UPPER PERKIOMEN VALLEY









Regional Comprehensive Plan 2001

Upper Perkiomen Valley

Regional Comprehensive Plan

July 10, 2001

The Upper Perkiomen Valley Regional Comprehensive Plan was prepared by the Montgomery County Planning commission with financial assistance from the Commonwealth of Pennsylvania's Department of Community and Economic Development.

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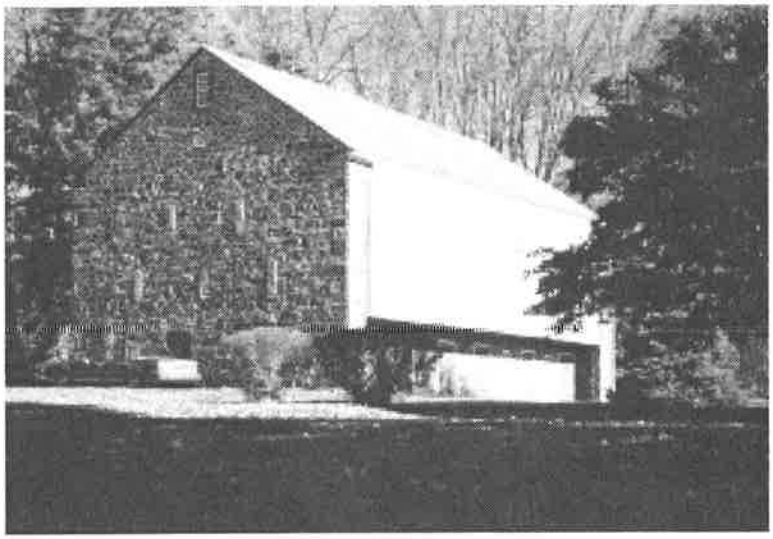
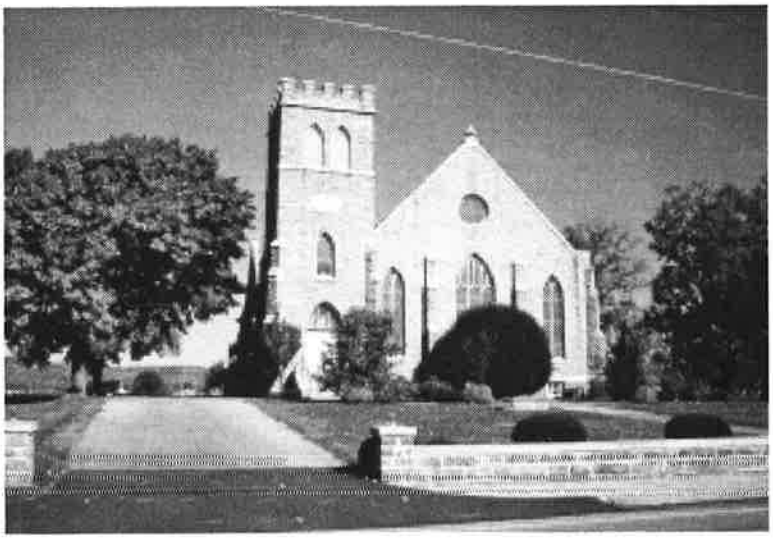
Chapter One
BACKGROUND

HISTORY OF THE REGION

The first people to inhabit the Upper Perkiomen Valley were the Lenni Lenape Indian tribes. For many years these Native American people lived in peace and harmony with the first European settlers. This made it easy for William Penn to buy the Upper Perkiomen Valley Area in 1684.The seventeenth century witnessed the Reformation and the Thirty Years War in Europe. European life was in shambles and the new Protestants suffered persecution. Brethren (or Dunkers), Lutherans, members of the Reformed Church, Schwenkfelders, Mennonites, and other "peace" sects looked toward Penn's "Holy Experiment" with fervent hope. These European settlers, many of German descent, migrated to present day Upper Salford and Upper Hanover Townships. The townships' rich soil attracted the excellent German farmers. At this time, family or subsistence-type farming was the chief economic activity in the valley. The valley yielded its bountiful resources and in its way helped the fledgling Pennsylvania colony to survive.



Stone Barn, Upper Hanover



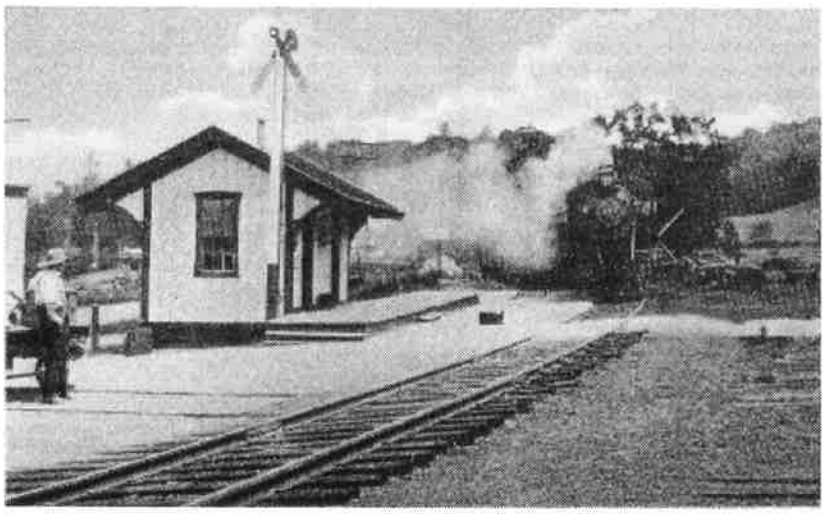
Schwenksfelder Church, Village of Palm

In the 1800s industrialization swept the valley and villages formed. Many mills, forges, and small factories flourished along (or near) the Perkiomen Creek, Unami Creek, and other creeks in the area. Farming prospered until the end of this century. Then competition from the rich fields of Lancaster County gradually diminished valley farming. People moved from the farms into the boroughs where the cigar-making industry offered ready money to farmers who had used the barter system most of their lives. By the height of the industrial revolution, the chief economic activity in the valley was cigar-making.

Boltz Clymer & Co., Cigar Factory in Sumneytown, 1900

In 1851 the Goshenhoppen and Green Lane Turnpike (presently called Route 29 or Gravel Pike) was completed. It passes on the ridge between the Perkiomen and Macoby Creeks. Its elevation offers drivers a full view of the valley and surrounding hills. The Geryville and Sumneytown Turnpike, finished in 1865, crossed the eastern portion of the valley.

The railroad further opened up the area in 1874. This improvement facilitated easier shipment of manufactured goods, farm produce, and wheat and allowed people easier access to the more densely settled areas of Montgomery County and Philadelphia. The railroads also opened up the area for tourists and weekend visitors.



Perkiomenville Railroad Station

In this century, a general strike in 1921 was instrumental in causing the disruption and decline of the cigar-making industry. Also, the popularity of the cigarette and more efficient cigar-making machines in Philadelphia caused the valley to enter an economic depression. Disaster followed disaster. The Trunk Factory went up in flames on December 17, 1930. Two hundred and fifty people were out of work, and a $400,000 plant was in ashes. In the same decade, the flood of 1936 wiped out almost all of the ice dams on the Perkiomen and the other creeks. The growing popularity of the electric refrigerator prevented this industry from making a comeback. Certainly, the Great Depression had a head start in the Upper Perkiomen Valley.

In 1916 the Camp Delmont site, located in Marlborough Township, was acquired by the Boy Scouts of America. It continues to this day to provide outdoor adventures for many scouts in the Philadelphia region.

In 1939 Montgomery County purchased land in Upper Frederick and Marlborough Townships. Today this land, along with the County's more recent acquisitions, is known as Green Lane Park.

During World War II many of the valley's workers traveled to industrial centers (i.e., Pottstown, Allentown, Lansdale, etc.) outside the valley to find employment in the war effort.In 1954 a fierce controversy gripped the valley. The Philadelphia Suburban Water Company wanted to impound three billion gallons of the Perkiomen Creek's water to supply municipalities at the eastern end of Montgomery County. Valley residents felt their water rights were being confiscated. The citizens of the valley organized, took the issue to court, and lost. The dam was started in 1954. The reservoir and its surrounding parklands are now an important natural resource and recreation area for the valley.

The Upper Perkiomen Valley School District was also formed in 1954. Red Hill, Pennsburg, East Greenville, Green Lane, Marlborough, Upper Hanover, and Hereford Township in Berks County merged to better serve school needs in the valley. A multimillion dollar high school has been constructed, spanning part of Red Hill and Upper Hanover Township.

The history of the Upper Perkiomen Valley shows a progressively greater need for intermunicipal cooperation in more and more areas of government. The citizens, in general, and the public officials, in particular, realize that each community is not an island unto itself and that cooperation can and does benefit all. The regional comprehensive plan further explores this idea.

MUNICIPAL OVERVIEW

East Greenville Borough

As a village, East Greenville Borough has been in existence since 1750. In 1852 Jacob Hillegass named East Greenville after a great pine tree that was observable from all parts of the surrounding countryside.

By the late eighteen hundreds, the borough had become a railroad town. It contained drug, stock, shoe, and general merchandise stores. In 1875, the year of incorporation, the .61-square-mile borough could boast of lumber, feed, and flour industries. The jeweler, blacksmith, and carriage builder all plied their trades. The borough also contained a wagoner's shop and a "segar" factory.

A water system was laid in 1894, and the Greenville Academy was established in 1854. Later in 1900, a fire company was also organized.

The borough today has little land remaining for development and has focused on revitalization opportunities for several years. Its older but well maintained housing stock provides home ownership for many. East Greenville retains its historical and small-town flavor. Main street shopping consists of a variety of small stores and businesses.

Green Lane Borough

Green Lane, with its .31 square miles, is the smallest municipality in Montgomery County. Many of its residents will tell you how proud they are to live within its borders. The borough was incorporated on December 10, 1875. Its territory was taken solely from Marlborough Township. In 1924 another piece of Marlborough Township was deeded to the borough by philanthropist Isaac R. Smith, giving Green Lane its present 206 acres.

Thomas Mayberry, an early settler and wealthy Quaker of Marlborough Township, built the Green Lane Forge in 1737. This brought prosperity and community identity to Green Lane. "Green Lane" was named for the abundance of evergreens and pines that overhung the highway leading to the forge.

In 1896 the Tohickon Tribe, Improved Order of Red Men, was organized. They built their own lodge hall known as Red Men's Hall in 1907. The hall housed a bank and store on the first floor, hall with stage on the second, and lodge meeting rooms on the third. Today the Goshenhoppen Historians own and operate the building, which contains the historian's museum.

Another historical landmark within the borough is Green Lane Union Sunday School. The present building was constructed in 1896 at Third and Main Streets. Sunday school pageants once conducted in Red Men's Hall and later in the firehouse could now be performed in the Sunday school building. Local residents affectionately refer to the landmark as the "chapel."

The Green Lane Fire Company was organized in May 1918. In October 1922 the original firehouse was completed at a cost of $14,000. It was renovated and enlarged in 1949. The fire company dedicated a war memorial to honor World War I veterans and later included World War II as well.

The borough has had only one schoolhouse. It was constructed in 1870 and included grades one through eight. In 1929 a six-room elementary school was built at the intersection of Upper Ridge Road and Main Street. It was enlarged and used until 1990.

Today Green Lane is a small but proud community that retains its family and community orientation. It has several small shops and business and is nestled in some of the most beautiful open areas of Montgomery County. A recent addition to the long list of citizen groups is the Green Lane Adornment Committee. The committee is responsible for decorating Green Lane's streets and enhancing the community. It has planted a permanent Christmas Tree in the Isaac Smith Park and has taken on the responsibility of caring for the War Memorial in the park.

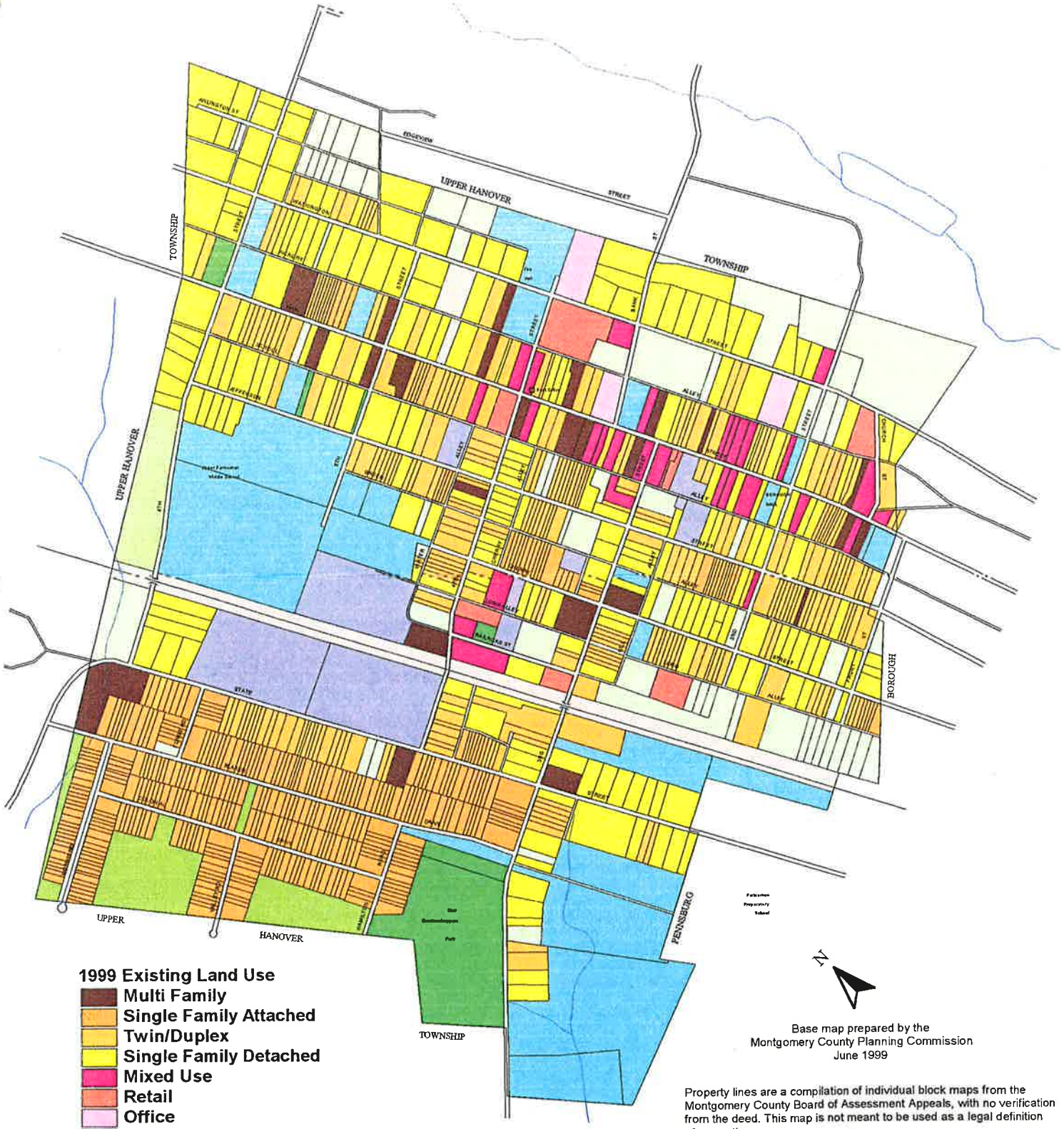
Marlborough Township

Marlborough Township is a 12.6-square-mile community that was established in 1741 when Salford Township was divided into the present Townships of Marlborough, Lower Salford, and Upper Salford.

Farming and small trades, such as powder mills, clock-making, and cigar manufacturing were the predominant means of employment before World War II. Two large buildings housing cigar factories still exist, the Kaufman House Restaurant and the Boltz Clymer and Company factory, which has now been converted to apartments. Additionally, one of the first newspapers in the county was established in Sumneytown in 1828. The German language paper, "Bauren Freund" was published weekly for 30 years. The building and press room still exists.

Like many of its neighboring municipalities, real population increases have taken place in the past 20 years. Today, even in light of some recent residential development, the township retains its rural character. Small communities within the township include the village of Sumneytown.

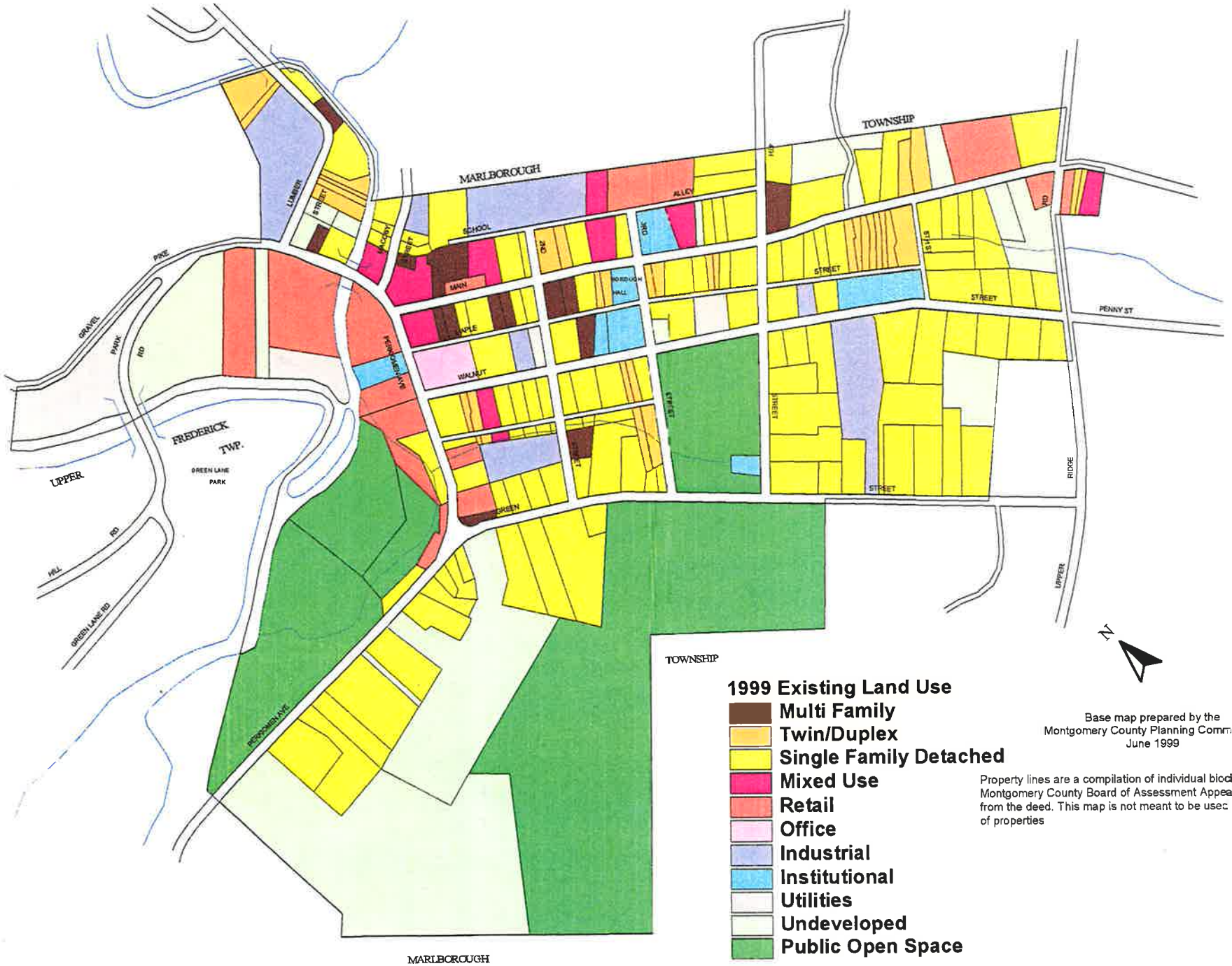
Figure 1-1: East Greenville Borough



Base map prepared by the
Montgomery County Planning Commission
June 1999

Property lines are a compilation of individual block maps from the Montgomery County Board of Assessment Appeals, with no verification from the deed. This map is not meant to be used as a legal definition of properties

Figure 1-2: Green Lane Borough



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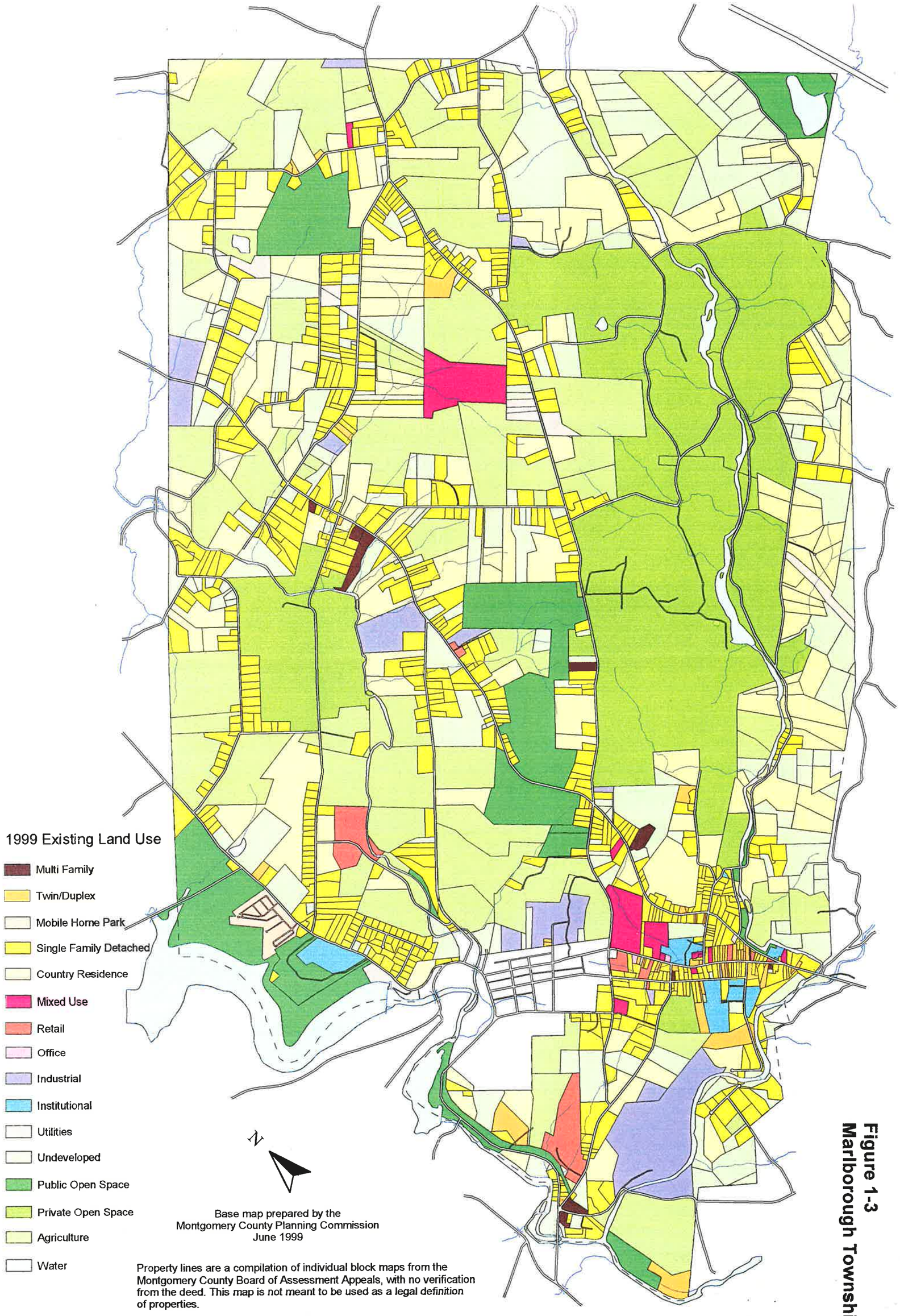


Figure 1-3
Marlborough Township

The township is served by two major roadways. Route 63 runs east-west through much of Montgomery County and connects to the Northeast Extension of the Pennsylvania Turnpike. Route 29 runs north-south between Phoenixville in Chester County, the Tri-Boroughs (East Greenville, Red Hill, and Pennsburg), and into Berks County.

Marlborough Township is part of the largest contiguous forest between Bucks and Montgomery Counties and supports a wide variety of flora and fauna, including some endangered species. The township also contains a 1600-acre camp owned and operated by the Boy Scouts of America.

The township has dedicated itself to protecting its environment and natural resources. In September of 1994 a new environmentally-based performance zoning ordinance was adopted. Marlborough also has appointed a creek warden and has created an environmental commission as part of its effort to protect the environment while allowing for responsible development. On July 15, 1997, after a 5-year effort by the township, the PA EQB redesignated the Unamin Watershed as "high quality". This affords protection to 70 miles of watershed, spanning Montgomery, Bucks and Lehigh Counties. It essentially means no new or expanded sewage discharges will be permitted into the basin unless it is a result of "necessary social or economic development." Protected tributaries of the watershed are the following creeks: Unami, Ridge Valley, Butter, Hazelbach, Schmoutz, Molasses and Locking.

Using grant monies from the Montgomery County Open Space Program, the township acquired of Skymount Lake (approximately 30 acres) and in conjunction with Green Lane Borough, the Weidner Tract (approximately 100 acres). Marlborough has recently acquired the former King farm on Finland Road. The approximately 85-acre tract, known as the Marlborough Township Community Park, will eventually be home to athletic fields, walking trails, and conservation areas.

Pennsburg Borough

In the eighteenth century Henry Helig and his sons owned nearly all the roughly 305-acre portion of the Upper Perkiomen Valley now known as Pennsburg. His original home, built around 1750, still stands at Fourth and Seminary streets. As the Heligs sold off land, the areas grew into a village of about ten homes, a store, a carpenter's shop, and a blacksmith's shop by around 1840.

The Goshenhoppen and Green Lane Turnpike (now Route 29) opened in 1851, allowing for continuing growth. Nearly two decades later Pennsburg entered the cigar industry. Shortly after, in 1874, a railroad was established through Pennsburg. The railroad ran along Perkiomen Creek, linking Pennsburg to Philadelphia and Allentown. The railroad opened the door for additional industry, commerce, and travel to further encourage the town's already growing economy. The Perkiomen Seminary opened in 1875 and later became the Perkiomen Preparatory School for Boys in 1916. The school, today, is a regionally renowned coeducational elementary through highschool day school.

Continuing growth led to Pennsburg's incorporation as a borough in 1887. In 1899 Pennsburg's first English newspaper, *Town & Country*, added to the existing German language papers. Fire, water, and electric companies existed in the borough by 1910. The railroad, cigar, and other industries propelled further growth in Pennsburg into the mid-1900s.

The Philadelphia Suburban Water Company's damming of the Perkiomen Creek in 1954 created the Green Lane Reservoir, which added to the recreation amenities of the area. During the same year, Pennsburg, Red Hill, East Greenville, and Upper Hanover made an agreement with Green Lane, Marlborough, and Hereford to better serve the educational and schooling needs of the area's residents.

Today, the borough retains its small-town flavor, and its older housing stock remains in good repair. Also, a small community shopping center is located in the borough and serves many of the residents' shopping needs. It should be noted that the three contiguous Boroughs of East Greenville, Pennsburg, and Red Hill are very similar in their makeup and historic backgrounds. To many, these three small communities are the gateway to the rural areas of Berks and Lehigh Counties.

Red Hill Borough

Red Hill was named for the color of the local soil. The .78-square-mile borough was incorporated in 1902. At that time it became a separate municipality, separating from Upper Hanover Township. Red Hill's original name was Hillegassville, after the family who originally owned the land.

In the 1800s Red Hill's primary businesses were a general store, a coffin-making shop, and a hotel (The Red Hill Hotel). Also in its early days, the railroads helped connect the area and its products to other communities, including Philadelphia. A major industry at this time was cigar-making.

The borough today retains its small-community atmosphere and is primarily residential with small businesses and some industry.

Red Hill is still growing, despite the small land area. Red Hill Estates, Inc., a mobile home zoned district, is still being developed. Due to this development more roads have been built and Sixth Street on the west side has been completed.

Red Hill is home of the Upper Perkiomen Valley Library, the Upper Perkiomen Valley High School, and the Upper Perkiomen Valley Ambulance. Red Hill Fire Company is also an important community organization.

Residents enjoy the view of the Green Lane Reservoir. Additional open space property has been acquired with a joint effort between Upper Hanover Township and the borough. Also, another pavilion has been added to the Red Hill Park, and new playground equipment has been installed.

Upper Hanover Township

Prior to 1741 Upper Hanover was a part of Hanover Township along with Douglass, Pottsgrove, and New Hanover Townships, and the Borough of Pottstown. When Upper Hanover was established in 1741, it already contained the three villages of Palm, Kleinville, and Hillegassville, in addition to the settlements which now constitute the Boroughs of Pennsburg, Red Hill, and East Greenville.

In the township's early days, Upper Hanover was settled almost entirely by German immigrants, part of the large wave arriving from Philadelphia in the mid-eighteenth century. The township's rich soil attracted the excellent German farmers. Industrial activity was second only to agriculture in importance in this early period. The primary industry at the time was building construction. This was made relatively simple by utilizing the Hosensack Hills, which provided granite boulders that were split up into building materials. Water power was also available from the Perkiomen Creek, which flows south through Upper Hanover Township. Flowing a distance of 7 miles, the river-propelled water wheels for five gristmills and four saw mills.

In 1851 the Goshenhoppen and Green Lane Turnpike (presently called Route 29 or Gravel Pike) was completed. The Geryville and Sumneytown Turnpike, finished in 1865, also crossed the eastern portion of the township. The railroad further opened up the area in 1874. This improvement facilitated easier shipment of manufactured goods, farm produce, and wheat. It also allowed people easier access to the more densely settled areas of Montgomery County and Philadelphia.

Figure 1-4: Pennsburg Borough

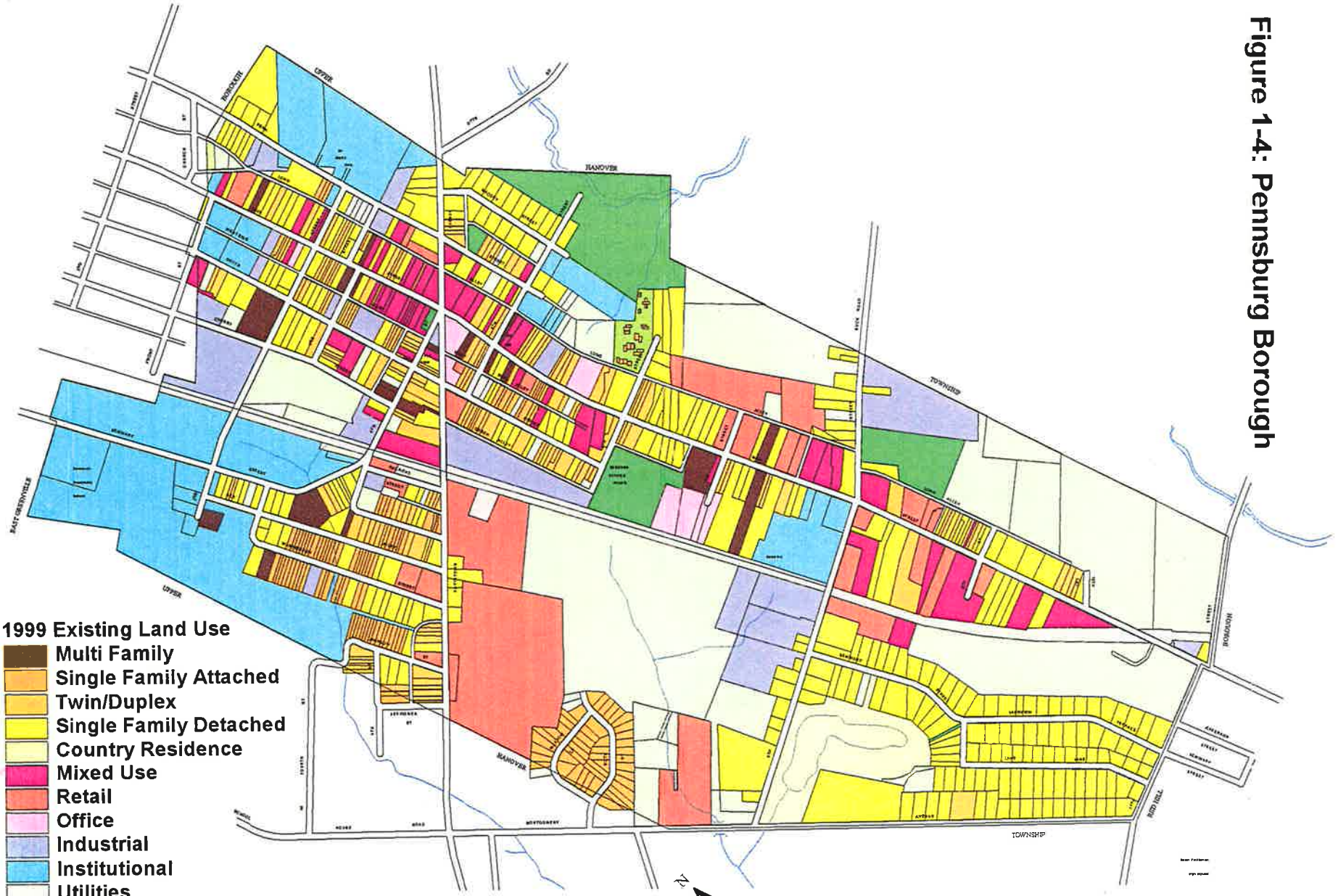


Figure 1-5: Red Hill Borough

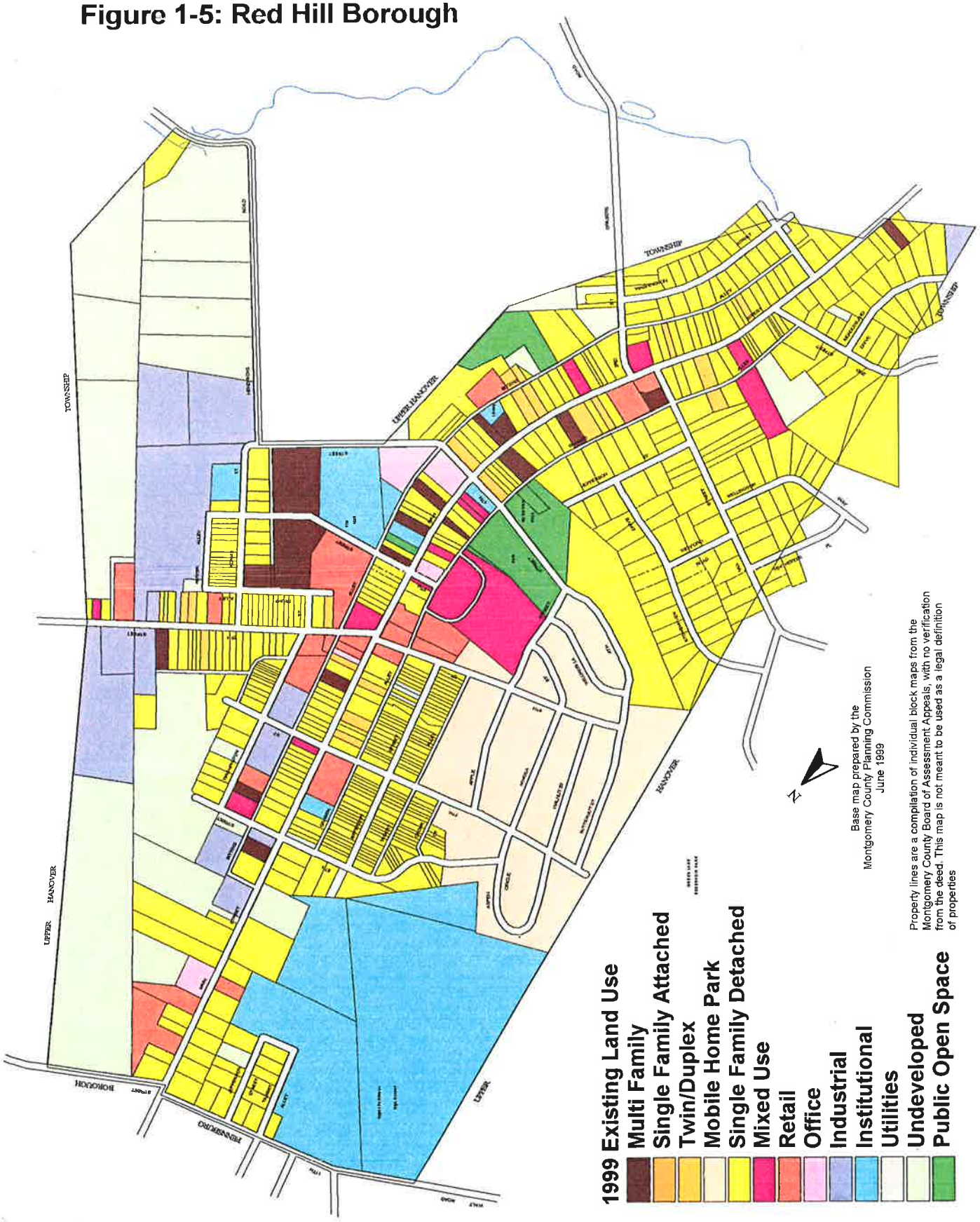
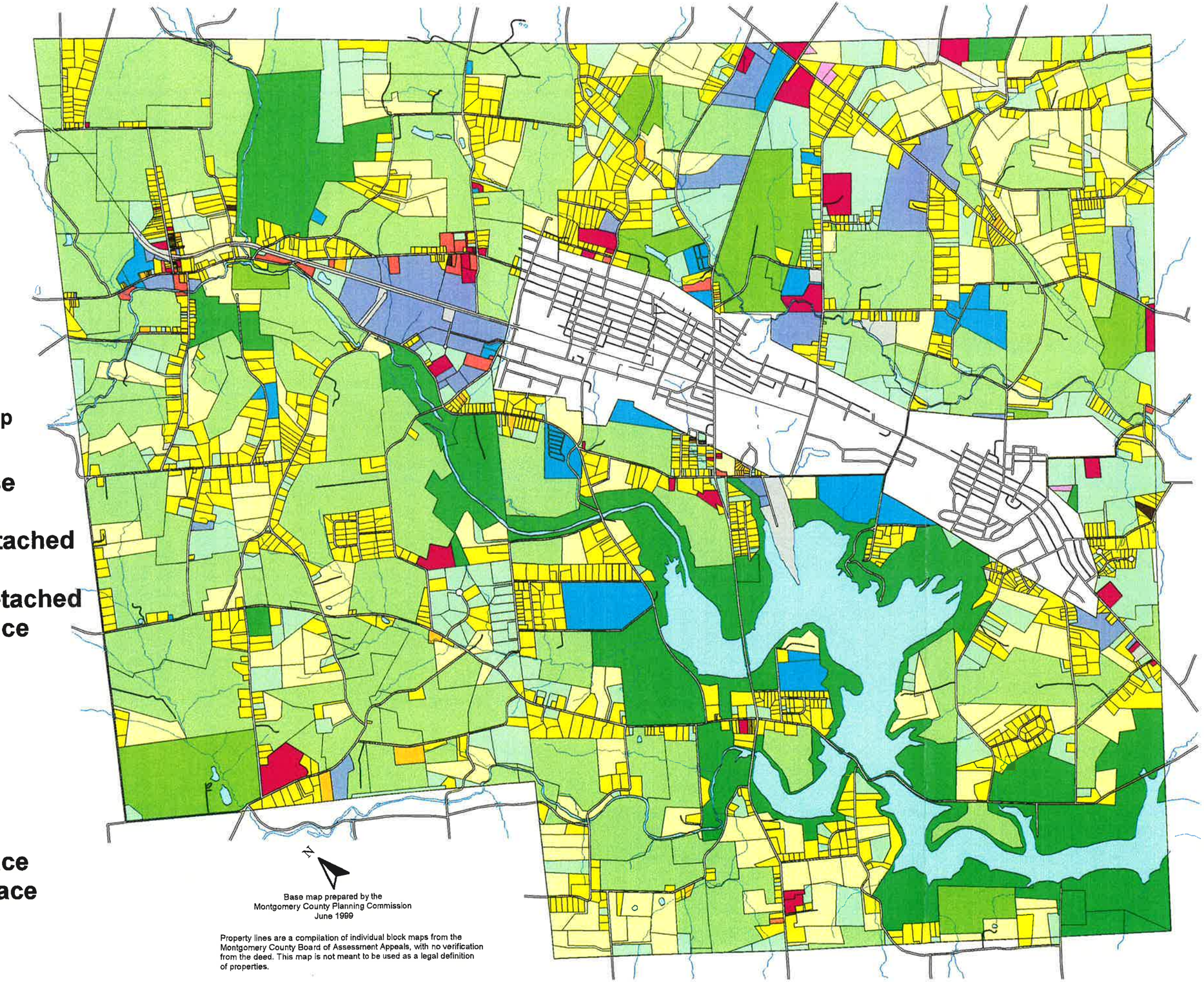


Figure 1-6
Upper Hanover Township



Upper Hanover is the fourth largest municipality in land area in Montgomery County. The township remains a highly rural and agricultural area. Many large parcels remain as farms, vacant land, large-lot rural residential, or woodland properties. Upper Hanover's significant industrial plants also are located on large parcels of land. Shopping centers, stores, and offices are concentrated within the three centrally located Boroughs of East Greenville, Pennsburg, and Red Hill, creating a small-town environment.

Upper Hanover is convenient to regional transportation, via Routes 29, 100, and 663, which are very important for the township's industrial facilities. The township also has substantial natural resource areas. A major recreational attraction is the Green Lane Reservoir and the surrounding county parkland. Upper Hanover also recently preserved Mill Hill in partnership with the Boroughs of East Greenville and Red Hill.

REGIONAL SETTING

The Upper Perkiomen Valley is located in the northwestern region of Montgomery County, adjacent to Berks, Lehigh, and Bucks Counties. It is approximately 43.2 miles northwest of Philadelphia and 22.1 miles south of Allentown. (See Figure 1-7 for the regional location of the Upper Perkiomen Valley.) The valley is approximately 36.22 square miles in size and includes six municipalities: Marlborough and Upper Hanover Townships and the four Boroughs of East Greenville, Green Lane, Pennsburg, and Red Hill.

The Upper Perkiomen Valley, like the rest of Montgomery County, is considered part of the Philadelphia metropolitan region. However, the valley's proximity to Routes 29, 663, 100, and the Northeast Extension of the Pennsylvania Turnpike provides convenient access to other major communities. These include Allentown, Reading, Pottstown, King of Prussia, the North Penn area of Montgomery County, and the Quakertown area in Bucks County. Also, a number of large industries within the valley attract a significant number of employees living in surrounding communities.

Currently the Upper Perkiomen Valley is far enough away from existing population centers, so growth pressures are relatively low. Consequently, the Upper Perkiomen Valley still has a rural quality rather than a suburban one. Many large parcels remain as farms, vacant land, large-lot rural residential, or woodland properties. The valley's industrial facilities are generally large plants located on large parcels of land rather than in industrial parks. Shopping centers, stores, and offices are concentrated within the four centrally located boroughs, creating a small-town environment.

The entire valley is located within the Perkiomen Creek Basin. The river valleys of the Perkiomen Creek and its tributaries are dominant natural features within the valley. They provide tremendous beauty that is highly valued by residents. Rolling farmland and stream corridors comprise approximately two-thirds of the valley's landscape. The other third of the valley's landscape is dramatically different: containing boulder fields, steep slopes, and woodlands, due to its diabase geology. The Mill Hill area in Upper Hanover and the Unami Creek Valley in Marlborough have the highest concentrations of these natural features within the Upper Perkiomen Valley and they are important natural areas for the metropolitan region.

DEMOGRAPHIC PROFILE

This section of the Background Chapter looks at the population and economic characteristics of the Upper Perkiomen Valley. It presents a general view of the existing and projected conditions in the valley. Statistics are provided for each of the valley's six municipalities, the entire Upper Perkiomen Valley, and the general trends occurring in Montgomery County and in the Philadelphia Primary Metropolitan Statistical Area (PMSA). (The PMSA includes the nine Counties of Montgomery, Philadelphia, Delaware, Chester, and Bucks in Pennsylvania and Salem, Gloucester, Camden, and Burlington Counties in New Jersey.)

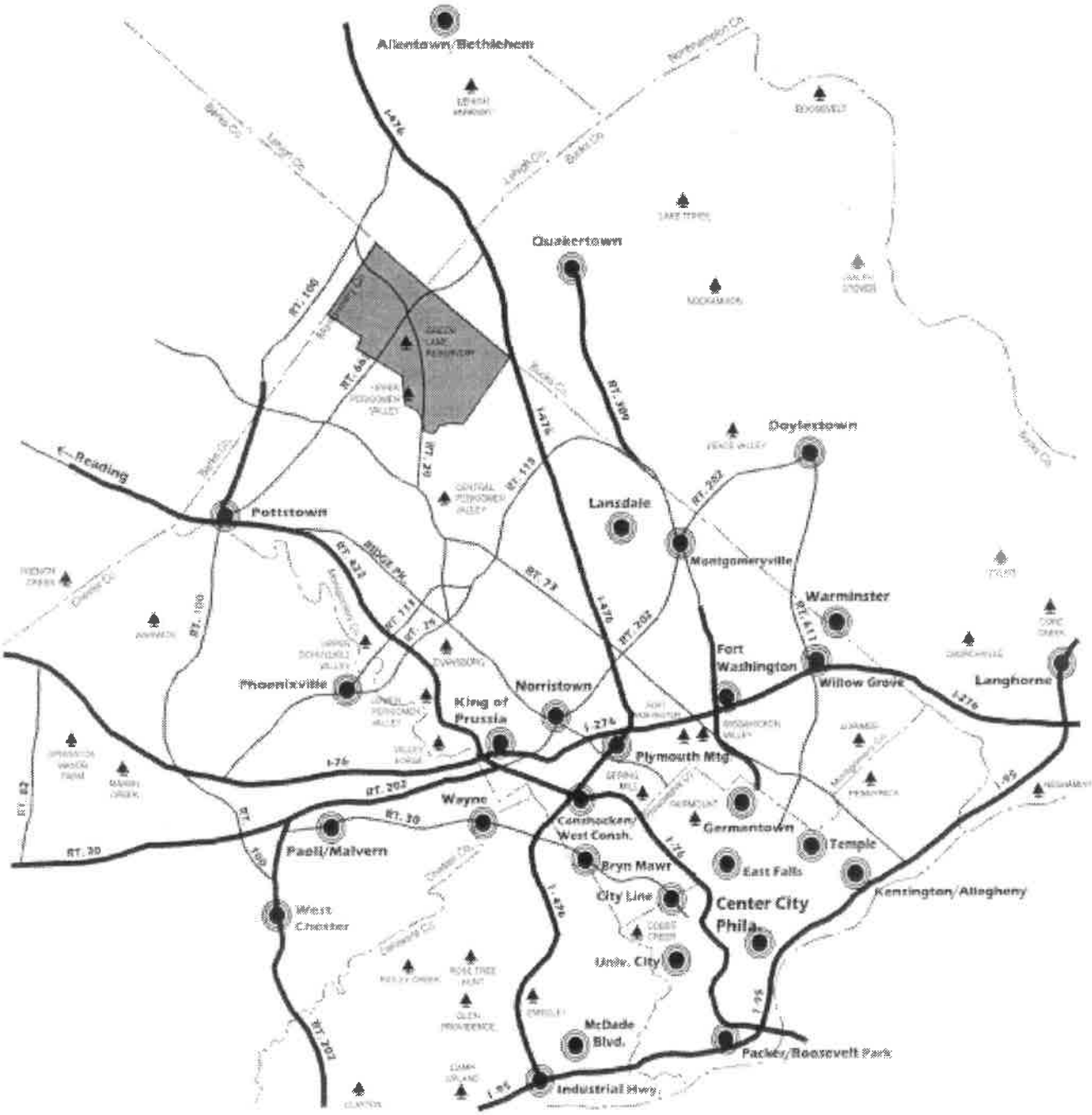


Figure 1-7

Regional Setting

Sources: Berks County Comprehensive Plan, 1991
U.S. Bureau of the Census, 1990.
DVRPC Regional Employment Centers Study, 1986.
Montgomery County Public Information Map, 1995.

The regional influences of the Allentown, Bethlehem, Easton metropolitan area also were considered for the Upper Perkiomen Valley, given its proximity to the Lehigh Valley. We have not found these influences to significantly alter the general demographic trends of the Upper Perkiomen Valley from the current statistics available, so the focus of this report will be the Philadelphia region.

Population

Figure 1-8 shows the number of persons living in the Upper Perkiomen Valley, in each of its six municipalities, and in Montgomery County between 1950 and 1990. It also shows the relative changes in population. The entire valley's population grew by approximately 89 percent between 1950 and 1990. This was slightly lower than Montgomery County's population growth rate of 92.1 percent. These growth figures reflect the Upper Perkiomen Valley's position on the outer edge of the Philadelphia metropolitan region's growth. They confirm the valley is not currently within the path of the metropolitan region's growth compared to other areas of Montgomery County.

