead of something to be disposed of. This includes maximizing recharge of stormwater runoff into the groundwater. However, there are justifiable concerns that many of the methods to promote recharge may not be appropriate in limestone/carbonate areas because they may cause sinkholes or groundwater contamination. In addition, many infiltration methods require regular maintenance in order to properly function over time.
- Each township should adopt a well construction ordinance. This is important to make sure that new wells are properly constructed, including proper grouting to prevent contaminants from entering the well. As of mid-2004, there are no State regulations on the construction of a well. This Ordinance should also require that proper measures be used to seal a well that is no longer used - to prevent pollutants from entering the groundwater.
- For large private water withdrawals (such as water bottling companies), the municipalities should consider requiring municipal approval. For a larger development, this should include a "draw down" test using a test well, and comparing changes in water levels in neighboring wells.
  - If a water study shows some negative impacts, consideration should be given to measures to reduce the impacts. For example, a use could commit in advance to reduce water use during drought conditions (Note - The State normally does not apply this restriction to a water bottler, which may continue to use millions of gallons of water a day during a drought.) Or a use could commit to provide an improved water supply if a neighbor's well goes dry (which typically involves drilling a deeper well). Or, a use could be required to permanently preserve a large area of land with a conservation easement so that there will be sufficient land area for recharge of the groundwater.
  - Large water bottling operations for off-site use should be controlled to the maximum extent allowed by the law. It is generally understood that they cannot be completely prohibited because of pre-emption by the Delaware River Basin Commission. Some communities treat these uses as industrial uses and limit them to an industrial district, because they involve large amounts of tractor-trailer trucks and loading and unloading operations. Other communities allow these uses with special exception approval, but require water studies and very large minimum lot size requirements. These lot size requirements are intended to make sure that land will be preserved to allow recharge.
- The County program should be continued that collect hazardous materials from households, so they can be sent for properly disposal. The municipalities can play important roles in publicizing this program.
- Educational programs are needed to make homeowners aware of actions they can take to avoid water contamination. These include minimizing the use of lawn chemicals and household chemical products, recycling used motor oil, keeping animals away from stream banks, and planting thick vegetation along creeks.
- The County Conservation District should continue to work with farmers to institute proper conservation measures to avoid water pollution, particularly from pesticides and manure.

- The County Conservation District and municipalities should continue to inspect land developments to make sure that proper soil erosion control measures are carried out.
- Contamination of water by high levels nitrates is also a public health concern. The health risks are particularly high for pregnant women and children. Nitrates are most commonly generated by spreading of manure upon fields or from runoff from livestock and poultry operations. In certain cases, where there are high existing nitrate levels in groundwater, State environmental regulations have required large lot sizes when new on-lot septic systems are proposed. The intent is to avoid increasing the nitrate levels by having a high concentration of septic systems.
- The municipalities should investigate alternatives to road salt that could be used for de-icing of roads. Road salt washes into creeks and affects fish habitats.

**Consider extending central sewage to areas with failing septic systems.**

Central sewage issues are discussed further on page 91. The Existing and Potential Central Sewage Service Map shows areas that are currently served by central sewage systems. In addition, that map highlights areas that over the long-term may be appropriate for central sewage service.

Almost all areas of the region that have central sewage service are connected to the Allentown wastewater treatment plant. This plant is at Kline's Island south of Martin Luther King Drive and empties treated effluent into the Lehigh River. The plant has a capacity of 40 million gallons per day. A portion of Limeport may be served in the future by the Upper Saucon Township sewage treatment plant. That plant is along Route 378 and empties into the North Branch of the Saucon Creek. It was completed in 1989 and has a capacity of 2 million gallons per day.

Upper Milford Township has prepared an updated Sewage Facilities Plan. That Plan recommends the following:

1. Provision of central sewage service within the village of Vera Cruz. This system would likely be connected into the Lehigh County Authority system. There is only limited buildable land available within Vera Cruz for new development.
2. Extension of central sewage service to serve the 7<sup>th</sup> Street area along the Emmaus border.
3. Extension of central sewage service to the Golf Circle area, which is also along the Emmaus border.

The Upper Milford Township Sewage Facilities Plan also recommends that other areas of the Township be considered for central sewage service on an "as needed" basis. However, the Sewage Facilities Plan states that the needs survey did not find an immediate need for central sewage in any other area of the Township at this time. In particular, Old Zionsville includes small lots and many older sewage systems that may need to be addressed over the long-term future by some type of central sewage. Any central sewage service in that area should be primarily intended to serve existing uses, and not major new development.

There may also be a need in the future to provide central sewage to the village of Limeport. This may involve an extension of public sewage from Upper Saucon Township. The primary intent is to serve existing homes and businesses, rather than to promote new development.

**Make sure that on-lot septic systems are adequate.**

Most properties in the rural areas of the townships rely upon on-lot septic systems. Public education is important to make sure that residents know how to properly take care of on-lot septic systems. Many residents have moved from suburban areas where they had public sewers and do not understand their septic systems. Of most importance, property-owners need to understand the need to have their septic systems pumped regularly (typically at least once every three years). If a system is not pumped regularly, the drain field eventually will need to be replaced.

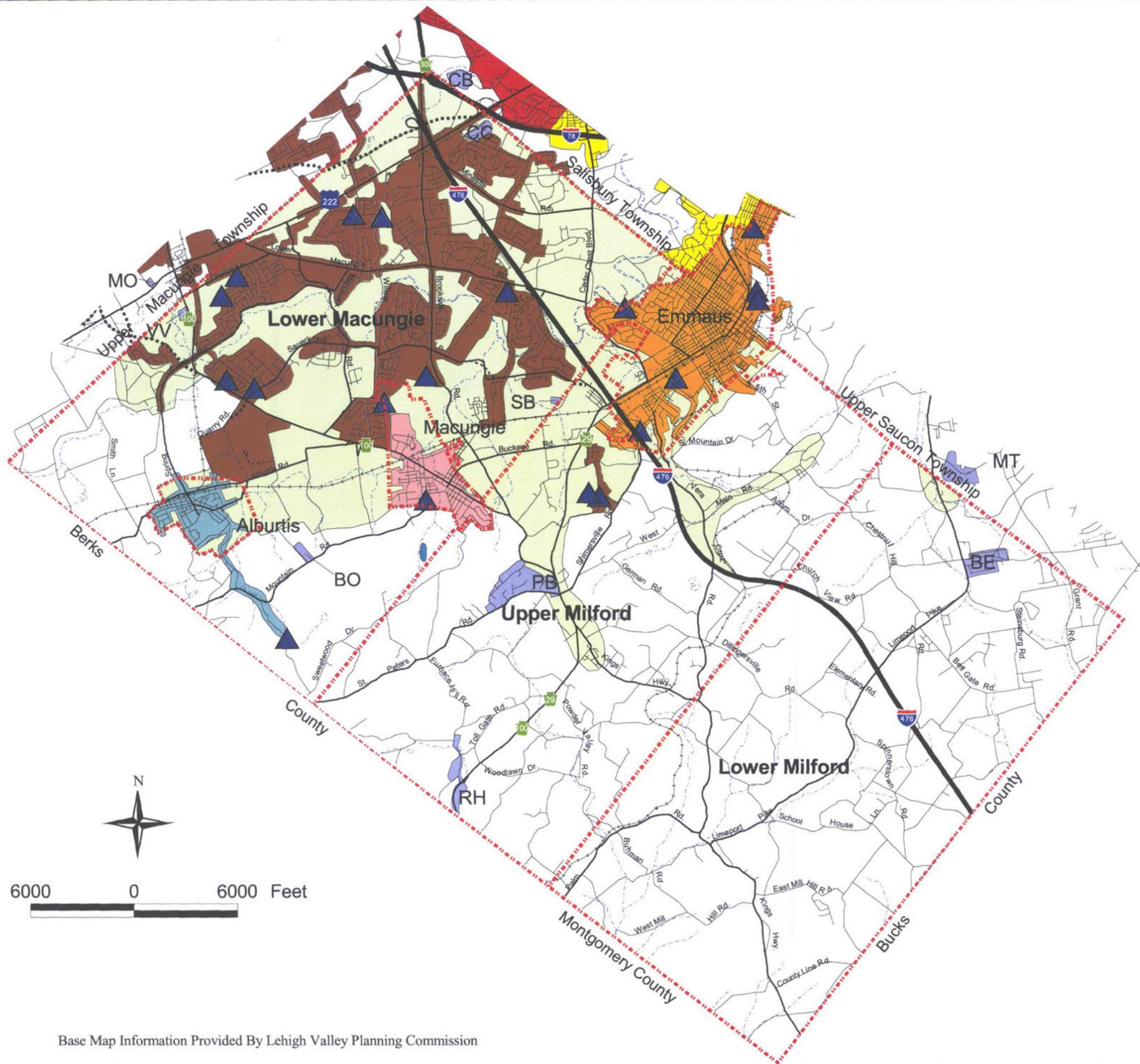
In addition to education, enforcement is needed to make sure that inadequate or failing on-lot septic systems are repaired or replaced. Residents should be encouraged to have their well water tested regularly and to report any contamination that has been found to the township. These well water results can be used to identify areas of failing septic systems. In areas where there are a concentration of failing septic systems, the township should consider an ordinance that requires that the owner provide evidence that the system has been pumped and inspected at least once every three years. This is known as a Sewage Management Ordinance, which could apply within a defined district.

Every new lot that will be served by an on-lot septic system should be required by a municipal ordinance to have two separate locations that are tested and approved for a septic drain field. This is important to make sure that a suitable area will be available in case the initial drain field malfunctions. The back-up location should be required to be kept open and undisturbed.

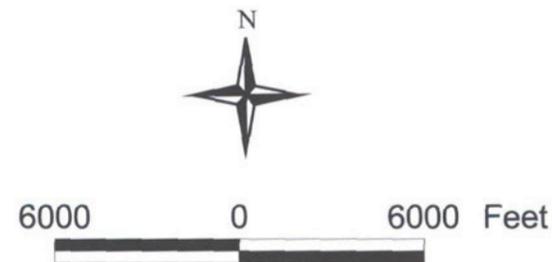
**Support high-quality library service.**

There are currently three public libraries within the region: 1) the Emmaus Public Library serves Emmaus, Upper Milford and Macungie, 2) the Lower Macungie Library serves Lower Macungie and Alburtis, and 3) the Southern Lehigh Public Library serves Lower Milford (in addition to Coopersburg and Upper Saucon). A new Southern Lehigh Library is being built in Upper Saucon. Once a municipality is served by a library that meets certain minimum State standards, then the residents of that municipality are allowed to check out books from other libraries throughout the State.

# Regional Comprehensive Plan For Borough of Alburts, Borough of Emmaus, Borough of Macungie, Lower Macungie Township, Lower Milford Township and Upper Milford Township



- Existing & Potential Central Water Service Areas**
- Alburts
  - Allentown
  - Emmaus
  - Lehigh County Authority (LCA)
  - Macungie
  - South Whitehall
  - Smaller Systems
  - BE - Beverly Hills
  - BO - Big "O" MHP
  - CB - Cedar Brook Nursing Home & Hospital
  - CC - Country Club Gardens - Maple Hills
  - MO - Mosser Nursing Home
  - MT - Mt. Trexler Manor
  - PB - Philip Buss
  - SB - Suburban Mobile Court
  - VV - Valley View Estates
  - Public Water Supply Wells
  - Potential Water Service Areas

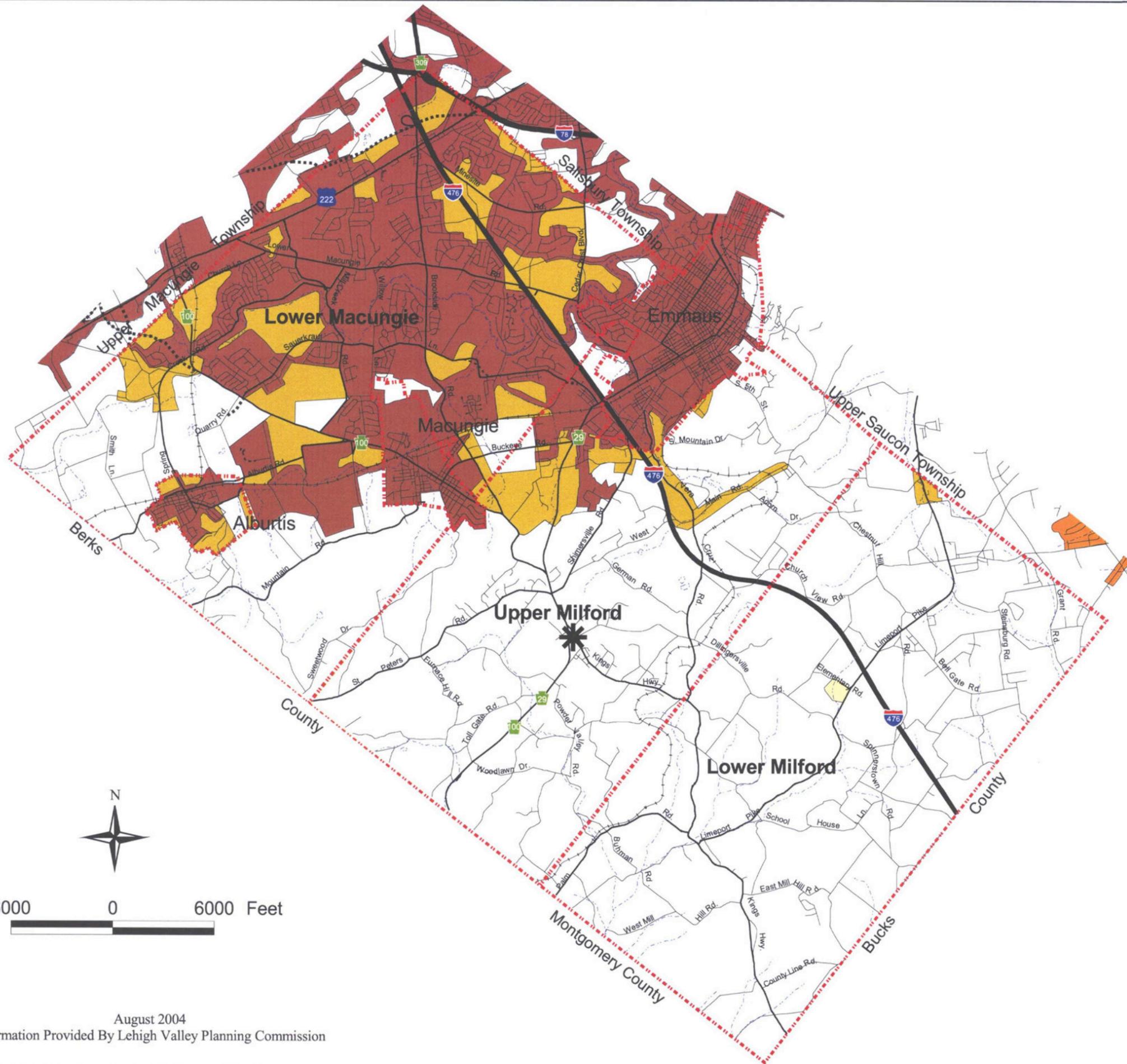


Base Map Information Provided By Lehigh Valley Planning Commission

Community Planning Consultants  
**Urban Research & Development Corporation**  
46 W. Broad St. • Bethlehem, Pennsylvania 18018 • 610-865-0701

The preparation of this map was financed in part through a Land Use Planning and Technical Assistance Grant from the Department of Community and Economic Development, as administered by the Governor's Center for Local Government Services, Pennsylvania Department of Community and Economic Development.

# Regional Comprehensive Plan For Borough of Alburdis, Borough of Emmaus, Borough of Macungie, Lower Macungie Township, Lower Milford Township and Upper Milford Township



### Existing & Potential Central Sewer Service Area

#### Existing Sewer Service Areas

- Lehigh County Authority and Other Municipalities to Allentown Treatment Plant
- Lower Milford Elementary School
- Upper Saucon Township

#### Potential Sewer Service Areas

- Potential Sewer Service Areas (may be long term)

In addition, limited extensions of central sewage service may be appropriate to make open space development possible, if at least 40% of the tract would be permanently preserved.

See Plan Text



6000      0      6000 Feet

August 2004

Information Provided By Lehigh Valley Planning Commission



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**Urban Research & Development Corporation**  
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**Coordinate development with public schools.**

The entirety of East Penn School District is found within the Region. In addition, Lower Milford Township is part of Southern Lehigh School District, which also includes Upper Saucon Township and Coopersburg Borough. Both districts are experiencing increased enrollment annually, with some schools very close to capacity levels. While numerous facility improvements are planned or underway, additional residential development would place an increased burden on public school facilities.

East Penn School District

As of the 2003-2004 school year, East Penn School District operates seven\* elementary schools, two middle schools, and one high school, which are as follows:

SCHOOL	GRADES	LOCATION
Jefferson School	K-5	520 Elm Street, Emmaus Borough
Alburtis Elementary School	K-5	W. Third Street, Alburtis
Lincoln School	K-5	233 Seem Street, Emmaus Borough
Macungie School	K-5	4062 Brookside Road, Lower Macungie Township
Shoemaker School	K-5	4068 North Fairview Street, Lower Macungie Township
Wescosville School	K-5	1064 Liberty Lane, Lower Macungie Township
Lower Macungie Middle School	6-8	6299 Lower Macungie Road, Lower Macungie Township
Eyer Middle School	6-8	5616 Buckeye Road, Lower Macungie Township
Emmaus High School	9-12	500 Macungie Avenue, Emmaus Borough

In response to across-the-board crowding in East Penn's elementary schools, several improvements are underway. Alburtis Elementary School was recently replaced on the same site. Renovations are also underway at Shoemaker, including a larger boiler room, new administration offices, and a safer student drop-off area. The Kings Highway and Lower Macungie Elementary Schools closed in 2005. In March 2003, East Penn enrolled 6,970 students.

A building addition to Emmaus High School was recently completed. The addition houses 12 new classrooms, a multi-media technology room with community access, and new administration offices. East Penn is carefully watching enrollment at the two middle schools, especially at Eyer Middle School. Millions of dollars of renovations are being considered at Eyer, but a final of course of action has not approved at the time of the report.

Several recreation improvements are underway at East Penn Schools. The ultimate goal is to have all School District extra-curricular sports activities on School District property, eliminating the need to use community recreation facilities. Improvements at Emmaus High School include a fieldhouse and all-weather track. At Lower Macungie Middle School, additional soccer and football fields are being added. The School District has reserved room on the Jefferson School property for a gymnasium. At Lincoln School, a District-owned house may be demolished to create additional playground space. Even after the completion of the approved projects, the District feels it will still need more soccer fields and gymnasiums to keep all activities on its own property. However, it will still be necessary for many years for the School District to seek use of municipal recreation facilities.

