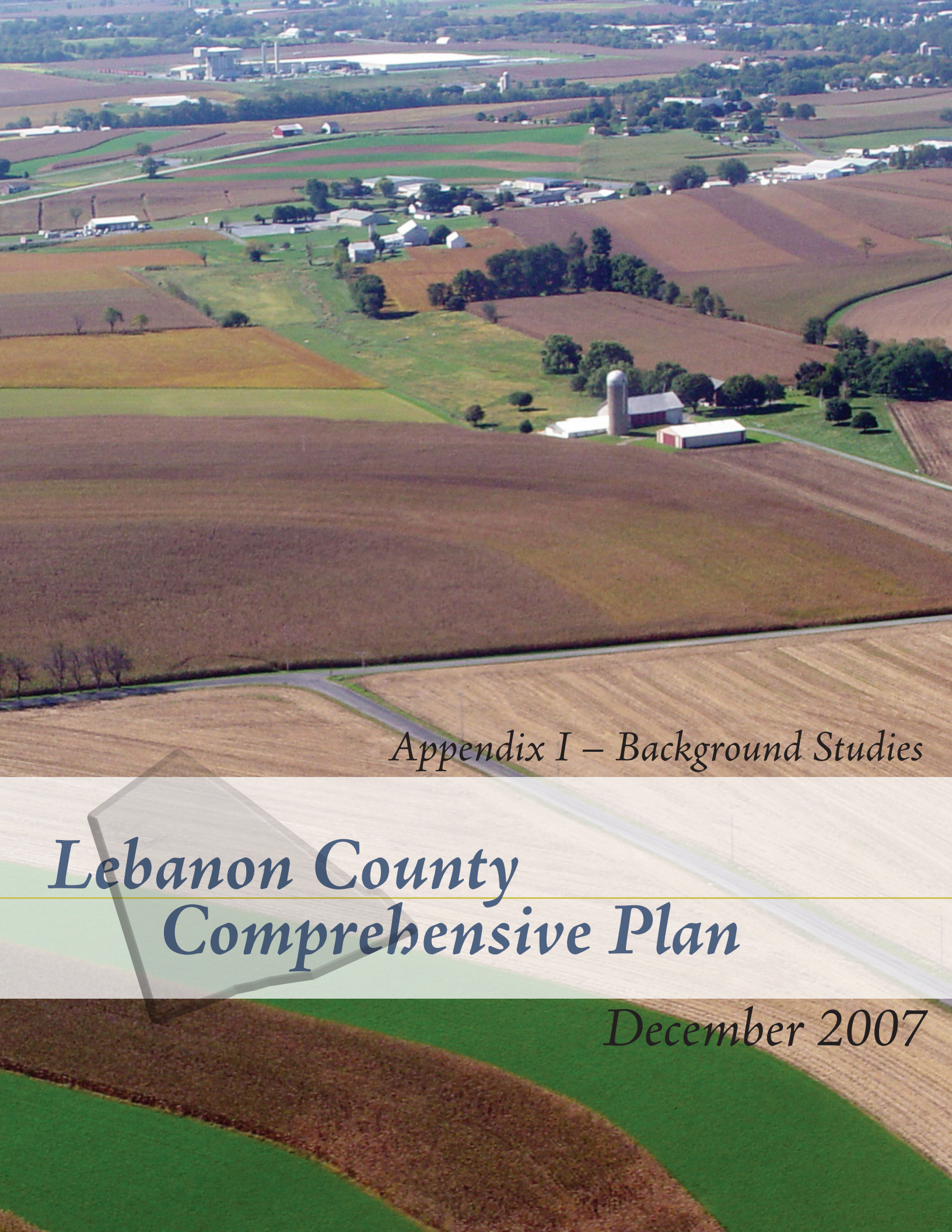

Appendix I – Background Studies

Lebanon County Comprehensive Plan

December 2007

Background Studies

Background Study #1 – Demographic Profile 1-1

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Demographic Profile

Communities constantly change as the residents mature and marry, have children and go through the various life stages. In addition, people are continually moving to and from the community. By studying demographic trends, a community can better understand the changes taking place and plan for the future needs of its residents. This section provides a picture of county, school district, and individual municipal growth trends and changes that affect Lebanon County now and are likely to affect it in the future. Analysis of population trends, coupled with the housing analysis chapter, provides a context for making decisions about land use and the nature and intensity of development to be either encouraged or discouraged.

This population analysis is derived from the U.S. Census, Lebanon County Planning Department (LCPD), and local records.

Description of Terms

The following terms are used throughout this profile. Additional definitions can be found in the glossary.

Educational attainment – the highest level of education completed in terms of the highest degree or the highest level of schooling completed.

Family – a group of two or more people who reside together and who are related by birth, marriage, or adoption.

Family household (Family) – a family includes a householder and one or more people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder's family in census tabulations. Thus, the number of family households is equal to the number of families, but family households may include more members than do families. A household can contain only one family for purposes of census tabulations. Not all households contain families since a household may comprise a group of unrelated people or one person living alone.

Household – a household includes all the people who occupy a housing unit as their usual place of residence.

Income – "Total income" is the sum of the amounts reported separately for wages, salary, commissions, bonuses, or tips; self-employment income from own non-farm or farm businesses, including proprietorships and partnerships; interest, dividends, net rental income, royalty income, or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); any public assistance or welfare payments from the state or local welfare office; retirement, survivor, or disability pensions; and any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony.

Per capita income – average obtained by dividing aggregate income by total population of an area.

Population – all people, male and female, child and adult, living in a given geographic area.

Population density – the total population within a geographic entity divided by the number of square miles of land area of that entity measured in square kilometers or square miles.

Poverty – Following the Office of Management and Budget's (OMB's) Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to detect who is poor. If the total income for a family or unrelated individual falls below the relevant poverty threshold, then the family or unrelated individual is classified as being "below the poverty level."

Source: US Census Bureau

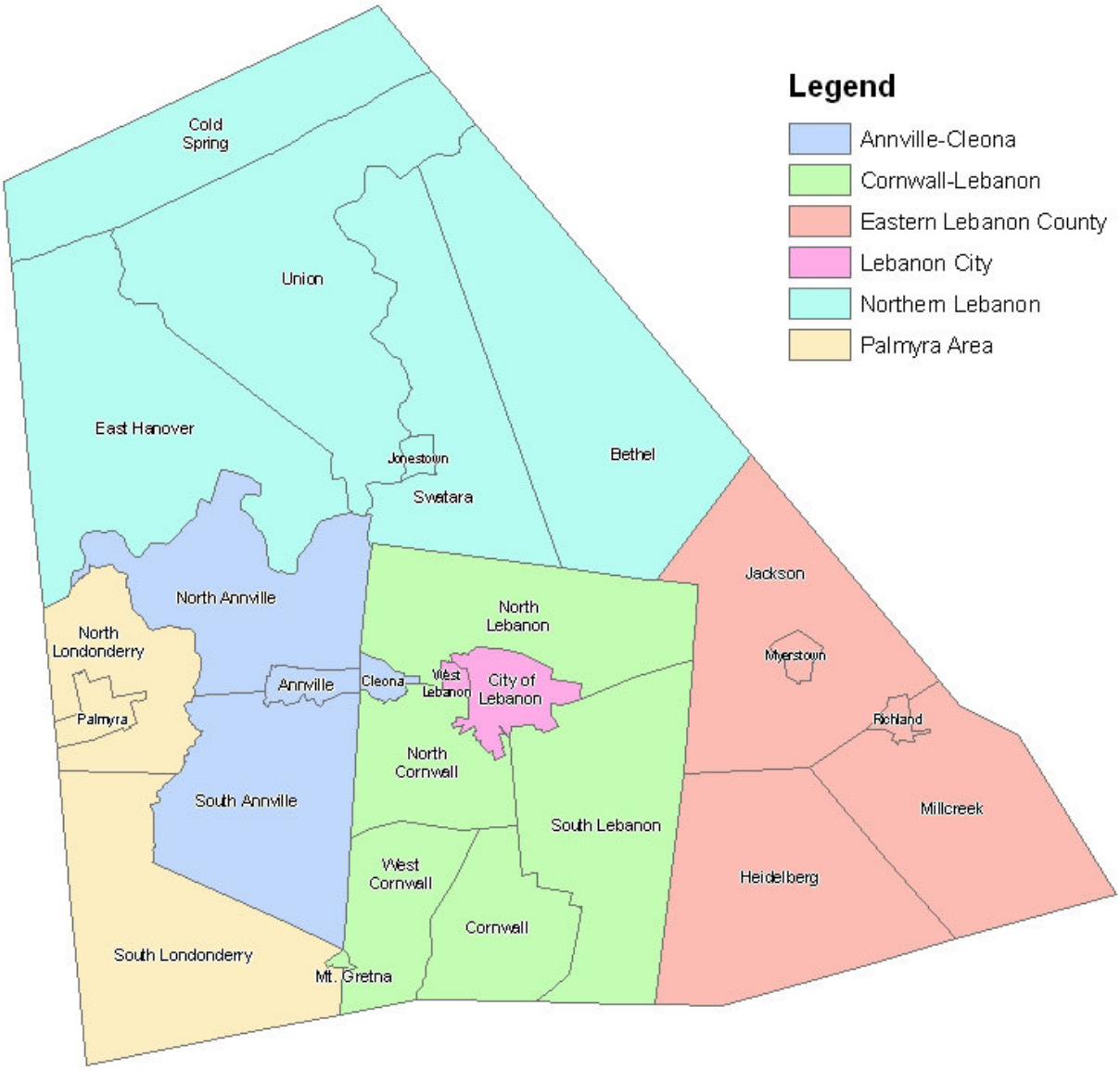


Figure 2-2 School Districts of Lebanon County

Historic Population

Historic population statistics from the decennial censuses of 1960 through 2000 were examined for trends at the county, school district and municipal levels. Notable figures and trends are presented here followed by the data table.

<u>Countywide Statistics and Trends</u>

- The county has shown consistent growth over the past four decades, from 90,853 residents in 1960 to 120,327 residents in 2000. The county experienced the highest decennial growth rates during the first two of the past four decades. Between 1960 and 1970, the county added 8,812 persons (9.7%) and between 1970 and 1980, 8,917 (8.95%). Since 1980, growth has been constant but slower than from 1960 to 1980. The resident population grew 4.82% between 1980 and 1990 and 5.73% between 1990 and 2000.

- Lebanon County's growth (32.44%) has been almost four times that of Pennsylvania (8.50%) over the cumulative period since 1960.
- Approximately 75% of the population lives within three miles of Route 422. (71% of the population is within municipalities touching Route 422).
- Since 1960, the townships of Lebanon County have seen a cumulative growth of 73.70%. The City of Lebanon and the boroughs of the county have seen a decline in population of -7.06% during this same time period. This follows the general trend in Pennsylvania of people moving out of the older cities and boroughs and into the more rural townships.

School District Statistics and Trends

- The most significant growth occurred in the Cornwall–Lebanon School District and the Palmyra Area School District between 1960 and 2000. Since 1960 the Cornwall–Lebanon School District has had a cumulative growth rate over that period greater than 80%. This equates to 14,084 new residents, nearly doubling its 1960 population of 16,968. The Cornwall – Lebanon School District is comprised of municipalities that surround the City of Lebanon. Growth in this district can be attributed to people leaving the City of Lebanon, but not moving far; staying in the greater Lebanon City area. The availability of water and sewer services branching out from the City of Lebanon has also impacted growth patterns.
- Since 1990, the Palmyra Area School District has grown the fastest, adding 2,283 persons for a growth rate of 13.4%. Growth in the Palmyra Area School District can be attributed to an in-migration of people who desire the convenience and amenities of the Hershey and Harrisburg areas, but prefer the lower cost of living in Lebanon County. The Hershey Medical Center has also had an influence on this district. As the Medical Center continues to expand, more jobs are created, drawing people to this area.
- The highest decennial growth rate experienced by a school district was in Northern Lebanon School District between 1970 and 1980, where the district increased its population by 2,970 persons, growing by 26.83%. This coincides with construction and opening of Interstates 81 and 78. In 1970, the section of Interstate 78 from Interstate 81 to the Berks County line opened to traffic (Pennsylvania Highways, Pennsylvania Department of Transportation)
- The Lebanon School District is the only district in the county to experience declines in its resident population over the course of the 40 years of analysis and during each of the 10-year periods since 1960. Since 1960, the district declined by 18.66%, a net loss of 5,802 people.
- The Annville–Cleona School District was the only school district other than the Lebanon School district to experience a decline over a ten year period between 1960 and 2000. Between 1990 and 2000, the district lost 174 persons, for a decline of 1.44%.
- The ELCO School District most closely followed countywide trends.

Municipal Statistics and Trends

- Only the City of Lebanon and West Lebanon Township have shown consistent population declines since 1960.
- Nearly three-quarters of the municipalities (73%) have experienced double-digit growth since 1960 and just less than one-quarter (23%) have experienced triple-digit growth.
- Since 1960, North Londonderry Township has been the fastest growing municipality in the county. This is due to an influx of people seeking residency near Derry Township and to residents of the Palmyra Area School District moving out of Palmyra Borough and into the surrounding areas.

Table 1-1 Historic Population Counts and Rates of Change, 1960-2000

	1960	1970	% Decennial Change	1980	% Decennial Change	1990	% Decennial Change	2000	% Decennial Change	Total Change
Pennsylvania	**11,319,366**	**11,800,766**	**4.25%**	**11,863,895**	**0.53%**	**11,881,643**	**0.15%**	**12,281,054**	**3.36%**	**8.50%**
Lebanon County	**90,853**	**99,665**	**9.70%**	**108,582**	**8.95%**	**113,811**	**4.82%**	**120,327**	**5.73%**	**32.44%**
Annville-Cleona SD	**9,279**	**10,327**	**11.29%**	**11,709**	**13.38%**	**12,065**	**3.04%**	**11,891**	**-1.44%**	**28.15%**
Annville	4,264	4,704	10.32%	4,493	-4.49%	4,294	-4.43%	4,518	5.22%	5.96%
Cleona	1,988	2,040	2.62%	2,003	-1.81%	2,322	15.93%	2,148	-7.49%	8.05%
N. Annville	1,813	2,180	20.24%	2,421	11.06%	2,441	0.83%	2,279	-6.64%	25.70%
S. Annville	1,214	1,403	15.57%	2,792	99.00%	3,008	7.74%	2,946	-2.06%	142.67%
Cornwall-Lebanon SD	**16,968**	**20,735**	**22.20%**	**24,705**	**19.15%**	**27,648**	**11.91%**	**31,052**	**12.31%**	**83.00%**
Cornwall	1,934	2,111	9.15%	2,653	25.68%	3,231	21.79%	3,486	7.89%	80.25%
Mount Gretna	93	153	64.52%	280	83.01%	303	8.21%	242	-20.13%	160.22%
N. Cornwall	2,624	3,343	27.40%	4,401	31.65%	4,886	11.02%	6,403	31.05%	144.02%
N. Lebanon	4,713	6,146	30.41%	8,343	35.75%	9,741	16.76%	10,629	9.12%	125.53%
S. Lebanon	6,584	7,706	17.04%	7,431	-3.57%	7,491	0.81%	8,383	11.91%	27.32%
W. Cornwall	1,020	1,276	25.10%	1,597	25.16%	1,996	24.98%	1,909	-4.36%	87.16%
ELCO SD	**12,325**	**13,854**	**12.41%**	**15,776**	**13.87%**	**16,909**	**7.18%**	**17,770**	**5.09%**	**44.18%**
Heidelberg	2,597	2,833	9.09%	3,583	26.47%	3,797	5.97%	3,832	0.92%	47.55%
Jackson	2,778	3,388	21.96%	5,028	48.41%	5,732	14.00%	6,338	10.57%	128.15%
Millcreek	2,406	2,544	5.74%	2,564	0.79%	2,687	4.80%	2,921	8.71%	21.40%
Myerstown	3,268	3,645	11.54%	3,131	-14.10%	3,236	3.35%	3,171	-2.01%	-2.97%
Richland	1,276	1,444	13.17%	1,470	1.80%	1,457	-0.88%	1,508	3.50%	18.18%
Lebanon SD	**31,099**	**29,558**	**-4.96%**	**26,598**	**-10.01%**	**25,672**	**-3.48%**	**25,297**	**-1.46%**	**-18.66%**
Lebanon City	30,045	28,572	-4.90%	25,711	-10.01%	24,800	-3.54%	24,461	-1.37%	-18.59%
W. Lebanon	1,054	986	-6.45%	887	-10.04%	872	-1.69%	836	-4.13%	-20.68%
Northern Lebanon SD	**9,588**	**11,070**	**15.46%**	**14,040**	**26.83%**	**14,475**	**3.10%**	**14,992**	**3.57%**	**56.36%**
Bethel	2,433	2,804	15.25%	4,042	44.15%	4,343	7.45%	4,526	4.21%	86.03%
Cold Spring	71	117	64.79%	89	-23.93%	80	-10.11%	49	-38.75%	-30.99%
E. Hanover	2,140	2,127	-0.61%	2,952	38.79%	3,058	3.59%	2,858	-6.54%	33.55%
Jonestown	813	954	17.34%	814	-14.68%	931	14.37%	1,028	10.42%	26.45%
Swatara	2,164	2,407	11.23%	3,443	43.04%	3,318	-3.63%	3,941	18.78%	82.12%
Union	1,967	2,661	35.28%	2,700	1.47%	2,745	1.67%	2,590	-5.65%	31.67%
Palmyra Area SD	**11,594**	**14,121**	**21.80%**	**15,754**	**11.56%**	**17,042**	**8.18%**	**19,325**	**13.40%**	**66.68%**
N. Londonderry	1,684	2,752	63.42%	4,749	72.57%	5,630	18.55%	6,771	20.27%	302.08%
Palmyra	6,999	7,615	8.80%	7,228	-5.08%	6,910	-4.40%	7,096	2.69%	1.39%
S. Londonderry	2,911	3,754	28.96%	3,777	0.61%	4,502	19.20%	5,458	21.24%	87.50%

Source: U.S. Census Bureau, Lebanon County Planning Department
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 in 1990. A challenge was made by Lebanon County and the figure was revised in 1996 to 80 people.

Population Projections

Population projections were developed at the municipal level by the Lebanon County Planning Department and aggregated at the school district and county levels. The Planning Department staff reviewed the outcomes of four separate methods for projecting population increase: linear projection, exponential projection, cohort projection and cohort projection with migration estimates. Each method utilized 1990 and 2000 population counts. The staff concluded that the exponential projection method, which determines future growth based on an exponential rate of increase/decline from historic population figures, was the best baseline estimate of growth for the county. The staff then revised the exponential projection figures to account for recent and anticipated development in the various municipalities. The school district projections were then aggregated from the revised municipal population projections.

Projected population figures were examined for trends at the county, school district and municipal levels. Notable figures and trends are presented here, followed by the data table.

Countywide Statistics and Trends

- The county is expected to continue to grow through 2020, resulting in a net increase of 19,748 persons from its 2000 population count. Between 2000 and 2010, the county expects to add 10,355 persons to grow 8.61%, and between 2010 and 2020, 9,393 persons to grow 7.19%. In comparison to historic growth rates, the county's foreseeable growth rate is expected to be similar to that of the 1970-1980 decade.
- As was the case between 1960 and 2000, the growth in the townships will outpace growth in the boroughs and the City of Lebanon. One notable exception to this is Cornwall Borough, where current construction of the Alden Place and Cornwall Manor developments will add 626 new housing units and associated new residents in the coming years. Jonestown Borough is also projected to grow as Twin Creeks and other developments are completed.

School District Statistics and Trends

- The population in all of the school districts is expected to grow between 2000 and 2020.
- The ELCO, Northern Lebanon and Palmyra Area, School Districts are expected to grow dramatically, each growing between 21% and 29% over the two projected decades. Public water and sewer projects in the Northern Lebanon School District and continued commercial and industrial development in the Lickdale and Fredericksburg areas are expected to drive growth. The ELCO School District is expected to experience population growth, mostly due to in-migration of residents desiring a rural setting in proximity to the Reading area. The Palmyra Area School District is expected to see the majority of its growth continue in North and South Londonderry Townships due to the proximity to Hershey and Harrisburg and the employment attraction of the Hershey Medical Center.
- The Cornwall-Lebanon School District follows closely with a projected growth rate of 20% from 2000 to 2020, as various developments are completed and initiated in Cornwall Borough and North Cornwall, North Lebanon and South Lebanon Townships.
- The Annville–Cleona School District is expected to reverse its trend of population decline by 2010. This is based on the recent preparation of South Annville Township's Sewage Facilities Plan that will extend sewer service within the township and discussions with landowners and developers about future development in the new sewer service area.

Municipal Statistics and Trends

- Twenty-one of the 26 municipalities are expected to grow between 2000 and 2020.
- The fastest growth over a single decade is expected to occur in Jackson Township between 2000 and 2010, where undeveloped land zoned for residential uses is available. More than 1,550 new residents are projected by 2010 followed by another 1,000 new residents by 2020. North Londonderry and South Londonderry Townships are expected to see influxes of new residents similar to Jackson Township of 1,100 to 1,500 new residents in each of the two projection decades.
- Nominal population declines are expected in Cleona Borough, Mount Gretna Borough, Myerstown Borough, and the City of Lebanon due to the expected removal of older homes, conversion to non-residential uses, and the fact that these relatively small municipalities have limited vacant land available for new development.

Table 1-2 Population Projections, 2010-2020

	1990 US Census Pop.	2000 US Census Pop.	Absolute Change from 1990	Percent Change	2010 Projected Pop.	Absolute Change from 2000	Percent Change	2020 Projected Pop.	Absolute Change from 2010	Percent Change
Lebanon County	**113,811**	**120,327**	**6,516**	**5.73%**	**130,682**	**10,355**	**8.61%**	**140,075**	**9,393**	**7.19%**
Annville-Cleona SD	**12,065**	**11,891**	**-174**	**-1.44%**	**12,063**	**172**	**1.45%**	**12,825**	**762**	**6.32%**
Annville	4,294	4,518	224	5.22%	4,638	120	2.66%	4,723	85	1.83%
Cleona	2,322	2,148	-174	-7.49%	2,093	-55	-2.56%	2,098	5	0.24%
N. Annville	2,441	2,279	-162	-6.64%	2,311	32	1.40%	2,358	47	2.03%
S. Annville	3,008	2,946	-62	-2.06%	3,021	75	2.55%	3,646	625	20.69%
Cornwall-Lebanon SD	**27,648**	**31,052**	**3,404**	**12.31%**	**34,515**	**3,463**	**11.15%**	**37,165**	**2,650**	**7.68%**
Cornwall	3,231	3,486	255	7.89%	4,122	636	18.24%	4,619	497	12.06%
Mount Gretna	303	242	-61	-20.13%	234	-8	-3.31%	234	0	0.00%
N. Cornwall	4,886	6,403	1,517	31.05%	7,328	925	14.45%	8,023	695	9.48%
N. Lebanon	9,741	10,629	888	9.12%	11,537	908	8.54%	12,098	561	4.86%
S. Lebanon	7,491	8,383	892	11.91%	9,355	972	11.59%	10,230	875	9.35%
W. Cornwall	1,996	1,909	-87	-4.36%	1,939	30	1.57%	1,961	22	1.13%
ELCO SD	**16,909**	**17,770**	**861**	**5.09%**	**20,002**	**2,232**	**12.56%**	**21,813**	**1,811**	**9.05%**
Heidelberg	3,797	3,832	35	0.92%	3,911	79	2.06%	4,066	155	3.96%
Jackson	5,732	6,338	606	10.57%	7,888	1,550	24.46%	8,974	1,086	13.77%
Millcreek	2,687	2,921	234	8.71%	3,553	632	21.64%	4,074	521	14.66%
Myerstown	3,236	3,171	-65	-2.01%	3,116	-55	-1.73%	3,120	4	0.13%
Richland	1,457	1,508	51	3.50%	1,534	26	1.72%	1,579	45	2.93%
Lebanon SD	**25,672**	**25,297**	**-375**	**-1.46%**	**25,202**	**-95**	**-0.38%**	**25,257**	**55**	**0.22%**
Lebanon City	24,800	24,461	-339	-1.37%	24,333	-128	-0.52%	24,308	-25	-0.10%
W. Lebanon	872	836	-36	-4.13%	869	33	3.95%	949	80	9.21%
Northern Lebanon SD	**14,475**	**14,992**	**517**	**3.57%**	**16,728**	**1,736**	**11.58%**	**18,152**	**1,424**	**8.51%**
Bethel	4,343	4,526	183	4.21%	4,971	445	9.83%	5,399	428	8.61%
Cold Spring	80	49	-31	-38.75%	47	-2	-4.08%	49	2	4.26%
E. Hanover	3,058	2,858	-200	-6.54%	2,946	88	3.08%	3,057	111	3.77%
Jonestown	931	1,028	97	10.42%	1,363	335	32.59%	1,405	42	3.08%
Swatara	3,318	3,941	623	18.78%	4,556	615	15.61%	5,110	554	12.16%
Union	2,745	2,590	-155	-5.65%	2,845	255	9.85%	3,132	287	10.09%
Palmyra Area SD	**17,042**	**19,325**	**2,283**	**13.40%**	**22,172**	**2,847**	**14.73%**	**24,863**	**2,691**	**12.14%**
N. Londonderry	5,630	6,771	1,141	20.27%	8,063	1,292	19.08%	9,588	1,525	18.91%
Palmyra	6,910	7,096	186	2.69%	7,141	45	0.63%	7,186	45	0.63%
S. Londonderry	4,502	5,458	956	21.24%	6,968	1,510	27.67%	8,089	1,121	16.09%

Source: U.S. Census Bureau; Lebanon County Planning Department

County-to-County Population Statistics and Trends

Historic population statistics from the decennial censuses of 1950 through 2000 were examined for trends in the neighboring counties. Notable figures and trends are presented here, followed by the data table and a graphic representation of comparative county growth.

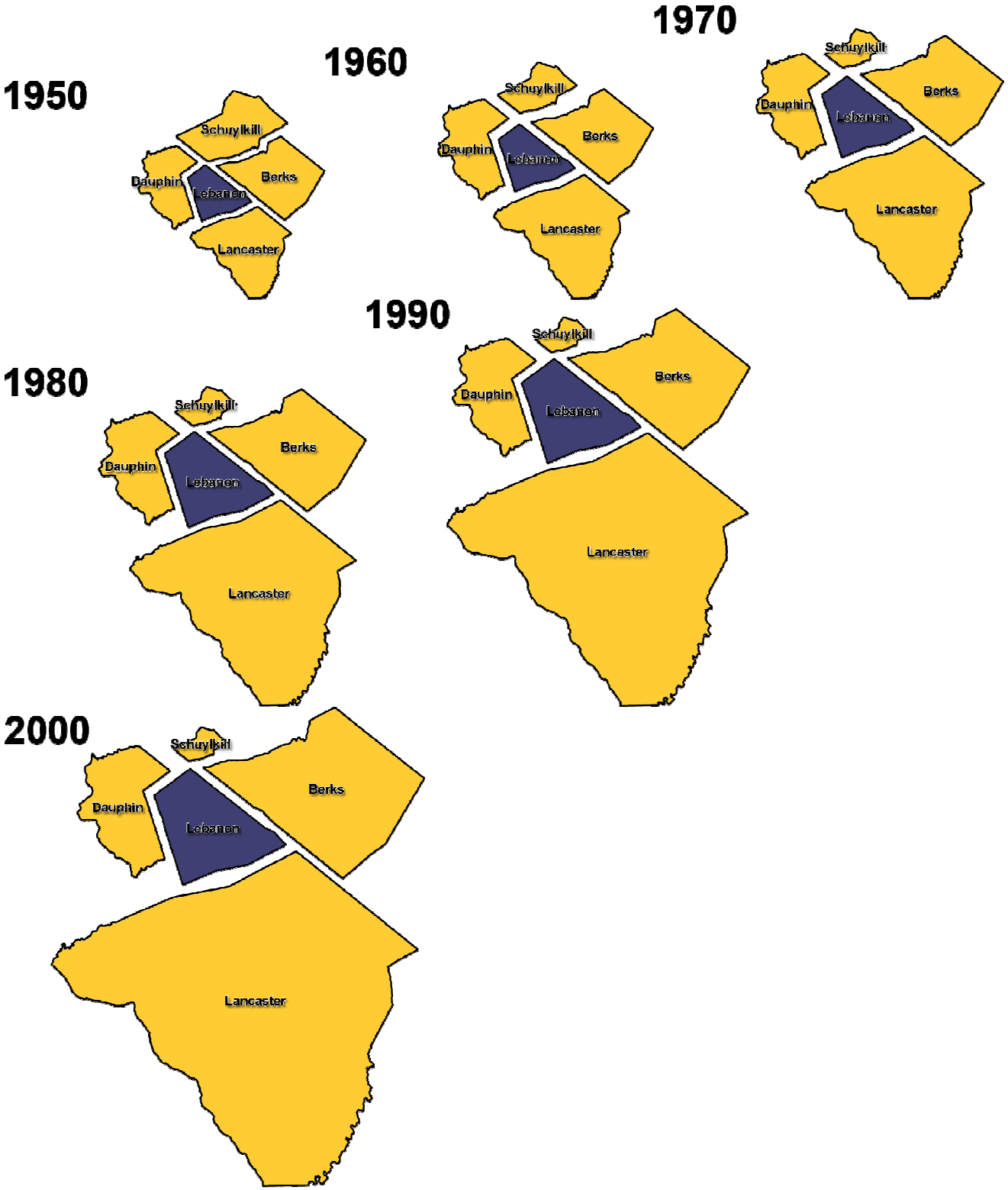
- Lebanon County added population in every decade since 1950, for a total increase of 38,644 new residents between 1950 and 2000. This represents a 47.31% increase during this time period.
- The rate at which Lebanon County added population slowed each decade between 1950 and 1990. The county saw an increase in the rate at which the population increased during the 1990s.
- Municipalities in Lebanon County bordering other counties, particularly northern Lebanon County, did not necessarily exhibit population trends similar to those of the adjacent counties.
- Dauphin County has experienced continued growth through the survey period but at declining rates until the 1990-2000 decade. The population grew by 11.30% between 1950 and 1960, then at less than 4% for each of the three following decades, followed by a 5.90% rate between 1990 and 2000. In addition, Dauphin County grew by the fewest residents of the counties in the study area that experienced growth.
- Between 1950 and 2000, Schuylkill County lost a total of 50,241 residents, which accounted for 25.05% of the population. An exception to this overall decline occurred in the 1970s; the county had a nominal 0.60% increase in population.
- Between 1950 and 2000, Berks County grew in population by 137,898 residents or at a cumulative rate of 53.92%. This growth rate is similar to that of Lebanon County, though Berks County's numeric increase was higher due to a higher 1950 population. Berks grew steadily at a decennial rate of 7.6%, despite a dip during the 1970s when the growth rate was 5.4%. During the 1990s, the population grew by 11.0%.
- Lancaster County added a total of 235,941 new residents between 1950 and 2000, growing at double digit rates in each decade between 1950 and 2000 and doubling its population between 1950 and 2000.