Figure 1-8: Population Totals and Change: 1950-1990

						% Change				
Municipality	1950	1960	1970	1980	1990	1950-60	1960-70	1970-80	1980-90	1950-90
East Greenville	1,945	1,931	2,003	2,456	3,117	-0.70%	3.70%	22.60%	26.90%	60.30%
Green Lane	550	582	543	542	442	5.80%	-6.70%	-0.20%	-18.50%	-9.60%
Marlborough	1,432	1,875	2,465	2,849	3,116	30.90%	31.50%	15.60%	9.40%	17.60%
Pennsburg	1,625	1,698	2,260	2,339	2,460	4.50%	33.10%	3.50%	5.20%	51.40%
Red Hill	914	1,086	1,201	1,727	1,794	18.80%	10.60%	43.80%	3.90%	96.30%
Upper Hanover	1,762	2,293	2,721	3,870	4,604	30.10%	18.70%	42.20%	19.00%	61.30%
Upper Perkiomen Valley	8,228	9,465	11,193	13,783	15,533	15.00%	18.30%	23.10%	12.70%	88.80%
Montgomery County	353,068	516,682	624,080	643,371	678,111	46.30%	20.80%	3.10%	5.40%	92.10%

Source: U.S. Census Bureau

The population for each of the valley's municipalities increased significantly throughout the 40-year period, except for the Borough of Green Lane, which peaked in 1960. Populations of the boroughs generally did not change as dramatically as those of the townships. With less developable land available, the boroughs tended to grow at slower rates than the surrounding townships. East Greenville had growth spurts in the '70s and '80s. Pennsburg and Red Hill both had growth peaks in the '70s.

The Philadelphia PMSA and the nation also grew during the same time period. The United States grew by 65 percent, and the PMSA increased by 32.3 percent. The slow population growth of the PMSA, relative to the nation, can probably best be explained by new growth in the nation mostly taking place in the southern and western states.

Population Projections

Figure 1-9 shows population projections for the years 2000 and 2010 for the Upper Perkiomen Valley. These figures were projected by the Montgomery County Planning Commission (MCPC), based on regional projections by the Delaware Valley Regional Planning Commission (DVRPC).

According to these projections, the Upper Perkiomen Valley will experience a moderate future increase in population. With grow pressure concentrated in Upper Hanover Township, the township is projected to receive 66 percent of the valley's population growth. East Greenville's population is projected to drop a little, and Green Lane is projected to add a few people.

Figure 1-9: Population Projections: 2000-2010

				Change 1990-2000		Change 2000-2010		Change 1990-2010	
Municipality	1990	2000	2010	%	#	%	#	%	#
East Greenville	3.117	3.100	3.050	-0.5%	-17	-1.6%	-50	-2.1%	-67
Green Lane	442	450	500	1.8%	8	11.1%	50	13.1%	58
Marlborough	3.116	3.300	3.450	5.9%	184	4.5%	150	10.7%	334
Pennsburg	2.460	2.750	3.000	11.8%	290	9.1%	250	22.0%	540
Red Hill	1.794	1.950	2.000	8.7%	156	2.6%	50	11.5%	206
Upper Hanover	4.604	5.300	6.650	15.1%	696	25.5%	1.350	44.4%	2.046
Upper Perkiomen Valley	15.533	16.850	18.650	8.5%	1.317	10.7%	1.800	20.1%	3.117
Montgomery County	678.111	715.950	744.900	5.6%	37.839	4.0%	28.950	9.8%	66.789

Sources: *U.S. Census Bureau, Montgomery County Planning Commission*

Four factors tend to influence the future population of municipalities. These are average household size, housing type, density, and amount of developable land in the path of growth. The Upper Perkiomen Valley, especially Upper Hanover Township, has vast areas of developable land available, but it is not all "in the path of growth," where pressure to develop would be the highest. If densities and housing types are carefully related to likely areas of highest growth pressure, then population increases can be reasonably managed.

Through the year 2000, Montgomery County is expected to continue to grow at roughly the same rate as it has and at a slower rate after 2000. The Philadelphia PMSA will grow by almost 7 percent between 1990 and 2000. After 2000 it is projected to grow more slowly, at about 3 percent.

Average Household Size

A household is defined as one or more persons who live together in a dwelling unit. Figure 1-10 shows the average number of persons living in a household for the municipalities of the Upper Perkiomen Valley and Montgomery County. As shown, average household size has been declining in the valley and the county, with the rate of decline being more substantial at the county level.

Figure 1-10: Average Household Size

				% Change	
Municipality	1990	1980	1970	1980-90	1970-90
East Greenville	2.81	2.73	2.83	2.9%	-0.7%
Green Lane	2.71	2.81	3.03	-3.6%	-10.6%
Marlborough	2.84	3.07	3.33	-7.5%	-14.7%
Pennsburg	2.61	2.72	2.96	-4.0%	-11.8%
Red Hill	2.56	3.18	3.06	-19.5%	-16.3%
Upper Hanover	2.98	3.12	3.46	-4.5%	-13.9%
Upper Perkiomen Valley	2.71	2.80	2.98	-3.2%	-9.1%
Montgomery County	2.58	2.79	3.22	-7.5%	-19.9%

These declines in average household size are part of a trend, which has been occurring virtually everywhere in the United States since the first U.S. Census in 1790. Several factors are involved. First, people have been delaying marriage and the formation of families. Second, people have tended to have fewer children over time. Third, there are more breakups of families, especially through divorce and separation. The result is lower numbers of people living together.

Changing social patterns are expected to continue to reduce average household sizes, even in growing communities. In rural communities, such as the Upper Perkiomen Valley, the population will grow larger while the average household size grows smaller. This regional comprehensive planning effort uses these population trends to make future planning recommendations.

Income

Figure 1-11 shows the median household income and the countywide rank (out of 62 municipalities) for each of the valley's municipalities in 1979 and 1989, as well as the percent change during that decade. In 1989 the median household incomes in the townships were greater than the boroughs. In the Upper Perkiomen Valley, Upper Hanover had the highest median household income at $43,708. Regionally, the median household income of the valley was below that of the county as a whole.

Figure 1-11: Median Household Income: 1979-1989

Municipality	1989 Median Income	1989 Rank	1979 Median Income	1979 Rank	1979-89 Change Amount	1979-89 Change Rank	1979-89 Change Percent	1979-89 Change Rank
East Greenville	$35,389	47	$16,924	55	$18,465	42	109.1%	14
Green Lane	$36,528	45	$18,250	51	$18,278	44	100.2%	25
Marlborough	$41,602	37	$20,066	40	$21,536	30	107.3%	15
Pennsburg	$31,729	57	$17,974	52	$13,755	59	76.5%	55
Red Hill	$33,973	51	$20,094	38	$13,879	58	69.1%	61
Upper Hanover	$43,708	31	$22,737	23	$20,971	32	92.2%	37
Upper Perkiomen Valley*	$37,155	N/A	$19,341	N/A	$17,814	N/A	92.2%	N/A
Montgomery County	$43,720	N/A	$22,508	N/A	$21,212	N/A	94.2%	N/A

** Nonweighted*

Employment Estimates

Employment in the Upper Perkiomen Valley is expected to grow by approximately 13 percent over the next 20 years, with a majority of the job growth occurring in the townships (see Figure 1-12). These forecasts are provided by the Delaware Valley Regional Planning Commission and are based on countywide figures applied at the municipal level. Its important to note that these estimates can change significantly if a new, major employer moves into the valley, or one unexpectedly leaves.

Figure 1-12: Employment Estimates & Forecasts: 1990-2020

Municipality	1990 Estimate	2000 Forecast	2010 Forecast	2020 Forecast	% Change 1990-2020
East Greenville	949	950	900	950	0.1%
Green Lane	285	300	250	300	5.3%
Marlborough	430	450	500	550	27.9%
Pennsburg	1,883	1,900	1,850	1,900	0.9%
Red Hill	863	900	850	900	4.3%
Upper Hanover	3,381	3,550	3,800	4,200	24.2%
Upper Perkiomen Valley	7,791	8,050	8,150	8,800	13.0%
Montgomery County	457,500	486,200	526,950	554,550	21.2%

Source: *Delaware Valley Regional Planning Commission*

Implications of Demographics

The population and economic trends of the Upper Perkiomen Valley consistently indicate a region that is experiencing moderate growth. These growth figures reflect the Upper Perkiomen Valley's position on the outer edge of both the Lehigh Valley and Philadelphia metropolitan region's, and confirm that the valley is not currently within their path of growth.

What development that is occurring does not appear to be uniform throughout the valley. Generally, the older boroughs are approaching buildout, and revitalization issues will become a priority. Upper Hanover is projected to receive most of the valley's growth, with Marlborough a distant second.

It should be noted that these demographic and economic trends are based on current planning and zoning within the Upper Perkiomen Valley. Through the regional planning process, the Upper Perkiomen Valley has an important opportunity to better manage the location, character, and impacts of the expected new growth.

Chapter Two
NATURAL ENVIRONMENT AND HISTORIC RESOURCES

INTRODUCTION

Our natural and historic environments affect how we can use the land, and how we use the land affects natural and historic resources. Therefore, good planning requires knowledge of, and respect for, the various elements that make up the natural and historic environment. These elements form the foundation for the quality of life residents often seek when choosing a place to live or work. A quality of life founded on clean and accessible waterways, scenic views, historic preservation, farmland, woodlands, and outdoor recreation is particularly important in today's mobile society where people and companies move more often than in the past.

A variety of elements make up our landscape including geology, hydrology, soils, vegetation, wildlife, and historic human settlement patterns. If we consider these individual resources as parts of interrelated functional systems, we can provide better protection for them and enhance their value to the region. Although farmland in itself is not a natural resource, it is a significant cultural feature of the region affected by natural resources including soil types and slopes.

As new growth occurs in the region, it will be increasingly important to preserve natural and historic resources. By directing growth to specific areas, large, valuable areas of natural resources and farmland may be preserved, and the historic town centers in the region can be revitalized.

This chapter identifies and describes various natural and historic features of the Upper Perkiomen Valley region and how they relate to one another. It also includes suggestions and recommendations to protect and preserve these resources while addressing the potential for future growth in the valley. In the "Future Land Use Plan" chapter, the comprehensive plan must balance other factors with protection of natural and historic resources including previously established land uses, growth pressures, legal requirements, and water, sewer, and road systems. Every effort should be made to protect the these resources that have made the Upper Perkiomen Valley a desirable location to live and work.

GEOLOGY

Bedrock geology is the foundation for all other natural features. Changes in elevation and orientation of landforms, steep slopes, and the locations of watercourses are results of bedrock geology, the hydrologic cycle, and other weathering effects. Orientation of landforms also influences vegetative communities, soils, and availability of sunlight. The Upper Perkiomen Valley's bedrock geology is an asset aesthetically because it has created a varied landscape. Geology also affects the creation of soils and produces variations in groundwater yields among different types of bedrock.

Montgomery County is underlain by sedimentary, igneous, and metamorphic bedrock. The youngest sedimentary bedrock is the Brunswick formation found under the northern half of the county, including the Upper Perkiomen Valley. The other major bedrock in the valley is diabase, which occurs as intrusions within the Brunswick formation.

Brunswick Shale

Brunswick shale is found under most of the Upper Perkiomen Valley, except where diabase intrusions are found, as shown in Figure 2-1. This bedrock is typically reddish-brown shale, mudstone, and siltstone and is moderately resistant to weathering. Although the weathered zone can be excavated with heavy power equipment, unweathered rock requires blasting. It is considered to be a good to fair source for road material and fill. Part of the formation can be an excellent source of lightweight aggregate and material for common brick.

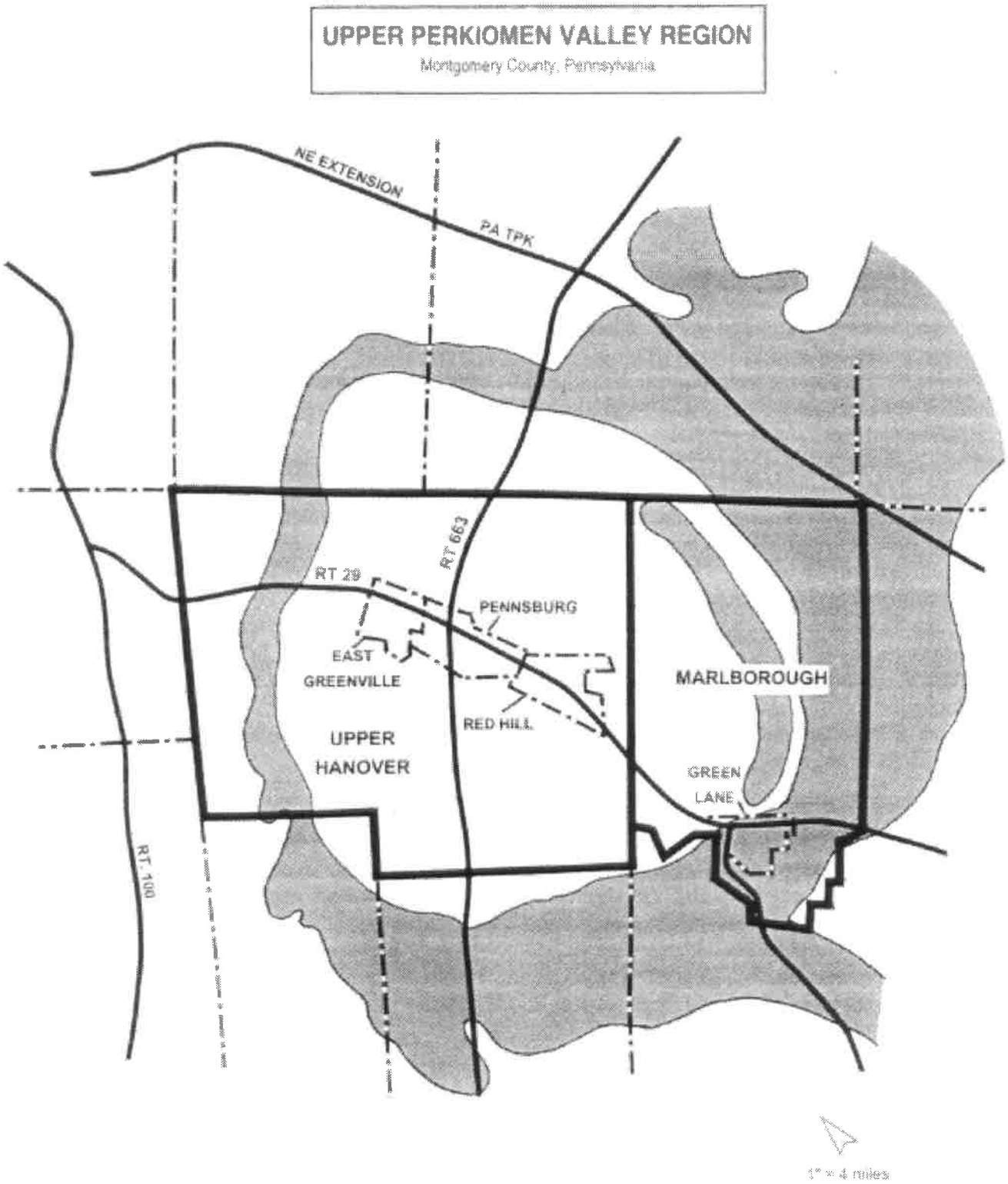


Figure 2-1
Generalized Geology
Diabase
Brunswick

Diabase

Diabase is igneous bedrock that was forced into large cracks in the surrounding Brunswick formation. Often referred to as "black granite," it is usually black, dense, and very fine-grained. The molten diabase intrusions transformed adjacent areas of Brunswick shale into a hard black or gray slate known as hornfels. In many areas, the diabase intrusions are less than a half-mile wide, and in some cases only several feet in width. The intrusions are highly resistant to erosion, weathering, water infiltration, and groundwater movement. Areas of diabase are often steeply sloped and wooded, with numerous surface outcrops and boulders. Excavation requires considerable blasting, and large boulders present special problems.

As shown in Figure 2-1, the major intrusions of diabase do not impact the Boroughs of East Greenville, Pennsburg, and Red Hill and affect only a narrow strip through Upper Hanover, from Mill Hill to Douglass Township. However, almost all of Green Lane Borough and large areas of Marlborough Township are underlain by diabase. These intrusions have had an interesting effect on the topography of the region, creating a circle of ridges which almost entirely surrounds the Upper Perkiomen Valley regional planning area.

The basic patterns of the earth's surface and bedrock formations in the Upper Perkiomen Valley were molded by internal geologic forces during the Triassic Period, 150 to 180 million years ago. Since that time, the effects of wind, water, gravity, and chemical activity have acted continuously to modify the earth's surface. The effects of all these forces are evident in the following features:

- Landforms ranging in elevation from 200 feet near Perkiomenville to 715 feet on Mill Hill, the highest area in Montgomery County.
- Drainage basins defined by surrounding ridges and the watercourses in their valleys.
- Aquifers producing variable groundwater supplies.
- Slopes ranging from gentle to very steep.
- A variety of soil types suitable for woodland conservation, productive farming, or development.
- The variety of plant materials seen in natural conditions and farmlands.
- The visual character and wildlife habitats created among these natural features.

HYDROLOGY

Hydrology is the scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere. The region's hydrology is evident in its annual rainfall, waterways, and groundwater supplies. Of the average 47 inches of annual precipitation in the region, about 25 percent becomes direct surface runoff, 50 percent evaporates or is transpired by plants, and 25 percent replenishes groundwater. The distribution and effects of water influence the region's landforms, soils, vegetation, and wildlife.

Regional Surface Water Flow

The entire Upper Perkiomen Valley regional planning area is within the Perkiomen Creek watershed, and the valley's land area is divided into drainage basins based on branches of the Perkiomen Creek and its tributaries. The ridge and valley landforms of the watershed are among the most visible and identifiable natural features of the land's surface. These naturally defined drainage basins can provide the basis for sanitary and storm sewer planning as well as for planning of natural resource conservation.

The Perkiomen Creek watershed covers a drainage area of 362 square miles in four counties. Over 220 square miles of that area is within Montgomery County alone, including the drainage basins of the Unami, Macoby, Hosensack, Swamp, and Skippack Creeks, the East and West Branches and Main Stem of the Perkiomen Creek, and the manmade Green Lane Reservoir. The Perkiomen Creek watershed covers 45 percent of the land area of Montgomery County, making it the largest watershed within the county, as shown in Figure 2-2. The Upper Perkiomen Valley regional planning area covers 36 square miles of the Perkiomen Creek watershed.

Surface Water Quality

Located at the upper end of the Perkiomen Creek watershed, the six municipalities of the Upper Perkiomen Valley regional planning area are near the headwaters of the Perkiomen Creek and several major tributaries, as shown in Figure 2-3. The Unami, Macoby, and Hosensack Creeks and the West Branch and Main Stem of the Perkiomen Creek all have their origins on the nearby wooded hillsides and farmlands in Berks. Lehigh, and Bucks Counties. The drainage basins of these creeks are predominantly rural in character and contain a mix of farmlands, woodlands, and developed areas. Most of these basins also receive effluent flows from sewage treatment plants, mainly from pockets of urbanized development. These streams enter the Upper Perkiomen Valley regional planning area at a variety of locations, but the entire surface water flow leaves the valley in the Perkiomen Creek south of Green Lane Borough.

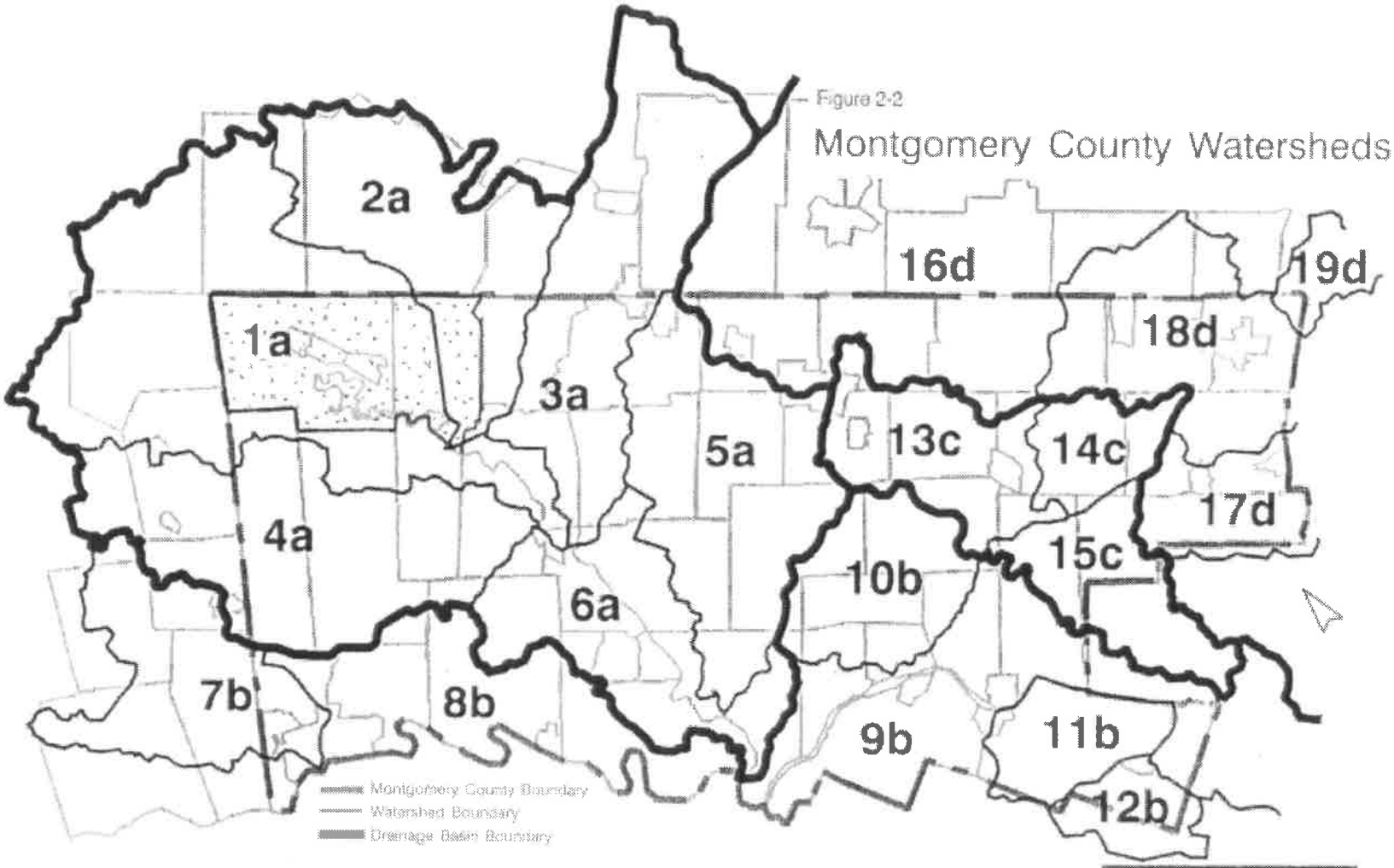
Statewide water quality standards are established in Title 25 PA Code Chapter 93 to protect designated water uses. The designations given to the region's waterways indicate their value for the protection and propagation of aquatic life, as shown in Figure 2-4. So far, only the Unami Creek has been designated as Exceptional Value. Portions of the West Branch and Main Stem of the Perkiomen Creek are reported to support the spawning of native trout and are highly treasured by area fishermen, but they have not been officially designated as Exceptional Value.

Although surface waters entering the Upper Perkiomen Valley regional planning area come from predominantly rural drainage areas, their water quality can be degraded by major nonpoint pollution sources. These sources include sediment from inadequately protected construction sites, effluent from malfunctioning on-lot septic systems, and stormwater runoff from unprotected agricultural uses. Sediment loadings that contribute nitrogen and phosphorous from nonpoint sources tend to eutrophy the water in the Green Lane Reservoir. Eutrophication is the nutrient enrichment of a water body. It can result in algae blooms, depletion of dissolved oxygen, fishkills, offensive odors, and a degraded appearance. These sediments are not only the direct result of activity adjacent to the reservoir, but also of activities along all the streams contributing flow to the reservoir. The following measures can be used to protect and improve existing surface water quality:

- Enforce erosion and sedimentation regulations in all communities.
- Conserve and enhance riparian buffer vegetation along watercourses to trap much of the nonpoint pollution before it enters the streams.
- Prepare a Watershed Stormwater Management Plan, as regulated by Act 164, the state's Stormwater Management Act, in cooperation with the Perkiomen Valley Watershed Association and upstream and downstream neighbors.
- Create a management program for on-lot sewage treatment systems to help guard against future malfunctioning systems that could pollute surface waters.
- Use site design and resource preservation methods to protect water quality, including use of Best Management Practices (BMPs).

Figure 2-2

Montgomery County Watersheds



A. Perkiomen Creek Drainage Basin

1a Upper Perkiomen Creek Watershed
2a Unami/Ridge Valley Creeks Watershed
3a East Branch of the Perkiomen Creek Watershed
4a Swamp Creek Watershed
5a Skippack Creek Watershed
6a Lower Perkiomen Creek Watershed

B. Schuylkill River Drainage Basin

7b Manatawny Creek Watershed
8b Upper Schuylkill River Tributaries
9b Lower Schuylkill River Tributaries
10b Stony Creek/Saw Mill Run Watershed
11b Lower Manoa Watersheds
12b Indian Creek Watershed

C. Wissahickon Creek Drainage Basin

13c Upper Wissahickon Creek Watershed
14c Sandy Run Watershed
15c Lower Wissahickon Creek Watershed

D. Delaware River Drainage Basin

16d Neshaminy Creek Watershed
17d Tookany/Frankford Creek Watersheds
18d Pennypack Creek Watershed
19d Pickering Creek Watershed

	Watershed Area
Perkiomen	220.35
Perkiomen Creek	164.42
Skippack Creek	55.93
Schuylkill Creek	131.54
Wissahickon	53.54
Neshaminy	34.18
Pennypack	21.18
Tookany	14.20
Cobbs	5.34
TOTAL	490.05 square miles

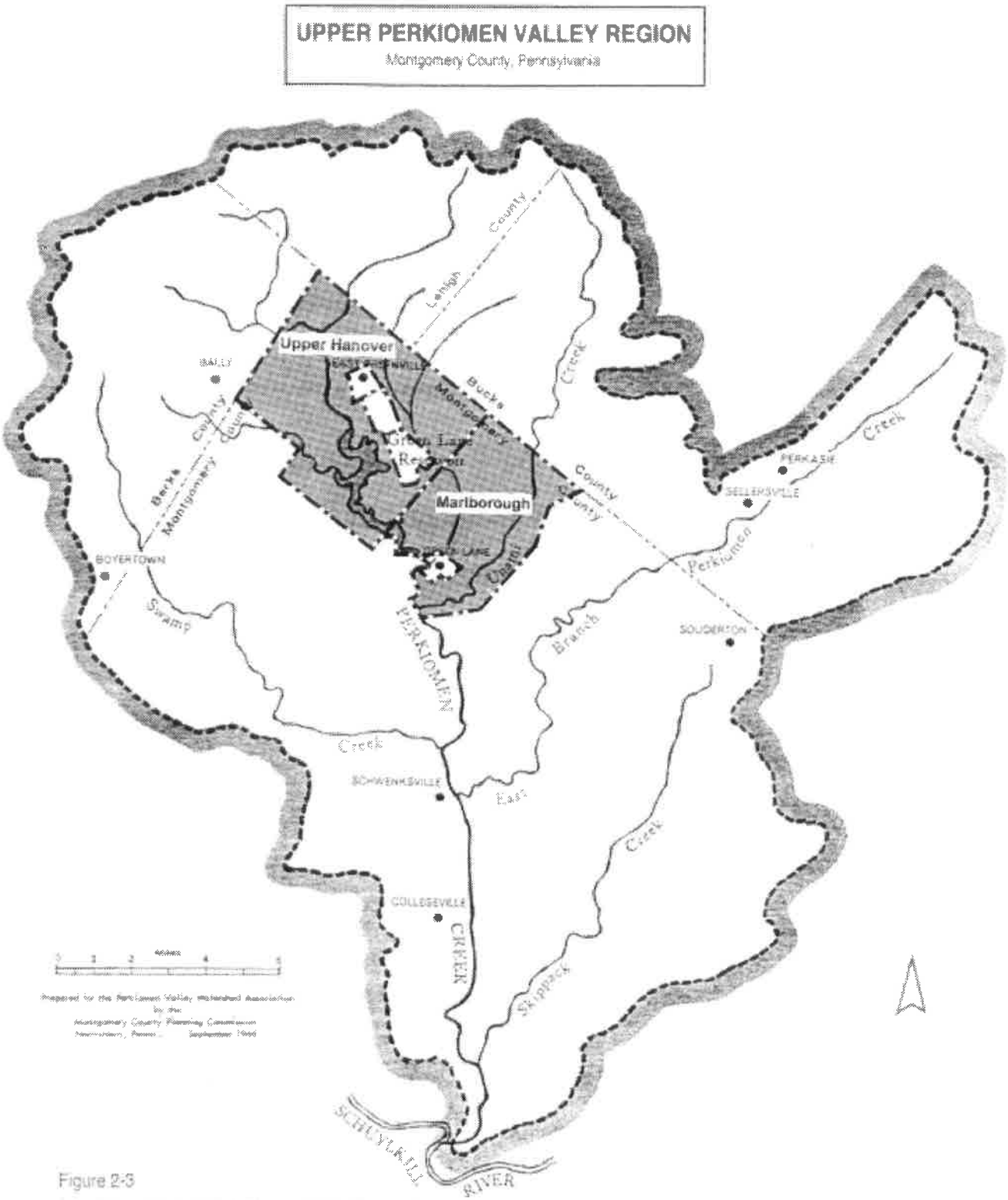


Figure 2-3
Location of Upper Hanover and Marlborough
in the Perkiomen Creek Watershed

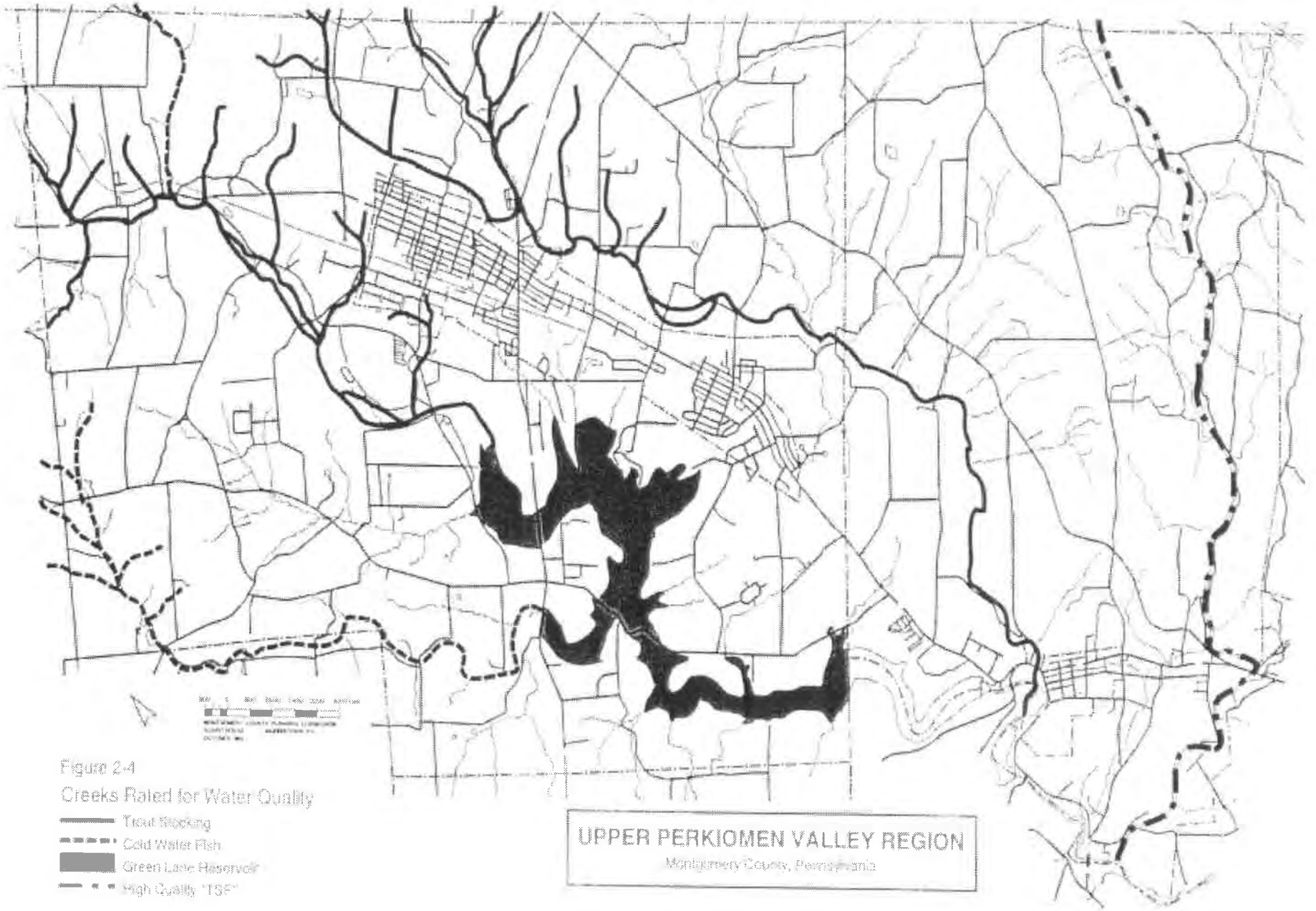


Figure 2-4
Creeks Rated for Water Quality
Trout Stocking
Cold Water Fish
Green Lane Reservoir
High Quality "TSF"
UPPER PERKIOMEN VALLEY REGION
Montgomery County, Pennsylvania

Groundwater Supply

A bedrock formation that yields groundwater in sufficient quantity to supply springs or pumped wells is called an acquifer. Aquifers are replenished as surface water infiltrates the soil layers and seeps into fractures in the bedrock, where it flows slowly under the earth's surface. The quantity and quality of groundwater available for extraction depend on the type of bedrock formation. Although the region's bedrock geology has created interesting and attractive landforms, the effects on groundwater supply vary greatly.

- **Brunswick Formation.** This relatively porous formation is considered to be a reliable source of small to moderate quantities of groundwater for most uses. Brunswick shale has been reported to yield 100 gallons or more per minute from wells drilled more than 200 feet deep. Yields, however, can be much less because of variations in the formation and the impacts of impervious surface coverage on groundwater recharge. Inadequate spacing between wells may create interference that affects water availability. Secondary openings in Brunswick bedrock (joints and fractures) are the key to adequate groundwater flow, causing groundwater yields to vary considerably from one area to another.

- **Diabase Formation.** This has some fractures near the surface that allow minimal absorption of water. Goundwater movement within diabase is slow. The formation is notorious for low well yields, commonly supplying 10 gallons per minute or less. Fracture zones, however, sometimes represented by stream valleys or gullies provide the best locations for wells supplied by diabase acquifers.

- **Groundwater Replenishment.** It is vital to continually replenish the groundwater supply so that water will remain available. The locations of prime aquifer recharge should be identified, such as faults and seeps in the bedrock. This way measures can be taken to preserve these sites in their natural state, or at least minimize the intrusion of impervious surface coverage. In many cases, these areas may be heavily wooded, located in areas of undevelopable soils (hydric and/or alluvial, explained later in this chapter) or on slopes that constrain development. The more natural constraints located in the recharge areas, the more likely these areas can be preserved through ordinances or innovative development techniques. Acquifer recharge is a regional process. Recharge areas in one community often supply groundwater to another community. Therefore, regional cooperation is needed to ensure maximum protection of recharge areas. The region's acquifers should be studied and recharge areas should be identified.

SLOPES

The region has large areas of gentle-to-moderate slopes, which easily allow agriculture or development, as shown in Figure 2-5. Land with a slope of 15 percent or more is generally considered steeply sloped and places constraints on active uses. Some areas have steeper slopes, which are suitable only for the least intensive development or for open space and preservation of natural features.

The slopes on Mill Hill are among the steepest in the region. These slopes are greater than 50 percent and are found on steep, stony land with bedrock outcrops. Steep slopes continue along the Mill Hill ridgeline, which is underlain by diabase bedrock, toward Douglass Township. The diabase bedrock and steep slopes then curve toward the south, running generally along the boundary of New Hanover Township toward Upper Frederick. The diabase and steep slopes continue past Green Lane Borough through Marlborough Township along the Salford Township Boundary and Unami Creek into Bucks County. Other relatively narrow bands of steeply sloped land are found along watercourses of various sizes and along the banks of the Green Lane Reservoir. No significant areas of steep slopes have been identified within the four boroughs.

Steeply sloped lands are natural resources that provide community character and contain most of the woodlands in the region. Dense vegetation is also found on many steeply sloped areas along stream valleys. These concentrations of dense vegetation benefit air and water quality and provide extensive habitats for wildlife.

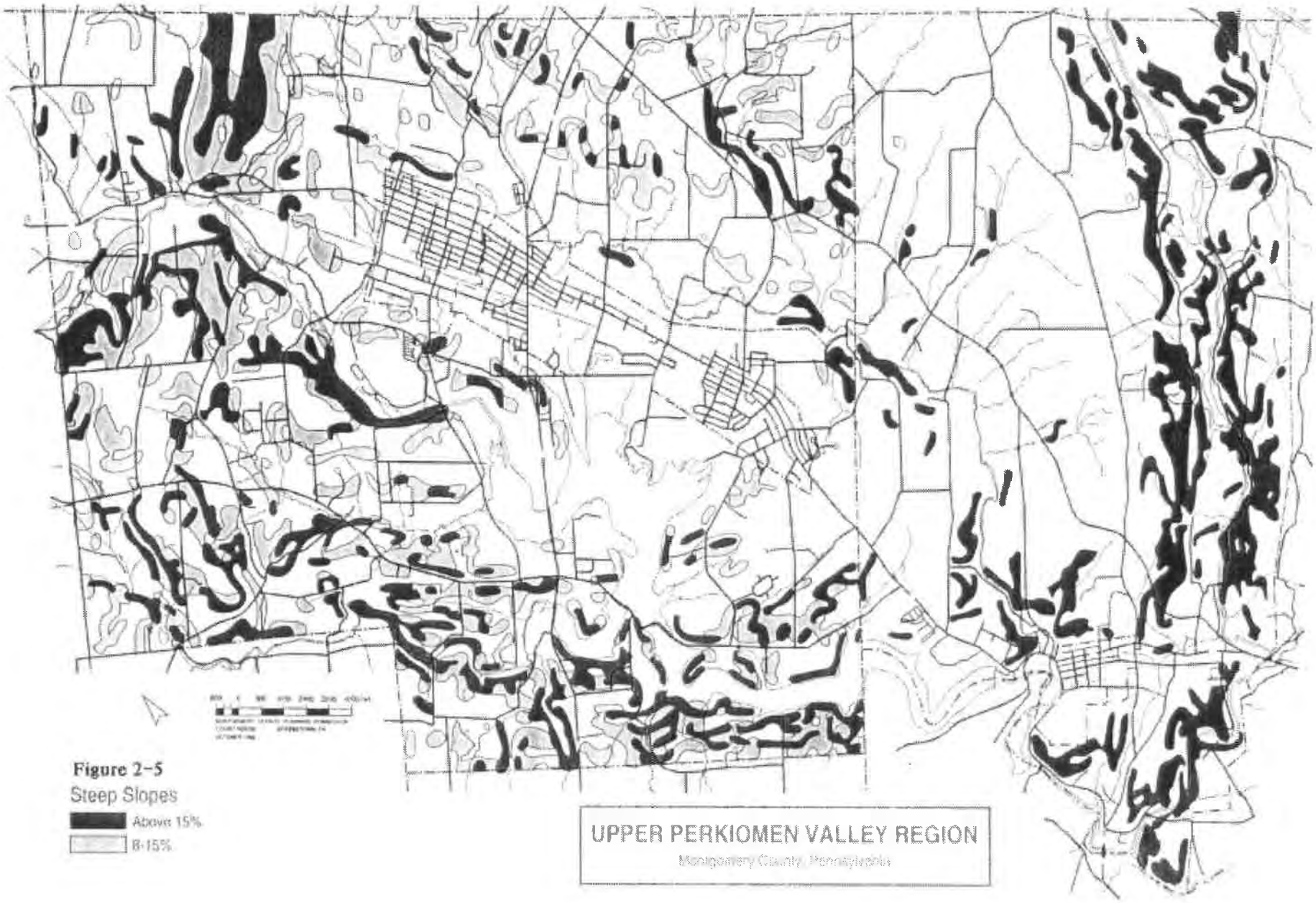

Steep Slopes
Above 15%
8-15%
UPPER PERKIOMEN VALLEY REGION
Montgomery County, Pennsylvania

Figure 2-5

The slopes and soils present on steep slopes exist in balance with vegetation, underlying geology, and precipitation levels. Maintaining this equilibrium reduces the danger to public health and safety posed by unstable hillsides. Generally speaking, as the slope increases, the depth of topsoil and the ability of the soil to support structures usually decreases. When runoff and sedimentation from disturbed slopes increases, public expenditure for flood control and stormwater management will also increase. Also, disturbance of steep slopes negatively affects plant species and the wildlife that depend on these plants. The result of disturbance is often destruction of unique habitats.

The extent of development and clearing of vegetation should be restricted on steep slopes to avoid erosion. It is not necessary to use steeply sloped areas for farming or residential development because there is sufficient land available with gentle (0% to 8%) to moderate (9% to 15%) slopes. Regulations adopted to protect steeply sloped lands should identify performance principles to protect this natural resource. The regulations can be enacted as part of the zoning ordinance.

SOILS

Soils are produced by the continual interactions of weathering, underlying geology, and organisms over long periods of time. They are one of the most influential natural resources of a community. Because soils affect the use of land in various ways, they should be considered in preparing a comprehensive plan. For example, suitability for productive agriculture and for on-lot sewage disposal are major considerations in rural areas. In all areas, development limitations caused by alluvial, hydric, and other frequently wet soils need to be considered by subdividers and developers, along with such factors as shallow depth to bedrock.

Alluvial, Hydric, and Other Wet Soils

Alluvial soils are deposited in floodplains and other areas, but they do not always accurately define the extent of potential flooding. Soils with major hydric components are indicators of potential wetlands. These are generally among the least suitable soils for development and should be protected from other encroachments.

Other soils limit construction because of their poor drainage, shallow high water table, and slow rates of permeability and runoff. These soils prohibit on-lot sewage disposal because of their wet characteristics but may be otherwise developable with appropriate site engineering and construction practices. It is better to avoid development on these soils because of the additional costs and efforts required and because of the increased potential for environmental degradation. These soils include those in the following series: Abbottstown, Beltsville, Chalfont, Glenville, Lawrenceville, Lehigh, Mount Lucas, Raritan, Readington, Reaville, and Rowland.

Where the 100-year flood level has not been determined, alluvial soils are a practical indicator of areas that might be adversely affected by flooding. However, where the 100-year flood level has been determined by accepted engineering methods, the alluvial soil limits should not be used to define floodplain. Alluvial soils are unsuitable for development, and the 100-year floodplain presents real dangers from flooding. Alluvial soils and 100-year floodplains should both be avoided. Figures 2-6 and 2-7 show soils with 100-year floodplain, alluvial, and hydric restrictions.

Alluvial soils, areas within the 100-year floodplain, and hydric soils in true wetlands are protected and regulated by federal, state, and/or local regulations. Zoning and subdivision and land development ordinance requirements in the Upper Perkiomen Valley already help protect against irresponsible encroachment on these areas. Other tools can be used to protect the natural features in wet areas including riparian corridor regulations. Upper Hanover and Pennsburg have already adopted riparian regulations to ensure greater protection of natural resources along and within floodplains, wetlands, and other wet areas and to maintain or improve surface water quality.

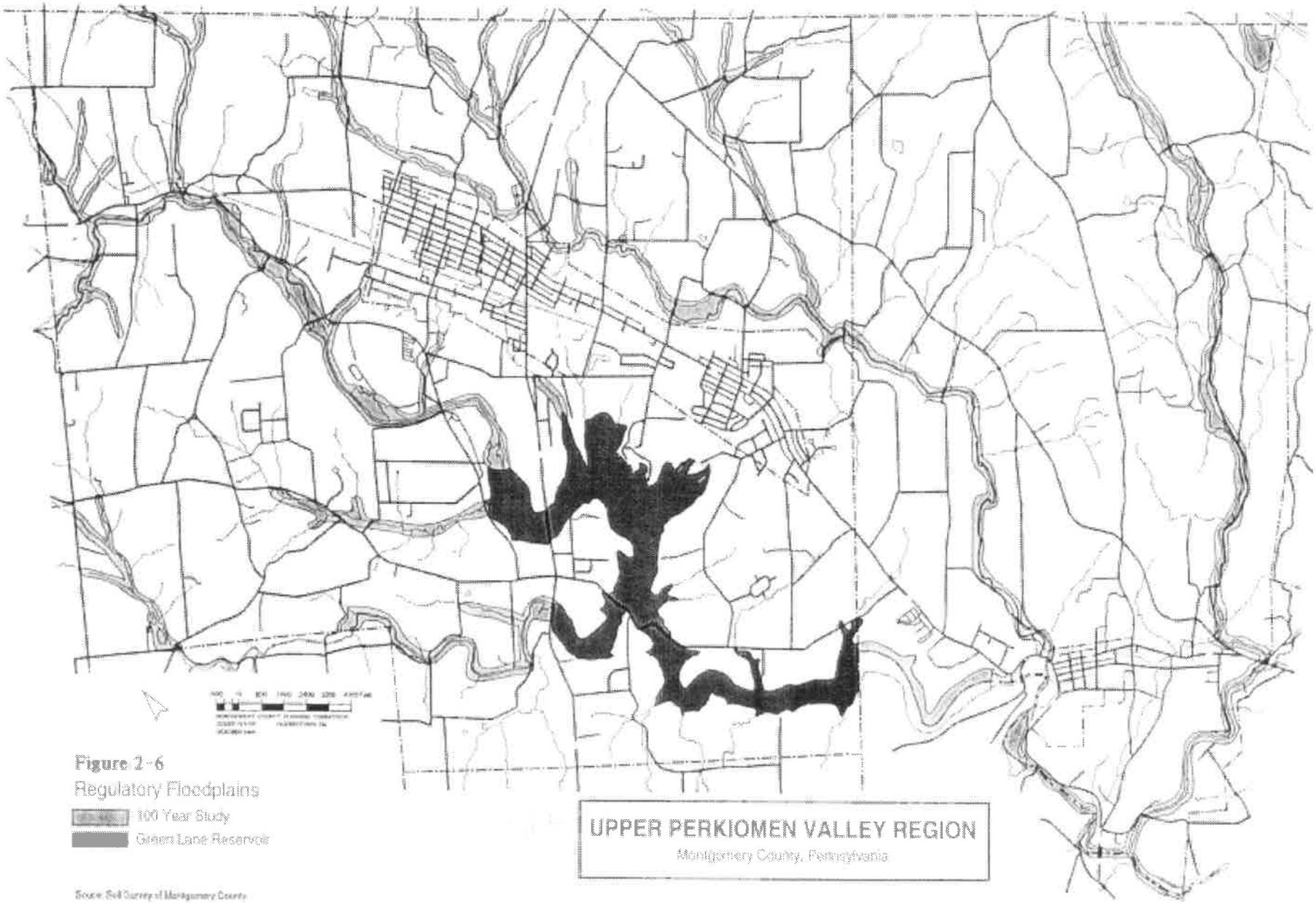


Figure 2-6
Regulatory Floodplains

Source: Soil Survey of Montgomery County

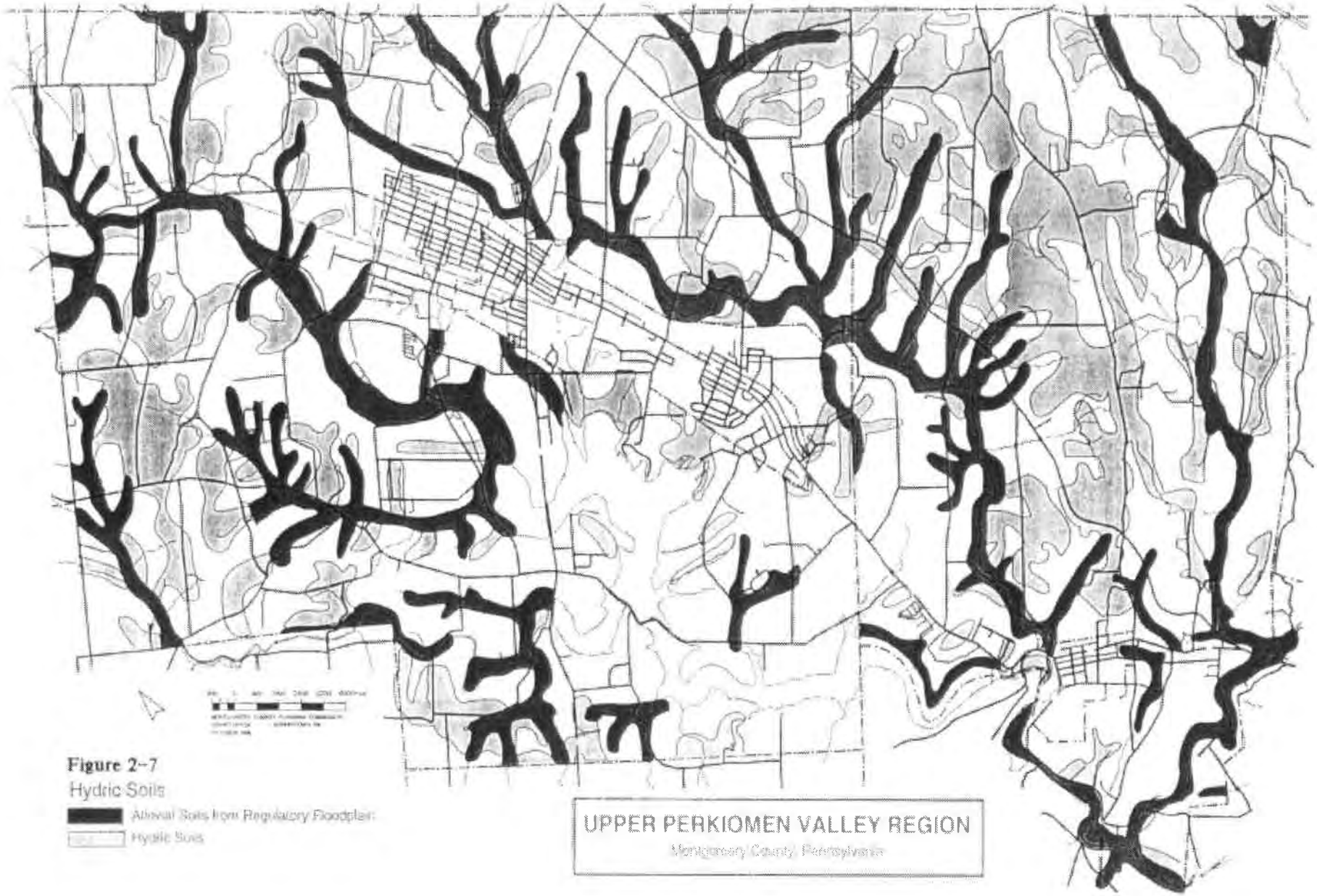


Figure 2-7
Hydric Soils

Agricultural Soils

Soils in Montgomery County are classified as prime farmland, farmland of statewide importance, and other land. These classifications are based on the soil fertility, depth to bedrock or groundwater, texture, erodibility, slope and amount of large stones. Prime farmland includes deep, well-drained, and mildly sloped soils that can support high yields of crops with little management. Farmland of statewide importance includes soils that support cultivation but require careful crop management. Agricultural use of the "other" soils is generally limited to pasture, and woodlands. Figure 2-8 shows the extent and locations of prime and important farmlands, with the residual areas being "other" land. High priority should be given to continuing farming on prime and important farmlands. It must be noted that these soils are found not only in rural parts of the region but also close to the boroughs and near other concentrations of development.