East Penn School District has been in contact with the municipalities regarding trail connections in the District. The proposed loop trail in Macungie is designed to connect to the campus of schools at the corner of Brookside and Buckeye Roads. District officials support this endeavor and would welcome further pedestrian improvement efforts in the District.

Several safety concerns affect School District busing. During the winter, the roads of Upper Milford Township and southwestern Lower Macungie Township are often not as safe and well-maintained as the roads in flatter, more developed areas. This commonly complicates school-closing decisions. In the boroughs, certain unsafe pedestrian situations force the District to bus students in areas where they are legally allowed to walk to school. One such area is the Macungie Avenue/Orchid Lane neighborhood. (Note - State law mandates that students be bused if they would otherwise have to walk along certain types of roads that are categorized as being safety hazards, even if the students live near the school.)

East Penn School District owns one prime vacant area for a new school. A larger tract is found on Sauerkraut Lane, adjacent to the proposed realignment segment east of Wild Cherry Lane. While this parcel is physically suitable and centrally located for a school, no plans exist to build on the land at this time. The School District uses a Borough-owned athletic field at the southern end of 4<sup>th</sup> St. in Emmaus, and owns a wooded wetland area behind the Shelterhouse that cannot be developed.

With its improvements in technology, recreation and educational facilities, the School District aims not only satisfy increased enrollment, but to keep a close connection with the community and its needs.

#### Southern Lehigh School District

The Southern Lehigh School District operates three Grade K-5 elementary schools, one Grade 6-8 middle school, and one high school. Students residing in Lower Milford Township attend Lower Milford Elementary School, Southern Lehigh Middle School and Southern Lehigh High School.

A recent \$23 million expansion at the high school has eased capacity concerns at those grade levels, but the middle school and two of the three elementary schools are near or past their intended capacity as of the 2003-04 school year. Lower Milford Elementary School is currently using two modular classroom units, as is Hopewell Middle School in Upper Saucon Township. Starting in September 2003, Lower Milford Elementary instated an unprecedented three Kindergarten sessions per day. School District officials state that an additional 24 children at this school will require the addition of another modular unit. By 2008 to 2010, the School District hopes to add a seven-classroom wing

to Lower Milford School, expand the cafeteria, and install air conditioning. At the middle school level, it is projected that capacity will be exceeded by 2007.

The School District has determined that the best way to address capacity concerns at all levels is to build one Grade 5-6 school. This would eliminate the need to expand and/or build multiple schools at one time. The school would be built on a District-owned 33-acre parcel adjacent to the high school in Upper Saucon, and would share athletic facilities with the high school. Officials hope to have the building designed in 2004.

Southern Lehigh officials feel that recreation needs of the schools have been satisfied. At the high school, two new soccer fields, an all-weather track, practice field, and drainage improvements were added, in addition to a new gymnasium that was part of the recent expansion.

**GOAL: Emphasize full coordination of municipal and emergency services across municipal borders.**

Continued efforts are needed to make sure that fire, police and emergency medical services are fully coordinated across municipal borders. This includes joint training, and coordinating the provision of expensive specialized equipment and apparatus. The Putting this Plan into Action section describes several alternatives to increase inter-municipal cooperation in providing emergency services. As described in the "Putting this Plan Into Action" section, shared police services make it much more cost-efficient to provide 24 hour coverage than if each municipality having its own police department.

The coordination and cooperation between fire, police and emergency medical services will be aided by the construction of a new emergency services training facility near Schnecksville. The facility will be west of Route 309, south of the Lehigh Carbon Community College campus.

As of 2004, Alburdis, Macungie and Emmaus each operate their own police department. Lower Milford Township is considering whether to re-establish local police protection. All three townships are served by the State Police.

Lower Macungie Township (Wescosville) and Emmaus have municipal Fire Departments operating from a single station, while the other municipalities are served by independent fire companies, including the Alburdis, Vera Cruz Citizens, Lower Milford, Upper Milford and Macungie companies. Other companies provide assistance as needed, particularly for structure fires.

Emmaus has a mix of paid firefighters and volunteers, while the other fire companies/departments rely entirely upon volunteers. Most fire companies are having difficulties attracting sufficient numbers of trained volunteer firefighters. The greatest shortage is during weekday mornings and afternoons, when many volunteers work outside of the immediate area. It may become necessary in the future consider hiring a limited number of paid firefighters, particularly to drive fire apparatus to the scene of the incident on weekdays mornings and afternoons. This can reduce response times.

The municipalities should investigate ways to attract and retain additional numbers of volunteer emergency workers. This includes encouraging municipal employees to serve as volunteer firefighters and ambulance workers, and allowing them to leave work with a municipal vehicle when practical for emergency calls. Also, financial incentives should be considered, such as a pension program for long-time volunteers.

Most of the local ambulance/emergency medical services are staffed with a mix of paid personnel and volunteers. Advanced life support units with paramedics are also available for the more serious calls. Attention needs to be focused on the ability of each ambulance service to reach every part of the region within an acceptable period of time. The service areas of each ambulance service should be periodically re-examined for this purpose. Some merger of ambulance services may help to reduce response times.

## THE PLAN FOR TRANSPORTATION

**GOAL:** PROVIDE A SAFE AND EFFICIENT NETWORK THAT IS VERY CLOSELY COORDINATED WITH THE PLANS FOR LAND USES.

The region's road system forms the framework for development. The location and types of roads influence the directions and types of development. The intent is to maximize safety and minimize congestion.

### **Road Classifications**

The region should continue to carefully plan road patterns and access from development according to the function each road is intended to serve within the overall road network. Roads in the region are classified by four major types: Expressways, Arterial Roads, Collector Roads and Local Roads.

Expressways - These major highways connect cities and metropolitan areas. An expressway only allows traffic access at interchanges. These highways service high volumes of traffic at high speeds. The only expressways are I-476/PA. Turnpike and I-78 (which is adjacent to the northeast corner of the Region).

Arterial Roads - These roads provide access between major commercial developments and parts of the metropolitan area. Arterials are designed for high volumes of traffic at moderate speeds. Examples of arterial roads include Routes 222, 29 and 100, Chestnut/Main Streets in Emmaus and Limeport Pike. The Road Classification Map separates arterials into two types: Principal and Minor Arterials. The Principal Arterials generally carry heavier traffic volumes than the Minor Arterials.

Collector Roads - These roads provide connections between arterial roads, connect together residential neighborhoods and gather traffic from local roads. Collector roads are intended to provide for moderate volumes of traffic at low speeds. Examples include Brookside Road, Shimerville Road and Harrison Street.

Local Roads - These roads provide direct access from many adjacent properties, and channel traffic towards collector roads.

A system of classifying major roads and highways in the Region is illustrated on the map on the following page.

**Seek cost-effective solutions for problem road segments, in cooperation with PennDOT and adjacent landowners/developers.**

### Traffic Issues that are Common Issues Throughout the Region

Total traffic volumes have greatly increased, and can be expected to continue to increase. The traffic volumes are not only caused by increased development and population, but also by the following factors:

**Regional  
Comprehensive Plan  
For  
Borough of Alburty, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



**Functional Classification  
of Streets/Roads**

-  Interstate
-  Principle Arterial
-  Minor Arterial
-  Collector



6000 0 6000 Feet

April 2004  
Base Map Information Provided By Lehigh Valley Planning Commission



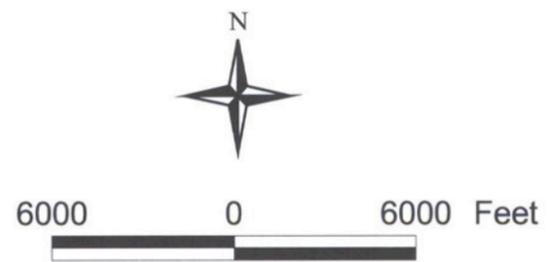
Community Planning Consultants  
**Urban Research & Development Corporation**  
URDC  
28 W. Broad St. • Bethlehem, Pennsylvania 18018 • 610-865-0701

The preparation of this map was financed in part through a Land Use Planning and Technical Assistance Grant from the Department of Community and Economic Development, as administered by the Governor's Center for Local Government Services, Pennsylvania Department of Community and Economic Development.

**Regional  
Comprehensive Plan  
For  
Borough of Alburdis, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



- Transportation Plan Map  
Draft August 2004
-  Proposed Roads
  -  Intersection Improvements
  -  Traffic Calming Measures
  -  Bridge Improvements
  -  4-Way Stop



April 2004  
Base Map Information Provided By Lehigh Valley Planning Commission


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- A dramatic increase in the miles driven by every person on the average, which is part of a national trend. This trend is caused by longer commutes to work and increased percentages of the population holding jobs (particularly including women).
- An increase in the number of vehicles per household on the average, which is part of a national trend, and which results in an increased number of trips with only one person in a vehicle.
- An increase in the geographic area covered by development, with development being much more dispersed. This results in longer trips and decreased ability to take a bus, ride a bike or walk to a destination.

As traffic congestion increases on main roads, more and more drivers seek alternative routes. Many of these alternative routes involve narrow winding rural roads or roads through residential areas, which creates noise and safety problems. Many roads are seeing much more traffic than they were ever designed to handle. Many rural roads are difficult or impossible to improve because of the closeness of homes, historic buildings, steep cliffs, creeks and wetlands.

Very few new through-roads have been built over the last 60 years. Instead, most developments involve cul-de-sacs or looped streets that do not serve through-traffic. Many developments do not include any road connections, which requires a driver to go back onto a main road to travel from one subdivision to an adjacent subdivision, or from one commercial business to an adjacent commercial business. While this trend does help to reduce volumes and speeds on residential streets, it allows few alternative routes.

The road network should provide at least two methods to move between any two areas so that no one route becomes congested and so there are alternatives in case of construction or accidents.

- Minimizing Through-Traffic on Residential Streets - Road/street patterns need to be designed so that local residential streets handle lower-speed lower-volume traffic, while through-traffic and truck traffic is directed to more suitable routes. This involves making sure that the through-roads are sufficiently free-flowing - so that motorists are not encouraged to seek alternative routes through residential neighborhoods. Local residential streets should continue to be designed in a fashion that does not allow higher-speed direct through-routes and thereby discourages through-traffic. However, an excessive amount of cul-de-sac streets should be avoided.

At best, new two lane collector roads around congestion spots should be constructed as part of new business development. In residential areas, new collector roads can be appropriate if the road is designed with that intent from the very beginning. This should include designing the new through-road with sidewalks or pedestrian/bicycle paths so that there are fewer conflicts with traffic. New homes should be designed with their driveways entering local internal roads, as opposed to the new through-road. The rear or sides of residential lots can then be landscaped along the through-road, preferably with any rear fencing on the inside of the landscaping provided by the developer. Earth berms can also be combined with landscaping along the through-roads to provide a noise barrier. Two of the most prominent examples are along Brookside Road in Lower Macungie and along Walbert Avenue in South Whitehall west of Cedar Crest Boulevard.

Some communities use a "boulevard" design for new through-roads, with a landscaped center median. This decreases hazards from head-on collisions and provides room at intersections for turn lanes by having breaks in the median.

- Speeding - One of the most common complaints in the region concerns excessive speeding. For those municipalities that have local police protection, it is very difficult to enforce speed limits without the ability to use radar. A bill has been introduced in the State Legislature to allow full-time municipal police officers to use radar to enforce speed limits.
- Signal Timing and Coordination - In most of the developed area of the region, there is little room for new road links or major widenings. Instead, the only way to maximize capacity of the current road system is to refine the timing of traffic signals and to make sure the timing of signals is fully coordinated along a corridor. This involves trying to maximize the capacity of existing rights-of-way to serve additional traffic.
- Intersection Improvements - Wherever feasible, developers of new projects should be required to complete improvements to immediately adjacent road segments, or at least to provide the needed right-of-way. In some cases, turn lanes could greatly reduce congestion. Developers should also provide needed turn lanes and traffic signals whenever feasible.
- Railroad Crossing Gates - All railroad crossings should have gates. This is especially true for crossings of the main Norfolk Southern tracks, which involve high speed trains. There is one rural crossing west of Alburtis that is completely unsignalized, and several crossings in Emmaus that would benefit from the installation of crossing gates.

### Alburtis

There are plans to close the at-grade railroad crossing at Church Street near the eastern border of Alburtis. In addition, in Lower Macungie, the railroad crossings at Schoeneck Road and Orchard Road east of Alburtis will be closed. In their place, a new bridge would be built over the railroad further east. A new east-west road (Scenic Dr.) will connect Church Street to the new bridge. This bridge is critical to improving emergency access when other roads are blocked by a train.

Many streets in Alburtis are narrow. Franklin Street in the southern part of the Borough includes curves, limited sight distances and slopes. Additional four-way stops should be considered in the Borough. The intersection of Franklin and Church Sts. is being realigned, and sight distance is being improved. The Franklin Street bridge over the Swabia Creek at the south end of Alburtis is being rebuilt and widened.

The center of Alburtis is being used as a short-cut between businesses to the north and homes to the west. The most accident prone segments in Alburtis are near the downtown railroad crossings. These include where E. Penn meets Main Street, where Front Street meets W. Penn Avenue, and where W. Front Street meets Main Street. It would be desirable to eventually signalize the intersection of E. Penn and Main Street. This would require the signal to be electronically coordinated with the railroad crossing signals so that traffic does not back up over the railroad tracks. A signal at one intersection would create breaks in traffic that would make it easier for vehicles to make turns at other intersections. However, a traffic study conducted in 2003 found that the

intersection of E. Penn and Main Sts. would not presently meet PennDOT requirements to warrant a traffic signal.

The intersection of W. Penn Avenue and W. Front Street is awkward and does not have crossing gates at the railroad crossing. Ideally, this intersection would be rebuilt into more of a "T" angle.

#### Lower Macungie Township

As seen on the map on the following page, over \$140 million is being spent to construct a new Route 222 bypass from west of the PA. Turnpike to west of Breinigsville. This will be a 4 lane divided highway, with several at-grade intersections with traffic signals. In addition, a new Route 100 bypass is being built around the west side of Trexlertown.

Hamilton Boulevard (the existing Route 222) suffers from very serious congestion during much of the week, particularly in the vicinity of Brookside Road. It is uncertain how much traffic will be diverted from Hamilton Boulevard by the new Route 222 bypass. One projection estimated about 25 percent. A series of new road connections are proposed from Hamilton Boulevard to the bypass to make it convenient to use the bypass, including a relocated Weilers Road, an extension of Millcreek Road and a new Krocks Road.

If traffic is diverted from Hamilton Boulevard, consideration should be given to some improvements to turn Wescosville into more of a village setting, and to improve pedestrian and bicycle access.

There is a concern that the new Route 100 bypass around the west side of Trexlertown will attract more through-traffic to the Route 100 corridor. This will severely impact segments of Route 100 in Lower Macungie, Macungie and Upper Milford. While there may be room to eventually construct two through-lanes of traffic in each direction in parts of Lower Macungie south of the Rt. 100/Trexlertown bypass, that option is not practical in Macungie (see discussion below under Macungie). Note - the widening of Route 100 to four lanes north of Macungie is not currently programmed for PennDOT funding.

For many years, Lower Macungie has been working with developers to complete two major new roads. Sauerkraut Lane will soon be completed from Route 100 near Quarry Road to the new signal at Brookside Road. Sauerkraut Lane then continues to Indian Creek Road. Sauerkraut Lane will effectively serve as an east-west bypass around all of the Macungie area. Most truck traffic is prohibited from Sauerkraut Lane. One segment of Sauerkraut Lane that includes a sharp curve and a narrow bridge west of Macungie Road should be required to be improved in the future when the adjacent land is developed.

Mill Creek Road was built adjacent to the Walmart from Route 222 to Lower Macungie Road. It will be extended to the north to the Route 222 bypass. A new Mill Creek Road is also being extended to the south to link with Spring Creek Road and then the existing Mill Creek Road. This road segment will allow traffic to avoid an often-flooded segment of Spring Creek Road. This new route is expected to take some of the burden off of Krocks Road through the Shepard Hills development and the intersection of Spring Creek Road at Lower Macungie Road. Truck traffic will be prohibited on Mill Creek Road.

There is severe congestion in the area of Lower Macungie Road near E. Texas Road and Willow Lane. It is hoped that the improvement of Mill Creek Road and the completion of Sauerkraut Lane will shift some traffic away from this road segment. Once Mill Creek Road is extended, no left turns should be allowed at the existing Spring Creek and Lower Macungie Roads. intersection. A left turn widening should be accomplished at E. Texas and Lower Macungie Roads, together with restrictions on turns at Willow Spur.

A traffic count conducted in 2003 found that the intersection of Wild Cherry Lane and Lower Macungie Road did not currently meet PennDOT requirements to warrant the installation of a traffic signal. As additional developments are completed in the area, this intersection should be considered in the future for a traffic signal.

Improvements are currently being planned for the intersection of Lower Macungie and Brookside Roads. This will include new traffic signals and a left turn widening.