Table 1-3 Historic Population of Lebanon and Neighboring Counties

County	1950	1960	1970	1980	1990	2000	Change 1950-2000
Lebanon	81,683	90,853	99,665	108,852	113,811	120,327	38,644
	-	11.20%	9.70%	8.90%	4.70%	5.70%	47.31%
Dauphin	197,784	220,255	223,834	232,317	237,813	251,798	54,014
	-	11.30%	1.60%	3.80%	2.40%	5.90%	27.31%
Schuylkill	200,577	172,586	159,661	160,630	152,585	150,336	-50,241
	-	-13.90%	-7.40%	0.60%	-5.00%	-1.40%	-25.05%
Berks	255,740	275,414	296,382	312,509	336,523	393,638	137,898
	-	7.60%	7.60%	5.40%	7.60%	11.00%	53.92%
Lancaster	234,717	278,359	319,693	362,346	422,822	470,658	235,941
	-	18.50%	14.80%	13.30%	16.60%	11.30%	100.52%

Source: U.S. Census Bureau

Figure 1-1 Relative Population Growth among Neighboring Counties

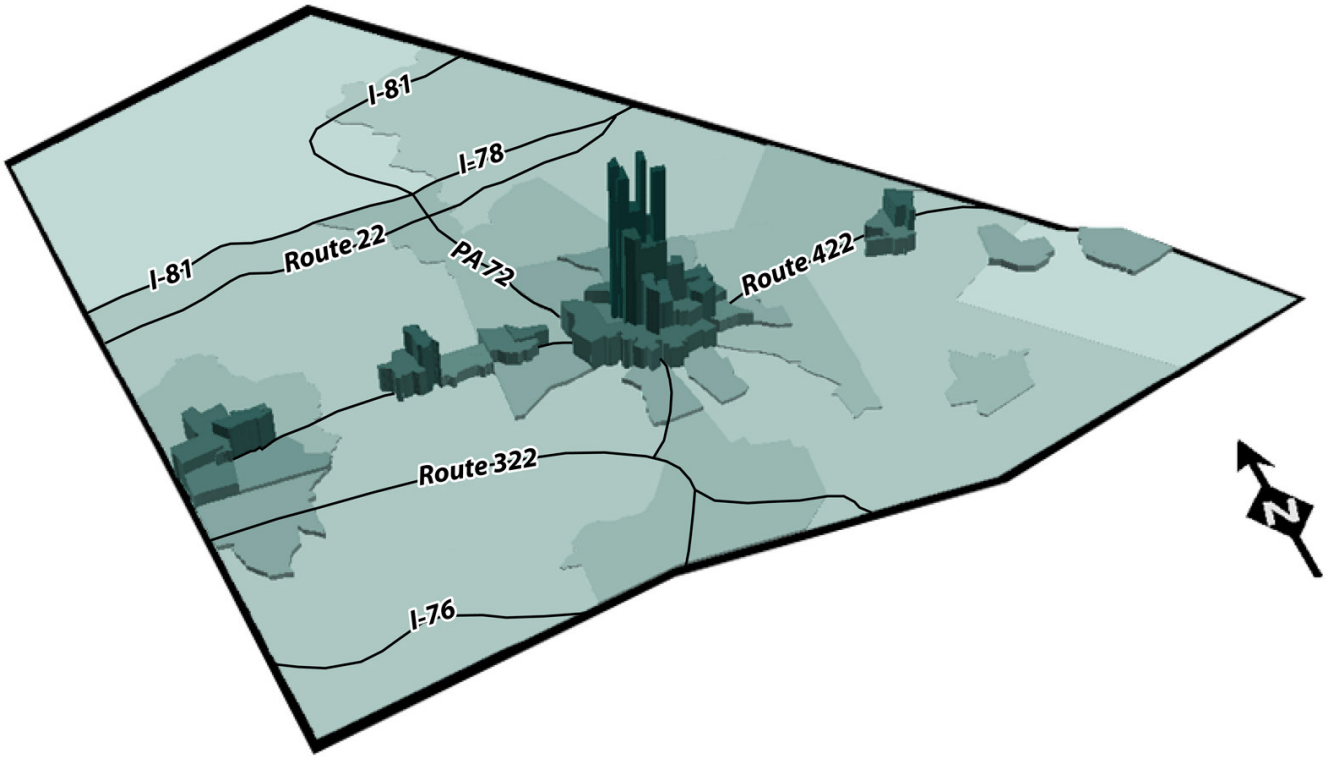


In this graphic, the change in population is reflected in the relative size of each county.

Population Density Statistics and Trends

- Population is most concentrated along the Route 422 Corridor (as many as 22,116 persons per square mile or 35 persons per acre).
- Despite a declining population, the City of Lebanon still remains the most concentrated center of population in the county, with densities ranging from 22,116 persons per square mile to 2,047 per square mile at the census block level.

Figure 1-2 Population Density



This graphic illustrates the population density of census blocks in Lebanon County at the time of the 2000 Census. More densely populated areas are shown darker and taller than those of less densely populated areas. Communities along the US 422 corridor, Palmyra, Annville, Cleona, West Lebanon, the City of Lebanon, and Myerstown, have the most concentrated populations.

Age and Sex Statistics and Trends

Countywide Statistics and Trends

- The median age in Lebanon County is 0.7 years greater than that of Pennsylvania and is higher than all of its neighboring counties other than Schuylkill.
- The number of pre-school aged children in Lebanon County decreased in absolute terms (by 277 individuals) and relative terms (from 6.7% to 6.1% of the population). This mirrors Pennsylvania, which saw its relative percentage of pre-school aged children fall from 6.7% to 5.9%.
- School-aged children saw their numbers increase from 20,125 to 21,156. This increase represented a decrease in relative population from 17.7% to 17.6% of the total population.
- The number of college-aged individuals dropped from 10,752 to 9,871. This yielded a drop in the group's representation among the general population from 9.5% to 8.2%, the largest drop of any age category.
- The largest segment of the population in 2000 was between the ages of 35 and 49, representing baby boomers and "tweeners" (those born between 1960 and 1965).

- The senior age group (65 years and older) grew from 17,070 in 1990 to 19,696 in 2000. This indicates a possible need for increased housing suitable for seniors and long term care facilities in the future. See Background Study #2, Housing Profile and the Housing Plan for further discussion of need.
- Females outnumbered males in the county by 3,107 in 2000, or, in other words, have a 2.6% greater share of the population. Among younger populations, males are more prevalent in the county; but as the population ages, females comprise a greater proportion of the population, and among senior citizens, outnumber males by 18.4%.

School District Statistics and Trends

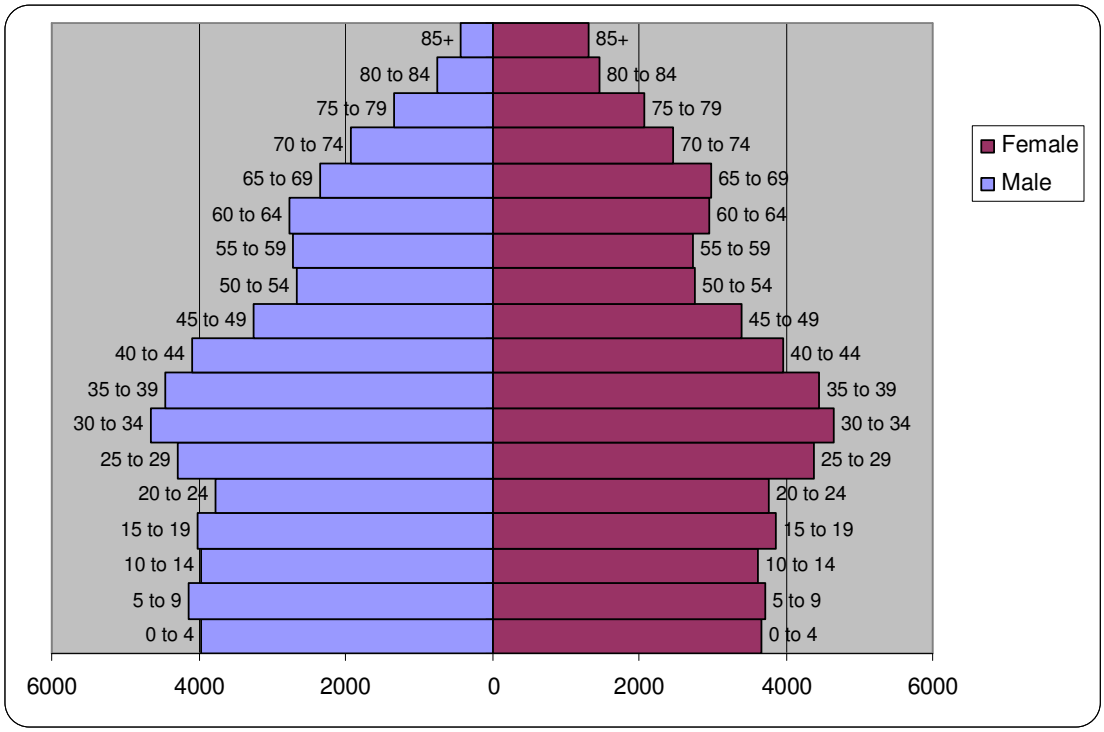
- Males were outnumbered by females in all of the school districts in 2000 with the exception of Northern Lebanon. This was the case in 1990 as well. This exception is present in every municipality in the Northern Lebanon School District.
- The Lebanon School District and the Palmyra Area School District were the only districts that retained the relative number of pre-school aged children between 1990 and 2000.
- ELCO's highest growth was among its senior population. Between 1990 and 2000, the relative representation of this group rose from 13.7% to 17.3%. This is more than double the change experienced by Cornwall-Lebanon, which had the second highest increase in the senior population, from 16.9% to 18.6%. Cornwall–Lebanon had the highest percentage of seniors of any district in Lebanon County.
- The Annville–Cleona School District had the highest percentage of college-aged individuals in its population, at 16.2%. This is an increase from 14.0% in 1990, and most likely owes to Lebanon Valley College's growing presence in the district.

Municipal Statistics and Trends

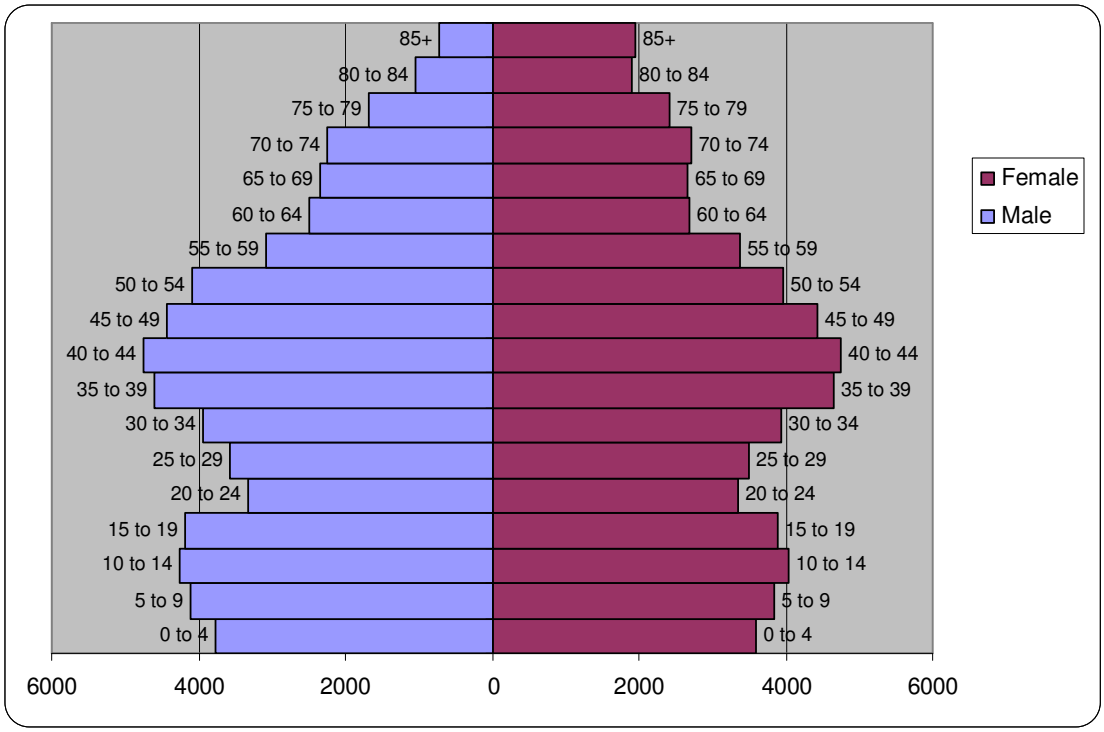
- West Cornwall Township had the highest share of seniors of its general population at 24.4%, followed closely by Cornwall Borough (23.4%), Myerstown Borough (22.0%) and South Lebanon Township (21.4%).
- Other than Cold Spring Township, Mount Gretna had the greatest share of its population between the ages of 25 and 64.

Figure 1-3 1990 and 2000 Sex/Age Structure Comparison

Lebanon County Population by Age and Sex, 1990



Lebanon County Population by Age and Sex, 2000



Source: U.S. Census Bureau

Table 1-4 Male / Female Distribution over the Total Population

	1990 Census				2000 Census			
	Male	%	Female	%	Male	%	Female	%
Pennsylvania	**5,694,265**	**47.90**	**6,187,378**	**52.10**	**5,929,663**	**48.30**	**6,351,391**	**51.70**
Lebanon County	**55,512**	**48.80**	**58,232**	**51.20**	**58,610**	**48.70**	**61,717**	**51.30**
Annville–Cleona SD	**5,885**	**48.80**	**6,180**	**51.20**	**5,740**	**48.30**	**6,151**	**51.70**
Annville	2,067	48.10	2,227	51.90	2,116	46.80	2,402	53.20
Cleona	1,122	48.30	1,200	51.70	1,057	49.20	1,091	50.80
N. Annville	1,202	49.20	1,239	50.80	1,124	49.30	1,155	50.70
S. Annville	1,494	49.70	1,514	50.30	1,443	49.00	1,503	51.00
Cornwall–Lebanon SD	**13,628**	**49.30**	**14,020**	**50.70**	**15,116**	**48.70**	**15,936**	**51.30**
Cornwall	1,519	47.00	1,712	53.00	1,648	47.30	1,838	52.70
Mount Gretna	156	51.50	147	48.50	125	51.70	117	48.30
N. Cornwall	2,295	47.00	2,591	53.00	3,028	47.30	3,375	52.70
N. Lebanon	4,779	49.10	4,962	50.90	5,193	48.90	5,436	51.10
S. Lebanon	3,915	52.30	3,576	47.70	4,180	49.90	4,203	50.10
W. Cornwall	964	48.30	1,032	51.70	942	49.30	967	50.70
ELCO SD	**8,303**	**49.10**	**8,606**	**50.90**	**8,644**	**48.60**	**9,126**	**51.40**
Heidelberg	1,875	49.40	1,922	50.60	1,918	50.10	1,914	49.90
Jackson	2,870	50.10	2,862	49.90	3,059	48.30	3,279	51.70
Millcreek	1,372	51.10	1,315	48.90	1,459	49.90	1,462	50.10
Myerstown	1,486	45.90	1,750	54.10	1,464	46.20	1,707	53.80
Richland	700	48.00	757	52.00	744	49.30	764	50.70
Lebanon SD	**12,153**	**47.30**	**13,519**	**52.70**	**12,284**	**48.60**	**13,013**	**51.40**
Lebanon City	11,727	47.30	13,073	52.70	11,857	48.50	12,604	51.50
W. Lebanon	426	48.90	446	51.10	427	51.10	409	48.90
Northern Lebanon SD	**7,384**	**51.20**	**7,024**	**48.80**	**7,637**	**50.90**	**7,355**	**49.10**
Bethel	2,205	50.80	2,138	49.20	2,302	50.90	2,224	49.10
Cold Spring	N/A	N/A	N/A	N/A	26	53.10	23	46.90
E. Hanover	1,620	53.00	1,438	47.00	1,451	50.80	1,407	49.20
Jonestown	467	50.20	464	49.80	532	51.80	496	48.20
Swatara	1,684	50.80	1,634	49.20	2,001	50.80	1,940	49.20
Union	1,406	51.00	1,349	49.00	1,325	51.20	1,265	48.80
Palmyra Area SD	**8,159**	**47.90**	**8,883**	**52.10**	**9,189**	**47.50**	**10,136**	**52.50**
N. Londonderry	2,704	48.00	2,926	52.00	3,199	47.20	3,572	52.80
Palmyra	3,188	46.10	3,722	53.90	3,327	46.90	3,769	53.10
S. Londonderry	2,267	50.40	2,235	49.60	2,663	48.80	2,795	51.20

Source: U.S. Census Bureau
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 people in 1990. A challenge was made by Lebanon County and the figures were revised in 1996 to 80 people. Male / Female composition data in 1990 for Cold Spring Township is unavailable.

Table 1-5 Male/Female Distribution of Pre-School Aged Population (0-4 years) and Percentage of Total Population

	1990 Census			2000 Census		
	Male	Female	% of Population	Male	Female	% of Population
Pennsylvania	**409,132**	**387,926**	**6.70**	**372,448**	**355,356**	**5.90**
Lebanon County	**3,968**	**3,669**	**6.70**	**3,756**	**3,604**	**6.10**
Annville–Cleona SD	**385**	**385**	**6.40**	**316**	**322**	**5.40**
Annville	110	94	4.80	102	113	4.80
Cleona	90	93	7.90	74	55	6.00
N. Annville	85	91	7.20	63	69	5.80
S. Annville	100	107	6.90	77	85	5.50
Cornwall–Lebanon SD	**856**	**832**	**6.10**	**833**	**768**	**5.20**
Cornwall	100	86	5.80	81	59	4.00
Mount Gretna	9	11	6.60	9	1	4.10
N. Cornwall	157	140	6.10	200	225	6.60
N. Lebanon	326	324	6.70	303	286	5.50
S. Lebanon	198	219	5.60	202	170	4.40
W. Cornwall	66	52	5.90	38	27	3.40
ELCO SD	**654**	**582**	**7.30**	**592**	**580**	**6.60**
Heidelberg	143	137	7.40	144	131	7.20
Jackson	188	185	6.50	200	203	6.40
Millcreek	142	94	8.80	96	116	7.30
Myerstown	121	108	7.10	95	84	5.60
Richland	60	58	8.10	57	46	6.80
Lebanon SD	**957**	**909**	**7.30**	**933**	**942**	**7.40**
Lebanon City	928	886	7.30	890	915	7.40
W. Lebanon	29	23	6.00	43	27	8.40
Northern Lebanon SD	**563**	**467**	**7.10**	**497**	**399**	**6.00**
Bethel	184	149	7.70	169	159	7.20
Cold Spring*	N/A	N/A	N/A	2	1	6.10
E. Hanover	122	102	7.30	74	53	4.40
Jonestown	47	36	8.90	39	18	5.50
Swatara	108	97	6.20	139	111	6.30
Union	102	83	6.70	74	57	5.10
Palmyra Area SD	**553**	**494**	**6.10**	**585**	**593**	**6.10**
N. Londonderry	158	151	5.50	178	179	5.30
Palmyra	194	185	5.50	204	213	5.90
S. Londonderry	201	158	8.00	203	201	7.40

Source: U.S. Census Bureau
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 people in 1990. A challenge was made by Lebanon County and the figures were revised in 1996 to 80 people. Male / Female composition data in 1990 for Cold Spring Township is unavailable.

Table 1-6 Male/Female Distribution of School-Aged Population (5-17 years) and Percentage of Total Population

	1990 Census			2000 Census		
	Male	Female	Percent of Population	Male	Female	Percent of Population
Pennsylvania	**1,024,239**	**973,513**	**16.80%**	**1,127,113**	**1,067,304**	**17.90%**
Lebanon County	**10,477**	**9,648**	**17.70%**	**10,927**	**10,229**	**17.60%**
Annville–Cleona SD	**1081**	**1057**	**17.70%**	**951**	**948**	**16.00%**
Annville	308	313	14.50%	273	249	11.60%
Cleona	208	204	17.70%	191	193	17.90%
N. Annville	237	225	18.90%	210	253	20.30%
S. Annville	328	315	21.40%	277	253	18.00%
Cornwall–Lebanon SD	**2443**	**2251**	**17.00%**	**2863**	**2568**	**17.50%**
Cornwall	289	268	17.20%	317	271	16.90%
Mount Gretna	27	18	14.90%	9	10	7.90%
N. Cornwall	404	374	15.90%	583	550	17.70%
N. Lebanon	940	890	18.80%	1038	927	18.50%
S. Lebanon	602	535	15.20%	726	676	16.70%
W. Cornwall	181	166	17.40%	190	134	17.00%
ELCO SD	**1749**	**1601**	**19.80%**	**1674**	**1651**	**18.70%**
Heidelberg	434	425	22.60%	389	389	20.30%
Jackson	678	572	21.80%	548	565	17.60%
Millcreek	273	242	19.20%	335	299	21.70%
Myerstown	243	256	15.40%	261	264	16.60%
Richland	121	106	15.60%	141	134	18.20%
Lebanon SD	**2202**	**1969**	**16.20%**	**2316**	**2137**	**17.60%**
Lebanon City	2126	1879	16.10%	2243	2078	17.70%
W. Lebanon	76	90	19.00%	73	59	15.80%
Northern Lebanon SD	**1549**	**1375**	**20.30%**	**1457**	**1415**	**19.20%**
Bethel	487	426	21.00%	480	453	20.60%
Cold Spring*	N/A	N/A	N/A	6	4	20.40%
E. Hanover	317	297	20.10%	244	264	17.80%
Jonestown	102	82	19.80%	121	102	21.70%
Swatara	361	326	20.70%	386	376	19.30%
Union	282	244	19.10%	220	216	16.80%
Palmyra Area SD	**1453**	**1395**	**16.70%**	**1666**	**1510**	**16.40%**
N. Londonderry	468	431	16.00%	538	505	15.40%
Palmyra	574	551	16.30%	621	536	16.30%
S. Londonderry	411	413	18.30%	507	469	17.90%

Source: U.S. Census Bureau
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 people in 1990. A challenge was made by Lebanon County and the figures were revised in 1996 to 80 people. Male / Female composition data in 1990 for Cold Spring Township is unavailable.

Table 1- 7 Male/Female Distribution of College-Aged Population (18-24 years) and Percentage of Total Population

	1990 Census			2000 Census		
	Male	Female	Percent of Population	Male	Female	Percent of Population
Pennsylvania	**612,620**	**614,155**	**10.30%**	**547,308**	**547,141**	**8.90%**
Lebanon County	**5,422**	**5,330**	**9.50%**	**4,955**	**4,916**	**8.20%**
Annville–Cleona SD	**893**	**796**	**14.00%**	**887**	**1038**	**16.20%**
Annville	572	498	24.90%	620	789	31.20%
Cleona	94	99	8.30%	80	71	7.00%
N. Annville	89	85	7.10%	83	74	6.90%
S. Annville	138	114	8.40%	104	104	7.10%
Cornwall–Lebanon SD	**1121**	**1020**	**7.70%**	**1041**	**958**	**6.40%**
Cornwall	105	104	6.50%	96	76	4.90%
Mount Gretna	5	7	4.00%	8	4	5.00%
N. Cornwall	203	205	8.40%	219	226	6.90%
N. Lebanon	440	418	8.80%	342	375	6.70%
S. Lebanon	308	228	7.20%	329	220	6.50%
W. Cornwall	60	58	5.90%	47	57	5.40%
ELCO SD	**779**	**788**	**9.30%**	**725**	**629**	**7.60%**
Heidelberg	179	173	9.30%	186	147	8.70%
Jackson	280	255	9.30%	256	227	7.60%
Millcreek	128	122	9.30%	112	105	7.40%
Myerstown	136	166	9.30%	121	101	7.00%
Richland	56	72	8.80%	50	49	6.60%
Lebanon SD	**1219**	**1360**	**10.00%**	**1023**	**1086**	**8.30%**
Lebanon City	1179	1321	10.10%	990	1055	8.40%
W. Lebanon	40	39	9.10%	33	31	7.70%
Northern Lebanon SD	**711**	**656**	**9.50%**	**681**	**593**	**8.50%**
Bethel	213	227	10.10%	199	163	8.00%
Cold Spring*	N/A	N/A	N/A	0	0	0.00%
E. Hanover	168	121	9.50%	153	156	10.80%
Jonestown	47	44	9.80%	46	36	8.00%
Swatara	153	147	9.00%	164	142	7.80%
Union	129	117	8.90%	119	96	8.30%
Palmyra Area SD	**699**	**710**	**8.30%**	**598**	**612**	**6.30%**
N. Londonderry	229	217	7.90%	157	158	4.70%
Palmyra	280	326	8.80%	285	286	8.00%
S. Londonderry	190	167	7.90%	156	168	5.90%

Source: U.S. Census Bureau
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 people in 1990. A challenge was made by Lebanon County and the figures were revised in 1996 to 80 people. Male / Female composition data in 1990 for Cold Spring Township is unavailable.

Table 1-8 Male/Female Distribution of Workforce Population (25-64 years) and Percentage of Total Population

	1990 Census			2000 Census		
	Male	Female	Percent of Population	Male	Female	Percent of Population
Pennsylvania	**2,929,913**	**3,101,039**	**50.80%**	**3,115,247**	**3,229,972**	**51.70%**
Lebanon County	**28,854**	**29,306**	**51.10%**	**30,945**	**31,299**	**51.70%**
Annville–Cleona SD	**2883**	**2992**	**48.70%**	**2881**	**2850**	**48.20%**
Annville	862	933	41.80%	889	873	39.00%
Cleona	602	615	52.40%	579	588	54.30%
N. Annville	650	629	52.40%	619	585	52.80%
S. Annville	769	815	52.70%	794	804	54.20%
Cornwall–Lebanon SD	**7212**	**7252**	**52.30%**	**8015**	**8242**	**52.40%**
Cornwall	799	799	49.50%	882	886	50.70%
Mount Gretna	91	91	60.10%	70	78	61.20%
N. Cornwall	1219	1310	51.80%	1574	1673	50.70%
N. Lebanon	2541	2675	53.50%	2866	3007	55.30%
S. Lebanon	2050	1800	51.40%	2164	2106	50.90%
W. Cornwall	512	577	54.60%	459	492	49.80%
ELCO SD	**4188**	**4248**	**49.90%**	**4401**	**4440**	**49.80%**
Heidelberg	947	968	50.40%	976	960	50.50%
Jackson	1429	1467	50.50%	1515	1558	48.50%
Millcreek	690	660	50.20%	761	740	51.40%
Myerstown	741	770	46.70%	758	790	48.80%
Richland	381	383	52.40%	391	392	51.90%
Lebanon SD	**6212**	**6352**	**48.90%**	**6412**	**6263**	**50.10%**
Lebanon City	5987	6121	48.80%	6186	6035	50.00%
W. Lebanon	225	231	52.30%	226	228	54.30%
Northern Lebanon SD	**3936**	**3762**	**53.40%**	**4228**	**4041**	**55.20%**
Bethel	1126	1104	51.30%	1226	1180	53.20%
Cold Spring*	N/A	N/A	N/A	18	15	67.30%
E. Hanover	883	791	54.70%	828	753	55.30%
Jonestown	238	234	50.70%	279	268	53.20%
Swatara	926	891	54.80%	1132	1110	56.90%
Union	762	741	54.60%	745	715	56.40%
Palmyra Area SD	**4423**	**4700**	**53.50%**	**5008**	**5463**	**54.20%**
N. Londonderry	1479	1580	54.30%	1764	1935	54.60%
Palmyra	1712	1904	52.30%	1727	1949	51.80%
S. Londonderry	1232	1216	54.40%	1517	1579	56.70%

Source: U.S. Census Bureau
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 people in 1990. A challenge was made by Lebanon County and the figures were revised in 1996 to 80 people. Male / Female composition data in 1990 for Cold Spring Township is unavailable.