Although good soils are important for farming, there are many factors involved in farmland preservation. Support from the farmers, other residents, and the county, through its farmland preservation program, is necessary. If an agricultural advisory group is formed of farmers, bankers, lawyers, realtors, and/or other interested citizens, then methods of keeping farming viable in the region could be explored, and a program could be developed for these purposes.

WOODLANDS

The types of soils found in the region influence the various vegetative communities because different types of plants grow well in different types of soils. Appropriate vegetation along streams and ponds improves water quality by filtering stormwater runoff pollution before it reaches the water bodies. It also provides unique habitats for specific types of vegetation and unique wildlife habitats. The types and quantities of wildlife in an area vary with the types of vegetation and the habitats provided by landforms, hydrology, soils, and vegetation.

The types of woodlands found in the Upper Perkiomen Valley result from the long-range effects of many other natural resources. Locations of remaining woodlands are the result of how the land has been used. Early settlement and growth of the boroughs diminished original woodland areas, and new growth often removes woodland as well. The fact that farmers will not farm land that is too steep, too rocky, or too wet has left concentrations of woodlands in these areas. Figure 2-9 shows locations of woodlands.

Soils, slopes, and solar orientation influence the type of species associations found within woodlands. The soils on north-facing slopes tend to be cooler and more moist than south facing slopes due to less exposure to sunlight. They also tend to have more softwoods (pines, hemlocks) mixed with some hardwoods such as beech and black walnut. The warmer, drier southern slopes tend to have more hardwoods (tulip poplar, ash, and oak).

Woodlands, particularly large contiguous tracts, are both functional and aesthetic. Generally, woodlands prevent soil erosion, particularly in areas of steep slopes and shallow soils. This reduces siltation and minimizes nonpoint source pollution, provides natural buffer areas around surface water features, and provides habitats for wildlife. This not only benefits the wildlife but also offers recreational and educational opportunities for residents. In addition, woodlands create a scenic quality that cannot be quantified. They have an intrinsic value that enhances the character of the community.

Woodlands also provide "corridors" that supply cover for wildlife movement and migration. These include hedgerows and larger woodland connections such as those found along stream valleys. These areas also provide important shelter and foraging opportunities for wildlife. Woodland corridors, in particular hedgerows, also add to the scenic rural character and reduce soil erosion by slowing wind and water. These areas are often found along roads, property lines, and between fields within a property. In the Upper Perkiomen Valley, preserving these types of woodlands will help to maintain rural quality and character.

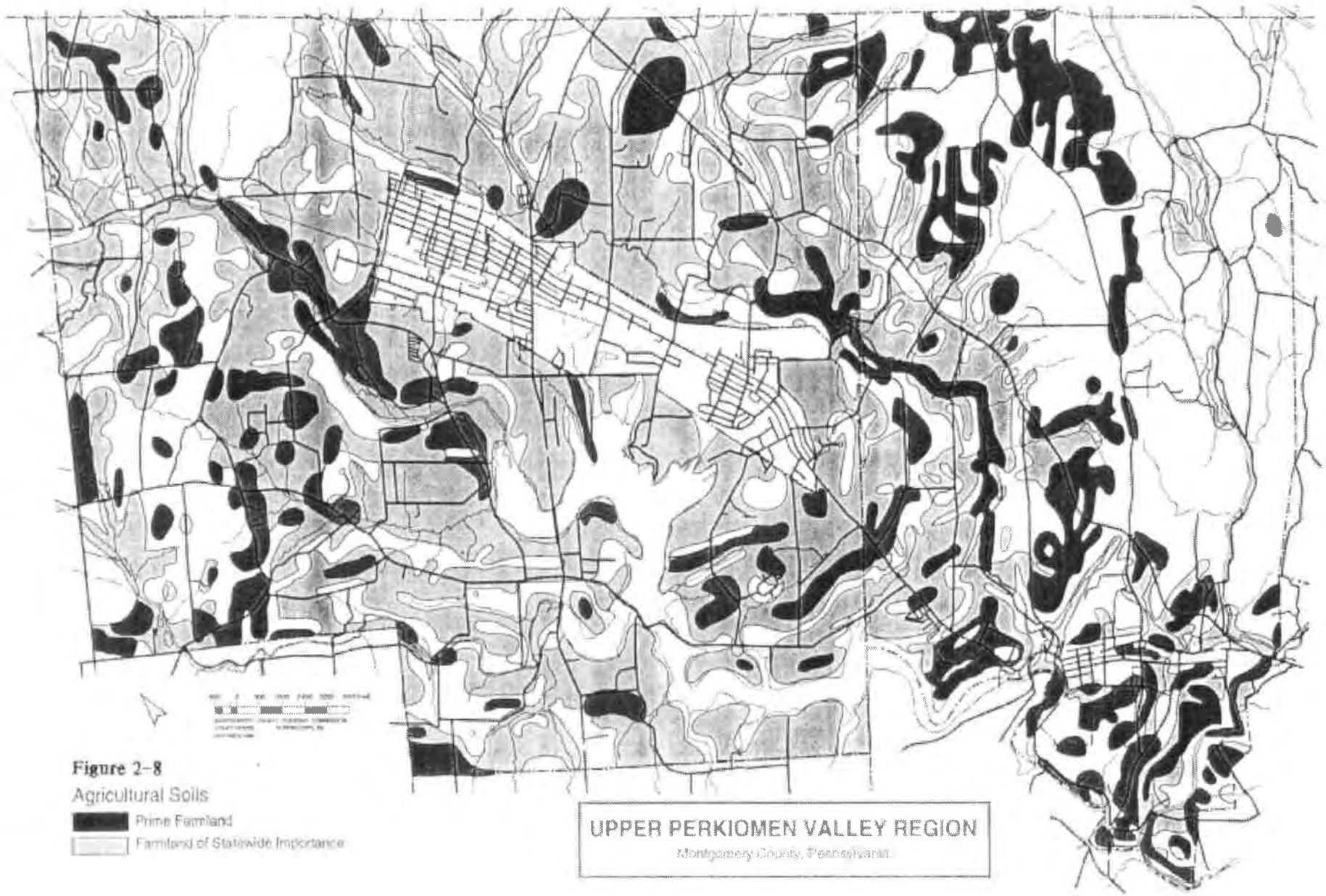


Figure 2–8
Agricultural Soils

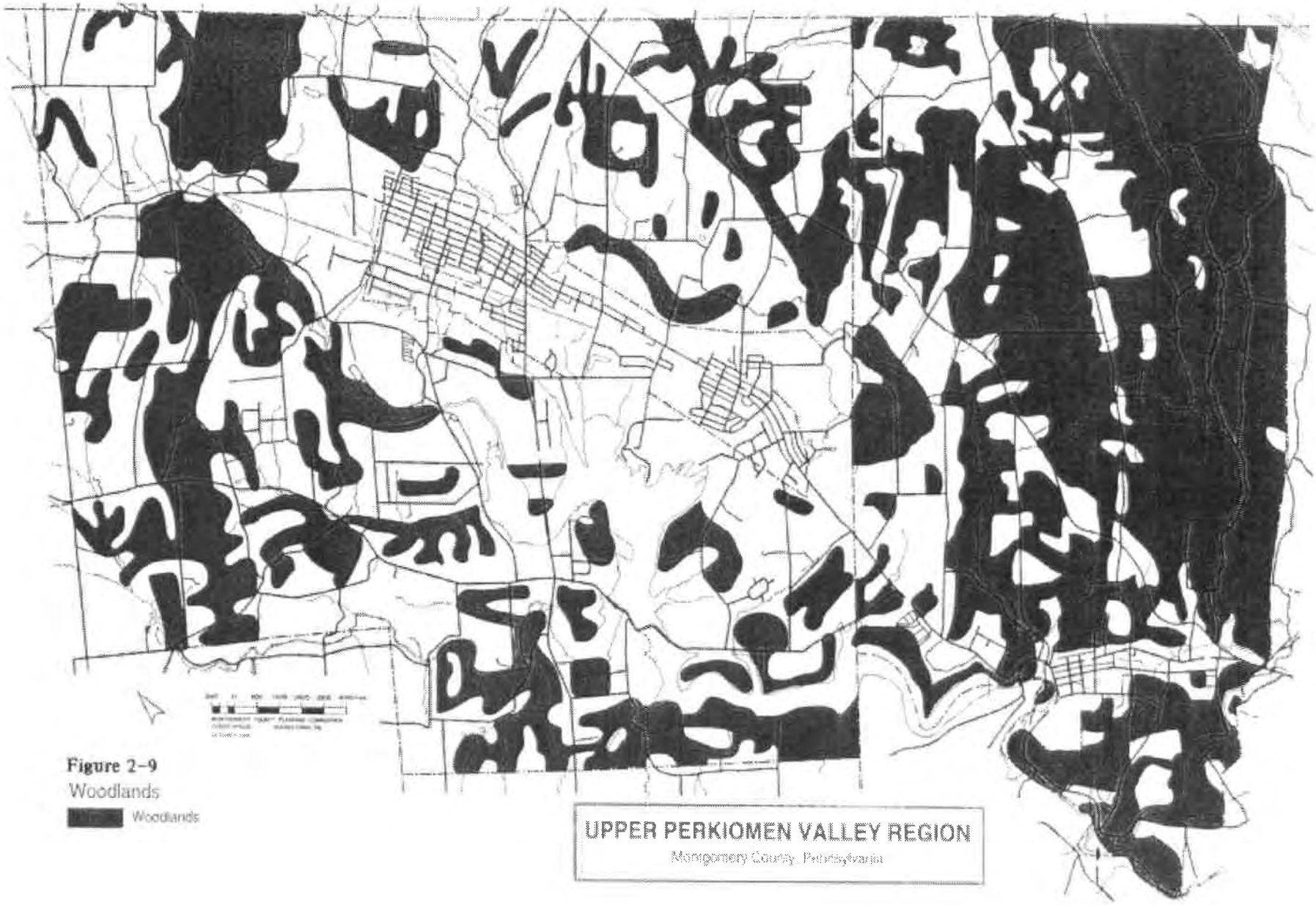


Figure 2–9
Woodlands

Woodlands

The largest contiguous wooded areas within the Upper Perkiomen Valley are found almost entirely along the diabase geology and areas of steep slopes that encircle most of the region. These areas contain some of the only Class One (best) Forest Land in the county. Forest capability is a reflection of a soil's capacity to produce timber in a certain time rotation, typically 50 years, and the health of existing forest stands.

Because of the type and regional importance of the large woodland, every effort should be made to preserve this valuable resource. Soils in this area are thin, of low fertility, stony, and contain large rock outcrops. Their clay subsoil is typically covered with a humus layer is less than 1 inch thick, which is very prone to erosion once exposed. Not only does this forest cover protect steep areas from erosion, but it also allows the groundwater to be replenished by slowing down surface runoff. The forest also acts as a natural buffer for surface water traveling through the watershed and helps filter out pollutants and sediments before they can enter the larger regional watercourses. The extent of the forest also encourages and provides wildlife habitat and scenic quality that help to define the Upper Perkiomen Valley. Development within the forest area, even at low densities or along its edges, can change its characteristics. The removal of trees alters the ecology by exposing areas to greater effects of wind, sunlight, erosion, and other factors that can encourage competing plant species or cause physical damage. Clearing of woodland cover, and the important understory and herbaceous cover, can also have severe impacts on erosion and sedimentation. This can increase the potential wind throw hazard, to which shallow rooted trees are vulnerable.

LAND USE AND WATER QUALITY AND QUANTITY

Surface water and groundwater quality and quantity can be affected by land use in the following ways:

1. Large amounts of sediment can enter streams from farms and construction sites, and pollutants can wash off lawns, parking lots, and industrial properties.
2. Removing vegetation adjacent to streams (riparian buffers) can increase stream bank erosion, raise water temperature, and allow nonpoint source pollutants to enter the stream.
3. Channelizing streams during development can result in stream bank erosion and increase flooding and siltation problems downstream.
4. Solvents and other liquids associated with nonresidential development can leak or be spilled onto the ground and eventually reach the groundwater.
5. Homeowners who dispose of toxic household cleaners, pesticides, oil, and other similar products can cause surface water and groundwater contamination as well.
6. Failing on-lot sewage disposal systems can allow partially treated sewage to reach surface or groundwater.
7. Groundwater recharge can be hindered as impervious surfaces increase with development.
8. Stormwater systems that remove stormwater quickly from a site to a stream can reduce the amount of infiltration and increase stream bank erosion and downstream flooding.

WATER RESOURCE RECOMMENDATIONS

Land uses, development concepts, and preservation techniques that preserve wetlands, riparian buffer corridors, recharge areas, and stream base flow should be encouraged in an effort to prevent degradation of water quality and to promote groundwater recharge. Implementing the methods and Best Management Practices (BMPS) in the following list would significantly help to mitigate the negative influences on groundwater quality and quantity.

1. Provide riparian buffers along streams, and protect riparian vegetation.
2. Preserve the natural drainage patterns of the region.
3. Identify and preserve groundwater recharge areas, and facilitate groundwater recharge whenever possible.
4. Minimize impervious surfaces by using cluster development, porous pavement, and other methods.
5. Design stormwater basins to encourage infiltration.

6. Coordinate with the Montgomery County Conservation District to ensure proper erosion and sedimentation controls are being followed for road construction, residential, and nonresidential development.
7. Coordinate with the Montgomery County Health Department to develop a management program for maintenance and inspection of on-lot sewage disposal systems.

Other regional goals can be coordinated with the water resource recommendations stated above. Preserving open space, for example, can be linked with efforts to preserve riparian buffers or to protect groundwater recharge areas. Relating natural features to one another, such as surface water flows and soil erosion, can also help the region identify desirable goals. This will more clearly lead to logical and defensible recommendations for future growth and preservation areas within the region.

MICROCLIMATES AND NATURAL AREAS

A microclimate can be defined as a small area with a climate differing from the overall prevailing climate as a result of shade, drainage, or shelter. Woodland cover can create microclimates that can have a noticeable and important effect on the environment, especially where the woodland covers large areas. For example, trees can have an impact on air quality by cleansing the air of pollutants through absorption. Woodlands can reduce climate stress and energy costs by buffering residential areas from winter winds and by providing solar access in the winter (heat) and shade in the summer (cool). This same concept also helps to minimize temperature fluctuations on farmland, in particular by minimizing evapotranspiration resulting from wind.

Hedgerows reduce glare and noise and trap dust and other particles from roads. Hedgerows and woodland corridors can also reduce evaporation and wind speed on adjacent properties for quite some distance downwind from the prevailing pattern.

The diversity in microclimates is also important to species diversity. For example, the difference in microclimates between north facing slopes and south facing slopes increases diversity in vegetation and animal species. This creates a healthier environmental condition overall. By altering the vegetative cover, through development or land clearing, the important climatic regulators provided by the woodlands can be lost, as can the related plant and animal diversity. Therefore, every effort should be made to maintain the unique conditions that allow the diversity of species to survive, through the preservation of the unique microclimates and natural areas within the region.

The Montgomery County Open Space Plan of 1996, "Creating An Open Space Legacy", includes a Natural Areas Inventory that identifies sites in the county that are significant for their biological diversity, size, water quality protection, and/or recreation potential. Twelve of the 58 identified sites (21%) are located in the Upper Perkiomen Valley Regional Planning Area. These sites are shown on the map in Figure 2-10 and are described in Appendix F. There are a number of groups pursuing protection of natural areas within Montgomery County that could help protect the identified sites. Of the 12 sites in the region, the following three are among the eight sites judged to be the most critical for maintaining biological diversity in the county:

1. Green Lane Marsh and New Goshenhoppen Meadows.
2. Niantic Northeast Woods.
3. Knight Road Bluffs.

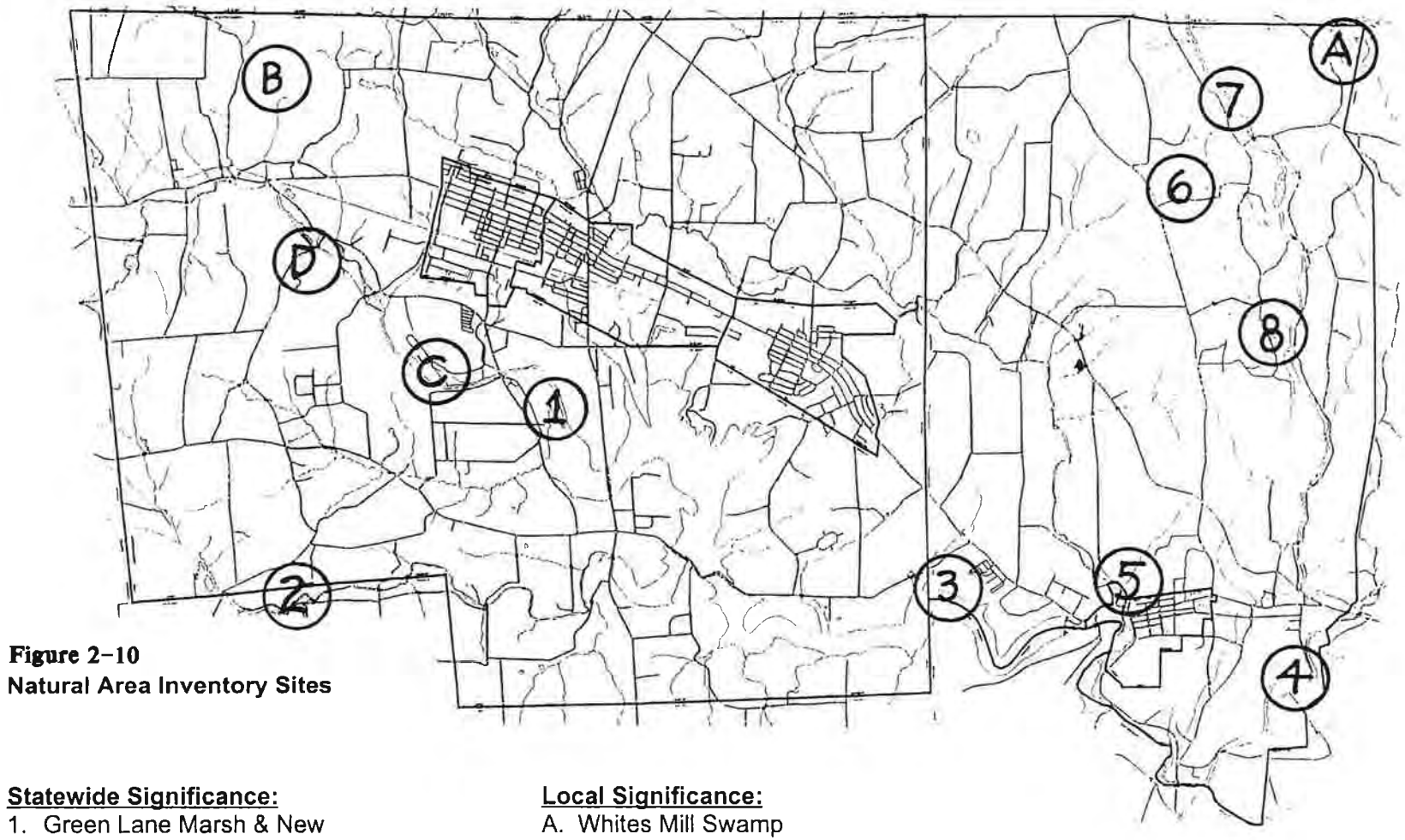


Figure 2-10
Natural Area Inventory Sites

Statewide Significance:

1. Green Lane Marsh & New Goshenhoppen Meadows
2. Niantic Northeast Woods
3. Knight Road Bluffs
4. Sumneytown South Slopes
5. Macoby Creek Ravine
6. Upper Ridge Road
7. Unami Creek Site
8. Boutcher Road Site

Local Significance:

A. Whites Mill Swamp
B. Mill Hill Woods
C. Church Road Floodplain
D. Fruitville Road Floodplain

REGIONAL IMPORTANCE

As concerns become more apparent in regard to growth management within watershed boundaries, a regional perspective becomes increasingly important. Since watershed boundaries do not follow municipal boundaries, managing shared natural resources on a regional scale should be viewed as an important component of regional comprehensive planning.

As mentioned earlier, the important aspects of woodland protection are erosion control, sedimentation and pollution filtering, aquifer recharge, species diversity, scenic quality, and climatic regulation. These factors have direct effects on adjacent and downstream communities.

Erosion, surface water pollution, and sedimentation that can result from clearing of woodlands and improper development techniques expose soils to being washed off the site to other locations. Soils that are shallow and not well-formed are especially susceptible. Once the erosion potential has been increased, the soil will be carried off the site by either wind or rain. Sedimentation of the downstream watercourses will follow.

The watercourses that run through the region would be affected, as would the reservoir from which water flows again into the Perkiomen Creek and on to the Schuylkill River. Most of the effects of sedimentation would be felt downstream in the form of lower water quality, loss of fish habitat, cloudy water, and eutrophication.

A major source of eutrophication is the addition of nitrates and phosphates into the region's surface waters. These nutrients are most often found in agricultural practices or as the result of malfunctioning septic systems. Woodlands and other riparian vegetation act as a natural filter that absorbs these nutrients before they reach the watercourses. By removing trees, and the understory layer, these nutrients will get into the water system much faster and in higher concentrations. This will result in eutrophication downstream and in other communities.

As the need for clean water, recreational opportunities, and scenic areas is identified on a regional level, the responsibility of each municipality to preserve its unique resources and minimize any effects of growth upon neighboring communities and regions becomes more important. Preserving existing woodlands plays a vital role in preventing downstream sedimentation and pollution by acting as a natural filter for nutrients and water-borne sediments. This goal is not only important for the Upper Perkiomen Valley Regional Planning Area but also for other municipalities in the area, both upstream and downstream.

HISTORIC AND SCENIC RESOURCES

Globalization and new economic patterns have dramatically altered and "standardized" land uses in many communities. With these rapid changes buildings, objects, and places that remind us of our past and connect us to our natural environment are considered important community resources. A key to protecting the historic and scenic resources is to emphasize the relationships among environmental protection, natural resource conservation, and historic preservation. The historic towns, hamlets, farmlands, hills, valleys, woodlands, distant views, and reservoir certainly add to the character of the Upper Perkiomen Valley. If these resources are altered, the rural and small-town character of the region will also be altered, reducing the value of the community as a desirable place to live.

Figures 2-11 through 2-18 (at the end of this chapter) contain various places that have been identified as significant historic and/or scenic resources for the communities of the Upper Perkiomen Valley.

The historic and visual characteristics that convey a special sense of place and protect special vistas, scenic areas, spacious rural character, and entryways to the region are assets of immeasurable value. It is critical to preserve these scenic qualities through methods that may include municipal regulations; land dedication; scenic easements under conservancies, land trusts, or other agencies; and purchase of appropriate lands.

The "Future Land Use Plan" in Chapter Seven provides further direction for land use regulations in the valley's rural resource areas and historic town centers. At the end of Chapter Seven additional information is provided for open space preservation.

PLANNING IMPLICATIONS OF NATURAL AND HISTORIC FEATURES

This chapter focuses on natural and historic features data. It is easy to explain the various features but more difficult to make rational planning decisions that will respect natural systems and historic places. It is even more difficult to achieve cooperation and coordination to enforce the concepts and policies needed to provide the desired environmental benefits. It is important to remember that these features are individual components of a large, unified natural and economic systems.

The region has abundant resources that help to define its "sense of place." These resources should be respected, and logical methods for their protection are explained in Chapter Seven. The important part is maximizing the preservation of these resources to assure that truly valuable areas are protected from development and/or destruction. The following list describes the interrelationships among various features:

Geology, Woodlands, and Historic/Scenic/Wildlife Values

Most of the region is underlain by Brunswick shale, which is a relatively good formation for groundwater storage and availability. Although water supply is the most useful aspect of the region's bedrock geology, areas underlain by diabase and Black Hornfels contain some of the least productive water supplies in the area. These areas, however, are covered by woodlands and steep slopes, which have created a scenic quality because of the visual interest of the hillsides and woodlands. In addition, they create environmental benefits in regard to air quality and erosion control, and provide various habitats for wildlife. Areas underlain by Brunswick shale provide more reliable water supplies. They also contain most of the more gently sloped lands, which are the most productive agriculturally, provide historic pastoral views, and contain wildlife habitats different from those in the woodlands.

Geology, Groundwater Recharge, and Soils

The Brunswick shale bedrock is a reliable source of groundwater. The aquifer is recharged as stormwater percolates down through the soil. As development occurs in the region, less aquifer recharge will take place as more soils are covered over by paving and buildings. Soils fall into various hydrological groups that range from high to low permeability. More water will be able to enter the aquifer through highly permeable soils than through soils with low permeability. If soils with higher rates of permeability are identified and

preserved through development restrictions, the loss of acquifer recharge can be minimized. The regional nature of groundwater flows requires this concept to also be applied in surrounding communities that may contribute to the recharge of groundwater in the region.

Surface Water Quality, Vegetation, and Historic Scenic Value

Surface water quality is improved by vegetative cover that filters out pollutants, in particular nonpoint pollutants. These vegetative areas are called riparian buffers because they are located along the path of watercourses. As these vegetative areas highlight the configuration of waterways, they also add to the natural scenery and historic landscape within the region. Retaining and improving riparian buffers throughout the region will protect and enhance surface water quality and the scenic quality of the countryside.

Steep Slopes, Woodlands, and Water Quality

Most of the steep slopes and woodlands found in the region are located on either the diabase formation or along watercourses. Preserving these areas from development will help maintain water quality by reducing sedimentation from erosion and by saving woodlands and other vegetation for soil stability. In addition, the higher costs and difficulties of developing on steeper slopes and near watercourses can be avoided.

Alluvial and Hydric Soils and Water Quality

Alluvial and hydric soils have severe development limitations. This is caused by either a shallow depth to bedrock, location along waterways, high water table, flooding, or sediment deposits. Alluvial soils indicate the potential presence of floodplains. Hydric soils indicate the potential presence of wetlands. These soils have major implications for surface and groundwater quality. If on-lot septic systems were placed on these soils, the effluent would mix readily with the water table or surface water rather than be filtered through "dry" soil layers. This would certainly cause health problems and not be in the public's best interest. As a result, the Pennsylvania Department of Environmental Resources prohibits the use of these soils for on-lot sewage disposal.

SUMMARY

Natural and historic features have played a significant role in the concepts and policies included in this comprehensive plan. However, they are only one aspect considered when making planning decisions. To some, natural features and the valley's historic settlement pattern are the most important components of growth management. Others see them as obstacles that need to be overcome. The natural and historic features of the region should be considered an integral component of decision-making process for the future of the community.

The planning process has incorporated an understanding of the relationships among the various features. Natural and historic features alone cannot dictate planning decisions, either legally or realistically. In most situations, compromises are needed for the entire community to benefit. While community development is a give-and-take process, too often the natural and historic environment has given and development has taken. Decisions should be made that minimize the conflict between growth and the environment and maintain and enhance the natural, scenic, and recreational amenities of the region.

To do this, it is necessary to have an inventory and understanding of the natural and historic resources, existing settlement patterns, population trends, projected growth, transportation routes, necessary capital improvements, and other planning factors. For the planning process to be successful, these factors need to be understood. They must also be considered in light of previous planning and zoning decisions, the principles of land use planning, legal considerations, and economic conditions. The rest of this comprehensive plan focuses on these issues. The end result is the land use plan for the future of the region. That future is focused heavily on preserving the resources, which have defined and enhanced the community since its first settlement.

EAST GREENVILLE BOROUGH
Montgomery County, Pennsylvania

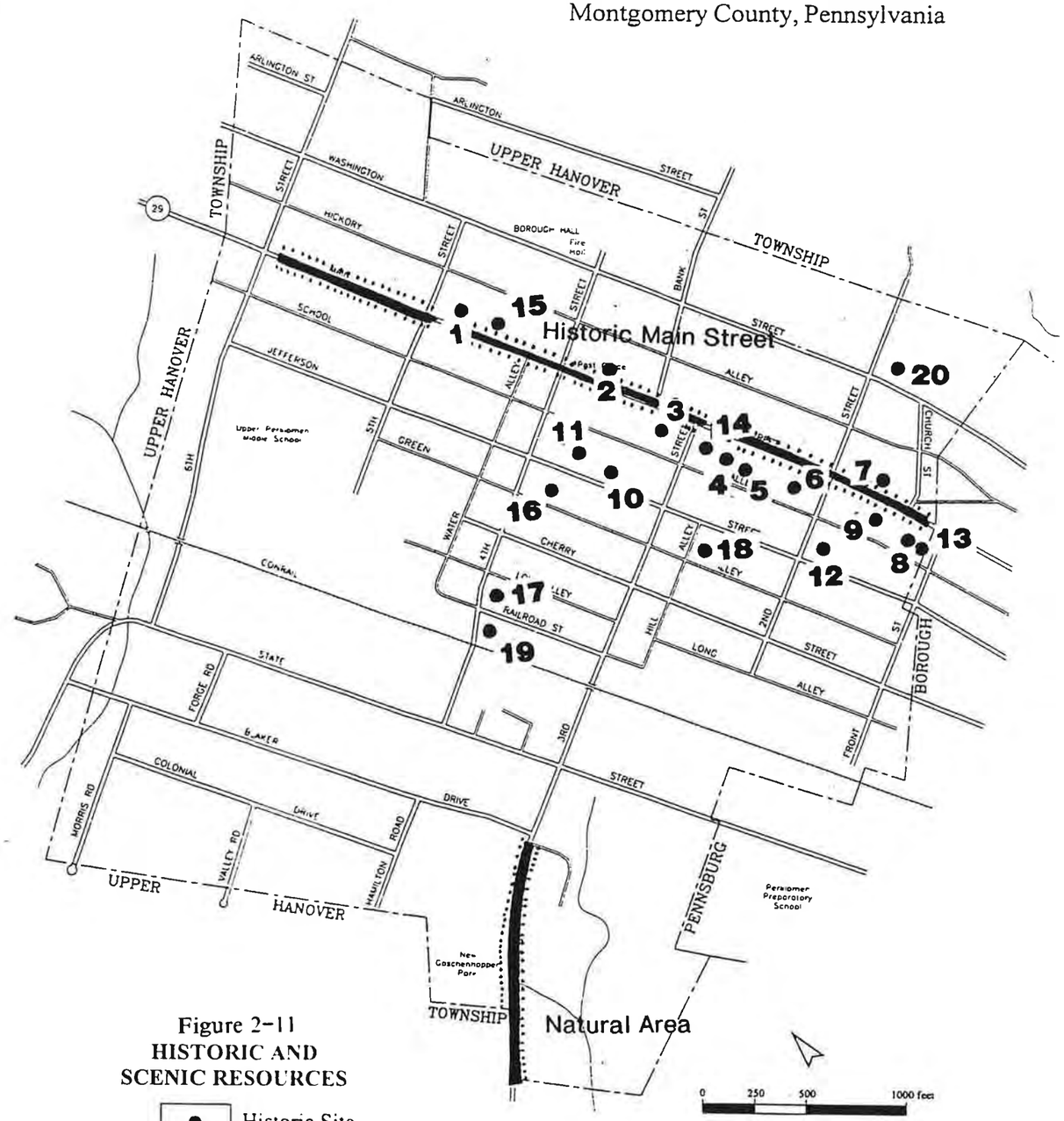


Figure 2-11
HISTORIC AND
SCENIC RESOURCES

- Historic Site
- Scenic Area

Source: CLIO Group Survey, 1985; East Greenville Open Space Committee, 1994.

Figure 2-11a
East Greenville Borough Historic Resources

No.	Name	Address	Block/Unit
1	Home	443 Main Street	6/24
2	Home	337 Main Street	7/17
3	Masteller House	300 Main Street	11/24
4	Home	240 Main Street	16/29
5	Home	238 Main Street	16/24
6	Home	216 Main Street	16/22
7	Home	125 Main Street	17/20
8	Twin Home	110-112 Main Street	20/19
9	Row Homes	126-134 Main Street	20/24-28
10	Row Homes	327-329 Jefferson Street	11/15-16
11	Row Homes	331-333 Jefferson Street	11/17-18
12	Commercial/Residential Building	145-147 Jefferson Street	20/1
13	Ebenezer Evangelical Church	108 Main Street	20/17
14	Realty Hall	258 Main Street	16/27
15	East Greenville Fire House	433 Main Street	7/30
16	St. John's Reformed Church	Jefferson btw. Third and Fourth Streets	10/26
17	Globe Hotel	326 Fourth Street	9/22
18	Perkiomen Knitting Mills	241 Jefferson Street	16/7
19	Otto Eisenlohr and Brothers Cigar	400 Fourth Street	9/20
20	Sweinhart's Ice	135 Washington Street	17/44

GREEN LANE BOROUGH
MONTGOMERY COUNTY, PENNSYLVANIA

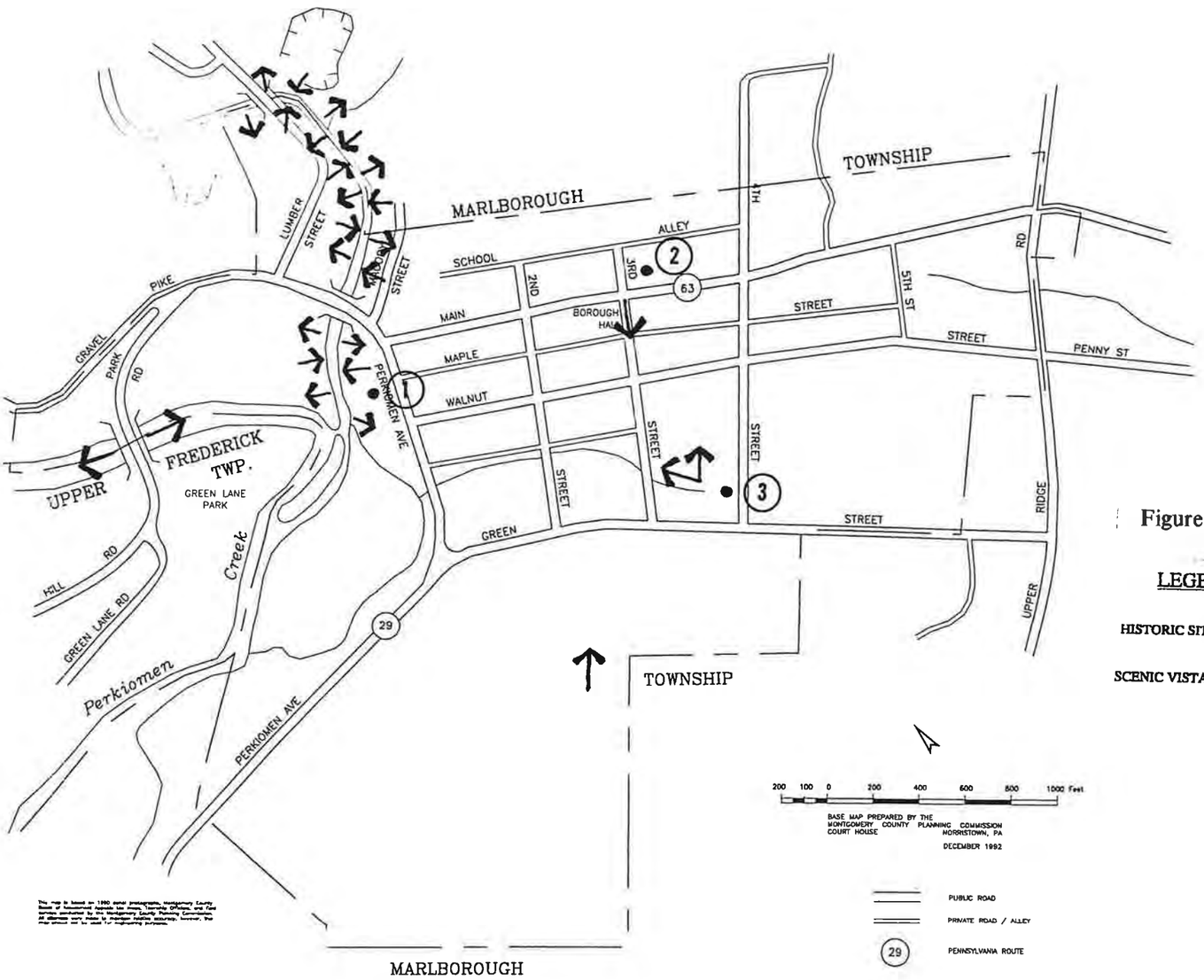


Figure 2-12

Source: Green Lane Borough Parks, Open Space and Recreation Plan, 1998

Figure 2-12a
Green Lane Borough Historic Sites

No.	Name	Brief Description
1	Red Men's Hall	Built in 1907 by Tohickon Tribe Improved Order of Red Men, housed their lodge hall (on the second floor), a bank and a store (on the first floor), and a jail in the basement
2	Green Lane Sunday School	Historic landmark in Green lane, privately maintained by Hunsberger Family
3	Boy Scouts Cabin	Located with Isaac Smith Park, is the only identified facility of local cultural significance in Isaac Smith Park
4	Vistas	Locations: Isaac Smith Park Downstream toward Perkiomen Borough Hall/Fire Station Hill Road Bridge Macoby Creek

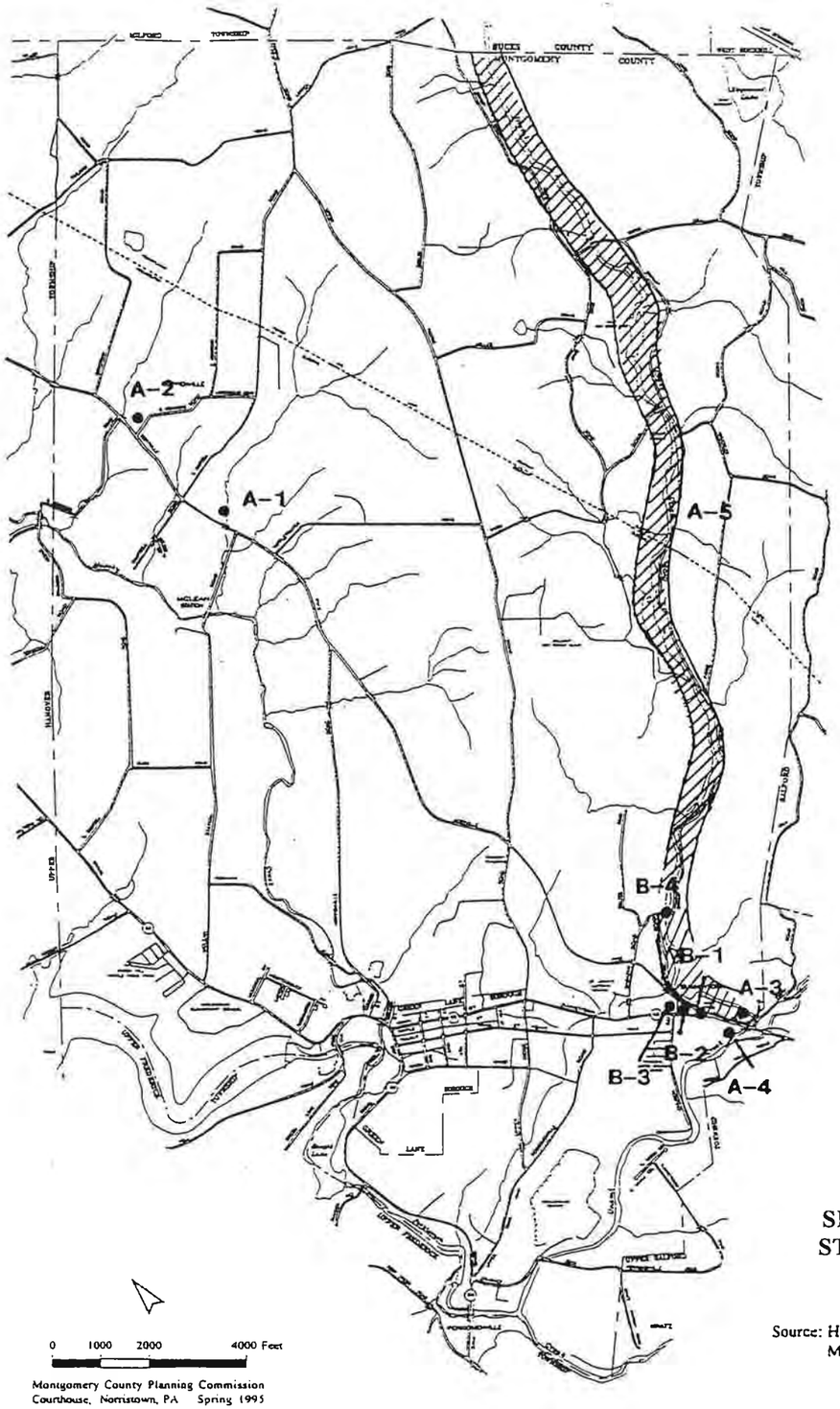


Figure 2-13
SELECTED HISTORIC STRUCTURES & SITES

Source: Historic Sites in Montgomery County, MCPC, 1983; Clio Group, Inc., 1985

Figure 2-13a
Marlborough Township Historic Sites

No.	Name	Brief Description
PRE 1800		
A-1	Mayberry Farm	Stone house built in 1750 and owned by Dr. William Mayberry; located near small stream
A-2	Gerhart Farmhouse	Log House built in 1811; typical square hewn configuration
A-3	Geiger's Store	Built in 1790, major social and community center in 18th century
A-4	Jacoby House	Built circa 1790, is considered the largest and best preserved house of its period
A-5	Unami Creek Rock Shelters	Evidence of Indian rock shelters and associated artifacts

PRE 1900		
B-1	Sumneytown Hotel	Built in 1875, one of several inns in the community; business of Isaac Sumney (whom village was named for)
B-2	Benner Print Shop	Built in 1838, originally a residence converted to print shop o fthe Bauern Freund in 1858; remain private print shop into 20th century; currently a residence
B-3	Kaufman House	Built in 1850; was the last of three major inns to be built; two-story loggia good example of 19th century hotel type; today a combination bed and breakfast/restaurant
B-4	Unami Creek Bridge	Built in 1892; one of the last bridges erected during the 19th century; good example of 19th century civic construction project

Figure 2-14
SCENIC RESOURCES

Road

View

Source: Marlborough Township Planning Commission and MCPC, 1994.