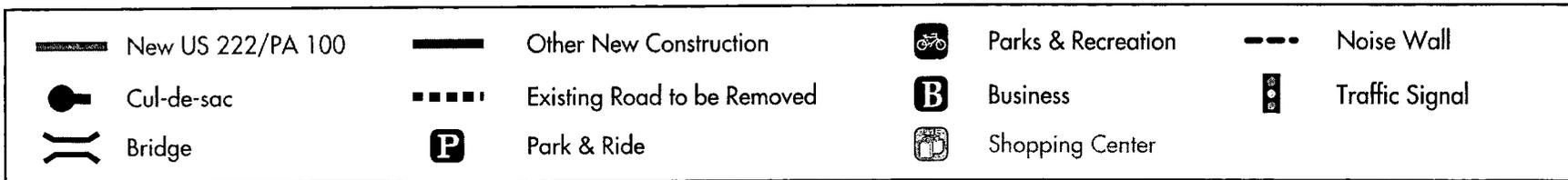
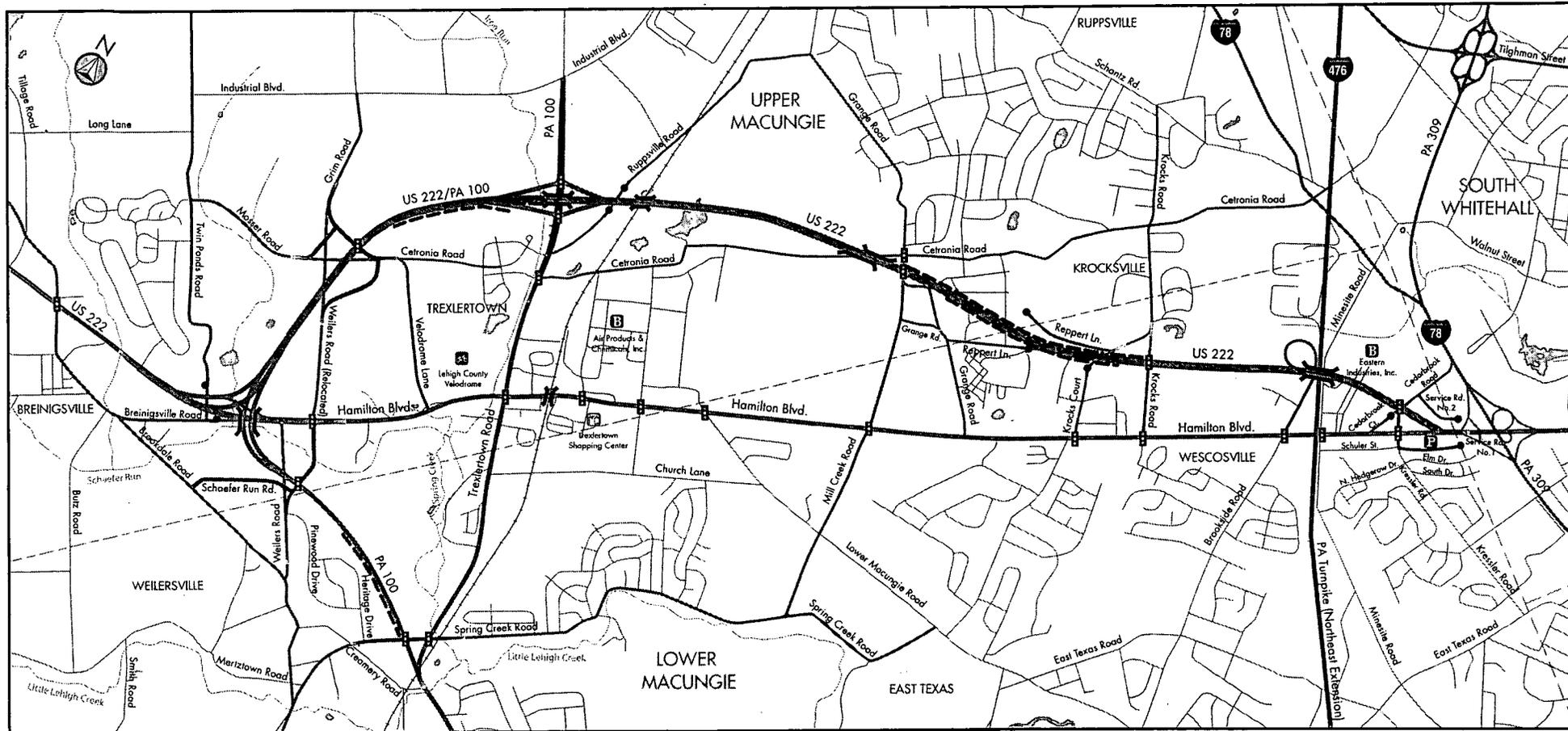
Consideration should be given to sight distance improvements at the intersection of East Texas and Hidden Valley Roads.

Just east of Macungie, the intersections of Brookside Road with Walnut Street and Lehigh Street are narrow with limited sight distance. These intersections cannot be easily improved. Consideration should be given to prohibiting left hand turns from Walnut and Lehigh Streets.

There are several narrow bridges in Lower Macungie. The most prominent one is a very old bridge along Church Lane over the railroad, east of Route 100. Like other narrow bridges, this bridge serves a purpose of slowing down traffic, limiting truck traffic and avoiding an overloading of the current Route 100/Church Lane intersection. One option would be to replace the bridge. Another option would be to seek a new street crossing of the railroad to the south as part of a new development. Narrow bridges also exist on Macungie Road, Sauerkraut Lane and Wild Cherry Lane.

Congestion at the intersection of Lower Macungie Road and Cedar Crest Boulevard causes long backups of traffic on Cedar Crest Boulevard. The narrowness of a bridge along Cedar Crest Boulevard limits the ability to provide a long turn lane. The timing of the traffic signals at peak hours should be re-examined.

The intersection of Minesite Road and Cedar Crest Boulevard may warrant a traffic signal. Because this intersection is along the Salisbury Township border, discussions should be sought with Salisbury officials about a fair sharing of costs to improve the intersection. A traffic signal at Minesite Road and Cedar Crest Boulevard would reduce congestion at the Cedar Crest Boulevard/Riverbend Road intersection.



Map of Routes 222 and 100 New Construction

Source - PA. Department of Transportation, February 2005

Macungie

Please see the discussion above about through-traffic on Route 100. In addition, PennDOT has long-range plans that propose spending several million dollars for improvements along Route 100 between Macungie and the Route 29 intersection in Upper Milford. If the curves are reduced in Route 100 south of Macungie, the current limitations on trucks are likely to be removed. This could promote additional truck traffic in Macungie, particularly in the more residential south end. Because this involves a hill, significant noise can be expected from trucks.

Great care is needed to try to use “traffic calming” as opposed to promoting high speeds along Route 100 in Macungie, to:

- avoid encouraging excessive amounts of truck traffic to pass through Macungie,
- slow traffic (which reduces noise and safety hazards) to make it possible for pedestrians to cross and to allow Main Street to continue to serve as a desirable residential area, and
- allow Main Street to serve as a pedestrian-friendly downtown, with traffic speeds that promote the visibility of businesses and that allow persons to safely park on-street.

This Plan recommends that Main Street in the center of Macungie continue to most places as a three lane road, including a center turn lane and on-street parking on each side. As discussed in the Land Use Plan section, it is recommended that a landscaped median be installed in segments where there is little need for a center turn lane.

Many intersections in Macungie have awkward alignments with Main Street, which limits visibility of on-coming traffic. The intersections of Race and Church Streets with Route 100 are particularly awkward.

Macungie Borough has a desire to see the intersection of Church and Main signalized, but it currently does not meet PennDOT warrants for a signal. This may change as traffic increases, particularly from development between Alburdis and Macungie. A traffic signal at this location would not only increase safety from vehicles turning, but would also make it possible to have a pedestrian crossing with “walk” signals. Consideration should be given to making Cotton Street (which is narrow) one way in the half block east of Church Street. This may divert enough traffic to Church Street to warrant a traffic signal.

Many alleys and very narrow streets in Macungie are being used for through-traffic, such as between Lehigh and Main Streets. Consideration should be given to widening Lumber Street to provide a proper connection. The alleys and narrow streets connecting with Main Street reportedly are accident-prone.

The downslope on Main Street in the southern part of Macungie encourages speeding. This speeding causes conflicts with vehicles turning from adjacent streets. This speeding and safety concern would increase if the truck weight limitations would be eliminated in the future along Route 100 south of Macungie.

Upper Milford

Upper Milford has limited good roads that provide for north-south travel. Additional four-way stops should be considered, especially where there is limited sight distance.

The intersection of Routes 29 and 100 has an awkward alignment, is accident prone and needs substantial improvements. It is difficult to improve the intersection because of the very steep slopes in the area, particularly to the north. While an expensive full-scale reconstruction or relocation would be desirable, it is more important to seek a traffic signal as an immediate solution. PennDOT has budgeted \$1.8 million for traffic signals and a turn lane at this intersection. See information below about proposed PennDOT improvements to Route 100.

The intersection of Shimerville Road and Rt. 100 is congested. The signal timing should be carefully re-examined with an intent to give more preference to traffic along Route 100. It is difficult to improve this intersection because of historic buildings at all the corners of the intersection.

The intersection of Kings Highway and Route 100/29 north of Old Zionsville is severely skewed. A traffic count conducted in 2003 found that this intersection would currently warrant the installation of a traffic signal. A left-turn lane should be added on southbound Route 100, which should include a left turn arrow when signal is installed. Kings Highway is increasingly being used as a short-cut to Upper Bucks County.

Upper Milford includes many one-lane bridges. These bridges are becoming more of a problem with increased traffic volumes, particularly when country roads are forced to serve through-traffic when there is an accident along Routes 29 or 100 and traffic is detoured.

Once Sauerkraut Lane is extended, it will serve as a major route for through-traffic. This will likely result in increased traffic on Allen Street in Upper Milford, which may need to be signalized at Chestnut Street. Consideration should be given to realigning Allen Street to meet with Sauerkraut Lane at Indian Creek Road.

There is significant congestion along Chestnut Street between Cedar Crest Boulevard and Buckeye Road. The signal timing should be examined and turn lanes added where practical, especially at the intersections of Chestnut Street with Buckeye Road and Colebrook Road. The railroad overpass on Chestnut Street west of Emmaus has limited sight distance, is on a curve and is narrow. This is particularly a problem when wide trucks are crossing the bridge. The hill and curve create a particular hazard when traffic is backed up and stopped east of the bridge, and northbound vehicles cannot see the backup until the last minute. Over the long-term, the bridge should be rebuilt.

Upper Milford includes a number of rural roads with sharp curves, steep inclines and limited sight distances. The intersection of Indian Creek Road and Cedar Crest Boulevard has particularly bad alignment and sight distance. Consideration should be given to vacating the intersection so that its use is limited to serving as a driveway for existing properties and for emergency vehicles. If this is not practical, then left-hand turns should be prohibited, using a right-hand turn in and right-hand turn out configuration.

Consideration should be given to adding a four way stop at the intersection of Vera Cruz and Dillingersville Roads.

### Emmaus

Like Main Street/Rt. 100 in Macungie, the lengths of Main and Chestnut Sts. in Emmaus experience heavy traffic, including high amounts of tractor-trailer traffic. These streets are suitable for only lower-speed traffic in order to make it possible for pedestrians to cross the streets. The Land Use and Housing Plan section includes recommends for "traffic calming" along these streets, including ways to improve pedestrian crossings. Emmaus has applied for a Federal Transportation Enhancement grant to accomplish some of the improvements in the Downtown.

Emmaus has had recent success in controlling heavy truck traffic through use of a truck scale. Overweight trucks are required to pay large fines. Other municipalities should considering asking to share use of this scale and Emmaus' trained officers. This can be authorized by an inter-municipal agreement, with shared funding.

There also are traffic accidents along State Street (Lehigh Street) where it is 3 to 4 lanes through the Auto Mile. However, these accidents are probably mainly caused by speeding and carelessness in turns, and cannot be easily addressed through physical improvements.

Similarly, there are many accidents from turning movements from businesses along Chestnut Street, especially between 10<sup>th</sup> and Cedar Crest Boulevard, which cannot be easily addressed. For motorists headed east or south, signs could be used to direct them to use Green Street behind the businesses and then turn right (south) onto Cedar Crest Boulevard. Green Street runs parallel to Chestnut Street. The use of Green Street allows motorists to avoid making left-hand turns onto southbound Chestnut Street at unsignalized intersections.

The intersection of Cedar Crest Boulevard and Chestnut Street experiences congestion, although a 2003 traffic count did not find that there were serious traffic capacity problems. The traffic signal timing should be examined, particularly to make sure that the length of time for the left-turn arrow for northbound traffic properly takes into account all of the peak hours of the day.

The need for an additional turn lane at the State Street/Harrison Street intersection should be examined. However, it would be difficult to obtain the needed right-of-way from adjacent businesses. The traffic signal timing at this intersection should be re-examined once again to make sure that it sufficiently accommodates left-hand turns from Harrison Street onto northbound State Street.

Harrison Street is mostly residential and connects to several schools. This street is serving as a major alternative route to Main Street. This trend is difficult to address, except by enforcement of speed limits. Trucks are not allowed on Harrison Street.

The intersection of Pennsylvania Avenue and Shimerville Road (near the Community Park) is very awkward with limited sight distance. This is particularly a problem when there is heavy use of the Community Park. As an interim solution, consideration should be given to installing stop signs in all directions. Over the long-run, consideration should be given to channelizing the intersection

and/or signalizing it.

### Lower Milford

The intersection of Beverly Hills/Church View Roads and Limeport Pike may eventually need a traffic signal. A 4 way stop was installed in 2003. A 4-way stop and a blinking signal exist, which are appropriate interim measures.

Lower Milford has a number of narrow bridges, as well as roads with sharp curves and limited sight distances. Bridges are scheduled for replacement in Hosensack and along Spinnerstown Road. The replacement of the Spinnerstown Road bridge may increase truck traffic on that road.

The intersection of Limeport Pike and Blue Church Road in Limeport has limited sight distance. Wherever sight distance problems exist on a rural road, consideration should be given to installing a 4 way stop.

Many intersections along Limeport Pike should be examined to consider ways to improve the sight distance. The intersection of Elementary Road and Limeport Pike also should be examined for possible improvements, particularly to serve traffic from the Lower Milford Elementary School.

Many roads are being used as short-cuts to the Quakertown interchange of the Turnpike, including Kings Highway, Spinnerstown Road, Limeport Pike and Bell Gate Road.

### **Current Transportation Projects Scheduled for State and Federal Funding**

As of 2003, the following is a listing of road and highway projects within the region that are currently scheduled for funding, according the Transportation Plan for the Lehigh Valley, which is prepared by the Lehigh Valley Planning Commission staff and approved by the Lehigh Valley Transportation Study Committee. The budgeting is subject to change each year by PennDOT as part of its 12 year plan.

It is important to note that few major road improvement projects are scheduled for funding other than the Route 222 bypass. If this situation continues, then the existing road system will have to suffice despite continually increasing traffic - except for improvements funded by developers or municipalities.

#### Intended for Funding - 2003-2006:

- \$140 million to build a new Route 222 and related improvements from Wescosville to west of Trexlertown, and a new Route 100 around Trexlertown
- \$2 million to replace the Hosensack Bridge in Lower Milford
- \$1.8 million to replace the Spinnerstown Road Bridge in Lower Milford

#### Intended for Funding - 2007 to 2014 (Note - These projects are not scheduled for funding on the Lehigh Valley Transportation Improvement Plan):

- \$5.5 million for curve removal and realignment of Route 100 in Upper Milford (note - this could

conceivably open the road to heavier truck traffic)

- \$1.8 million to add traffic signals and a turn lane to the Route 100/29 intersection in Upper Milford
- \$0.9 million to replace the Church Lane Bridge in Lower Macungie (west of Route 100)

Intended for Funding - 2015 and Beyond:

- \$2.9 million to improve signals and add turn lane at the Route 100/Shimerville Road intersection

**Take the initiative in municipal funding of engineering of needed road improvements.**

More detailed engineering studies are needed to design specific improvements to the problem intersections and road segments. It is important for municipalities to take the lead in identifying needed improvements on State roads. An improvement to a State road is much more likely to be funded by PennDOT in a timely manner if the municipality or a developer takes the initiative to pay for the initial engineering of improvements. A project is even more likely to receive State funding if the adjacent property owners donate the needed right-of-way. In such case, the value of the engineering and the donated right-of-way count as a "local match" that allows a project to receive priority for State funding.

However, wherever practical, a road improvement should be completed without using State funds. This is because a project can typically be completed in a fraction of the time and at less total expense if the project is funded by a developer and/or municipality.

**Carefully manage access of traffic onto major roads.**

Special attention needs to be paid to controlling the number, design and location of driveways onto major roads. PennDOT controls the actual engineering of a driveway onto a State road after a lot is created or a use is allowed by the municipality. However, the municipality has the primary control over where different uses are allowed and how land is allowed to be subdivided. This authority can be used to control traffic access management onto major roads.

For example, rear or side driveway access should be used where practical to reduce the number of turning movements directly onto major roads. This method works best when uses are able to gain access to a traffic signal. Connections between adjacent uses should be completed parallel to main roads to allow traffic to enter the road at carefully designed locations, where feasible.

The municipalities should seek inter-connections between adjacent non-residential uses along major roads, including interconnected parking lots or use of a rear service road. These interconnections allow motorists to visit more than one use without needing to enter and re-enter major roads. These inter-connections can be required for a new development. If an existing adjacent use will not allow an inter-connection, then the new development should be required to provide the link as a stub. This stub can then be opened in the future when any development approval is sought on the adjacent lot.

**Seek new collector roads through major new developments.**

When a tract of land is proposed for a new development, the municipality should consider whether a new collector road is needed in that area. If a new through-road connection is needed, the

municipality should work with the developer (preferably at a sketch plan stage) to seek that the road be constructed as part of the new development. In most cases, the goal of a collector road is to get from point A to point B, with the developer being able to choose the most appropriate route through the developer's property. New collector roads through business development can be especially valuable to provide alternative routes around bottlenecks.

If a new collector road is intended to serve significant new traffic, ideally, residential driveways should not enter directly onto the collector road. Instead, new homes should enter onto a local street, and the rear of homes should be adjacent to the collector road. In this case, substantial landscaping should be used to buffer the new road from the rears of the homes.

**Examine whether a traffic impact fee system would be appropriate.**

State law allows a municipality to establish a system of charging new development traffic impact fees. The fees correspond to the amount of traffic the development will generate during peak hours. The fee is determined at the time of development approval, and cannot be charged for development that has already been approved or already been submitted for development.

Because of the cumbersome process, the expenses of the required studies, and the many limitations in State law, this Plan does not recommend that traffic impact fees be adopted by the boroughs. The townships should seriously consider the pros and cons of a traffic impact fee system. The resulting fees are often not sufficient to justify the upfront costs if most land has already been approved for development (such as Lower Macungie) or if allowed densities are low (such as Lower Milford). Many municipalities believe that they can more efficiently obtain road improvements from developers through a process of negotiation than through a formal fee system.

**Promote public transit use.**

Opportunities should be sought to continue to expand bus service from major residential centers to expanding employment centers. This is not only important to reduce traffic, but also to increase access to jobs. Public transit is particularly important for persons who cannot afford to maintain their own car (including families with more drivers than cars), for persons who are unable to drive (such as persons with disabilities, persons with suspended licenses and some elderly persons), for young people who have not yet learned to drive, and for people who prefer alternatives (such as bicyclists who can attach their bikes on the front of a bus). Public transit is also important to serve residents of the increasing number of nursing homes, assisted living centers and age-restricted housing developments in the region, as well as residents who have "aged in place." Public transit also reduces traffic congestion, energy consumption, parking needs and air pollution.