Table 1-9 Male/Female Distribution of Senior Population (65 and older years) and Percentage of Total Population

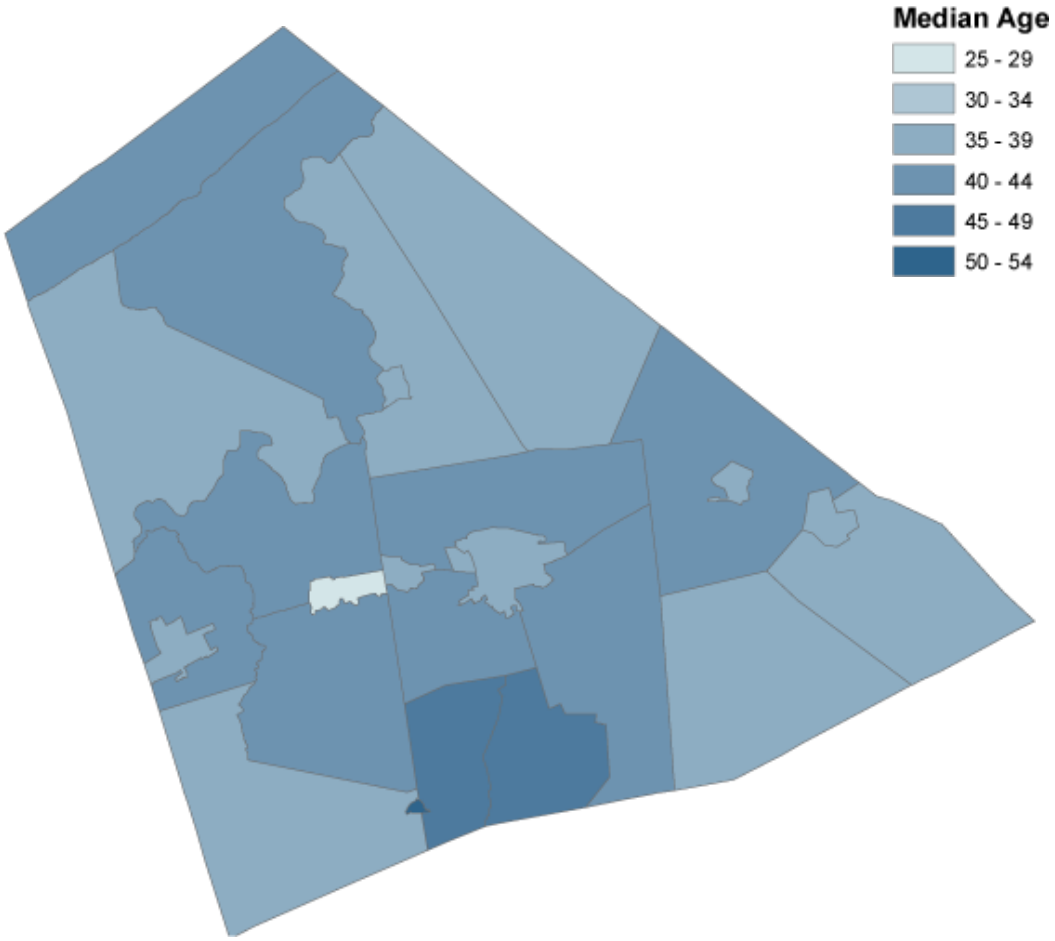
	1990 Census			2000 Census		
	Male	Female	Percent of Population	Male	Female	Percent of Population
Pennsylvania	**718,361**	**1,110,745**	**15.40%**	**767,547**	**1,151,618**	**15.60%**
Lebanon County	**6,791**	**10,279**	**15.00%**	**8,027**	**11,669**	**16.40%**
Annville–Cleona SD	**643**	**950**	**13.20%**	**705**	**993**	**14.30%**
Annville	215	389	14.10%	232	378	13.50%
Cleona	128	189	13.70%	133	184	14.80%
N. Annville	141	209	14.30%	149	174	14.20%
S. Annville	159	163	10.70%	191	257	15.20%
Cornwall–Lebanon SD	**1996**	**2665**	**16.90%**	**2364**	**3400**	**18.60%**
Cornwall	226	455	21.10%	272	546	23.50%
Mount Gretna	24	20	14.50%	29	24	21.90%
N. Cornwall	312	562	17.90%	452	701	18.00%
N. Lebanon	532	655	12.20%	644	841	14.00%
S. Lebanon	757	794	20.70%	759	1031	21.40%
W. Cornwall	145	179	16.20%	208	257	24.40%
ELCO SD	**933**	**1387**	**13.70%**	**1252**	**1826**	**17.30%**
Heidelberg	172	219	10.30%	223	287	13.30%
Jackson	295	383	11.80%	540	726	20.00%
Millcreek	139	197	12.50%	155	202	12.20%
Myerstown	245	450	21.50%	229	468	22.00%
Richland	82	138	15.10%	105	143	16.40%
Lebanon SD	**1563**	**2929**	**17.50%**	**1600**	**2585**	**16.50%**
Lebanon City	1507	2866	17.60%	1548	2521	16.60%
W. Lebanon	56	63	13.60%	52	64	13.90%
Northern Lebanon SD	**625**	**764**	**9.60%**	**774**	**907**	**11.20%**
Bethel	195	232	9.80%	228	269	11.00%
Cold Spring*	N/A	N/A	N/A	0	3	6.10%
E. Hanover	130	127	8.40%	152	181	11.70%
Jonestown	33	68	10.80%	47	72	11.60%
Swatara	136	173	9.30%	180	201	9.70%
Union	131	164	10.70%	167	181	13.40%
Palmyra Area SD	**1031**	**1584**	**15.30%**	**1332**	**1958**	**17.00%**
N. Londonderry	370	547	16.30%	562	795	20.00%
Palmyra	428	756	17.10%	490	785	18.00%
S. Londonderry	233	281	11.40%	280	378	12.10%

Source: U.S. Census Bureau
*U.S. Census incorrectly reported Cold Spring Township as having a population of 3 people in 1990. A challenge was made by Lebanon County and the figures were revised in 1996 to 80 people. Male / Female composition data in 1990 for Cold Spring Township is unavailable.

Table 1-10 Median Age, 2000

	Median Age (in years)
Pennsylvania	38
Lebanon	38.7
Dauphin	37.9
Schuylkill	40.9
Berks	37.4
Lancaster	36.1

Figure 1- 4 Lebanon County Median Age by Municipality, 2000

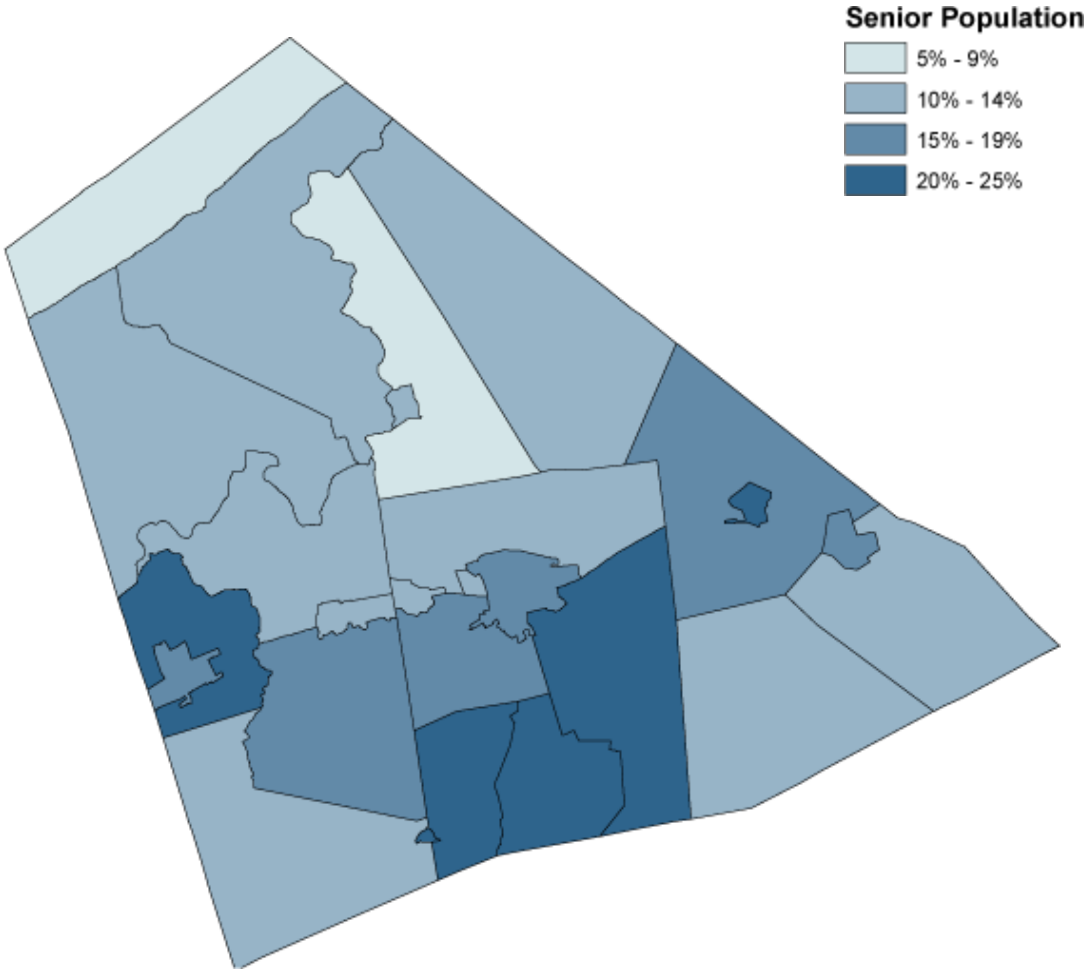


Source: US Census Bureau
(Tabular data is available from the Lebanon County Planning Department or the U.S. Census Bureau.)

Table 1-11 Senior Population as a Percentage of Total Population Count and Projection

	2000	2020
Pennsylvania	15.60%	16.40%
Lebanon	16.40%	20.20%
Dauphin	14.20%	17.80%
Schuylkill	19.90%	21.30%
Berks	15.00%	16.00%
Lancaster	14.00%	15.00%

Figure 1-5 Senior Population (Age 65+) by Municipality, 2000

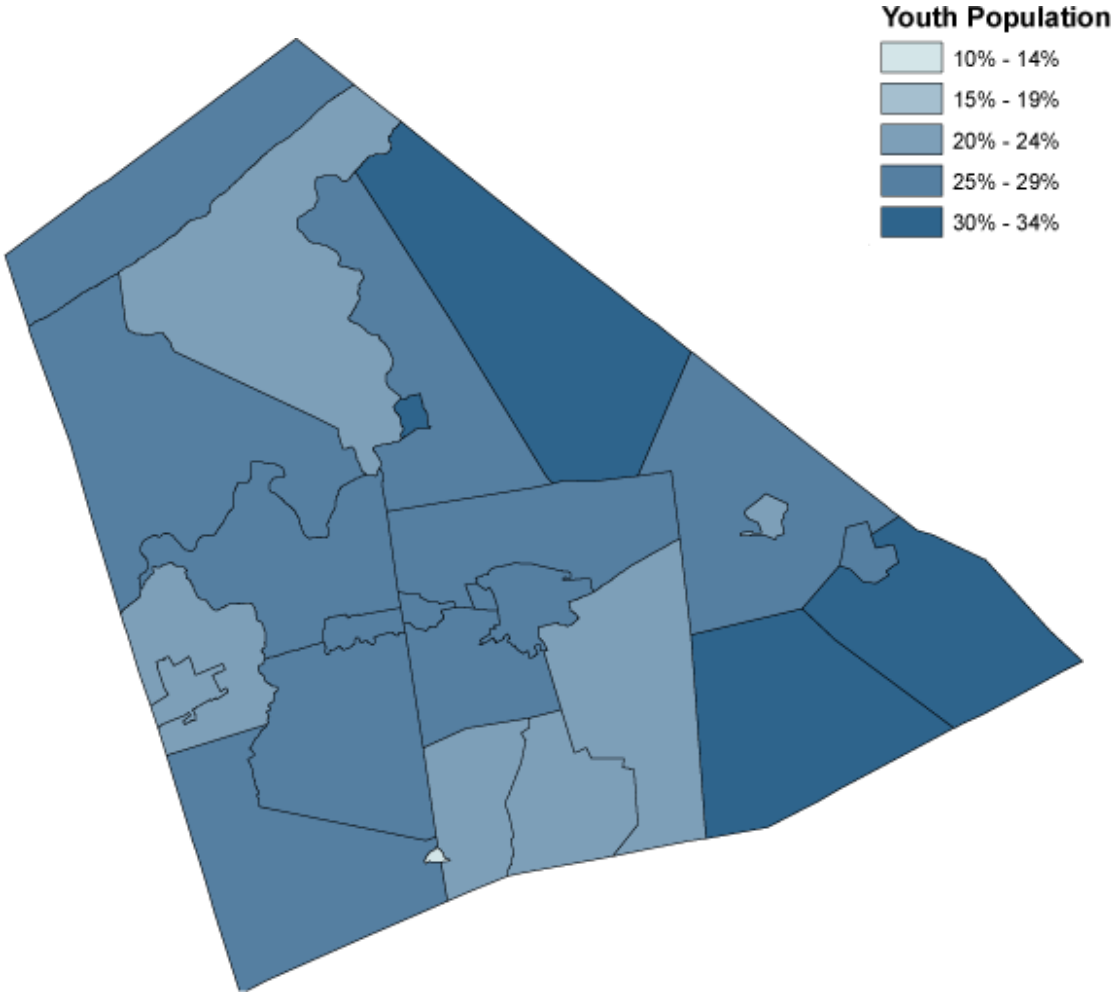


Source: US Census Bureau
(Tabular data is available from the Lebanon County Planning Department or the U.S. Census Bureau.)

Table 1-12 Youth Population as a Percentage of Total Population Count and Projection

	2000	2020
Pennsylvania	26.60%	24.70%
Lebanon	26.30%	24.20%
Dauphin	26.40%	24.50%
Schuylkill	23.00%	21.50%
Berks	27.60%	26.40%
Lancaster	29.60%	29.10%

Figure 1-6 Youth Population (Age 0-18) by Municipality, 2000



Source: US Census Bureau
(Tabular data is available from the Lebanon County Planning Department or the U.S. Census Bureau.)

Racial and Ethnic Composition of the Population

Countywide Statistics and Trends

- The White/Caucasian population's relative representation fell by 3% between 1990 and 2000, though it still comprises the overwhelming majority (94.5%) of the population. Despite this decrease in relative terms, the white population's absolute numbers increased by 2,758 persons.
- Every minority ethnic group grew in Lebanon County between 1990 and 2000. The relative size of the county's minority population is smaller than that of Pennsylvania as a whole.
- The county's Hispanic population grew by 3,303 persons between 1990 and 2000. This increased its relative share of the population from 2.3% to 5.0%, and amounted to a 123.9% increase in the community's population in 10 years.
- The county's Hispanic community has members who have backgrounds from more than one race, evidenced by the percentage totals exceeding 100%.
- Relative representations of minority groups in Lebanon County lag behind those of the state.

School District Statistics and Trends

- The most racially and ethnically diverse portions of Lebanon County are in the Lebanon School District and the Cornwall–Lebanon School District.
- The Lebanon School District had the largest non-white population in the county, at 14.1%. Additionally, it had the largest Hispanic population, at 19.01% in 2000.
- Outside of the Lebanon School District, the Cornwall–Lebanon School District had the largest Hispanic and minority populations, both in absolute and relative terms. The district also most nearly matched the county's statistics on race and ethnicity in both 1990 and 2000.
- With only 138 persons of Hispanic origin (0.8%) and 287 non-white individuals (1.6%), the ELCO School District was the least diverse school district in the county. However, there was a significant increase in minority groups from the 1990 figures, when the district had only 131(0.8%) non-white and 75 (0.4%) Hispanic individuals.

Municipal Statistics and Trends

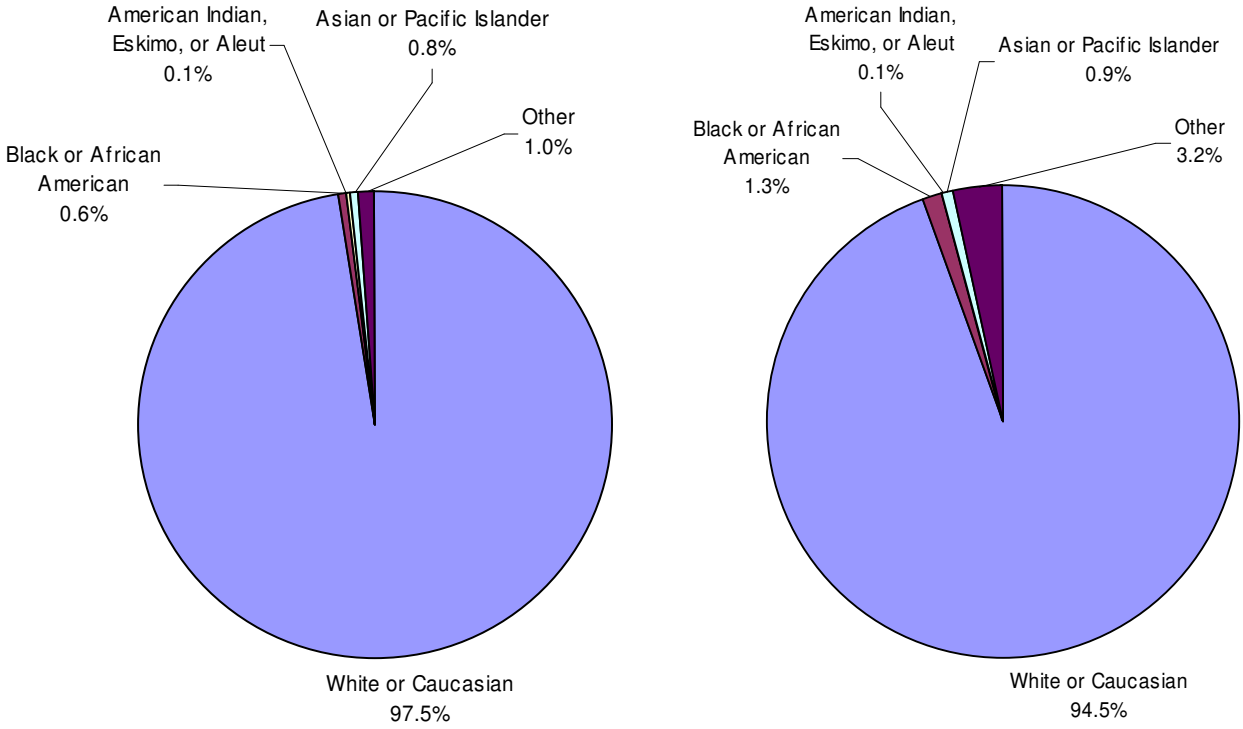
- Richland, Mount Gretna and Cleona Boroughs and Heidelberg Township were the only municipalities to see the number of Hispanic residents fall.
- Other than the City of Lebanon, the county's townships and boroughs had similar representation of minority groups.

Table 1-13 Comparative Racial Composition of Lebanon County and Pennsylvania, 1990-2000

Race*	1990		2000			
	Lebanon County	Pennsylvania	Lebanon County	% Change	Pennsylvania	% Change
White or Caucasian	110,904	10,520,201	113,662	2.50	10,484,203	-0.30
Black or African American	706	1,089,795	1,548	119.30	1,224,612	12.40
American Indian, Eskimo, or Aleut	93	14,733	157	68.80	18,348	24.50
Asian or Pacific Islander	917	137,438	1,067	16.40	219,813	59.90
Other	1,124	119,476	3,893	246.40	334,078	179.60

Source: U.S. Census Bureau
* "Hispanic Origin" is considered an ethnic classification, not a racial class, and therefore can encompass many races.

Figure 1-7 Racial Composition of Lebanon County's Population, 1990 and 2000



Source: U.S. Census Bureau

Table 1-14 Composition by Race, 1990

	Total Population	White	% of Total	Black	% of Total	Indian, Eskimo, or Aleut	% of Total	Asian or Pacific Islander	% of Total	Other Race	% of Total
Lebanon County	**113,744**	**110,904**	**97.50**	**706**	**0.60**	**93**	**0.10**	**917**	**0.80**	**1,124**	**1.00**
Annville–Cleona SD	**12,065**	**11,858**	**98.30**	**38**	**0.30**	**5**	**0.00**	**139**	**1.20**	**25**	**0.20**
Annville	4,294	4,192	97.60	22	0.50	1	0.00	64	1.50	15	0.30
Cleona	2,322	2,261	97.40	13	0.60	2	0.10	42	1.80	4	0.20
N. Annville	2,441	2,428	99.50	0	0.00	2	0.10	9	0.40	2	0.10
S. Annville	3,008	2,977	99.00	3	0.10	0	0.00	24	0.80	4	0.10
Cornwall–Lebanon SD	**27,648**	**26,950**	**97.50**	**176**	**0.60**	**32**	**0.10**	**303**	**1.10**	**187**	**0.70**
Cornwall	3,231	3,178	98.40	21	0.60	7	0.20	23	0.70	2	0.10
Mount Gretna	303	299	98.70	0	0.00	0	0.00	4	1.30	0	0.00
N. Cornwall	4,886	4,676	95.70	29	0.60	4	0.10	128	2.60	49	1.00
N. Lebanon	9,741	9,523	97.80	47	0.50	11	0.10	83	0.90	77	0.80
S. Lebanon	7,491	7,295	97.40	76	1.00	7	0.10	57	0.80	56	0.70
W. Cornwall	1,996	1,979	99.10	3	0.20	3	0.20	8	0.40	3	0.20
ELCO SD	**16,909**	**16,778**	**99.20**	**20**	**0.10**	**11**	**0.10**	**76**	**0.40**	**24**	**0.10**
Heidelberg	3,797	3,763	99.10	4	0.10	1	0.00	20	0.50	9	0.20
Jackson	5,732	5,702	99.50	3	0.10	2	0.00	21	0.40	4	0.10
Millcreek	2,687	2,675	99.60	2	0.10	4	0.10	3	0.10	3	0.10
Myerstown	3,236	3,190	98.60	9	0.30	3	0.10	31	1.00	3	0.10
Richland	1,457	1,448	99.40	2	0.10	1	0.10	1	0.10	5	0.30
Lebanon SD	**25,672**	**24,216**	**94.30**	**359**	**1.40**	**23**	**0.10**	**242**	**0.90**	**832**	**3.20**
Lebanon City	24,800	23,353	94.20	356	1.40	23	0.10	237	1.00	831	3.40
W. Lebanon	872	863	99.00	3	0.30	0	0.00	5	0.60	1	0.10
Northern Lebanon SD	**14,485**	**14,223**	**98.70**	**67**	**0.50**	**14**	**0.10**	**57**	**0.40**	**47**	**0.30**
Bethel	4,343	4,289	98.80	15	0.30	3	0.10	14	0.30	22	0.50
Cold Spring	80	3	100.00	0	0.00	0	0.00	0	0.00	0	0.00
E. Hanover	3,058	2,999	98.10	24	0.80	7	0.20	21	0.70	7	0.20
Jonestown	931	913	98.10	13	1.40	3	0.30	0	0.00	2	0.20
Swatara	3,318	3,287	99.10	6	0.20	1	0.00	11	0.30	13	0.40
Union	2,755	2,732	99.20	9	0.30	0	0.00	11	0.40	3	0.10
Palmyra Area SD	**17,042**	**16,879**	**99.00**	**46**	**0.30**	**8**	**0.00**	**100**	**0.60**	**9**	**0.10**
N. Londonderry	5,630	5,575	99.00	12	0.20	1	0.00	40	0.70	2	0.00
Palmyra	6,910	6,837	98.90	24	0.30	2	0.00	42	0.60	5	0.10
S. Londonderry	4,502	4,467	99.20	10	0.20	5	0.10	18	0.40	2	0.00

Source: U.S. Census Bureau
*"Hispanic Origin" is considered an ethnic classification, not racial, and therefore can encompass many races.

Table 1-15 Composition by Race, 2000

	Total Population	White	% of Total	Black	% of Total	Indian, Eskimo, or Aleut	% of Total	Asian or Pacific Islander	Percent of Total	Other Race	% of Total
Lebanon County	**120,327**	**113,662**	**94.50**	**1548**	**1.30**	**157**	**0.10**	**1110**	**0.90**	**3,850**	**3.20**
Annville–Cleona SD	**11,891**	**11,524**	**96.90**	**82**	**0.70**	**7**	**0.10**	**113**	**1.00**	**165**	**1.40**
Annville	4,518	4,310	95.40	49	1.10	1	0.00	61	1.40	97	2.10
Cleona	2,148	2,074	96.60	22	1.00	1	0.00	27	1.30	24	1.10
N. Annville	2,279	2,256	99.00	0	0.00	4	0.20	3	0.10	16	0.70
S. Annville	2,946	2,884	97.90	11	0.40	1	0.00	22	0.70	28	1.00
Cornwall–Lebanon SD	**31,052**	**29,468**	**94.90**	**373**	**1.20**	**37**	**0.10**	**414**	**1.30**	**760**	**2.40**
Cornwall	3,486	3,409	97.80	12	0.30	7	0.20	37	1.10	21	0.60
Mount Gretna	242	240	99.20	0	0.00	0	0.00	2	0.80	0	0.00
N. Cornwall	6,403	5,897	92.10	98	1.50	9	0.10	150	2.30	249	3.90
N. Lebanon	10,629	10,046	94.50	118	1.10	13	0.10	124	1.20	328	3.10
S. Lebanon	8,383	8,025	95.70	132	1.60	8	0.10	81	1.00	137	1.60
W. Cornwall	1,909	1,851	97.00	13	0.70	0	0.00	20	1.00	25	1.30
ELCO SD	**17,770**	**17,483**	**98.40**	**99**	**0.60**	**6**	**0.00**	**55**	**0.30**	**127**	**0.70**
Heidelberg	3,832	3,805	99.30	8	0.20	0	0.00	7	0.20	12	0.30
Jackson	6,338	6,249	98.60	18	0.30	6	0.10	24	0.40	41	0.60
Millcreek	2,921	2,857	97.80	22	0.80	0	0.00	5	0.20	37	1.30
Myerstown	3,171	3,091	97.50	46	1.50	0	0.00	14	0.40	20	0.60
Richland	1,508	1,481	98.20	5	0.30	0	0.00	5	0.30	17	1.10
Lebanon SD	**25,297**	**21,723**	**85.90**	**800**	**3.20**	**70**	**0.30**	**278**	**1.10**	**2426**	**9.60**
Lebanon City	24,461	20,915	85.50	790	3.20	69	0.30	274	1.10	2413	9.90
W. Lebanon	836	808	96.70	10	1.20	1	0.10	4	0.50	13	1.60
Northern Lebanon SD	**14,992**	**14,639**	**97.60**	**92**	**0.60**	**27**	**0.20**	**60**	**0.40**	**174**	**1.20**
Bethel	4,526	4,442	98.10	12	0.30	5	0.10	11	0.20	56	1.20
Cold Spring	49	49	100.00	0	0.00	0	0.00	0	0.00	0	0.00
E. Hanover	2,858	2,767	96.80	18	0.60	7	0.20	16	0.60	50	1.70
Jonestown	1028	1004	97.70	13	1.30	2	0.20	2	0.20	7	0.70
Swatara	3,941	3,835	97.30	44	1.10	7	0.20	23	0.60	32	0.80
Union	2,590	2,542	98.10	5	0.20	6	0.20	8	0.30	29	1.10
Palmyra Area SD	**19,325**	**18,825**	**97.40**	**102**	**0.50**	**10**	**0.10**	**190**	**1.00**	**198**	**1.00**
N. Londonderry	6,771	6,621	97.80	9	0.10	0	0.00	85	1.30	56	0.80
Palmyra	7,096	6,863	96.70	64	0.90	8	0.10	66	0.90	95	1.30
S. Londonderry	5,458	5,341	97.90	29	0.50	2	0.00	39	0.70	47	0.90

Source: U.S. Census Bureau
* "Hispanic Origin" is considered an ethnic classification, not racial, and therefore can encompass many races.

Table 1-16 Lebanon County Population of Hispanic Origin, 1990-2000

	1990					2000				
	Total Population	Non-Hispanic		Hispanic		Total Population	Non-Hispanic		Hispanic	
		Total	Percent	Total	Percent		Total	Percent	Total	Percent
Lebanon County	**113,744**	**111,078**	**97.66%**	**2,666**	**2.34%**	**120,327**	**114,358**	**95.04%**	**5,969**	**4.96%**
Annville-Cleona SD	**12,065**	**11,945**	**99.01%**	**120**	**0.99%**	**11,891**	**11,702**	**98.41%**	**164**	**1.38%**
Annville	4,294	4,237	98.67%	57	1.33%	4,518	4,437	98.21%	81	1.79%
Cleona	2,322	2,287	98.49%	35	1.51%	2,148	2,119	98.65%	29	1.35%
N. Annville	2,441	2,436	99.80%	5	0.20%	2,279	2,262	99.25%	17	0.75%
S. Annville	3,008	2,985	99.24%	23	0.76%	2,946	2,884	97.90%	37	1.26%
Cornwall-Lebanon SD	**27,648**	**27,118**	**98.08%**	**530**	**1.92%**	**31,052**	**29,845**	**96.11%**	**1,207**	**3.89%**
Cornwall	3,231	3,220	99.66%	11	0.34%	3,486	3,460	99.25%	26	0.75%
Mount Gretna	303	302	99.67%	1	0.33%	242	242	100.00%	0	0.00%
N. Cornwall	4,886	4,700	96.19%	186	3.81%	6,403	6,065	94.72%	338	5.28%
N. Lebanon	9,741	9,568	98.22%	173	1.78%	10,629	10,059	94.64%	570	5.36%
S. Lebanon	7,491	7,342	98.01%	149	1.99%	8,383	8,128	96.96%	255	3.04%
W. Cornwall	1,996	1,986	99.50%	10	0.50%	1,909	1,891	99.06%	18	0.94%
ELCO SD	**16,909**	**16,834**	**99.56%**	**75**	**0.44%**	**17,770**	**17,657**	**99.36%**	**138**	**0.78%**
Heidelberg	3,797	3,781	99.58%	16	0.42%	3,832	3,818	99.63%	14	0.37%
Jackson	5,732	5,720	99.79%	12	0.21%	6,338	6,290	99.24%	48	0.76%
Millcreek	2,687	2,672	99.44%	15	0.56%	2,921	2,909	99.59%	37	1.27%
Myerstown	3,236	3,215	99.35%	21	0.65%	3,171	3,141	99.05%	30	0.95%
Richland	1,457	1,446	99.25%	11	0.75%	1,508	1,499	99.40%	9	0.60%
Lebanon SD	**25,672**	**23,958**	**93.32%**	**1,714**	**6.68%**	**25,297**	**21,256**	**84.03%**	**4,041**	**15.97%**
Lebanon City	24,800	23,090	93.10%	1,710	6.90%	24,461	20,442	83.57%	4,019	16.43%
W. Lebanon	872	868	99.54%	4	0.46%	836	814	97.37%	22	2.63%
Northern Lebanon SD	**14,485**	**14,279**	**98.58%**	**129**	**0.89%**	**14,992**	**14,776**	**98.56%**	**216**	**1.44%**
Bethel	4,343	4,301	99.03%	42	0.97%	4,526	4,456	98.45%	70	1.55%
Cold Spring	80	3	3.75%	0	0.00%	49	46	93.88%	3	6.12%
E. Hanover	3,058	3,019	98.72%	39	1.28%	2,858	2,794	97.76%	64	2.24%
Jonestown	931	927	99.57%	4	0.43%	1,028	1,009	98.15%	19	1.85%
Swatara	3,318	3,295	99.31%	23	0.69%	3,941	3,902	99.01%	39	0.99%
Union	2,755	2,734	99.24%	21	0.76%	2,590	2,569	99.19%	21	0.81%
Palmyra Area SD	**17,042**	**16,944**	**99.42%**	**98**	**0.58%**	**19,325**	**19,122**	**98.95%**	**203**	**1.05%**
N. Londonderry	5,630	5,596	99.40%	34	0.60%	6,771	6,685	98.73%	86	1.27%
Palmyra	6,910	6,870	99.42%	40	0.58%	7,096	7,011	98.80%	85	1.20%
S. Londonderry	4,502	4,478	99.47%	24	0.53%	5,458	5,426	99.41%	32	0.59%

* "Hispanic Origin" is considered an ethnic classification, not racial, and therefore can encompass many races.