Figure 2-14a
Marlborough Scenic Sites

No.	Road	Description
1	Whites Mill Road	Road connects Marlborough with neighboring Salford Twp. thru contiguous forest shared by both communities; mature dense tree canopy highlights a crossing of Unami Creek
2	Swamp Creek Road (Miller Rd to Bucks County Line)	Segment of Swamp Creek Road parallels Unami Creek to county line; provides good views of forest and surrounding steep slopes; boulder outcrops (diabase geology) are visible
3	Long Road	Travels thru forest, steeply sloped land, Skymount Lake; lake and former campground provides very scenic visual change and contrast surrounding forest
4	Swamp Creek Road (Geryville Pk to Whites Mill Rd)	Most scenic road; part of Swamp Creek Road winds thru forest for several miles past steeply sloped land and scenic views of Unami Creek and large diabase boulder fields; provides access to township open space in Sumneytown
5	Finland Road (Upper Ridge Rd to Brinckman Rd)	Significant for its views of open space; west of Upper Ridge Road a large open space area exists on left (recently acquired for park use); long view of hills and rural areas to ward Upper Hanover
6	Hiffletrager Road	Connection to Geryville Pike and Upper Ridge Road, cuts thru most densely wooded area outside of Unami Creek corridor; mature, full tree canopy creates pleasant, scenic atmosphere
7	McLean Station Road (Buck Rd to Geryville Pk)	Scenic views of open space (Macoby Golf Course), Macoby Creek and nearby woodland areas
8	Hoppenville Road	Significant for its close and distant views of open space approaching Reihman Road from Geryville Pike; passes scenic woodland and steep slope areas

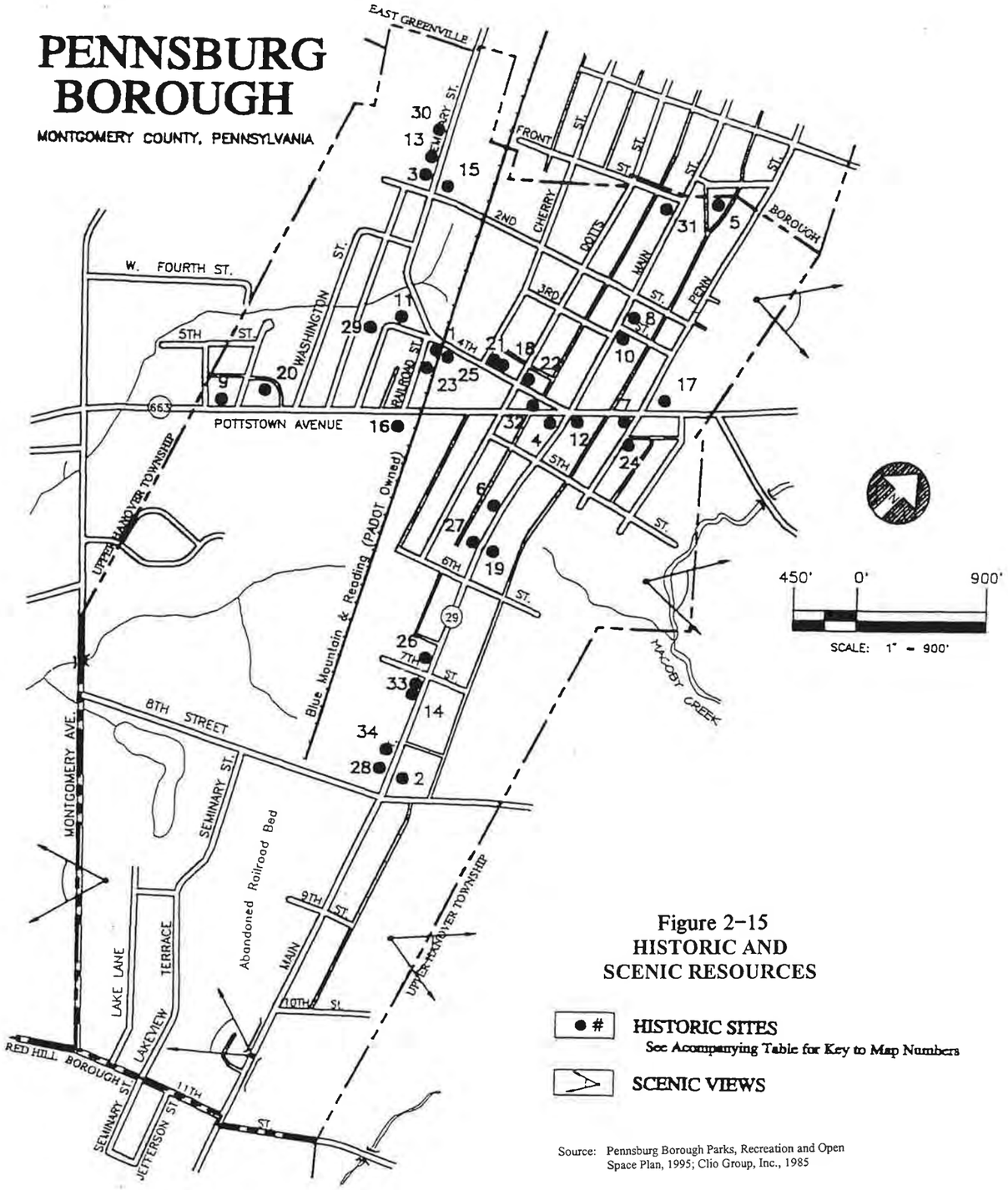


Figure 2-15
HISTORIC AND
SCENIC RESOURCES

● # HISTORIC SITES
See Accompanying Table for Key to Map Numbers

SCENIC VIEWS

Source: Pennsburg Borough Parks, Recreation and Open Space Plan, 1995; Clio Group, Inc., 1985

Figure 2-15a
Pennsburg Borough Historic Sites

No.	Name and Location	Brief Description
1	American Hotel, Fourth St.	A 3-story hotel of Italianate design, constructed of brick, wood and stucco; built. c. 1875
2	Brensinger's Pharmacy, 772 Main St.	Birthplace of Dr. Frank N.D. Buchman; Commonwealth of PA historic site
3	Carnegie Library, Seminary St.	Italian renaissance design constructed of brick, limestone over steel frame; built in 1912-13
4	Farmer's National Bank, 405 Main St.	Built by Tilghman Moyer Co.; modern classical design, with brick and cast stone construction; built 1926
5	First German Baptist Church, Church Rd.	Vernacular Gothic design consisting of slate siding over wood; 18' X 40'; built in 1893
6	Ganter Residence and adjacent home, 519 & 523 Main St.	2 Queen Anne style, brick houses; 2 ½ stories with slate covered roofs and projecting cross gables; built c. 1895
7	Goshenhoppen Mutual Insurance, 544 Quakertown Rd	One story tan brick modern office building of Colonial Revival design; built in 1941
8	Haas Residence, 218 Main St.	Queen Anne design composed of shingles/wood trim; built c. 1890
9	Hank Residence and adjacent homes, 503-507 Pottstown Rd.	Includes three 2 ½ story twins all with front first story porches supported by banded concrete columns; built c. 1910
10	Hawkrider Residence, 304 Main St.	Queen Anne style made of brick, cast stone with wood trim; built c. 1890
11	Heilig, Henry House, Fourth & Seminary Sts.	2½-story house of Pennsylvania German Vernacular styling; built of stone with wood trim c. 1750
12	Hillegass, Jacob Store, Main St. & Pottstown Ave.	Date stone marks this structure's creation in 1852; built of red brick in Italianate styling
13	Kehs Hall, Seminary St.	Built in 1910 by the Perkiomen School to house the gymnasium and indoor assembly hall
14	Kerivel Residence, 715 Main St.	1½-story bungalow style house on cast stone foundation with wood frame; built c. 1915
15	Kriebel Hall, Seminary St.	Principal landmark of the Perkiomen School, example of Second Empire styling; built in 1895
16	Kulp-Staudt Lumber, Pottstown Ave.	Site includes several mid-20th century storage buildings and a 2½-story brick mill building; built c. 1890
17	Landis Residence, 101 Pottstown Ave.	1½-story wood, brick and stone bungalow; built c. 1915
18	Lynch Mill Building, 119 Fourth St.	Gable-roofed mill building of brick and cut stone; first story arched windows and entry; built c. 1890
19	McManus Residence and adjacent home, 546 & 548 Main St.	2½-story brick double with slate roof and shed windows; built c. 1920
20	Meadow Brook Dairy, 503 Pottstown Ave.	Unique structure built c. 1945; giant replica of a soda cap; most of the original trim exists
21	Meinzer Residence, 127-129 Fourth St.	3-story brick structure on rubble foundation; built c. 1890
22	Monaco, owned house, 45 Fourth St.	2½-story Queen Anne, brick double with cylindrical turret; built c. 1890
23	Sam Morgan Auctioneer, Fourth St.	Colonial Revival warehouse, wood frame covered with pressed metal stamped in a stone texture; built c. 1915
24	Old Silk Mill, Penn St.	1½-story brick mill building on a stuccoed stone foundation with gabled roof; built c. 1900
25	Pennsburg Station, Fourth St.	1-story wooden station with bay ticket window; built in vernacular style; built c. 1875
26	Pennsburg School, 925 Main St.	Modern Georgian constructed of brick; center entry tower flanked by classrooms; built in 1924
27	Reese Residence, 379 Main St	2½-story stone house with slate tile gable roof; built c. 1860
28	Reformed Church of Pennsburg, 774 Main St.	Gothic Revival church originally built in 1855; 1902 addition including Gothic window and low tower
29	Schantz Silk Mill, 401 Seminary St.	This 2-story brick building marked the beginning of the silk industry in Pennsburg; built c. 1895
30	Schwenkfelder Library, Seminary St.	Colonial Revival brick building; date stone marked 1951
31	St. Mark's Evangelical Lutheran Church, Main St.	Beautiful Gothic Revival church built in 1898 of stone with large corner tower
32	Town & Country Newspaper, Fourth St & Pottstown Ave	2½-story brick building on a cast stone base built to match its wedge shaped lot; built in 1912
33	Welker, Thomas House, 713 Main St.	Stone and wood frame German two-room house; built c. 1740
34	Whittaker Residence, 753 Main St.	2½-story brick Downing Gothic with wood trim and slate shingled roof; built c. 1870

RED HILL BOROUGH MONTGOMERY COUNTY, PENNSYLVANIA

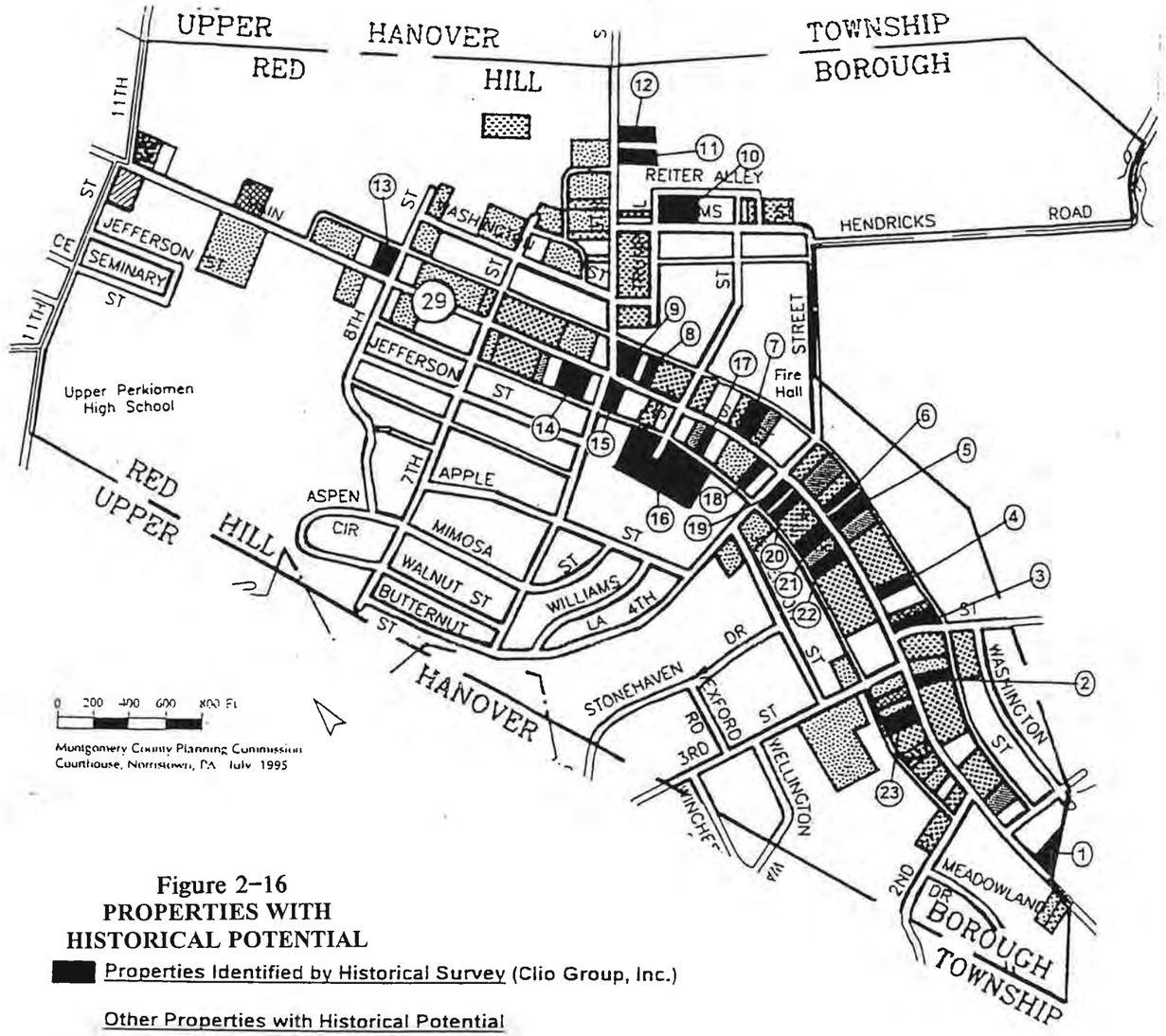


Figure 2–16
PROPERTIES WITH HISTORICAL POTENTIAL

Properties Identified by Historical Survey (Clio Group, Inc.)

Other Properties with Historical Potential

- 1800
- 1850
- 1870's
- 1890's
- 1900-1919
- 1920-1940

Source: Upper Hanover Twp. & Red Hill Boro. Joint Open Space and Environmental Resource Protection Plan, 1995; Clio Group, Inc., 1985

Application of the concepts contained in this report may require more accurate mapping than found in this report.

Figure 2–16a
Red Hill Borough Historic Sites

No.	Address	Built Date/Owner
1	Main Street	1855; former Reiter farmhouse
2	254 Main Street	1880; Keyser
3	310 Main Street	1855; Seasholtz (Hillegass-Miller House)
4	320 Main Street	1895; Nolte
5	350 Main Street	1897; numerous owners (former Miller and Kline Cigar Factory)
6	360 Main Street	1905; Nolte (first firehouse in Red Hill)
7	414-420 Main Street	1895; Engle/Ramsdale/Lawler
8	512-514 Main Street	1890; Capps/Miller
9	520 Main Street	1847; Mullaney (Josiah Hillegass House)
10	532-550 Adams Street	1910; numerous owners
11	220-222 E. Sixth Street	1880; Brant/Beard
12	224 E. Sixth Street	1885; Daniel/Roberts (former Moyer Cigar Factory)
13	800 Main Street	1930; former Woodson/Rosenberger Dairy
14	615-617 Main Street	1910; Shwak/Bonenberger
15	515 Main Street	1812; Rutkowski (Red Hill Hotel, former Hillegassville Hotel)
16	501 Graber Alley	1932; Ebenezer Evangelical Congregational Church (formerly Red Hill Elementary School)
17	427 Main Street	1924; Hagenbuch (former firehouse and town hall)
18	407-409 Main Street	1895; Reinard/Psaris
19	373 Main Street	1895; Romano
20	367-369 Main Street	1895; Shaiman/Bartholomew
21	355 Main Street	1870; Weber/Flad
22	343 Main Street	1870; Adams
23	241 Main Street	1880; Miller

FIGURE 2-16B
ALL OTHER PROPERTIES WITH HISTORICAL POTENTIAL

Block Unit	Year Const.	Owner	Location
002 009	1875	Barber	251 Main St
002 013	1800	Cressman	233 Main St
003 021	1890	Kline	351 Main St
004 006	1890	Whitworth	621 Main St
007 001	1850	Fody/Kinzer	1081 Main St
008 001	1800	Fretz	1014 Main St
008 007	1870	Hillegass	904 Main St
010 118	1890	Smith	224 E Sixth St
011 010	1899	Ettinger	412 Main St
011 015	1890	Stever	368 Main St
011 106	1890	Merkov	366 Main St
011 020	1890	Ruby	348 Main St
011 030	1870	Kostaras/Mar	312 Main St
012 016	1895	Letterman	152 Main St
012 017	1890	Hillegass	148 Main St
001 023	1916	Fry	103 Main St
001 077	1900	Durco	206 E Sixth
002 012	1910	Renninger	237 Main St
002 014	1900	Riggs	229 Main St
002 019	1910	Heinrichs	209 Main St
002 020	1910	Schaffer	207 Main St
002 021	1910	Clevenstine	205 Main St
002 022	1910	Boyer	203 Main St
002 023	1910	Duln	201 Main St
002 024	1910	Young	55 W Second
003 017	1900	Brey	365 Main St
003 018	1900	Nichols	363 Main St
003 019	1910	Longwell	359 Main St
003 023	1910	Wood	339 Main St
003 024	1910	Laudenslager	333 Main St
003 025	1900	Shermer	329 Main St
003 026	1905	Fluck/Gabel	323 Main St
003 027	1910	Noska	321 Main St
003 028	1905	Noska	319 Main St
004 001	1900	Morris	639 Main St
004 002	1900	Reed/Suk	635 Main St
004 003	1900	Monahan	633 Main St
004 004	1900	Schwendt	631 Main St
004 005	1910	Hyra	629 Main St
005 004	1900	Shulman	Hendricks
004 012	1900	Leska	509 Main St
008 002	1900	Conoy	1012 Main St
009 017	1900	Petruska	702 Main St
009 037	1900	FRDM RDRS	Eighth St
010 002	1900	Thompson	504 Main St

Unit	Block Const.	Year Owner	Location
010 003	1900	Gehringer	506 Main St
010 004	1908	Thomas	508 Main St
010 005	1900	Stoudt	510 Main St
010 015	1900	Conway	622 Main St
010 016	1905	Glover	624 Main St
010 017	1905	Frank	626 Main St
010 018	1905	Law	628 Main St
010 019	1900	Miller	632 Main St
010 020	1905	Ackerman	634 Main St
010 021	1905	Derentils	636 Main St
010 022	1905	Klauder	638 Main St
010 023	1905	Shupe	640 Main St
010 024	1905	Krause	642 Main St
010 051	1900	Laubach	205 E Sixth St
010 047	1900	Bonar	123 E Sixth St
010 061	1900	Styer	98 E Sixth St
010 062	1900	Crist	100 E Sixth St
010 063	1900	Freed	102 E Sixth St
010 064	1910	Shupe	104 E Sixth St
010 065	1906	Gerber	106 E Sixth St
010 066	1906	Barndt	108 E Sixth St
010 067	1906	Stauffer	110 E Sixth St
010 068	1906	Stauffer	112 E Sixth St
010 069	1906	Conover	114 E Sixth St
010 070	1906	Lehr	116 E Sixth St
010 071	1906	Wentzel	118 E Sixth St
010 072	1906	Frutchey	120 E Sixth St
010 073	1906	Bergey	122 E Sixth St
010 074	1900	Krewson	124 E Sixth St
010 076	1906	Wehr	204 E Sixth St
010 102	1900	Perk Mas Hall	440 Adams
011 001	1900	Meinzer	440 Main St
011 002	1900	Porter	438 Main St
011 005	1900	Kleinbach	424 Main St
011 014	1900	Whitworth	370 Main St
011 017	1900	Peloghitis	362 Main St
011 021	1900	Krauss	346 Main St
011 022	1900	Dinlocker	342 Main St
011 023	1900	Weikel	338 Main St
011 024	1900	Culp	336 Main St
011 025	1900	Harvey	332 Main St
011 028	1900	Smith	318 Main St
011 028	1900	Smith	316 Main St
011 049	1900	Miller	328 Main St
012 001	1900	Shup	262 Main St

Block Unit	Year Const.	Owner	Location
012 004	1910	Keyser	248 Main St
012 005	1900	Beck	246 Main St
012 006	1910	Szczybek	242 Main St
012 007	1910	Kraft	238 Main St
012 008	1900	Adam	234 Main St
012 009	1900	Dobrowolsky	232 Main St
012 011	1910	Walker	214 Main St
012 012	1910	Millard	212 Main St
012 013	1900	McMahon	208 Main St
012 014	1910	Tielemans	204 Main St
012 015	1910	Ortlip	200 Main St
012 019	1900	Hontz	40 E Third
012 020	1900	Rothenberger	42 E Third
012 021	1900	Hamilton	46 E Third
012 022	1910	Wietecha	48 E Third
012 023	1910	Yoder	216 Main St
012 028	1910	Schirmer	250 Main St
001 005	1920	Gery	105 Main St
002 002	1940	Trauger	206 W Third
002 003	1940	DeLoach	204 W Third
002 004	1935	Benner	202 W Third
002 005	1935	Rickert	200 W Third
002 006	1940	Richard	196 W Third
002 007	1940	Clemens	194 W Third
002 008	1925	Keyser	253 Main St
002 010	1920	Nicholas	247 Main St
002 010	1925	Nicholas	247 Main St
002 010	1930	Nicholas	247 Main St
002 015	1930	Carson	225 Main St
002 016	1930	Rothenberger	223 Main St
002 017	1920	Bardman	221 Main St
003 004	1933	Henry	431 Main St
003 006	1925	Troxell	425 Main St
003 008	1925	Houser	415 Main St
003 009	1925	Reber	413 Main St
003 010	1925	Dahlinger	411 Main St
003 031	1933	Jorgensen	191 W Third
003 039	1940	Red Hill Boro	395 Graber
004 018	1940	Pritchard	641 Main St
006 005	1940	Janton	727 Main St
006 005	1935	Kline	723 Main St
006 007	1935	Jabs	725 Main St
006 010	1940	Robbins	803 Main St
006 016	1929	Cook	901 Main St
009 003	1940	Bardman	812 Main St

Block Unit	Year Const.	Owner	Location
009 007	1929	Luft	722 Main St
009 008	1938	Boorse	720 Main St
009 009	1940	Grim	718 Main St
009 010	1936	Sands	716 Main St
009 011	1930	Tankred	714 Main St
009 012	1930	Berret	712 Main St
009 013	1930	Kennan	710 Main St
009 014	1930	Roth	708 Main St
009 015	1930	Young	706 Main St
009 016	1930	Bieler	704 Main St
009 022	1940	Woodson	800 Washington
009 027	1940	Fieger	734 Washington
009 032	1930	Yorgey	710 Washington
009 033	1930	Hepler	700 Washington
009 035	1940	Saeger	165 E Seventh St
010 001	1924	Gehman	502 Main St
010 008	1925	Frank	516 Main St
010 012	1933	Long	612 Main St
010 013	1920	Weeks	616 Main St
010 014	1920	Luke	618 Main St
010 030	1932	Cathers	632 Washington
010 032	1932	Levy	630 Washington
010 033	1932	Stephany	628 Washington
010 034	1932	Richard	626 Washington
010 035	1932	Genszler	624 Washington
010 036	1932	Yerk	622 Washington
010 037	1952	Hoffman	620 Washington
010 038	1932	Geyer	618 Washington
010 039	1932	Johnson	616 Washington
010 040	1932	Young	614 Washington
010 045	1930	Deck	119 E Sixth St
010 048	1920	Niedzwiecki	125 E Sixth St
010 049	1920	Szuhaj	201 E Sixth St
010 050	1920	Shaner	203 E Sixth St
010 052	1920	Schnabel	207 E Sixth St
010 053	1920	Brunner	209 E Sixth St
010 054	1920	Rementer	215 E Sixth St
010 055	1920	Wendell	217 E Sixth St
010 056	1920	Ganter	219 E Sixth St
010 057	1920	Cassell	223 E Sixth St
010 058	1920	Blank	231 E Sixth St
010 082	1920	Daniel	224 E Sixth St
010 120	1925	Vitacolonna	221 E Sixth St
012 002	1930	Fox	256 Main St

UPPER HANOVER TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

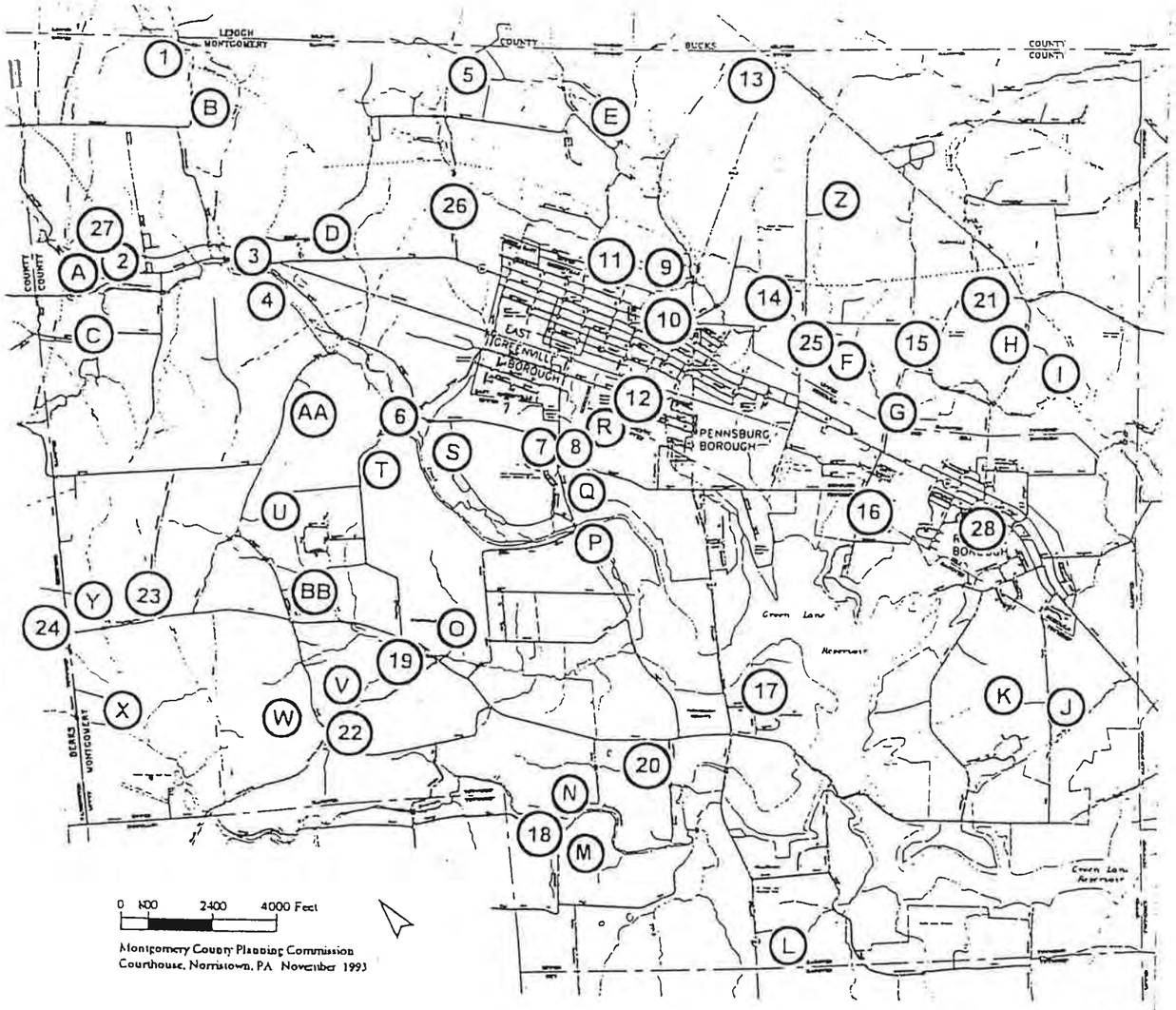


Figure 2-17
SIGNIFICANT HISTORICAL
OR CULTURAL SITES

A,B,Cs Farmsteads or Houses (Attractive or Potentially Attractive)

#s Historic and/or Culturally Significant Structures and Property

Source: Upper Hanover Twp. & Red Hill Boro.
Joint Open Space and Environmental Resource
Protection Plan, 1995

Application of the concepts contained in this report may require more accurate mapping than found in this report.

Figure 2-17a
Upper Hanover Township Historic Sites

Historically and/or Culturally Significant Structures and Property

No.	Name	No.	Name
1	Schwenkfelder Meetinghosue and Cemetery (Hosensack Rd)	15	St. Paul's Church and Cemetery
2	Palm Schwenkfelder Church, Cemetery & Parish House	16	Upper Perkiomen High School Campus
3	Millside Inn	17	St. Philip Neri Church, All-Purpose Building and Rectory
4	American Legion	18	Bowers Mill
5	Kraussadale Schwenkfelder Meetinghouse and Cemetery	19	Fruitville Store
6	Comly's Mill	20	One Room Schoolhouse
7	New Gosenhoppen Church, Cemetery, Parish and Park	21	One Room Schoolhouse
8	One Room Schoolhouse	22	Wentling's One Room Schoolhouse
9	Holy Cross Cemetery	23	Bethesda Cemetery
10	St. Mark's Church	24	Schwenkfelder Cemetery
11	Upper Perkiomen Recreation Council Pool Facility	25	One Room Schoolhouse
12	Perkiomen School Campus	26	Cemetery
13	Lighthouse Gospel Tabernacle and Parish	27	Palm Station
14	Upper Perkiomen Baptist Church	28	Red Hill Village

Historic Farmsteads or Houses Restored or with Restoration Potential

A	John Wentz Farmstead	O	Burlap Farmstead
B	Henry Fretz Property	P	Schwenk Farmstead
C	Lesher's Mill	Q	Landis Farmstead
D	Miklosovic Property	R	Greulich Property
E	Weisbecker Farmstead	S	Camelot Farm
F	Runaway Farms	T	Bieler Farmstead
G	Sabo Property	U	Wentz Farmstead
H	Harry Wood Farmstead	V	Jacobs Farmstead
I	Roderick Wood Farmstead	W	Loughlin Property
J	Zappala Farmstead	X	Henry Farmstead
K	Surma Farmstead	Y	Schultz Farmstead
L	Pepe Farmstead	Z	Heckler Property
M	Mohan Farmstead	AA	Early Farmstead
N	Latshaw Property	BB	Stevens Property

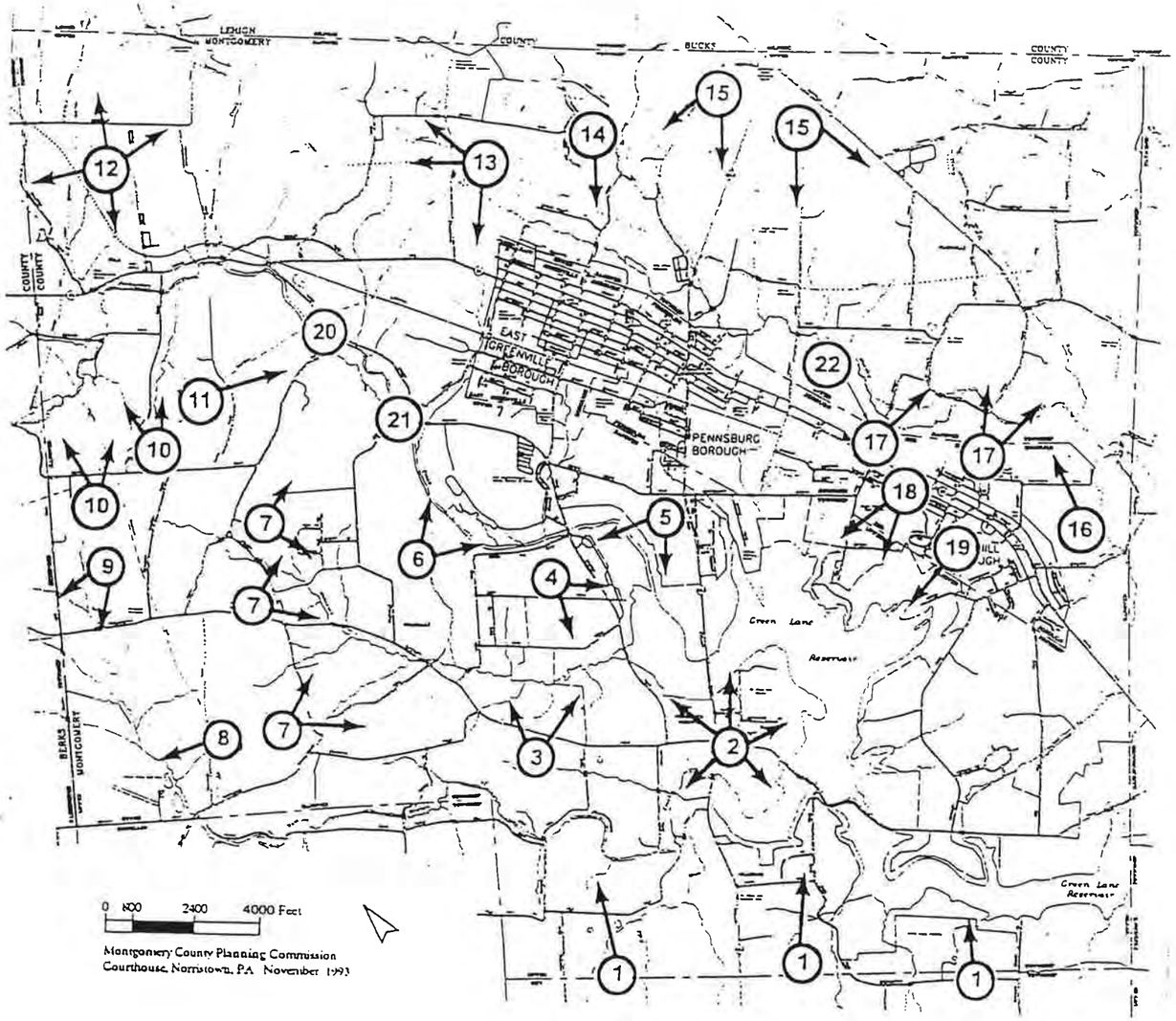


Figure 2–18
SCENIC VIEWS

Source: Upper Hanover Twp. & Red Hill Boro. Joint Open Space and Environmental Resource Protection Plan, 1995

Application of the concepts contained in this report may require more accurate mapping than found in this report.

Figure 2–18a
Upper Hanover Township Scenic Vistas

No.	Description
1	Northern view across entire valley from Parestis Road, Route 663, and Broomstick Road areas
2	Circumferential views of Perkiomen Heights extends to New Hanover and Douglass township and Berks, Lehigh, and Bucks Counties
3	Northern and eastern view from Kutztown Road (Stofflet Farm) area to West Buck Road and across reservoir
4	West Buck Road and Church Road viewing south and east over reservoir toward Kutztown Road and Route 663
5	Southwestern view from Schoolhouse Road over reservoir extends to hill west of Jacobs Sawmill Road
6	Eastern view across East Greenville Borough from ridge on west side of Perkiomen Creek, extending to Bucks County
7	Southeastern view across all three boroughs from Jacobs Sawmill Road and Peevy Road areas, extending to Bucks County and Marlborough Township
8	Western view over golf course into Berks County from north side of Township Woods Road
9	Northern and western views into Berks County, along Route 100 corridor, from high plateau between County Line, Adams, and Bethesda Church Roads
10	Northern views over Palm and into Berks and Lehigh Counties from Adams and Palm Hill Roads
11	Eastern view, from only two or three properties, over valley, to Bucks County
12	Circumferential vistas from Fretz tract and adjacent properties, of Hosensack Creek Valley and Lehigh County to the east, Mill Hill to the south, Palm Hill to the west, and Powder Hill Valley and Berks County to the north
13	Southern view over East Greenville Borough, northwestern view toward Mill Hill, from Warner School Road area
14	Southern view to East Greenville and Pennsburg Boroughs, from Briar Ridge to Hanover Ridge
15	Extensive views from Pennsburg Woodcraft and ESI, and Geryville Pike, southward over Valley all the way to Spring Mountain Ski area, and westward into Berks County
16	Northern view over Red Hill Borough and Macoby Creek area
17	View toward Macoby and Stony Run corridors and low density areas of Upper Hanover and Marlborough Townships
18	Views of Green Lane Reservoir and Park
19	Views of Green Lane Reservoir and Park
20	Peevy Road Iron Bridge
21	Fruitville Road Bridge
22	Eleventh Street Bridge

Chapter Three
GOALS AND OBJECTIVES

INTRODUCTION

The Upper Perkiomen Valley is a unified and identifiable region with rolling hills, scenic vistas, meandering streams, historic boroughs and villages, and charming rural character. These features combine to form a unique region with a high quality of life. The goal of the six Upper Perkiomen Valley municipalities is to preserve and protect this quality of life from suburban sprawl. The means to achieve this are the joint municipal comprehensive plan. The joint municipal comprehensive plan specifically intends to:

- Protect the unique and cherished historical, cultural, and natural features of the region.
- Accommodate the needs of the existing and future residents of the valley.
- Implement effective growth management techniques to provide for orderly and well-planned development.
- Address the specific needs and unique conditions of each municipality.
- Encourage a range of housing options.
- Encourage new high-quality jobs.
- Support new recreation opportunities.
- Protect the natural resources of the valley.
- Direct infrastructure improvements to designated growth areas.

Through continued regional cooperation and implementation of the joint municipal comprehensive plan the six municipalities of the Upper Perkiomen Valley can realize their preservation and growth management goals for the region. This coordinated regional planning will encourage responsible development and strengthen and protect environmental features and rural character, while balancing the development of the regional tax base, encouraging job creation, efficiently using infrastructure, and preserving and enhancing the historical quality of the boroughs and villages.

GOALS AND OBJECTIVES

Housing Goal

Housing is a basic element of a community's economic health and growth. The Upper Perkiomen Valley will provide adequate housing opportunities for current and future residents.

Objectives:

- Concentrate new development in designated growth areas.
- Encourage new housing developments that foster a sense of community and promote a pedestrian-friendly environment.
- Meet fair-share requirements as a region.
- Encourage infill housing to be architecturally compatible with the surrounding neighborhood.
- Encourage housing opportunities for a range of income levels.

Commercial/Retail Goal
The valley's commercial needs have traditionally been provided for on the boroughs' "Main Streets." There is a strong desire within the valley to maintain these areas. However, change is a constant for the valley's shoppers and retailers, and the Upper Perkiomen Valley seeks to encourage economic vitality while meeting the current and future commercial and retail needs of the valley.

Objectives:

- Preserve, protect, and enhance existing commercial areas in the boroughs and townships.
- Limit the amount of new commercial and retail development outside of established areas.
- Encourage the creation of jobs that pay living wages.

Office Goal
The dynamic economy has brought new economic needs and opportunities for the Upper Perkiomen Valley. The valley will encourage office, research lab, and administrative center development in established commercial areas.

Objectives:

- Enhance the tax base within the region.
- Provide employment opportunities.
- Provide office space that meets the needs of a range of users.
- Encourage high-quality office, research lab, and administrative center development within appropriate areas in coordination with infrastructure improvements.

Industrial/Light Manufacturing Goal
Industry has been and continues to be an important economic base for the Upper Perkiomen Valley. The valley will continue to encourage industrial development in established industrial areas.

Objectives:

- Enhance the tax base within the region.
- Provide employment opportunities.
- Provide for industrial/light manufacturing uses that meet the needs of a range of users.
- Encourage new industrial/light manufacturing uses in designated areas.
- Promote clean and environmentally friendly industrial/light manufacturing uses.

Parks and Recreation Goal
Recreation facilities add to the quality of life within a community. The Upper Perkiomen Valley will provide sufficient recreational opportunities to meet the needs of present and future residents.

Objectives:

- Coordinate park and recreational opportunities among the six Upper Perkiomen Valley municipalities.
- Continue to implement the park and recreation goals of the municipal open space plans.
- Provide a network of trails between open space and recreational areas.
- Develop active and passive recreational opportunities within the region.

Open Space Goal
The Upper Perkiomen Valley has long valued its land. Residents of the valley rank preservation and protection of open space and natural resources as their highest priority for the future.

Objectives:

- Actively pursue resources to preserve open space in the region.
- Continue to implement the open space goals of the municipal open space plans.

Natural Resource Protection Goal
The valley has unique natural resource areas and significant conservation objectives. Residents of the valley rank preservation and protection of open space and natural resources as their highest priority for the future.

Objectives:

- Protect existing groundwater resources.
- Preserve and protect environmentally sensitive areas and natural resources including woodlands, stream valleys, wetlands, floodplains, watersheds, groundwater recharge areas, steep slopes, scenic vistas, vegetation, and wildlife.
- Continue to implement the natural resources goals of the municipal open space plans.

Agriculture Goal
Farming has a long history in the Upper Perkiomen Valley, and the region seeks to encourage and support the preservation of agriculture as a viable industry.

Objectives:

- Encourage permanent preservation through participation in county and state agricultural programs.
- Limit new development in designated agricultural areas.

Transportation Goal
Circulation of people and goods is a basic need for a community's economic health and growth. The Upper Perkiomen Valley will provide a safe and efficient transportation system throughout the region.

Objectives:

- Identify problematic traffic areas and develop mitigation strategies.
- Encourage sidewalks in new development where appropriate.
- Develop a local and regional trail network.
- Explore mass transit options.
- Consider centralized parking facilities in established commercial areas.

Community Facilities Goal

The Upper Perkiomen Valley will serve the needs of current and future residents regarding public sewer and water systems, emergency services, schools, and library facilities. These services greatly impact the quality of life and safety of the valley's residents.

Objectives:

- Consider sharing municipal services/facilities.
- Use public sewer and water systems efficiently by extending these systems only within designated growth areas and by encouraging land application over stream discharge.
- Protect surface water quality and ensure sufficient water supply by using public sewer and water systems effectively.
- Support existing emergency services and extend and improve their capacities to serve a growing population.
- Cooperate with the school district and library to encourage appropriate locations of new or expanded facilities.

Chapter Four
INFRASTRUCTURE

INTRODUCTION

Infrastructure includes public sewer and water systems, and the public road network. This chapter describes the existing and proposed infrastructure in the Upper Perkiomen Valley Region.

SEWAGE FACILITIES EXISTING CONDITIONS

Historically, the availability of public sewers has been a major influence in determining the amount, location, and rate of growth in a community or region. Conversely, the lack of public sewers has often been a major constraint to development, especially in areas poorly suited for on-lot disposal systems. Therefore, the strong connection between public sewers and development requires careful coordination between sewage facilities planning and land use planning. Sewer growth areas should be provided only where growth is appropriate. In addition, when land uses that require public sewers are grouped together, it allows economical sewage treatment service and helps control suburban sprawl.

Municipal central sewage facilities should be used throughout growth areas for medium- and high-density development to protect water quality and public health for the largest concentrations of new development. Alternative methods of sewage treatment should be used outside the growth areas to protect water quality and keep the levels of development in line with the goals of this comprehensive plan.

Soils that provide very limited potential or no potential for on-lot sewage disposal are found in all areas of the region. They range in extent from small pockets to broad swaths. Among the soil characteristics that will affect on-site disposal are depth to a limiting zone (groundwater or bedrock) and the ability of the soil to percolate water. Figure 4-1 shows the suitability for on-lot sewage disposal caused by the various soil categories.

In areas not served by municipal sewer systems, restrictions caused by the soil types are expected to result in low-density development served by on-lot systems, or by various forms of community disposal systems, where appropriate. Sewage disposal systems in these areas should consists primarily of types that help to recharge the groundwater supply, including spray irrigation, sand mounds, and traditional in-ground systems. When package sewage treatment plants are used in these areas, the types used and their purposes should protect water quality and encourage groundwater recharge. They should not be used to justify an increase above the density proposed in the land use plan. This would include package plants with stream discharge or with spray irrigation of treated effluent.

Development regulations that encourage shared and/or community systems for sewage disposal in areas not served by municipal sewer systems are desirable to further help protect water quality and public health. Cluster regulations can be used with community sand mound systems and spray discharge of treated effluent as a significant tool to preserve open space and replenish the groundwater supply.

Three public sewage treatment plants serve the Upper Perkiomen Valley Region. These are the Upper Montgomery Joint Authority's plant on Mensch Road at the Green Lane Reservoir, the Upper Hanover Authority's plant on Frey Road at the Macoby Creek, and the Green Lane-Marlborough Joint Authority plant on Park Drive at the Perkiomen Creek (see Figure 4-2).

In addition, five privately run sewage treatment plants (STP) are located in Upper Hanover and two in Marlborough (see Figure 4-2). Knoll furniture and Brown printing each have a plant in the limited industrial area north of East

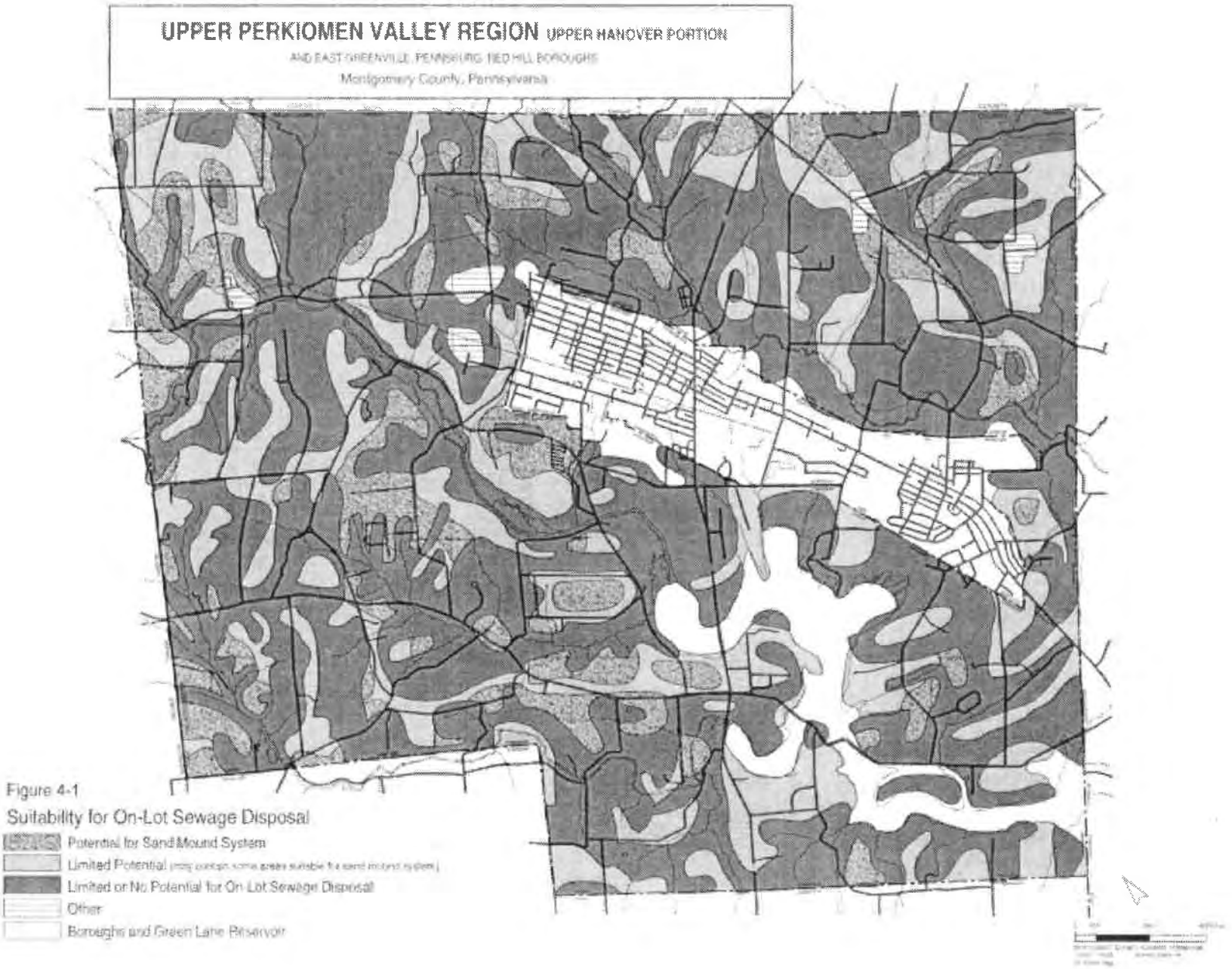
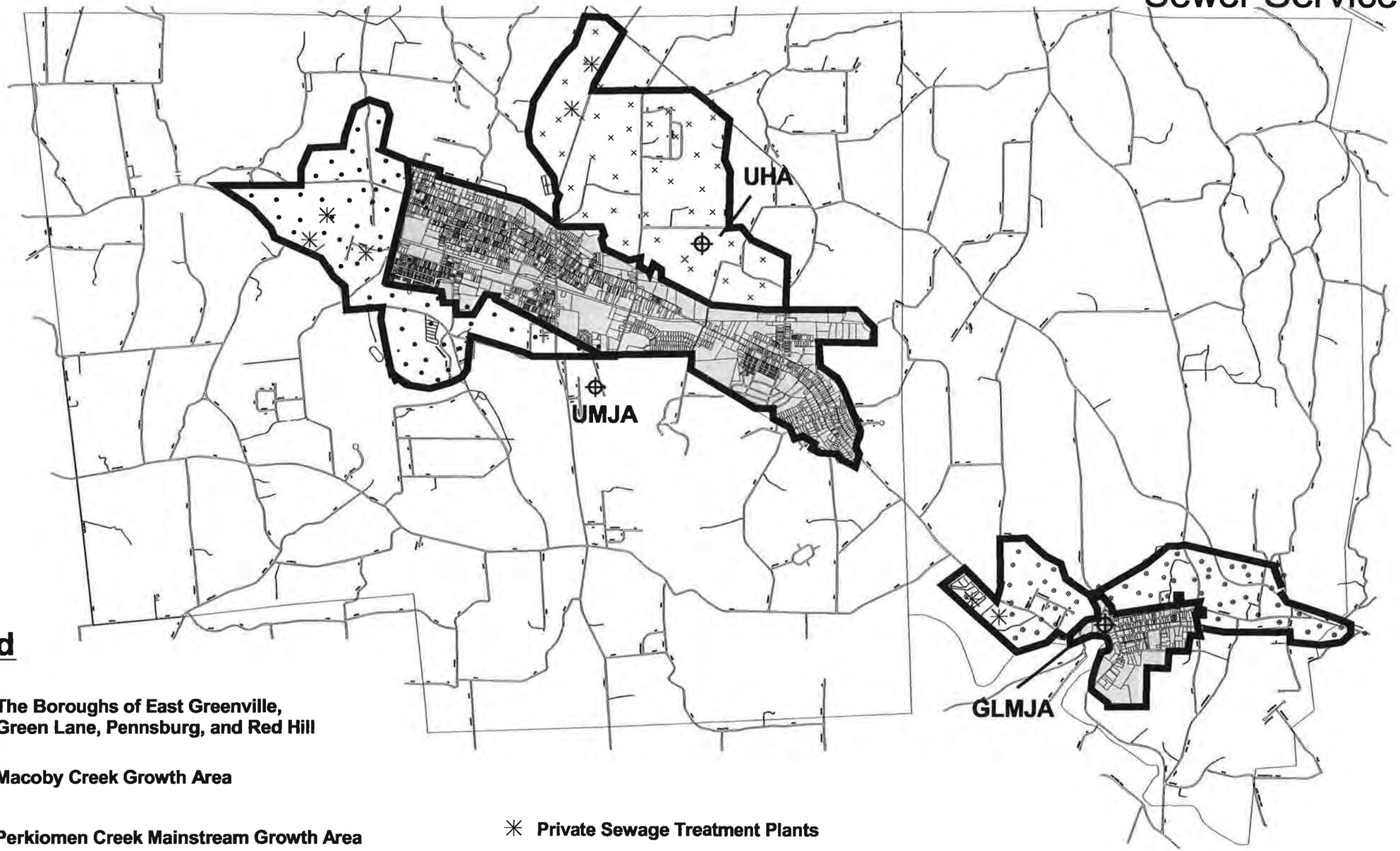

UPPER PERKIOMEN VALLEY REGION UPPER HANOVER PORTION
AND EAST GREENVILLE, PENNSBURG, RED HILL BOROUGHS
Montgomery County, Pennsylvania
Suitability for On-Lot Sewage Disposal
Potential for Sand&Mound System
Limited Potential
Limited or No Potential for On-Lot Sewage Disposal
Other
Boroughs and Green Lane Reservoir

Figure 4-1

Upper Perkiomen Valley

Figure 4-2
Sewer Service Areas



Legend

- The Boroughs of East Greenville, Green Lane, Pennsburg, and Red Hill
- Macoby Creek Growth Area
- Perkiomen Creek Mainstream Growth Area
- Green Lane / Sumneytown Growth Area (GLMJA)
- ✳ Private Sewage Treatment Plants
- ⊕ Public Sewage Treatment Plants

Greenville. In the same area, the current owner of the former Pillsbury sewage treatment plant has offered to sell that facility to Upper Hanover Township. Along Route 663, east of Pennsburg, the Hershey chocolate company and Entrance Systems, Inc., each have a plant. In order to treat the industrial wastewater in the public sewage treatment plants, the industrial STP's would have to be converted to be used as pre-treatment facilities.