Public transit services are provided by the Lehigh and Northampton Transportation Authority (LANTA) system, mainly through Metro fixed-route bus service. In addition, flexible "para-transit" service is available through the Metro Plus service. This service is particularly valuable for persons over age 65 and persons with disabilities that make it difficult for them to use the regular bus routes. Although there are no restrictions on the purposes of the trips, this system is particularly valuable to help persons reach medical offices, human services and other necessary services. Door-to-door services are provided, although advance reservations are required.

The Public Transit Routes Map on a following page shows the locations of fixed bus routes operated by LANTA. Center City Allentown and the Lehigh Valley Mall serve as major transfer centers between different bus routes.

Western Lehigh County is one of eight "Areas of Focus" that LANTA has identified as being appropriate places for expanded service. Over the years, LANTA has been incrementally improving service to the Region, particularly by increasing the frequency of service. Much of this increase in service has been geared towards serving employers in Upper Macungie Township. Sunday service has been restored from Emmaus to the Lehigh Valley Mall.

For approximately a dozen years, Air Products subsidized the operation of two round-trip public bus routes to its headquarters. However, the subsidy was discontinued because of insufficient use. LANTA reports that there is an interest among many employers in western Lehigh County in expanded bus service, but that the employers have been unwilling to offer continuing subsidies. LANTA has been using a Federal "Job Access" grant to provide additional late evening service that is geared towards persons working evening shifts.

To serve the industrial parks north of Easton, a new bus route was initially subsidized by employers. After the ridership was built up over time, it was able to be justified as a regular bus route without an employer subsidy.

It is difficult to extend the length of existing bus routes because of the need to have the routes meet together at transfer points at certain times.

The Lehigh Valley Planning Commission's report Community Planning and Transit includes recommendations to promote use of public transit. Many of these recommendations can also promote walking as an alternative to short vehicle trips. These recommendations include:

- when deciding where to zone for denser types of development, consider locations along public bus routes, so that the bus routes are more convenient to more persons,
- allow residential development in close proximity to business development, so people can live close to their work,
- promote the placement of buildings relatively close to roads served by public transit, as opposed to forcing persons to walk long distances across parking lots to reach the building, and as opposed to trying to divert a bus through the middle of a large parking lot to reach a building entrance,
- improve pedestrian access so people can easily walk from their homes, workplaces or other destinations to bus stops, including:
  - provide well-maintained sidewalks or pathways, particularly to complete "missing links" between existing safe pedestrian routes, or at an absolute minimum provide flat grass areas for walking,
  - install sufficient lighting for security and for motorists to see pedestrians,
  - avoid unsafe conditions in crossing roads (such as "walk" signals and well-marked

- crosswalks),
- avoid excessively wide intersections that are difficult for pedestrians to cross and which promote high speed turns by vehicles that are a hazard to pedestrians,
- consider raised islands in the middle of wide roads, which provide a safe refuge for pedestrians crossing the road,
- provide safer conditions in crossing large parking lots, such as directing most traffic to the edge of a site, as opposed to having the heaviest traffic running in front of the main pedestrian entrance,
- minimize the number of cul-de-sac streets and/or providing pedestrian connections at the end of cul-de-sacs, to avoid long circuitous walks,
  
- provide pedestrian entrances to businesses and stores as close to transit stops as possible, and require that safe pedestrian connections be provided between the business and the nearest bus stops,
  
- at intersections that may be served by public buses, make sure the street corners have turning radii that can accommodate buses,
  
- provide wheelchair accessible curb cuts,
  
- encourage the placement of transit shelters, which are particularly important during periods of snow, rain, high winds and extreme heat, or at least shade trees at transit stops, and which are typically funded by advertising,
  
- carefully locate transit stops as part of road improvements and major new developments, in consultation with LANTA and in coordination with sidewalks,
  
- enforce no parking limits and clear snow where illegal parking and snow piles would obstruct movements by buses,
  
- publicize State laws about when motorists must allow pedestrians the right-of-way,
  
- publicize the availability of public transit services and how persons can obtain information about schedules, and
  
- consider incentives for employers that commit to long-term subsidies of public transit or vanpooling use by their employees, such as reduced parking requirements.

**Promote use of carpooling.**

Federal funds should be sought for additional park and ride lots. These parking lots are the easiest way to encourage carpooling of persons to work. Park and ride lots are also valuable to promote use of the public bus system. The need for park and ride lots is driven by the high numbers of local residents who work outside of the region. The most appropriate places for park and ride lots are near ramps of I-78 and along the Route 222 corridor. One park and ride lot is being built behind the Charcoal Drive-In near the juncture of the Route 222 bypass and I-78. Another new park and ride lot is currently scheduled for State funding - in Upper Macungie Township to serve the Lehigh

Valley interchange of the Turnpike. A park and ride lot was recently completed at the Quakertown exit of the Turnpike.

Zoning incentives could be offered to developers of new commercial projects to provide parking areas that could be used as park and ride lots. This use would be feasible because the peak parking demand for a retail use is on weekends, not during weekday mornings and afternoons when there would be the main demand for a park and ride lot.

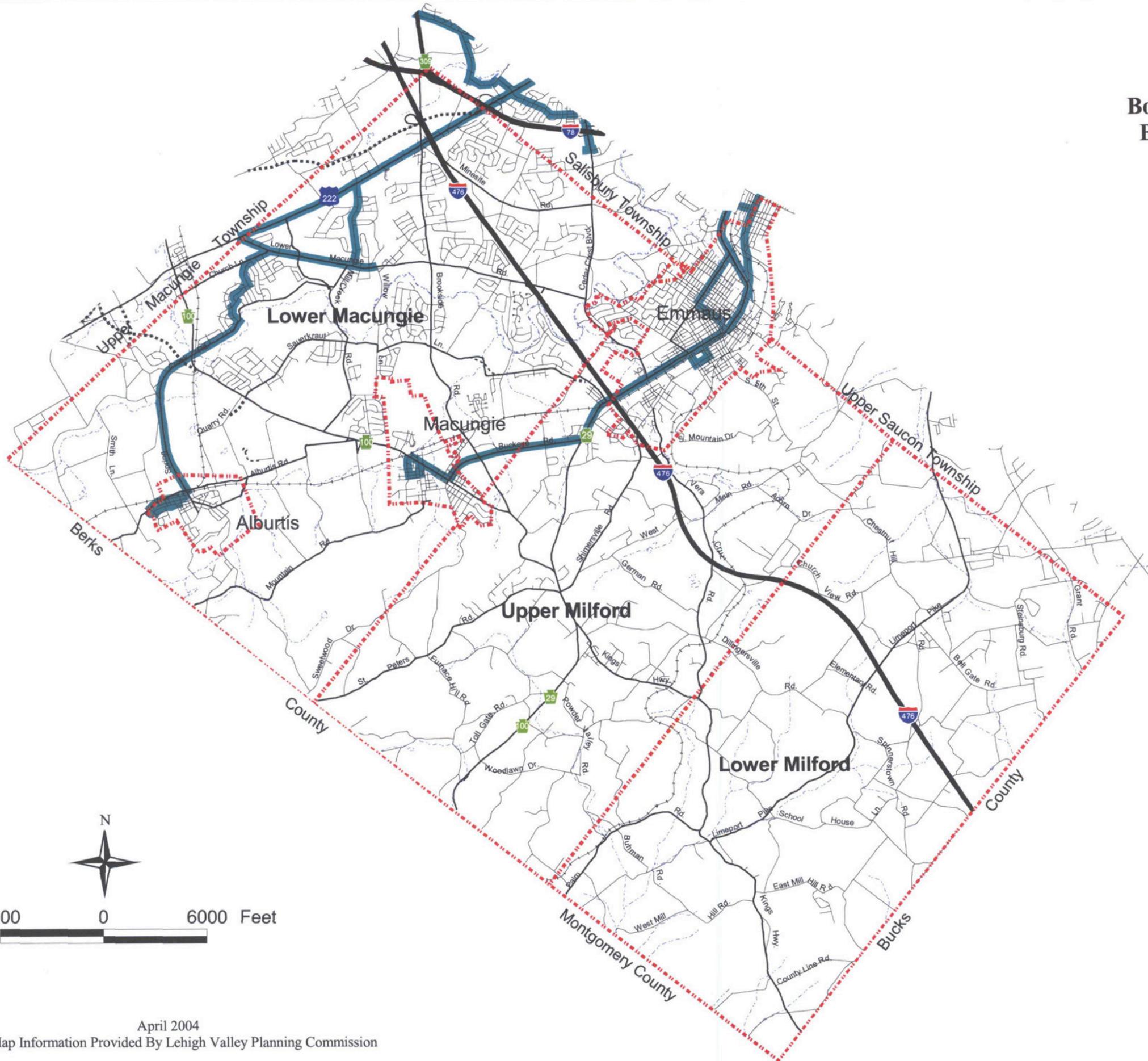
**Promote safe bicycle and pedestrian travel.**

The Community Facilities Plan section (see previously in this document) addresses recreation trails for bicycling and walking. However, bicycling and walking can also be important methods of transportation.

Efforts are needed to improve opportunities throughout the region for safe bicycle and pedestrian travel. In most new developments along the more heavily traveled roads, sidewalks or asphalt paths should be required. However, where sidewalks or paths are not practical, new development should include cleared flat grass pathways along roads that are suitable for safe walking.

Roads should have sufficient width to provide room for bicyclists. Where curbing is not provided, shoulders should be provided that are wide enough and smooth enough for bicyclists. Cooperative efforts are needed with PennDOT to seek shoulders along the most heavily traveled State roads. Shoulders should be separated from the travel lanes by white lines to avoid conflicts between vehicles and bicyclists and to discourage speeding by motorists.

**Regional  
Comprehensive Plan  
For  
Borough of Alburtis, Borough of Emmaus,  
Borough of Macungie, Lower Macungie  
Township, Lower Milford Township  
and Upper Milford Township**



**Transit Service**  
 **Lanta Bus Routes**



6000 0 6000 Feet



April 2004  
 Base Map Information Provided By Lehigh Valley Planning Commission


 Community Planning Consultants  
**Urban Research & Development Corporation**  
28 W. Broad St. • Bethlehem, Pennsylvania 18018 • 610-865-0701

The preparation of this map was financed in part through a Land Use Planning and Technical Assistance Grant from the Department of Community and Economic Development, as administered by the Governor's Center for Local Government Services, Pennsylvania Department of Community and Economic Development.

## PUTTING THIS PLAN INTO ACTION

This section describes methods that should be considered to implement this Plan.

**GOAL: Promote substantial citizen input, including making sure residents are well-informed about community issues and encouraging volunteer efforts to improve the community.**

The volunteer efforts of neighborhood and civic organizations and individuals are essential to further improve the region and to carry out this Plan. The objective is to strengthen community pride and emphasize volunteer efforts for residents and property-owners to improve their surroundings.

It is essential to keep citizens informed and provide opportunities for meaningful citizen input, while making use of new technologies for communication.

Each municipality should have an internet site that is regularly updated with information that will help spur public interest, enthusiasm and involvement. This should include information on recreation programs and agendas for upcoming municipal meetings. Opportunities for citizen involvement should also be highlighted through the newspaper and other media.

**GOAL: Continually work to put this Plan into action - through a program of updated planning and many short-term actions within a long-range perspective.**

Planning is an on-going process. The Comprehensive Plan should be implemented through a continuous process of follow-up planning and action. The most immediate action will be updating as needed of each municipality's development regulations.

Maximize communications, coordination and cooperative efforts between the municipalities, the School Districts, adjacent municipalities, the County, PennDOT and other agencies and organizations.

To be effective, community development efforts need wide participation. A close working relationship is needed with Federal, State and County agencies and adjacent municipalities.

The municipalities cannot implement this Comprehensive Plan alone. Involvement is needed by residents, neighborhood organizations, civic groups, businesses, institutions, property-owners and many other groups.

This Comprehensive Plan should be consistently used as an overall guide for land use and transportation decisions. In addition, the Plan needs to be reviewed periodically and, if necessary, updated to reflect changing trends.

### **Use a Full Set of Tools to Implement this Plan**

This Comprehensive Plan establishes overall policies for guiding the future development and conservation of the region. However, this Plan is not a regulation. The following major tools are available to help implement this Plan:

- the municipal Zoning Ordinances,
- the municipal Subdivision and Land Development Ordinances,
- the Construction Codes,
- an Official Map,
- computerized mapping,
- Capital Improvements Planning,
- the municipality's annual spending, and
- seeking Federal, State and County grant funds to accomplish important projects.

#### Construction Codes

A new State law is establishing a process in which modern construction codes will apply within all municipalities. The State is using the International Construction Codes, which were prepared by a national organization. These codes are particularly important to minimize fire hazards. The Historic Preservation Plan section discusses the need at times for appeals boards to adjust some of these codes to spur renovation of older buildings.

A municipal Property Maintenance Code is an essential part of controlling blight. That code needs to be adopted separately, because it is not part of the mandatory Statewide codes.

#### Official Map

The State Municipalities Planning Code grants municipalities the authority to adopt an "Official Map." An Official Map can designate proposed locations of new streets, street widenings, intersection improvements, municipal uses and parks. The Map may cover an entire municipality, or only certain areas. This process may be particularly useful, for example, to reserve right-of-way for a future street widening.

Once an Official Map is officially adopted by the governing body, then the municipality is provided with a limited amount of authority to reserve land for the projects on the map. If the land affected by the proposed project is proposed for development, then the municipality would have one year to either purchase the land for its fair market value or decide not to go forward with the project. This one year period is intended to provide time to raise funds to acquire the land, and avoid lost opportunities. If this one year period is not in effect, a person could obtain a building permit almost immediately in many cases and construct a building that could obstruct an important project. An Official Map also serves to provide notice to property-owners about the municipality's future plans.

### Computerized Mapping

The County and the Lehigh Valley Planning Commission operate a modern computerized mapping/“Geographic Information System (“GIS”). This system has been used for the maps in the Plan. Increased efforts are needed to fully integrate this system with operations of municipal agencies. For example, regular mapping of traffic accident locations can be helpful to identify hazardous conditions that need to be resolved, such as sight distance problems.

### Capital Improvements Planning

Each municipality should have a system in place to continually plan and budget for major capital expenditures. “Capital” improvements are projects involving a substantial expense for the construction or improvement of major public facilities that have a long life span and that are not annual operating expenses. Examples of capital projects include major street improvements, acquisition of parkland, major storm sewer construction projects and new bridges.

A municipal Capital Improvements Program (CIP) can help identify projects that will be needed, prioritize the projects, identify possible funding sources and then budget for their completion. A typical CIP looks five years in the future. A CIP should identify major street reconstruction projects that will be needed over the next few years, which can help coordinate the reconstruction with underground construction projects by various utilities. This avoids the need to cut into a street after it has been recently repaved. Through a CIP, many different projects can be combined into a single bond issue, which avoids the high administrative costs of multiple bond issues. A CIP also can allow a municipality to carefully time any bond issues to take advantage of the lowest interest rates.

### Other Implementation Tools

Many other tools are available to carry out the Comprehensive Plan, including the following:

- priorities decided as part of each municipality’s annual budget, and the the annual setting of tax rates, which affect decisions of businesses and residents on whether to remain or move into a municipality, and
- aggressively seeking Federal, State and County grants to reduce the burden upon local taxpayers.

**GOAL: Update municipal development regulations to carry out this Plan, and periodically update the Plan and regulations as needed.**

### Zoning Ordinance

The municipalities’ Zoning Ordinances are the primary legal tool to regulate the uses of land and buildings. Each Zoning Ordinance includes a Zoning Map that divides the municipality into different zoning districts. Each district permits a set of activities and establishes a maximum density of development. Each Zoning Ordinance and Map should be updated as needed to be generally consistent with this Comprehensive Plan, to modernize standards and to address local concerns.

In addition to regulating land uses and densities, zoning also controls the following:

- the heights of buildings,
- the percentage of a lot that may be covered by buildings and paving,
- the minimum distances that buildings may be placed from streets and property lines,
- the minimum size of lots,
- the maximum sizes and heights of signs, and
- the protection of important natural features.

#### Subdivision and Land Development Ordinance

Each municipality is regulated by its own Subdivision and Land Development Ordinance. These Ordinances mainly regulate the creation of new lots, the construction of new streets by developers, and the site engineering of new commercial, industrial and institutional buildings.

**GOAL: Maximize communications, coordination and cooperative efforts between the municipalities, the school districts, adjacent municipalities, the County, PennDOT and other agencies and organizations.**

This Plan helps to establish a framework for further cooperative ventures among the municipalities in the region, and between municipalities and the County. Intergovernmental cooperation can not only decrease the costs of many services, it can also improve the quality of services. The Pennsylvania Intergovernmental Cooperation Act provides broad and flexible authority to organize joint efforts as municipalities deem appropriate. In general, the Act allows two or more municipalities to jointly accomplish anything that an individual municipality is allowed to do. In most cases, the Act promotes the use of ordinances that are adopted by each municipality to formalize an agreement. One option involves one municipality providing a service to a second municipality through a contract.

These same concepts can also apply between a municipality and a school district. For example, a municipality may agree to plow snow from school parking lots and driveways in return for free municipal use of some school facilities.

An Intergovernmental Agreement is proposed to be adopted by each municipality to assist in carrying out this Plan.

A State law also provides that State agencies must treat a Council of Governments in the same manner as a municipality in any funding program.

The following types of alternatives should be considered to promote inter-governmental cooperation:

- Shared Services and Shared Staff-persons - Shared staff-persons can be particular beneficial for specialized staff, such as different types of construction inspectors or zoning officers. Two or more municipalities could hire the same person to do the same job, with so many hours assigned to each municipality. This allows each municipality to hire a highly qualified person who is working full-time, as opposed to each trying to find a part-time person. This can reduce turnover, which reduces training costs and reduces the potential for mistakes being made by inexperienced staff. In addition, sharing staff makes staff-persons available during more hours of the day, which is beneficial to residents and business-persons. It also provides greater coverage during periods of illness or vacation. Some municipalities also have a joint application and testing program for police officer

applicants, which reduces costs and results in a larger pool of applicants.