Table 1-17 Racial Distribution of the Hispanic Population, 1990

	Pennsylvania	% of Total Non-Hispanic Population	Lebanon County	% of Total Non-Hispanic Population	% of Total Population
Total Population	**11,881,643**		**113,744**		
Not of Hispanic Origin	**11,649,381**		**111,078**		**97.7**
White	10,422,058	89.5	109,486	98.6	96.3
Black	1,072,459	9.2	615	0.6	0.5
American Indian, Eskimo, or Aleut	13,505	0.1	88	0.1	0.1
Asian or Pacific Islander	134,056	1.2	874	0.8	0.8
Other race	7,303	0.1	15	0.0	0.0
	Pennsylvania	**% of Total Hispanic Population**	**Lebanon County**	**% of Total Hispanic Population**	**% of Total Population**
Hispanic Origin	**232,262**		**2,666**		**2.3**
White	98,143	42.3	1,418	53.2	1.2
Black	17,336	7.5	91	3.4	0.1
American Indian, Eskimo, or Aleut	1,228	0.5	5	0.2	0.0
Asian or Pacific Islander	3,382	1.5	43	1.6	0.0
Other race	112,173	48.3	1,109	41.6	1.0

Source: U.S. Census Bureau
* "Hispanic Origin" is considered an ethnic classification, not racial, and therefore can encompass many races.

Table 1-18 Racial Distribution of the Hispanic Population, 2000

	Pennsylvania	% of Total Non-Hispanic Population	Lebanon County	% of Total Non-Hispanic Population	% of Total Population
Total Population	**12,281,054**		**120,327**		
Not Hispanic or Latino:	**11,886,966**		**114,358**		**95.0**
White alone	10,322,455	86.8	111,034	97.1	92.3
Black or African American alone	1,202,437	10.1	1,298	1.1	1.1
American Indian and Alaska Native alone	14,904	0.1	114	0.1	0.1
Asian alone	218,296	1.8	1,055	0.9	0.9
Native Hawaiian and Other Pacific Islander alone	2,691	0.0	27	0.0	0.0
Some other race alone	13,086	0.1	93	0.1	0.1
Two or more races	113,097	1.0	737	0.6	0.6
	Pennsylvania	**% of Total Hispanic Population**	**Lebanon County**	**% of Total Hispanic Population**	**% of Total Population**
Hispanic or Latino:	**394,088**		**5,969**		**5.0**
White alone	161,748	41.0	2,628	44.0	2.2
Black or African American alone	22,175	5.6	250	4.2	0.2
American Indian and Alaska Native alone	3,444	0.9	43	0.7	0.0
Asian alone	1,517	0.4	12	0.2	0.0
Native Hawaiian and Other Pacific Islander alone	726	0.2	16	0.3	0.0
Some other race alone	175,351	44.5	2,623	43.9	2.2
Two or more races	29,127	7.4	397	6.7	0.3

Source: U.S. Census Bureau
* "Hispanic Origin" is considered an ethnic classification, not racial, and therefore can encompass many races.

Determining Poverty

Following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered to be in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or non-cash benefits (such as public housing, Medic-aid, and food stamps).

Annual poverty rates from the Current Population Survey and the decennial census long form (both collected by the U.S. Bureau of the Census) are based on income reported at an annual figure.

In the Survey of Income and Program Participation (SIPP) component of the U.S. Census, income is reported a few months at a time, several times a year. Therefore, in the SIPP, annual poverty rates are calculated using the sum of family income over the year divided by the sum of poverty thresholds that can change from month to month if one's family composition changes.

Poverty and Income Statistics and Trends

Countywide Statistics and Trends

- In both 1989 and 1999, Lebanon County's population living below the poverty level was below Pennsylvania figures, and the figures of all neighboring counties.
- While median incomes rose, the poverty rate increased slightly (0.3%) between 1989 and 1999.
- Real incomes (adjusted for inflation), both by household and per capita, grew between 1989 and 1999.
- Median household income exceeded that of the state, but trailed all neighboring counties but Schuylkill.
- Per capita income trailed Pennsylvania, despite the fact that Lebanon County's median income exceeds the state's median income.

School District Statistics and Trends

- The Lebanon School District experienced the highest poverty rate among all of the school districts. As of 2000, 15.67% of the population, or 3,965 persons, were living at or below the poverty level.
- Other than the Lebanon School District, the Northern Lebanon School District had the highest rate of poverty in 1999, at 6.7% (1,010 persons). This was up from 5.5% (796 persons) in 1990.
- The Palmyra Area School district had the lowest poverty level of the districts, at 3.7% (716 persons). However, while it remained the lowest, the poverty rate rose from 3.3% in 1989.
- ELCO was the only school district to show a decline in poverty. The district saw its numbers fall from 1,143 persons (6.8%) in 1989 to 1,015 persons (5.7%) in 2000.
- While its rates of 4.4% in 1999 and 4.1% in 1989 are not the lowest in the county, the Annville–Cleona district with 526 persons in 1999 and 495 persons in 1989, had the lowest total number of individuals living at or below the poverty level.

Municipal Statistics and Trends

- Poverty rates were the lowest in the southwestern municipalities of the county. These are also areas which experienced a population influx over recent decades. Municipalities with poverty rates less than 4% include South Londonderry Township, North Londonderry Township, South Annville Township, Cleona Borough, Cornwall Borough, Richland Borough, and Mount Gretna Borough. With the exception of Cleona Borough and Richland Borough, these municipalities are ranked in the top five for highest median household income, highest median family income, and highest per capita income.
- Poverty rates were the highest (above 8%) in Cold Spring, Bethel, and West Lebanon Townships, and in Jonestown Borough and the City of Lebanon in 2000. Income levels in all categories tended to be lower in these areas. In addition, poverty levels increased in each of these municipalities between 1989 and 1999. The City of Lebanon had a poverty rate of 15.92% in 2000.
- Across the board in 1999, and in all categories but median household income in 1989, Mount Gretna Borough had the highest incomes.

- The municipalities with the lowest incomes varied based on category. Generally, the City of Lebanon, Cold Spring Township, Annville Township, and Jonestown Borough saw lower incomes.

Table 1-19 1989/1999 Poverty Comparison*

	1989			1999			
	Total Population	Total in Poverty	Percent in Poverty	Total Population	Total in Poverty	Percent in Poverty	Percent Change
Annville-Cleona SD	**12,005**	**495**	**4.12%**	**11,891**	**526**	**4.42%**	**0.30%**
Annville	4,294	219	5.10%	4,518	216	4.78%	-0.32%
Cleona	2,322	51	2.20%	2,148	74	3.45%	1.25%
N. Annville	2,383	70	2.94%	2,279	126	5.53%	2.59%
S. Annville	3,006	155	5.16%	2,946	110	3.73%	-1.42%
Cornwall-Lebanon SD	**27,647**	**1,311**	**4.74%**	**31,052**	**1,496**	**4.82%**	**0.08%**
Cornwall	3,231	77	2.38%	3,486	54	1.55%	-0.83%
Mount Gretna	301	2	0.66%	243	2	0.82%	0.16%
N. Cornwall	4,891	331	6.77%	6,403	490	7.65%	0.89%
N. Lebanon	9,744	447	4.59%	10,629	455	4.28%	-0.31%
S. Lebanon	7,482	398	5.32%	8,383	385	4.59%	-0.73%
W. Cornwall	1,998	56	2.80%	1,908	110	5.77%	2.96%
ELCO SD	**16,909**	**1,143**	**6.76%**	**17,770**	**1,015**	**5.71%**	**-1.05%**
Heidelberg	3,818	195	5.11%	3,832	248	6.47%	1.36%
Jackson	5,732	425	7.41%	6,338	394	6.22%	-1.20%
Millcreek	2,674	238	8.90%	2,921	131	4.48%	-4.42%
Myerstown	3,228	222	6.88%	3,171	194	6.12%	-0.76%
Richland	1,457	63	4.32%	1,508	48	3.18%	-1.14%
Lebanon SD	**25,675**	**3,658**	**14.25%**	**25,297**	**3,965**	**15.67%**	**1.43%**
Lebanon City	24,800	3,588	14.47%	24,461	3,895	15.92%	1.46%
W. Lebanon	875	70	8.00%	836	70	8.37%	0.37%
Northern Lebanon SD	**14,466**	**796**	**5.50%**	**14,992**	**1,010**	**6.74%**	**1.23%**
Bethel	4,272	248	5.81%	4,526	365	8.06%	2.26%
Cold Spring	N/A	N/A	N/A	77	12	15.58%	N/A
E. Hanover	3,116	187	6.00%	2,858	148	5.18%	-0.82%
Jonestown	931	77	8.27%	1,026	98	9.55%	1.28%
Swatara	3,425	110	3.21%	3,943	222	5.63%	2.42%
Union	2,722	174	6.39%	2,562	165	6.44%	0.05%
Palmyra Area SD	**17,042**	**568**	**3.33%**	**19,325**	**716**	**3.71%**	**0.37%**
N. Londonderry	5,630	102	1.81%	6,771	267	3.94%	2.13%
Palmyra	6,910	253	3.66%	7,096	370	5.21%	1.55%
S. Londonderry	4,502	213	4.73%	5,458	79	1.45%	-3.28%

Source: U.S. Census Bureau
*Not based on 100% data.

Table 1-20 1989/1999 Income Comparison*

	1989			1999					
	Median Household Income	Median Family Income	Per Capita Income	Median Household Income	% Change	Median Family Income	% Change	Per Capita Income	% Change
Annville–Cleona SD									
Annville	$42,600	$48,300	$16,700	$43,500	2.10	$52,000	7.70	$19,300	15.60
Cleona	$51,900	$57,800	$22,300	$52,000	0.20	$60,800	5.20	$24,500	9.90
North Annville	$52,500	$57,200	$24,700	$57,700	9.90	$65,300	14.20	$23,900	-3.20
South Annville	$58,000	$67,500	$25,400	$59,400	2.40	$63,700	-5.60	$25,600	0.80
Cornwall–Lebanon SD									
Cornwall	$62,200	$68,800	$29,700	$69,200	11.30	$77,800	13.10	$32,400	9.10
Mount Gretna	$64,400	$78,800	$31,500	$73,100	13.50	$101,600	28.90	$50,500	60.30
North Cornwall	$49,200	$54,000	$26,600	$53,100	7.90	$62,200	15.20	$25,800	-3.00
North Lebanon	$50,800	$55,100	$19,500	$50,400	-0.80	$57,500	4.40	$21,700	11.30
South Lebanon	$48,900	$59,000	$20,700	$53,700	9.80	$61,200	3.70	$23,100	11.60
West Cornwall	$50,100	$58,900	$23,700	$50,300	0.40	$55,700	-5.40	$29,000	22.40
ELCO SD									
Heidelberg	$50,400	$53,000	$20,400	$53,300	5.80	$58,300	10.00	$24,500	20.10
Jackson	$49,400	$55,000	$19,700	$47,000	-4.90	$52,500	-4.50	$21,100	7.10
Millcreek	$46,000	$51,200	$20,200	$51,700	12.40	$56,700	10.70	$21,400	5.90
Myerstown	$43,800	$49,200	$17,500	$42,500	-3.00	$53,100	7.90	$20,000	14.30
Richland	$49,800	$53,900	$21,500	$53,100	6.60	$60,500	12.20	$22,500	4.70
Lebanon SD									
the City of Lebanon	$33,700	$41,500	$17,500	$31,700	-5.90	$39,500	-4.80	$18,100	3.40
West Lebanon	$44,300	$50,500	$17,000	$43,100	-2.70	$47,900	-5.10	$21,700	27.60
Northern Lebanon SD									
Bethel	$45,700	$49,300	$19,500	$48,500	6.10	$55,100	11.80	$19,900	2.10
Cold Spring	N/A	N/A	N/A	$30,900	N/A	$30,900	N/A	$10,200	N/A
East Hanover	$49,600	$53,600	$18,800	$58,700	18.30	$64,000	19.40	$25,700	36.70
Jonestown	$39,000	$46,500	$17,300	$41,800	7.20	$52,500	12.90	$17,800	2.90
Swatara	$49,700	$55,600	$19,000	$50,100	0.80	$52,800	-5.00	$23,700	24.70
Union	$47,000	$55,700	$20,000	$49,600	5.50	$59,400	6.60	$23,100	15.50
Palmyra Area SD									
North Londonderry	$66,200	$71,000	$26,000	$65,500	-1.10	$80,100	12.80	$32,100	23.50
Palmyra	$44,700	$57,100	$22,000	$46,100	3.10	$57,000	-0.20	$23,800	8.20
South Londonderry	$58,400	$63,000	$22,300	$60,000	2.70	$73,300	16.30	$28,200	26.50

Source: U.S. Census Bureau
* All values adjusted to 2005 dollars; median values not available at the school district level.

County to County Income and Poverty Statistics and Trends

- Schuylkill County had the highest poverty level and the lowest median household and per capita incomes in 1989. In 1999, Dauphin County had a slightly higher poverty rate than Schuylkill County but Schuylkill retained its position of having the lowest median household and per capita incomes in the study area.
- Lebanon County had the lowest percentage of people below the poverty level in the study area.
- All of the counties in the study area had poverty rates that were below the poverty rate of Pennsylvania.
- Though Lebanon County's poverty rates were lower than the state's and all neighboring counties' rates, it trailed all but Schuylkill County in median household income.

Table 1-21 Poverty and Income Statistics and Trends

	% of Population Below Poverty		Median Household Income		Per Capita Income	
	1989*	1999*	1989*	1999*	1989*	1999*
Pennsylvania	11.10	11.00	$45,349	$46,581	$21,947	$24,251
Lebanon	7.20	7.50	$45,973	$47,431	$20,607	$22,965
Dauphin	10.10	9.70	$48,339	$48,208	$23,229	$25,707
Schuylkill	10.70	9.50	$35,925	$37,978	$17,462	$20,012
Berks	8.00	9.40	$49,997	$51,933	$22,783	$24,660
Lancaster	8.00	7.80	$51,880	$52,854	$22,207	$23,691

Source: U.S. Census Bureau
*Not based on 100% data.

Special Issue: Poverty among Single Mothers with Children Under Age 5

Countywide and County to County Income and Poverty Statistics and Trends

- The percentage of families comprised of single mothers with children under five years of age that were living in poverty increased between 1989 and 1999 in all of the counties in the study area except Lancaster County.
- Lebanon County saw the second greatest increase in this category in absolute terms (45 additional families) and percentage terms (23.08 percent). Berks County saw the greatest increase; 198 additional families in this category for an increase of 41.42 percent.
- Lancaster County had the highest number of families of single mothers with children under the age of 5 living below the poverty level in 1989. Berks County had the highest number in 1999.

School District Statistics and Trends

- The Lebanon School District had the highest number of families with incomes below the poverty level in 1999, 804 families or 12.65% of total families. This district also had the highest number and percentage of single mothers with children under the age of 5 with income below the poverty level.
- The Cornwall-Lebanon School District, which surrounds the Lebanon School District, has the second highest number of families, 323 families; Northern Lebanon has the second highest percentage of families, 5.04% of total families.
- The Annville-Cleona School District had the lowest number of families with income below the poverty level in 1999, 96 families; the Palmyra Area School District has the lowest percentage, 2.32% of total families.

Municipal Statistics and Trends

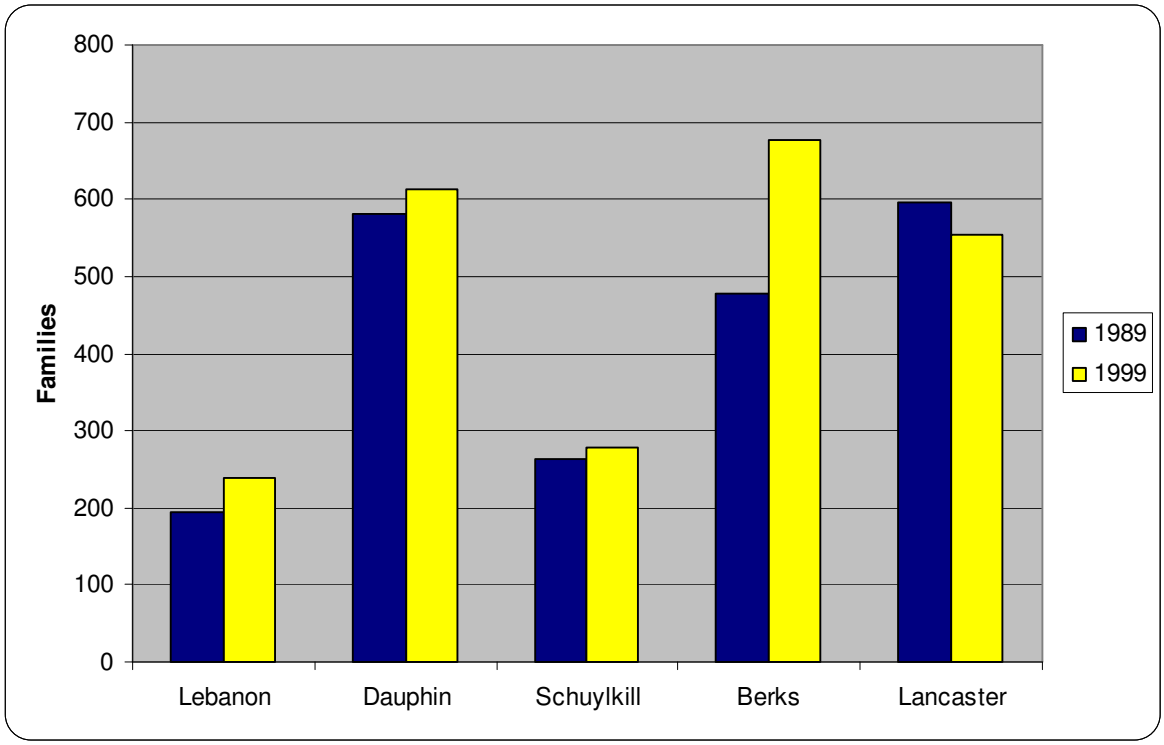
- Ten of the 26 municipalities have families of single mothers with children under the age of 5 living below the poverty level: Lebanon (124), North Cornwall (41), North Lebanon (26), Palmyra (17), Bethel (10), South Lebanon (6), Myerstown (5) North Annville (4), West Lebanon (4) and Cold Spring (3). These figures represent less than one percent of total families, except in the City of Lebanon (2.03%) and North Cornwall Township (2.34%).

Table 1-22 Families of Single Mothers with Children Under Age 5 Below the Poverty Level

	1989*	1999*	Total Change	Percent Change
Pennsylvania	24,815	23,309	-1,506	-.606%
Lebanon	195	240	45	23.08%
Dauphin	581	614	33	5.68%
Schuylkill	264	277	13	4.92%
Berks	478	676	198	41.42%
Lancaster	595	554	-41	-6.89%

Source: U.S. Census Bureau
*Not based on 100% data.

Figure 1-8 Families of Single Mothers with Children Under Age 5 Below the Poverty Level



Source: U.S. Census Bureau

Table 1-23 Families with Single Mothers with Children Under Age 5 Below the Poverty Level, 1999

	Total Families	Families with Incomes Below the Poverty Level		Families of Single Mothers with Children Under Age 5 with Incomes Below the Poverty Level		
		Total	% of Total Families	Total	% of Total Families	% of Total Families in Poverty
Pennsylvania	**3,225,707**	**250,296**	**7.76%**	**23,309**	**0.72%**	**9.31%**
Lebanon County	**32,890**	**1,770**	**5.38%**	**240**	**0.73%**	**13.56%**
Annville-Cleona SD	**3,086**	**96**	**3.11%**	**4**	**0.13%**	**4.17%**
Annville	918	14	1.53%	0	0.00%	0.00%
Cleona	648	18	2.78%	0	0.00%	0.00%
N. Annville	641	33	5.15%	4	0.62%	12.12%
S. Annville	879	31	3.53%	0	0.00%	0.00%
Cornwall-Lebanon SD	**8,766**	**323**	**3.68%**	**73**	**0.83%**	**22.60%**
Cornwall	971	11	1.13%	0	0.00%	0.00%
Mount Gretna	78	0	0.00%	0	0.00%	0.00%
N. Cornwall	1,752	124	7.08%	41	2.34%	33.06%
N. Lebanon	3,176	91	2.87%	26	0.82%	28.57%
S. Lebanon	2,191	81	3.70%	6	0.27%	7.41%
W. Cornwall	598	16	2.68%	0	0.00%	0.00%
ELCO SD	**4,943**	**207**	**4.19%**	**5**	**0.10%**	**2.42%**
Heidelberg	1,079	44	4.08%	0	0.00%	0.00%
Jackson	1,834	85	4.63%	0	0.00%	0.00%
Millcreek	767	30	3.91%	0	0.00%	0.00%
Myerstown	824	38	4.61%	5	0.61%	13.16%
Richland	439	10	2.28%	0	0.00%	0.00%
Lebanon SD	**6,355**	**804**	**12.65%**	**128**	**2.01%**	**15.92%**
Lebanon City	6,104	783	12.83%	124	2.03%	15.84%
W. Lebanon	251	21	8.37%	4	1.59%	19.05%
Northern Lebanon SD	**4,190**	**211**	**5.04%**	**13**	**0.31%**	**6.16%**
Bethel	1,233	75	6.08%	10	0.81%	13.33%
Cold Spring	17	3	17.65%	3	17.65%	100.00%
E. Hanover	783	24	3.07%	0	0.00%	0.00%
Jonestown	248	17	6.85%	0	0.00%	0.00%
Swatara	1,164	54	4.64%	0	0.00%	0.00%
Union	745	38	5.10%	0	0.00%	0.00%
Palmyra Area SD	**5,550**	**129**	**2.32%**	**17**	**0.31%**	**13.18%**
N. Londonderry	2,034	41	2.02%	0	0.00%	0.00%
Palmyra	1,918	75	3.91%	17	0.89%	22.67%
S. Londonderry	1,598	13	0.81%	0	0.00%	0.00%

Source: U.S. Census Bureau
*Not based on 100% data.

Education Statistics and Trends

Countywide Statistics and Trends

- The educational attainment of the residents of Lebanon County falls below that of Pennsylvania.
- Areas of the county where residents have the lowest educational attainment are in the more rural, southeastern portions of the county, namely Heidelberg, Millcreek, and Jackson Townships. Notably, 33.3% of the population in Heidelberg Township has not attained a high school degree. This may be due in part to the predominance of residents working in farming, fishing, and forestry; construction, extraction, and maintenance; and production, transportation, and material moving occupations—occupations which traditionally have not demanded rigorous academic preparation but rather learned through apprenticeships. The presence of Amish and Mennonite communities in this region of the county may also be factor.
- Residents with higher educations are predominantly located in the southwestern portions of the county, namely Mount Gretna Borough, where 47.8% of the residents over age 25 possess a Bachelor's Degree or higher. In Cornwall Borough, North Londonderry Township, and West Cornwall Township 25% of residents age 25 and older possess at least a Bachelor's Degree.
- Pennsylvania's percentage of individuals with college degrees exceeds the county's figure by roughly 7%.
- Overall, the county trailed Pennsylvania in ensuring the population has at least a high school diploma.
- All school districts and all municipalities increased the percentage of the population with at least a high school diploma between 1990 and 2000.

School District Statistics and Trends

- The Palmyra Area School District is the only one in the county where the percentage of individuals with college degrees exceeds that of Pennsylvania.
- Three school districts (ELCO, Lebanon, and Northern Lebanon) have higher percentages of their populations without at least a high school diploma than Pennsylvania as a whole.
- The Annville–Cleona School District showed the most modest increase in individuals holding at least a bachelor's degree between 1990 and 2000 of the rural school districts.
- The Cornwall–Lebanon School District showed the smallest increase in the percentage of its population without a high school diploma. However, it was tied with the Annville–Cleona School District for the second highest percentage of population being high school graduates.

Municipal Statistics and Trends

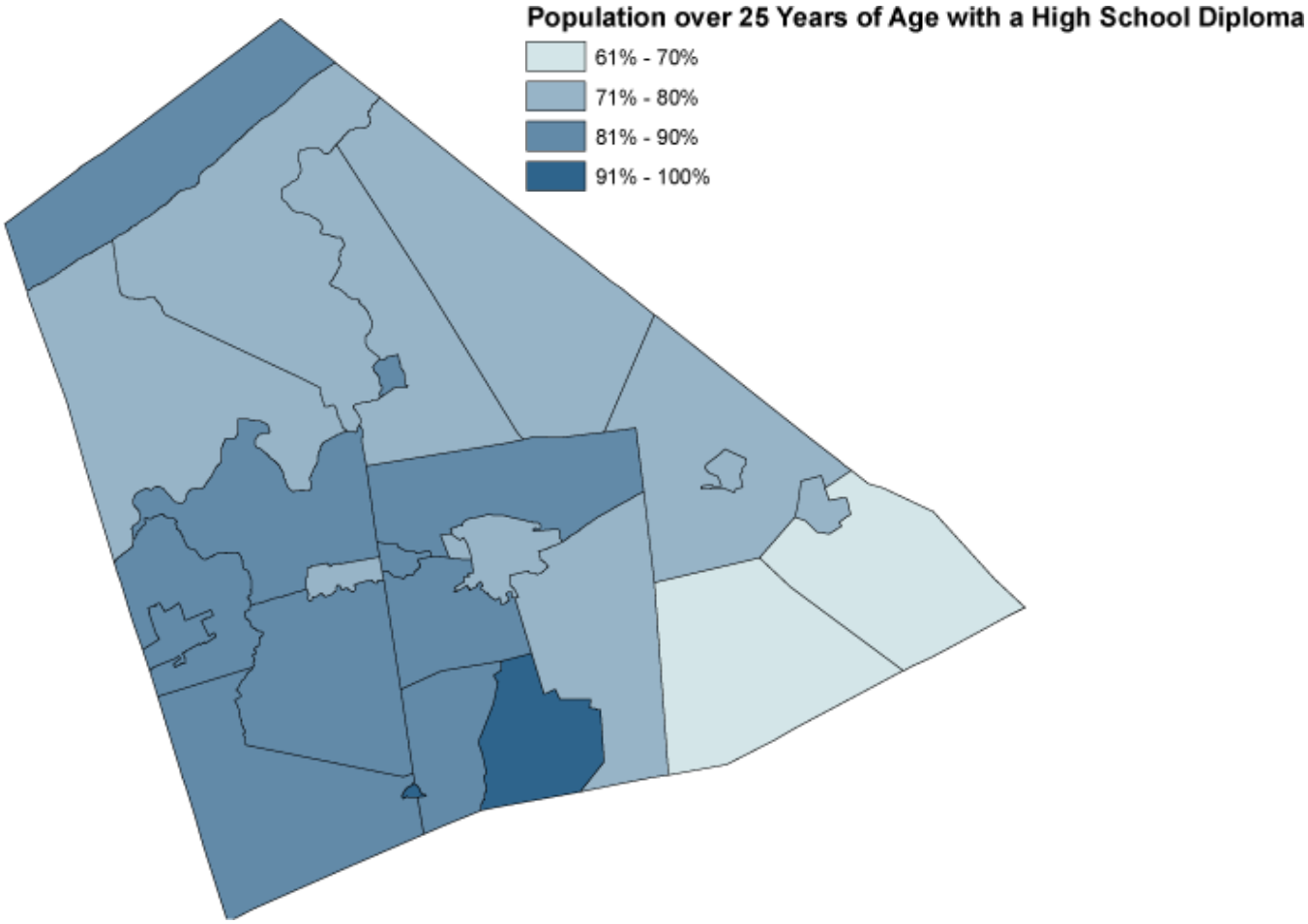
- Mount Gretna Borough has the highest percentage of individuals with college degrees, and West Lebanon Township the lowest percentage.
- While all school districts increased the percentage of their population of a person age 25 or older holding a bachelor's degree or higher, four municipalities (Heidelberg Township, Richland Borough, Cleona Borough and South Annville Township) saw declines in percentages of their population with at least a bachelor's degree.
- The county's boroughs had higher rates of individuals holding at least high school diploma's than the county's townships and the City of Lebanon.