In Marlborough Township, the Green Hill Mobile Home Park has its own plant and the Marlborough Elementary School has a plant that also serves the Montgomery County Nature Education Center. These are not far from the Green Lane-Marlborough plant, but their flows would need to be pumped over a ridge and the municipal plant is reported to be at or near capacity.

SEWER SERVICE AND GROWTH AREAS

Existing public sewer service areas are relatively small. The proposed growth areas would allow public sewers to be extended within other relatively small areas. Most of the region would remain outside the growth area boundaries where public sewer should not be extended. The following sections describe public sewer service areas and growth areas relative to the three authorities that currently have jurisdiction:

Upper Montgomery Joint Authority (UMJA). Although the UMJA plant is located in Upper Hanover, its primary service area is limited to its member communities, the boroughs of East Greenville, Pennsburg, and Red Hill (see Figure 4-2). In Upper Hanover, UMJA serves only a relatively small number of residences and commercial buildings located adjacent to the UMJA service area.

In 1990 the UMJA plant was upgraded and expanded to increase its capacity to 2.5 million gallons per day (MGD). It currently has approximately 800,000 gallons per day in excess hydraulic capacity. At 350 gallons per day of wastewater per typical household, the UMJA treatment facility might accommodate an additional 2,286 homes.

The primary UMJA growth area is currently limited to the three boroughs. However, an amendment to the UMJA sewage facilities plan also permits sewer hook-ups in Upper Hanover where need is documented or where development contiguous to the UMJA collection system was considered by UMJA and the township prior to the adoption of the amendment.

Upper Hanover Authority (UHA). The Upper Hanover Authority controls public water and sewer in Upper Hanover Township. Its sewer service areas are along the Macoby Creek east of Pennsburg and Red Hill and along the Perkiomen Creek adjoining Pennsburg and East Greenville (see Figure 4-2). The UMJA service area extends between the two UHA areas.

- *Macoby Creek Sewage Treatment Plant and Growth Area.* Located between Frey Road and the Macoby Creek, this township facility was needed to replace malfunctioning on-lot systems along Gramm Road and Geryville Pike. It is currently a small facility rated at only 20,000 gallons per day. However, it was designed to allow expansion to serve new development as the Macoby Creek growth area develops.

- *Perkiomen Creek Sewer Growth Area.* This area is upstream from the UMJA sewage treatment plant and there are few physical constraints to extending UMJA service lines to it. However, it is not included in the current UMJA service area. Therefore, Upper Hanover has considered alternative solutions that included a treatment plant on the Camelot Farm property, which the township purchased as open space, adjacent to the Goshenhoppen Church property. This plant would have handled gravity flows from existing industrial areas along the railroad and Water Street, and new development near East Greenville, including some areas on the east side of Route 29. Another alternative for this area is purchase of the former Pillsbury sewage treatment plant, which the Township has been seriously evaluating. This area will continue to be served by residential on-lot septic systems and industry run package treatment plants until municipal service is available.

Green Lane-Marlborough Joint Authority. This sewage treatment plant is located on Park Avenue in Green Lane Borough. It is a small facility, rated at only 0.2 MGD, and it is near, or at capacity. The plant primarily serves Green Lane Borough, but includes portions of Marlborough Township as well (see Figure 4-2). Expansion of this treatment plant is not planned at this time.

Consolidation and Environmental Protection

Long range planning for the region should identify and evaluate the potential benefits of consolidating the three sewer authorities.

Between Upper Hanover and the three contiguous boroughs, this could allow the most efficient use of existing facilities and reduce the costs of expansion to serve new development. For example, it may be feasible to divide the UMJA flows along the ridge line through the boroughs to direct them to either the UMJA plant or the UHA plant, whichever is more appropriate. Then existing capacity in the UMJA plant might be used to serve the Perkiomen Creek Growth Area.

Although the Green Lane-Marlborough Authority's service and growth areas are not contiguous to the UMJA and UHA areas, consolidation could still provide administrative and operational benefits.

Long range planning should also identify and evaluate the potential benefits of making the systems' operations more efficient and environmentally friendly. Since the supply of groundwater in the region and stream discharge of treated effluent are regional concerns, land application of treated effluent should be investigated as a means to help recharge groundwater and reduce stream pollution. Alternative methods of treatment should be evaluated to optimize environmental protection, including the following:

1. Mechanical and Biological Alternatives. These include lagoon systems, sand filter systems, and systems that employ spray irrigation for effluent disposal. Although these types of systems may be used in either growth or non-growth areas, they may be more easily applied in the low density, non-growth areas because they consume more land than other methods.
2. Spray Irrigation of Treated Effluent. This should be considered wherever public or community systems will be used although initial review of soil characteristics in the area reveals that this may not be easy to achieve on a large scale. Spray irrigation may be more practical in non-growth areas, where large areas of open space may be retained more easily, but should also be considered for growth area sewage facilities. For example, the Macoby Creek treatment plant's effluent might by used to irrigate the Upper Perkiomen Golf Club, and the UMJA plant could spray-discharge its treated effluent on lands within the Green Lane Reservoir Park. However, this method would require easements and/or other legal agreements that would grant the authorities the right to use private lands for these purposes. If it could be shown to be practical and cost effective, spray irrigation might even be used to preserve some rural land from development by disposing of treated effluent from the growth areas' sewage treatment plants.

WATER FACILITIES EXISTING CONDITIONS

Public water service is also an important determinant of growth in the region. This is particularly so for the Upper Perkiomen Valley where public water service is in limited supply. Pennsburg, Red Hill, and limited areas of Upper Hanover are served by public water from groundwater sources within the region and in Berks and Lehigh Counties. East Greenville's supply is from the Perkiomen Creek. However, most of the region gets its drinking water from individual on-lot wells.

It is vital to continually replenish the groundwater supply so that water will remain available. The locations of prime aquifer recharge should be identified, such as faults and seeps in the bedrock. This way measures can be taken to preserve these sites in their natural state, or at least minimize the intrusion of impervious surface coverage. In many cases, these areas may be heavily wooded, located in areas of undevelopable soils (hydric

and/or alluvial, explained later in this chapter) or on slopes that constrain development. The more natural constraints located in the recharge areas, the more likely these areas can be preserved through ordinances or innovative development techniques. Acquifer recharge is a regional process. Recharge areas in one community often supply groundwater to another community. Therefore, regional cooperation is needed to ensure maximum protection of recharge areas. Futher detailed study of the region's acquifers and identification of recharge areas should be done as a step in this process.

Individual on-lot wells serve all of Marlborough Township and Green Lane Borough and most of Upper Hanover Township. This type of water supply is most directly affected by a community's natural features and the intensity of surrounding development. For example, more intense development can be located in areas of Brunswick bedrock than in areas of diabase. But if individual on-lot wells are spaced too closely, they will interfere with one another and cause supply problems even on the Brunswick formation. During periods of drought, especially under severe conditions such as in 1999, these wells are the most likely to run dry and stay dry for extended periods. Therefore, it is critical to control the intensities of development served by individual on-lot wells to avoid overtaxing the available groundwater supply. In addition, sufficient land area should be provided for recharge of these wells on the individual lots and in critical regional acquifer recharge areas. The balance of withdrawal and recharge is helped by the use of on-lot septic systems. These systems naturally filter effluent and return approximately 50 percent of water usage for recharge and spray irrigation, which can return larger amounts to the groundwater aquifer.

Municipal water authorities systems serve parts of Upper Hanover and all of East Greenville, Pennsburg, and Red Hill, as shown in Figure 4-3. They are supplied by the Perkiomen Creek, municipal wells within the region, and wells and springs in Hereford Township, Berks County and Upper Milford Township, Lehigh County. Generally, municipal systems provide larger and more reliable supplies than individual on-lot wells and allow greater concentrations of development. In addition, interconnecting of these systems allows better distribution of available supplies and better protection during drought or other extenuating circumstances. These existing sources, new wells, and appropriate expansion of the distribution systems should be the basis for supplying most of the growth in the region. Outside the areas served by the municipal systems, lower densities of development should contribute to an overall balance of groundwater withdrawal and recharge for the region.

The diabase bedrock that underlies much of Marlborough and parts of Upper Hanover severely restricts the availability and distribution of water. As noted in Chapter Two, Natural Features, diabase is very dense and resistant to ground water infiltration. Since diabase is such a poor aquifer, it is often challenging and expensive to find sufficient quantities of water for new development. Also, the installation of public water distribution lines in areas of diabase is highly impractical because the dense bedrock often lies very close to the surface.

The problem of water supply is not confined to new development only. Often in times of drought, many existing individual wells may run dry forcing homeowners to dig ever deeper wells. However, in areas of diabase a deep well is no guarantee of finding water. Even the public water systems are dependent upon wells for most of their water supply. Therefore, the protection and preservation of ground water is a regional priority.

WATER FACILITIES PLANNING

Although the state does not require water planning by local governments, the Montgomery County Planning Commission's Water Service Plan outlines criteria that can be used for planning water service growth areas. These include population estimates, proposed land use and growth areas, sewage facility growth areas, proximity to existing water lines, physical constraints, location of problem water areas, and water supply. When these criteria are applied to the Upper Perkiomen Valley region, the proposed water service areas correspond directly with the proposed sewage facility service areas (see Figure 4-3).

The Water Service Plan stresses that water planning should be correlated closely with sewage facility planning, and that residential areas zoned low density rarely or never justify public water service.

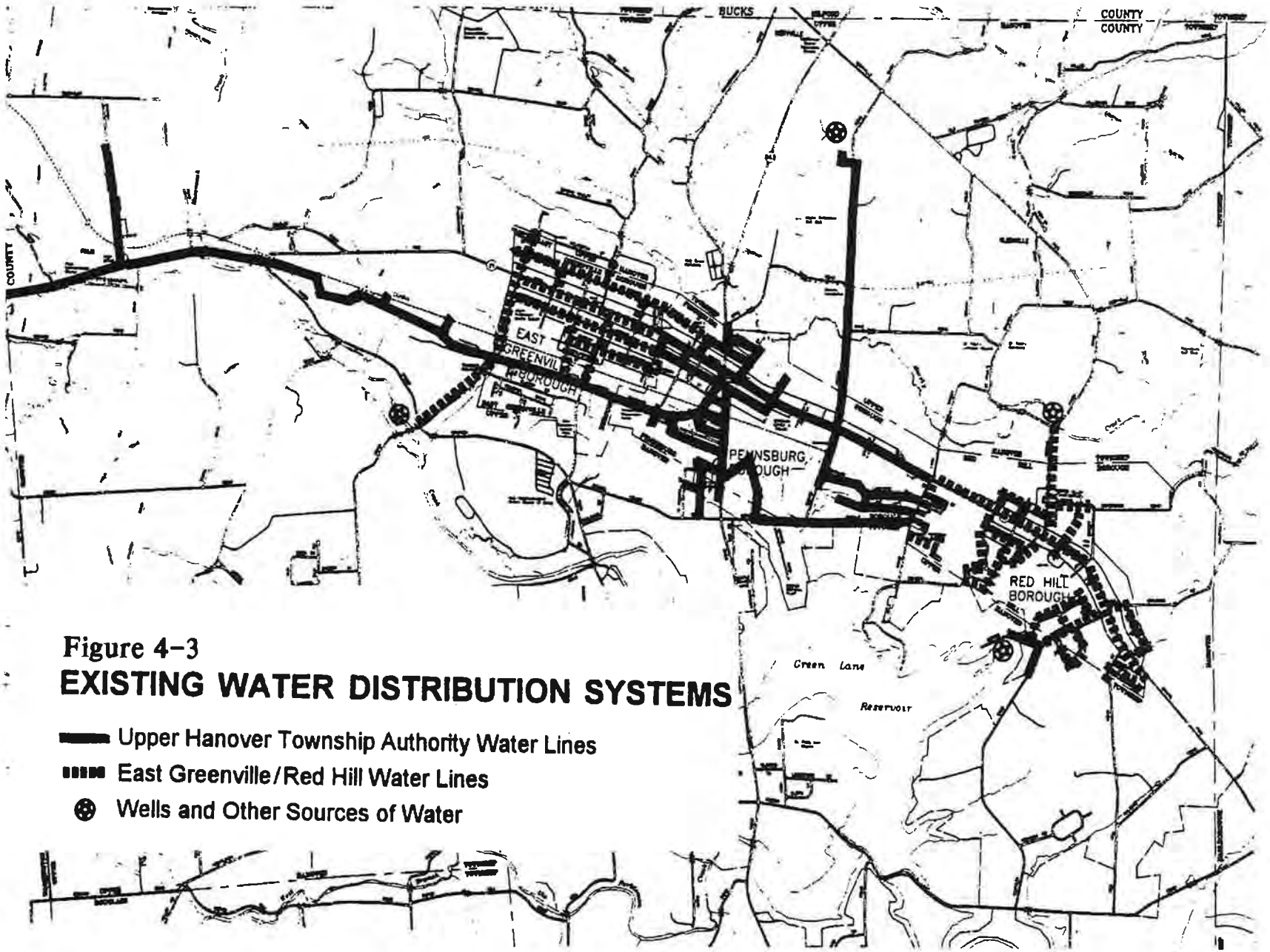


Figure 4-3
EXISTING WATER DISTRIBUTION SYSTEMS

Protection of Groundwater Supplies

Overusing groundwater will cause the water table to drop and reduce base flow. Base flow can be described as excess groundwater that is discharged into streams, creeks, ponds, and lakes. In addition, a drop in the water table could cause individual on-lot wells to go dry, or become contaminated by on-lot septic systems.

This is particularly the case for Marlborough Township and Green Lane Borough, which are entirely served by on-lot wells, many of which are drilled into diabase bedrock. Given the critical importance of ground water recharge in this area, the extension of public sewers and the introduction of public water should be deferred as long as possible. Therefore, the area around Green Lane Borough in Marlborough Township is not considered a designated public water growth area.

Large lot sizes can reduce the impacts of numerous individual on-lot wells because the open land surrounding each individual well allows for recharge of the aquifer below. Densities of one unit per two or more acres should be the maximum in areas that depend on individual on-lot wells. In these same areas, low-density cluster development served by a centralized water supply will also allow wide areas for recharge and spacing between wells.

Future Development

Recharge of aquifers and maintenance of adequate stream base flow should be the highest priorities regarding water and sewer for future development. In addition, water use should be managed by enacting and enforcing water conservation measures.

New residential development on lots of two acres or more should rely on individual on-lot water supply and sewage disposal to encourage recharge of groundwater withdrawn for use. Low-density cluster development should use central or community systems, and take advantage of their open space for land application of treated effluent to the greatest extent feasible. Medium- and high-density development in the region's designated growth areas should rely on public water supply and public sewers. However, land application of treated effluent should be preferred over stream discharge whenever feasible.

Carefully managed use of shallow aquifers for individual on-lot wells, use of deeper aquifers for centralized or public well supplies, and continued use of existing public water sources, should be expected to provide sufficient water supplies for existing development and a reasonable amount of future growth.

Specific steps to ensure continued adequate water supply to the region include the following:

1. Avoid discharge of treated sewage effluent into surface waters whenever feasible.
2. Use sewage disposal systems that help groundwater recharge for new development.
3. Continue groundwater recharge from existing on-lot sewage disposal systems.
4. Continue using all existing water supplies, including those from Berks and Lehigh counties.
5. Use public or centralized water supply from deep aquifers to supplement the existing supplies from surface water and shallow aquifers.
6. Enact water conservation measures to reduce per capita consumption so that the available supply can be used more efficiently.

TRANSPORTATION EXISTING CONDITIONS

The transportation system of the region is extremely important because of the need for mobility in our society. Residents of the valley must be able to reach their jobs, as well as community facilities such as stores, and schools. Area businesses must also have an adequate road network in order to move their goods and services. As the region grows, traffic will naturally increase placing a greater burden on existing roads. Many of the roads within the Upper Perkiomen Valley are little more than rural lanes that are not designed or intended to carry significant amounts of traffic. There are no plans to improve these roads, and to do so would in fact destroy much of the region's rural character. In order to preserve the countryside, development will be directed to areas that have a road network capable of carrying the additional traffic.

Two principal arterials serve the Upper Perkiomen Valley, Routes 29 and 663. Both state routes connect the valley to major transportation and employment centers and carry significant amounts of traffic. We can safely anticipate that traffic on these main arteries will only continue to grow as development occurs in and outside the region. New development within the valley will be directed along these two corridors.

The ownership of all the public roads in the valley fall under the jurisdiction of either the Common Wealth of Pennsylvania (PADOT), Montgomery County, or the six municipalities of the Upper Perkiomen Valley (see Figure 4-4). Within the limits of applicable laws, the townships and boroughs have complete control over roads under their jurisdiction but must coordinate with PADOT and the Montgomery County Department of Roads and Bridges regarding state and county roads.

For planning purposes, however, the townships and boroughs of the valley have the responsibility for designating all the roads under an appropriate functional classification relative to the purposes they are intended.

TRANSPORTATION PLAN

- *Functional Road Classification System.* Functional classification is the grouping of roads into a hierarchy by the character of service and function they provide. It was developed as an important planning and design tool for comprehensive transportation planning. The system is based on standards established by the American Association of State Highway and Transportation Officials (AASHTO), and is used by the Pennsylvania Department of Transportation. It provides design guidelines appropriate for each road, as well as a way to coordinate road functions and improvements among neighboring communities and throughout the state. This system permits a logical and efficient road network to be established under a road hierarchy that includes expressways, arterials, collectors, and local roads.

  Located between the suburban fringe areas of Allentown and Philadelphia, the Upper Perkiomen Valley is still predominantly rural in character, yet is developing. In addition, the four boroughs function as an urban center to the region, but at a village scale. Therefore, neither AASHTO's two major categories for functional classification, "rural" and "urbanized" areas exactly serve the needs of the valley. A combination of the two AASHTO categories, therefore, may be more appropriate. The new system combines the names used by AASHTO for the types of roads in rural areas, with its descriptions of character, service, and function of streets in urbanized areas. The Montgomery County Planning Commission has proposed using similar functional classifications in its update of the county's "Highway Plan," currently being drafted.

  The map in Figure 4-5 shows the Upper Perkiomen Valley's functional road classification system using the following classifications:

  - Principal Arterials
  - Minor Arterials
  - Major and Minor Collectors
  - Local Roads and Rural Lanes

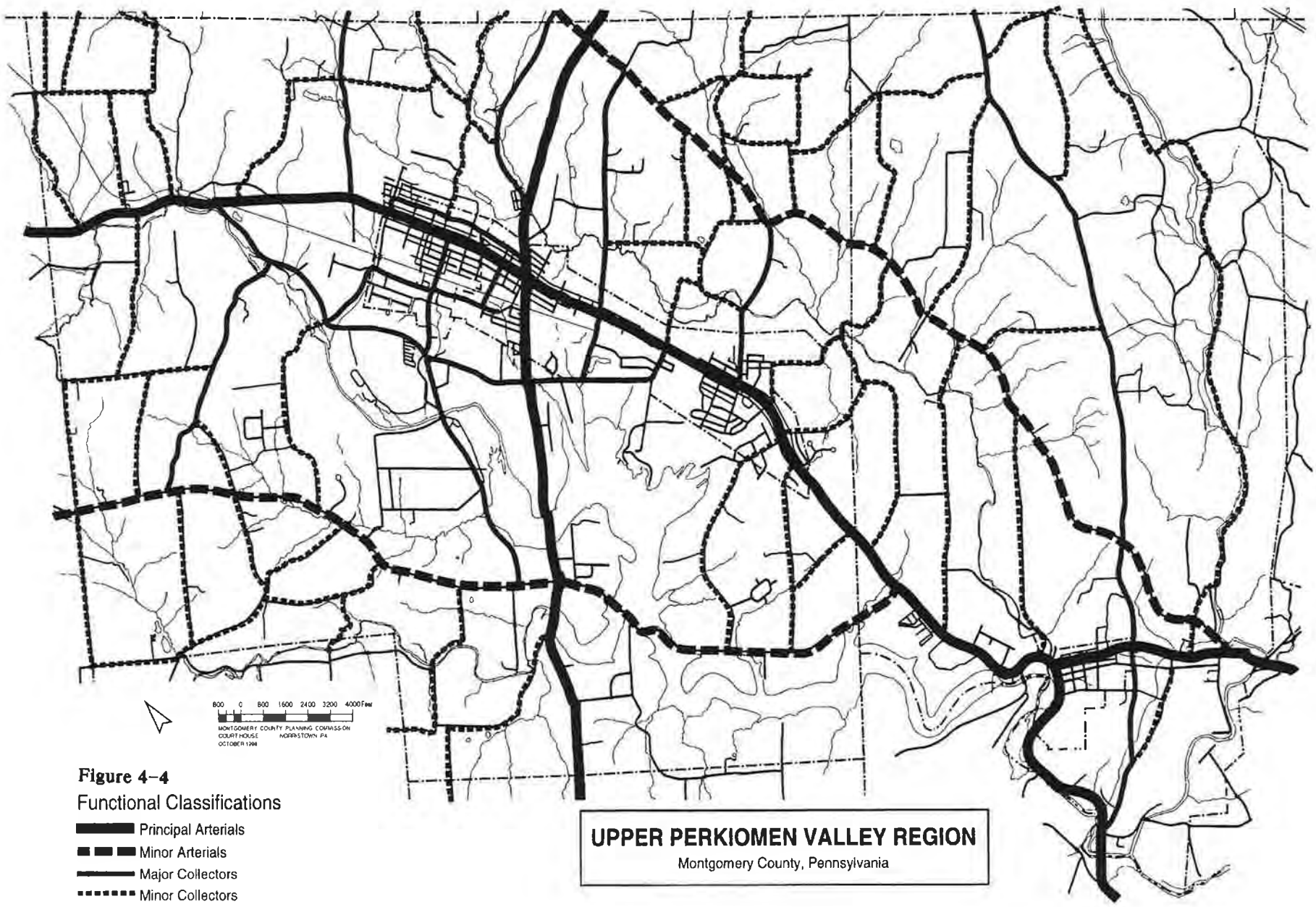


Figure 4–4

Functional Classifications

- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads and Rural Lanes

- *Principal arterials* serve primarily to carry the highest volumes of through traffic on a regional level. Principal arterials should have an ultimate right-of-way of 100 feet in rural areas, and 80 feet within the boroughs and villages. *Minor arterials* interconnect with and augment principal arterials in serving major activity centers, but generally serve trips of more moderate lengths. Minor arterials should also have an ultimate right-of-way of 100 feet in rural areas and 80 feet in the boroughs and villages. *Major and minor collectors* distribute traffic from arterials to lower classified streets, and collect traffic from lower classified streets to be carried to arterials. Major collectors should have an ultimate right-of-way of 80 feet in rural areas and 60 feet in the boroughs and villages. Minor collectors should have and ultimate right-of-way of 60 feet in all locations. *Local roads and rural lanes* are the minor streets that carry the lowest volumes of traffic and function primarily to provide vehicular access to adjacent land uses. The valley's local roads and rural lanes should have an ultimate right-of-way of 50 feet.

Industrial Access Roadway

An issue currently before the region is how best to direct truck traffic from the industrial complexes in the western portions of Upper Hanover to the Quakertown interchange of the Pennsylvania Turnpike without adversely impacting the boroughs of East Greenville and Pennsburg. To address this problem, a PADOT study is proposed that will look at all the issues, solicit municipal and public input, and then present a preferred solution. That study, however, has not been started yet, and its results will not be known before the completion of this comprehensive plan. Therefore, for this plan to comment on the merits of the Industrial Access Roadway, and its possible alternatives, would be premature at this time. However, upon completion of the PADOT study, the municipalities of the Upper Perkiomen Valley may wish to amend this comprehensive plan to include the study's recommendations.

Public Transportation

Public transportation is another key element in the region's transportation system. Public transportation reduces the amount of traffic on the roads and provides greater transportation options to those who may not own a car.

Although the region is not currently served by public transportation, officials may choose to consider undertaking a public transit study sometime in the future when enough development occurs to make it a viable transportation option.

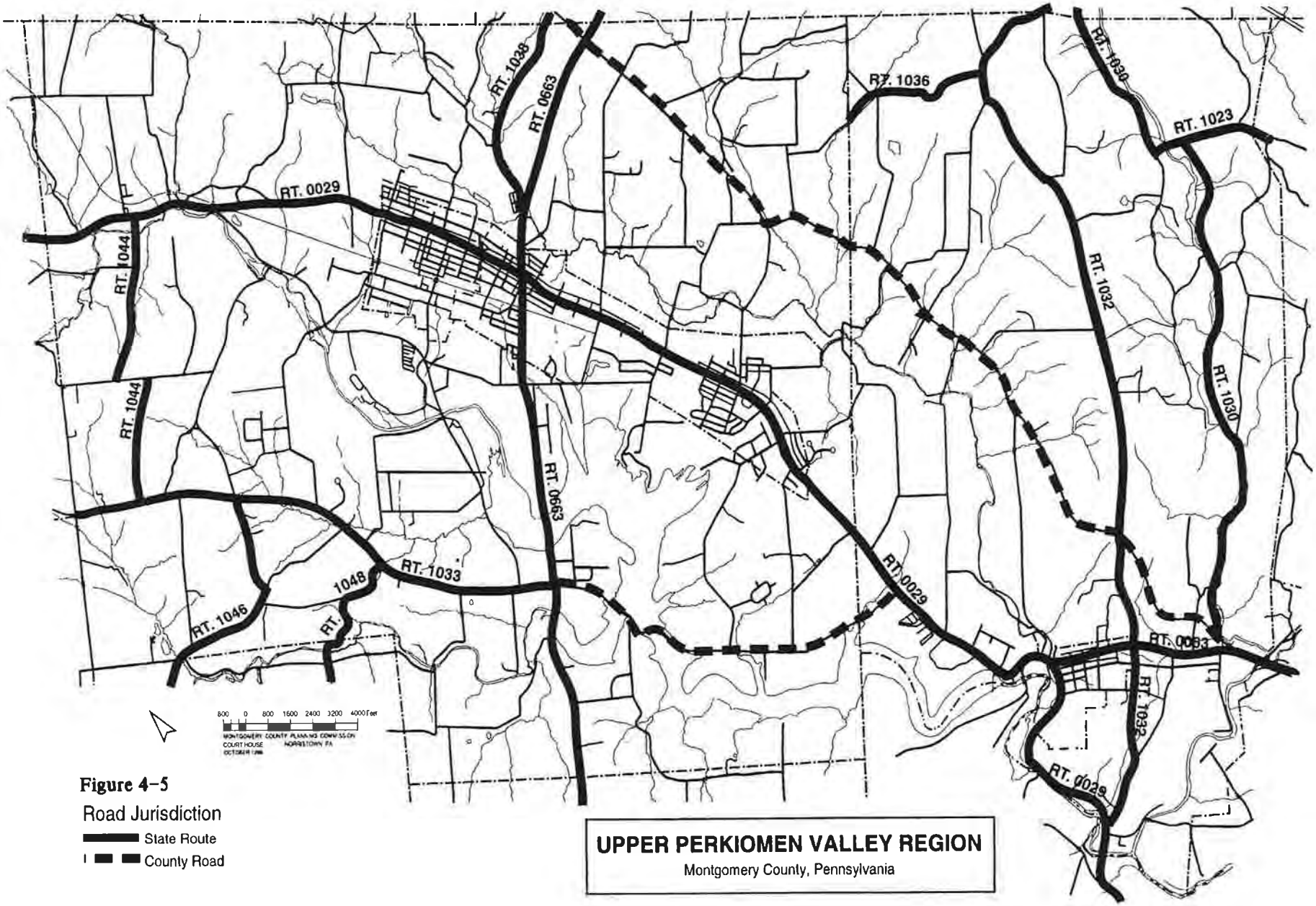


Figure 4-5

Road Jurisdiction

State Route

County Road

Chapter Five
HOUSING

HOUSING GOALS

The six municipalities of the Upper Perkiomen Valley recognize that quality affordable housing is crucial to the long-term vitality of the region. In this they are fortunate to have an ample supply of housing in a wide variety of styles and prices to satisfy near term demand. However, as the region's population grows, new homes will have to be added to meet demand.

The long-term social and economic well-being of the region depends upon an adequate supply of all housing types for all income levels. However, new residential development must also be done in a way that complements the existing neighborhoods of the boroughs, and respects the rural environment of the townships. Above all, suburban sprawl should be discouraged. Otherwise, the very aspects of the valley that contribute to its quality of life—the open fields, stream valleys, woodlands, farms and the small-town charm of the boroughs—will be lost to unmanaged development.

This plan intends to balance growth and preservation. It seeks to provide for new housing opportunities but not at the expense of the rural landscape. The municipalities in the valley intend to accomplish this by acting on the following five housing objectives as stated in Chapter Three, "Goals and Objectives."

- Concentrate new development in designated growth areas.
- Encourage new housing developments that foster a sense of community and promote a pedestrian-friendly environment.
- Meet fair share requirements as a region.
- Encourage infill housing to be architecturally compatible with the surrounding neighborhood.
- Encourage housing opportunities for a range of income levels.

BACKGROUND

Existing Conditions

The housing stock of the Upper Perkiomen Valley is diverse and in ample supply. There are single-family homes, twins, duplexes, townhouses, apartments, mobile homes, and mobile home parks.

According to the 1990 U.S. Census, 58 percent of all homes in the valley were single-family detached (see Figure 5-1). The remainder was higher-density attached units or mobile homes. This compares favorably with Montgomery County, which is comprised of 55 percent single-family detached units and 45 percent higher-density attached units. In rural areas, and in particular rural townships, 90 percent of all housing units are typically single-family detached.

Because the Upper Perkiomen Valley is predominantly a rural region, many of the single-family homes are situated on fairly large lots. This is particularly so for the two townships where the average lot size is greater then 2 acres. This is understandable since the geology of the region is not conducive to intense development. Still, two-thirds of all the existing single-family homes in the valley are located in either Upper Hanover or Marlborough Townships (see Figure 5-2).

Figure 5 - 1

Housing Allocation: Type

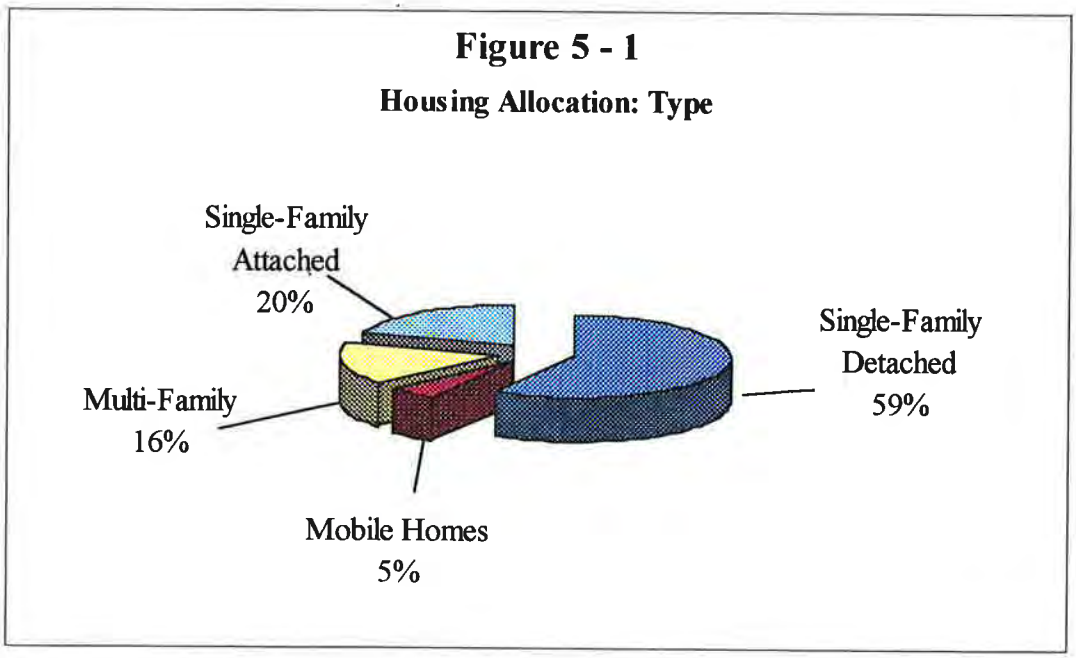


Figure 5-2
Housing Allocation: 1990 Census

	Single-Family	Single-Family Attached	Multifamily	Mobile Homes
East Greenville	250	602	271	0
Pennsburg	354	256	270	0
Red Hill	301	159	213	35
Green Lane	106	23	40	0
Marlborough	863	50	61	151
Upper Hanover	1403	54	54	69
Upper Perkiomen Valley Totals	**3277**	**1144**	**909**	**255**

The remaining single-family homes are located in the four boroughs on lots less then a quarter acre in size. These homes are typically more affordable then those found in the townships. They also give people the choice of living in a small-town environment. In 1990 there were over 1,000 single-family detached homes in the four boroughs.

With their higher-density zoning, the boroughs contain most of the single-family attached housing units in the region. Densities range from between 6 to 8 units to the acre for townhouses, older-style row homes, twins, or duplexes. Multifamily housing units (apartments) are also located in the boroughs where the infrastructure is in place to accommodate the higher densities. Apartments are permitted at a density of up to 20 units to the acre, with even higher densitites permitted for elderly housing.

In addition to their small-town charm, the boroughs provide much of the affordable housing in the region. Higher densities usually translate to lower housing costs. This fact is supported by the high number of responses to the regional survey question, "why did you choose to live in your municipality?" A total of 257 responded that it was because of the availability of affordable housing.

The Upper Perkiomen Valley has two mobile home park developments—one in Red Hill Borough and the other in Marlborough Township. Both have approximately 140 pad sites (*2000 data*) that can accommodate single and doublewide units.

FUTURE HOUSING DEMAND

The population of the region is projected to increase by 4000 people by 2020 (see Figure 1-9 in Chapter One, "Background"). The region will need to add approximately 1500 new dwelling units to accommodate this population increase. (This figure was arrived at by dividing the increase in population, [4000] by an average household size of 2.67.) Although the market will ultimately decide the type of housing to be built, regional planning will have a significant say in housing location and density.

LOCATION

A primary objective of this plan is to concentrate new housing development in areas where infrastructure exists or is planned. Infrastructure, such as roads, public sewers, and public water, can be found in and around the four boroughs (see Figure 7-1, Chapter Seven, "Future Land Use"). Conversely, the township's rural areas are to be protected as much as possible by limiting the amount of new development through a variety of planning and regulatory means.

DENSITY AND TYPE

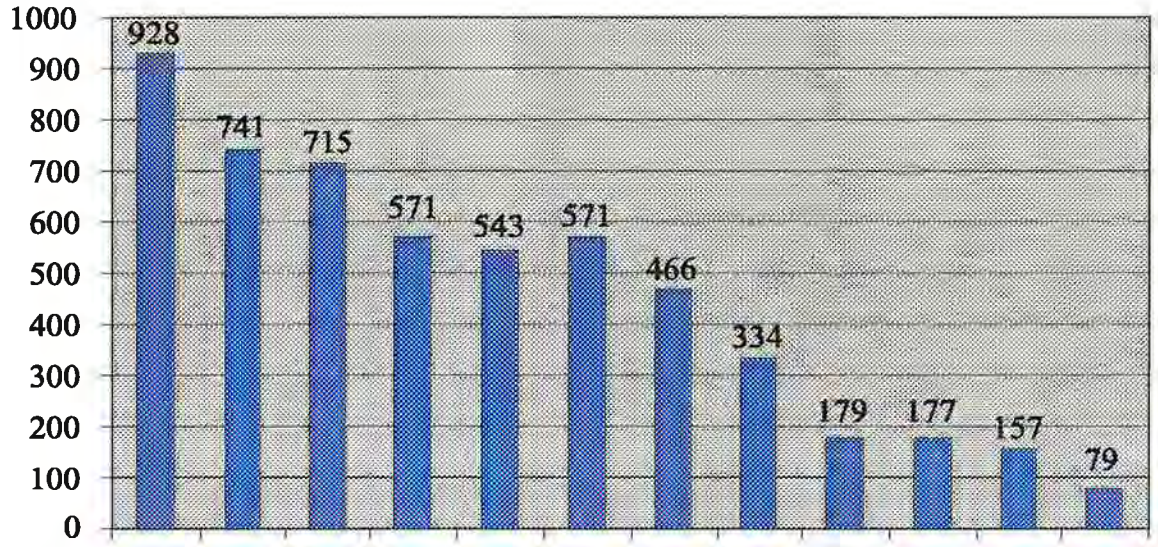
Low-Density Residential

Limiting development in the rural areas to low-density residential should reduce conflicts between farms and homes as well as preserve the many unique and special environmental features of the region. Preservation of the rural landscape is a goal shared by many in the valley. When surveyed, respondents chose the rural setting and natural environment of the region as the number one reason for living in their municipality. (See Figure 5-3.) Therefore, one of the main objectives of this plan is to preserve the valley's farms and open lands, as much as possible. This will be accomplished by limiting the amount of residential development in the rural areas to 1 unit per 2 acres. At a minimum, no public sewer or water is planned for the rural low-density areas. Even larger lot sizes may be deemed appropriate in areas with viable farming activity or significant environmental constraints.

A number of regulatory tools are available to limit the impact of development in the region's nondesignated growth areas. Tools, such as cluster zoning, farmland zoning, environmental performance zoning, and transfer of development rights, will be considered.

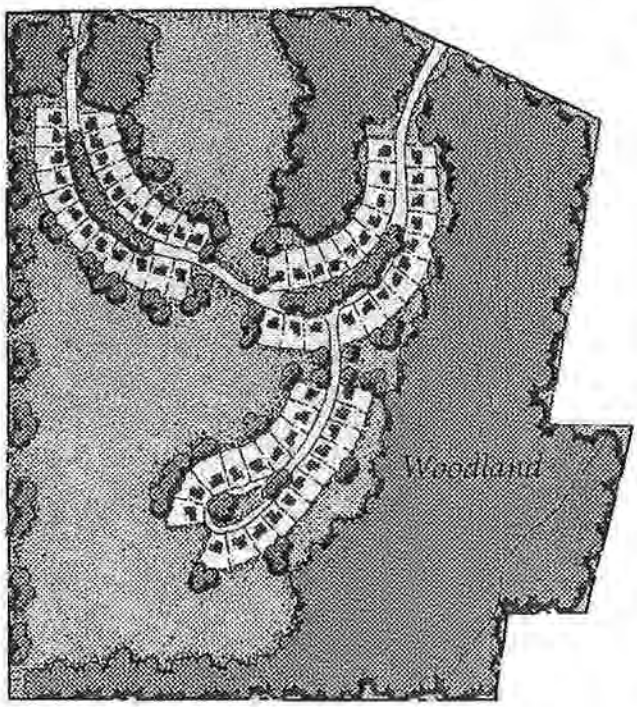
One of these tools cluster zoning is illustrated below to show how the goals of open space preservation and development can successfully coexist. The two sites in Figure 5-4 and Figure 5-5 are considered fully developed with 65 homes on 130 acres. Yet more than 75 percent of each tract has been permanently preserved as open space. In Figure 5-4, all of the woodlands are saved. In Figure 5-5, where perhaps farming is still a viable activity, the homes have been placed in the wooded areas to preserve the farm fields. In either case, because of the large amount of required open space, developers have a great deal of flexibility in siting the homes. With cluster zoning, open space or farmland can be preserved while still allowing some development to occur.

Figure 5 - 3
Overall Reasons for Living in UPV



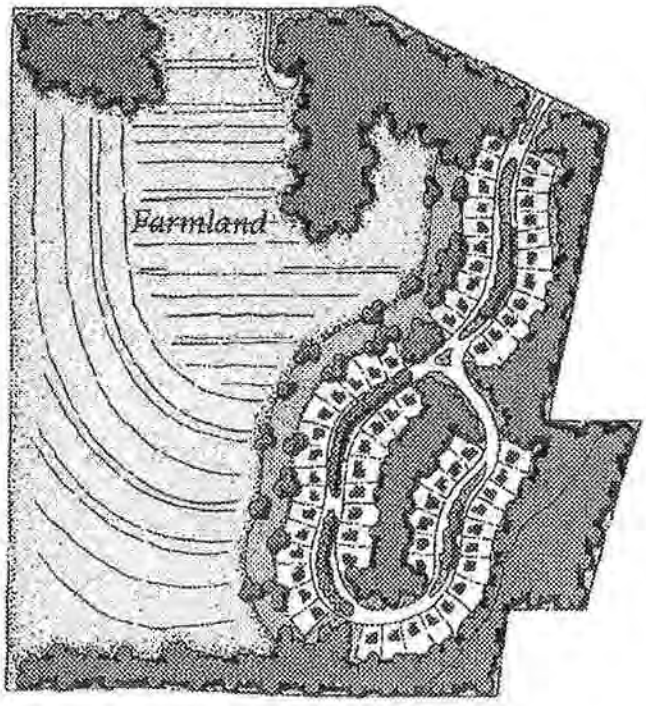
Rural settings / Natural surroundings 928
No response 741
Small Town Environment 715
Born or raised here 571
Housing affordability 571
Near Friends or family 543
Convenient to Work 466
School system 334
Low taxes 179
Lot size 177
Housing style 157
Farming or related agriculture activity 79

Figure 5-4



Cluster with woodland preservation

Figure 5-5



Cluster with farmland preservation

Medium-Density Residential

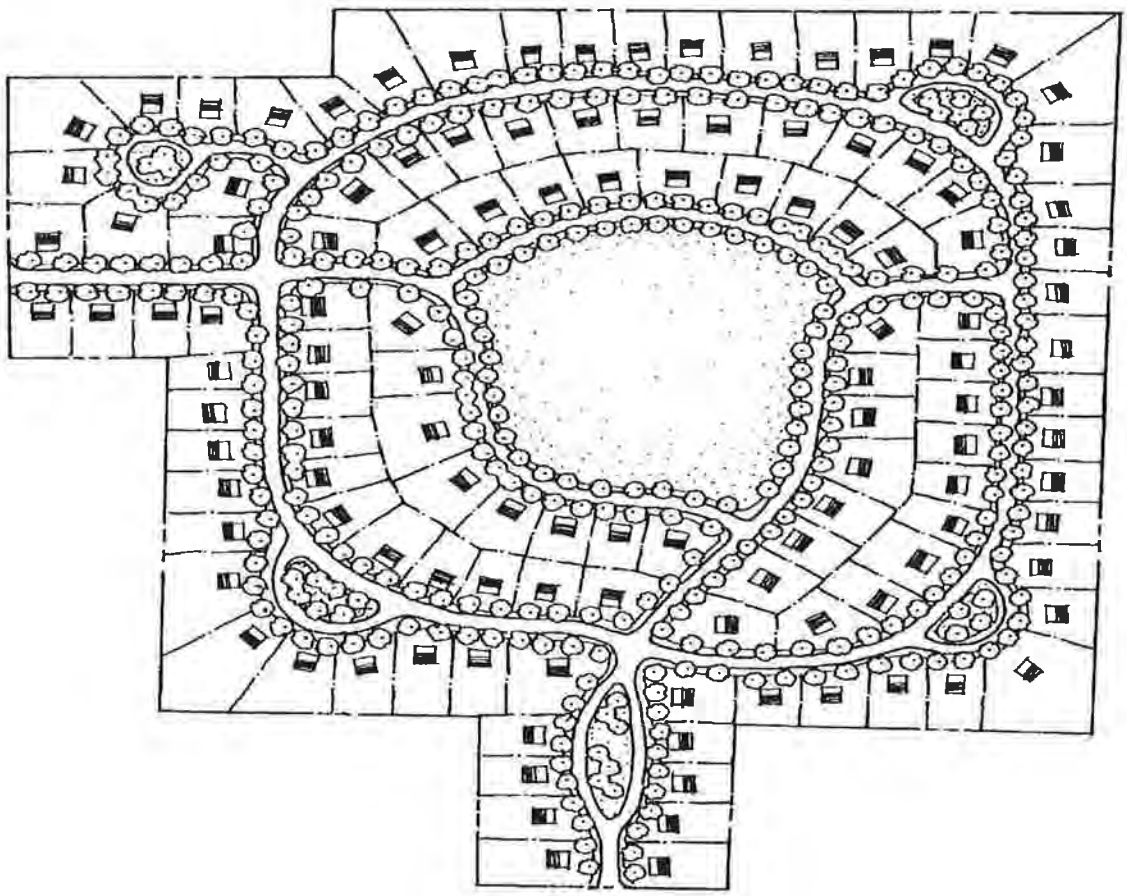
Medium-density housing up to 4 units to the acre will be permitted in the designated growth areas (see Figure 7-2, Chapter Seven, "Future Land Use"). It is probable that most of the new homes built over the next 20 years will be in this residential category.

To preserve the rural countryside as much as possible borough infill will be encouraged, and new large-scale development will be directed to the townships designated growth areas. These growth areas are situated near the four boroughs where the road network, community facilities, and commercial and retail centers already exist. In addition, Upper Hanover intends to serve its designated growth areas with public sewers and water. Since growth tends to follow public sewer and water, this decision will help insure that new development occurs only in the most appropriate locations.

Typical suburban medium-density development often appears dull and uniform with its rigid quarter-acre to one-acre tract housing. Although appropriate for many of the more developed areas of the county, suburban-style development would not fit into the rural landscape of the Upper Perkiomen Valley. Medium density development with a village-style appearance would be more suitable to local development patterns. Village development would foster a sense of community and a pedestrian friendly environment.

The county's model for medium-density housing calls for central greens, landscaped cul-de-sac islands, sidewalks, and a number of other design standards intended to evoke the feeling of a village. The example in Figure 5-6 incorporates many of these design features. Street trees are planted in front of each house, sidewalks are on both sides of the street, and lot widths are varied for visual interest. In the center of the development is a large central green, which serves as the focal point of the neighborhood and serves as a common play area.

Figure 5-6



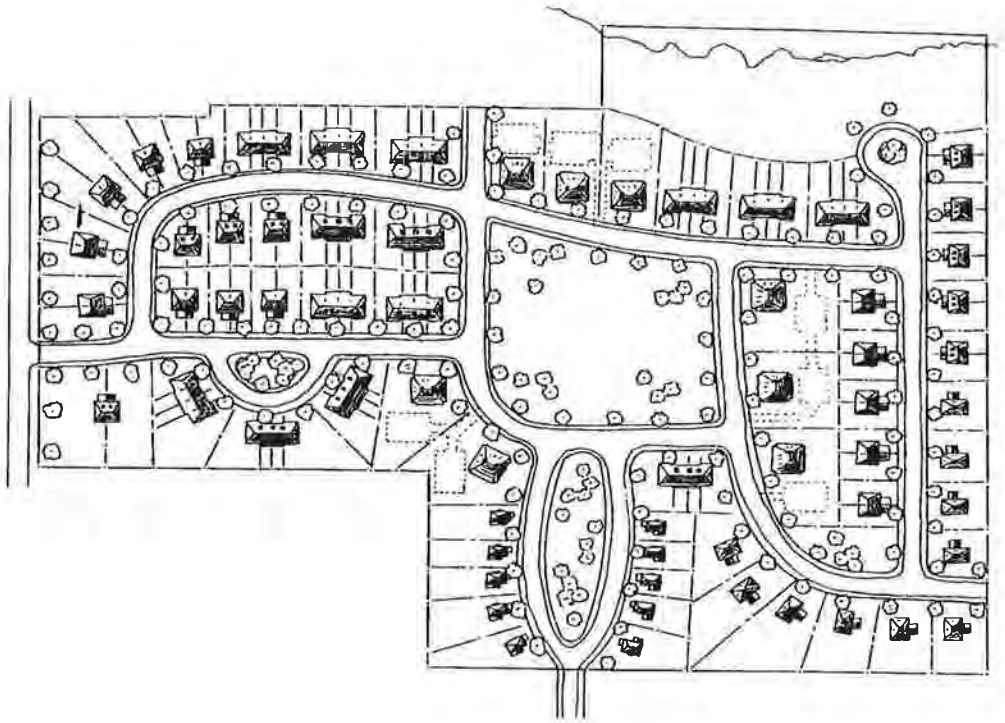
High-Density Residential

High-density housing in the designated growth areas will be permitted at densities of 4 units to the acre and higher for townhouses, apartments, twins, duplexes, and mobile homes in mobile home parks.

Most of the region's high-density housing is located in the four boroughs. Out of a total of 2390 units (1990 U.S. Census), 1922 are located within the boroughs. There are no compelling reasons to change this situation in the future. With their infrastructure already in place, the boroughs are best suited to accommodate new high-density housing. Much of this new development will be in the form of infill on scattered vacant sites or the improvement of underutilized properties. The boroughs have sufficient land available to accommodate approximately 900 to 1000 new high-density units.

Although infill development should be sufficient to meet the long-term high-density housing needs of the region, additional land is to be set aside in Upper Hanover to allow for market flexibility. The high-density development, like medium-density, will be in the township's designated growth areas and will be served by public sewer and water.

Figure 5-7



New high-density development should be physically and architecturally compatible with existing high-density housing. In the Upper Perkiomen Valley, that means taking on a village-style appearance. Design criteria should be integrated into the municipal zoning codes to insure new development fits in seamlessly with the community. Design elements include sidewalks, interconnected streets, and central greens. These elements work in combination to create a livable community.