- Shared Consulting Staff - There are also great efficiencies when adjacent municipalities choose the same consultants, such as municipal engineers, sewage engineers or solicitors. This promotes good communications between municipal governments. It also reduces the costs of having different professionals having to become educated about complex issues and having to spend time meeting with consultants of other municipalities to share information.
- Shared Recreation Programs - When municipalities share and coordinate recreation programs, it greatly increases the types of programs that can be offered. For example, one municipality may offer a gymnastics program, while another municipality offers basketball programs, with residents of each municipality being allowed to participate in each at the same cost per person. There has been great success in parts of Pennsylvania with multi-municipal recreation programs, where each municipality contributes funds towards one set of programs. These programs are often organized in partnership with a school district.
- Joint Yard Waste Collection and Composting - This is a very cost-effective way of handling the disposal of yard waste, which requires significant land and expensive equipment.
- The toughest issue in joint municipal services is determining a fair allocation of costs. The State Department of Community and Economic Development has several publications that can assist in these issues.
- Snowplowing - There may be cases where two municipalities must each send out a snowplow to clear different segments of the same street. It may be beneficial to trade responsibility for different street segments, so that a single snowplow can be used to clear the entire length of a street.
- Joint Purchasing - Joint purchasing can reduce the costs to each municipality of preparing bid documents and legal ads. It also can result in lower costs because larger volumes are being purchased. This process is particularly useful for annual purchases of standardized materials, such as road salt. The State also has arrangements that allow municipalities to "piggyback" upon State purchases. State law allows a similar process of "piggyback" bids between municipalities and a County. The State Intergovernmental Cooperation Act includes rules for joint municipal purchasing. Under State law, one municipality can be the lead municipality in purchases, without requiring multiple municipalities to seek bids. Municipalities can also join together to jointly purchase insurance, to hire traffic signal maintenance services, or to jointly contract for solid waste collection. Joint auctions can also be used to sell surplus vehicles and equipment.
- Sharing of Equipment - This sharing is most beneficial for expensive equipment that is needed by each municipality for only portions of the year, such as paving, rolling or grading equipment. The equipment could be jointly owned, or be owned by one

municipality and leased to other municipalities. Or an arrangement could allow trading of equipment.

- Joint Tax Collection - The Local Tax Enabling Act allows municipalities and to school districts to contract with each other to have one office jointly collect local taxes.
- Councils of Governments (COGs) - A COG can provide municipal services if authorized by municipalities. For example, some COGs take care of code enforcement. Other COGs primarily serve to promote good communications between municipal officials, to study issues, and to lobby for State or Federal funding for projects.
- Joint Authorities - Municipalities can create formal joint municipal authorities to address many types of matters.
- Joint Planning Commissions - Municipalities can appoint joint planning commissions. These joint commissions could serve in place of municipal planning commissions, or in addition to them.
- Cooperation Between or Merger of Fire Companies - Consideration should be given to promoting additional cooperation between or merger of fire companies, including one or more fire companies in neighboring municipalities. Merger or cooperation are particularly beneficial to make the best use of extremely expensive fire apparatus, such as rescue trucks, hazardous materials equipment, tanker trucks and aerial ladder trucks. Merger or cooperation are also important to make the best use of the limited number of volunteers.
- Joint Police Forces - A joint police force involves two or more municipalities establishing one police force that is directed by commission members appointed by each municipality. Another option is to have one municipality contract for police services from a second municipality, which then manages the force. A joint police force makes it easier to provide 24 hour service and specialized services, such as for investigations and youth. A joint police force can result in increased training and professionalism, which can reduce liability costs. A joint force also makes it easier to investigate crime that crosses municipal borders.
- Incentives for Intergovernmental Cooperation in Grants - Many competitive State grant programs provide preference to projects that involve cooperation between more than one municipality. Therefore, if two similar projects are in competition for a grant, and one involves cooperation between two municipalities, the two municipality project is most likely to be funded.

### **Role of the Planning Commissions**

Some of the greatest responsibilities of each Planning Commission are to oversee the preparation and implementation of the Comprehensive Plan and the preparation of Zoning and Subdivision Ordinance revisions. On a monthly basis, the Planning Commission also reviews proposed developments. The Planning Commission also has a role in reviewing proposals of other government agencies.

**Role of the Boards of Supervisors and Borough Councils**

The final decision on nearly all matters affecting the growth and preservation of each municipality rests with its Borough Council or Board of Supervisors. Therefore, close communications and cooperation between the Planning Commissions, the municipal staff, and the elected officials will be essential in continuing to improve quality of life in the Southwestern Lehigh County Region.

**ACTION PROGRAM**

The following table summarizes the major recommendations of this Plan. Certain items are recommended as high priorities. The timing of each recommendation is listed, as well which agencies should have the primary responsibility to carry out the recommendation.

**NATURAL AND AGRICULTURAL CONSERVATION PLAN**

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations at end of this table)
Continue to expand Agricultural Security Areas to make more land eligible for easement purchase and to protect farmers against nuisance challenges.	✓	Short-range	Supervisors, PC, property-owners.
Consider zoning provisions that preserve farmland and natural areas, particularly through "Open Space Development" and promoting the optional transfer of density to more suitable portions of a township.	✓	Continuous	Supervisors, PC, property-owners.
In agricultural areas, permit a range of activities that allow opportunities for supplemental income for farmers on larger tracts of land.	✓	Continuous	Supervisors, & PC, Property-owners
Consider proper controls on very intense Concentrated Animal Feeding Operations.	✓	Continuous	Supervisors and PC
To protect water quality and fish habitats, carefully enforce State regulations on erosion control through on-site inspections.	✓	Short-range	Governing Bodies, PCs
Minimize unnecessary removal of trees during construction, and make sure temporary fencing is used to avoid damage to tree trunks and root systems.	✓	Short-range	Governing Bodies, PC
The townships should consider prohibit new buildings in the entire 100 year floodplain, and to require studies by developers where there is any question that an unmapped floodplain may exist. The boroughs should continue to carefully regulate but allow building in the floodplain in conformance with State and Federal regulations.		On-going	Governing Bodies, PCs, property-owners
Seek Federal Floodplain Mitigation funds to offer to buy and remove the most flood-prone homes.		Mid-range	Governing Bodies, PCs, property-owners, business owners

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations at end of this table)
Require professional wetland studies whenever development is proposed in suspect areas, and establish a 20 feet building setback around wetlands to avoid intrusions by construction equipment. Require a building and paving setback from all creeks. A smaller width is appropriate in more urban areas, while a larger width should be required in rural areas.		On-going	Governing Bodies, PC, property-owners, PennDOT
Require professional geologic studies to address sinkhole/subsidence hazards at the time any major new development is submitted for approval within areas with limestone geology.	✓	Continuous	Supervisors, PC and Staff
Continue to use mandatory dedication provisions in subdivision ordinances to require dedication of open space or payment of recreation fees as part of major new residential developments.		Short-range	Governing Bodies, PC, property-owners
Protect important natural features, with a special emphasis upon the creeks, steep slopes and mature woods. <ul style="list-style-type: none"> <li>- Carefully regulate development of steeply sloped lands.</li> <li>- Maintain and plant thick vegetation along streams to protect water quality and fishing habitats, including carrying out the Best Management Practices recommendations in the regional stormwater management plans.</li> </ul>	✓	Continuous	Governing Bodies, PC, property-owners

LAND USE AND HOUSING PLAN

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations at end of this table)
Update each municipality's development regulations to carry out the Land Use Plan.	✓	Short-term	PCs, Governing Bodies
Use zoning regulations to direct most housing away from areas planned for agricultural preservation and important natural areas. Provide moderate densities on areas that can be served by existing public water and sewage services - to minimize the total amount of land consumed by development.	✓	Continuous	Twp. PC, Property-owners, Co. Conservation District

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations at end of this table)
Update zoning ordinances to make sure that excessive setbacks are not required for routine additions to homes and for decks and pools. These types of improvements should not be over-regulated, in order to encourage residents to invest in older homes, instead of moving to new homes in outlying areas. This policy is particularly important in areas where many homes are relatively small. Also, excessive setback requirements cause an administrative burden upon property-owners and the municipalities.	✓	Short-term	Governing Bodies, PCs
Update zoning ordinances to make sure that all desirable types of businesses are allowed in appropriate business zoning districts. Hold requirements for special zoning approvals to a reasonable minimum and minimize setbacks between adjacent businesses. These steps are important to promote economic development and a wider choice of employment opportunities.	✓	Short-range	Governing Bodies, PCs
Update zoning ordinances to carefully control the types and locations of intense business uses near neighborhoods. This particularly includes gas stations, 24 hour stores, adult uses and similar uses that may cause nuisances for neighboring homes.	✓	Short-range	Governing Bodies, PCs
Carefully control the types of industrial uses through zoning ordinance requirements. Require "special exception" approval by the municipal zoning hearing board for industrial uses that may generate significant hazards or nuisances. Limit the most intensive industrial uses to the northeast corner of Lower Macungie.	✓	Continuous	Governing Bodies, PCs, ZHBs
Work with adjacent municipalities to ensure that compatible land uses and road patterns are in place.	✓	Short-range	Governing Bodies, PCs, Adj. Mun.
Emphasize code enforcement to avoid blight in neighborhoods. Consider a systematic housing inspection program for older rental units in the boroughs.	✓	Continuous	Governing Bodies
Help to link residents that are in need of assistance with the resources that are available, including housing rehabilitation programs and job training programs.		Short-range	Municipal staffs and non-profit organizations.
Work to increase home ownership, including expanding programs to help persons afford closing costs of home purchases.	✓	Continuous	Co. agencies, financial institutions, PHFA.

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations at end of this table)
<p>Make sure that local regulations and permit processes are as streamlined as is reasonable, to avoid unnecessary delays and higher housing costs. This is particularly important for routine changes to existing homes and for new and expanding employers.</p>		Short-range	Governing Bodies, PCs, ZHBs, Municipal Staffs

DOWNTOWNS

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations)
<p>Strengthen older commercial areas as business, entertainment, cultural and civic centers for the region.</p> <ul style="list-style-type: none"> <li>- Stress key markets for Downtown businesses, including persons who work or live nearby, and persons attending special events in the area.</li> <li>- Try to direct a larger number of visitors to major attractions (such as outlets) to also visit other nearby businesses.</li> </ul>	✓	Continuous	Local merchants, property-owners, Governing Bodies, Business associations
<ul style="list-style-type: none"> <li>- Stress greater coordination among hours of businesses in older areas. Encourage longer evening business hours - especially to at least 6 p.m. Aggressively market older business areas to businesses and customers, particularly through joint promotions among nearby businesses. These joint promotions are more cost-effective than each business buying its own advertising. Use special events to attract additional numbers of visitors, customers and businesses to older business areas.</li> </ul>		Continuous	Merchants, Business associations, L.V. Visitors Bureau
<ul style="list-style-type: none"> <li>- Complete streetscape and pedestrian safety improvements in the boroughs.</li> </ul>		Continuous	Governing bodies, business associations
<ul style="list-style-type: none"> <li>- Promote a balanced mix of uses in older commercial areas. Develop additional high quality market-rate upper story apartments. Some upper stories may also be suitable as office space.</li> </ul>	✓	Continuous	Business associations, Governing Bodies, PCs.

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations)
- Improve the appearance of the fronts of buildings that have not yet been restored. Add additional landscaping in rear parking areas, and improve the appearance and feeling of safety of walkways between parking areas and businesses.		Continuous	Governing Bodies, PC, Property-owners, Business associations
- Locate as many government offices as possible in older business areas, to help generate foot-traffic that will provide customers for private businesses.		Continuous	County, State and Federal agencies.
- Properly manage parking to serve different needs, with an emphasis upon making sure the most convenient spaces are available for high turnover by customers parking for less than 2 hours.		Continuous	Borough Staffs
- Consider financial incentive programs to attract private investment into older business areas, such low-interest funding for facade rehabilitation and fire safety improvements. Through the building code of appeals process, consider reasonable modification of requirements to recognize the problems of reusing older buildings.		Continuous	Governing Bodies, Co. Community Dev. Office
- Emphasize a feeling of security in older business areas, including bicycle patrols and controls on disruptive behavior.		Continuous	Governing Bodies, Police
- Improve pedestrian safety in the Downtown, including additional extensions of curbs at intersections so pedestrians do not have to cross as great a distance across a street, more button-activated pedestrian-crossing signals and more prominent cross-walks.	✓	Continuous	Governing Bodies, Police, Borough Staffs

HISTORIC PRESERVATION PLAN

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations)
Consider alternative ways to preserve important historic buildings, such as requiring special zoning approval by the governing body or zoning hearing board before demolition is allowed. This alternative would not regulate architecture or routine changes to buildings.	✓	Continuous	Governing Bodies, PCs Historic organizations

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations)
Seek cost-effective ways of preserving historic buildings, including providing information, guidelines and advice to property-owners. Promote greater interest in the region's history and historic buildings.		Continuous	Municipal Staff, Historic organizations
Consider zoning incentives to promote the preservation of historic buildings. This could include allowing certain uses within restored historic buildings that otherwise would not be allowed in the zoning district. For example, a restored historic building in a residential district might be allowed to be used as an office or bed and breakfast inn.		Short-range	Governing Bodies, PC

TRANSPORTATION PLAN

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations)
Work with PennDOT to resolve traffic congestion bottlenecks and traffic safety problems, such as encouraging new road links around trouble-spots (as described in plan text). Seek funding through the 12 Year Plan to resolve traffic problems in the region.	✓	Continuous	PennDOT, LVPC, Governing Bodies, Adj. Mun.
Design residential streets to discourage use by through-traffic, limit truck traffic on residential streets where feasible, and improve major roads to relieve congestion so traffic will not be diverted to residential streets.		Continuous	PennDOT, LVPC, PCs, Governing Bodies, Adj. Mun.
Adopt an "Official Map" to design locations where additional land will be needed to improve existing roads or to build new road connections. This type of Official Map allows a municipality to reserve land for improvements for a limited period of time.		On-going	Governing Bodies, PC
Investigate the pros and cons of a traffic impact fee system.		Continuous	PennDOT, Supervisors, PCs
Improve pedestrian and bicycle access and encourage greater use of public transit, including providing additional park and ride lots. Study the feasibility of expanded public transit to link with new employers.		Continuous	PennDOT, LANTA, LVPC, Governing Bodies, Adj. Mun.

COMMUNITY FACILITIES AND SERVICES PLAN

Recommended Action	High Priority?	Timing	Prime Responsibilities (see abbreviations)
Improve existing parks and playgrounds to meet a wide variety of recreational needs.		Continuous	Governing Bodies, Municipal Parks and Recreation
Emphasize high-quality police, emergency medical and fire protection services. Promote continued cooperation between providers, including those in adjacent municipalities.	✓	Continuous	Emergency providers, Governing Bodies, Adj. Mun.
Continually explore ways to minimize local government expenses and increase revenues, including use of grants.	✓	Continuous	Governing Bodies, Borough Staff
Continue to provide excellent water and sewage services, with regular investments to provide reliable services.		Continuous	Municipal Authorities and water companies

Abbreviations of Responsible Agencies/Groups:

- Governing Bodies = Borough Councils and Township Boards of Supervisors
- PC = Municipal Planning Commissions
- ZHB = Zoning Hearing Boards
- Adj. Mun. = Adjacent Municipalities
- DA = Downtown Associations
- LVEDC. = Lehigh Valley Economic Development Corporation
- LVPC = Lehigh Valley Planning Commission
- PennDOT = Pennsylvania Department of Transportation
- PHFA = Pennsylvania Housing Finance Agency
- PHMC = Pennsylvania Historical and Museum Commission

## APPENDICES

### POPULATION AND HOUSING

The Southwestern Lehigh County Region is quite diverse. The boroughs of Alburdis and Macungie, originally settlements surrounded by rural areas, now have the least number of residents among the six municipalities (Table 1). The confined boundaries of the boroughs will limit their future population growth. However, the availability of public sewage and water service and the higher densities allowed within the boroughs have caused Macungie and Alburdis to experience significant growth as a percentage of their total population. Emmaus is the most populous borough in the region, but has seen the least overall growth since the 1960's due to limited annexation and its fixed position between South Mountain and the Little Lehigh Creek.

Lower Macungie Township, with its proximity to major employers and availability of public sewage, now has nearly five times the number of residents as in 1960, far exceeding the growth seen in any of the four other municipalities in the study area and the County as a whole. Upper Milford and Lower Milford Townships have experienced more modest growth rates, with Lower Milford in particular remaining primarily rural.

Unless otherwise stated, all data is from the U. S. Census.

**TABLE 1**  
**TOTAL POPULATION**  
**Southwest Lehigh Area and Lehigh County -1960 - 2000**

MUNICIPALITY	POPULATION					CHANGE (1960-2000)	
	1960	1970	1980	1990	2000	NUMBER	PERCENT
Alburdis Borough	1,086	1,142	1,428	1,415	2,117	1,031	94.9%
Emmaus Borough	10,262	11,511	11,001	11,157	11,313	1,051	10.2%
Lower Macungie Township	3,859	8,814	12,958	16,871	19,220	15,361	398.1%
Lower Milford Township	1,779	2,189	2,865	3,269	3,617	1,838	103.3%
Macungie Borough	1,266	1,414	1,899	2,597	3,039	1,773	140.0%
Upper Milford Township	3,614	3,992	5,013	6,304	6,889	3,275	90.6%
Southwest Lehigh Area	21,866	29,062	35,164	41,613	46,195	24,329	111.3%
LEHIGH COUNTY	227,536	255,304	272,349	291,130	312,090	84,554	37.2%

When considering growth in the last decade only, trends vary considerably. Albutis saw a spike in population growth at nearly 50%, uncharacteristic of the rest of the study area (Table 2). This growth primarily resulted from one large townhouse development. Macungie had the second largest percent increase in population. While Lower Macungie Township has seen notable growth in this time frame, the two smaller boroughs have lesser populations that therefore generate higher percentage rates of growth. Upper and Lower Milford Townships have the fifth and sixth highest growth rates among the municipalities.

**TABLE 2**  
**TOTAL POPULATION**  
**Southwest Lehigh Area and Lehigh County - 1990 - 2002**

MUNICIPALITY	POPULATION		POPULATION ESTIMATE	POPULATION INCREASE (1990-2000)	
	1990	2000	2002	NUMBER	PERCENT
Albutis Borough	1,415	2,117	2,098	702	49.6%
Emmaus Borough	11,157	11,313	11,250	156	14.0%
Lower Macungie Township	16,871	19,220	21,551	2,349	13.9%
Lower Milford Township	3,269	3,617	3,703	348	10.6%
Macungie Borough	2,597	3,039	3,076	442	17.0%
Upper Milford Township	6,304	6,889	7,010	585	9.3%
Southwest Lehigh Area	41,613	46,195	48,688	4,582	11.0%
LEHIGH COUNTY	291,130	312,090	317,533	20,960	7.2%

Municipalities adjacent to the study area include much of the western half of the Lehigh Valley metropolitan area, as well as rural townships in Berks, Bucks, and Montgomery Counties. With the exception of Allentown, all adjacent municipalities have grown in the past forty years, especially Upper Macungie Township at 285% (Table 3). The City of Allentown lost population since 1960, but has seen a resurgence since a 1980 low. Many Pennsylvania cities of similar size saw a population decrease during this time period as people moved to surrounding suburban communities.