Table 1-24 Percent of Population over 25 with at Least a High School Diploma, 1990 and 2000

	1990	2000	% Change
Pennsylvania	**74.70**	**81.90**	**7.20**
Lebanon County	**70.00**	**78.60**	**8.60**
Annville–Cleona SD	**74.30**	**82.30**	**8.10**
Annville	67.20	79.30	12.10
Cleona	78.90	84.90	6.00
North Annville	73.20	83.00	9.80
South Annville	80.30	83.60	3.30
Cornwall–Lebanon SD	**74.70**	**82.30**	**7.60**
Cornwall	83.00	91.50	8.50
Mount Gretna	94.60	96.60	2.00
North Cornwall	76.10	85.10	9.00
North Lebanon	72.60	80.30	7.70
South Lebanon	71.10	78.80	7.70
West Cornwall	77.80	80.30	2.50
ELCO SD	**63.00**	**70.90**	**7.90**
Heidelberg	63.10	66.70	3.60
Jackson	60.00	70.70	10.70
Millcreek	58.60	69.10	10.50
Myerstown	67.60	74.20	6.60
Richland	71.20	78.10	6.90
Lebanon SD	**63.30**	**71.60**	**8.20**
Lebanon City	63.30	71.40	8.10
West Lebanon	64.60	76.70	12.10
Northern Lebanon SD	**67.60**	**77.30**	**9.70**
Bethel	63.20	74.40	11.20
Cold Spring	---	---	N/A
East Hanover	69.90	79.90	10.00
Jonestown	77.00	81.00	4.00
Swatara	69.50	78.80	9.30
Union	66.60	75.40	8.80
Palmyra Area SD	**77.50**	**87.00**	**9.50**
North Londonderry	81.80	89.90	8.10
Palmyra	76.00	86.60	10.60
South Londonderry	74.10	83.70	9.60

Source: US. Census Bureau

Figure 1-9 Percent of Population over 25 years with at Least a High School Diploma, 2000



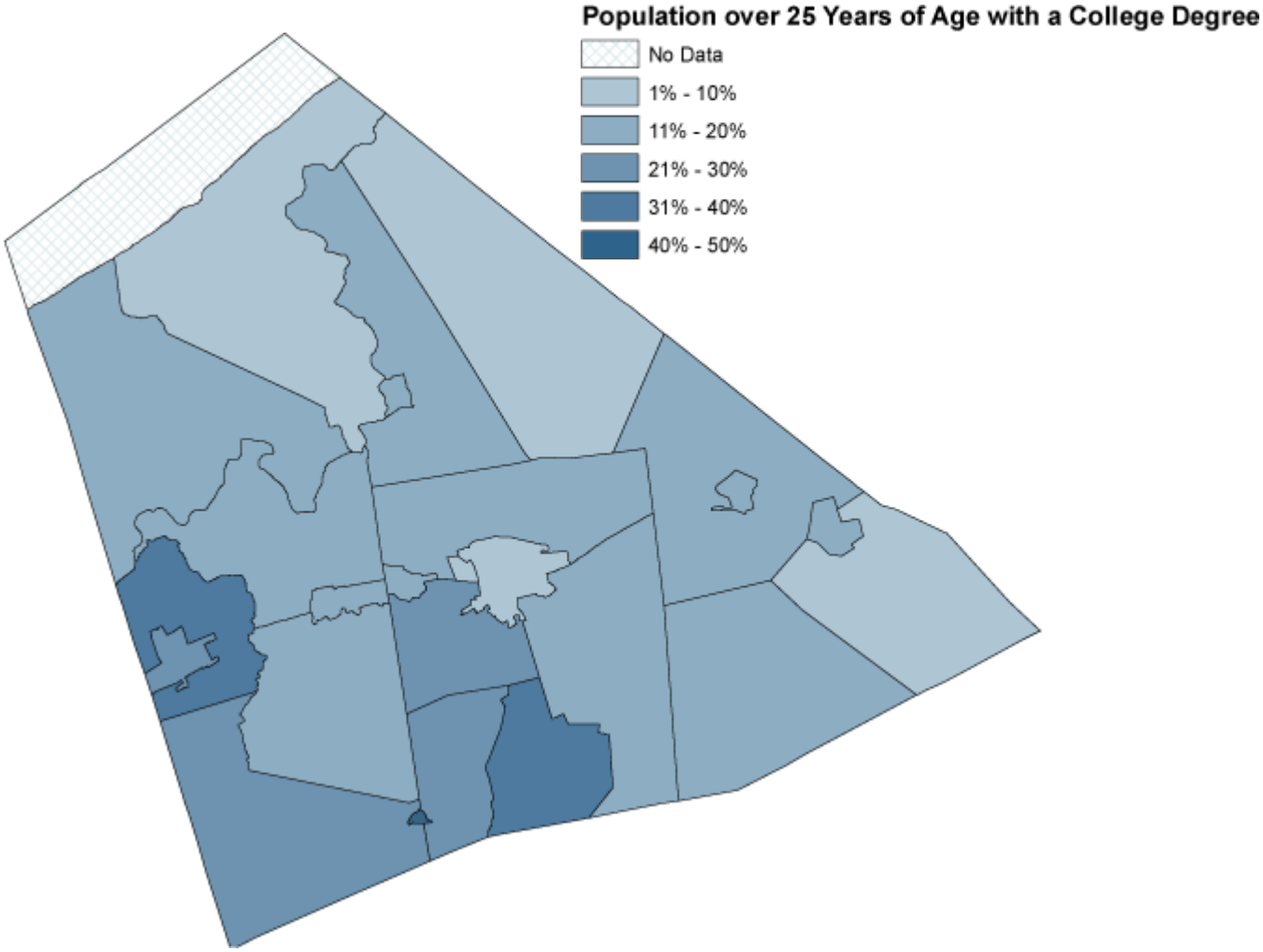
Source: US Census Bureau

Table 1-25 Percent of Population over 25 years with at Least a Bachelor Degree, 1990 and 2000

	1990	2000	% Change
Pennsylvania	**17.90**	**22.40**	**4.50**
Lebanon County	**11.8**	**15.40**	**3.60**
Annville–Cleona SD	**15.20**	**16.30**	**1.00**
Annville	12.90	16.80	3.90
Cleona	17.40	15.90	-1.50
North Annville	12.90	14.90	2.00
South Annville	18.30	16.90	-1.40
Cornwall–Lebanon SD	**14.20**	**19.40**	**5.10**
Cornwall	21.50	36.10	14.60
Mount Gretna	45.50	47.80	2.30
North Cornwall	18.30	22.70	4.40
North Lebanon	8.40	12.00	3.60
South Lebanon	12.30	16.10	3.80
West Cornwall	21.60	26.80	5.20
ELCO SD	**8.60**	**11.70**	**3.20**
Heidelberg	13.50	12.90	-0.60
Jackson	8.20	13.00	4.80
Millcreek	4.00	8.80	4.80
Myerstown	6.60	11.20	4.60
Richland	10.30	10.00	-0.30
Lebanon SD	**7.90**	**8.50**	**0.60**
Lebanon City	8.10	8.60	0.50
West Lebanon	1.80	6.70	4.90
Northern Lebanon SD	**6.80**	**9.60**	**2.80**
Bethel	5.60	8.70	3.10
Cold Spring	---	---	N/A
East Hanover	8.40	12.60	4.20
Jonestown	11.00	11.20	0.20
Swatara	6.30	10.00	3.70
Union	6.10	7.10	1.00
Palmyra Area SD	**17.90**	**24.50**	**6.60**
North Londonderry	24.00	30.80	6.80
Palmyra	14.00	20.10	6.10
South Londonderry	16.20	21.80	5.60

Source: U.S. Census Bureau

Figure 1-10 Percent of Population over 25 years with at Least a Bachelors Degree, 2000



Source: US Census Bureau

Table 1-26 Educational Attainment of Persons Age 25 and Older, 2000*

	Total Sample Population	Less than High School Degree		High School Graduate or Equivalency		Some College or Associates Degree		Bachelor's Degree or Higher	
		Total	Percent	Total	Percent	Total	Percent	Total	Percent
Pennsylvania	8,266,284	1,496,105	18.10	3,150,013	38.11	1,772,535	21.44	1,847,631	22.35
Lebanon County	82,008	17,542	21.39	38,244	46.63	13,600	16.58	12,622	15.39
Annville-Cleona SD	**7,488**	**1,323**	**17.67**	**3,410**	**45.54**	**1,538**	**20.54**	**1,217**	**16.25**
Annville	2,438	504	20.67	1,033	42.37	492	20.18	409	16.78
Cleona	1,481	224	15.12	668	45.10	353	23.84	236	15.94
N. Annville	1,520	259	17.04	781	51.38	254	16.71	226	14.87
S. Annville	2,049	336	16.40	928	45.29	439	21.43	346	16.89
Cornwall-Lebanon SD	**21,931**	**3,885**	**17.71**	**9,982**	**45.52**	**3,823**	**17.43**	**4,241**	**19.34**
Cornwall	2,586	221	8.55	946	36.58	486	18.79	933	36.08
Mount Gretna	203	7	3.45	37	18.23	62	30.54	97	47.78
N. Cornwall	4,344	647	14.89	1,810	41.67	900	20.72	987	22.72
N. Lebanon	7,379	1,457	19.75	3,969	53.79	1,071	14.51	882	11.95
S. Lebanon	6,021	1,278	21.23	2,719	45.16	1,056	17.54	968	16.08
W. Cornwall	1,398	275	19.67	501	35.84	248	17.74	374	26.75
ELCO SD	**11,930**	**3,467**	**29.06**	**5,588**	**46.84**	**1,477**	**12.38**	**1,398**	**11.72**
Heidelberg	2,447	814	33.27	1,063	43.44	254	10.38	316	12.91
Jackson	4,351	1,274	29.28	1,971	45.30	542	12.46	564	12.96
Millcreek	1,857	574	30.91	922	49.65	197	10.61	164	8.83
Myerstown	2,243	579	25.81	1,085	48.37	328	14.62	251	11.19
Richland	1,032	226	21.90	547	53.00	156	15.12	103	9.98
Lebanon SD	**16,974**	**4,826**	**28.43**	**8,154**	**48.04**	**2,553**	**15.04**	**1,441**	**8.49**
Lebanon City	16,378	4,687	28.62	7,818	47.73	2,472	15.09	1,401	8.55
W. Lebanon	596	139	23.32	336	56.38	81	13.59	40	6.71
Northern Lebanon SD	**9,904**	**2,253**	**22.75**	**5,276**	**53.27**	**1,422**	**14.36**	**953**	**9.62**
Bethel	2,908	746	25.65	1,563	53.75	345	11.86	254	8.73
Cold Spring	36	6	16.67	27	75.00	3	8.33	0	0.00
E. Hanover	1,878	377	20.07	908	48.35	356	18.96	237	12.62
Jonestown	617	117	18.96	321	52.03	110	17.83	69	11.18
Swatara	2,665	565	21.20	1,488	55.83	346	12.98	266	9.98
Union	1,800	442	24.56	969	53.83	262	14.56	127	7.06
Palmyra Area SD	**13,781**	**1,788**	**12.97**	**5,834**	**42.33**	**2,787**	**20.22**	**3,372**	**24.47**
N. Londonderry	5,060	511	10.10	1,911	37.77	1,080	21.34	1,558	30.79
Palmyra	4,956	664	13.40	2,439	49.21	859	17.33	994	20.06
S. Londonderry	3,765	613	16.28	1,484	39.42	848	22.52	820	21.78

Source: US Census Bureau
* Based on a sample population; not based on 100% data

Housing Profile

The quality and condition of housing is extremely important to the growth and prosperity of the county. Attractive, affordable housing and well maintained neighborhoods assure a sound tax base that will continue to appreciate in value and assure that residents live in an environment that is conducive to a healthful and pleasing life. Where substandard or deteriorated conditions exist, public and private action is necessary to prevent the spread of these conditions and to restore these areas to a sound state. By analyzing existing and historic housing characteristics, those areas of the county which require attention can be identified and recommendations for appropriate actions can be made.

This housing analysis is derived from the U.S. Census, Lebanon County Planning Department (LCPD), and local records.

Description of Housing Terms

The following terms are used throughout this profile. Additional definitions can be found in the glossary.

Household -A household includes all the people who occupy a housing unit as their usual place of residence

Housing Unit – A housing unit is a house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters or, if vacant, intended for occupancy as separate living quarters.

Manufactured home – a mobile housing unit.

Multi-unit structure (multi-family units) – a building that contains more than one housing unit (for example, an apartment building).

Owner-occupied housing unit – a housing unit is owner-occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid.

Renter-occupied housing unit – all occupied units which are not owner occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter-occupied.

Single Unit, Attached – a one-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.

Single Unit, Detached – a one-unit structure detached from any other house; that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house that contains a business is considered detached as long as the building has open space on all four sides. Mobile homes or trailers to which one or more permanent rooms have been added or built also are included.

Two or More Units – units in structures containing 2 or more housing units, further categorized as units in structures with 2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more units.

Vacant housing unit – a housing unit is vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. Units temporarily occupied entirely by people who have a usual residence elsewhere at the time of enumeration are also classified as vacant.

Year structure built – the date the building was first constructed, not when it was remodeled, added to, or converted. The data on year structure built were obtained from both occupied and vacant housing units. The data relate to the number of units built during the specified periods that were still in existence at the time of enumeration.

Source: U.S. Census Bureau

1990 and 2000 Housing Unit Counts and Trends

Countywide Statistics and Trends

- Between 1990 and 2000, almost 4,700 new homes were constructed in Lebanon County.
- Housing growth in Lebanon County outpaced growth in Pennsylvania at 10.5% and 6.3%, respectively.
- Growth took place in all but five municipalities in the county.

School District Statistics and Trends

- The Palmyra Area School District saw a 19.6% increase in the number of housing units between 1990 and 2000, which was the highest relative increase in the county. Housing units have been constructed in each of the district's municipalities but especially in North Londonderry and South Londonderry Townships, to meet the housing demand for both the Palmyra and the greater Hershey areas. All or portions of Wheatstone, Shadowstone, the Oaks, South View Estates, Londonderry Village, Thistledown, Country Squire Estates, Eagles Estates, Timberbridge, and Springbrook Farms were built and occupied during the 1990s. Many individuals and families recognize the western portions of Lebanon County as financially attractive alternatives to Derry Township, Dauphin County. Locating in western Lebanon County is generally less costly and people who move to these areas are still within proximity of the desired amenities and employment offered in Dauphin County.
- The Lebanon School District possessed the second greatest amount of housing units in the county but had the slowest growth (1.9%) rate.
- The Annville–Cleona School District added the fewest housing units between 1990 and 2000—115 or a mere 2.8%, which is significantly lower than the county and state rates. Growth has been limited in recent years by a strong agricultural community and sewer service nearing capacity. Growth in Annville and South Annville Townships, including the James Todd development, the UCC Homes, Woodside, and Horizon Downs, offset declines in housing units in North Annville Township and Cleona Borough.
- The Northern Lebanon, Cornwall–Lebanon, and ELCO School Districts saw double-digit increases of 18.60%, 17.50%, and 14.10%, respectively, double to nearly triple the state rate.
- The Cornwall–Lebanon School District added 1,772 new housing units between 1990 and 2000, which was the most in the county. New construction has included the Country Club View, Oak Hills, Runnymede East, Creekside, and Chesterfield Estates subdivisions, and expansion of the Leader Nursing Home in North Cornwall Township; Woodlea, Sunrise Meadows, Deerfield North, Lakeview, and School House Meadows I and II in North Lebanon Township; and Southgate Manor, Sycamore Mobile Home Park, Rockledge Meadows, East Evergreen Estates, and Hearthstone Manor in South Lebanon Township. Growth in these municipalities may reflect the increasing affluence of urban residents, the decline of the housing conditions in the City of Lebanon and the limited space that is available for new construction within City boundaries. This also shows that people are choosing to reside near, yet outside, the City of Lebanon. The proximity to the Pennsylvania Turnpike is an additional factor in housing growth, providing convenient access to job markets outside the county.

Municipal Statistics and Trends

- The municipalities experiencing a decline in the number of housing units span across three school districts and include Cleona Borough (-2), North Annville Township (-28), West Lebanon Township (-1), East Hanover Township (-14), and Union Township (-1). These losses are the results of removal of very old housing stock that has not been replaced, as well as homes that are no longer habitable due to age and condition. Specifically in North Annville, East Hanover, and Union Townships, people are moving from the farms to newer homes in more urban areas.
- North Cornwall Township had the greatest percentage increase, 28.7%, in the number of housing units.
- North Londonderry Township and South Londonderry Township had housing unit increases of 28.0% and 27.3%, respectively—the second and third highest growth rates in the county. North Londonderry Township also added the greatest numeric increase in the number of housing units (609) in the county between 1990 and 2000.
- Jackson Township and South Lebanon Township each had over 20% growth in housing stock and collectively added over 1,000 new homes to Lebanon County.

Table 2-1 Historic Housing Unit Statistics and Rates of Change, 1990 and 2000

	Total Housing Units 1990	Total Housing Units 2000	1990-2000 Absolute Change	1990-2000 % Change	Median Year Built**
Pennsylvania	**4,938,140**	**5,249,750**	**311,610**	**6.30**	**1957**
Lebanon County	**44,634**	**49,320**	**4,686**	**10.50**	**1959**
Annville–Cleona SD	**4,344**	**4,459**	**115**	**2.80**	**N/A**
Annville	1,442	1,556	114	7.90	1950
Cleona	915	913	-2	-0.20	1954
North Annville	889	861	-28	-3.10	1961
South Annville	1,098	1,129	31	2.80	1973
Cornwall–Lebanon SD	**10,506**	**12,278**	**1,772**	**17.50**	**N/A**
Cornwall	1,211	1,261	50	4.10	1971
Mount Gretna.	186	205	19	10.20	1939
North Cornwall	2,024	2,604	580	28.70	1974
North Lebanon	3,695	4,234	539	14.60	1973
South Lebanon	2,465	3,030	565	22.90	1965
West Cornwall	925	944	19	2.10	1948
ELCO SD	**6,071**	**6,898**	**827**	**14.10**	**N/A**
Heidelberg	1,304	1,389	85	6.50	1957
Jackson	2,010	2,478	468	23.30	1977
Millcreek	968	1,090	122	12.60	1945
Myerstown	1,232	1,339	107	8.70	1939
Richland	557	602	45	8.10	1951
Lebanon SD	**11,343**	**11,566**	**223**	**1.90**	**N/A**
Lebanon City	10,996	11,220	224	2.00	1940
West Lebanon	347	346	-1	-0.30	1945
Northern Lebanon SD	**5,398**	**5,836**	**438**	**18.60**	**N/A**
Bethel	1,575	1,710	135	8.60	1970
Cold Spring*	24	25	1	4.17	1966
East Hanover	1,105	1,091	-14	-1.30	1971
Jonestown	380	418	38	10.00	1945
Swatara	1,231	1,487	256	20.80	1974
Union	1,106	1,105	-1	-0.10	1966
Palmyra Area SD	**6,972**	**8,283**	**1,311**	**19.60**	**N/A**
North Londonderry	2,173	2,782	609	28.00	1979
Palmyra	3,120	3,363	243	7.80	1952
South Londonderry	1,679	2,138	459	27.30	1975

Sources: U.S. Census Bureau, Lebanon County Assessment Office
*Errors exist in 1990 U.S. Census data for Cold Spring Township arising from boundary questions. Lebanon County Assessment offices reported 24 dwelling units located in Cold Spring Township in 1990.
** Data regarding the median year homes were built was not available at the school district level.

Median Age of Housing

Countywide Statistics and Trends

- The median year of home construction in Lebanon County, 1959, is roughly the same as the median year of construction of homes in the state, 1957.
- There are concentrations of older and newer homes throughout the county. Older homes are concentrated in the boroughs, villages and the City of Lebanon and along the Route 422 corridor, while newer homes are more commonly located in the townships adjacent to these established community centers.
- More than three out of ten housing units in the county, 30.8%, were constructed prior to 1940.

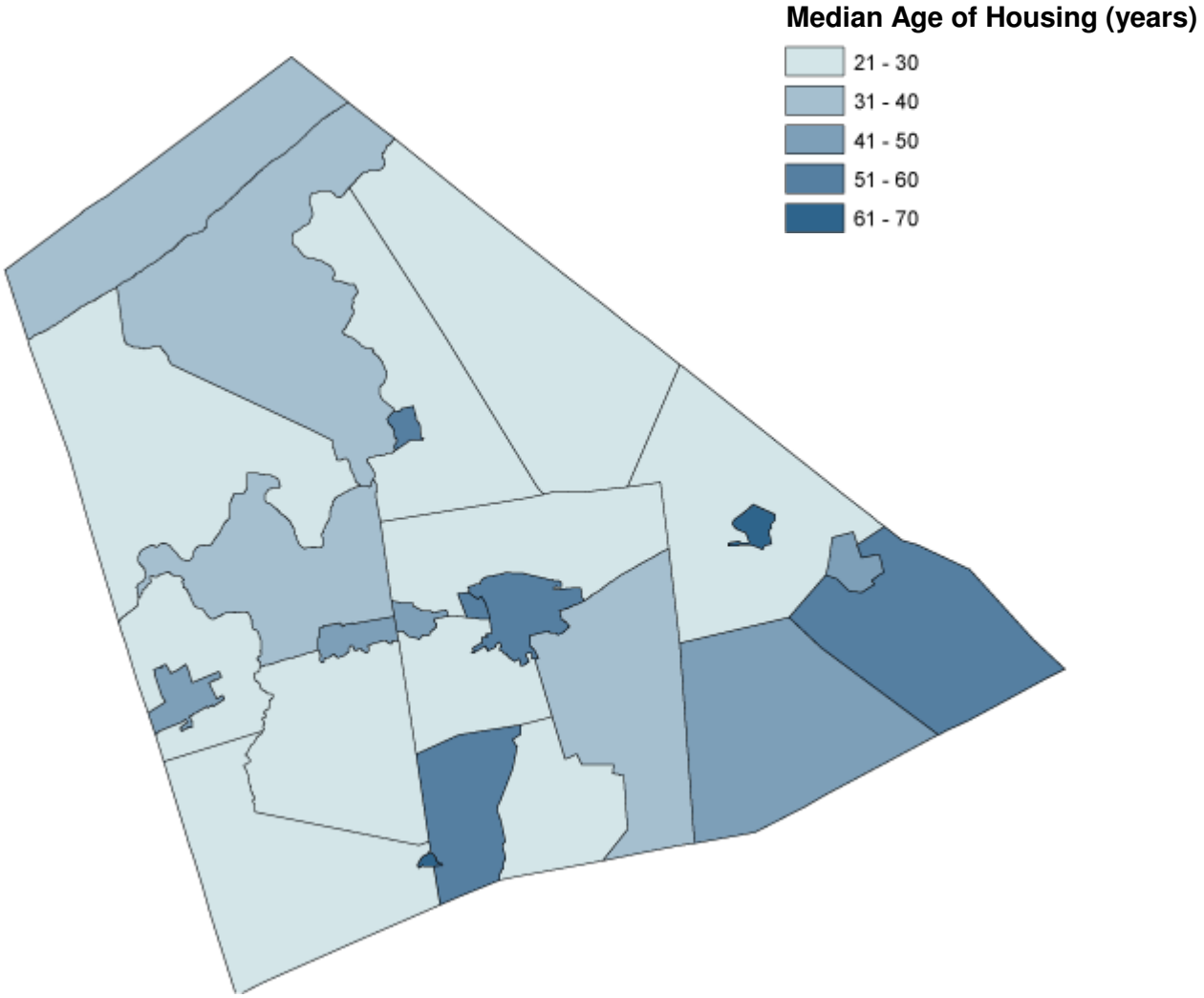
School District Statistics and Trends

- The median year of home construction in the City of Lebanon is 1940 and in West Lebanon Township, 1945, indicating that the Lebanon School District contains mostly older homes. Collectively, 49.2% of the housing units in the district were constructed prior to 1940.
- The Cornwall–Lebanon School District contains a diverse mix of older and newer homes; the oldest homes are located in Mount Gretna Borough and West Cornwall Township, with median years of construction dating to 1939 and 1948 respectively.
- With the exception of Jackson Township, the median years of construction in municipalities in the ELCO School District are older than the county and state median values, indicating a concentration of older homes in areas like Myerstown and Richland Boroughs and the villages of Schaefferstown and Newmanstown.

Municipal Statistics and Trends

- The municipalities with the oldest homes are Mount Gretna Borough and Myerstown Borough, both of which have median values dating to 1939; the median value in the City of Lebanon dates to 1940. These are clearly three of the communities with the oldest homes in Lebanon County. Although these municipalities were founded later than other communities in the county, the homes in these communities have been maintained and remain in livable conditions.
- In addition, the median years of construction for Annville Township, Cleona Borough, Palmyra Borough, and West Lebanon Township predate the median year of home construction in Pennsylvania. These populated areas, predominantly along the Route 422 corridor, are comprised of older housing units with historic resource potential that should be evaluated.
- North Londonderry Township contains homes with a median year of construction dating to 1979, which is the most recent median year of home construction in the county. Development prior to the 1970s was predominantly single lot subdivisions from existing farms, while more recent development has occurred in large, multi-lot subdivisions, such as Wheatstone and the Oaks.
- Other communities that have experienced significant home construction in more recent years include Cornwall Borough, North Cornwall Township, North Lebanon Township, and South Lebanon Township. These may be considered the first ring suburbs of the City of Lebanon.

Figure 2-1 Lebanon County Median Age of Housing



Source: U.S. Census Bureau

Table 2-2 Year of Housing Unit Construction

	Total	Built 1990 to March 2000		Built 1980 to 1989		Built 1970 to 1979		Built 1960 to 1969		Built 1950 to 1959		Built 1940 to 1949		Built 1939 or Earlier		Median Age of Housing
		Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
Lebanon County	**49,320**	**6,215**	**12.6**	**5,636**	**11.4**	**7,463**	**15.1**	**4,670**	**9.5**	**6,000**	**12.2**	**4,125**	**8.4**	**15,211**	**30.8**	**1959**
Annville-Cleona SD	**4,459**	**347**	**7.8**	**546**	**12.2**	**685**	**15.4**	**526**	**11.8**	**633**	**14.2**	**380**	**8.5**	**1,342**	**30.1**	**N/A**
Annville	1,556	119	7.6	80	5.1	162	10.4	181	11.6	231	14.8	123	7.9	660	42.4	1950
Cleona	913	17	1.9	150	16.4	85	9.3	100	11.0	181	19.8	133	14.6	247	27.1	1954
N. Annville	861	92	10.7	113	13.1	109	12.7	132	15.3	134	15.6	45	5.2	236	27.4	1961
S. Annville	1,129	119	10.5	203	18.0	329	29.1	113	10.0	87	7.7	79	7.0	199	17.6	1973
Cornwall-Lebanon SD	**12,278**	**2,278**	**18.6**	**1,771**	**14.4**	**2,197**	**17.9**	**1,381**	**11.2**	**1,539**	**12.5**	**624**	**5.1**	**2,488**	**20.3**	**N/A**
Cornwall	1,261	214	17.0	248	19.7	184	14.6	59	4.7	119	9.4	40	3.2	397	31.5	1971
Mount Gretna.	207	6	2.9	6	2.9	10	4.8	18	8.7	15	7.2	10	4.8	142	68.6	1939
N. Cornwall	2,604	612	23.5	387	14.9	497	19.1	308	11.8	353	13.6	80	3.1	367	14.1	1974
N. Lebanon	4,234	699	16.5	694	16.4	1,078	25.5	455	10.7	463	10.9	271	6.4	574	13.6	1973
S. Lebanon	3,030	614	20.3	280	9.2	366	12.1	493	16.3	529	17.5	163	5.4	585	19.3	1965
W. Cornwall	942	133	14.1	156	16.6	62	6.6	48	5.1	60	6.4	60	6.4	423	44.9	1948
ELCO SD	**6,898**	**1,033**	**15.0**	**818**	**11.9**	**974**	**14.1**	**574**	**8.3**	**566**	**8.2**	**470**	**6.8**	**2,463**	**35.7**	**N/A**
Heidelberg	1,389	139	10.0	106	7.6	271	19.5	152	10.9	78	5.6	92	6.6	551	39.7	1957
Jackson	2,478	635	25.6	468	18.9	451	18.2	250	10.1	153	6.2	158	6.4	363	14.6	1977
Millcreek	1,090	131	12.0	97	8.9	137	12.6	76	7.0	70	6.4	66	6.1	513	47.1	1945
Myerstown	1,339	77	5.8	114	8.5	46	3.4	36	2.7	172	12.8	106	7.9	788	58.8	1939
Richland	602	51	8.5	33	5.5	69	11.5	60	10.0	93	15.4	48	8.0	248	41.2	1951
Lebanon SD	**11,566**	**280**	**2.4**	**463**	**4.0**	**931**	**8.0**	**782**	**6.8**	**1,707**	**14.8**	**1,713**	**14.8**	**5,690**	**49.2**	**N/A**
Lebanon City	11,220	270	2.4	454	4.0	904	8.1	756	6.7	1,645	14.7	1,642	14.6	5,549	49.5	1940
W. Lebanon	346	10	2.9	9	2.6	27	7.8	26	7.5	62	17.9	71	20.5	141	40.8	1945
Northern Lebanon SD	**5,836**	**759**	**13.0**	**770**	**13.2**	**1,439**	**24.7**	**631**	**10.8**	**500**	**8.6**	**356**	**6.1**	**1,381**	**23.7**	**N/A**
Bethel	1,710	178	10.4	246	14.4	452	26.4	194	11.3	124	7.3	104	6.1	412	24.1	1970
Cold Spring	27	9	33.3	0	0.0	3	11.1	4	14.8	0	0.0	0	0.0	11	40.7	1966
E. Hanover	1,091	119	10.9	169	15.5	302	27.7	111	10.2	82	7.5	69	6.3	239	21.9	1971
Jonestown	443	44	9.9	35	7.9	47	10.6	56	12.6	32	7.2	15	3.4	214	48.3	1945
Swatara	1,462	311	21.3	215	14.7	346	23.7	119	8.1	125	8.5	117	8.0	229	15.7	1974
Union	1,103	98	8.9	105	9.5	289	26.2	147	13.3	137	12.4	51	4.6	276	25.0	1966
Palmyra Area SD	**8,283**	**1,518**	**18.3**	**1,268**	**15.3**	**1,237**	**14.9**	**776**	**9.4**	**1,055**	**12.7**	**582**	**7.0**	**1,847**	**22.3**	**N/A**
N. Londonderry	2,782	724	26.0	623	22.4	605	21.7	316	11.4	195	7.0	64	2.3	255	9.2	1979
Palmyra	3,363	341	10.1	198	5.9	310	9.2	320	9.5	673	20.0	387	11.5	1,134	33.7	1952
S. Londonderry	2,138	453	21.2	447	20.9	322	15.1	140	6.5	187	8.7	131	6.1	458	21.4	1975

Source: U.S. Census Bureau

Historical Housing Unit Construction

Countywide Statistics and Trends

- Housing unit growth has been strong and steady in Lebanon County since at least the 1940s. The county has experienced double-digit housing unit increases in four of the past six decades.
- Housing development peaked in terms of units constructed per decade in the 1970s, when 7,463 homes were constructed, a 15.1% increase from 1960.