Mobile Home Parks

Two mobile home parks serve the Upper Perkiomen Valley—Green Hill Mobile Home Park in Marlborough Township and Red Hill Estates in Red Hill Borough. These two parks meet the region's current and anticipated demand for mobile homes in mobile home parks. At this time, there are no plans to increase mobile home park zoning.

FAIR SHARE

No chapter on housing would be complete without a brief discussion of "fair share" and how the doctrine affects regional planning. In Pennsylvania, municipalities are required to permit, through zoning, a wide variety of housing types. These types include single-family attached units such as twins, duplexes, and townhouses; multifamily units; and mobile home parks. If a municipality does not have enough land set aside for all of these uses, it runs the risk of having its zoning successfully challenged in the courts for not meeting its "fair share." Multimunicipal planning organizations are not immune from a fair share challenge.

The courts apply two methodologies in determining whether a municipality or region satisfies its fair share needs. The first looks at the amount of land zoned for high-density and compares it to the total land area of the region. The amount of high-density zoning should fall somewhere between 2.7 percent and 3.5 percent of the total land area.

By any measure, the Upper Perkiomen Valley, under the proposed land use plan, far exceeds even the upper limit of the fair share range (see Figure 5-8). Of the 22679 total acres in the valley, 1334, or 5.88 percent has been set aside for high-density housing.

Figure 5-8

Category	Residential Use		Total	All Other	Region Totals
	Low-Density	High-Density			
Number of Acres	17,268	1,334	18,602	4,077	22,679
Percent of Region Gross Area	76.14%	***5.88%***	82.02%	17.98%	100.00%
Percent of Total Residential Area	92.83%	7.17%	100.00%	N/A	N/A

Fair share based on gross land area.

The percentage of land zoned for high-density goes up significantly when the Green Lane Reservoir is excluded from the total. It is a reasonable and fair assumption to factor out land which, by its physical condition or legal status, can never be developed. The reservoir is obvious—a lake can never be considered developable. Farms preserved through the county and state agricultural preservation program and lands purchased for open space under the county's Open Space Preservation Program fall under the category of legally protected lands. When these lands and the lake are subtracted from the region's total (approximately 1928 acres) the percentage of land designated for high-density housing increases to 6.43 percent (see Figure 5-9).

Figure 5-9

Category	Residential Use		Total	All Other	Region Totals
	Low-Density	High-Density			
Number of Acres	15,228	1,344	16,562	4,189	20,751
Percent of Region Gross Area	73.38%	***6.43%***	79.81%	20.19%	100.00%
Percent of Total Residential Area	91.95%	8.05%	100.00%	N/A	N/A

The second measure (less commonly used) to determine fair share looks at the ratio of high-density to low-density housing to see if they are substantially unequal. If the current stock of low-density housing far exceeds that of high-density, the courts will look to see if the ratio improves at buildout. In the Upper

Perkiomen Valley the ratio of high-density to low-density is already well-balanced (see Figure 5-10). Over 42 percent of all existing dwelling units are high-density. Although this number drops slightly at buildout to 36 percent, it is still considered an excellent number. Furthermore, this ratio is likely to improve as buildout is achieved once rural preservation policies are put into place. These policies should reduce the total number of single-family homes that potentially could be built. It is very probable therefore, that at buildout the number of high-density housing units, as a percentage of the region, will substantially exceed 36 percent.

Figure 5-10

Category	Low-Density	High-Density
Existing Dwelling Units	3,277	2,390
Percent of Total Dwelling Units	***57.83%***	***42.17%***
Potential New Dwelling Units (at buildout)	5,673	3,211
Percent of Total New Dwelling Units	***63.86%***	***36.14%***

Chapter Six
EXISTING LAND USE

INTRODUCTION

If the Upper Perkiomen Valley region were completely undeveloped, we could plan for future land use by choosing the best sites for a variety of land uses. However, development has spread across the region during the past 200 years, and it provides the framework for future land use planning. This chapter focuses on the types and amounts of the existing land uses within the region—providing a "snapshot" of existing characteristics. Planning for future land use must consider how existing land use may affect future development and preservation of rural character for the region and for individual communities.

CATEGORIES OF EXISTING LAND USE

For the purposes of this chapter, existing land use was divided into 16 categories, shown on the map in Figure 6-7. Six categories involve various forms of residential development. Five involve nonresidential development, and one is a mixed category. The other categories are public and private open space, agriculture, and undeveloped land. The "water" category is primarily contained within public open space areas and is mapped for illustrative purposes. Its acreage is included in the acreage of "public open space."

The designation given to each property was based initially on land use classifications used by the Montgomery County Board of Assessments (BOA), which assigns categories for taxing purposes. However, we adapted the BOA categories to be more meaningful for land use planning purposes. For example, private golf courses are commercial land use for taxing purposes but are private open space for land use planning.

SUMMARY OF LAND USE BY LAND AREAS CONSUMED

The charts in Figures 6-1 and 6-2 identify general and specific categories of existing land use by acreage, as well as percentages of the region's total land area. These numbers are rounded off as whole numbers, which allow sufficient accuracy for the purposes of this chapter. Exceptions were made for those uses that occupy less than 1 percent of the region's area. These are rounded to one decimal place.

Figure 6 - 1: General Categories of Existing Land Use

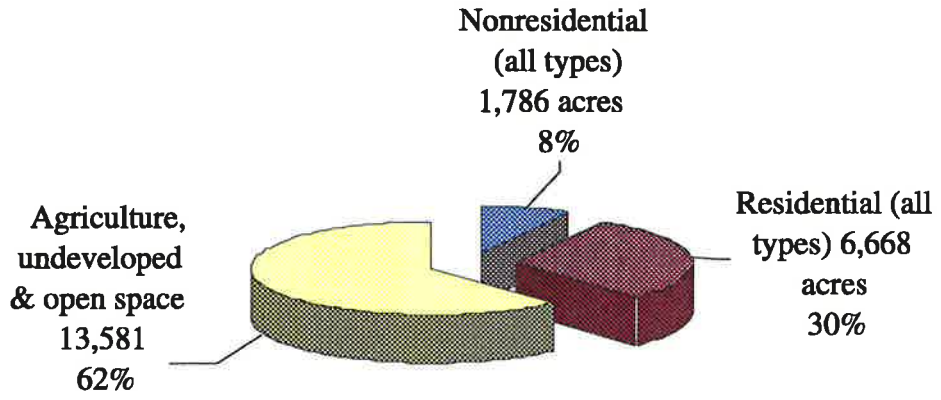
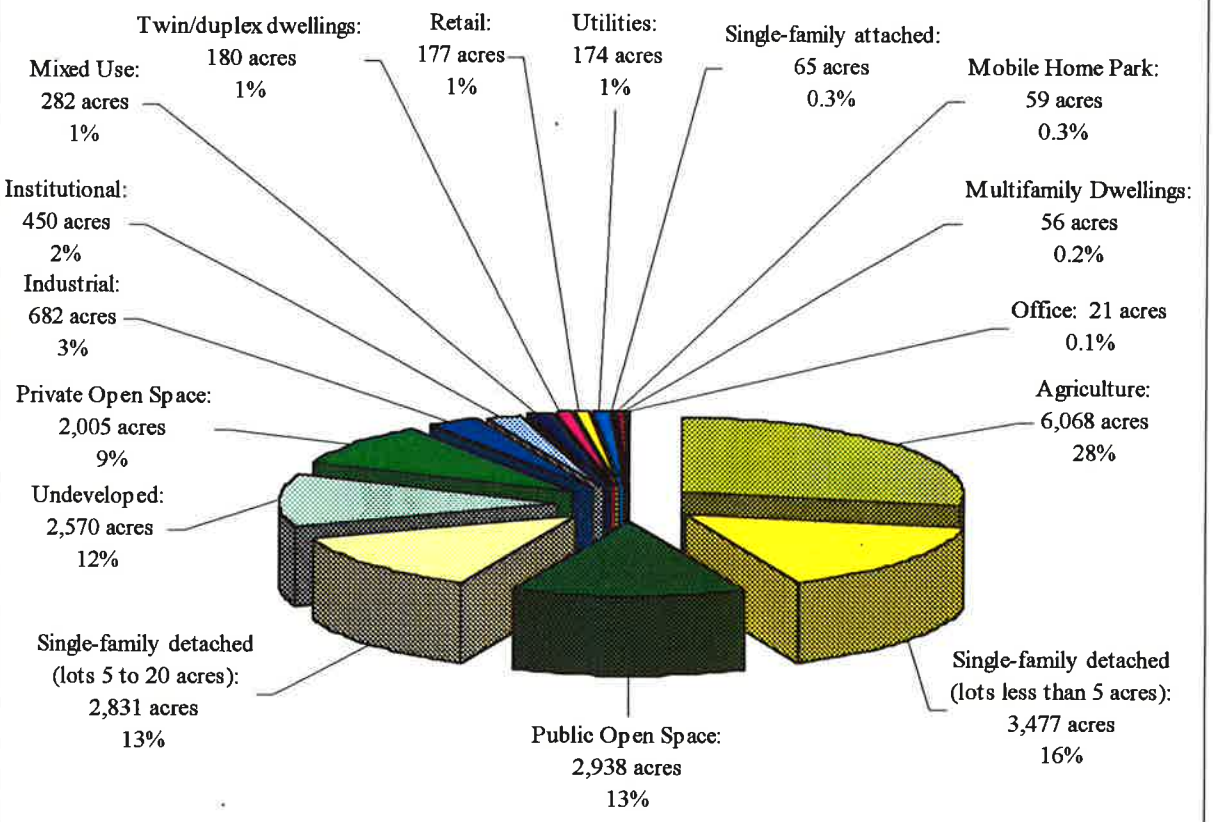


Figure 6-2
Specific Categories of Existing Land Use



The region's total land area was divided into 16 categories of existing land use for the purposes of this chapter.

RESIDENTIAL CATEGORIES

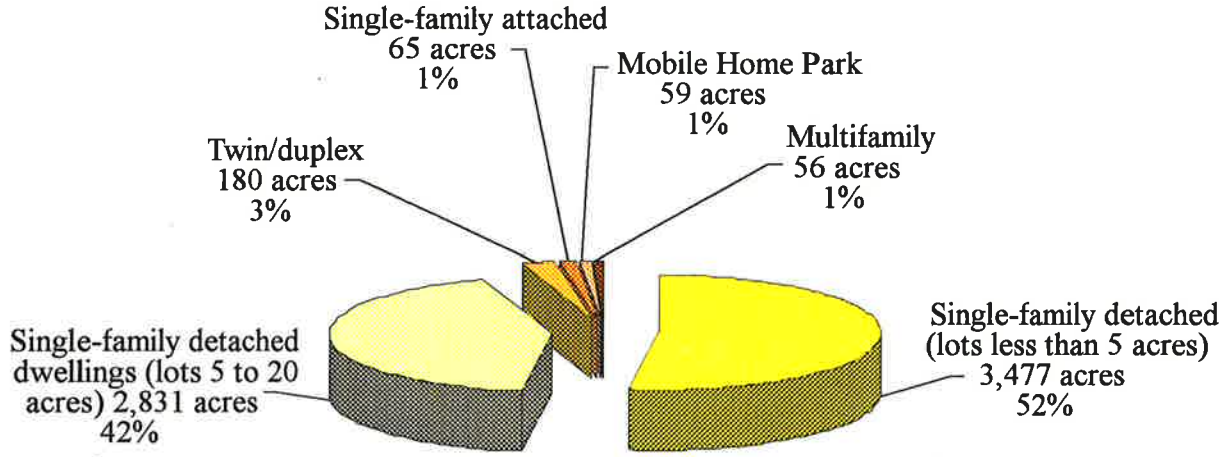
The chart in Figure 6-3 divides the 6668 acres of existing residential lands into six categories. These categories are defined according to the number and arrangement of dwelling units. A dwelling unit is generally defined as one or more rooms intended to be occupied as separate living quarters, with cooking, sleeping, and sanitary facilities in the unit for the exclusive use of a single-family maintaining a household. These categories include all lots that have been developed solely for residential purposes. Lots with both residential and nonresidential uses are covered by the "mixed-use" category.

- **Single-Family Detached (SFD).** A building designed for and occupied exclusively as a residence for one family only and not attached to any other building or dwelling units. The two categories of single-family detached dwellings are explained in this chapter.

- **Twin/Duplex.** Two dwelling units located in one building that is not attached to any other building. Twins have two dwelling units placed side-by-side and joined to each other by a vertical common wall. Duplexes have one dwelling unit placed above the other and share a common horizontal partition (floor/ceiling).

- **Single-Family Attached (SFA).** Often defined as a dwelling unit with independent outside access with no other dwelling units located directly and totally above or below it. Single-family attached units have party walls in common with at least one but not more than three adjacent similar dwelling units and are located in a building that contains at least three dwelling units. Townhouses, row houses, triplexes, and quadruplexes are typical single-family attached dwelling units.

Figure 6-3: Existing Residential Uses



The six categories of existing residential uses occupy 30 percent of the region's total land area. Of the 6668 acres occupied by these uses, the land areas and percentages occupied by each type are identified in this chart.

- **Multifamily**. Dwelling units located in a detached residential building containing three or more dwelling units, usually referred to as apartments. They are generally located entirely above or below one another, may share outside access and/or internal hallways, lobbies, and similar facilities, and share the lot on which their building is located. Multifamily development is usually under one operating unit, as a rental or condominium property, and includes garden apartments, flats, and multifamily conversions from single-family detached dwellings.

- **Mobile Home Park**. A parcel of land that contains lots rented under one operating unit for the placement of mobile homes. Typically, the residents own the mobile homes. Mobile home park is a distinct classification identified in the Pennsylvania Municipalities Planning Code. When mobile homes are placed on lots owned by the mobile home owners, they are considered single-family detached dwellings.

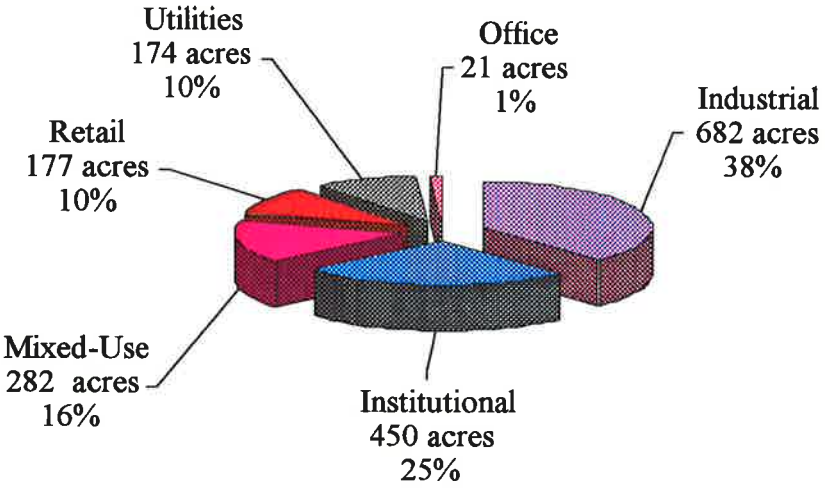
MIXED-USE AND NONRESIDENTIAL CATEGORIES

The chart in Figure 6-4 divides the 1786 acres of existing mixed-use and other nonresidential lands among the mixed-use, retail, office, industrial, institutional, and utilities categories.

- **Mixed Use.** This category identifies individual properties with more than one land use on them. Each parcel has one or more nonresidential uses and may or may not include a residential component. Within the boroughs, mixed uses are often combinations of stores and dwellings or stores and offices.

- **Retail.** Stores, restaurants, repair shops and garages, and a variety of other commercial uses frequented by the general public. Among the largest and most recognizable retail developments are the Pennsburg Square Shopping Center, Redner's Market, and Red Hill Ford. Many retail businesses in the boroughs are included in the mixed-use category because they share a building with offices or dwelling units.

Figure 6-4: Mixed-Use and Nonresidential Categories



These six categories occupy only 8 percent of the region's total land area. Of the 1786 acres occupied by these uses, the land areas and percentages occupied by each type are identified in this chart.

- **Office.** Properties that are developed exclusively for office purposes as well as some miscellaneous uses, including animal hospitals, funeral homes, and banks. Many office businesses in the boroughs are included in the mixed-use category because they share a building with retail uses or dwelling units.

- **Industrial.** This category includes large industrial uses, such as Brown Printing and Knoll International furniture, and a variety of smaller industrial uses which are scattered throughout the townships and boroughs, generally on lots of less than 6 acres. "Heavy commercial" uses such as Ryder Truck, Copart (New England Recovery), and several junkyards, are categorized as industrial.

- **Institutional.** Schools, churches, cemeteries, and fire companies as well as the Masons' Lodge, Perkiomen Valley Veterans Association, and similar uses.

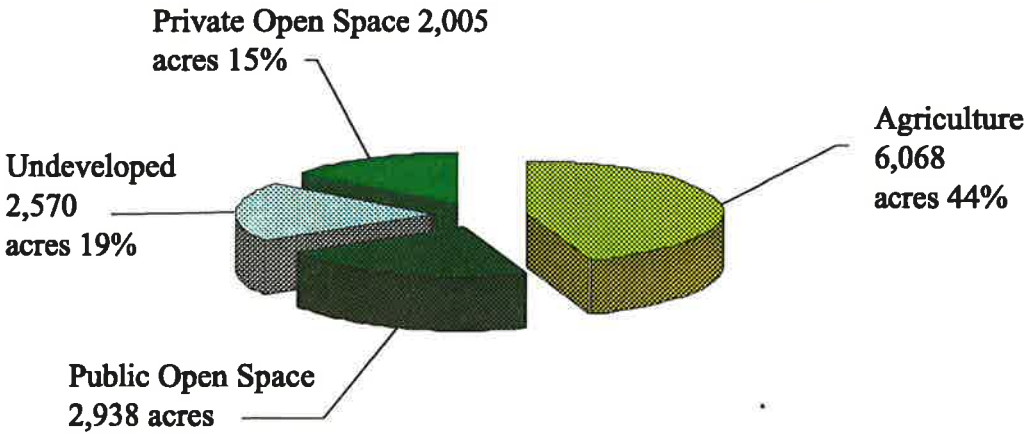
- **Utilities.** Primarily sewer and water company properties and gas and electric transmission lines. However, large sections of the electric companies' transmission lines and water and sewer lines are within easements on lands in other categories and are not accounted for under "utilities."

OPEN SPACE, AGRICULTURE, AND UNDEVELOPED CATEGORIES

The chart in Figure 6-5 divides the 13,581 acres of these categories by acreage and percentage of the total land area.

- **Undeveloped.** Parcels designated as vacant land under the Board of Assessments' land use classifications. Larger parcels may be easily seen as vacant lands, while many smaller parcels may appear to be part of adjoining developed parcels. However, they all have individual tax parcel numbers and are capable of being transferred to new owners as vacant lots. The smaller parcels may not all be large enough for independent development.

Figure 6-5: Open Space, Agriculture and Undeveloped



These four categories occupy 62 percent of the region's total land area. Of the 13,581 acres occupied by these uses, the land areas and percentages occupied by each type are identified in this chart.

- **Public Open Space.** Park, recreation, and open space parcels owned by Montgomery County or one of the municipalities in the region. The surface area of the Green Lane Reservoir is included, as well as lands on which municipal offices are located in Marlborough, Red Hill, and Pennsburg. Public open space is considered to be permanently preserved open space.

- **Private Open Space.** Golf courses, hunting or gun clubs, the YMCA property, and the Boy Scouts of America camp in Marlborough Township are major uses in this category. Unlike public open space, most of the private open space can be sold by its private owners and/or developed as permitted by zoning districts.

- **Agriculture.** Parcels larger than 20 acres that are covenanted under Act 319, lands where development rights were sold to Montgomery County under the Montgomery County's Farmland Preservation Program, and other farmlands identified from aerial photography and input from municipal officials. Most of the parcels contain a house, but agriculture is the dominant use of the land.

PURPOSES OF DATA AND MAPPING

The table in Figure 6-6 summarizes the existing land uses in all 16 categories for each of the region's six municipalities, and for the region as a whole. The numbers document the amounts of land occupied by each use as of the date of the Board of Assessment data. The numbers for each municipality are contained only in the table. The numbers for the region as a whole were used to create the charts in this chapter. The charts depict the makeup of existing land use in the region. It will be important to update the data and charts periodically to identify land use changes. The data, charts, and map are not precise measurements but are acceptable for the purposes of this chapter.

Figure 6-6: Summary of Existing Land Use Data

Land Use Category	East Greenville		Green Lane		Pennsburg		Red Hill		Marlborough		UpperHanover		Upper Perkiomen Region	
	Acres	% of Boro Area	Acres	% of Boro Area	Acres	% of Boro Area	Acres	% of Boro Area	Acres	% of Twp Area	Acres	% of Twp Area	Area	% of Region's Area
1. Multifamily	8.7	3.2%	3.5	1.9%	7.9	1.7%	8.1	2.2%	22.9	0.3%	4.8	0.0%	55.9	0.3%
2. Single-Family Attached	35.3	12.8%	0.0	0.0%	15.1	3.3%	14.3	3.8%	0.0	0.0%	0.1	0.0%	64.8	0.3%
3. Twin/Duplex	38.8	14.1%	5.9	3.3%	24.9	5.5%	15.2	4.0%	58.4	0.8%	37.1	0.3%	180.3	80.0%
4. Mobile Home Park	0.0	0.0%	0.0	0.0%	0.0	0.0%	32.2	8.6%	26.3	0.3%	0.0	0.0%	58.5	0.3%
5. Single-Family Detached (<5 acres)	63.8	23.2%	55.0	30.4%	100.4	22.1%	116.4	31.0%	1182.7	15.3%	1959.1	15.0%	3477.4	15.8%
6. Country Residence (SFD >5 & <20 acres)	0.0	0.0%	0.0	0.0%	11.6	2.5%	0.0	0.0%	1183.6	15.3%	1635.7	12.5%	2830.9	12.8%
7. Mixed Use	7.3	2.6%	3.9	2.2%	20.0	4.4%	11.3	3.0%	80.8	1.0%	159.1	1.2%	282.4	1.3%
8. Retail	4.4	1.6%	10.8	6.0%	43.3	9.5%	13.3	3.5%	64.2	0.8%	41.0	0.3%	177.0	0.8%
9. Office	2.7	1.0%	0.9	0.5%	4.6	1.0%	3.5	0.9%	0.9	0.0%	8.1	0.1%	20.7	0.1%
10. Industrial	17.1	6.2%	9.7	5.3%	27.5	6.0%	22.5	6.0%	210.7	2.7%	395.0	3.0%	682.5	3.1%
11. Institutional	48.5	17.6%	3.6	2.0%	62	13.6%	51.9	13.8%	46.6	0.6%	237.4	1.8%	450.0	2.0%
12. Utilities	1.1	0.4%	3.3	1.8%	537	1.3%	0.5	50.0%	51.5	0.7%	112.2	0.9%	174.3	0.8%
13. Undeveloped	29.91	0.9%	35.7	19.7%	103.9	22.9%	63.5	16.9%	1112.8	14.4%	1224.5	9.4%	2470.3	11.7%
14. Public Open Space	9.8	3.6%	48.7	26.9%	26.1	5.7%	23.0	6.1%	414.2	5.4%	2415.8	18.5%	2937.6	13.3%
15. Private Open Space	5.0	1.8%	0.0	0.0%	0.0	1.4%	0.3	0.0%	1468.2	19.0%	530.4	4.1%	2005.0	9.1%
16. Agriculture	2.9	1.1%	0.0	0.0%	0.2	0.0%	0.0	0.0%	1788.3	23.2%	4276.2	32.8%	6067.6	27.5%
TOTAL LAND AREAS*	**275.3**	**100.0%**	**181.0**	**100.0%**	**454.6**	**100.0%**	**375.7**	**100.0%**	**7712.1**	**100.0%**	**13036.5**	**100.0%**	**22035.2**	**100.0%**

**From Fair Share Analysis*

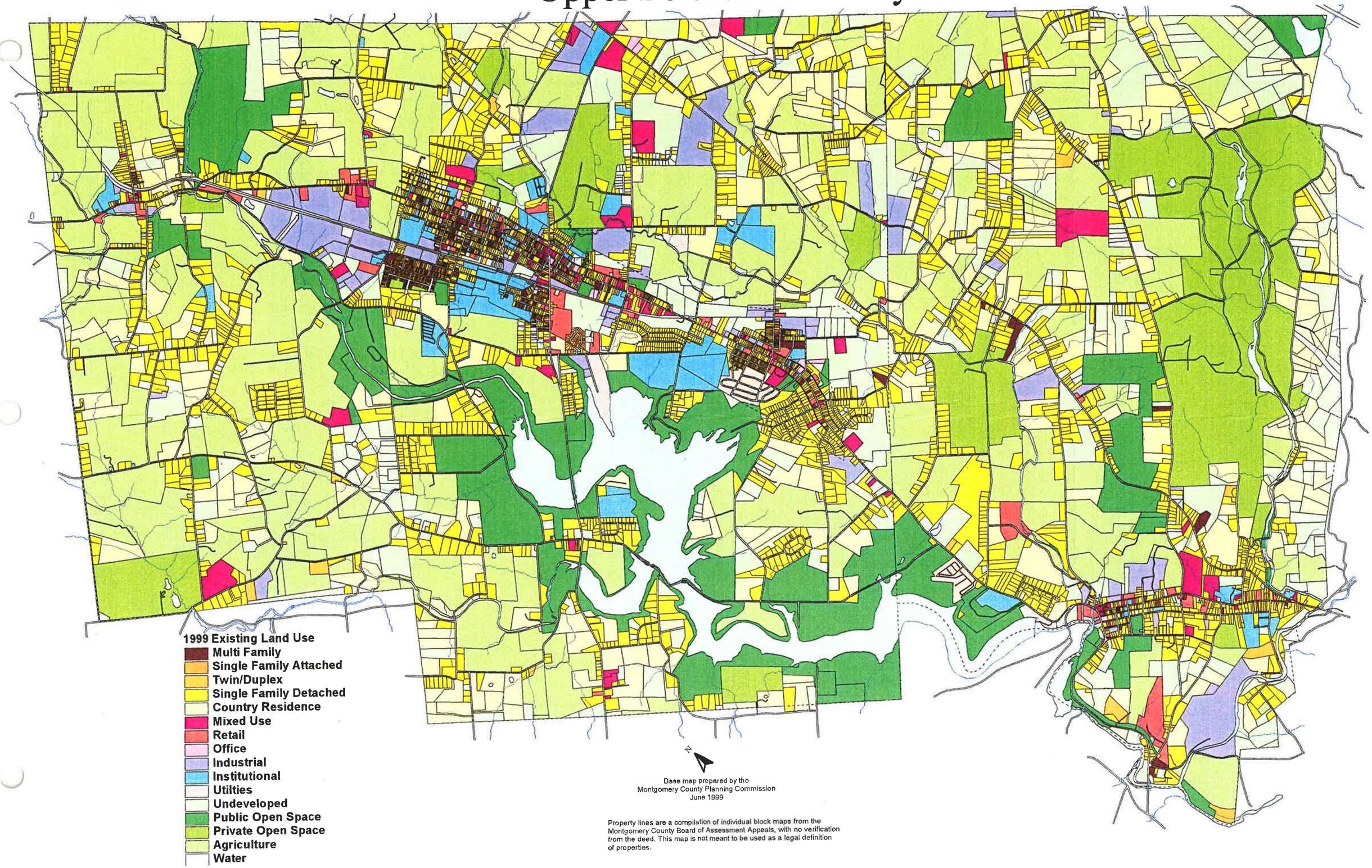
(Refined Existing Land Use Table 1-4-2000.xls)

The map in Figure 6-7 shows the geographical distribution of existing land uses throughout the region. It is not surprising to see that the largest concentrations of higher-density residential and nonresidential uses are primarily found in the boroughs and villages, and farmlands and larger residential and vacant lots are primarily in the townships. Other important aspects of the map include the concentrations of residential lots of 5 acres or less throughout the townships and the extents of industrial, institutional, and open space land areas in the region.

The geographical distribution of existing land uses, road network, extent of public sewer and water systems, and planning for open space, recreation, and preservation of natural features are all important elements for determining a reasonable future land use plan for the region (see Chapter Seven). When existing land use data and charts are updated, the existing land use map should also be updated to show where changes have occurred.

Upper Perkiomen Valley

Figure 6-7

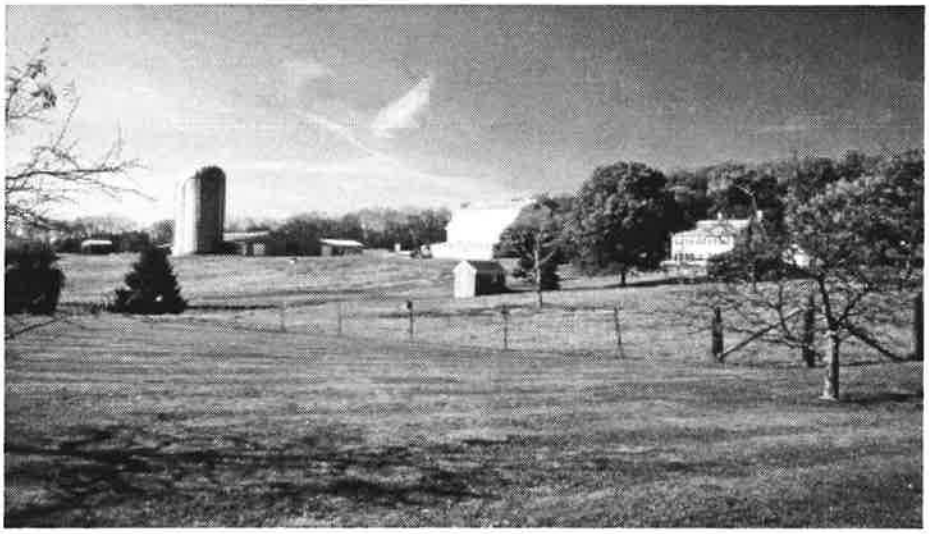


Chapter Seven
FUTURE LAND USE

INTRODUCTION

Change is a constant for every community. The six municipalities of the Upper Perkiomen Valley are participating in regional planning because they believe that one unified plan for future growth will be more beneficial for each municipality and the entire valley, than six individual plans. The Upper Perkiomen Valley today is a scenic rural landscape. Many of its large properties remain as farms, large residential lots, vacant land, and woodland. The valley's industries are generally located on large parcels, rather than in industrial parks. Shopping centers, stores, offices, and high-density residential neighborhoods are concentrated mainly within the valley's four centrally located boroughs. These rural and small-town characteristics are important aspects of the quality of life in the Upper Perkiomen Valley and preserving these physical features as growth occurs is a unifying regional planning theme. The most critical process in balancing these issues is determining future land use. The Future Land Use Plan is the cornerstone of the Upper Perkiomen Valley's comprehensive plan.

SURVEY NOTES...
In a recent survey of the Upper Perkiomen Valley, residents ranked the valley's rural setting and natural surroundings as their highest reason for living in the valley. The third highest response was the valley's small-town environment.



Farm in Upper Hanover Township

THE REGION'S GROWTH AREAS AND RURAL RESOURCE AREAS

The Future Land Use Plan proposes to protect the valley's rural landscapes, natural resources, and small-town character while accommodating a reasonable amount of growth. The plan designates growth areas and directs revitalization, new development, and infrastructure improvements into those growth areas. Outside of the designated growth areas the primary land use objective is preservation of the valley's rural landscape and natural and cultural resources. Figure 7-1 shows these areas and they are described under the "Growth Areas" and "Rural Resource Areas" headings in this chapter.

GROWTH AREAS OF THE UPPER PERKIOMEN VALLEY

Growth in a community can have many positive benefits. It helps to maintain the economic vitality of a community and provides new opportunities. Growth in the Upper Perkiomen Valley should be complementary to the community's character and should meet several goals of the comprehensive plan. These include providing adequate housing for future residents, accommodating new commercial needs, expanding employment opportunities, and promoting new industry.

The following growth areas provide for new growth in the Upper Perkiomen Valley while preserving the small-town character and rural landscape of the valley. We anticipate that the year 2020 population for the valley will grow by 4,000 new residents, for a total population of 19,600 (see Chapters One and Five for more information). These new residents will require approximately 1,500 new homes. Assuming buildout of the valley's high-density residentially zoned land, which is all contained within the valley's designated growth areas, over 3,200 new high-density units could be constructed. In addition, these growth areas include areas zoned for a variety of housing types, non-residential uses, and mixed-use districts to meet various market demands. Each designated growth area is described below.

The Boroughs of East Greenville, Green Lane, Pennsburg, and Red Hill

The boroughs have historically been the economic and social centers of the valley. However, newer industrial and commercial processes have caused many businesses to locate outside of these older communities, and shopping malls now supply many retail goods that were once found on their "Main Streets." The Upper Perkiomen Valley recognizes the importance of these places for the region's identity and quality of life and seeks new growth and redevelopment in these boroughs that is consistent with their existing character. In addition, these towns have significant assets to build on-a good housing stock with historic character, civic institutions and restaurants where people gather, small businesses, pedestrian-friendly streets for people of all ages, and infrastructure services. Nationally, "new" traditional towns are successfully being built in an attempt to recreate the character and sense of place found in these boroughs. In the Upper Perkiomen Valley, there are opportunities to conserve the character of the old towns while rejuvenating their economic and social qualities.

Macoby Creek Growth Area

A section of the Macoby Creek drainage basin, shown in Figure 7-1, has been identified as a preferred area for new development for several reasons. Its locational advantages and proximity to the boroughs, its good vehicular access from Routes 663 and 29, and Geryville Pike, and its large, gently sloping developable tracts all contribute to this being a priority growth area. Public water is available and could be extended relatively easily throughout this entire area. The public sewer system could also serve this designated area by gravity flow.

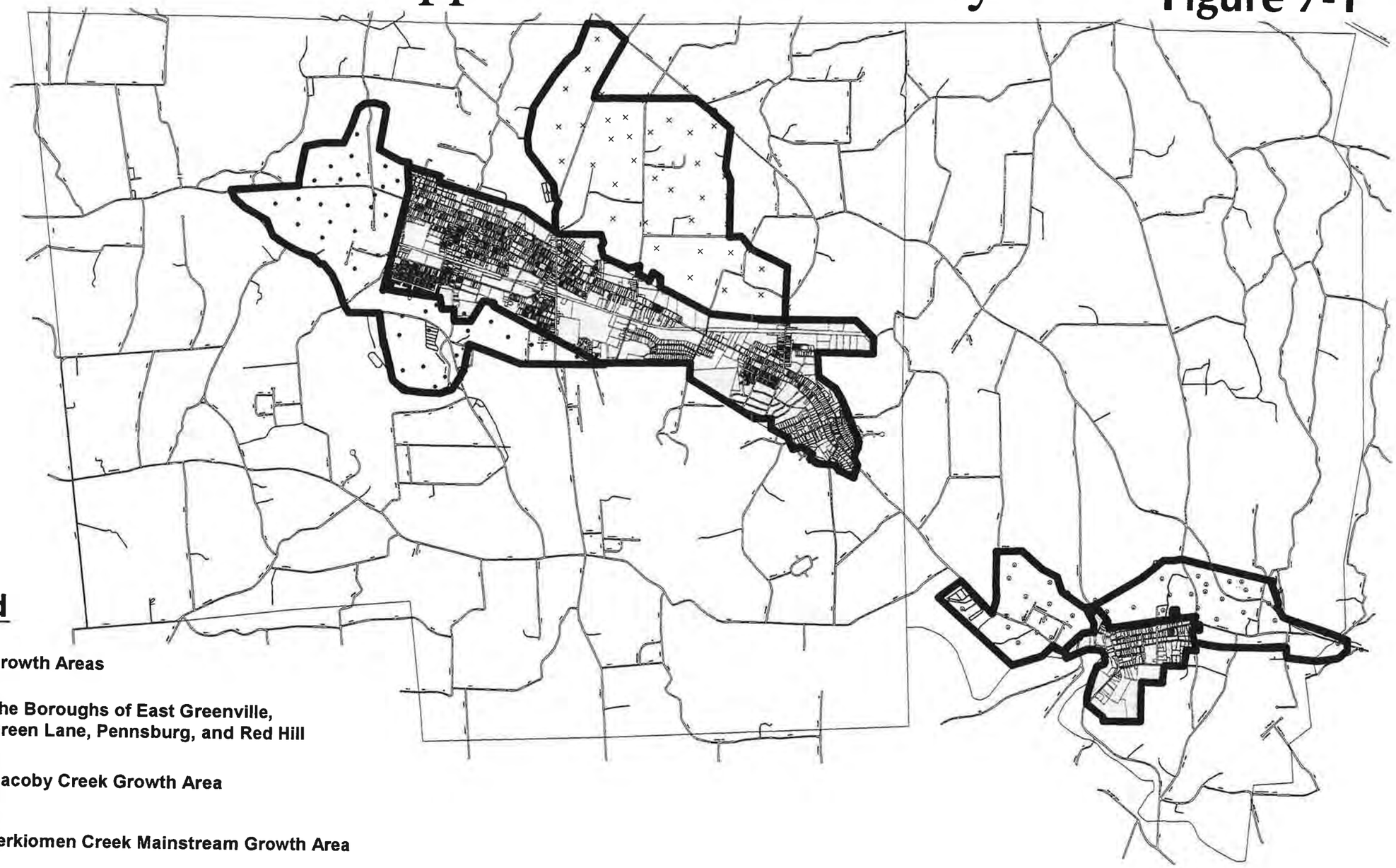
Perkiomen Creek Main Stem Growth Area

Several land use planning factors support designating an area for future growth along the east side of the Perkiomen Creek main stem above the reservoir, as shown in Figure 7-1. The Goshenhoppen Church has stated its interest in developing a large retirement community on its property near Church Road. This type of high-density development would need to be sewered. Also, the land adjacent to the boroughs between Route 663 and State Street is a logical expansion area for residential growth, given its vehicular access to Routes 29 and 663 and proximity to services within the boroughs.

The portion of this growth area north of State Street and East Greenville contains several large industrial uses currently served by privately owned industrial sewage treatment plants. These could be served by a municipal central sewer system intended to serve this expansion area. New sewered industry in this area would contribute to the economic vitality of the valley.

Upper Perkiomen Valley

Figure 7-1



Legend

- Growth Areas
- The Boroughs of East Greenville, Green Lane, Pennsburg, and Red Hill
- Macoby Creek Growth Area
- Perkiomen Creek Mainstream Growth Area
- Green Lane / Sumneytown Growth Area (GLMJA)
- Rural Resource Areas

Green Lane/Sumneytown Growth Area

Green Lane and Sumneytown have long been the primary development centers in this part of the valley, something that is to be reinforced by keeping future development around these centers. The intersection of Route 29 and Route 63 in Green Lane provides future development in this growth area with good transportation access. Also, by concentrating future growth adjacent to Green Lane and Sumneytown, new development can connect to existing infrastructure. Water and sewer availability are major challenges for any future development within this portion of the Upper Perkiomen Valley, due to its diabase geologic formations and other environmental constraints.

UPPER PERKIOMEN VALLEY RURAL RESOURCE AREAS

The land areas surrounding the designated growth areas in Figure 7-1 are the valley's rural resource areas. Preserving the open spaces, farmland, woodlands, and other natural and cultural resources within these rural areas is very important to sustaining the environment, agricultural economy, and qualify of life of the Upper Perkiomen Valley. A wide range of natural and cultural resources in these areas will require various preservation techniques. More details about these resources and how they can be preserved through innovative future land uses are found in the "Future Land Use Plan" section of this chapter. For additional preservation techniques that do not require purchasing land see "Non-Acquisition Methods of Protecting Open Space" found at the end of this chapter.

RESOURCE CONSERVATION AND FUTURE LAND USE PLANNING

Chapter Two identifies and describes the natural and cultural resources that are important to the ecology and "sense of place" of the Upper Perkiomen Valley. These natural and historic features are interrelated and any impact on one feature will affect the others. It is easy to explain the various features but more difficult to make rational planning decisions that will respect these resources. In preparing this comprehensive plan, the municipalities in the region have decided to try to minimize negative environmental impacts whenever possible. By using the natural features as a guide, a logical "vision" can be created that applies equally to growth areas and nongrowth areas. This "vision" would not allow the following:

- developing aquifer recharge areas;
- encroaching into waterways through destruction of riparian buffers;
- increasing erosion and sedimentation in its waterways;
- developing hydric, alluvial, prime, and statewide agricultural soils;
- building on steep slopes;
- clearing woodlands;
- altering the historic/scenic places that define the community;
- promoting development outside designated growth areas that would negatively impact revitalization of the historic town centers.

The following actions can help achieve the environmental goals described above:

1. Direct growth to areas with lower ecological impacts, such as previously developed areas and areas served by existing infrastructure.

2. Review existing floodplain and erosion control ordinances to ensure that they are as "strict" and environ mentally sensitive as possible.

3. Encourage the preservation of farmland and other lands through state, county, and nonprofit organiza tion efforts.
4. Enact steep slope ordinance regulations.
5. Enact natural features conservation regulations.
6. Designate scenic roads throughout the region, along with applicable development standards or preser vation techniques to preserve the scenic, historic landscape.
7. Enact clustering or other zoning regulations intended to preserve significant land areas and historic places.
8. Explore innovative preservation techniques such as the transfer of development rights, agricultural zoning, and performance zoning.
9. Ensure the timing of development is related to the logical extension or improvement to existing infra structure and other projected capital improvements.
10. Explore the feasibility of wellhead and aquifer recharge protection, woodland preservation, historic preservation and open space ordinances.
11. Enact wetlands, groundwater protection, and water conservation ordinances.
12. Form an environmental council to consider environmental policies and make recommendations.
13. Encourage borough revitalization efforts.

FUTURE LAND USE PLAN

The Upper Perkiomen Valley's "Future Land Use Plan" uses the previously identified growth areas as a planning framework for establishing the specific land use categories that apply throughout the valley. Residential areas of various densities, areas of open space, and the types and locations of nonresidential uses are all shown in Figure 7-2 and described in the following sections.

For clarification purposes, there are differences in terminology used in the "Existing Land Use" chapter and the "Future Land Use" chapter when describing land use categories. The existing land use categories used in Chapter Six identify the specific land uses of individual parcels, while the classifications used in the "Future Land Use" chapter tend to identify broad land areas in more conceptual terms. When explaining the various future land use categories, we have referenced the existing land use categories as appropriate.

RESIDENTIAL LAND USES

A diversity of housing options is an important part of a community's economic health, and the design of its housing shapes a community's growth and quality of life. The Upper Perkiomen Valley's "Future Land Use Plan" addresses the valley's objectives of concentrating new development in designated growth areas, meeting the region's fair share requirements, and providing housing opportunities for a range of incomes. Site planning and other design elements are also important aspects to be considered in residential development. These topics and additional housing issues are discussed further in Chapter Five of this comprehensive plan.

Rural Low-Density Residential Categories

The "Future Land Use Plan" shows four rural, low-density, residential land use categories. These are designated over the largest amount of land area in the Upper Perkiomen Valley to preserve its rural character, open space, and natural features. The four categories reflect the diverse landscape in the Upper Perkiomen Valley. Each of the different categories was created and its boundaries determined based on the unique characteristics of its respective location within the valley, as explained below.

- **Agricultural Residential** (Maximum of 1 dwelling unit per 2 acres). The Agricultural Residential cat egory covers a large portion of the northwestern area of the Upper Perkiomen Valley. Farming has a long history in this part of the valley, and preserving its agricultural and natural features is a high priority. The best farmlands have gentle to moderate slopes. This makes them easier to develop than some of the "other" lands, which often contain steep slopes or shallow bedrock with rock outcrops. Although it is in evitable that some farmlands will be developed, strong efforts should be made to continue farming the better-quality farmlands in this area of the region and agriculture should remain the dominant land use.

  Given this preservation objective, dwellings in this category will be predominantly single-family detached residential units with a maximum density of 1 dwelling unit per 2 acres of land. This density is not intended to be implemented uniformly across this area. Zoning regulations can be enacted to encourage retention of farming as a viable alternative. Cluster standards, such as Montgomery County's model Land Preservation District, which requires preservation of 75 percent of a tract as open space, can be used to retain farmland in conjunction with some new residential lotting. In addition, Pennsylvania law permits municipalities to enact restrictive agricultural zoning requirements to discourage undesirable development of farmlands. Agricultural zoning is most suitable in areas where farming is a strong and healthy industry and farmers have made a firm commitment to continuing agricultural activities.

  As noted in the "Existing Land Use" chapter, hundreds of acres of farmlands are already within the Upper Hanover agricultural security district. This district is regulated by state law which protects farming activi ties from being restricted by local nuisance ordinances and complaints from neighbors who may be of fended by noise, odors, dust, or other routine farming characteristics. Farmers in agricultural security dis tricts are eligible to sell their development rights. The development rights of several hundred acres of farmland in Upper Hanover Township have already been sold to Montgomery County under its farmland preservation program. (For additional preservation techniques that do not require purchasing land, see "Non-Acquisition Methods of Protecting Open Space" at the end of this chapter.)

- **Environmental Residential** (Maximum of 1 dwelling unit per acre after subtracting environmental features.) The area of the Upper Perkiomen Valley identified as the Environmental Residential land use category contains environmental characteristics that cause significant challenges for development. These challenges include bedrock geology, soils limitations, and extensive wetlands, steep slopes, and floodplain areas. The combination of these environmental features also provides the valley with unique natural resource and scenic areas, which the valley desires to protect. Therefore, preservation of natural features should be the dominant purpose served by land use regulations throughout this area, and development in this area should be limited to low-density single-family detached residential uses, according to what the land will support without causing environmental degradation. (For additional preservation techniques that do not require purchasing land see "Non-Acquisition Methods of Protecting Open Space" at the end of this chapter.)

- **Open Space Residential** (Maximum of 1 dwelling unit per 2 acres) Large areas adjoining the Upper Perkiomen Valley's growth areas are designated as Open Space Residential. The land use planning process determined that these areas of the valley could better accommodate new residential development than areas designated as Agricultural Residential or Environmental Residential. This is because the land in these locations is more developable and/or closer to infrastructure. However, it was also recognized that preserving open space and natural resources around the valley's growth areas is important. To balance these development and preservation goals, this area is designated for low-density single-family detached residential development with a maximum density of 1 dwelling unit per 2 acres of land. In addition, this maximum residential density is not intended to be implemented uniformly across the area because it would simply result in very low-density suburban sprawl and would not preserve open space. Instead, land use regulations such as cluster zoning should be considered in these locations to allow greater flexibility in site design to better preserve open space areas, natural resources, and scenic views. (For additional preservation techniques that do not require purchasing land see "Non-Acquisition Methods of Protecting Open Space" at the end of this chapter.)

- **Low-Density Residential Category.** Several areas either adjacent to the valley's designated growth areas or an existing village, were categorized as Low-Density Residential development. This category would recognize the existence of conventional low-density development and continue to provide this option in limited areas, allowing single-family detached dwellings at a density of no greater than 1 unit per 2 acres.

Medium-Density Residential Category

Where medium-density residential uses are proposed in the "Future Land Use Plan" (Figure 7-2), dwellings are anticipated to be primarily single-family detached units built at a density of no greater than 4 units to the acre. These medium-density residential areas are located within the designated growth areas of the valley, so roadway and other infrastructure improvements can be directed to accommodate the new growth. Sites for new medium-density residential development are also meant to extend the existing character of adjacent villages or boroughs.

High-Density Residential Category

The valley's four boroughs currently contain most of the region's high-density residential development. The "Future Land Use Plan" (Figure 7-2) identifies high-density residential areas to be developed at densities exceeding 4 units per acre. High-density developments may include apartments, townhouses, twins, and small-lot single-family detached units.

Upper Perkiomen Valley

Figure 7-2
Future Land Use

- Agricultural Residential
- Environmental Residential
- Open Space Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Retail/Office/Residential
- Public Open Space
- Recreation
- Preserved Agriculture
- Retail
- Light Industrial/Shopping Center
- Light Industrial/Limited Commercial
- Light Industrial
- Heavy Industrial
- Institutional
- Water

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Base map prepared by the
Montgomery County Planning Commission
October 2000

New Medium-Density Housing Adjacent to Red Hill Borough in Upper Hanover Township

- **Housing Fair Share Analysis.** One of the most significant advantages of regional planning is that legal fair share obligations for high-density residential uses can be accommodated by the region, not each individual municipality. Chapter 5 details the regional residential fair share analysis completed for the Upper Perkiomen Valley. The analysis has a significant impact for the valley's future land use planning and the achievement of its preservation and growth management goals. In summary, the analysis concluded that the valley had 400 more acres zoned for high-density residential development than it needed to meet its fair share requireements. These findings allow the valley to retain the high-density residential areas located within and directly adjacent to the four boroughs in the valley's designated growth areas and to reclassify 400 acres of land surrounding the boroughs to lower-density residential uses. The remaining land zoned for high-density residential units is more than enough to meet future demand.

MIXED-USE AND NONRESIDENTIAL LAND USES

Older mixed-use town centers and nonresidential land uses in the Upper Perkiomen Valley offer essential commercial, industrial, and housing options within the valley. Revitalizing the valley's boroughs is an important element of the valley's economic life and physical character-an identified goal of the Upper Perkiomen Valley. Commercial, industrial, and other nonresidential uses provide needed services and employment for valley residents. They also contribute to the tax base for investing in the future.