**TABLE 3**  
**TOTAL POPULATION**  
**Southwest Lehigh Area, Adjacent Municipalities and Lehigh County -1960 - 2000**

ADJACENT MUNICIPALITIES	POPULATION					CHANGE (1960-2000)	
	1960	1970	1980	1990	2000	NUMBER	PERCENT
City of Allentown	108,347	109,527	103,758	105,090	106,632	- 1,715	- 1.6%
Hereford Township (Berks Co.)	1,288	1,641	2,837	3,026	3,174	1,886	146.4%
Longswamp Township (Berks Co.)	2,918	3,727	4,627	5,387	5,608	2,690	92.2%
Milford Township (Bucks Co.)	3,524	4,812	6,053	7,360	8,810	5,286	150.0%
Salisbury Township	7,294	11,285	12,259	13,401	13,498	6,204	85.1%
South Whitehall Township	10,932	13,971	15,919	18,261	18,028	7,096	64.9%
Upper Hanover Township (Montgomery Co.)	2,293	2,721	3,870	4,604	4,885	2,592	113.0%
Upper Macungie Township	3,605	4,390	7,446	8,757	13,895	10,290	285.4%
Upper Saucon Township	5,926	7,954	9,635	9,775	11,939	6,013	101.5%
<b>LEHIGH COUNTY</b>	<b>227,536</b>	<b>255,304</b>	<b>272,349</b>	<b>291,130</b>	<b>312,090</b>	<b>84,554</b>	<b>37.2%</b>

The term "median age" means that half the residents are older than a certain age, while half are younger. The municipalities have median ages that hover near the county median of 38 (Table 4). One major exception is Alburdis. This borough, and to a lesser extent Macungie Borough, tend to attract younger residents. This can be traced to higher rental percentages and more affordable housing (as described later in this section). Alburdis also has the highest percentage of small children (ages 5 and under), which also helps mold its low median age. Emmaus Borough has the highest percentage of senior citizens. One important contributing factor is the aging of citizens who have continuously inhabited the original post-war neighborhoods in Emmaus. In addition, a senior housing complex exists within Emmaus.

**TABLE 4**  
**AGE DISTRIBUTION**  
**Southwest Lehigh Area and Lehigh County - 2000**

Age Groups	Alburdis Borough		Emmaus Borough		Lower Macungie Township		Lower Milford Township		Macungie Borough		Upper Milford Township		Southwest Lehigh Area		LEHIGH COUNTY	
	NUM-BER	%	NUM-BER	%	NUM-BER	%	NUM-BER	%	NUM-BER	%	NUM-BER	%	NUM-BER	%	NUM-BER	%
Under 5	161	7.6	590	5.2	1,083	5.6	199	5.5	153	5.0	308	4.5	2,494	5.4	18,762	6.0
5 - 19	510	24.1	1,999	17.7	4,111	21.4	794	22.0	534	17.6	1,535	22.3	9,483	20.5	63,776	20.4
20 - 24	94	4.4	551	4.9	663	3.4	127	3.5	165	5.4	287	4.2	1,887	4.1	17,339	5.6
25 - 44	818	38.6	3,509	31.0	5,011	26.1	1,055	29.2	1,015	33.4	1,984	28.8	13,392	29.0	91,114	29.2
45 - 54	263	12.4	1,496	13.2	3,420	17.8	656	18.1	495	16.3	1,224	17.8	7,554	16.4	43,721	14.0
55 - 64	117	5.5	1,002	8.9	2,204	11.5	371	10.3	270	8.9	706	10.2	4,670	10.1	27,944	9.0
65+	154	7.3	2,166	19.1	2,728	14.2	415	11.5	407	13.4	845	12.3	6,715	14.5	49,434	15.8
<b>TOTAL</b>	<b>2117</b>	<b>100</b>	<b>11,313</b>	<b>100</b>	<b>19,220</b>	<b>100</b>	<b>3,617</b>	<b>100</b>	<b>3,039</b>	<b>100</b>	<b>6,889</b>	<b>100</b>	<b>46,195</b>	<b>100.0</b>	<b>312,090</b>	<b>100</b>
<b>MEDIAN</b>	<b>33.3</b>	<b>-</b>	<b>39.6</b>	<b>-</b>	<b>41.3</b>	<b>-</b>	<b>40.5</b>	<b>-</b>	<b>38.5</b>	<b>-</b>	<b>40.5</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>38.3</b>	<b>-</b>

A household is composed of related or unrelated persons living in the same housing unit. Between 1980 and 2000, Lehigh County saw a 15% increase in total households (Table 5). Much of this increase was due to continued residential development of the townships surrounding Allentown.

In the Southwest Lehigh County Region, from 1980 to 2000, growth was more than three times the county rate. Lower Macungie Township added the most units by number, nearly 3,000. Macungie Borough saw the most percentage increase of housing units (83%) due to the development of new neighborhoods to its relatively small existing housing stock.

From 1990 to 2000, the Southwest Lehigh region experienced a 17% increase in the total number of housing units.

**TABLE 5**  
**HOUSING UNIT INCREASE**  
**Southwest Lehigh Area and Lehigh County 1980-2000**

	NUMBER OF HOUSEHOLDS			Change 1980-2000	
	1980	1990	2000	NUMBER	PERCENT
Alburtis Borough	484	491	774	290	59.9%
Emmaus Borough	4,216	4,674	4,985	769	18.2%
Lower Macungie Township	4,348	5,965	7,158	2,810	64.6%
Lower Milford Township	898	1,125	1,277	379	42.2%
Macungie Borough	746	1,086	1,366	620	83.1%
Upper Milford Township	1,643	2,156	2,514	871	53.0%
Southwest Lehigh Area	12,335	15,497	18,074	5,739	46.5%
LEHIGH COUNTY	106,005	118,005	121,906	15,901	15.0%

The average household size in the study area has dropped in every municipality by an average of 0.15 in the past decade (Table 6). As part of a nationwide trend, household sizes have decreased because of persons getting marriage at an older age, increased divorce rates, fewer families having more than 2 children, and more elderly households. In the region, Lower Milford Township has the highest average household size (2.83) while Macungie Borough has the lowest (2.22).

**TABLE 6**  
**HOUSEHOLD SIZE**  
**Southwest Lehigh Area and Lehigh County -1990 - 2000**

	AVERAGE NUMBER OF PERSONS PER HOUSEHOLD	
	1990	2000
Alburtis Borough	2.88	2.74
Emmaus Borough	2.38	2.26
Lower Macungie Township	2.83	2.65
Lower Milford Township	2.91	2.83
Macungie Borough	2.39	2.22
Upper Milford Township	2.92	2.74
LEHIGH COUNTY	2.58	2.48

As households and families mature, their housing needs and desires often change. Young couples look for starter homes and move to larger homes as families grow. As children leave and the remaining occupants grow older, requirements often return full circle to apartments, townhouses and other smaller units.

The Southwestern Lehigh region offers a diversity of such options, with substantial numbers of townhouses and apartments located in Alburtis, Macungie and Lower Macungie (Table 7), and a much greater percentage of single-family detached units in Upper and Lower Milford Townships. Lower Macungie Township has a moderate amount of housing within apartment and townhouse complexes, particularly along the Route 222 corridor and around Macungie. The region has a higher percentage of single-family detached homes than Lehigh County as a whole. The county average, though, is affected largely by the abundance of rowhomes, townhouses and apartments in Allentown. Lower Macungie also has a few manufactured/mobile home parks, most of which predate zoning regulations.

**TABLE 7  
HOUSING TYPE  
Southwest Lehigh Area and Lehigh County -2000**

Housing Type	Alburtis Borough		Emmaus Borough		Lower Macungie Township		Lower Milford Township		Macungie Borough		Upper Milford Township		Southwest Lehigh Area		LEHIGH COUNTY	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Single-Family Detached	308	38.2	2,259	43.5	4,891	66.1	1,261	96.4	464	32.7	2,247	87.6	11,430	68.0	61,617	47.8
Single-Family Attached	437	54.2	1,285	24.7	1,324	17.9	12	0.9	450	31.7	258	10.1	3,766	18.4	31,108	24.1
Units in 2-4 Unit Structures	35	4.3	554	10.7	154	2.1	21	1.6	171	12.1	44	1.8	979	3.1	12,782	9.9
Units in 5+ Unit Structures	26	3.2	1,077	20.7	600	8.1	7	0.5	333	23.5	11	0.4	2,054	7.2	20,205	15.7
Mobile Homes/Other	0	0	23	0.4	429	5.8	7	0.5	0	0	4	0.2	463	3.3	3,198	2.4
<b>TOTAL</b>	<b>806</b>	<b>100</b>	<b>5,198</b>	<b>100</b>	<b>7,398</b>	<b>100</b>	<b>1,308</b>	<b>100</b>	<b>1,418</b>	<b>100</b>	<b>2,564</b>	<b>100</b>	<b>18,692</b>	<b>100.0</b>	<b>128,910</b>	<b>100</b>

The amount of rental housing in an area affects housing affordability and the ability to accommodate life cycle changes. More rental housing usually signifies an area more affordable to singles, young families and older people. At the same time, areas with high rates of owner-occupied housing offer a higher rate of stability.

A plentiful majority (79.2%) of housing in the region is owner-occupied (Table 8). This is slightly more than the county average of 68.8%. The municipality with the highest such majority is Lower Milford Township (91%), which is common in such family-oriented rural areas. Macungie borough has the least percentage of owner-occupied housing at 58%. However, the highest vacancy rate of the study area, 3.9%, is found in Emmaus. Meanwhile, Upper and Lower Milford Townships share the lowest vacancy rates. None, however, fall close to Lehigh County's average vacancy rate of 5.4%.

**TABLE 8  
HOUSING OWNERSHIP AND VACANCY  
Southwest Lehigh Area and Lehigh County - 2000**

	Owner-Occupied Units		Renter-Occupied Units		Vacant Units		Total Units	
	Number	%	Number	%	Number	%	Number	%
Alburtis Borough	655	84.6	119	15.4	25	3.1	799	100.0
Emmaus Borough	3,180	63.8	1,805	36.2	201	3.9	5,186	100.0
Lower Macungie Township	6,270	87.6	888	12.4	247	3.3	7,405	100.0
Lower Milford Township	1,161	90.9	116	9.1	31	2.4	1,308	100.0
Macungie Borough	798	58.4	568	41.6	52	3.7	1,418	100.0
Upper Milford Township	2,253	89.6	261	10.4	62	2.4	2,576	100.0
Southwest Lehigh Area	14,317	79.2	3,757	20.8	618	3.3	18,692	100.0
LEHIGH COUNTY	83,849	68.8	38,057	31.2	7,004	5.4	128,910	100.0

In 2000, Lower Milford Township had the highest owner-occupied median housing value in the region (Table 9) at \$172,700. Conversely, Alburtis Borough had the lowest owner-occupied median housing value at \$98,500, which is lower than the county median of \$113,600.

**TABLE 9  
HOUSING VALUE  
Southwest Lehigh Area and Lehigh County - 2000**

	MEDIAN VALUE OF OWNER-OCCUPIED HOUSING
Alburtis Borough	\$98,500
Emmaus Borough	\$113,100
Lower Macungie Township	\$169,000
Lower Milford Township	\$172,700
Macungie Borough	\$116,800
Upper Milford Township	\$160,500
LEHIGH COUNTY	\$113,600

Median income is the level at which half of an area's households earn more and half earn less. Median income exceeds the county average of \$43,449 in all five municipalities of the study area (Table 10). Lower Macungie Township has the highest median income at \$69,592, representing rather well the abundance of upper-middle class homeowners in this municipality. Upper Milford Township, however, has the lowest percentage of families in poverty. Emmaus Borough has the lowest median income at \$44,181, while Alburtis has the highest poverty rate. Poverty levels are based on a federally established minimum income that changes based on number of persons in a household.

**TABLE 10**  
**MEDIAN INCOME AND POVERTY**  
**Southwest Lehigh Area and Lehigh County - 2000**

	MEDIAN HOUSEHOLD INCOME	PERCENT OF FAMILIES IN POVERTY
Alburtis Borough	\$52,361	2.8
Emmaus Borough	\$44,181	2.2
Lower Macungie Township	\$69,592	1.3
Lower Milford Township	\$67,008	2.1
Macungie Borough	\$51,721	1.7
Upper Milford Township	\$66,694	0.5
LEHIGH COUNTY	\$43,449	6.6

Upper Saucon Township has the highest median household income of the municipalities adjacent to the study area (\$66,703, Table 11). This wealthy township also has the lowest poverty rate at 0.9%. None of the neighboring municipalities, however, exceed Lower Macungie Township's previously-mentioned high median income value. The City of Allentown has the lowest median income at \$32,016, and the highest poverty rate (14.6%). With the exception of Allentown, all poverty rates in the region fall below the Lehigh County average of 6.6%.

**TABLE 11**  
**MEDIAN INCOME AND POVERTY**  
**Southwest Lehigh Area Adjacent Municipalities - 2000**

	MEDIAN HOUSEHOLD INCOME	PERCENT OF FAMILIES IN POVERTY
City of Allentown	\$32,016	14.6%
Hereford Township (Berks Co.)	\$49,046	4.4%
Longswamp Township (Berks Co.)	\$47,965	2.9%
Milford Township (Bucks Co.)	\$59,683	2.1%
Salisbury Township	\$52,935	1.7%
South Whitehall Township	\$54,759	3.1%
Upper Hanover Township (Montgomery Co.)	\$65,018	3.2%
Upper Macungie Township	\$65,062	2.0%
Upper Saucon Township	\$66,703	0.9%
LEHIGH COUNTY	\$43,449	6.6%

The three townships include similar amounts of land area. Lower Macungie Township, while having the largest land area (22.57 square miles), has enough suburban development to push its population density close to 1,000 people per square mile (Table 12). Meanwhile, Upper and Lower Milford Townships are much less dense on the average, with the latter having a population density of only 184 people per square mile. Emmaus Borough, with smaller lots and an abundance of multi-unit homes, has the highest population density at 3,998 people per square mile. Alburty Borough has the smallest land area at 0.71 square miles, but is not as densely populated as Emmaus or Macungie. The region as a whole has a population density of 714, up from 644 in 1990.

**TABLE 12**  
**POPULATION DENSITY**  
**Southwest Lehigh Area and Lehigh County - 1990 - 2000**

	Land Area (in square miles)	Population		Population Density (in persons per square mile)	
		1990	2000	1990	2000
Alburty Borough	0.71	1,415	2,117	1,993	2,993
Emmaus Borough	2.83	11,157	11,313	3,942	3,998
Lower Macungie Township	22.57	16,871	19,220	747	852
Lower Milford Township	19.65	3,269	3,617	166	184
Macungie Borough	0.99	2,597	3,039	2,623	3,057
Upper Milford Township	17.91	6,304	6,889	351	385
Southwest Lehigh Area	64.66	41,613	46,195	644	714
LEHIGH COUNTY	346.66	291,130	312,090	840	900

Land area data courtesy of Lehigh Valley Planning Commission

Table 13 shows the average travel time to places of employment for each municipality, as well as car occupancy figures. Lower Milford Township has the highest such value, 25.6 minutes. This is a logical figure considering its situation in the southern corner of Lehigh County, relatively far from the employment opportunities of the Lehigh Valley and cities to the south. Emmaus, which has the shortest travel time to work (19.4), is closer to the economic core of the Lehigh Valley. Otherwise, most travel times remain near the county average of 22.1 minutes.

Lower Macungie Township has the highest percentage of solo drivers at 89.9%. Although public transportation is available in Lower Macungie, it is not used as much as in Macungie, Emmaus and Upper Milford Township. The use of public transportation is still very low in all six municipalities, never exceeding Macungie's 0.6% rate, and not even reaching the county average of 1.6%. Carpooling is common in Alburtis Borough, where 11.8% of residents share vehicles while driving to work. Lower Milford Township, whose rural character would seem to encourage solo driving due to the unavailability of transit and the dispersion of residents, actually has the lowest percentage of single-occupancy commutes at 83.2%.

**TABLE 13**  
**COMMUTE TO WORK**  
**Southwest Lehigh Area and Lehigh County -2000**

	Average Travel Time to Work (minutes)	Method of Commuting to Work		
		Drive Alone (%)	Carpool (%)	Public Transportation (%)
Alburtis Borough	21.1	85.8	11.8	0
Emmaus Borough	19.4	87.2	5.9	0.4
Lower Macungie Township	21.7	89.9	5.0	0.3
Lower Milford Township	25.6	83.2	6.3	0
Macungie Borough	22.9	88.7	7.9	0.6
Upper Milford Township	22.9	85.4	7.3	0.4
LEHIGH COUNTY	22.1	81.7	9.8	1.6

The U.S. Census reports when people moved into their current homes, within 5-year ranges. Table 14 tabulates those who have lived in their current homes since 1995 or earlier. The highest percentage of such people occurs in Upper Milford Township (68.4%), where many families have lived in the same house for several decades. This is a primarily rural phenomenon that is not prevalent in Macungie Borough, where only 46% of people lived in the same home since 1995. Alburdis, a similar town in many respects, has a much higher rate of 63% living in the same home since 1995. These figures correlate well with the housing occupancy rates shown in Table 8.

**TABLE 14**  
**LENGTH OF HOUSING OCCUPANCY**  
**Southwest Lehigh Area and Lehigh County - 2000**

	Same Residence Since 1995 or Earlier (%)
Alburdis Borough	62.7%
Emmaus Borough	60.2%
Lower Macungie Township	60.4%
Lower Milford Township	66.8%
Macungie Borough	46.0%
Upper Milford Township	68.4%
LEHIGH COUNTY	58.3%

**Population Projections**

The following table shows projections of populations of the region, as forecast by the Lehigh Valley Planning Commission (LVPC). LVPC projects a 44 percent increase in the region's population from 2000 to 2030 - an increase of over 15,000 residents. If this projection holds true, the region would include over 50,000 residents by 2030.

LVPC projects that the numeric increase in Lehigh County's population will be slightly slower in upcoming decades than the 21,000 person increase that occurred during the 1990s.