School District Statistics and Trends

- The Northern Lebanon School District has experienced double-digit housing unit growth since 1960. Housing unit growth peaked in the 1970s in parallel with countywide trends, when Northern Lebanon experienced a 24.7% increase or 1,439 new housing units, and has continued steadily across Bethel, East Hanover, Swatara and Union Townships.
- The Cornwall-Lebanon School District saw the largest absolute and relative increases in housing units from 1990 to 2000. The increase was also the largest decennial increase in the documented time period. The district added a total of 2,278 housing units between 1990 and March 2000, which accounts for 18.6% of the school district's housing stock.
- The Annville–Cleona School District and the Lebanon School District witnessed their slowest decades of housing growth in the 1990s. The Annville–Cleona School District only added 347 new housing units during this time; the Lebanon School District, only added 280 new housing units.

Municipal Statistics and Trends

- The City of Lebanon has the most housing units constructed prior to 1940, 5,549 units or 49.5% of the City's housing stock.
- More than two out of three housing units in Mount Gretna Borough, 68.8% or 142 of its 207 units, were constructed prior to 1940.
- North Londonderry Township and Jackson Township have added housing units at an increasing rate every decade since 1940. This exemplifies the movement of residents out of the older boroughs and into the surrounding townships.

Recent Residential Development

Records from the Lebanon County Planning Department were examined to characterize recent residential development in Lebanon County. Building permits, on-lot sewage permits, and approved subdivision plans provided detailed information on the number, type, and location of new residences. This analysis provides additional insight into residential development trends.

Countywide Statistics and Trends

- Between 1990 and 2004 there were 9,366 new residential units constructed in Lebanon County; more than 95% were single family dwellings or mobile homes, and less than 5% were multifamily dwellings.
- The number of units added annually has increased, particularly in recent years. From 2002 through 2004, approximately 900 homes were built each year. The most single family residences were added in 2003, and the most multifamily units were added in 2004.
- Subdivision activity shows that 2,539 plans that contained a total of 9,923 new lots or units were approved between 1990 and 2004. Redevelopment of residential properties has been steadily increasing since 1999. Lot creation over the 15 year study period kept pace with home construction numbers as 9,923 lot/unit plans were created and 9,366 new homes were constructed. No apparent surplus of building lots exists.

Table 2-3 Subdivision Activity, 1990-2004

Year	Number of Plans Approved	Number of Lots / Units Approved
1990	166	891
1991	176	516
1992	168	512
1993	151	459
1994	130	415
1995	195	689
1996	181	650
1997	166	830
1998	180	504
1999	185	540
2000	204	580
2001	144	787
2002	179	689
2003	153	878
2004	161	983
Total	**2,539**	**9,923**

Source: Lebanon County Planning Department

School District Statistics and Trends

- Table 2-4 demonstrates that the Cornwall-Lebanon School District added more residential units than the other school districts, but that ELCO, Palmyra Area, and Northern Lebanon School Districts are adding residences at an increasing rate since 1990.
- Since 2000, the greatest increases in the number of dwelling units were in the Cornwall–Lebanon and the Palmyra Area School Districts. These areas are experiencing a rapid influx of residents. The Cornwall–Lebanon School District added the most homes, with over 900 new residences per municipality being added in North Cornwall, North Lebanon, and South Lebanon Townships. The Palmyra Area School District steadily added over 100 new dwelling units per year since 1991, and in recent years has exceeded 200 new homes per year.
- The Annville–Cleona School District added a total of 460 new dwelling units in the years 1990 to 2004, the second lowest school district figure in the county. More than half, 259 units or 56.3%, were constructed in Annville Township. The peak year for construction was 1994, when 92 new dwelling units were built, though development rates have been increasing since 2001.
- The Lebanon School District added 221 new residences in the years 1990-2004, the lowest total figure in the county. All but seven of the new homes were built in the City of Lebanon and nearly half were built in 2004 as part of the Willow Senior Apartments project which yielded 90 rental units. Demolitions outnumbered construction in the three years prior. This is shown in Figure 2-3 by the line dipping below the zero.
- Residential construction in Jackson Township accounted for 1,031 of the 1,679 new residences in the Eastern Lebanon County School District between 1990 and 2004.

Municipality Statistics and Trends

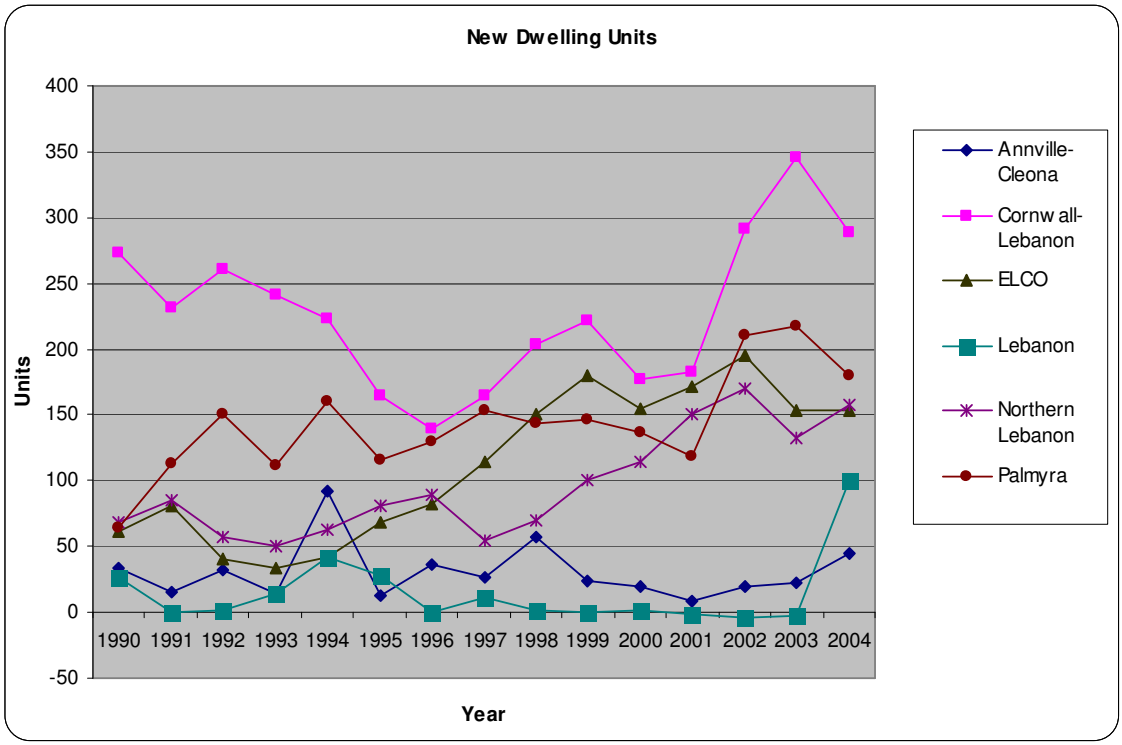
- Jackson Township added the most new dwelling units between 1990 and 2004, a total of 1,031 new units. This was followed by 953 units in North Londonderry Township, 945 in North Lebanon Township, 942 in North Cornwall Township, 928 in South Lebanon Township, and 819 new dwelling units in South Londonderry Township.
- Cleona Borough, Mount Gretna Borough, Cold Spring Township and West Lebanon Township each added less than 10 units in the 15 year period.
- Myerstown Borough has not added more than one unit per year since 1997.

Table 2-4 Recent Residential Construction, 1990-2004

Municipality	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Lebanon County	**526**	**525**	**543**	**466**	**622**	**470**	**479**	**525**	**625**	**672**	**603**	**631**	**882**	**871**	**926**	**9,366**
Annville–Cleona SD	**33**	**15**	**32**	**14**	**92**	**13**	**37**	**27**	**57**	**24**	**19**	**9**	**20**	**23**	**45**	**460**
Annville Twp.	10	0	22	1	74	2	18	13	46	11	10	0	8	14	30	259
Cleona	1	4	0	1	0	1	0	0	0	0	0	0	0	0	0	7
North Annville	9	6	3	6	10	3	9	6	5	4	2	3	7	5	4	82
South Annville	13	5	7	6	8	7	10	8	6	9	7	6	5	4	11	112
Cornwall–Lebanon SD	**273**	**231**	**261**	**241**	**223**	**164**	**140**	**164**	**203**	**221**	**177**	**183**	**291**	**346**	**289**	**3,407**
Cornwall	30	21	24	30	22	10	12	6	14	19	19	30	43	45	40	365
Mount Gretna	1	0	0	1	0	2	1	1	0	0	0	0	0	0	0	6
North Cornwall	94	113	82	61	48	20	31	38	43	45	24	45	40	155	103	942
North Lebanon	81	38	68	71	76	40	35	57	64	68	55	55	102	65	70	945
South Lebanon	45	54	67	74	74	88	56	50	47	60	56	49	89	66	53	928
West Cornwall	22	5	20	4	3	4	5	12	35	29	23	4	17	15	23	221
ELCO SD	**61**	**81**	**40**	**34**	**42**	**68**	**82**	**114**	**150**	**180**	**155**	**171**	**195**	**153**	**153**	**1,679**
Heidelberg	16	11	14	5	8	10	7	10	18	8	6	10	12	2	8	145
Jackson	36	16	14	14	20	35	53	81	107	120	103	115	123	102	92	1,031
Millcreek	3	5	6	5	8	13	8	11	18	40	41	43	55	43	51	350
Myerstown	4	49	3	6	0	1	7	7	0	0	1	-1	0	1	1	79
Richland	2	0	3	4	6	9	7	5	7	12	4	4	5	5	1	74
Lebanon SD	**27**	**0**	**2**	**14**	**42**	**28**	**0**	**11**	**1**	**0**	**2**	**-1**	**-4**	**-2**	**101**	**221**
Lebanon City	25	0	1	13	42	28	0	11	NA*	NA*	2	-1	-5	-2	100	214
West Lebanon	2	0	1	1	0	0	0	0	1	0	0	0	1	0	1	7
Northern Lebanon SD	**68**	**85**	**57**	**51**	**63**	**81**	**90**	**55**	**70**	**100**	**114**	**151**	**170**	**133**	**158**	**1,446**
Bethel	28	21	4	11	14	9	13	14	21	27	39	39	51	52	29	372
Cold Spring	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	4
East Hanover	8	10	9	9	4	7	7	6	14	10	11	8	9	6	9	127
Jonestown	4	10	2	3	3	1	0	0	5	8	7	13	6	29	44	135
Swatara	23	31	34	22	33	56	59	27	18	41	36	70	50	9	13	522
Union	5	12	7	6	9	7	10	8	12	14	21	21	54	37	63	286
Palmyra Area SD	**64**	**113**	**151**	**112**	**160**	**116**	**130**	**154**	**144**	**147**	**136**	**118**	**210**	**218**	**180**	**2,153**
North Londonderry	46	64	77	36	50	54	67	72	74	79	76	64	80	73	41	953
Palmyra	2	19	22	24	70	25	22	25	23	22	20	15	45	28	19	381
South Londonderry	16	30	52	52	40	37	41	57	47	46	40	39	85	117	120	819

Source: Lebanon County Planning Department. Data based on Building Permit Records and On-Lot Sewage Permits.
* NA – Data not available from municipality. Totals do not incorporate the City of Lebanon data for 1998 and 1999.

Figure 2-2 Recent Residential Construction by School District, 1990-2004



Source: Lebanon County Planning Department. Data based on building permit records.

Table 2-5 Lebanon County Residential Development/Redevelopment by Type, 1990-2004*

Year	Single Family Dwellings & Mobile Homes	Multi-Family Units	Demolition / Replacement Dwelling Units	Total
1990	464	83	21	526
1991	457	89	21	525
1992	522	29	8	543
1993	462	7	3	466
1994	508	115	1	622
1995	464	23	17	470
1996	472	10	3	479
1997	521	6	2	525
1998	602	26	3	625
1999	642	50	20	672
2000	622	6	25	603
2001	632	17	18	631
2002	844	61	23	882
2003	898	9	36	871
2004	822	146	42	926
Total	**8,932**	**677**	**243**	**9,366**

Source: Lebanon County Planning Department
*Data from the City of Lebanon was unavailable and therefore not included.

Recent Real Estate Sales

The following statistics and trends on recent residential sales were identified based on a review of the Keystone Multi-List Inc. database.

Countywide Statistics and Trends

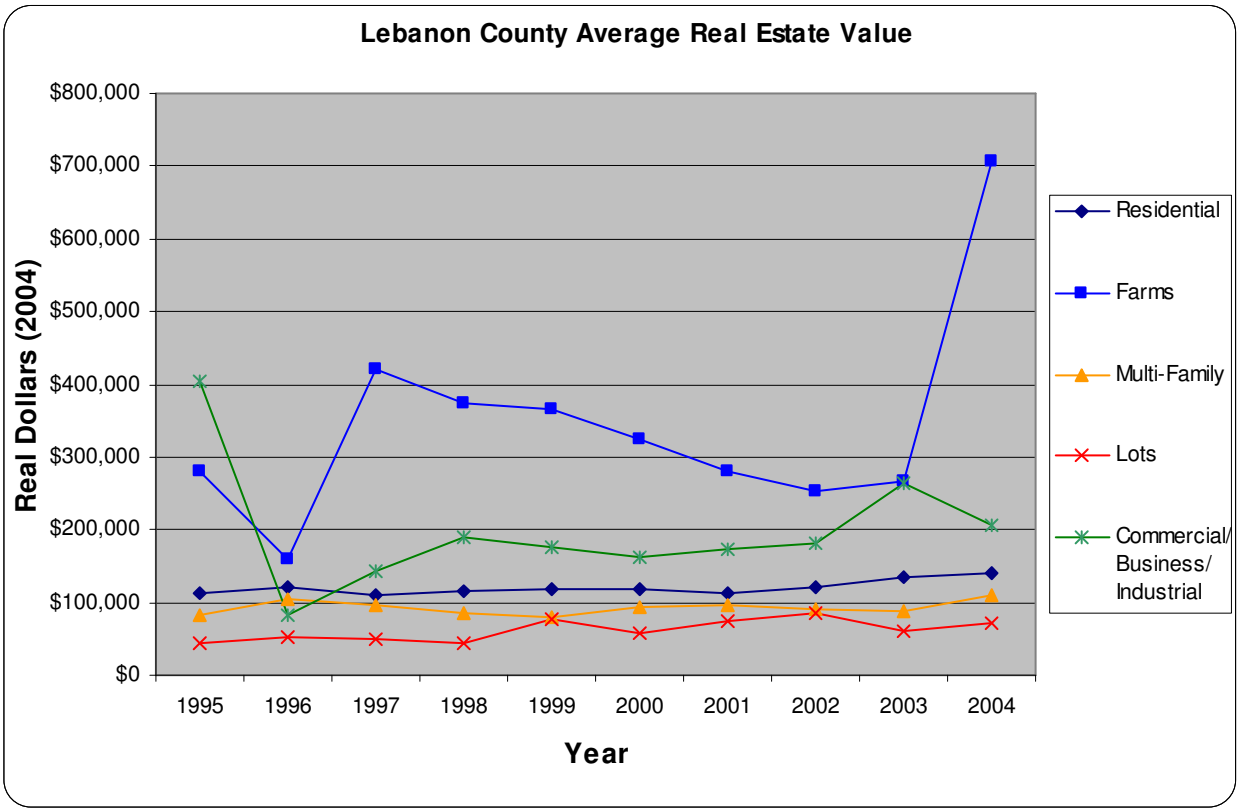
- Based on real estate sales in Lebanon County from 1995 to 2004, single family residential units accounted for the greatest number of sales, followed by undeveloped lots and multi-family properties.
- Sales of farmland accounted for the highest monetary value in all years except 1995, when the average value of commercial / business / industrial sales exceeded the value of farmland sales. The average value of farmland sales was dramatically higher in 2004.
- The average value of real estate sales has risen since 1995 for residential, multi-family, farms, and lots.

Table 2-6 Lebanon County Sales Unit Activity, 1995-2004

Year		Residential	Multi-Family	Commercial/ Business/ Industrial	Farms	Lots
1995	# Units	823	36	16	3	70
	Average (Nominal $)	$91,815	$66,517	$325,648	$225,667	$34,679
	Average (Real $)	$113,804	$82,448	$403,641	$279,715	$42,985
1996	# Units	737	34	9	3	60
	Average (Nominal $)	$101,593	$86,797	$68,500	$132,666	$43,095
	Average (Real $)	$122,313	$104,499	$82,471	$159,723	$51,884
1997	# Units	846	29	20	10	54
	Average (Nominal $)	$94,079	$82,642	$121,765	$358,490	$41,829
	Average (Real $)	$110,726	$97,265	$143,311	$421,924	$49,231
1998	# Units	864	52	17	6	93
	Average (Nominal $)	$98,744	$73,810	$162,839	$321,500	$36,964
	Average (Real $)	$114,434	$85,538	$188,713	$372,585	$42,837
1999	# Units	1,000	55	18	10	80
	Average (Nominal $)	$104,844	$69,835	$154,078	$323,190	$67,968
	Average (Real $)	$118,878	$79,183	$174,702	$366,450	$77,066
2000	# Units	944	34	22	3	97
	Average (Nominal $)	$106,877	$85,219	$147,141	$294,667	$52,552
	Average (Real $)	$117,242	$93,484	$161,411	$323,244	$57,649
2001	# Units	1,013	37	27	3	73
	Average (Nominal $)	$104,655	$90,047	$161,244	$263,167	$70,744
	Average (Real $)	$111,691	$96,101	$172,085	$280,860	$75,500
2002	# Units	1,154	38	16	6	77
	Average (Nominal $)	$115,464	$86,557	$172,531	$239,833	$82,017
	Average (Real $)	$121,240	$90,887	$181,162	$251,831	$86,120
2003	# Units	1,440	54	20	6	102
	Average (Nominal $)	$130,539	$85,120	$256,105	$260,967	$59,366
	Average (Real $)	$134,015	$87,387	$262,925	$267,917	$60,947
2004	# Units	1,502	63	22	6	61
	Average	$140,934	$110,441	$206,623	$706,733	$71,390

Source: Keystone Multi-List, Inc.

Figure 2-3 Lebanon County Average Real Estate Value, 1995-2004



Source: Keystone Multi-List, Inc.

Recent Residential Sales Activity

Countywide Statistics and Trends

- Residential sales in Lebanon County peaked in 2004 with the sale of 1,408 units.
- A dip in the average sale price of homes occurred in all school districts except Northern Lebanon between 2000 and 2001. However, since 2001, the sale price of homes has continued to escalate.

School District Statistics and Trends

- The Cornwall–Lebanon School District saw the most residential units sold in the county in the years 1995-2004, with 3,814 units sold; the Annville–Cleona School District experienced the least sold, with 793 units sold.
- In 2004, homes in the Palmyra Area School District sold for the highest average value in the county, $190,513, and the average home value in the Lebanon School District was the lowest at $75,489.
- The Lebanon School District, with its low priced homes, had the second highest amount of sales in all years except 2003 during which the Palmyra School District held this rank.
- The Annville–Cleona School District saw the fewest homes sold in all years except 1996.
- The average sales value of residential properties in the Palmyra Area School District increased 46.1% between 1995 and 2004. The high average sale value of residential units in the Palmyra Area School District reflects the purchasing power of residents, particularly those earning higher wages in the Hershey and Harrisburg areas.

Municipal Statistics and Trends

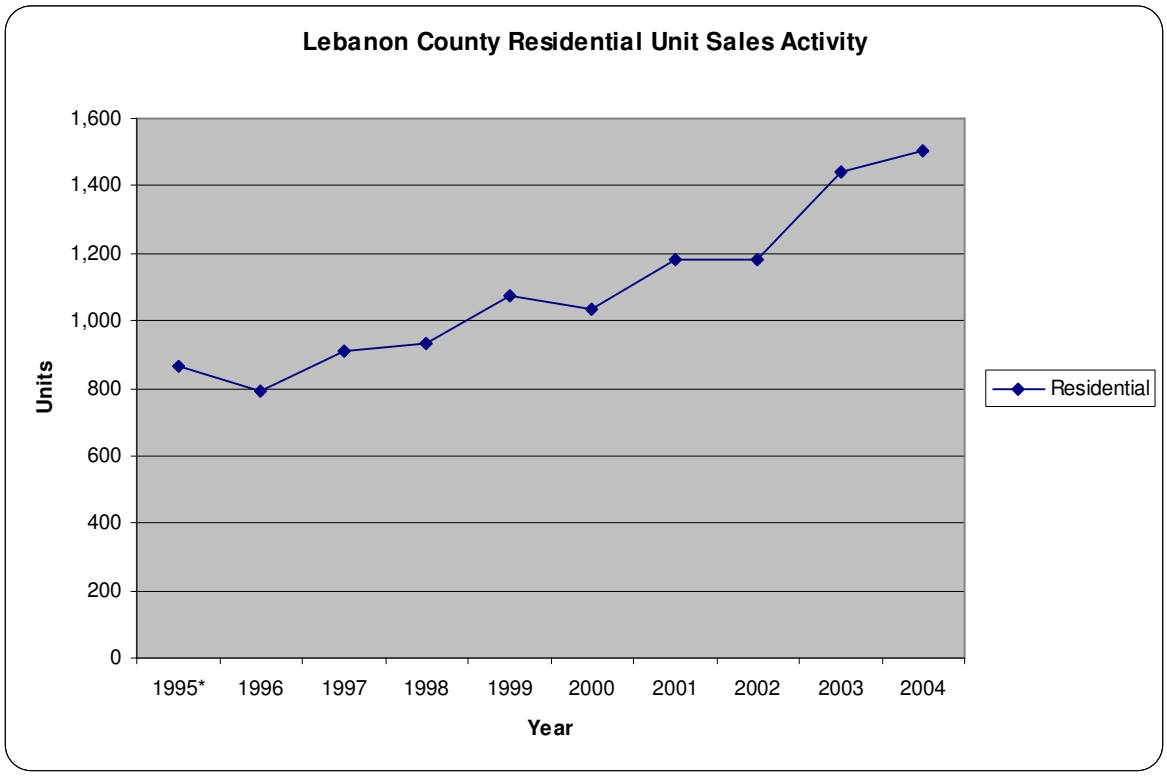
- Data was not available at the municipal level.

Table 2-7 Lebanon County Residential Sales, 1995 – 2004**

Year		Annville–Cleona SD	Cornwall–Lebanon SD	ELCO SD	Lebanon City SD	Northern Lebanon SD	Palmyra Area SD	Total Units
1995*	# Units	66	322	88	188	86	73	823
	Average (Nominal $)	$87,232	$109,199	$88,654	$59,215	$84,629	$105,211	
	Average (Real $)	$108,124	$135,352	$109,887	$73,397	$104,898	$130,409	
1996	# Units	73	275	107	157	82	43	737
	Average (Nominal $)	$79,758	$104,171	$95,565	$62,554	$90,453	$110,847	
	Average (Real $)	$96,025	$125,417	$115,056	$75,312	$108,901	$133,454	
1997	# Units	78	337	81	190	86	74	846
	Average (Nominal $)	$94,369	$106,040	$100,163	$62,464	$95,024	$120,704	
	Average (Real $)	$111,067	$124,803	$117,887	$73,517	$111,838	$142,062	
1998	# Units	82	354	123	152	85	68	864
	Average (Nominal $)	$103,660	$109,488	$106,773	$62,198	$95,989	$110,039	
	Average (Real $)	$120,131	$126,885	$123,739	$72,081	$111,241	$127,524	
1999	# Units	89	396	124	211	86	94	1,000
	Average (Nominal $)	$110,416	$123,157	$104,276	$62,100	$101,312	$127,938	
	Average (Real $)	$125,196	$139,642	$118,234	$70,412	$114,873	$145,063	
2000	# Units	81	378	106	200	85	94	944
	Average (Nominal $)	$99,266	$121,604	$108,457	$69,017	$96,624	$127,397	
	Average (Real $)	$108,893	$133,397	$118,975	$75,710	$105,995	$139,752	
2001	# Units	69	370	101	233	132	108	1,013
	Average (Nominal $)	$100,405	$121,957	$105,454	$68,319	$103,059	$126,957	
	Average (Real $)	$107,155	$130,156	$112,544	$72,912	$109,988	$135,493	
2002	# Units	82	413	143	224	144	148	1,154
	Average (Nominal $)	$104,193	$133,369	$107,992	$63,342	$113,482	$141,776	
	Average (Real $)	$109,406	$140,041	$113,395	$66,511	$119,159	$148,869	
2003	# Units	79	472	188	262	165	274	1,440
	Average (Nominal $)	$117,653	$145,700	$121,485	$68,221	$124,441	$177,611	
	Average (Real $)	$120,786	$149,580	$124,720	$70,038	$127,755	$182,341	
2004	# Units	94	497	156	290	210	255	1,502
	Average (Real $)	$134,496	$156,985	$135,568	$75,489	$139,993	$190,513	
	Total # Units	793	3,814	1,217	2,107	1,161	1,231	10,323
	Percent change in # of Units, 1995-2004	42.42%	54.35%	77.27%	54.26%	144.19%	249.32%	
	Percent change in Average Sales Value, 1995-2004	24.39%	15.98%	23.37%	2.85%	33.46%	46.09%	

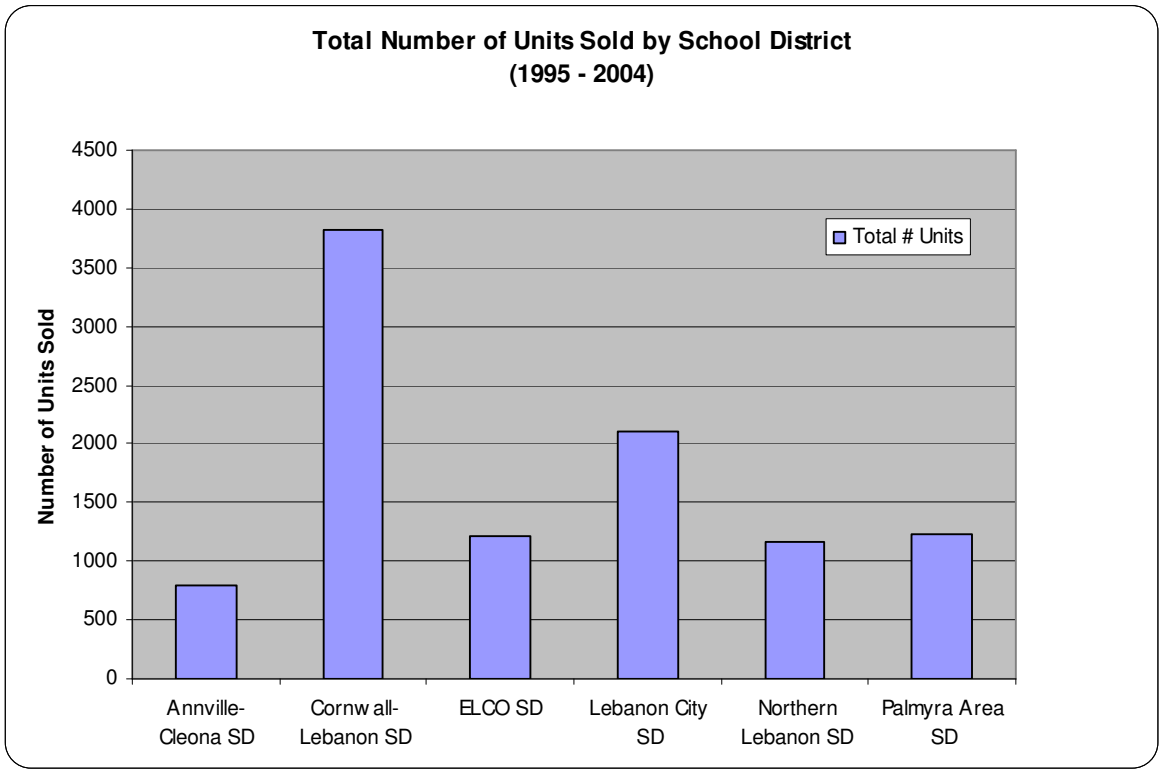
Source: Keystone Multi-List, Inc.
* Six units listed as "Non-Residential, Other" not included in averages
**Real Dollars have been adjusted for inflation through use of the CPI to represent 2004 dollars.

Figure 2-4 Lebanon County Residential Sales Activity, 1995-2004



Source: Keystone Multi-List, Inc.
*Six units listed as "Non-Residential, Other" not included

Figure 2-5 Residential Units Sold by School District, 1995-2004



Source: Keystone Multi-List, Inc.

Residential Housing Types

Countywide Trends

- Most homes in Lebanon County are single family dwellings (57%), though an extensive array of multi-unit residential and mobile home complexes are also available.
- The composition of housing types in Lebanon County is roughly in line with that of the state, though the composition by school district and municipality varies widely.
- According to the Lebanon County Planning Department, there are 43 multi-family housing complexes located throughout the county. The complexes contain a total of 3,175 units.
- Most of the newer housing units being constructed and proposed in the townships are single family detached dwellings. This will add to the already high concentrations of this type of housing units in the townships.
- The boroughs and the City of Lebanon are the municipalities in the county where more multi-family housing is offered. This is due to older construction of apartment units and mixed use properties in the downtowns, and to the conversion of single family dwellings to multi-family structures.

School District Statistics and Trends

- The Palmyra Area School District most closely parallels Lebanon County and Pennsylvania in terms of the composition of housing stock.
- The Cornwall–Lebanon School District has the most single family dwellings with 8,422 single family detached structures (69%) and 1,625 single family attached structures (13%). The highest occurrence of manufactured housing units is in the Cornwall–Lebanon School District. Of the 930 manufactured homes in the school district, 614 are located in North Lebanon Township.
- The Lebanon School District has the highest occurrence in the county of housing units in multi-family dwellings. The 4,268 units account for 37% of the units in the district. Units in structures with two to four units per structure account for 20% of the housing units in the district, which is the highest in the county. Only 25% of the housing stock in the Lebanon School District are single family detached homes.
- The Northern Lebanon School District has the most single family detached homes in the county at 73%. An additional 5% of units are single family attached homes (townhouses), the lowest in the county.
- The Northern Lebanon School District has the highest relative number of manufactured homes at 14%, and the second highest number at 795. Each of the municipalities in the district contains over 100 manufactured homes with the exceptions of Cold Spring Township and Jonestown Borough.
- The Annville–Cleona School District contains the fewest dwelling units at 4,459. Of these, 65% are single family detached houses and 13% are single family attached units.