Nonresidential Planning Studies

Several studies were done to help identify appropriate quantities and locations for nonresidential land uses within the Upper Perkiomen Valley. These were a nonresidential fair share analysis, a commercial needs analysis, and an analysis of potential industrial and shopping center development in Upper Hanover Township.

SURVEY NOTES...

Results from a recent survey of the Upper Perkiomen Valley showed that residents are shopping at valley businesses for mahny of their goods and services.

90% of households shop at valley stores for weekly groceries 47% of households purchase furniture and appliances in the valley

87% of households buy pharmacy/convenience items in the valley 71% of households utilize vlaley businesses for personal services

The nonresidential fair share analysis verified that the region was fulfilling its legal obligation by providing reasonable opportunities for a variety of nonresidential uses within its land use regulations, in accordance with Act 247, the Municipalities Planning Code. The areas accommodating these uses are shown on the valley's "Future Land Use Plan." A summary of this analysis is found in Appendix B.

The commercial needs analysis showed that the valley is adequately served in retail categories. However, it projected that there might be a deficit for the year 2010 of as much as 112,000 square feet of retail stores to serve all the retail needs of the valley. A summary of this analysis is found in Appendix C.

An analysis of potential industrial and shopping center development in Upper Hanover Township showed more potential for retail shopping center development than would be needed. Although the industrial potential was also very large, appropriate industries and offices would provide many new jobs in the region-achieving the goals and objectives of this comprehensive plan. This information is found in Appendix D.

Mixed Retail/Office/Residential Category

Routes 29 and 63 become "Main Street" as they pass through the valley's four boroughs and the villages of Sumneytown, Perkiomenville, and Palm. These "Main Streets" have a unique mix of residential and commercial uses, which creates an historic character. An identified goal of this comprehensive plan is to preserve and revitalize these areas. The locations for preserving this unique mix of uses are shown in Figure 7-2, primarily as the "Retail/Office/Residential" category.

Land uses permitted in these areas should be retail, office, and residential uses which complement the design and operation of the existing small-scale shops, offices, historic houses, factories, and schools. Further study of these areas should be completed to determine the need for appropriate regulations and/or economic revitalization programs. These could include a market analysis of potential new small businesses, design guidelines, residential conversion regulations, home-based business regulations, and historic preservation regulations and incentives.

Retail Category

There are pockets of existing retail uses in all four boroughs and both townships. The "Future Land Use Plan" retains these areas to continue serving the region's retail needs. Although relatively little increase in retail demand is anticipated, two locations were designated as suitable for a possible future neighborhood-level shopping center. One of these locations, shown in Figure 7-2 in the retail category, is on the east side of Route 29 in

Main Street in East Greenville Borough

Upper Hanover at the northern end of East Greenville. The other site is in the Light Industrial/Shopping Center Category identified in the following section.

Industrial Categories

Existing industries are expected and encouraged to remain in the valley. Of the townships, Upper Hanover has the most existing industries. These consist of large industrial buildings on large individual lots rather than in industrial park settings. This trend is expected to continue, although options exist that allow smaller industries on smaller lots. The boroughs also have a number of smaller scale industrial facilities.

- **Light Industrial**
  This category, shown in Figure 7-2, includes existing light industrial development and future uses engaged in manufacturing (predominantly from previously prepared materials) of finished products or parts including processing, fabrication, assembly, treatment, packaging, incidental storage, sales, and distribution with the exclusion of basic industrial processing. Most of the undeveloped light industrial lands are in Upper Hanover, but significant areas are also shown in Red Hill and Marlborough.

- **Heavy Industrial**
  Figure 7-2 identifies existing and future locations for heavy industrial uses engaged in the basic processing and manufacturing of materials or natural resources, predominantly from extracted or raw materials. Additional uses considered heavy industrial are junkyards, mining, solid waste disposal, and outdoor storage.

- **Light Industrial/Limited Commercial**
  Three areas have been identified in Upper Hanover as appropriate for light industry and for some types of commercial establishments. The dominant use of these areas should be light industry. However, restrictions would allow a relatively small percentage of the land to be used for commercial purposes that would not directly compete with commercial uses in the boroughs.

- **Light Industrial/Shopping Center Category**
  One area is mapped in this category on the west side of Route 29 at the northern end of East Greenville. This location is suitable for light industrial development similar to that on adjacent lands. However, it is also suitable for shopping center development. Therefore, it is included in the Light Industrial/Shopping Center Category as a possible future neighborhood-level shopping center, if and when sufficient demand is generated.

An unmapped alternative location was identified in this category at the intersection of Route 663 and Quakertown Road, within the Light Industrial/Limited Commercial area. This location should be considered for neighborhood shopping center use only if the mapped area on Route 29 is not available if and when demand for a shopping center is established.

Areas proposed for industrial uses include lands recommended by the Upper Perkiomen Valley Industrial Development Plan of 1992, prepared by the Transportation Committee of the Upper Perkiomen Valley Chamber of Commerce. The plan's primary objective was to show how the Perkiomen Rail Line and the area's other locational advantages could be used to stimulate industrial development to create jobs, generate tax revenue, and stimulate growth in local commerce and business services. Its "target sites" are consistent with traditional land use planning criteria, including vehicular access, developable land, and nearby population centers. Both land use planning and economic development purposes are served by the locations shown on the "Future Land Use Plan" in the four industrial categories.

Utilities Category
It is not practical to designate mapped areas for future public utility operations in land use planning. However, it is important to identify the major locations of existing public utilities, especially those that may be needed to accommodate future growth. Therefore, the lands designated on Figure 7-2 as utilities are mainly those of the local public sewer authorities. In addition, this category includes the Green Lane Reservoir dam site of the Philadelphia Suburban Water Company.

Institutional Category
Due to the nature of institutional land uses, it is not feasible to designate mapped areas before needs arise for specific uses or proposals are made by institutional organizations. Therefore, the only lands designated on Figure 7-2 as institutional are either fully or partly developed as an existing institutional organization. Identified institutional uses include churches, cemeteries, schools, and municipal buildings.

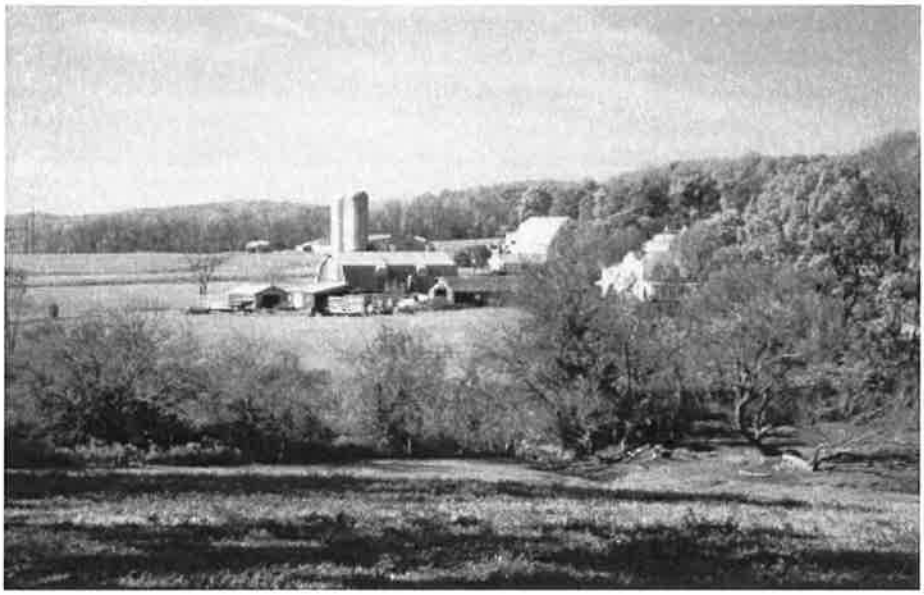
OPEN SPACE, AGRICULTURE, AND UNDEVELOPED USES

The Upper Perkiomen Valley's rolling hills, scenic vistas, meandering streams, forests, and historic farmsteads are all part of the valley's charming rural setting. The value of this rural character was highlighted in a recent survey of Valley residents. Residents ranked the valley's rural setting and natural surroundings as their highest reason for living in the Upper Perkiomen Valley. They also responded that preserving open space and natural resources was the most important issue for the valley's future.

These survey responses support the high priority given to preserving open space and natural resources in the regional planning process. The valley's "Future Land Use Plan" (Figure 7-2) reflects this priority by directing future growth into designated growth areas and identifying important surrounding agricultural and natural resources that should be preserved. It also provides for various active and passive open space uses in both the towns and rural areas of the valley.

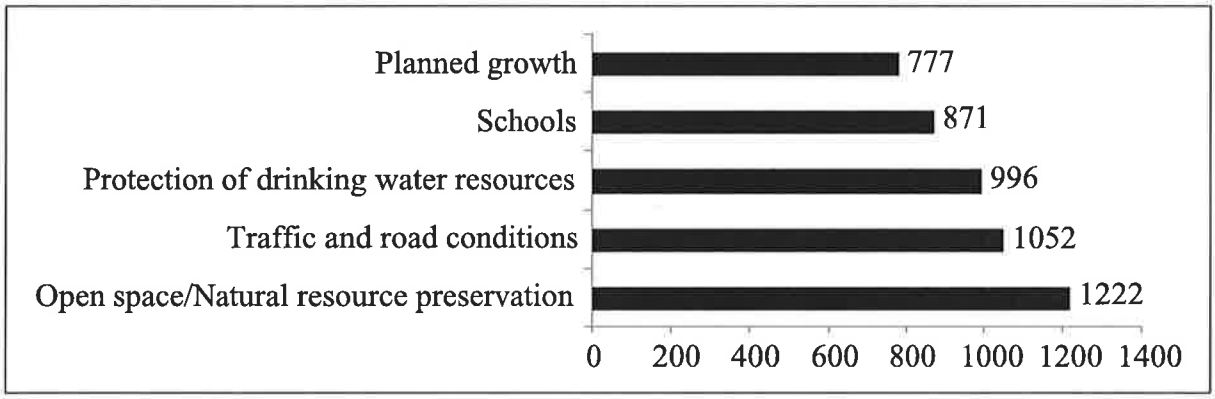
Pavilion in New Goschenhoppen Park, East Greenville

SURVEY NOTES...
When residents of the Upper Perkiomen Valley were asked to rank the most important issues for the valley's future, preservation of open space and natural resources was identified as the highest priority. The top five priorities are shown below.



Famland Near Mill Hill, Upper Hanover Township

Upper Perkiomen Valley
Residents' Rank Future Valley Issues



This section concludes by summarizing the open space priorities identified in the open space plans of the six municipalities of the Upper Perkiomen Valley, which were prepared in 1994 as part of Montgomery County's Open Space Preservation Program. This will assist the valley in coordinating the implementation of open space plans-an identified goal of the regional planning commission. This final section also includes various resources and techniques for preserving open space and natural resources.

Public Open Space Category

It is important to permanently preserve passive and active public open space areas in the valley for future use and enjoyment. Montgomery County's 3,054-acre Green Lane Park, surrounding the Green Lane Reservoir, offers the valley a unique parkland resource. Several other natural resource areas also have been designated as public open space in the valley's "Future Land Use Plan" (Figure 7-2). These areas include Skymount Lake in Marlborough Township and Mill Hill in Upper Hanover Township. (See Figure 7-3 for a compilation of the Upper Perkiomen Valley's open space priorities.)

The valley's stream corridors have been recognized as important natural features to be protected, especially the main stem of the Perkiomen Creek, the Macoby Creek, and the Unami Creek. Some of the lands adjacent to these streams have been identified for public open space. Other areas along these streams will have to be protected through land use regulations and private conservation efforts. (For additional preservation techniques that do not require purchasing land, see "Non-Acquisition Methods of Protecting Open Space," at the end of this chapter.)

Borough parks are also included in the "Future Land Use Plan" and the valley's open space priorities. Parks, such as Isaac Smith Park in Green Lane and the New Goschenhoppen Park in East Greenville, add value to these communities by providing neighborhood green space, locations for public gatherings, and various recreational opportunities.

Some additional open space areas in the Upper Perkiomen Valley that are not publicly owned but are important community facilities include the valley's four golf courses, school campuses, churches, the YMCA, and the Boy Scouts of America camp.

Recreation Category

The Upper Perkiomen Valley YMCA and the Boy Scouts of America camp are categorized on the "Future Land Use Plan" (Figure 7-2) as recreation. Both of these sites are private recreation facilities, and the valley hopes to retain these locations for recreational use in the future. The Boy Scouts of America maintain approximately 1,600 acres of environmentally sensitive woodlands. These woodlands are an asset to both the Boy Scouts of America camping programs and to the preservation of the valley's landscape and quality of life.

SURVEY NOTES...

Residents of the Upper Perkiomen Valley want to see more trails developed in the region. The following chart ranks the other types of recreational facilities respondents would like to see provided or expanded.

Upper Perkiomen Valley
Residents Rank Future Recreational Facilities

Category	*Rank*	*Number of Responses*
Biking trails	1	780
Hiking trail	2	707
Cultural arts center	3	410
Multipurpose activity rooms	4	401
Swimming pool	5	374
Picnic area	6	342
Playing courts	7	312
Gymnasium activities	8	291
Playing fields	9	272
Fishing areas	10	266
Hunting areas	11	214
Riding trails	12	157

Upper Perkiomen Valley

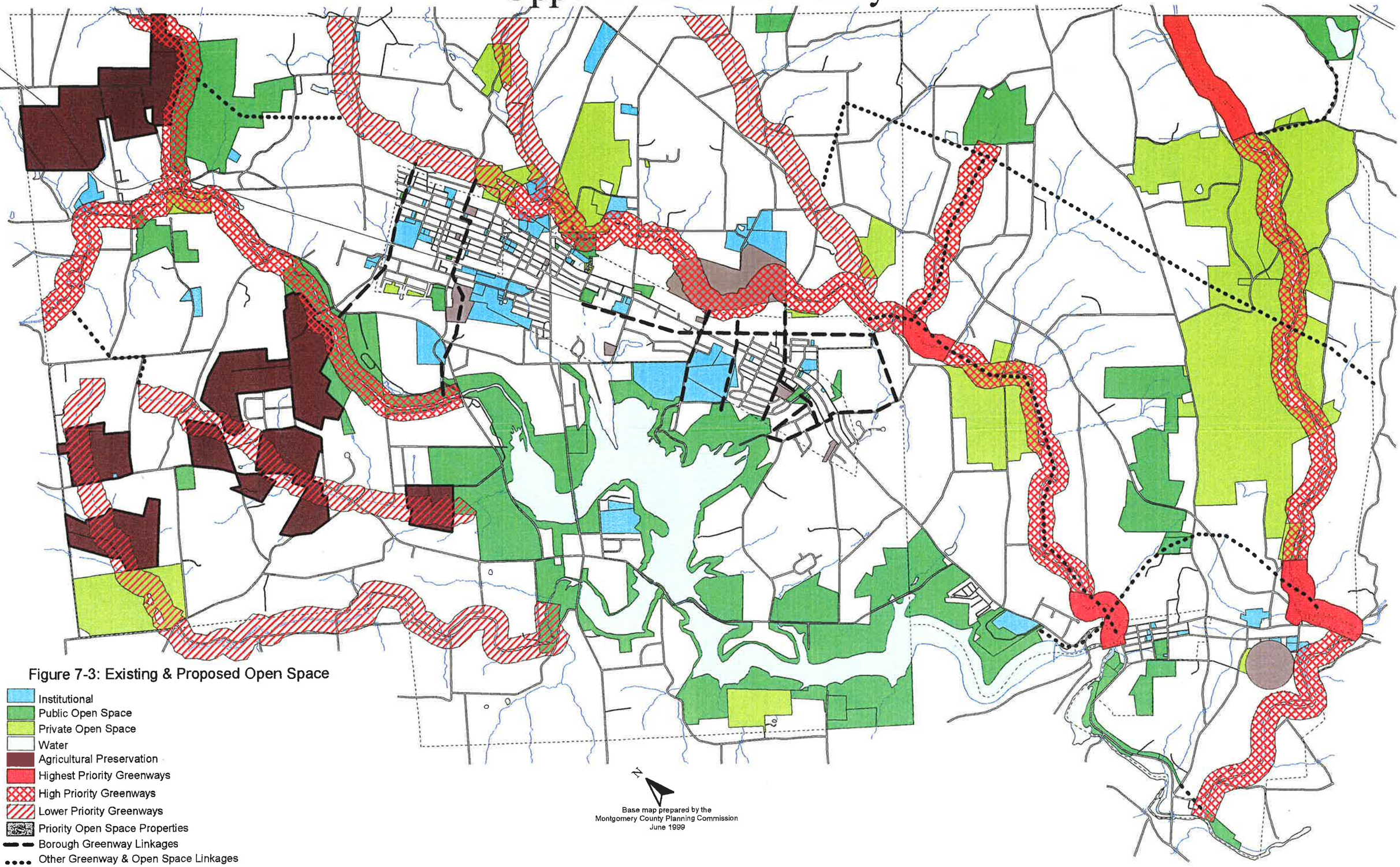


Figure 7-3: Existing & Proposed Open Space

- Institutional
- Public Open Space
- Private Open Space
- Water
- Agricultural Preservation
- Highest Priority Greenways
- High Priority Greenways
- Lower Priority Greenways
- Priority Open Space Properties
- Borough Greenway Linkages
- Other Greenway & Open Space Linkages

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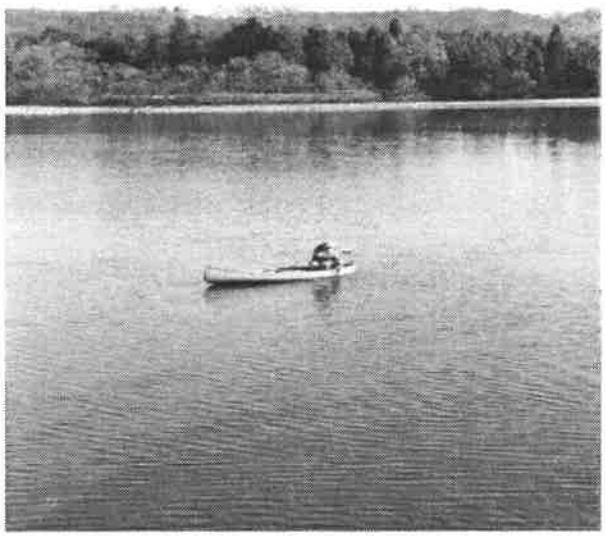
Base map prepared by the
Montgomery County Planning Commission
June 1999

Agricultural Category

Preservation of active farmland is a high priority for municipalities in the Upper Perkiomen Valley, especially Upper Hanover Township. These agricultural areas are shown in the Future Land Use Plan (Figure 7-2) and the valley's open space priorities (Figure 7-3). Upper Hanover Township will continue to add properties to its agricultural security district as long as owners of qualified properties request to be included. Also, the sale of development rights to the Montgomery County Farmland Preservation Program will continue to be encouraged. (For additional preservation techniques that do not require purchasing land see "Non-Acquisition Methods of Protecting Open Space" at the end of this chapter.)



Fishing on the Green Lane Reservoir

Water Category

There are some large water bodies within the Upper Perkiomen Valley which are significant for future land use. The Green Lane Reservoir covers approximately 800 acres of land area in the valley and is the largest water body in Montgomery County. Lake Skymount is another important water body and natural resource. The major streams in the Upper Perkiomen Valley also are identified by this category.

PRIORITIZATION OF AREAS FOR OPEN SPACE PRESERVATION IN THE UPPER PERKIOMEN VALLEY

Highest Priorities

- **Lands along the Macoby Creek Greenway:**
  1. Community park on the site of the McDonnell farm (Upper Hanover/Red Hill).
  2. Pennsburg nature preserve adjacent to the Upper Perkiomen Golf Course (Pennsburg).
  3. Stream corridor between Green Lane Borough and Reihman Road (Marlborough/Green Lane).
  4. Stream corridor between East Hendricks Road and Campbell Road (Marlborough).

- **Expand and/or improve current parklands within the boroughs.**
  1. Acquire lands or guarantee right to use lands adjacent to Red Hill Park for active recreation (Red Hill).
  2. Acquire the New Goschenhoppen Park and surrounding parcels (East Greenville).
  3. Enhance and maintain Alma Mullen Park (Pennsburg).
  4. Expand Isaac Smith Park (Green Lane).

- Acquire Weidner Farm for open space preservation and groundwater recharge (Green Lane/Marlborough)

- Acquire additional lands, as part of a Unami Creek Greenway, in Sumneytown and between the Boy Scouts of America camp and the Montgomery County border (Marlborough).

High Priorities

- Acquire land, easements, and/or rights-of-way for Macoby, Perkiomen Main Stem, Hosensack and Unami Creek Greenways (Multiple municipalities).

- Acquire additional parkland within developed areas of the Upper Perkiomen Valley.
  1. Acquire additional parkland in underserved parts of Red Hill Borough (Red Hill).
  2. Identify additional parkland in Pennsburg Borough for acquisition (Pennsburg).
  3. Acquire parkland for active recreation in Sumneytown (Marlborough).
  4. Develop several neighborhood parks in East Greenville (East Greenville).

- Establish agreements for community use of private and public school recreation facilities (Multiplemunicipalities).
  1. Maintain access to Eagle Athletic Association, Perkiomen Preparatory School, and Upper Perkiomen School District facilities.
  2. Preserve the woodlands of the Boy Scouts of America camp.

- Implement linkages through the boroughs to connect the Macoby Creek Greenway with Green Lane Reservoir Park and the Perkiomen Creek Main Stem Greenway.

Lower Priorities

- Acquire lands, easements, and/or rights-of-way for Upper Macoby, Stony Run, Molasses, and Perkiomen West Branch Greenways.

- Implement linkages along road and utility corridors to interconnect with greenways along creek corridors.

NONACQUISITION METHODS OF PROTECTING OPEN SPACE

Introduction

In conjunction with open space acquisition efforts, there are a number of zoning and other techniques which communities can use to preserve vulnerable resources without actually buying land. Such preservation might add to the public open space system or may largely be privately held land, as with permanently preserved agricultural land. The methods that could be used are described below.

Agricultural Zoning

This technique substantially lowers the density in rural areas so that only agricultural lots are created or perhaps a few residential lots. The minimum lot size must be large enough to support profitable farm operations (for example, from 10 to 40 acres). Generally 10 acres is used as a minimum farm size, which is consistent with Act 319 and other state and federal criteria. Whatever size is used, it will be a very restrictive minimum lot size and, except for estate lots, will exclude almost all residential development.

A variation of this maintains a density of one home per 10 to 40 acres but allows homes to be put on smaller lots of 1 or 2 acres in size. This still limits the area to an agricultural density but allows small lots to be subdivided. As a result, farmers who need some income can subdivide off a few residential lots without changing the agricultural character of the area.

Still another variation relates the minimum lot size to the type of soil located on the property. Areas that have prime agricultural soils and soils of statewide importance would have one home per 10 to 40 acres, depending on the community's desires. Areas with other soil types could have homes on smaller lots (1 to 2 acres). This approach directly relates the zoning to the preservation of agricultural soils.

In order to use any of these zoning techniques, a municipality should have a strong, viable agricultural community and a limited amount of rural residential development. The zoning has to be clearly related to protecting agriculture, not just rural character. In addition, relating the zoning to the preservation of agricultural soils will strengthen the ordinance.

Create or Join an Agricultural Security Area and Encourage the Sale of Farmland Development Rights
State law allows groups of farmers, with municipal approval, to create agricultural security districts. These districts must comprise at least 500 acres, although the farms do not have to be contiguous. If a municipality has farms but cannot meet the acreage requirement, it can join another municipality's district. Landowners who join one of these districts have absolutely no obligations whatsoever, but they do receive three distinct benefits.

First, farms in agricultural security areas are protected from new ordinances that would restrict normal farming operations or define farms as nuisances. However, the farm operation must use acceptable farming practices that do not threaten the public health, safety, and welfare.

Second, condemning land in agricultural security areas is more difficult. Land condemnations by the Commonwealth or local municipal authorities, school boards, and governing bodies must be reviewed and approved by a state agricultural board before any action can be taken.

Third, farms in an agricultural security area can apply to sell their development rights to the county and state. When development rights are sold, farmers receive the difference between the development value of their property and the farm value of their property. In return, a conservation easement is placed on the property, permanently restricting any nonfarm development on the property. This program permanently preserves farms.

Performance Zoning
With this type of zoning, the minimum lot size in rural areas is directly related to the natural characteristics of a site. Through ratios put into the zoning ordinance, the lot size corresponds to the type and extent of natural features that present development constraints such as high water table soils, floodplain, and steep slopes. When a lot of these features are present, the minimum lot size must be increased. In contrast, where none exist, the minimum lot size will be relatively small, perhaps as small as 1 acre.

This type of zoning, known as performance zoning, has recently been upheld by the Pennsylvania courts as a viable way to controlling the impact of development on natural features.

The simplest performance zoning ordinances subtract certain environmental constraints, such as floodplains and wetlands, from the net lot area. The area that is not environmentally constrained must meet the zoning district's minimum lot size. For example, if the zoning district allowed 2-acre lots and an applicant proposed a plan with a 2.5-acre lot but this lot had 1 acre of floodplains, the lot would not be permitted because it only has 1.5 acres of net area after floodplains are subtracted.

More complicated performance zoning ordinances apply ratios, ranging from 1 percent to 100 percent, to a wide range of environmental constraints such as floodplains, wetlands, steep slopes, soils, geology, woodlands, etc. The ratio is multiplied by the constrained portion of the lot. This is subtracted from the lot area to derive net lot area. For example, a 5-acre lot has 1 acre of floodplains and 1.6 acres of steep slopes. The zoning ordinance uses a ratio of 100 percent for floodplains and 50 percent for steep slopes. The 1 acre of floodplain is multiplied by 100 percent, which yields 1 acre. The 1.6 acres of steep slopes are multiplied by 50 percent, which yields .8 of an acre. The floodplain and steep slope constraints are added together, which totals 1.8 acres, and then subtracted from the lot area of 5 acres to yield a net lot area of 3.2 acres.

Reduce the Visual Impact of Rural Development

Communities can reduce the visual impact of rural development that occurs by encouraging or requiring homes to be hidden from view. For example, the zoning could allow a smaller lot size if homes are located in wooded areas or behind ridgelines. On the other hand, the community could require homes that will be located on existing roads to have a larger lot size, bigger setbacks from the road, or screen buffers between the road and the home.

Often, municipalities require rural subdivisions to provide curbing and to widen the road, even though these improvements may not be necessary. It is necessary to widen streets and provide curbs in some areas. However, when these improvements are required in locations that do not need them, the historic rural character of the roadway is changed. Sometimes, special features of the landscape, such as historic bridges, tree rows, fences, and hedges, are also destroyed in the process.

Cluster Homes

Open space can be preserved within a proposed development by clustering the homes on one portion of the site while keeping the remainder as permanent open space. The overall density of the site remains approximately the same, but homes are put on smaller lots. The preserved open space might contain rural views, historic landscapes, farmland, woodlands, steep slopes, floodplain, wetlands, or any other vulnerable resource. The open space also may be dedicated to the township for parkland.

When homes are clustered on a site, significant portions of the site can be preserved-sometimes as much as 75 percent or 80 percent. Some of this open space can be left in the developed portion of the site so homes face neighborhood open space. In addition to benefiting the community by preserving important natural resources, clustering also benefits the developer by lowering infrastructure cost, usually by reducing the length of roads and utility lines.

Incentive Zoning

Communities can encourage developers to provide open space, recreation facilities, trails, and parkland through incentives. The incentive, which is put into specific zoning districts, might be that the developer gets a higher density than otherwise permitted, or perhaps a smaller lot size, or a waiver from certain landscaping requirements. The ordinance must be designed so that the cost of providing the amenity does not exceed the benefit received from the incentive. Otherwise, the developer will not take advantage of the incentive.

Natural Resource Protection Ordinances

These ordinances protect specific natural features such as floodplains, stream corridors, wetlands, groundwater, steep slopes, and woodlands.

- **Floodplains.** Floodplain ordinances, which exist in all of Montgomery County's communities, restrict or prohibit all development within floodplains, especially development within the 100-year floodplain. There are three levels of floodplain restrictions often seen in the county. Some floodplain ordinances, typically found in boroughs, allow development within the floodplain provided buildings are floodproofed.

Many ordinances do not allow most types of development within the floodplain. This approach protects property from flood damage, protects the environment within the floodplain, and reduces the possibility of raising the flood level. Other ordinances not only restrict development within the floodplain but also require a minimum setback from the edge of the floodplain. This approach protects the floodplain and may protect, depending on its width, the unique wooded habitat, known as riparian woodlands, often located next to the floodplain.

- **Stream Corridors.** Stream corridor protection ordinances go further than floodplain ordinances, which are primarily intended to limit property damage. The intent of stream protection ordinances is to protect the water quality of the stream as well as plant and animal habitats. Typically, these ordinances impose a minimum setback from the stream bank in which no development may occur. For example, a minimum setback of 75 feet from the stream bank will help stabilize the stream bank, control sediment, remove nutrients that would pollute the stream, moderate stream temperature, and provide wildlife habitat. The area within the buffer should be left in its natural state, which will usually be a riparian woodland.

- **Wetlands.** Federal and state governments regulate wetlands and so can municipalities. Sometimes, development occurs on wetlands, and the state and federal governments are unaware of this development.

  Municipalities that prohibit development on wetlands and require wetlands to be shown on development plans, can stop development of wetlands from slipping through the cracks. Sometimes, developers receive all of the federal and state permits they need, but they locate homes right next to wetland areas. Although this is permitted by state and federal regulations, it can lead to future problems if individual homeowners decide to fill in the wet spot behind their home to have a more usable back yard. Local municipalities can eliminate this problem by requiring a minimum building setback from wetlands. In addition, federal and state regulations only address the filling of wetlands, not the destruction of vegetation within the wetlands. Local municipalities can require the replacement of destroyed wetlands vegetation.

- **Groundwater.** Groundwater quality can be protected with wellhead protection ordinances or aquifer recharge ordinances. Because aquifers are so large, wellhead protection ordinances are more common. These ordinances, which only protect public wells not individual wells, regulate development in an area that could potentially contaminate the groundwater supplying a well.

  This area, called a wellhead protection area, can be identified in a number of ways. The most accurate method is to conduct a hydrogeologic survey. Development within the wellhead protection area can be regulated by restricting certain uses such as gas stations, limiting the intensity of development (such as limiting the density of single-family detached homes with individual septic systems), and/or by controlling how a land use activity occurs (such as farming with specific types of pesticides, herbicides, and other chemicals). In addition, a community may impose design standards on new construction that might pollute the groundwater. This could include hazardous materials containment structures or areas, surface water runoff collection systems, and large impervious areas such as parking lots and buildings.

- **Steep Slopes.** Steep slope ordinances restrict or prohibit development in steep slope areas, which are typically areas with slopes of 15 percent or more. Usually, on slopes of 15 percent to 25 percent, development is permitted if the minimum lot size is increased and/or the percent of the lot disturbed is limited. Some steep slope ordinances prohibit all development, although this prohibition does not normally occur until the slopes are extremely steep-25 percent or more.

- **Woodlands.** Woodland preservation ordinances are intended to protect existing trees and woodlands. Some of these ordinances provide minimum standards, which must be followed during construction for trees that will remain. Other ordinances allow developers to put up fewer street trees, buffers, or individual lot trees when existing trees are preserved. Some ordinances require developers to replace trees that are cut down. Other ordinances, which may face legal challenge, prohibit the destruction of any trees.

Transfer of Development Rights
This method of preserving rural land transfers development from rural areas to growth areas. With a transfer of development rights program, rural landowners can sell their development rights to developers in the township's growth areas instead of developing their rural land.

For example, a rural landowner who has 50 acres might normally be allowed to subdivide them into 20 two-acre lots. Instead, with a TDR program, the landowner sells the right to build these 20 lots to a developer in a growth area. The developer adds those 20 units, or more as appropriate, to the number of units normally allowed to be built. The rural landowner, who has been paid for these development rights, is then required to deed restrict the land against any future development.

Encourage Donations of Properties for Permanent Open Space
Sometimes, landowners want to preserve their land by donating the full title of the property or by donating their development rights to nonprofit land conservation groups. Either of these approaches will permanently preserve land as open space.

Landowners who donate development rights will receive tax benefits, but the land must be permanently restricted from future development. There are a number of land conservation groups operating in Montgomery County that would be willing to take these donations. These groups include the Montgomery County Lands Trust, the Brandywine Conservancy, the Natural Lands Trust, the Nature Conservancy, the Conservancy of Montgomery County, and the Wissahickon Watershed Association.

Some land conservation groups can also help local landowners develop some of their land while keeping the majority open and deed-restricted. With this approach, the land is developed in a very sensitive manner. The landowner receives some money, while the most important environmental amenities on the site are preserved.

Require Developments to Provide Open Space or Pay a Fee In Lieu of Such Open Space
Through the zoning and/or subdivision ordinance, municipalities can require developers to provide open space. If this requirement is put into the zoning ordinance, it must be located in specific zoning districts such as the high-density residential district. The zoning ordinance may specify that a certain percentage of a site, perhaps 15 percent to 20 percent, must meet a number of criteria and be maintained as common open space.

The municipality cannot require this open space to be dedicated or to be open to the public or to include specific recreational facilities. The community can, however, require the land to meet specific standards such as the open space must consist of flat, open land that is suitable for playing fields.

According to the Pennsylvania Municipalities Planning Code, the subdivision and land development ordinance can also require developers to provide open space, but it can go much further than the zoning ordinance. It can require the land to be dedicated to the township. If a developer does not want to provide land, the ordinance can require fees in lieu of land. In order to have this type of requirement, the community must have an adopted recreation plan, and the ordinance must follow specific standards in the municipalities code. Usually, unless a development includes an area the community wants to use for parkland, it is better for municipalities to accept fees in lieu of open space. This is so large, central parks can be provided rather than a number of small, inaccessible, and limited park sites.

Generally, requiring developments to provide open space allows municipalities to meet the needs of new residents without building new municipal parks. With this technique, for instance, the developer of a large townhouse development or single-family detached development would have to provide parkland for the homeowners in these developments. If there were no land and facilities provided by the developer, these homeowners might eventually put pressure on the township to provide open space and parkland.

Historic Preservation Ordinances

Although not directly related to open space preservation, saving historic properties does add to the character of an area. There are a number of techniques communities can use for historic preservation. First, they can amend their building codes to require a review before demolition permits are issued. This approach delays demolition and allows community input but does not stop demolition or encourage preservation of the building.

Second, communities can also amend their zoning ordinance to encourage historic preservation. This could be done by creating a village ordinance which gives development bonuses for preserving buildings or restricts the uses that can go into the district. Incompatible uses, such as gas stations, are not permitted in these districts. The zoning ordinance can also encourage historic preservation by allowing historic buildings to have more uses than normally permitted in a particular district. For example, apartments, bed and breakfast establishments, or offices might be permitted in historic homes located in a single-family detached residential district.

Third, communities can create historic districts with the approval of the Pennsylvania Museum Commission. This approach is the most restrictive. After a historic district is created, townships have stringent control over design and preservation of facades. A township architectural review board has to be created to review all proposed changes to historic buildings.

APPENDICES

Appendix A
Residential Fair Share Case Law

APPENDIX A
FAIR SHARE CASE LAW

INTRODUCTION

In evaluating and ruling on Fair Share cases, Pennsylvania courts have established a distinction between zoning ordinances which fail to provide for a use ("de facto exclusion), and those which provide for a use, but which allocate insufficient area for it, a "token" provision which results in "de facto" exclusion. The leading cases on Fair Share, such as **Surrick,** have tended to deal with "de facto" exclusion and the court rulings on these cases have established the basic issues, or criteria, which serve as the framework for a fair share analysis. Thus, path of growth, total acreage provided for certain uses, etc. have become common to most fair share cases and can be used as a guide for evaluating a community's or region's fair share standing. The legal case cited below explain the basic issues:

Surrick v. ZHB of Upper Providence Township, 476 Pa. 182, 382 A.2d 105 (1977).

The Pennsylvania Supreme Court used this case to outline a number of factors it felt were basic for evaluating a community's ability to provide for its Fair Share of growth and development. In this case, the question was whether the community was providing its fair share of zoning for multi-family dwellings or if it was providing only a "token", or disproportionately small amount, for this use. Ar a minimum, the following factors should be considered:

A. Path of Growth: Is the community a logical area for population growth and development? The answer to this question should involve consideration of the area's proximity to large developed areas such as a city and the community's and region's projected population growth figures.

B. Present Level of Development: If the community is in the path of growth, the present level of development should be examined, considering factors such as population density, proportion of total undeveloped land, and the proportion of undeveloped land available for development of multi-family dwellings (or some other housing type).

C. Present Development vs. Path of Growth: A comparison should be made between existing development and the needs anticipated from further growth and development. In particular, the comparison between the undeveloped land available for multi-family development (or some other housing type) and the growth pressures in the community and the region is important.

Appeal of Silver, 387 A.2d 169 (Pa. Commonwealth. 1978).

In this case, the Commonwealth Court used the "Surrick Analysis" to determine Fair Share. In its decision, however, the Court chose to expand upon Surrick by including two other factors:

A. Potential Development: Having determined the path of growth, the Court proceeded toconsider the proportion of undeveloped land and the amount of undeveloped land available for multi-family develop ment in the community, as prescribed in Surrick. In addition, though, it also considered the number of multi-family dwellings that could be accommodated on the vacant land. The Court thereby added **density** as a factor in the analysis.

B. Existing and Potential Dwelling Unit Ratio: The Court chose to analyze the community's existing and potential housing distribution to determine the ratio between multi-family units (MFU) and single-family detached units (SFD). If the ratio increases at a buildout under existing zoning, say from 1 MFU per 10 SFD to 1 MFU to 6 SFD, then the community's Fair Share standing is improved.

Warwick Land Development Corp. v. Board of Supervisors of Warwick Township, 376 A.2d 679 (Pa. Commonwealth. 1977).

The Township's provision of 2.9% of its area for multi-family use was upheld by the court.

Williston Township v. Chesterdale Farms, Inc., 341 A.2d 466 (1975)

The Township provided for apartment development on .7% of its total land area. The court ruled that this was a token amount and was therefore exclusionary.

Cambridge Land Company v. Marshall Township, 560 A.2d 253 (Pa. Commonwealth. 1989).

The Township provided for apartment use on 2.75% of its total land area and 1% of the land set aside for this use was undeveloped. Based on additional factors, such as low growth pressure, the court upheld the ordinance.

Appeal of M.A. Kravitz Co., Inc., 460 A.2d 1075 (Pa. 1983)

Wrightstown Township provided for multifamily use on .6% of its total land area. Based on additional factors, including that the community was not a logical area for growth, the court upheld the Township's ordinance.

Hostetter v. N. Londonderry Township, 437 A.2d 806 (Pa. Commonwealth. 1981).

The Township zoned 2.6% of its total land area for multifamily use. Based on potential units under permit ted densities and the context of minimal development pressure, the court sustained the ordinance.

Caste v. Whitehall Borough AZB, 453 A.2d 69 (Pa. Commonwealth. 1982)

The borough's zoning ordinance provided for multifamily use on 5.7% of the total borough land area. Of the borough's undeveloped acreage, 13% was located in zoning districts that permitted multifamily devel opment. These points contributed to the court's decision sustaining the borough's zoning.

Appendix B
Non-Residential Fair Share

Upper Perkiomen Valley
Non-Residential Fair Share Analysis
January 27, 1999

Land Use for Zoning	Is Use Adequately Zoned for the UPV?	Comments
Residential:		
High Density	Yes	UPV meets its fair share requirements
Mobile Home Park	Yes	Five municipalities have zoning for mobile home parks
Group Home	Yes	Use should be accommodated in every residential district
Home Occupations	Yes	May need to update according to current case law
Commercial:		
Retail	Yes	Every municipality has zoning for retail uses
Office	Yes	Every municipality has zoning for office uses
Gas Stations	Yes	Five municipalities have zoning for gas stations
Auto Repair	Yes	Five municipalities have zoning for auto repair
Car Dealer	Yes	Four municipalities have zoning for car dealerships
Car Wash	Yes	Four municipalities have zoning for car washes
Adult Uses	Yes	Four municipalities have zoning for adult uses
Industrial:		
Light Industrial	Yes	Every municipality has zoning for LI uses
Heavy Industrial	No	These uses appear to have limited location options
Quarry	Yes	Marlborough Township accommodates this use
Landfills	Yes	The townships could provide sufficient areas for landfills
Junkyards	Yes	The townships could provide sufficient areas for junkyards
Mini Warehouse	Yes	Every municipality has zoning for mini warehouses
Lumberyard	Yes	Three municipalities have zoning for lumberyards
Contractor Facilities	Yes	Three municipalities have zoning for contractor facilities
Institutional:		
Nursing Home	Yes	Four municipalities have zoning for nursing homes
Personal Care Facilities	Yes	Four municipalities have zoning for personal care facilities
Preschool	Yes	Five municipalities have zoning for preschools
Nursery School	Yes	Five municipalities have zoning for nursery schools
Utilities:		
Cell Towers	Yes	May need to update according to current case law
Antennas	Yes	May need to update according to current case law

Appendix C
Commercial Needs Analysis

UPPER PERKIOMEN VALLEY COMMERCIAL NEEDS ANALYSIS

February 24, 1999

Purpose

The purpose of this study is to examine the Upper Perkiomen Valley's needs for commercial uses as a part of the Region's Comprehensive Planning efforts.

Commercial Analysis

Commercial needs are a function of several factors, including population changes, income, existing commercial uses, and community planning goals. This study analyzed the supply and demand sides of the commercial market in the Upper Perkiomen Valley in order to determine whether the market supply is meeting the existing and future commercial needs of the Valley. The total number of households in the Valley and average household expenditures were used to derive the demand data, while Montgomery County Board of Assessment information and sales per square foot market research provided estimates of the supply of commercial space within the Valley. From this analysis we can reasonably project, for planning and zoning purposes, the future quantity of commercial space required within the Valley to meet its projected commercial needs.

Below are the current and future commercial supply and demand figures. The methodologies used to derive these figures are attached to the end of this report for further information.

Current Supply and Demand (1990)	Estimated Consumer Demand (in $)	Estimated Supply (in $)	Estimated Supply (in Sq. Ft.)	Estimated Demand (in Sq. Ft.)
Total Demand	$63,356,039	$57,849,657	360,434	394,742
Net Surplus/Deficit:	-$5,506,382		-34,308	

Future Supply and Demand (2010)	Estimated Future Consumer Demand (in $)	Estimated Current Supply (in $)	Estimated Current Supply (in Sq. Ft.)	Estimated Future Demand (in Sq. Ft.)
Total Demand	$76,918,353	$58,903,500	360,434	472,676
Net Surplus/Deficit:	-$18,014,853		-112,242	

Conclusions

Based on the above projections there is currently a slight deficit of commercial space within the Valley to meet all of the commercial needs of its residences. It should be recognized however that it is unlikely for any community to fully provide for the commercial needs of its residences because, due to economies of scale, certain goods are better provided for in regional centers. These findings confirm the results of the recent Upper Perkiomen Valley Resident Survey where residences responded that generally their commercial needs were being met within the Upper Perkiomen Valley, with the exception of some household items and entertainment services found outside the Valley in regional centers.

Looking into the future the above projections found an additional 112, 242 square feet of retail space is needed to meet all of the commercial needs of the residences of the Valley. This is the equivalent of one new Pennsburg Shopping Center for the Upper Perkiomen Valley. In conclusion, these future projections show that it would be reasonable for the Valley to provide for some limited expansion of commercial uses within the Valley, but not provide significant new expansion areas, in order to prevent overbuilding of commercial facilities and to maintain the economic health of the current retail centers within the Valley.

Commercial Demand Methodology
Estimated current consumer dollar demand is derived by multiplying the number of households (5,503), from 1990 U.S. Census data, by the average household expenditure ($11,513). The estimated household expenditure is based on median income ($37,155, 1990 U.S. Census) and is supplied by the Census Bureau's 1990 Consumer Expenditure Survey. Future dollar demand is derived using DVRPC's 2010 household projection (6,681). All income data is held constant for 1990.

Estimated square footage demand is derived by dividing the estimated dollar supply by the estimated dollar demand, then dividing that number by the dollar per square foot figure ($160.50), which was obtained from the Urban Land Institute's (ULI) Dollars and Cents of Shopping Centers for the Northeast region of the United States.

Estimated current consumer dollar supply is derived by multiplying the existing estimated commercial building square footage in the Upper Perkiomen Valley Region by the ULI's dollar per square foot figure ($160.50).

Commercial Supply Methodology
Retail Uses in the Upper Perkiomen Valley Communities (square feet of building floor area)

	A."Main Street" (BOA Data)	B. "Main Street" (Adjusted)	C."Major" (BOA Data)	Total (B + C)
East Greenville	94,122 SF (est.) (28 properties)	31,374 SF (est.)	20,434 SF (B&H)	51,808 SF
Green Lane	36,000 SF (est.) (12 properties)	12,000 SF (est.)	0 SF	12,000 SF
Pennsburg	167,772 SF (est.) (62 properties)	55,924 SF (est)	106,595 SF (Pennsburg Sq.)	162,519 SF
Red Hill	69,000 SF (est.) (23 properties)	23,000 SF (est.)	64,407 SF (Redner's & Two Restaurants)	87,407 SF
Marlborough	56,000 SF (est.)* (16 properties)	18,700 SF (est.)	0 SF	18,700 SF
Upper Hanover	84,000 SF (est.)* (28 properties)	28,000 SF (est)	0 SF	28,000 SF
Totals	**506,894 SF (est.)**	**168,998 SF (est.)**	**191,436 SF (est.)**	**60,434 SF**

** Main Street standards were applied to retail uses in the townships because of the general character of most of the uses.*

"Main Street" Retail Use Methodology

1. Board of Assessment (BOA) Data was used to identify commercial uses** (retail and mixed uses) in East Greenville and Pennsburg to determine a practical "average retail space per property."

2. Calculations:
   A. The nonresidential (commercial) floor areas were totaled.
   B. The total was divided by two. (Most of the Main Street buildings are two (usable) stories, with commercial on the first floor.)
   C. Since most of the Main Street stores are likely to generate fewer dollars per square foot than stores in shopping centers, the total floor areas were divided by three to determine an equivalent floor area relative to shopping center space (adjusted square feet).
   D. The average commercial floor area for Pennsburg and East Greenville was determined to be 3,000 square feet per property. This average was also applied to properties in Red Hill and Green Lane Boroughs and Marlborough and Upper Hanover Townships.

3. Major commercial uses include clearly identifiable properties, for which BOA data was applied directly.

*** Uses classified by the BOA as Acommercial" that were clearly inapplicable were not included in the evaluations. In the boroughs, these included apartment complexes, auto repair shops, specified office uses, funeral homes, mobile home parks, and private recreation facilities. When expanded to evaluate the townships, auto graveyards, golf courses, skating rinks, and truck terminals were also excluded.*

Appendix D
Survey of Potential Industrial and Shopping Center Development

Survey of Potential Industrial and Shopping Center Development in Upper Hanover Township

LIC Limited Industrial/Commercial and CB Commercial Business Districts
March 24, 1999

Current Zoning That Permits Limited Industrial and Shopping Center Development

A. **Limited Industrial Development:** Permitted by right under the LI Limited Industrial District or the LIC Limited Industrial/Commercial District.

B. **Shopping Center Development.**
   1. CB Commercial Business District: Permitted *by right* on parcels of at least five (5) acres in size.

   2. LIC Limited Industrial/Commercial District: Permitted *by conditional use* on parcels of at least fifteen (15) acres in size, only when the parcel fronts on and takes primary access from Route 29 or Route 663.

   3. LI Limited Industrial District: Shopping center development is *not* permitted.

Site Mapping and Potential New Development Projections

The two attached maps identify fourteen (14) sites zoned LIC and one (1) site zoned CB that are currently undeveloped or only partially developed. The attached tables contain basic data for these sites and development projections as limited industrial and shopping center, as permitted under current zoning.

A. **Potential New Limited Industrial Development.** If all fourteen LIC sites were developed with the maximum 35 percent building coverage, the development would equal 5,503,806 square feet of building cover age. If the CB zoned site is rezoned to LIC, its maximum development would raise the total to 5,915,448 square feet of limited industrial development.

B. **Potential New Shopping Center Development.** Seven (7) of the fourteen LIC sites are large enough and located along Route 29 or 663, and could allow shopping center development. One CB site would permit shopping center, as well. Not all of the sites are intended to be developed as shopping centers. A number of sites were zoned to permit shopping center development to allow market factors to influence the potential for development.

   1. If all eight (LIC & CB) sites were were developed with the maximum 20 percent building coverage, the development would equal 2,596,176 square feet of building coverage.

   2. Five (5) LIC sites do not qualify on their own for shopping center development, but could be joined with adjacent qualifying sites. These parcels would raise the maximum potential shopping center develop ment to 3,014,352 square feet of building coverage.

   3. Two of the LIC zoned sites simply do not qualify for shopping center development.

Potential Reduction of Sites Where Zoning Permits Shopping Centers
In discussions with the Upper Hanover Board of Supervisors and Planning Commission, it was generally agreed that it would be reasonable to reduce the number of sites that could be developed as shopping center use. However, it was not considered acceptable to eliminate all of the sites.