LVPC projects that the vast majority of the region's population growth will occur within Lower Macungie Township.

TABLE 15  
**POPULATION GROWTH PROJECTIONS**  
**2000 TO 2030**

Prepared by the Lehigh Valley Planning Commission, 2003

	2000 Population	2010 Projection	2020 Projection	2030 Projection	2000-2010 Projected Numeric Increase	2000-2030 Projected Numeric Increase
Alburtis	2,117	2,161	2,202	2,244	44	127
Emmaus	11,313	11,313	11,313	11,313	0	0
Lower Macungie Twp.	19,220	23,374	27,898	32,966	4,154	13,746
Lower Milford Twp.	3,617	3,924	4,246	4,571	307	954
Macungie	3,039	3,039	3,039	3,039	0	0
Upper Milford Twp.	6,889	7,161	7,370	7,531	272	642
Total - Southwest Lehigh Co.	46,195	50,972	56,068	61,664	4,777	15,469
Total - Lehigh Co.	312,090	329,552	347,286	362,460	17,462	50,070

Source - Lehigh Valley Planning Commission, 2003.

The population growth will be affected by many factors, including the growth of local employers, the completion of the Route 222 bypass, mortgage interest rates, the availability of central sewage capacity and local zoning decisions.

These population projections appear low for Alburtis, Lower Milford and Upper Milford. For example, 96 new townhouses are proposed in Alburtis. If no other changes occur, and if these townhouses average 2.2 persons per household, that development by itself would generate 211 new residents. In Lower Milford, 82 new lots are currently proposed in three new subdivisions. Those three subdivisions by themselves can be expected to generate at least 262 new residents. The current zoning of Upper Milford could allow hundreds of new homes to be built.

At the same time, the population growth projected for Lower Macungie between 2010 and 2030 seems high, unless Lower Macungie in the future would allow very intense development within its agricultural preservation and rural zoning districts. The projected Lower Macungie population growth from 2000 to 2030 would be equal to over 80 percent of the total population that existed in Lower Macungie as of 1990. However, in 1990, much of Lower Macungie's population resided within developments of singles with modest-sized lots, apartments and townhouses. These same densities may not be replicated in outlying parts of Lower Macungie.

## An Overview of the History of Southwestern Lehigh County

The following is based primarily on local publications. These include past comprehensive plans of each municipality, the History of the Lehigh Valley by Professor Ross W. Yates, the Lower Macungie Township History book prepared by Craig and Ann Bartholomew in 1986 and revised in 1996, and a guide to historic properties in Emmaus developed by the Emmaus Main Street Program.

The Lehigh Valley and upland areas to the south were originally inhabited by the Unnami people, one of many "tribes" constituting the Lenni Lenape nation. Hundreds of years prior to European settlement, Native Americans migrated to this region from the west. Several locations in the area serve as monuments to the Unnami people and their way of life. The Jasper Pits near Vera Cruz in Upper Milford Township provided a wealth of the yellow-red quartz-like mineral for tools and weaponry, some of which have been found as far away as New England. Areas along Swabia Creek at the base of South Mountain were known as *Manoh Kuntchie* or *Maguntache* meaning "feeding place of the bears." This term was converted by settlers to the current name of Macungie.

In 1681, a time when Europeans had only begun to explore these regions, King Charles II conveyed the lands now comprising Pennsylvania to William Penn. Many followed his open invitation to be able to own their own farm and to practice religious freedom. Most early settlers were Scottish, Irish and Germans. Most immigrants docked in Philadelphia, and many continued up the Schuylkill River, the Perkiomen Creek and the Hosensack Creek to settle in the region. Most early settlement occurred in the 1730s. Germans, in particular, searched for rolling limestone valleys similar to those they had left behind in their homeland, which they found in the Macungie area.

Settlers established an agrarian lifestyle. The entire region was covered with mature woods, requiring the laborious cutting of trees and clearing of stumps and rocks in order to make land suitable for farming. The hard wood and stones made excellent building materials for barns and homes. One of the oldest such structures in the region is the Shelter House, built in 1734 at the base of South Mountain in what is now the Borough of Emmaus. This log cabin most likely served as a safe house for newcomers and travelers.

The early settlers found it difficult to transport their products to markets, particularly to reach Philadelphia, which was the largest city in the North America. In response to a public petition in 1732, the King's High Road was constructed as the first public road in the area. The road following Lenni Lenape trails. The road began near Breinigsville, proceeded through what is now Macungie, Old Zionsville and Hosensack, and continued through central Montgomery County to reach Philadelphia.

Other area roads were constructed in the 1740's and 1750's, including a road between Zionsville and Slatington, a road between Macungie and Bethlehem (which became Main Street in Emmaus and Emmaus Avenue), and a road between Easton, Allentown and Reading (which became Route 222). All of these roads facilitated the movement of goods and people in the area, and also initiated the development of hotels and taverns in rural villages such as Limeport, Dillingersville, Macungie (originally Millersville) and Wescosville. In addition to agriculture, light industry began to appear in the form of mills along Hosensack, Little Lehigh, Swabia and other creeks. The new road network facilitated the arrival of new immigrants, increased farm productivity, and spurred the growth of villages. Emmaus was originally a closed Moravian village named Salzburg, completed in 1759 for the purpose of live-in religious teaching and worship.

In 1738, Upper Milford Township was formed from Milford Township, Bucks County. Upper Milford included the present-day townships of Upper and Lower Milford Township. In 1743, Macungie Township was established as a separate township, covering what is now Lower Macungie, Upper Macungie, Alburdis and Macungie. In 1832, Macungie Township was separated into Upper and Lower Macungie; with the separation between Upper and Lower Milford occurring in 1847. Macungie, Emmaus and Alburdis did not achieve borough status until 1857, 1859 and 1913, respectively. Lehigh County was formed in 1812 from Northampton County.

While many area residents served during the Revolutionary War, there was little military activity in the region. Members of the Moravian settlement in Emmaus largely resisted the call to arms, as they were a pacifistic society. After the revolution, several domestic conflicts transpired. In the 1799 Fries Rebellion, John Fries and other residents of the Macungie area protested new taxes levied by the Federal Government. Their threats and brawls with tax collectors landed them in jail. Soon after, President Adams sentenced the men to hanging in Philadelphia, a decision that was enforced by federal troops. As the men awaited death in the capital, however, the decision to hang these men was highly contested in federal circles, and the prisoners were released. A lesser rebellion occurred in the same year when multiple women in Macungie poured boiling water on tax collectors, known as the "Hot Water Rebellion."

By the 1830's, the industrial revolution began to take hold in the Lehigh Valley. Major industrial employers concentrated in Allentown and Bethlehem, including iron working. The hillier areas of southwestern Lehigh County that were not along major rivers remained mostly agricultural. In Macungie, industry first arrived as small manufacturing operations such as tanneries, knitting mills, and hat making. Early industries in Upper and Lower Milford included a brick factory, marble works, saddlery and shirt factory in Zionsville, and a creamery, cigar factory and carriage factory in Lower Milford. Some areas of the region were mined for iron ore, which was used in blasting furnaces locally.

In 1859, the Reading and Lehigh Railroad Company completed a major railroad line from Reading, through Fleetwood, Tipton, Alburdis, Macungie and Emmaus. This railroad continues through Allentown and Bethlehem and into Northern New Jersey. The railroad promoted local industry, with important connections to New York City, Harrisburg and eventually Pittsburgh. The Catasauqua and Fogelsville Branch Railroad was built as a spur from the main railroad line in Alburdis soon after. The Perkiomen Branch Railroad was extended from the main railroad line from Emmaus to Pennsburg in 1874.

The Lock Ridge iron furnace was completed one year before the Reading and Lehigh Railroad, and began major production just in time for the Civil War. Later known as the Thomas Iron Company, the operation was very successful during and after the Civil War because of its proximity to iron ore and a major railroad line. Iron workers, many of Welsh, English and German descent, lived in a cluster of homes that eventually became the town of Alburdis. Alburdis mainly developed around its industries.. Emmaus also boasted a fairly successful iron furnace, the Donaldson Iron Company, which operated from 1882 to 1943. Macungie had an iron furnace dating from 1874, but an economic depression in the latter part of that decade made operations sporadic at this facility. In 1876, the Keystone Roller Mills constructed a flour, feed and bran mill on Race Street in Macungie. Emmaus developed a successful silk industry in the late 1800's while Alburdis housed smaller operations producing shirts and ribbon.

The formation of Borough governments in Macungie (1857), Emmaus (1859) and Alburtis (1913) was "a legal and political guarantee of self-government for the entrepreneurs, merchants and workers" which served as "bases of operations for protecting business and industry against agrarian prejudices", according to one historian.

In the rural townships, population growth slowed during the late 1800s and early 1900s. Most immigrants to the region during this period were attracted to work and live in Allentown and Bethlehem, which included major industrial employers. In addition, the advent of farm machinery lessened the need for farmhands in rural areas and allowed farms to become larger. As new roads and railroads were built, there was little growth in villages along older roads, such as Hosensack, Zionsville and Dillingersville. These villages once contained thriving hotels, general stores and taverns - all drawing business from travelers.

In the early part of the 1900s, Alburtis, Emmaus and Macungie exhibited modest industrial growth, with Macungie adding a brass manufacturing company, shoe factory, silk mill, carriage works, and pipe fitting foundry (today's Tyler Pipe Company). This era also saw improvements in transportation. The Millersville - Shimersville Turnpike became a county-controlled public road in 1911. Between the years 1899 and 1928, an electric trolley line carried passengers from Macungie, through downtown Emmaus to center city Allentown. By the end of World War II, the majority of the region outside of Macungie, Wescosville and Alburtis was still very rural.

Following World War II, a completely new growth pattern emerged as economic and population booms ensued. West of Allentown, increased use of the automobile, improved roads and easy access to financing caused suburbanization. This was especially true in Lower Macungie Township, where small-lot housing subdivisions such as Ancient Oaks and Shepherd Hills offered semi-rural living just minutes from Allentown. Macungie and Emmaus Boroughs annexed new suburban neighborhoods on the fringe of their older sections. New industry followed residential growth in a similar decentralized fashion. Allen Organ, Mack Trucks, Buckeye Petroleum and a number of other industries built facilities in rural fields.

The highest growth rate was in Lower Macungie, which has the greatest access to public water and sewage services, particularly after the late 1960s. Upper and Lower Milford Townships grew to a much lesser extent, mostly in the form of residential growth on one acre lots with on-lot septic systems and wells. The boroughs of Emmaus, Macungie and Alburtis experienced notable residential growth, particularly from an increase in persons commuting to jobs in other parts of the region. Residential growth was spurred by many new employers locating in western Lehigh County, including Air Products, industrial parks around the Route 22/100 interchange, and the Lehigh Valley Hospital. Some of the residential growth also resulted from persons commuting to jobs in the Philadelphia suburbs, particularly in Lower Milford.

**Traffic Volume Data**

The following is a listing of estimated average daily traffic volumes on various roads, according to the Pennsylvania Department of Transportation (PennDOT), as of early 2004. Some of this data is based upon PennDOT estimates from counts conducted in earlier years.

Road Segment Estimated Average Daily Traffic Volume

*Lower Macungie Township:*

Pennsylvania Turnpike	41,400
Route 222 east of Turnpike	38,600
Route 222 west of Brookside Road	22,400
Brookside Road south of Route 222	13,300
Lower Macungie Road west of Brookside Road	10,900
Lower Macungie Road east of Brookside Road	10,400
Minesite Road west of Cedar Crest Boulevard	2,000
Cedar Crest Boulevard north of Minesite Road	20,900
Cedar Crest Boulevard south of Minesite Road	18,200
Cedar Crest Boulevard south of Lower Macungie Road	22,300
Riverbend Road east of Cedar Crest Boulevard	2,500
Mill Creek Road north of Sauerkraut Road	5,600
Indian Creek Road	2,200
Mountain Road	2,100
Sweetwood Drive	1,200
Route 100 south of Trexlertown	14,300
Route 100 north of Macungie	10,100
Weilers Road south of Route 222	1,000
Spring Creek Road north of Alburdis	5,700
Alburdis Road east of Alburdis	2,900
Butz Road	600
Mertztown Road west of Weilers Road	1,500

*Emmaus:*

Main Street East of Triangle	17,300
Lehigh Street/State Avenue west of Harrison Street	12,300
Harrison Street	8,200
E. Main Street/Dalton Avenue/Emmaus Avenue	9,200

*Upper Milford Township:*

Chestnut Street at Turnpike Bridge	20,000
Chestnut Street north of Buckeye Road	19,900
Route 29 south of Buckeye Road	10,300
Route 100 south of merger with Route 29	13,300
Route 100 west of Old Zionsville	11,900
Buckeye Road	8,900
S. 5 <sup>th</sup> St. south of Emmaus	1,800
Vera Cruz Road north of Vera Cruz	4,000
Main Street East of Vera Cruz	2,100
West Main Street East of Route 100	3,000
St. Peters Road	1,400

*Macungie Borough:*

Route 100/Main Street in Downtown Macungie	14,500
Route 100 South of Chestnut Street	6,300

*Alburtis Borough:*

West Penn Avenue west of Main Street	1,800
Main Street/Franklin Street	1,700

*Lower Milford Township:*

Limeport Pike in Limeport	3,800
Limeport Pike west of Turnpike	2,000
Limeport Pike east of Kings Highway	1,400
Kings Highway south of Limeport Pike	2,500
Church View Road west of Limeport Pike	1,100
Steinsburg Road	300
Spinnerstown Road	1,400
Palm Road	800
Dillingersville Road	800

## MAJOR FUNDING SOURCES FOR COMMUNITY DEVELOPMENT

There are hundreds of funding sources available from federal government, state government, private organizations and foundations, for a variety of activities. The following list summarizes the most commonly used funding sources, including grants and loans, that can help fund community development, economic development, recreation, housing, water and sewer, and stormwater management and other activities.

Name of Program	General Description of Program	Administering Agency
Community Development Block Grant (CDBG)	Offers grants for a wide variety of activities, provided the applicant proves by survey or census that the project will benefit 51% low and moderate income persons or handicapped persons or eliminate "blighted" conditions in officially designated areas. For example, funds can be used for water and sewage improvements, storm drainage, handicapped accessibility, housing rehabilitation, parks and recreation, street and sidewalk improvements, code enforcement, community planning, and historic rehabilitation. The Section 108 Program allows municipalities to commit future year's CDBG funds to a current project. The State offers a loan guarantee program to support this use.	Lehigh County
Lehigh County Parks and Open Space Grants	Offers grants to acquire public recreation land. Certain municipalities may also be eligible for grants to improve existing public parks. Funds may be matched with State community conservation grants. Certain eligibility standards apply, such as consistency with the Lehigh Valley Comprehensive Plan and having an adopted municipal recreation plan.	Lehigh County
Home Town Streets	Offers funding for streetscape improvements (such as sidewalks, benches, street lights), for pedestrian improvements (such as crosswalks and other pedestrian crossings), for traffic calming measures and for bicycle trails and bicycle lanes. This program is primarily aimed towards improving State roads that serve as main streets for older communities and villages. Requires a 20 percent match from other sources (such as local funds or other grants).	PennDOT
Safe Routes to Schools	Offers funding for pedestrian and bicycle improvements to make it safer for students to travel to schools. This program is primarily aimed towards improvements in downtowns, older commercial areas and other areas near schools. Municipalities, school districts or non-profits can apply. Requires a 20 percent match from other sources (such as local funds or other grants).	PennDOT
Conservation Corps, PA.	Provides funding for work crews for community projects, such as trail improvements.	PA DCNR
Housing and Redevelopment Assistance	Provides grants to municipalities, redevelopment authorities and housing authorities for community revitalization, economic development, and low-income housing development and rehabilitation.	PA DCED
Community Development Bank, PA.	Provides capital and capacity building grants to "Community Development Financial Institutions" (CDFIs). The CDFIs are then allowed to assist with small scale business expansions, new business starts, non-profit facilities and very small businesses.	PA DCED

Name of Program	General Description of Program	Administering Agency
Community Facilities Loan Program, Federal	Offers low-interest loans to construct, enlarge or improve essential community facilities for public use in rural areas and towns with population less than 50,000. Also offers guarantees of loans by private lenders.	U.S. Dept. of Ag. Rural Housing Service
Community Revitalization Program	Very broad grant program. Officially intended to promote community stability, increase tax bases and improve quality of life. Applications may be made by municipalities, authorities, economic development organizations and non-profit corporations. Public/non-profit/profit partnerships are encouraged. Generally can be used for infrastructure, community revitalization, building rehabilitation, demolition of blighted structures, public safety, and crime prevention.	PA DCED, Governor's Office and Local Legislators
Customized Job Training	Provides grants to businesses (other than retail) to train new employees, and retrain and upgrade existing employees. Up to 100% of eligible costs may be paid for new job creations, and up to 70% for other eligible training.	PA DCED Businesses apply through a State-licensed Educ. Agency.
Keystone Innovation Zone Program	Provides funds to projects to foster economic and job growth on property near colleges and universities.	DCED
Land Use Planning Technical Assistance Program	Known as LUPTAP. Assists local governments and counties to prepare comprehensive plans, downtown plans, special community development studies and development regulations. Typically provides 50% of the eligible costs. Typically requires participation by two or more municipalities.	PA. DCED
Elm Street Program	Provides competitive grants to revitalize older residential neighborhoods, particularly areas that are near downtowns. Offers funding for a staff person to coordinate revitalization efforts, as well as funding for planning and physical improvements. A municipality must first be designated as an "Elm Street Community."	PA. DCED
Economic Development Administration Loan Guarantees	Guarantees business loans made through private lenders. Available for up to 80% of project cost. Primarily intended for manufacturers, but commercial businesses may qualify. A equity contribution is required by business. Must show job creation.	U.S. EDA Philadelphia Office
Economic Development Administration Economic Adjustment Grants	Provides grants to design and implement strategies to adjust to serious job losses to a local economy, such as natural disasters and defense spending reductions.	U.S. EDA Philadelphia Office
Environmental Protection Agency Brownfields Program	Grants for a very limited number of pilot demonstration projects for cleanup of contaminated underused industrial sites.	U.S. EPA Philadelphia Office