Municipality Statistics and Trends

- South Annville Township has a high percentage of mobile home dwellings at 21%.
- Mount Gretna Borough is comprised of 98% single family detached homes and 2% single family attached homes; there are no multi-family or manufactured homes in the borough.
- Heidelberg Township also has a relatively high occurrence of single family dwellings; 89% of the housing units are single family detached dwellings and 4% are single family attached housing units.
- North Cornwall Township has the highest amount of units located in structures that contain 10 or more units. These 345 units account for 13% of the housing units in the township, the highest proportion in the county.
- Myerstown Borough has 27% of the housing units in multi-family structures and only 48% of the housing units are single family detached homes.
- Palmyra Borough has higher occurrences of multi-family dwellings than the other municipalities in the district and exceeds the state and county percentages in the relative amount of multi-family dwelling units.

Table 2-8 Lebanon County Housing Types by Units in Structure, 2000

	Total	Single Detached		Single Attached		2 - 4 Units per Structure		5 - 9 Units per Structure		10+ Units per Structure		Manufactured Home	
		#	%	#	%	#	%	#	%	#	%	#	%
Pennsylvania	**5,249,750**	**2,935,248**	**56**	**940,396**	**18**	**515,543**	**10**	**179,909**	**3**	**415,405**	**8**	**263,249**	**5**
Lebanon County	**49,320**	**28,234**	**57**	**9,137**	**19**	**5,241**	**11**	**1,691**	**3**	**2,077**	**4**	**2,940**	**6**
Annville–Cleona SD	**4,459**	**2,903**	**65**	**596**	**13**	**508**	**11**	**56**	**1**	**62**	**1**	**334**	**7**
Annville Twp.	1,556	771	50	365	23	295	19	45	3	34	2	46	3
Cleona	913	586	64	186	20	110	12	4	0	24	3	3	0
North Annville	861	713	83	19	2	71	8	7	1	4	0	47	5
South Annville	1,129	833	74	26	2	32	3	0	0	0	0	238	21
Cornwall–Lebanon SD	**12,278**	**8,422**	**69**	**1,625**	**13**	**606**	**5**	**272**	**2**	**423**	**3**	**930**	**8**
Cornwall	1,261	965	77	222	18	22	2	14	1	0	0	38	3
Mount Gretna	207	202	98	5	2	0	0	0	0	0	0	0	0
North Cornwall	2,604	1,301	50	620	24	189	7	143	5	345	13	6	0
North Lebanon	4,234	3,063	72	346	8	127	3	58	1	26	1	614	15
South Lebanon	3,030	2,220	73	366	12	245	8	49	2	46	2	104	3
West Cornwall	942	671	71	66	7	23	2	8	1	6	1	168	18
ELCO SD	**6,898**	**4,907**	**71**	**780**	**11**	**470**	**7**	**128**	**2**	**236**	**3**	**377**	**5**
Heidelberg	1,389	1,234	89	57	4	61	4	11	1	18	1	8	1
Jackson	2,478	1,753	71	141	6	102	4	8	0	134	5	340	14
Millcreek	1,090	821	75	185	17	44	4	15	1	4	0	21	2
Myerstown	1,339	641	48	327	24	212	16	73	5	80	6	6	0
Richland	602	458	76	70	12	51	8	21	3	0	0	2	0
Lebanon SD	**11,566**	**2,877**	**25**	**4,346**	**38**	**2,297**	**20**	**921**	**8**	**1,050**	**9**	**75**	**1**
Lebanon City	11,220	2,772	25	4,165	37	2,270	20	910	8	1,047	9	56	0
West Lebanon	346	105	30	181	52	27	8	11	3	3	1	19	5
Northern Lebanon SD	**5,836**	**4,280**	**73**	**273**	**5**	**375**	**6**	**100**	**2**	**13**	**0**	**795**	**14**
Bethel	1,710	1,241	73	42	2	126	7	18	1	7	0	276	16
Cold Spring	27	19	70	0	0	0	0	0	0	0	0	8	30
East Hanover	1,091	851	78	45	4	41	4	36	3	4	0	114	10
Jonestown	443	267	60	85	19	63	14	23	5	2	0	3	1
Swatara	1,462	1,072	73	90	6	71	5	0	0	0	0	229	16
Union	1,103	830	75	11	1	74	7	23	2	0	0	165	15
Palmyra Area SD	**8,283**	**4,845**	**58**	**1,517**	**18**	**985**	**12**	**214**	**3**	**293**	**4**	**429**	**5**
North Londonderry	2,782	2,006	72	585	21	77	3	16	1	74	3	24	1
Palmyra	3,363	1,361	40	731	22	769	23	160	5	219	7	123	4
South Londonderry	2,138	1,478	69	201	9	139	7	38	2	0	0	282	13

Source: U.S. Census Bureau

Household Numbers and Size

Countywide Statistics and Trends

- Between 1990 and 2000, more than 3,800 new households were added in Lebanon County.
- Households in Lebanon County increased faster than they did across the state—9.05% versus 6.25%, respectively.
- In 2000, the average household size in Lebanon County was 2.49 persons and just above the state average, 2.48 persons. These figures represent slight declines of between 3 and 4% since 1990. Decreases in household size at the county, school district and municipal levels can be attributed to increases in the number of elderly persons living alone, smaller family size and the number of single person households and additional housing.

School District Statistics and Trends

- The decline in average household size in most school districts in the county was more substantial than that of Pennsylvania (-3.5%). The Cornwall-Lebanon and Lebanon School Districts were the only districts in the county to experience smaller relative decreases than Pennsylvania.
- The Lebanon School District had the smallest decrease in average household size of 0.02 persons, of the school districts in the county, but the average household size in the Lebanon School District remains much smaller than Pennsylvania's average household size.
- The ELCO School District had the largest percentage decrease in household size of 6.41%, the largest relative decrease of the school districts in the county.

Municipal Statistics and Trends

- Heidelberg Township had the highest average household size in the county, 2.85 in 2000, attributable to large farming families in the community; Mount Gretna Borough had the lowest average household size, 2.07, reflecting retired and senior couples and individuals without children in these homes.
- Cornwall Borough and North Cornwall Township are the only two municipalities in the county that saw an increase in the average household size, although both of these increases were less than 1%.
- Mount Gretna Borough saw the greatest decrease in average household size in the county, a decrease from 2.46 to 2.07 or 15.85%.

Table 2-9 Households and Household Size Trends, 1990 and 2000

	Households*		Absolute Change	% Change	Average Household Size*		Absolute Change	% Change
	1990	2000			1990	2000		
Pennsylvania	**4,495,966**	**4,777,003**	**281,037**	**6.25**	**2.57**	**2.48**	**-0.09**	**-3.50**
Lebanon County	**42,688**	**46,551**	**3,863**	**9.05**	**2.58**	**2.49**	**-0.09**	**-3.49**
Annville–Cleona SD	**4,218**	**4,254**	**36**	**0.85**	**2.65**	**2.51**	**-0.14**	**-5.28**
Annville	1,409	1,452	43	3.05	2.48	2.35	-0.13	-5.24
Cleona	892	879	-13	-1.46	2.6	2.44	-0.16	-6.15
North Annville	858	828	-30	-3.50	2.75	2.72	-0.03	-1.09
South Annville	1,059	1,095	36	3.40	2.83	2.61	-0.22	-7.77
Cornwall–Lebanon SD	**9,951**	**11,575**	**1,624**	**16.32**	**2.62**	**2.54**	**-0.08**	**-3.05**
Cornwall	1,182	1,210	28	2.37	2.57	2.58	0.01	0.39
Mount Gretna.	123	117	-6	-4.88	2.46	2.07	-0.39	-15.85
North Cornwall	1,922	2,467	545	28.36	2.47	2.49	0.02	0.81
North Lebanon	3,565	4,072	507	14.22	2.73	2.61	-0.12	-4.40
South Lebanon	2,406	2,920	514	21.36	2.63	2.54	-0.09	-3.42
West Cornwall	753	789	36	4.78	2.53	2.29	-0.24	-9.49
ELCO SD	**5,912**	**6,633**	**721**	**12.20**	**2.81**	**2.63**	**-0.18**	**-6.41**
Heidelberg	1,250	1,346	96	7.68	3.04	2.85	-0.19	-6.25
Jackson	1,968	2,397	429	21.80	2.91	2.6	-0.31	-10.65
Millcreek	938	1,043	105	11.19	2.85	2.79	-0.06	-2.11
Myerstown	1,206	1,265	59	4.89	2.47	2.33	-0.14	-5.67
Richland	550	582	32	5.82	2.65	2.59	-0.06	-2.26
Lebanon SD	**10,800**	**10,599**	**-201**	**-1.86**	**2.35**	**2.33**	**-0.02**	**-0.85**
Lebanon City	10,468	10,266	-202	-1.93	2.34	2.32	-0.02	-0.85
West Lebanon	332	333	1	0.30	2.63	2.51	-0.12	-4.56
Northern Lebanon SD	**5,069**	**5,512**	**443**	**8.74**	**2.82**	**2.69**	**-0.13**	**-4.61**
Bethel	1,493	1,608	115	7.70	2.89	2.81	-0.08	-2.77
Cold Spring**	N/A	19	N/A	N/A	3	2.58	-0.42	-14.00
East Hanover	1,036	1,034	-2	-0.19	2.88	2.63	-0.25	-8.68
Jonestown	359	402	43	11.98	2.56	2.53	-0.03	-1.17
Swatara	1,165	1,432	267	22.92	2.84	2.74	-0.1	-3.52
Union	1,015	1,017	2	0.20	2.7	2.55	-0.15	-5.56
Palmyra Area SD	**6,738**	**7,978**	**1,240**	**18.40**	**2.49**	**2.38**	**-0.11**	**-4.42**
North Londonderry	2,092	2,716	624	29.83	2.63	2.42	-0.21	-7.98
Palmyra	3,021	3,200	179	5.93	2.27	2.2	-0.07	-3.08
South Londonderry	1,625	2,062	437	26.89	2.75	2.61	-0.14	-5.09

Source: U.S. Census Bureau
* Households reflect housing units of occupied status
**Errors exist in 1990 U.S. Census data for Cold Spring Township arising from boundary questions. Lebanon County Assessment offices reported 24 dwelling units located in Cold Spring Township in 1990.

Occupancy Statistics and Trends

Occupancy and vacancy rates are key indicators of the health of a community's housing market and can have an effect on local economic stability. A high occupancy rate can be indicative of limited housing availability in a community and an inability to absorb new residents moving into a community. A sudden growth of a single company or a new industry could conceivably require the development of new homes or increase the travel time for workers, thus adding to commuting costs and stress on the transportation system.

Generally, a vacancy rate between 4% and 5% is considered a healthy rate.[1] Below 4% is an indicator of too few housing units, which may lead to inflated prices, higher demand for new housing and increased development potential; whereas, a vacancy rate of greater than 6% is an indicator of too many units, which may lead to deflated prices and lower demand. A true picture of the vacancy experienced by a community can be difficult to discern as the vacancy rate fluctuates as new construction occurs, and as units are sold, rented, or become available. New construction may also cloud the true picture, as will homes that are considered vacant for recreational or seasonal use. Table 2-10 shows occupancy and vacancy rates for 1990 and 2000 for the state, county, school districts, and municipalities.

Countywide Statistics and Trends

- A greater percentage of homes are owner occupied in Lebanon County than across the state–68.6% and 64.9% respectively.
- Lebanon County has a lower percentage of vacant homes than Pennsylvania—5.7% and 9.0% respectively.

School District Statistics and Trends

- The Cornwall-Lebanon School District had the highest percentage of owner occupied housing in the county in 2000 at 77.4%.
- The vacancy rate in the Palmyra Area School District, 3.7%, was the lowest in the county, demonstrating the tight housing market in this region of the county.
- The renter occupied rate of 45.0% in the Lebanon School District is the highest in the county and is nearly double the state's value of 26.1%.
- Lebanon School District's vacancy rate of 8.4% is also the highest in the county, but is still below the state percentage of 9.0%. More recent housing occupancy studies in the City of Lebanon estimate a much smaller percentage of vacancies.

Municipal Statistics and Trends

- High percentages of renter occupied units in Annville Township (31.4%) may be attributable to the presence of Lebanon Valley College, where homes provide short-term residences for students. In North Cornwall Township, high percentages of renter occupied units can be witnessed in the several apartment complexes that surround the Plaza Shopping Center.
- Mount Gretna Borough had the lowest percentage of renter occupied units, 4.9%, and an extremely high vacancy rate, 42.9% or 88 of its 207 units. Of the 88 vacant units, 81units were reported for seasonal, recreational, or occasional use. West Cornwall Township, which borders Mount Gretna Borough, also has a rather high vacancy rate of 16.5%. Of the 155 vacant units in 2000, 119 were used for recreational or seasonal use. This high concentration of vacant units reported for seasonal, recreational, or occasional use reflects on the fact that many people utilize the Mt. Gretna area as a vacation or resort area. Starting in 1891, the Mount Gretna area was used as a summer home for a United Brethren Church camp and Pennsylvania Chautauquans. Lots were laid out to be 20 feet by 24 feet with the intention that they be occupied by tents. However, by the first camp meeting, 100 cottages had been built. Chautauquans and church campers would stay from Memorial Day to Labor Day. The Mount Gretna area consisted of Chautauqua in Mount Gretna Borough, the United Brethren Church camp in West Cornwall Township, and Timber Hills in South Londonderry Township. After World War II, Mount Gretna began to transition into a year-round residential area. (Mount Gretna Area Historical Society)
- North Londonderry Township has the highest percentage of owner occupied housing in the county, 86.3%.
- Palmyra Borough has the second highest percentage of renter occupied units in the county, 40.3%, tied with Myerstown Borough and trailing only the City of Lebanon. The high concentration of rental occupied housing in the older boroughs

[1] The Practice of Local Government Planning.

in the county and in the City of Lebanon is indicative of single family dwelling units being converting to multi-unit apartments, a normal trend for larger homes in older communities. In Palmyra Borough, the 184 units that comprise Shadowstone Mobile Home Park account for roughly 5% of the total occupied units in the municipality.

Table 2-10 Occupancy Statistics by Tenure, 1990 and 2000

	% Owner Occupied 1990	% Renter Occupied 1990	% Vacant 1990	% Owner Occupied 2000	% Renter Occupied 2000	% Vacant 2000
Pennsylvania	**64.32**	**26.73**	**8.95**	**64.90**	**26.10**	**9.00**
Lebanon County	**67.92**	**27.72**	**4.36**	**68.60**	**25.70**	**5.70**
Annville–Cleona SD	**73.78**	**23.32**	**2.90**	**73.80**	**21.60**	**4.60**
Annville	65.60	32.11	2.29	62.00	31.40	6.60
Cleona	69.18	28.31	2.51	74.60	21.70	3.70
North Annville	76.94	19.57	3.49	78.20	18.00	3.80
South Annville	85.79	10.66	3.55	86.10	10.90	3.00
Cornwall–Lebanon SD	**75.28**	**19.44**	**5.28**	**77.40**	**16.90**	**5.70**
Cornwall	77.70	19.90	2.40	84.50	11.40	4.10
Mount Gretna.	60.75	5.38	33.87	52.20	4.90	42.90
North Cornwall	59.24	35.72	5.04	63.80	30.90	5.30
North Lebanon	82.95	13.53	3.52	82.80	13.40	3.80
South Lebanon	79.39	18.22	2.39	81.40	15.00	3.60
West Cornwall	68.54	12.86	18.60	73.90	9.60	16.50
ELCO SD	**76.48**	**20.90**	**2.62**	**75.60**	**20.60**	**3.80**
Heidelberg	78.99	16.87	4.14	81.40	15.50	3.10
Jackson	83.58	14.33	2.09	82.30	14.40	3.30
Millcreek	77.69	19.21	3.10	76.70	19.00	4.30
Myerstown	59.17	38.72	2.11	54.20	40.30	5.50
Richland	81.15	17.59	1.26	79.90	16.80	3.30
Lebanon SD	**50.27**	**44.94**	**4.79**	**46.60**	**45.00**	**8.40**
Lebanon City	49.59	45.61	4.80	45.90	45.60	8.50
West Lebanon	71.76	23.92	4.32	69.90	26.30	3.80
Northern Lebanon SD	**74.08**	**19.82**	**6.10**	**76.00**	**18.40**	**5.60**
Bethel	77.78	17.01	5.21	78.70	15.30	6.00
Cold Spring	100.00	0.00	0.00	60.00	16.00	24.00
East Hanover	73.12	20.63	6.25	75.70	19.10	5.20
Jonestown	57.10	37.37	5.53	58.90	37.30	3.80
Swatara	78.96	15.68	5.36	81.80	14.50	3.70
Union	70.16	21.61	8.23	71.10	20.90	8.00
Palmyra Area SD	**69.66**	**26.98**	**3.36**	**72.70**	**23.60**	**3.70**
North Londonderry	82.74	13.53	3.73	86.30	11.30	2.40
Palmyra	55.26	41.57	3.17	54.80	40.30	4.90
South Londonderry	79.51	17.27	3.22	83.10	13.40	3.50

Source: U.S. Census Bureau

Value of Housing Units

Countywide Statistics and Trends

- The median housing value for Lebanon County was $99,200 in 2000, roughly 4.6% higher than the median value for Pennsylvania, $94,800.
- The county saw housing values increase more dramatically than the state between 1990 and 2000. The county rate of increase was 6.78%, compared to the state increase of 4.18%.
- Housing values are generally the highest in the townships that border Dauphin County, mostly due to the proximity to Harrisburg and Hershey employment centers and amenities.
- Housing values remain the lowest in the City of Lebanon and the older boroughs that line Route 422. In terms of trends, housing values in the City of Lebanon have been on the rise by 12.31%, while Cleona Borough and Palmyra Borough, which both straddle Route 422, have seen decreases in both median home value and median gross rent. These declines may be the result of increased home ownership, excessive rental availability in recent years, and an aging housing stock.
- The median rent in the county, $470, was lower than the state median value, $531, in 2000. However, rent values rose 0.5% across Lebanon County through the 1990s while they fell on average across the state. This value increase was not equitable across the municipalities, as 12 municipalities and at least one per school district experienced a decline in real rent values. Low interest rates which facilitate home ownership also reduce competition for rental housing, thereby depressing rental rates.

School District Statistics and Trends

- Data on the median value of housing units and the median gross rent were not available at the school district level.

Municipal Statistics and Trends

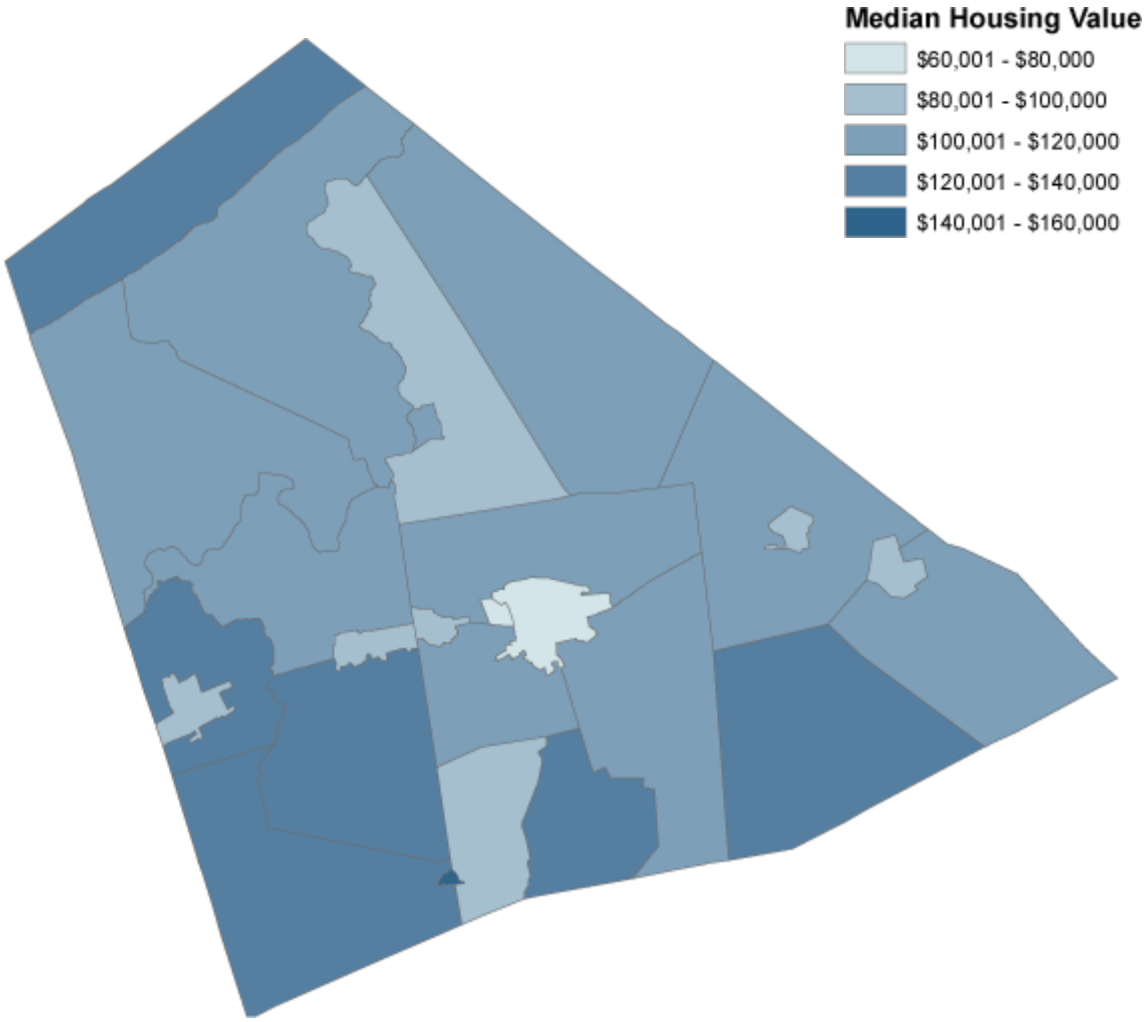
- Millcreek Township saw the greatest increase in median housing value, 29.3% between 1990 and 2000. The housing stock in Millcreek Township is found mainly in the older village of Newmanstown. The Newberg Village development brought several hundred new units to the township. These units are mostly entry level by 2005 values, but are significantly higher than the housing values in older Newmanstown.
- Jonestown Borough saw an increase in the median housing value of 15.4% from 1990 to 2000, which was the second highest increase in the county. This increase can be attributed to new development and has brought the borough's median value from below state and county median values to $102,000 and slightly above the county median value for 2000.
- Jackson Township saw the greatest increase in median gross rent values, an increase of 23.1% between 1990 and 2000.
- Housing values are highest in Mount Gretna Borough where the historic nature of these homes coupled with the quiet wooded setting has kept values elevated. Mount Gretna experienced a decline in median housing value, but still retained the highest median housing value and the second highest median rent value in the county. This may also reflect the borough's rigorous development code. This recent trend may indicate decline of certain older structures.
- The City of Lebanon and West Lebanon Township had the lowest median housing values of $65,700 in Lebanon County in 2000.
- Cleona Borough, West Cornwall Township, and Palmyra Borough each saw decreases in median housing value and median gross rent between 1990 and 2000. Cleona Borough saw a 28.57% decrease in median rent value from 1990 to 2000, the greatest municipal decrease in median rent value in the county. Palmyra Borough's median housing value of $93,200 in 2000 fell below state and county median housing values.

Table 2-11 Lebanon County Median Housing Value Characteristics and Trends, 1990 and 2000

	1990 Median Housing Value*	2000 Median Housing Value	1990-2000 % Change*	1990* Median Gross Monthly Rent	2000 Median Gross Monthly Rent	1990-2000 % Change
Pennsylvania	**$91,000**	**$94,800**	**4.18**	**$532**	**$531**	**-0.24**
Lebanon County	**$92,900**	**$99,200**	**6.78**	**$468**	**$470**	**0.49**
Annville–Cleona SD**						
Annville	$80,200	$90,100	12.34	$494	$491	-0.62
Cleona	$94,300	$94,200	-0.11	$665	$475	-28. 57
North Annville	$96,600	$105,700	9.42	$506	$491	-2.95
South Annville	$123,200	$120,500	-2.19	$468	$525	12.25
Cornwall–Lebanon SD**						
Cornwall	$121,200	$138,100	13.94	$953	$886	-6.99
Mount Gretna	$176,500	$158,200	-10.37	$735	$758	3.10
North Cornwall	$100,300	$109,400	9.07	$622	$602	-3.20
North Lebanon	$102,200	$105,600	3.33	$499	$519	3.94
South Lebanon	$99,100	$105,800	6.76	$497	$544	9.52
West Cornwall	$109,100	$94,100	-13.75	$539	$489	-9.25
ELCO SD**						
Heidelberg	$106,100	$122,100	15.08	$501	$449	-10.32
Jackson	$105,300	$111,700	6.08	$464	$571	23.12
Millcreek	$78,400	$101,400	29.34	$487	$503	3.18
Myerstown	$77,100	$84,400	9.47	$485	$499	2.92
Richland	$90,900	$92,500	1.76	$489	$434	-11.21
Lebanon SD**						
Lebanon City	$58,500	$65,700	12.31	$411	$411	0.00
West Lebanon	$65,600	$65,700	0.15	$514	$493	-4.05
North Lebanon SD**						
Bethel	$97,200	$100,700	3.60	$495	$522	5.37
Cold Spring	N/A	$130,000	N/A	N/A	$275	N/A
East Hanover	$107,100	$120,000	12.04	$448	$449	0.23
Jonestown	$88,400	$102,000	15.38	$431	$457	6.07
Swatara	$88,400	$98,000	10.86	$515	$506	-1.78
Union	$95,700	$107,800	12.64	$418	$458	9.66
Palmyra Area SD**						
North Londonderry	$121,100	$129,600	7.02	$621	$487	-21.52
Palmyra	$93,700	$93,200	-0.53	$505	$468	-7.26
South Londonderry	$116,700	$121,800	4.37	$538	$564	4.92

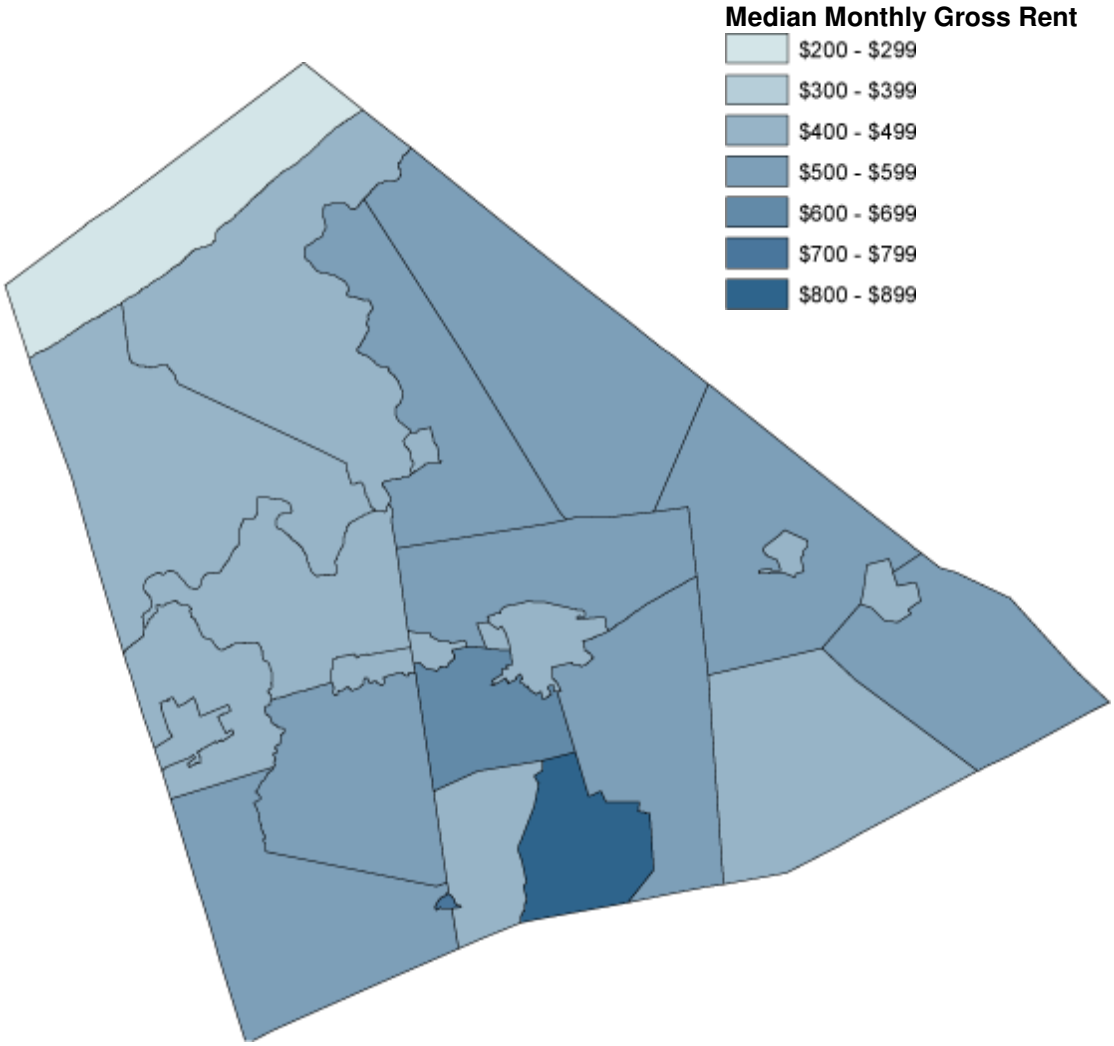
Source: U.S. Census Bureau
*1990 values have been adjusted for inflation through use of the CPI to represent 2000 dollar amounts.
**Data not available at the school district level.