Two locations were considered most logical for potential shopping center development, if and when there is sufficient demand to justify it. They are the mapped Sites 4 and 8, as well as the adjacent smaller Sites 7 and 9, as shown on the attached map.

A. Site 4 would permit 287,496 square feet of shopping center if its 33 acres were fully developed.

B. Sites 7, 8, and 9 would permit 365,904 square feet of shopping center if their 42 acres were fully developed.

Upper Hanover Township
Developable Land Available for Limited Industrial Development

A. Land Currently Zoned LIC

Map #	Location	Acres	Maximum Industrial Development *(square feet)*	Owner	Block #	Unit#	Source	BOA Acreage
1	Rt. 29	65	990,990	Wentz	11	27	map	
2	Rt. 29	38	579,348	PP&L	15	7	data/map	
3	Kraussdale	21	320,166	McDonnell	15	8	map	
4	Rt. 29	33	503,118	Wentz	26	13	data/map	
5	[See "B"]							
6	Rt. 663	43	655,578	Weisbecker	6	17	data	
7	Q'town Rd.	5	76,230	Rommel	18	27	data/map	
8	Rt. 663	29	442,134	Bitting	18	9	data	
9	Rt. 663	8	121,968	Broburn	19	62	data/map	
10	E. Buck Rd.	22	335,412	Perk Tours	27	10	map	
11	James Rd.	20	304,920	McDonnell	30	5	map	
12	Rt. 29	43	655,578	Pahides	48	12	data	
13	Rt. 29	4	60,984	Pedersen	48	11	map	
14	Rt. 29	10	152,460	HGI	48	18	data/map	
15.	Rt. 29	20	304,920	Chiaro	48	14	map	

361 acres total available land area
5,503,806 square feet potential industrial development

[35% Building Cover]

B. Land Zoned CB that could be rezoned to LIC

Map #	Location	Acres	Maximum Industrial Development *(square feet)*	Owner	Block #	Unit#	Source	BOA Acreage
5	Rt. 29	27	411,642	Wentz	16	26	map	

[A + B] = 388 acres total available land area
{A + B} = 5,915,448 square feet potential industrial development

Upper Hanover Township
Developable Land Available for Shopping Center Development

LIC Limited Industrial-Commercial and CB Commercial Business Districts

A. Parcels Larger than 15 Acres [capable of SC Development individually]

Map #	Location	Acres	Maximum Shopping Center Development (square feet)	Owner	Block #	Unit#	BOA Acreage Source	Zone
1	Rt. 29	65	566.280	Wentz	11	27	map	LIC
2	Rt. 29	38	331.056	PP&L	15	7	data/map	LIC
4	Rt. 29	33	287.496	Wentz	26	13	data/map	LIC
5	Rt. 29	27	235.224	Wentz	16	26	map	CB
6	Rt. 663	43	374.616	Weisbecker	6	17	data	LIC
8	Rt. 663	29	252.648	Bitting	18	9	data	LIC
12	Rt. 29	43	274.616	Pahides	48	12	data	LIC
15	Rt. 29	20	174.240	Chiaro	48	14	map	LIC

298 acres additional area available for shopping center development
2,596,176 square feet potential shopping center development
[20% building cover]

B. Parcels adjacent to those above, that can be added to increase Shopping Center size

Map #	Location	Acres	Maximum Shopping Center Development (square feet)	Owner	Block #	Unit#	BOA Acreage Source	Zone
3	Kraussdale Rd.	21	182.952	McDonnell	15	6	map	LIC
7	Q'Town Rd.	5	43.560	Rommel	18	27	data/map	LIC
9	Rt. 663	8	69.696	Broburn	19	62	data/map	LIC
13	Rt. 29	4	34.848	Pedersen	48	11	map	LIC
14	Rt. 29	10	87.120	HGI	48	18	data/map	LIC

48 acres available for shopping center development
418,176 square feet potential additional shopping center development
3,014,352 square feet ultimate maximum shopping center
[20% building cover]

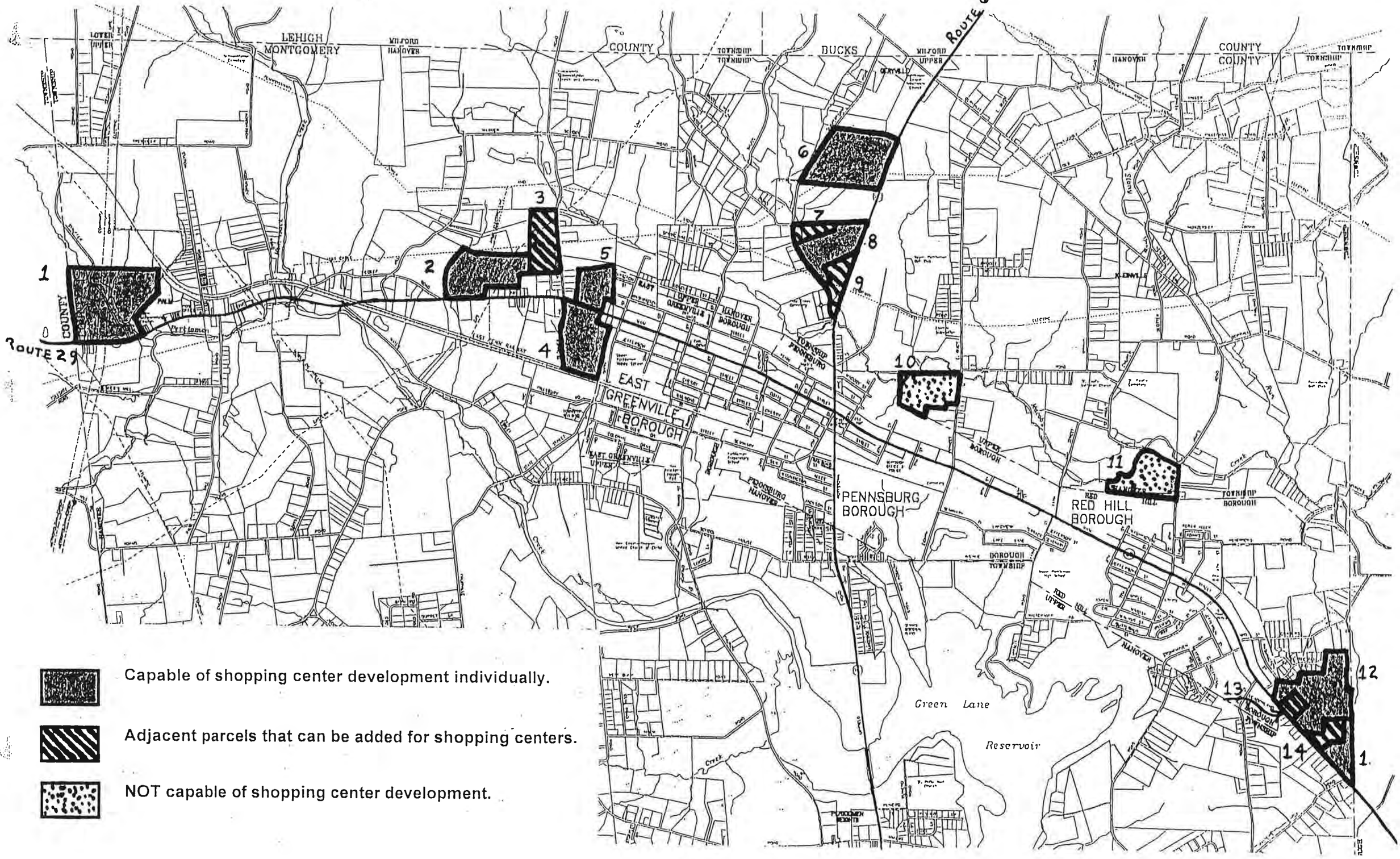
C. LIC Parcels NOT Capable of SC Development

Map #	Location	Acres	Maximum Industrial Development (square feet)	Owner	BOA Acreage Block #	Unit#	Source	Zone
10	E. Buck Rd	22	335.412	Perk Tours	27	10	map	LIC
11	James Rd	20	304.920	McDonnell	30	5	map	LIC

42 acres not capable of shopping center development
640,332 square feet potential industrial development

UPPER HANOVER TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA
EAST GREENVILLE, PENNSBURG, RED HILL BOROUGHS

Figure D–1
Shopping Center Map A



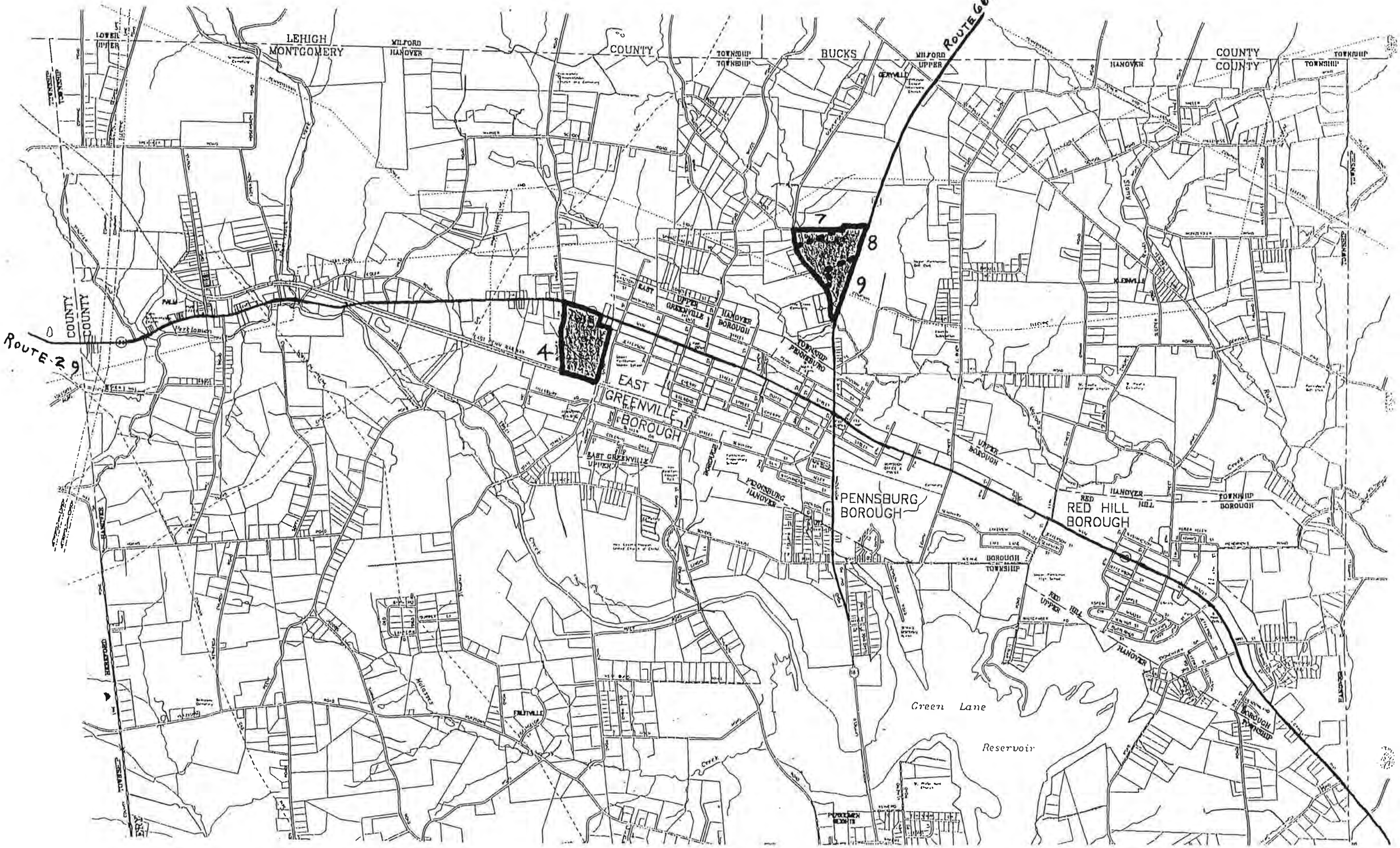
Capable of shopping center development individually.

Adjacent parcels that can be added for shopping centers.

NOT capable of shopping center development.

UPPER HANOVER TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA
EAST GREENVILLE, PENNSBURG, RED HILL BOROUGHS

Figure D-2
Shopping Center Map B



Appendix E
Resident Survey and Results

Resident Survey for the Upper Perkiomen Valley Regional Plan

We want to hear from you!

The Upper Perkiomen Valley Regional Planning Commission, formed by East Greenville, Green Lane, Pennsburg, and Red Hill Boroughs, and Marlborough and Upper Hanover Townships, is interested in your opinions as we prepare a plan for Upper Perkiomen Valley's future.

Please fill out the following survey and add your voice to our work.

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 1 GREEN LANE, PA

POSTAGE WILL BE PAID BY ADDRESSEE

UPPER PERKIOMEN VALLEY REGIONAL PLANNING COMM.
P. O. BOX 514
GREEN LANE, PA 18054-9981

Figure E-1
Resident Survey for the
Upper Perkiomen Valley Regional Plan

Resident Survey for the Upper Perkiomen Valley Regional Plan

1. **Which municipality do you live in?**
(Note, this may not be the same as your mailing address)
(Check one option)
- ❑ East Greenville Borough
- ❑ Green Lane Borough
- ❑ Marlborough Township
- ❑ Pennsburg Borough
- ❑ Red Hill Borough
- ❑ Upper Hanover Township

2. **How many years total have you lived in the Upper Perkiomen Valley?**
(Please fill in the number of years rounded to the nearest whole year) _____ Years

3. **Why did you choose to live in your municipality?** (Rank your top three reasons using 1-3, with 1 being the most important)
- ___ Born or raised here
- ___ Near friends or family
- ___ Convenient to work
- ___ Small town environment
- ___ Rural setting/Natural surroundings
- ___ Farming or related agricultural activity
- ___ School system
- ___ Housing style
- ___ Lot size
- ___ Low taxes
- ___ Housing affordability
- ___ Others (Please explain)

___ _____

___ _____

___ _____

4. **What type of home do you live in?**
(Check one option)
- ❑ Single-family detached
- ❑ Twin or duplex (2 units attached)
- ❑ Townhouse or rowhouse
- ❑ Apartment building
- ❑ Mobile home
- ❑ Other (Please explain)

_____

5. **How large is the property on which you live?**
(Check one option)
- ❑ Less than 1 acre
- ❑ 1 - 2 acres
- ❑ 2 - 10 acres
- ❑ More than 10 acres

6. **Please rank the top five issues you believe are most important for the Upper Perkiomen Valley.**
(Rank them 1-5, with 1 being most important.)
- ___Employment opportunities
- ___Agricultural preservation
- ___Variety of housing types
- ___Shopping & commercial opportunities
- ___Sewage disposal
- ___Open Space/natural resource preservation
- ___More preservation of historic places
- ___Traffic and road conditions
- ___Public recreation areas
- ___Protection of drinking water resources
- ___Availability of affordable housing
- ___Planned growth
- ___Schools
- ___Other (Please explain)

_____

7. **Where do you shop most frequently for:**
(Please use each letter only one time by putting the letter of the shopping category next to the location that you most frequent for that category of goods)
- **A** Weekly Groceries
- **B** Pharmacy & Convenience Items
- **C** Household Goods
- **D** Clothing & Apparel
- **E** Personal Services
- **F** Furniture & Appliances
- **G** Dining
- **H** Entertainment

_____ Upper Perkiomen Valley
_____ Quakertown/Richlandtown
_____ Harleysville area
_____ Pottstown area
_____ Lower Perkiomen/ Collegeville/Trappe
_____ Philadelphia
_____ Reading/Vanity Fair Outlets
_____ Souderton/Telford
_____ Lansdale/Montgomeryville
_____ Allentown/Lehigh Valley
_____ King of Prussia area
_____ Zern's Farmer's Market
_____ Other (Please explain)

_____

8. What types of new retail stores (or expasion of existing retail stores) are most needed in the Upper Perkiomen Valley?
(Please check all that apply.)

- ❑ Convenience store
- ❑ Grocery store
- ❑ Hardware store
- ❑ Variety/Discount store
- ❑ Furniture store
- ❑ Restaurants
- ❑ Coffee shop
- ❑ Fast food restaurant
- ❑ Doughnut shop
- ❑ Toy/hobby shop
- ❑ Sporting goods store
- ❑ Clothing/apparel store
- ❑ Car dealership
- ❑ Computer supply store
- ❑ Bookstore
- ❑ Craft store
- ❑ Electronics supply store
- ❑ None needed
- ❑ Other (Please specify)

_____

9. What types of new services or facilities (or expansion of existing services or facilities) are most needed in the Upper Perkiomen Valley?
(Please check all that apply.)

- ❑ Physicians
- ❑ Dentists
- ❑ Lawyers
- ❑ Accounting/Tax services
- ❑ Dry cleaner/Laundry
- ❑ Travel agency
- ❑ Appliance repair shop
- ❑ Car repair shop
- ❑ Hair salon/Barber
- ❑ Banking services
- ❑ Elderly health services/Nursing home
- ❑ Realtors
- ❑ Library
- ❑ Social services
- ❑ Emergency services (Ambulances, Fire, Police, etc.)
- ❑ Computer service & repair shop
- ❑ Electronics repair shop
- ❑ Public transit
- ❑ None needed
- ❑ Other (Please explain)

_____

10. Where do household members work?
(Choose a location for each adult member of your household)

- ❑ Home occupation/farm
- ❑ Retired
- ❑ Telecommuting
- ❑ East Greenville Borough
- ❑ Green Lane Borough
- ❑ Marlborough Township
- ❑ Pennsburg Borough
- ❑ Red Hill Borough
- ❑ Upper Hanover Township
- ❑ Pottstown area
- ❑ Collegeville/King of Prussia/Norristown
- ❑ Indian Valley/North Penn/Fort Washington
- ❑ Plymouth Meeting area
- ❑ Other Western Montgomery County locations
- ❑ Quakertown/Upper Bucks County
- ❑ Philadelphia
- ❑ Allentown/Lehigh County
- ❑ Reading/Berks County
- ❑ Other (Please explain)

_____

11. Rank the top three transportation problems in the Upper Perkiomen Valley.
(Rank them 1-3, with 1 being the most important.)

___ Narrow roads
___ Road maintenance
___ Sidewalks/pedestrian crossings
___ Traffic congestion
___ Truck traffic
___ Parking
___ Other (Please explain)

_____

12. Please list three intersections which need improvement in the Upper Perkiomen Valley and state briefly why they need improvement?

1) _____

2) _____

3) _____

13. Select which groups need recreation facilities in the Upper Perkiomen Valley?
(Check all that apply.)

- ❑ Pre-school age children
- ❑ Elementary school children
- ❑ Teenagers
- ❑ Adults
- ❑ Senior citizens
- ❑ Current facilities are adequate

14. What types of recreational facilities would you like to see provided or expanded in the Upper Perkiomen Valley? (Check all that apply.)

- ❑ Playing fields (Soccer, Baseball, etc.)
- ❑ Playing courts (Basketball, Tennis, etc.)
- ❑ Gymnasium activities
- ❑ Multipurpose activity rooms
- ❑ Swimming pool
- ❑ Cultural arts center
- ❑ Picnic area
- ❑ Hiking trails
- ❑ Biking trails
- ❑ Riding trails
- ❑ Camping areas
- ❑ Fishing areas
- ❑ Hunting areas
- ❑ Other (Please explain)

15. Please offer any further comments in the space below regarding the topics addressed above or any other issues you believe the Regional Planning Commission should be aware of.

Thank you for completing this survey.

Please refold, tape and mail.

Upper Perkiomen Valley Regional Planning Commission

TOWN MEETING

November 18, 1998

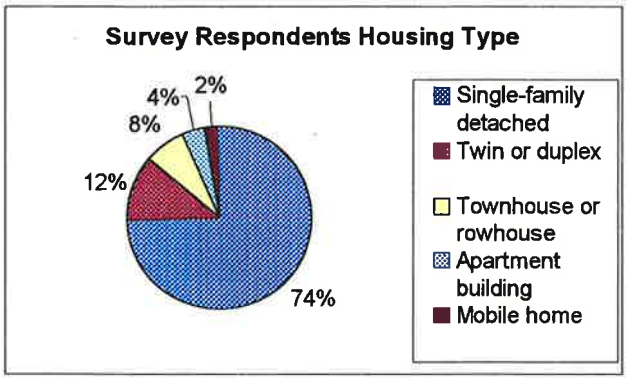
HIGHLIGHTS OF SURVEY RESULTS

How many households responded to the Survey? 33%

Why did they chose to live here?

1. Rural setting/Natural surroundings
2. Small town environment
3. Born or raised here
4. Housing affordability
5. Near friends or family

Where do residents live?



What were the top issues identified for future?

1. Open space/Natural resource preservation
2. Traffic and road conditions
3. Protection of drinking water
4. Schools
5. Planned growth

Where do residents shop for goods and services?

*90% of households buy their weekly groceries in theValley.
*87% of households buy their phar macy & convenience items in the Valley
*47% of households buy their furniture and appliances in the Valley
*71% of households buy their personal services in the Valley

What additional goods and services are needed in the Valley?

*Clothing/apparel
*Restaurants
*Bookstore
*Fast food
*Variety/discount store
*Public transportation
*Appliance repair shop
*Physicians
*Computer service & repair shop

Where do residents work?

1. Upper Perkiomen Valley
2. Indian Valley/North Penn/ Fort Washington
3. Collegeville/King of Prussia/ Norristown

What were the top transportation issues?

1. Traffic congestion
2. Narrow roads
3. Parking

Who needs more recreation facilities?

1. Teenagers
2. Adults
3. Elementary school children

What types of recreational facilities are needed?

1. Biking trails
2. Hiking trails
3. Cultural arts center
4. Multipurpose activity rooms
5. Swimming pool

PROGRAM

Introduction

Welcoming Remarks
Introduction of the
Regional Planning Commissioners
and distinguished guests

Presentations

General overview of work completed to date
Regional Plan goals and objectives
Introduction of the resident survey
Presentation of the survey results
Demographic profile of the Valley
How to read the land use maps in the lobby
Fair share results and implications
Conclusion: The next steps

Questions & Answers

Public Comment

Open the floor to questions and answers

Synopsis of the resident survey results on back page

RESIDENT SURVEY FOR THE UPPER PERKIOMEN VALLEY REGIONAL PLAN

Survey Results

September 23, 1998

1. Which municipality do you live in?

Municipality	Number of Responses	% of Total Households
Upper Hanover Township	534	35%
Marlborough Township	439	40%
East Greenville Borough	333	30%
Pennsburg Borough	239	27%
Red Hill Borough	204	29%
Green Lane Borough	79	48%
Upper Perk	1828	33%

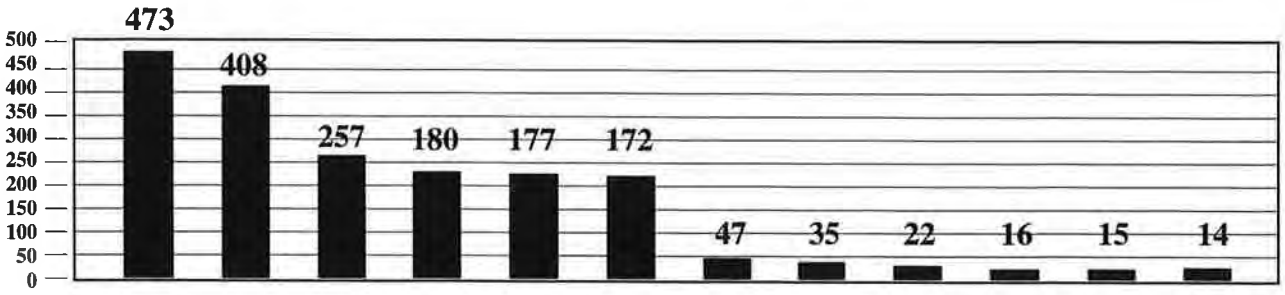
2. How many years total have you lived in the Upper Perkiomen Valley?

Municipality	Average Number of Years
Upper Hanover Township	32
Marlborough Township	29
East Greenville Borough	27
Pennsburg Borough	26
Red Hill Borough	26
Green Lane Borough	28
Upper Perk	27.9

3. Why did you choose to live in your municipality?

Category	First Priority Ranking	Number of Responses
Born or raised here	1	473
Rural setting/Natural surroundings	2	408
Housing affordability	3	257
Convenient to work	4	180
Near friends or family	5	177
Small town environment	6	172
School system	7	47
Housing style	8	35
Farming or related agricultural activity	9	22
Low taxes	10	16
No response	11	15
Lot size	12	14

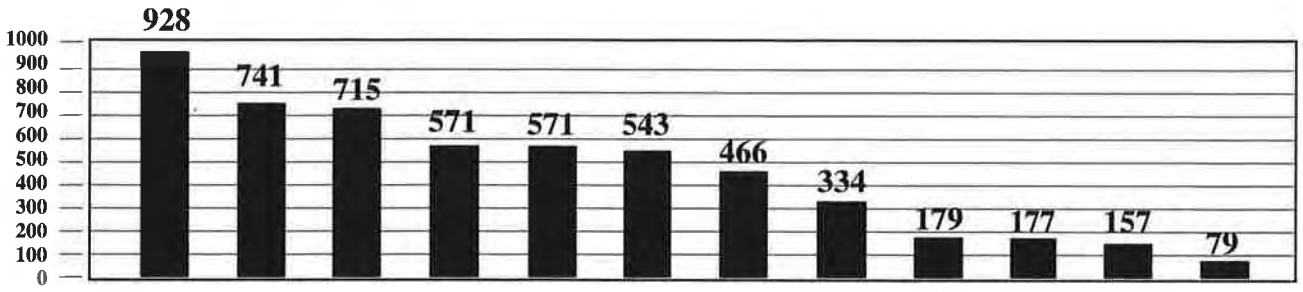
FIRST REASONS FOR LIVING IN UPV



Born or raised here...473
Rural setting/Natural surroundings...408
Housing affordability...257
Convenient to work...180
Near friends or family...177
Small town environment...172
School system...47
Housing style...35
Farming or related agricultural...22
Low taxes...16
No Response...15
Lot size...14

Category	Cumulative Ranking	Category Totals
Rural setting/Natural surroundings	1	928
No response	2	741
Small town environment	3	715
Born or raised here	4	571
Housing affordability	4	571
Near friends or family	6	543
Convenient to work	7	466
School system	8	334
Low taxes	9	179
Lot size	10	177
Housing style	11	157
Farming or related agricultural activity	12	79

OVERALL REASONS FOR LIVING IN UPV

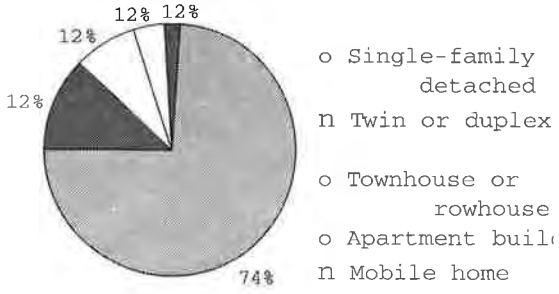


Rural setting/Natural surroundings...928
No response...741
Small town environment...715
Born or raised here...571
Housing affordability...571
Near friends or family...543
Convenient to work...466
School system...334
Low taxes...179
Lot size...177
Housing style...157
Farming or related agricultural activity...79

4. What type of home do you live in?

Housing Type	Number of Responses
Single-Family Detached	1321
Twin or Duplex	211
Townhouse or Rowhouse	135
Apartment Building	68
Mobile Home	44

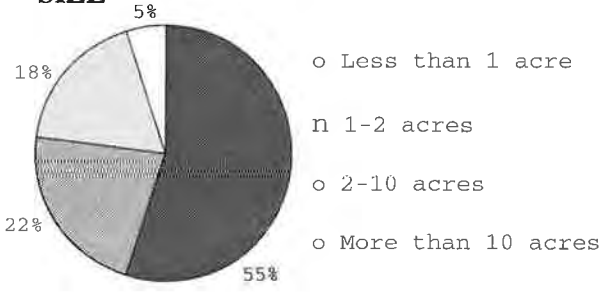
SURVEY RESPONDENTS HOUSING TYPE



5. How large is the property on which you live?

Property Size	Number of Responses
Less than 1 acre	1008
1-2 acres	389
2-10 acres	316
More than 10 acres	91

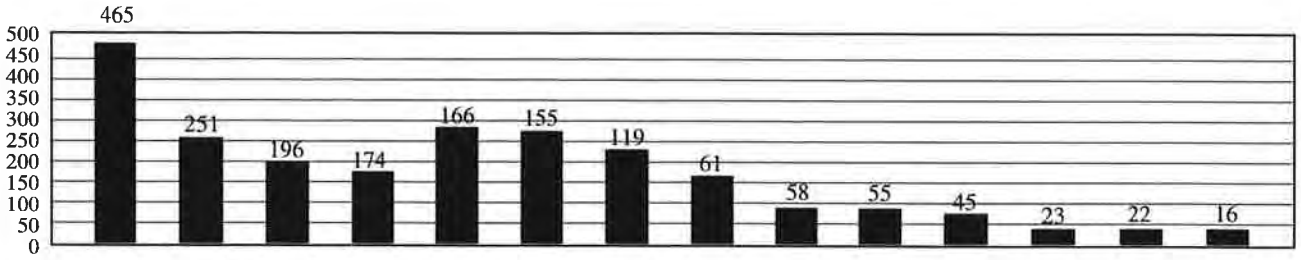
SURVEY RESPONDENTS PROPERTY SIZE



6. Please rank the top five issues you believe are most important for the Upper Perkiomen Valley?

Category	First Priority Ranking	Number of Responses
Open space/natural resource preservation	1	465
Employment opportunities	2	251
Schools	3	196
Protection of drinking water resources	4	174
Planned growth	5	166
Traffic and road conditions	6	155
Agricultural preservation	7	119
No response	8	61
Availability of affordable housing	9	58
Sewer disposal	10	55
Shopping & commercial opportunities	11	45
Variety of housing types	12	23
Public recreation areas	13	22
More preservation of historic places	14	16

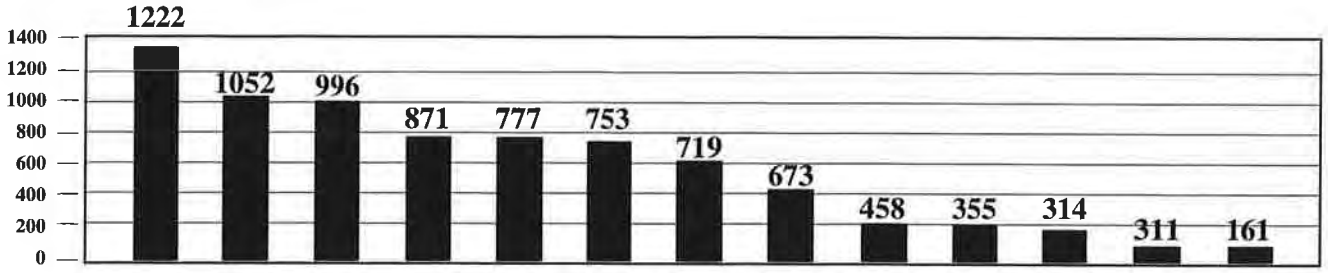
RANKING OF FIRST PRIORITY IN UPV



Open space/Natural resources...465
Employment opportunities...251
Schools...196
Protection or drinking water...174
Planned growth...166
Traffic and road conditions...155
Agricultural preservation...119
No response...61
Availability of affordable housing...58
Sewer disposal...55
Shopping & commercial op...45
Varirty of housing types...23
Public recreation areas...22
More preservation of historial...16

Category	Cumulative Ranking	Category Totals
Open space/natural resource preservation	1	1222
Traffic and road conditions	2	1052
Protection of drinking water resources	3	996
Schools	4	871
Planned growth	5	777
No response	6	753
Agricultural preservation	7	719
Employment opportunities	8	673
Public recreation areas	9	458
Sewer disposal	10	445
Shopping & commercial opportunities	11	355
Availability of affordable housing	12	314
More preservation of historic places	13	311
Variety of housing types	14	161

RANKING OF TOP FIVE PRIORITIES IN UPV



Open space/Natural resources...1222
Traffic and road conditions...1052
Protection of drinking water...996
Schools...871
Planned grouth...777
No response...753
Agricultural preservation...719
Employment opportunities...673
Public recreation areas...458
Sewer disposal...445
Shopping & commercial op...355
Availiability of affordable housing...314
More preservation of historial...311
Variety of housing types...23

7. Where do you shop most frequently for...

Weekly Groceries	Rank	Number of Responses
Upper Perkiomen Valley	1	1591
Harleysville Area	2	94
Quakertown/Richlandtown	3	40
Souderton/Telford	4	28
Allentown/Lehigh Valley	5	12

Clothing & Apparel	Rank	Number of Responses
Lansdale/Montgomeryville	1	448
Pottstown	2	226
Quakertown/Richlandtown	3	222
Allentown/Lehigh Valley	4	216
Upper Perkiomen Valley	5	171

Pharmacy & Convenience	Rank	Number of Responses
Upper Perkiomen Valley	1	1404
Harleysville Area	2	120
Quakertown/Richlandtown	3	54
Pottstown Area	4	22
Allentown/Lehigh Valley	5	21

Personal Services	Rank	Number of Responses
Upper Perkiomen Valley	1	855
Quakertown/Richlandtown	2	114
Lansdale/Montgomeryville	3	91
Allentown/Lehigh Valley	4	71
Harleysville Area	5	70

Household Goods	Rank	Responses
Upper Perkiomen Valley	1	649
Harleysville Area	2	217
Quakertown/Richlandtown	3	204
Lansdale/Montgomeryville	4	176
Allentown/Lehigh Valley	5	126

Furniture & Appliances	Rank	Responses
Upper Perkiomen Valley	1	636
Lansdale/Montgomeryville	2	302
Quakertown/Richlandtown	3	186
Allentown/Lehigh Valley	4	162
Pottstown Area	5	74

8. What types of new retail stores (or expansion of existing retail stores) are most needed in the Upper Perkiomen Valley?

Rank	Category	Number of Responses
1	Clothing/Apparel Stores	764
2	Restaurants	701
3	Bookstore	620
4	Fast Food Restaurants	327
5	Variety/Discount Store	316

9. What types of new services or facilities (or expansion of existing services or facilities) are most needed in the Upper Perkiomen Valley?

Rank	Category	Number of Responses
1	Public Transit	645
2	None Needed	422
3	Appliance Repair Shop	343
4	Physicians	317
5	Computer Service & Repair Shop	294

10. Where do household members work?

Location	Rank	Number of Responses
Retired	1	456
Indian Valley/North Penn/Fort Washington	2	332
East Greenville	3	214
Pennsburg	4	193
Home Occupation/Farm	5	176

11. Rank the top three transportation problems in the Upper Perkiomen Valley.

Category	First Priority Ranking	Number of Responses
Traffic Congestion	1	574
Narrow Roads	2	392
Truck Traffic	3	202
Road Maintenance	4	184
Parking	5	183
No Response	6	115
Sidewalks/Pedestrian Crossings	7	98

Category	Cumulative Ranking	Category Totals
Traffic Congestion	1	1128
Narrow Roads	2	929
No Response	3	905
Parking	4	764
Truck Traffic	5	664
Road Maintenance	6	629
Sidewalks/Pedestrian Crossings	7	284

12. Please list three intersections which need improvement in the Upper Perkiomen Valley and state briefly why they need improvement.

1.

2.

3

13. Select which group needs recreation facilities in the Upper Perkiomen Valley.

Category	Rank	Number of Responses
Teenagers	1	1169
Adults	2	543
Elementary School Children	3	424
Pre-School Age Children	4	306
Senior Citizens	5	304
Current Facilities Adequate	6	288

14. What types of recreational facilities would you like to see provided or expanded in the Upper Perkiomen Valley?

Category	Rank	Number of Responses
Biking Trails	1	780
Hiking Trails	2	707
Cultural Arts Center	3	410
Multipurpose Activity Rooms	4	401
Swimming Pool	5	374
Picnic Area	6	342
Playing Courts	7	312
Gymnasium Activities	8	291
Playing Fields	9	272
Fishing Areas	10	266
Hunting Areas	11	214
Riding Trails	12	157

Appendix F
Natural Area Inventory Sites in the Upper Perkiomen Valley

Natural Areas Inventory Sites in Upper Perkiomen Valley

Site Selection

The Nature Conservancy ecologists conducted fieldwork for the Montgomery County inventory in the spring, summer and fall of 1994. Contract biologists familiar with the county also conducted some of the field surveys for species of special concern. Sites for field evaluation and sites to be searched for species of concern were chosen under methodology explained in the Montgomery County Open Space Plan of 1996. Large woodlands, especially those with mature trees, unusual forest types for the county, wetlands, outcrops, and woods on diabase all received priority for field inspection as potential natural communities and as habitat for rare species. Urban areas, agricultural fields, and other highly disturbed lands were disregarded.

Prioritization

Inventoried sites include Sites of Statewide Significance, which are those that contain species (plants or animals) of concern (rare, threatened or endangered), high quality natural communities (habitats) and significant geologic features. Other are Sites of Local Significance that have high species diversity and may harbor rare species, sites with uncommon vegetation types for the county, or sites with potential to recover to natural community status (e.g. a forest that is returning to a more natural state after selected logging). The mapped natural areas include not only the actual location for the elements but also a buffer, which is typically the watershed upstream or upslope of the site. For locally significant areas, the site itself is mapped with only a small buffer. These mapped areas obscure the actual location of some species that may be vulnerable to collectors and indicate that buffers are important for the survival of the rare elements (i.e., to protect them from development, erosion, runoff, trails and other potential impacts). These buffers are meant only as a guide. Smaller buffer zones may be sufficient to protect the resource, but all activities within these boundaries should be evaluated for their impacts to the resource mapped.

Sites of Statewide Significance

The inventory identified specific sites that have the highest priority for conservation. Protecting and properly managing these sites would further the preservation of biological diversity, certain endangered species, and high-quality natural environments. The inventory recommended the following eight sites to receive immediate attention in terms of land acquisition considerations, growth management decisions, application of conservation tools and other environmental protection measures.

A. Green Lane Marsh and New Goshenhoppen Meadows. The two habitats described below are mapped as one site of statewide significance since they are located within the same subwatershed. In addition, the Audubon Society designated this area around Green Lane Reservoir as one of two important bird areas within Montgomery County. The other important bird area is the Unami Creek Valley.

1. Green Lane Marsh – Located at the northwest end of the Green Lane Reservoir, this graminoid marsh provides breeding habitat for at least one rare animal species. The marsh also provides habitat for a diversity of birds and other animals. While designation as a "fly-fishing only" area helps to minimize species disturbance, invasion by purple loosestrife is a potential threat to habitat quality. This site is protected within Green Lane Reservoir Park.

2. New Goshenhoppen Meadows – The meadows and adjacent habitat along Perkiomen Creek, northwest (upstream) of Green Lane Reservoir, provide breeding habitat for a rare animal species. This area should be mowed infrequently (preferably in late fall) to protect this species as well as grassland birds such as Savannah Sparrow and Meadowlark. The west meadows north of Church Rod contain a diversity of sedges and native wildflowers (Ironweed, Goldenrod, Swamp Milkweed, Dogbane) and can provide good butterfly habitat if not mown during the summer. Fishing access at the site poses no threats to this rare animal species.

B. Niantic Northeast Woods. A fair population of a rare wildflower is found in this diabase woodland along the West Branch Perkiomen Creek. The site also supports a diverse herb layer including Sweet Cicely, Smooth Yellow Violet, and False Soloman's Seal. Maintaining the forest cover will help to minimize inva sion of exotic species and continue to provide the shaded habitat required by the rare wildflowers. Distur bance of the herb layer should also be minimized. Browsing deer are also a potential problem.

C. Knight Road Bluffs. A small population of an endangered plant occurs on shale slopes within Green Lane Reservoir Park. Maintaining the forest canopy is important to prevent invasion of sun-loving weedy species. Increased erosion is a potential threat. Rerouting an existing bridle trail further upslope may help to minimize erosion impacts.

D. Sumneytown South Slopes. A good population of a rare plant occurs on steep wooded slopes along Unami Creek with Sugar Maple, Oaks, Hop-Hornbeam, and a diversity of wildflowers. The site provides a buffer along Unami Creek, and disturbance at the site is minimal. The forest canopy must remain intact for this species to continue to survive. Exotic weeds, such as garlic mustard and stilt grass, are present. Man agement may be desired to prevent these exotics from disturbing the existing rich diversity of wildflower species. In addition, in 1996 the State of Pennsylvania designated this area as one of 73 statewide "Impor- tant Bird Areas," due in part to large population of Pileated Woodpeckers along the Unami corridor.

E. Macoby Creek Ravine. This area contains a large population of a rare wildflower in a scenic wooded ravine with Sugar Maple, Flowering Dogwood, and herbs such as Wild Ginger. Hemlocks dominate the north-facing slope. Keeping the forest canopy intact is essential to persist here and can help to prevent further invasion by weedy species.

F. Upper Ridge Road. Two subpopulations of a wildflower species of special concern were found in 1995. The species needs open areas. A management plan defining an annual mowing regime could help secure long- term viability of this species here. Herbicides would be detrimental to the plants. One of the subpopu lations is found within Hart Boy Scout Camp.

G. Unami Creek Site. A small population of a sedge of special concern and a threatened species of rush were found in 1994 along Unami Creek. The site is located partially within Hart Boy Scout Camp. Follow-up surveys are needed to assess the full extent and quality of the site. The site includes a locally significant boulder belt within Unami Creek, north of Whites Mill Road bridge.

H. Boutcher Road Site. Wet meadows and shrubland along a powerline corridor provide habitat for two species of special concern. The use of herbicides would be detrimental. Occasional cutting of woody vegeta tion may benefit the species at this site.

Sites of Local Significance

The identification of sites with local significance in Montgomery County considered size, diversity of wildlife and plant life, water quality protection, and recreation potential. These sites do not include high-quality natural communities, and no species of special concern have been documented at the sties although several of the areas have potential for rare species to occur. These sites should be targeted for local protection, following the protection of viable Sites of Statewide Significance, or sooner if new information emerges regarding their sig- nificance.

A. Whites Mill Swamp. This forested wetland and shrub swamp along the Ridge Valley Creek is one of the largest areas of this type in the county. The site contains several shallow man-made or enlarged ponds with abundant aquatic vegetation. The habitat supports a number of bird and odonate (dragonfly/damselfly) spe cies. The Mill Pond at the intersection of Whites Mill and Reller Roads on the south end of the site has re verted to a fairly natural condition. Management recommendations include using Pennsylvania native species in any necessary plantings near the area. Further survey of the site is encouraged.

B. Mill Hill Woods. This diabase ridge, located east of the Village of Palm, has good potential for several plant species of special concern and is one of the largest contiguous tracts of forest in the county. While the site could not be surveyed, aerial photo interpretation indicates the potential for seepage wetlands and at least two plants of special concern. Further study is encouraged to better evaluate the quality of the site.

C. Church Road Floodplain. This site, located upstream of Green Lane Reservoir, represents a locally significant complex of natural communities along Perkiomen Creek; locally significant floodplain forest and upland woods. The floodplain forest on the east site of the creek supports Silver Maple, Ash and Spice bush. The upland woods, containing Sugar Maple, Beech and Hemlock, form a canopy on the steep shale slopes of the west side of the creek. This site is contiguous with New Goshenhoppen Meadows (a Site of State Signifi cance). The wooded buffer helps maintain the stream quality for drinking water and for fisheries. Minimiz ing disturbance of the woodlands will allow this are to persist as a significant natural area.

D. Fruitville Road Floodplain. Located west of Water Street, this locally significant floodplain (Silver Maple, Walnut, Box Elder) helps to protect water quality and fisheries within Perkiomen Creek. The site also provides wildlife habitat for birds, odonates and amphibians.

Appendix G
Adoption and Implementation

The Upper Perkiomen Valley Intergovernmental Cooperative Implementation Agreement

East Greenville Borough
Resolution 07-03

RESOLVED this 7th day of May, 2001.

ATTEST:

Secretary

President of Council

APPROVED by the Mayor of the Borough of East Greenville this 7th day of May, A.D., 2001.

Mayor

Green Lane Borough
Ordinance 01-04

NOW THEREFORE BE IT FURTHER RESOLVED, that the Borough Council of Green Lane Borough does hereby adopt the Upper Perkiomen Valley Intergovernmental Cooperative Implementation Agreement.

ENACTED AND ORDAINED this day of May 10, 2001

ATTEST:

Secretary

GREEN LANE BOROUGH

By
Jeanne Ruth, President
Borough Council

Pennsburg Borough
Resolution 4-01

ENACTED and RESOLVED this 7th day of May, 2001.

PENNSBURG BOROUGH COUNCIL

Approved this 7th day of May, A.D., 2001.

BY: Kenneth E Bowers
Vice President

Bill Richards
Mayor

ATTEST: Jeanne W. Hopkins
Secretary

Red Hill Borough Council
Resolution 2002-02

RED HILL BOROUGH COUNCIL

BY:
THOMAS PAUL, President

Approved this 9 day of May, 2001.

Walter Attardo
Mayor

ATTEST: Darlene Stoudt
DARLENE STOUDT,
Secretary

Marlborough Township
Ordinance 01-01

ENACTED AND ORDAINED this day of May 3, 2001

ATTEST:

Eileen F Zubrod
Secretary

MARLBOROUGH TOWNSHIP

By:
James W. Maza, Chairman
Board of Supervisors

Upper Hanover Township
Resolution 01-11

ENACTED and RESOLVED this 10th day of July, 2001.

UPPER HANOVER TOWNSHIP
BOARD OF SUPERVISORS

Attest:

Stanley W. Seitzinger, Jr.
Stanley W. Seitzinger, Jr.
Township Manager

BY: Albert Baccari
Albert Baccari, Chairman

The Comprehensive Plan Adoption Resolutions

East Greenville Borough
Ordinance 07-04

RESOLVED this 7TH day of MAY, 2001.

ATTEST:

Donald W Hoff
Secretary

Douglas S. Bricker
President of Council

APPROVED by the Mayor of the Borough of East Greenville this 7TH day of MAY, A.D., 2001.

Mayor

Green Lane Borough
Ordinance 01-03

ENACTED AND ORDAINED this day of May 16, 2001

ATTEST:

Secretary

GREEN LANE BOROUGH

By: Jeanne Ruth
Jeanne Ruth, President
Borough Council

Pennsburg Borough
Resolution 4001

ENACTED and RESOLVED this 7th day of May, 2001.

PENNSBURG BOROUGH COUNCIL

Approved this 7th day of May, 2001, A.D.

BY: Kenneth E Boone
Vice President

Bill Mitchell
Mayor

ATTEST: Jeanne M Hopkins
Secretary

Red Hill Borough Council
Resolution 2002-02

RED HILL BOROUGH COUNCIL

Approved this 9 day of May, 2001.

BY:
THOMAS PAUL, President

Vera Attardo
Mayor

ATTEST: Darlene Stoudt
DARLENE STOUDT,
Secretary

Marlborough Township
Ordinance 01-01

ENACTED AND ORDAINED this day of May 8, 2001

ATTEST:

Eleanor F. Faidley
Secretary

MARLBOROUGH TOWNSHIP

By:
James W. Maza, Chairman
Board of Supervisors

Upper Hanover Township
Resolution 01-10

ENACTED and RESOLVED this 10th day of July, 2001.

Attest:

Stanley W. Seitzinger, Jr.
Stanley W. Seitzinger, Jr.
Township Manager

UPPER HANOVER TOWNSHIP
BOARD OF SUPERVISORS

BY: Albert Baccari
Albert Baccari, Chairman

GOVERNING BODY DIRECTORY

EAST GREENVILLE BOROUGH

Mayor

Ryan J. Sloyer

Borough Council

Ryan J. Sloyer, *President*
Daniel J. Vanim, *Vice-President*
Frederick J. Bieler
Douglas G. Bricker
Vincent O'Domski
Stephen J. Rodenberger
Janice Weber

GREEN LANE BOROUGH

Mayor

J. Walter Hockman

Borough Council

Jeanne Ruth, *President*
Becky Supplee, *Vice-President*
Jean Leister
Joseph Taraskas
Robin Whetstone

PENNSBURG BOROUGH

Mayor

William Umbehauer Jr.

Borough Council

Jeffrey L. McMurtrie, *President*
Kenneth E. Bonser, *Vice-President*
Phyllis Bittenbender
John Carver
Ronald E. Diehl
Ethel Ritchey
Diane L. Stevens

RED HILL BOROUGH

Mayor

J. Vic Attardo

Borough Council

Thomas Paul, *President*
L. Thomas Letterman, *Vice-President*
Faith Diascro
Robert C. Flint
Sharon Price
John Smith
Paul Snyder

MARLBOROUGH TOWNSHIP

Board of Supervisors

James W. Maza, *Chairman*
Joy M. Leach, *Vice-Chairperson*
Albert McCrae

UPPER HANOVER TOWNSHIP

Board of Supervisors

Albert Baccari, *Chairman*
Willard Kershner, *Vice-Chairman*
Cheryl Pirri, Secretary
Bruce Baver
Frederick Fels