Name of Program	General Description of Program	Administering Agency
Emergency Services Loan Program	Provides low-interest loans to fire and ambulance companies to acquire vehicles, or to renovate or acquire buildings to house vehicles.	PA Emergency Management Agency
Keystone Opportunity Zone	State program provides a range of benefits to locally-nominated, State-designated areas that are financially distressed. One major benefit involves greatly reduced local real estate taxes for an initial set of years.	PA DCED
Enterprise Zone Program, PA	Encourages investment in "enterprise zones" that are distressed areas designated by the State. The main benefits include: low-interest loan pools (mainly for building acquisition, construction, renovation and machinery), local technical assistance in connecting with financing and technical resources, and preferences in certain State grant and loan programs. A priority is placed upon assistance to industrial businesses. Grants are also available for the initial planning of proposed enterprise zones, and for program administration. See also "E.Z. Tax Credits" below. (This program is completely separate from the Federal Empowerment Zone/Enterprise Community program.)	PA DCED
Enterprise Zone Tax Credits	Provides State tax credits to businesses located within State-designated Enterprise Zones for new building construction and rehabilitation of existing buildings.	PA DCED
Flood Control - Army Corps and NRCS Watershed Programs	Various types of projects to manage flooding. Typically, the Army Corps is involved in larger watersheds, while NRCS has primary responsibility for smaller watersheds.	U.S. Army Corps of Engineers, U.S. Natural Resources Conservation Service
Flood Hazard Mitigation Grant Program	Provides 75% funding to relieve imminent hazards from flooding, such as voluntary buy-outs and demolitions of highly flood-prone properties.	Federal Emergency Management Agency
Flood Protection Program, PA	Offers design and construction of flood protection projects. The project must be deemed economically justifiable under the state capital budget process.	PA DEP Bureau of Waterways Engineering
Historic Preservation Tax Credits	Offers Federal income tax credits for a percentage of the qualified capital costs to rehabilitate a certified historic buildings, provided the exterior is restored. The program is generally limited to income-producing properties.	National Park Service
Historic Preservation - Certified Local Government Grants	Provides modest-sized matching grants to provide technical assistance to municipalities that have official historic districts and meet other criteria to be "certified."	Federal, administered by PA Historical and Museum Commission

Name of Program	General Description of Program	Administering Agency
Historic Preservation Survey and Planning Grants	Matching grants for historic surveys, historic preservation planning and National Register nominations. Available to municipalities and non-profit organizations. Cannot be used for construction.	Federal, administered by PA Historical and Museum Commission
Heritage Parks Program	Provides grants up to 75% of costs for projects within State-designated "Heritage Parks" to preserve and interpret the significant contribution that certain areas made upon the industrial heritage of the state and nation. Funds may be used for four types of projects: Feasibility studies, a Management Action Plan, Special purpose studies; and Implementation projects. Projects are intended to conserve natural, historic and recreational resources relating to industrial heritage to stimulate regional tourism.	PA DCNR
Housing Programs - mainly including Federal HOME Program (Home Investment Partnerships Program)	Provides grants, low-interest loans and loan guarantees to for-profits and non-profits for the construction or rehabilitation of housing for low and/or moderate income persons. Most cities receive HOME funds that they then allocate among eligible applicants. Funds are also provided to local community-based housing development organizations to develop housing. Funds are also provided through private lenders to assist with down payment and closing costs for low income and disabled persons to purchase a home for their own occupancy. The HOPE Homeownership Program subsidizes home ownership of public housing, multi-family units and single family units. Funding can be used for rehab of owner-occupied and rental housing. Other Federally funded housing programs include: Emergency Shelter Grants, Supportive Housing for the Elderly (Section 202), Single Room Occupancy Housing Program, Supportive Housing for Persons with Disabilities, and Housing Opportunities for Persons With AIDS. See also HOME Partnerships below.	PA Housing Finance Agency and PA DCED
Housing Closing Cost Assistance Program	Provides loans to income-eligible, first-time homebuyers for assistance with closing costs.	County Community Development Office
HOME Investment Partnership	Provides grants for expanding the supply of housing for low-income persons, including new construction, acquisition and rehabilitation. Local governments may apply, which may be on behalf of public agencies or for-profit or non-profit developers. PHFA administers Federal HOME funds for financing 5 or more units. These projects are usually coordinated with Federal Low Income Housing Tax Credits.	Federal HOME funds, administered by PA DCED and PA Housing Finance Agency
PA. Business in Our Sites Program	Provides planning grants to promote development of key sites by businesses. Also provides grants and low-interest loans for cleanup and remediation of environmental contamination of sites to promote redevelopment. Also provides funding for environmental assessments to address environmental contamination.	PA. DCED

Name of Program	General Description of Program	Administering Agency
PA Industrial Development Authority Financing (PIDA).	Provides low interest loans for construction, renovation and site preparation of buildings for new employers. Primarily funds industrial projects.	PIDA and PA DCED
Industrial Sites Reuse Program, PA ("Brownfields")	Provides grants of up to 75% and low interest loans for assessment of environmental contamination and remediation work at former industrial sites. Available to private companies, non-profit economic development agencies or authorities that own the land. Mainly targeted towards cities. Financing is not available to the company that caused the contamination.	PA DCED in cooperation with PA DEP
Infrastructure Development Program, PA.	Provides grants and low interest loans for public and private infrastructure improvements needed for a business to locate or expand at a specific site. Financing is also available for infrastructure to redevelop industrial sites that have been idle more than 6 months, such as acquisition and demolition. Primarily available for industries, research facilities, company headquarters and business park developments. A 2:1 private to public match is typically required. A commitment is required to create jobs as a condition of funding. Generally applicants must be municipalities or economic development organizations.	PA DCED
PA. Community Economic Development Loan Program	Provides low-interest loans for small businesses to provide services or products to communities that were previously underserved. Limited to businesses with less than 100 employees that provide services to the public, including retail and service businesses.	PA. DCED
Federal Transportation Enhancements Program	Provides grants of up to 80% for: facilities for pedestrians and bicycles, acquisition of scenic easements and scenic or historic sites, development of scenic or historic route programs, landscaping and other scenic beautification along highways, historic preservation, restoration of historic transportation facilities (such as canals), preservation of rail corridors (particularly for bicycle/walking routes), control and removal of outdoor advertising, archeological research, and mitigation of water pollution due to highway runoff. All projects must have a direct relationship to transportation.	U.S. DOT funds administered by PennDOT
Intermunicipal Projects Grants	Promotes cooperation between neighboring municipalities so as to foster increased efficiency and effectiveness in the delivery of municipal services at the local level.	PA DCED
Job Creation Tax Credits, PA	Provides State tax credits to businesses that commit to create new jobs in PA within the next 3 years. Must create 25 new jobs or 20% of the existing work force. The jobs must pay over a certain minimum income. The business must explain how it exhibits leadership in technological applications.	PA DCED
Historic Preservation Funds	Provides 50% matching grants to fund analysis, acquisition or rehabilitation of historic sites. The site must be on the National Register of Historic Places, or officially determined to be eligible for listing. The site must be accessible to the public after funding. The grants can be made to public agencies or non-profit organizations.	PA Historical and Museum Commission

Name of Program	General Description of Program	Administering Agency
Community Conservation Partnership - Land Trust Grants	Grants to well-established non-profit land trusts and conservancies to plan for and acquire critical natural areas. Land that is acquired must be open to the public.	PA DCNR
Community Conservation Partnership - Planning, Development and Acquisition Grants	<p>Provides competitive 50% matching grants to municipalities and other eligible organizations to fund: overall planning for parks and recreation, master plans for individual parks, acquisition of parkland and nature preserves, countywide natural area inventories, and rehabilitation and improvements to public recreation areas.</p> <p>A Peer-to-Peer program provides small grants that allow an expert working with one municipality or agency to provide advice to another municipality or agency.</p> <p>A Circuit Rider program provides grants for a parks and recreation staff-person who works in more than one municipality.</p>	PA DCNR Regional Offices
Local Government Capital Projects Loan Program	Provides low interest loans to municipalities with populations of 12,000 or less for the purchase of equipment and the purchase, construction, renovation or rehabilitation of municipal facilities. Priorities are given to projects that are necessary for public health and safety or involve intergovernmental cooperation.	PA DCED
Low Income Housing Tax Credit, Federal	Offers Federal income tax credits to non-profit and for-profit developers of housing for low-income persons. Non-profits can then sell their credits to investors.	PA Housing Finance Agency
Main Street Program/ "New Communities Program"/Anch or Building	In the downtowns of designated "Main Street Communities," provides initial planning grants and administrative grants over a 3 year period to pay a large share of the costs of a professional manager to coordinate downtown revitalization efforts. May receive matching grants for facade restoration and other design improvements. Usually limited to municipalities of 5,000 to 50,000 persons. The Downtown Reinvestment and Anchor Building components use business district strategies to support commercial-related projects in a central or neighborhood business district.	PA DCED
Machinery and Equipment Loan Fund	Provides low-interest loans to acquire or upgrade machinery and equipment and related engineering and installation for industrial, agricultural, processing and mining businesses. The business must agree to create or preserve jobs as a condition of the financing.	PA DCED
Minority Business Development Authority, PA	Provides low-interest loans for businesses owned and operated by minorities. Can generally be used for industrial, international trade, franchise, retail and commercial uses. Can be used for site acquisition, building construction and renovation, machinery and working capital.	PA Minority Business Development Authority & PA DCED
Municipalities Financial Recovery Act, PA	Provides technical advice and grants for special purposes (such as studies to improve service efficiency) within municipalities that have been officially designated as financially distressed. After application and designation, the municipality must follow a Financial Recovery Plan.	PA DCED

Name of Program	General Description of Program	Administering Agency
Neighborhood Assistance (Tax Credit) Program	Authorizes State corporate income tax credits to private companies who donate funds or services to low-income persons or impoverished neighborhoods. The services typically include neighborhood revitalization, job training, education, social programs to reduce welfare dependency or crime prevention. The tax credit usually equals 50 to 70% of the eligible donation. Partnerships are required between the business and a neighborhood organization. The donations must be consistent with a revitalization plan.	PA DCED
On-Lot Septic System Program	Offers low-interest loans to limited income households to repair failing on-lot septic systems.	PennVest and PA Housing Finance Agency
Opportunity Grant Program	Offers grants to create or preserve very substantial numbers of jobs. May be used for job training, infrastructure, land and building improvements, machinery and equipment, working capital, or environmental assessment and cleanup.	DCED
PA. Economic Development Financing Authority (PEDFA) Financing	Provides low-interest rate financing of business growth. Projects that can be funded with bonds that are exempt from Federal income tax have a lower interest rate than other types of projects. The lower rate financing is limited to activities such as site acquisition, building construction and rehabilitation and new equipment - for manufacturing and certain transportation and utility uses. The higher rate is available to a broader range of businesses and a much wider variety of expenditures. Funding can be used for manufacturing uses, non-profit uses, energy uses, solid waste disposal facilities, wastewater treatment facilities, transportation facilities or assisted living housing facilities.	PA Economic Financing Authority-- Applications are made through a local Industrial Development Corp. or Authority
PA. Capital Assistance Program (PennCAP)	Provides a guarantee of loans to businesses made by participating banks. Funds can be used for land, building, equipment or working capital.	DCED-- Apply through a participating bank
PENNVEST	Offers low interest loans for construction and improvement of drinking water and wastewater systems. Outright grants may be available for highly distressed communities. Mainly intended for public systems, but some private systems may be approved. Water projects are funded through the Drinking Water Revolving Loan Fund. Sewage projects are funded through the Clean Water Revolving Fund. In addition, PennVest is authorized to provide loans for projects to control existing stormwater problems, such as separating stormwater from sanitary sewage. The "Advance Funding Program" provides low-interest loans for feasibility studies and engineering of systems if the utility cannot fund such work itself.	PA Infrastructure Investment Authority and PA DEP Bureau of Water Supply Management-- Involves both U.S. EPA and State funds

Name of Program	General Description of Program	Administering Agency
PIDA - PA Industrial Development Authority (PIDA) Programs	Makes available low-interest financing to businesses and industrial development agencies to create or retain business jobs. Can be used for industrial, research, agricultural processing and major office uses. Can be used for site acquisition, building construction or renovation, multi-tenant spec buildings and industrial park development. A lower interest rate is available for advanced technology projects and in enterprise zones and areas of high unemployment.	PIDA and PA DCED Applications are typically made through a local Industrial Development Corp. or Authority
Nutrient Management Plan Development Incentive Program	Grants are available to farmers to cover up to 75% of the cost of preparing nutrient management plans. Low interest loans are also available through the State to assist in implementing nutrient management-related best management practices.	Lehigh County Conservation District
Recreation Trails	Uses Federal and State funds to provides grants for feasibility studies, master site plans, acquisition and improvement of former railroad lines for recreation trails. A 50% local match is required. Open to municipalities, authorities and non-profits. Funds are also available for all-terrain vehicle trails.	PA DCNR Field Offices
Rural Economic and Community Development Programs, U.S.	<p>Federal programs available in rural areas:</p> <p>Business &amp; Industrial Guaranteed Loan Program - Provides partial guarantees of loans by lenders for working capital, machinery, buildings, land and certain types of debt refinancing. Loans can be made to businesses, municipalities or non-profit organizations.</p> <p>Intermediary Re-lending Loans - provides very low-interest loans to non-profit organizations to reloan for businesses and community development projects.</p> <p>Rural Business Enterprise Grants (former Ind. Dev. Grants) - provides grants for acquisition of land and construction of buildings and utilities to facilitate development of small businesses.</p> <p>Home Ownership Loans - aid low- and moderate-income rural residents or buy, build or repair their dwelling.</p> <p>Rural Rental Housing Loans - assist individuals or organizations to build or rehab rental units for low-income and moderate-income residents in rural areas.</p> <p>Home Improvement and Repair Loans and Grants - assist very low-income rural homeowners to remove health and safety hazards in their homes or to improve handicap accessibility.</p> <p>Rural Housing Site Loans - assist in purchasing sites for housing development by private, public or non-profit organizations.</p> <p>Housing Preservation Grants - assist non-profits and public agencies with grant funds to assist low-income owner-occupants and owners of low-income apartments with repairing homes in rural areas.</p>	U.S. Dept. of Agriculture Rural Development Administration (former Farmers Home Admin.)
Recycling Market Development Loan Fund	Provides low-interest loans to businesses to purchase recycling source-separating equipment.	PA DEP

Name of Program	General Description of Program	Administering Agency
Recycling Grants	Grants for up to 90% of municipal costs to develop and implement recycling programs, such as the purchase of recycling bins and composting equipment. Grants are also available to counties for a recycling coordinator, waste management plans and pollution prevention education.	PA DEP Bureau of Land Recycling and Waste Management
Rivers Conservation Program, PA	Offers 50% grants to conserve and enhance river resources. Typically, funding is first provided for a conservation plan for a waterway. Then after the plan is approved, grants are possible to carry out the plan. Available to municipalities, authorities and non-profits.	PA DCNR
Rural Utilities Service Financing	Offers low-interest loans for drinking water and sewage projects for rural areas and small towns. The "Water and Water Disposal Loan Program" provides loans for water supply, wastewater disposal, solid waste disposal and stormwater management systems for rural areas and towns with a population less than 10,000 persons. Available to municipalities, authorities and non-profit corps. Grants up to 75% of project costs may be available for highly distressed areas. Also guarantee loans by private lenders. Also provides grants to non-profit organs. to provide technical assistance to rural communities or for a circuit rider to serve several rural water systems. Also offers emergency grants to communities that have experienced a significant decline in quantity or quality of drinking water.	U.S. Dept. of Agriculture Rural Utilities Service
Shared Municipal Services	Provides modest-sized 50/50 matching grants to promote cooperation among municipalities, in order to increase the efficiency of public services. Two or more municipalities may apply, or a council of governments. A special program emphasizes joint code enforcement among municipalities. Another program emphasizes start-up costs for regional police services.	PA DCED
Small Business First	Provides low-interest loans for projects by businesses that generally have less than 100 employees. Generally, the funding can be used for site acquisition, building construction, machinery, working capital, environmental compliance, defense-cutback impacts, recycling, technology, export and computer activities. This is also one of the few sources of funding that can be used for restaurants, hotels and motels. The recipient must agree to create or preserve jobs.	PA DCED An application can be made through an "Area Loan Organization"
Small Business Incubator Program	Provides loans and grants for facilities in which a number of new businesses operate under one roof with affordable rents, sharing services and equipment and having equal access to a wide range of professional, technical, and financial programs.	PA DCED
SBA Financing	Offers low-interest financing for smaller businesses, including: - microloans and microenterprise grants - Section 7(a) Guaranteed Business Loans - Section 504 Loans to allow certified development organizations to make long-term loans for real estate and other fixed assets	U.S. Small Business Administration
Sewage Facility Planning Grants	Grants to pay up to 50% of the costs to prepare a new sewage facilities plan or update an existing plan, under State Act 537 of 1966.	PA DEP

Name of Program	General Description of Program	Administering Agency
Small Communities Planning Assistance Program (SCPAP)	Provides grants up to 100% of the costs to eligible municipalities to prepare comprehensive plans, development regulations and special strategies for development. Generally, 51% of the municipality's residents must be low or moderate income, according to the census or a survey. Limited to municipalities under 10,000 population.	Federal CDBG administered by PA DCED
Small Water System Regionalization Grants	Provides grants for feasibility studies concerning the merger of small drinking water systems.	PA DEP Bureau of Water Supply
Solid Waste Facility Programs	Programs provide grants for municipalities to review proposed solid waste facilities within their borders. Programs also provide funding for municipal inspectors of facilities and for host fees from operators.	PA DEP Bureau Land Recycling and Waste Management
Stormwater Management Grants (Under State Act 167 of 1978)	Grants for cooperative efforts at the watershed level among municipalities for stormwater planning and ordinances. Grants are typically made to counties, but may be made to municipalities.	PA DEP Bureau of Watershed Conservation
Stream Improvement Program	Provides design and construction assistance to eliminate imminent threats to flooding and streambank erosion.	PA DEP Bureau of Waterways Engineering
Tire Pile Cleanup Grant	Grants to municipalities to provide reimbursement for costs of cleaning up large piles of used tires.	PA DEP
Urban Forestry Grants	Provides grants for tree planting projects. Is also a Federal "America the Beautiful" grant program for tree planting.	PA DCNR
Water Supply Plan & Well-Head Protection Grants	Provides grants to counties to plan for water supplies at the county level and to implement programs to protect the wellheads of public wells.	PA DEP Bureau of Water Supply

Sources: Publications and internet sites of various agencies.

Abbreviations: DCED = PA. Dept. of Community and Economic Development  
 HUD = U.S. Dept. of Housing and Urban Development  
 NRCS = U.S. Natural Resource Conservation Service  
 DCNR = PA. Dept. of Conservation and Natural Resources  
 DEP = PA. Dept. of Environmental Protection