Figure 2-6 Lebanon County Median Housing Value, 2000



Source: U.S. Census Bureau

Figure 2-7 Lebanon County Median Gross Monthly Rent Value, 2000



Source: U.S. Census Bureau

Housing Affordability

The type of housing that is considered affordable for both renters and homeowners depends on many factors including the age, quality, size, location and availability of the housing stock in an area. Typically newer housing units which are larger and offer more amenities such as central heat and air, multiple bathrooms and bedrooms, larger kitchens and garages, and family rooms, and are located in areas with high owner occupancy rates or in rapidly growing areas, tend to have higher values than smaller, older housing units lacking many new amenities and those located in areas with a greater concentration of rental units and/or higher vacancy rates.

Ultimately, housing affordability is determined by household income. The U.S. Census Bureau evaluates the affordability of the housing stock by examining the cost of homes as a percentage of household income. Generally, when housing cost exceeds 30% of income, the cost of housing is considered an unreasonable burden, exceeding the amount that the household income may afford. Households which are required to spend in excess of 50% of household income on housing costs are considered to be "extremely cost burdened."

Data on the affordability of housing is taken from Summary File 3 of the U.S. Census, which presents tabular data that was retrieved from the long form of the census. The long form decennial census questionnaire is sent to approximately one in six households. It contains all of the questions included in the short form, which is distributed to the entire population, and additional detailed questions relating to the social, economic, and housing characteristics of each individual and household. For example, although information on tenure is compiled for the entire population, information on monthly costs as a percentage of household income by tenure is only queried on the long form of the census. Therefore, in cases where certain detailed data is not available for the entire population, the sample information collected in the long form is considered to be a viable indicator of relative trends that are occurring amongst the entire population.

Owner Cost Burden

The U.S. Census evaluates housing affordability based on selected monthly owner costs, as reported by citizens on the long form of the decennial census survey. Selected monthly owner costs are the sum of payments for mortgages, deeds of trust, contracts to purchase, or similar debts on the property (including payments for the first mortgage, second mortgage, home equity loans, and other junior mortgages); real estate taxes; fire, hazard, and flood insurance on the property; utilities (electric, gas, and water and sewer); and fuels (oil, coal, kerosene, wood, etc.). It also includes, where appropriate, monthly condominium fees or mobile home costs (installment loan payments, personal property taxes, site rent, registration fees, and license fees).[2] Since this analysis is based on long form data collected from a portion of the population, the dataset is somewhat smaller than that of the short form; therefore, total numbers of housing units varies from that reported in Table 2-1.

Countywide Statistics and Trends

- A greater percentage of households in Lebanon County (81.1%) have affordable housing than in Pennsylvania (78.4%).

School District Statistics and Trends

- All of the school districts in the county had lower cost burden rates than the State in 2000. That is to say, all of the school districts had a smaller percentage of households which were paying more than 30% of their household income for housing costs.
- The Northern Lebanon School District had the greatest percentage of households (20.2%) that experienced a housing cost burden; the Annville-Cleona School District had the smallest (14.8%).

Municipal Statistics and Trends

- With the exception of Cold Spring Township, which had no housing cost burdened households, North Annville Township had the lowest percentage of cost burdened households (11.3%); Cleona Borough followed at 12.6%.

[2] U.S. Census Bureau

- Bethel and East Hanover Townships had the highest and second highest percentages of the population considered to be burdened by the cost of housing, 27.9% and 22.4% respectively, indicating that there may be a need for additional affordable housing in these municipalities. In Cornwall Borough, West Lebanon Township, and South Londonderry Township, over 20% of owner occupied households spend over 30% of their monthly income on costs directly related to housing.

Table 2-12 Selected Monthly Owner Costs as a Percentage of Household Income for Owner Occupied Housing, 1999

	Total Owner Occupied Housing Units*	Less than 30%		Greater than 30%		Not computed**	
		Total	*%*	*Total*	*%*	*Total*	*%*
Pennsylvania	**2,889,484**	**2,264,322**	**78.4**	**600,717**	**20.8**	**24,445**	**0.8**
Lebanon County	**28,194**	**22,879**	**81.1**	**5,124**	**18.2**	**191**	**0.7**
Annville-Cleona SD	**2,654**	**2,255**	**85.0**	**392**	**14.8**	**7**	**0.3**
Annville	864	709	82.1	155	17.9	0	0.0
Cleona	643	559	86.9	81	12.6	3	0.5
North Annville	504	443	87.9	57	11.3	4	0.8
South Annville	643	544	84.6	99	15.4	0	0.0
Cornwall-Lebanon SD	**7,973**	**6,459**	**81.0**	**1,471**	**18.4**	**43**	**0.5**
Cornwall	983	772	78.5	206	21.0	5	0.5
Mount Gretna.	101	83	82.2	18	17.8	0	0.0
North Cornwall	1,553	1,277	82.2	265	17.1	11	0.7
North Lebanon	2,674	2,151	80.4	501	18.7	22	0.8
South Lebanon	2,173	1,764	81.2	404	18.6	5	0.2
West Cornwall	489	412	84.3	77	15.7	0	0.0
ELCO SD	**4,147**	**3,414**	**82.3**	**705**	**17.0**	**28**	**0.7**
Heidelberg	911	740	81.2	163	17.9	8	0.9
Jackson	1,446	1,186	82.0	252	17.4	8	0.6
Millcreek	678	559	82.4	115	17.0	4	0.6
Myerstown	652	536	82.2	111	17.0	5	0.8
Richland	460	393	85.4	64	13.9	3	0.7
Lebanon SD	**5,010**	**4,028**	**80.4**	**943**	**18.8**	**39**	**0.8**
Lebanon City	4,797	3,867	80.6	897	18.7	33	0.7
West Lebanon	213	161	75.6	46	21.6	6	2.8
Northern Lebanon SD	**3,192**	**2,495**	**78.2**	**645**	**20.2**	**52**	**1.6**
Bethel	929	670	72.1	259	27.9	0	0.0
Cold Spring	7	7	100.0	0	0.0	0	0.0
East Hanover	563	433	76.9	126	22.4	4	0.7
Jonestown	228	187	82.0	36	15.8	5	2.2
Swatara	917	735	80.2	152	16.6	30	3.3
Union	548	463	84.5	72	13.1	13	2.4
Palmyra Area SD	**5,218**	**4,228**	**81.0**	**968**	**18.6**	**22**	**0.4**
North Londonderry	2,192	1,830	83.5	354	16.1	8	0.4
Palmyra	1,599	1,279	80.0	313	19.6	7	0.4
South Londonderry	1,427	1,119	78.4	301	21.1	7	0.5

Source: U.S. Census Bureau
*Represents sample data collected on the long form and reported in Summary Tape File 3 (STF3) by the US Census Bureau.
**Units reporting no income or a net loss in 1999 are included in the "not computed" category

Renter Cost Burden

The renter cost burden is determined by a methodology similar to the homeowner cost burden, analyzing only the long form data, a smaller renter occupied housing unit dataset than reported in Table 2-1. The renter cost burden takes into account the percentage of household income that is spent on gross rent. Gross rent includes the amount of the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else). Gross rent is intended to eliminate differentials which result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment.[3]

Countywide Statistics and Trends

- In 1999, a greater percentage of rental households (64.54%) found affordable housing in the county than households across Pennsylvania (56.23%) indicating that there is a higher level of housing affordability in the county than in the state.
- There were a greater percentage of cost burdened rental households than cost burdened homeowners in the county.

School District Statistics and Trends

- All of the school districts had lower renter cost burden rates than Pennsylvania, thus housing is more affordable to renters in the school districts in Lebanon County than statewide.
- The Lebanon and ELCO School Districts had the highest cost burden rates for renter.
- The Palmyra Area School District was considered to be the most affordable for renters; 20.1% are reported as cost burdened. The Northern Lebanon School District had the second lowest cost burden rate at 21.4%.

Municipal Statistics and Trends

- Jackson Township had the highest renter cost burden rate at 41.5%, followed by the City of Lebanon at 33.6%.

[3] U.S. Census Bureau

Table 2-13 Gross Rent for Rental Units as a Percentage of Household Income*, 2000

	Total Renter Occupied Housing Units	Less than 30 percent		Greater than 30 percent		Not Computed**	
		Total	%	Total	%	Total	%
Pennsylvania	**1,348,824**	**758,499**	**56.2**	**479,644**	**35.6**	**110,681**	**8.2**
Lebanon County	**12,399**	**8,002**	**64.5**	**3,459**	**27.9**	**938**	**7.6**
Annville-Cleona SD	**917**	**632**	**68.9**	**230**	**25.1**	**55**	**6.0**
Annville	482	324	67.2	127	26.4	31	6.4
Cleona	197	149	75.6	44	22.3	4	2.0
North Annville	133	94	70.7	34	25.6	5	3.8
South Annville	105	65	61.9	25	23.8	15	14.3
Cornwall-Lebanon SD	**2,043**	**1,389**	**67.99**	**494**	**24.2**	**160**	**7.8**
Cornwall	142	84	59.12	34	23.9	24	16.9
Mount Gretna.	12	3	25.0	2	16.7	7	58.3
North Cornwall	804	563	70.0	215	26.7	26	3.2
North Lebanon	551	395	71.7	105	19.1	51	9.3
South Lebanon	451	278	61.6	134	29.7	39	8.6
West Cornwall	83	66	79.5	4	4.8	13	15.7
ELCO SD	**1338**	**795**	**59.4**	**409**	**30.6**	**134**	**10.0**
Heidelberg	174	97	55.8	47	27.0	30	17.2
Jackson	354	166	46.9	147	41.5	41	11.6
Millcreek	172	141	81.9	22	12.8	9	5.2
Myerstown	538	329	61.2	166	30.9	43	8.0
Richland	100	62	62.0	27	27.0	11	11.0
Lebanon SD	**5,195**	**3,136**	**60.4**	**1,730**	**33.3**	**329**	**6.3**
Lebanon City	5,109	3,077	60.2	1,718	33.6	314	6.1
West Lebanon	86	59	68.6	12	13.9	15	17.4
Northern Lebanon SD	**991**	**673**	**67.9**	**212**	**21.4**	**106**	**10.7**
Bethel	230	143	62.2	69	30.0	18	7.8
Cold Spring	4	4	100.0	0	0.0	0	0.0
East Hanover	192	125	65.1	33	17.2	34	17.7
Jonestown	150	104	69.3	38	25.3	8	5.3
Swatara	192	140	72.9	33	17.2	19	9.9
Union	223	157	70.4	39	17.5	27	12.1
Palmyra Area SD	**1,915**	**1,377**	**71.9**	**384**	**20.1**	**154**	**8.0**
North Londonderry	289	191	66.1	17	5.9	81	28.0
Palmyra	1,353	1,002	74.1	299	22.1	52	3.8
South Londonderry	273	184	67.4	68	24.9	21	7.7

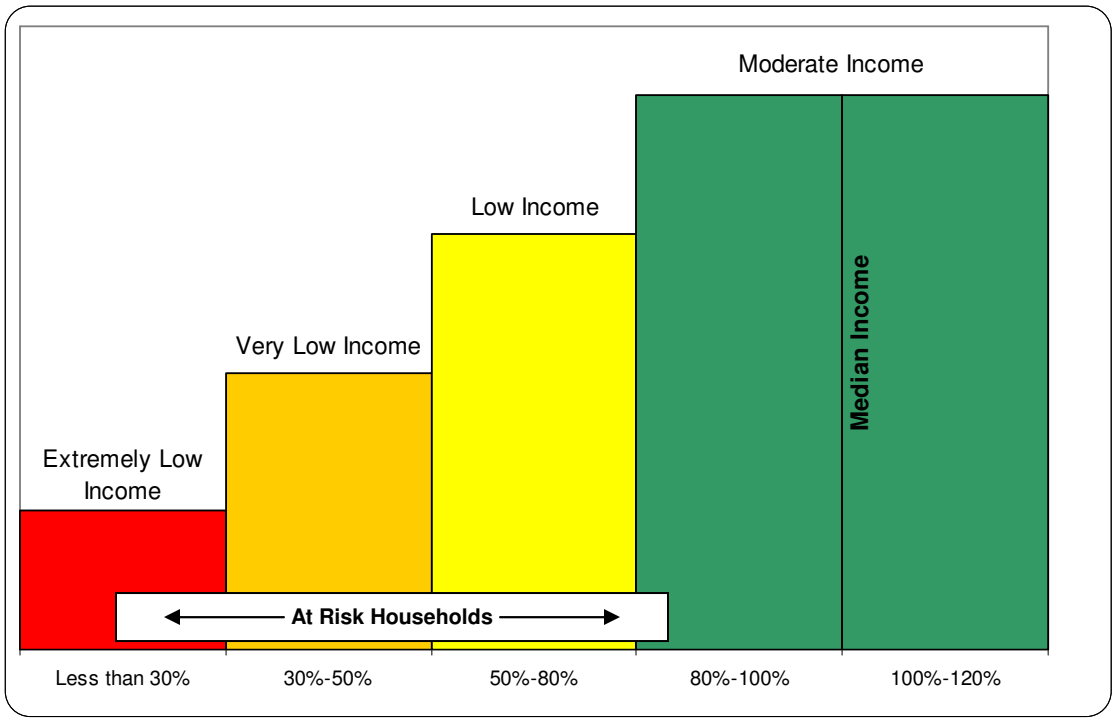
*Represents sample data collected on the long form of the decennial census
**Units reporting no income or a net loss in 1999 are included in the "not computed" category
Source: U.S. Census Bureau

Determining At Risk Households

Household income is a primary factor in determining how much a family or household is able to spend on costs directly related to housing in a given month or year. The Department of Housing and Urban Development (HUD) programs and other federal programs use income limits as primary eligibility criteria. HUD determines income limits on the basis of area median incomes and maintains data compiled by the long form of the census on the number of households (of a sample) that are in each income category. The income categories used in various HUD programs are as follows:

- **Moderate Income** – those households earning between 80% and 120% of an area's median income
- **Low Income** – those households earning between 50.1% and 80% of an area's median income
- **Very Low Income** – those households earning between 30.1% and 50% of an area's median income
- **Extremely Low Income** – households earning not more than 30% of an area's median income

Figure 2-8 HUD-Determined Income Levels



Source: Department of Housing and Urban Development

Households that are considered to be Extremely Low Income households represent the most at-risk households, those that need immediate attention in order to guard against homelessness. Very Low Income households and Low Income households are also of concern and may be in danger of slipping into the Extremely Low Income category. HUD data for each of these income levels are shown by renter occupied households and owner occupied households in Table 2-14 and in Figure 2-9. The values for each school district and the county have been aggregated from the municipal data. Owner and renter occupied households in the extremely low income category represent the most serious cases in the county, face the greatest risk of becoming homeless, and are the most likely to qualify for the variety of HUD sponsored programs; only this income level will be used to project affordable housing unit needs. As such, it represents a minimum number of units the county and municipalities should strive to provide, as households in other income levels would also benefit from affordable units. The total percentage of extremely low income households are shown in Table 2-15 among other statistics used in the housing projections.

Table 2-14 Percent of Lebanon County Home Owner Households and Renter Households by Income Category, 2000

	Income Level							
	Extremely Low Income HH income less than 30% of median		*Very Low Income* HH income 30%-50% of median		*Low Income* HH income 50%-80% of median		*Moderate Income and Above* HH income over 80% of median	
	% of Renter Occupied Households	% of Owner Occupied Households	% of Renter Occupied Households	% of Owner Occupied Households	% of Renter Occupied Households	% of Owner Occupied Households	% of Renter Occupied Households	% of Owner Occupied Households
Lebanon County	**20.59**	**4.92**	**20.02**	**9.72**	**25.10**	**18.33**	**34.30**	**67.03**
Annville-Cleona SD	**15.39**	**3.80**	**17.17**	**8.02**	**22.62**	**19.21**	**44.82**	**68.97**
Annville	18.57	4.71	20.68	5.44	13.50	25.63	47.26	64.23
Cleona	7.11	3.36	17.26	8.77	37.56	18.13	38.07	69.74
N. Annville	16.77	4.15	8.70	9.94	24.84	16.77	49.69	69.14
S. Annville	14.63	2.97	14.63	8.71	30.89	15.37	39.84	72.95
Cornwall-Lebanon SD	**13.99**	**4.65**	**17.95**	**8.75**	**22.91**	**16.35**	**45.15**	**70.24**
Cornwall	2.84	3.56	9.93	6.47	24.11	9.84	63.12	80.13
Mount Gretna	0.00	6.78	0.00	0.00	66.67	3.39	33.33	89.83
N. Cornwall	15.99	5.37	16.61	8.75	25.09	16.22	42.31	69.66
N. Lebanon	15.96	4.84	21.10	9.69	24.82	17.66	38.12	67.81
S. Lebanon	12.86	3.80	20.84	8.05	15.52	17.80	50.78	70.35
W. Cornwall	8.70	6.32	10.87	11.49	20.65	17.10	59.78	65.09
ELCO SD	**14.01**	**4.50**	**17.82**	**10.62**	**31.20**	**20.94**	**36.97**	**63.94**
Heidelberg	25.36	1.24	16.75	15.89	22.97	17.21	34.93	65.67
Jackson	9.72	5.64	11.11	13.24	34.72	21.32	44.44	59.80
Millcreek	6.64	4.22	16.11	7.12	39.34	24.00	37.91	64.66
Myerstown	14.88	7.24	24.48	3.42	26.93	21.17	33.71	68.17
Richland	16.51	3.71	12.84	4.12	40.37	22.47	30.28	69.69
Lebanon SD	**29.62**	**7.22**	**24.15**	**14.52**	**23.40**	**24.14**	**22.83**	**54.12**
Lebanon City	29.99	7.14	24.22	14.46	23.44	24.35	22.35	54.05
W. Lebanon	8.89	8.87	20.00	15.73	21.11	19.76	50.00	55.65
Northern Lebanon SD	**14.31**	**6.07**	**17.45**	**10.40**	**28.44**	**15.57**	**39.80**	**67.96**
Bethel	9.02	6.66	21.18	13.40	23.14	16.39	46.67	63.55
Cold Spring	0.00	33.33	0.00	33.33	100.00	0.00	0.00	33.33
E. Hanover	13.11	5.10	18.45	7.28	25.24	10.32	43.20	77.31
Jonestown	19.75	6.25	19.75	10.94	27.16	22.66	33.33	60.16
Swatara	20.00	4.94	13.33	10.30	26.67	18.53	40.00	66.23
Union	12.12	7.34	15.15	8.23	38.53	13.04	34.20	71.39
Palmyra Area SD	**14.32**	**3.39**	**15.60**	**6.57**	**26.85**	**15.54**	**43.22**	**74.49**
N. Londonderry	7.94	3.93	15.87	6.42	33.33	12.01	42.86	77.64
Palmyra	16.61	4.31	14.76	6.82	24.35	18.82	44.28	70.05
S. Londonderry	10.53	1.70	19.30	6.53	31.58	16.98	38.60	74.79

Sources: Department of Housing and Urban Development; U.S. Census Bureau, Summary Tape File 3 (STF3)

Countywide Statistics and Trends

- In most municipalities in the county, there are a greater percentage of households that rent that are considered to be of extremely low income or very low income, than owner occupied households that are placed in these two income categories.
- There are also larger percentages of renter occupied households that are considered to be low income than there are low income owner occupied households, but these percentages do not vary as much as those in the extremely and very low income categories.

School District Statistics and Trends

- The Lebanon and ELCO School Districts have the lowest percentages of renter and owner occupied households that are considered to be of at least moderate income.
- The Lebanon School District has the highest percentages of renter and owner occupied households that are considered to be either extremely low income or very low income. The Lebanon School District also has the highest percentage of owner occupied households considered to be low income.
- The Northern Lebanon School District has the highest percentage of renter occupied households that are considered to be low income households.

Municipal Statistics and Trends

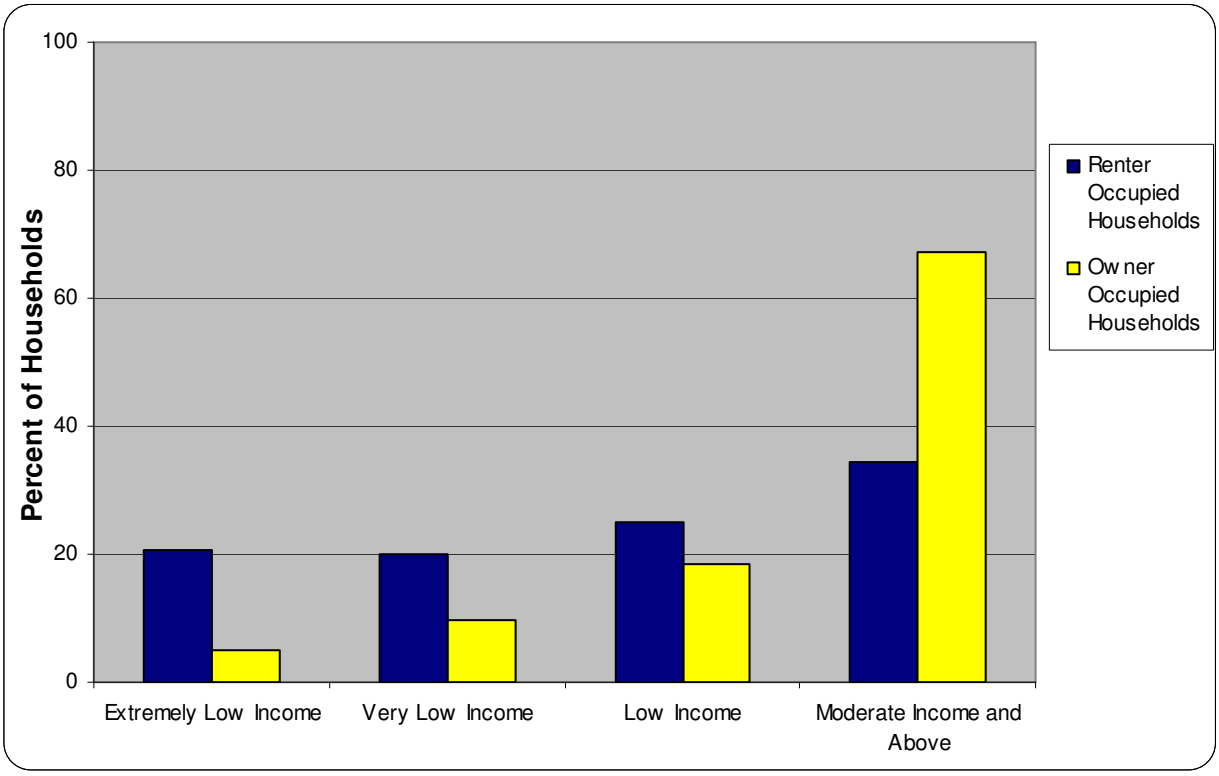
- The municipalities with the greatest percentage of renter occupied households considered to be of extremely low income are the City of Lebanon, Heidelberg Township, Swatara Township, and Jonestown Borough. The municipalities with the greatest percentages of owner occupied households considered to be of extremely low income are West Lebanon Township, Union Township, Myerstown Borough, and The City of Lebanon.
- The municipalities with the greatest percentages of renter occupied households considered to be of very low income are Myerstown Borough, the City of Lebanon, Bethel Township, and North Lebanon Township. The municipalities with the greatest percentages of owner occupied households considered to be of very low income are Heidelberg Township, West Lebanon Township, the City of Lebanon, and Bethel Township.

Table 2-15 Select Population and Household Characteristics, 2000

	% of Total Households with Household Income below 30% of the median value*
Lebanon County	**9.19**
Annville-Cleona SD	**6.41**
Annville	9.3
Cleona	4.2
N. Annville	6.59
S. Annville	4.28
Cornwall-Lebanon SD	**6.32**
Cornwall	3.48
Mount Gretna	6.15
N. Cornwall	8.86
N. Lebanon	6.38
S. Lebanon	5.2
W. Cornwall	6.6
ELCO SD	**6.54**
Heidelberg	4.99
Jackson	6.25
Millcreek	4.71
Myerstown	10.45
Richland	6.06
Lebanon SD	**18.22**
Lebanon City	18.53
W. Lebanon	8.88
Northern Lebanon SD	**7.69**
Bethel	7.04
Cold Spring	25
E. Hanover	6.7
Jonestown	11.48
Swatara	7.3
Union	8.42
Palmyra Area SD	**6.08**
N. Londonderry	4.4
Palmyra	9.54
S. Londonderry	2.93

Source: U.S. Census Bureau; Department of Housing and Urban Development

Figure 2-9 Percent of Lebanon County Households in Each Income Category, 2000



Source: Department of Housing and Urban Development, U.S. Census Bureau

Projected Housing Unit Needs

In order to adequately ensure that the housing needs of the existing and projected populations are met, the county and each municipality are charged with planning for, accommodating and/or providing housing in a variety of forms, styles, densities, price ranges and locations. Housing to meet the needs of existing and future residents not only includes the construction of new housing units, but also includes conservation, rehabilitation and reconstruction of the existing housing stock. Affordable housing must also be considered as a part of future housing needs; this subset of total housing needs is presented in Table 2-20 on page 39.

Methodology for Housing Unit Projections

Population projections, trends in the average household size, and a vacancy rate were used to project future housing needs at the municipal level and aggregated at the school district and county levels. Population projections are presented in Table 1-2 of the Demographic Profile. It is expected that the declining trend in average household size will continue as the number of older persons without children and the number of persons living alone increase and as families have fewer children. Therefore, the absolute change in the average household size between 1990 and 2000 was used to project average household sizes for 2010 and 2020, as shown in Table 2-16. An accepted standard vacancy rate of 5% was also factored into the projection. Formulas for these projections are shown below. Projections are developed in Tables 2-17 and 2-18 and summarized in Table 2-19.

Formula for Estimating 2010 and 2020 Average Household Size

2000 Average Household Size + Absolute Change in Average Household Size between 1990 and 2000 = 2010 Estimated Average Household Size

2010 Estimated Average Household Size + Absolute Change in Average Household Size between 1990 and 2000 = 2020 Estimated Average Household Size

Formula for Projecting 2010 Housing Unit Needs

2010 projected population / 2010 Estimated average household size = 2010 Projected Households

2010 Projected Households = 2010 Projected Housing Units Need (0% vacancy rate)

2010 Projected Housing Unit Need (0% vacancy rate) / (0.95) = 2010 Projected Housing Unit Need (5% vacancy rate)

Formula for Projecting 2020 Housing Unit Needs

2020 projected population / 2020 Estimated average household size = 2020 Projected Households

2020 Projected Households = 2020 Projected Housing Units Need (0% vacancy rate)

2020 Projected Housing Unit Need (0% vacancy rate) / (0.95) = 2020 Projected Housing Unit Need (5% vacancy rate)

The county projection was calculated based upon county level data. Municipal housing unit projections were developed separately and aggregated at the school district level.

Countywide Statistics and Trends

- The projected need for additional housing units range from of 14,510 units per the county projection to 15,566 units per the aggregated municipal projection.

School District Statistics and Trends

- The distribution of the housing projections is similar to that of the population projections on which they were based. However some differences occur as a result of the trends in projected household size. The Cornwall-Lebanon, Palmyra Area and ELCO School Districts are projected to grow substantially, though all districts show a need for additional housing units.

Municipal Statistics and Trends

- All but six municipalities show a need for at least 100 additional housing units. Jackson Township has the greatest need for additional housing units, followed by North Londonderry, South Lebanon, South Londonderry and North Lebanon Townships.
- Only in Mt. Gretna is the number of projected housing units needed by 2020 less than the current number of housing units. This occurs as a result of trends among the contributing factors: projected population, household size, and the assumption of a 5% vacancy rate. In Mt. Gretna, as well as other municipalities with low housing unit needs, conservation and rehabilitation of existing housing should be a primary consideration for accommodating future growth, particularly where the necessary infrastructure already exists.

Table 2-16 Select Population and Household Characteristics, 2000

	Average Household Size	2010 Estimated Average Household Size	2020 Estimated Average Household Size
Lebanon County	2.49	**2.40**	**2.31**
Annville-Cleona SD			
Annville	2.35	2.22	2.09
Cleona	2.44	2.28	2.12
N. Annville	2.72	2.69	2.66
S. Annville	2.61	2.39	2.17
Cornwall-Lebanon SD			
Cornwall	2.58	2.59	2.60
Mount Gretna	2.07	1.68	1.29
N. Cornwall	2.49	2.51	2.53
N. Lebanon	2.61	2.49	2.37
S. Lebanon	2.54	2.45	2.36
W. Cornwall	2.29	2.05	1.81
ELCO SD			
Heidelberg	2.85	2.66	2.47
Jackson	2.60	2.29	1.98
Millcreek	2.79	2.73	2.67
Myerstown	2.33	2.19	2.05
Richland	2.59	2.53	2.47
Lebanon SD			
Lebanon City	2.32	2.30	2.28
W. Lebanon	2.51	2.39	2.27
Northern Lebanon SD			
Bethel	2.81	2.73	2.65
Cold Spring	2.58	2.16	1.74
E. Hanover	2.63	2.38	2.13
Jonestown	2.53	2.50	2.47
Swatara	2.74	2.64	2.54
Union	2.55	2.40	2.25
Palmyra Area SD			
N. Londonderry	2.42	2.21	2.00
Palmyra	2.20	2.13	2.06
S. Londonderry	2.61	2.47	2.33

Source: U.S. Census Bureau; Department of Housing and Urban Development

Table 2-17 Year 2010 Estimated Additional Housing Unit Needs

	2000 Housing Units	2010 Projected Population	2010 Estimated Average Household Size	2010 Projected Housing Unit Need (0% vacancy rate)	2010 Projected Housing Unit Need (5% vacancy rate)	Net 2010 Housing Unit Need (5% vacancy rate)
Lebanon County	49,320	**130,682**	**2.40**	**54,451**	**57,317**	**7,997**
Lebanon County (municipal aggregate)	**49,320**	**130,682**	**n/a**	**54,726**	**57,607**	**8,287**
Annville-Cleona SD	**4,459**	**12,063**		**5,130**	**5,400**	**941**
Annville	1,556	4,638	2.22	2,089	2,199	643
Cleona	913	2,093	2.28	918	966	53
N. Annville	861	2,311	2.69	859	904	43
S. Annville	1,129	3,021	2.39	1,264	1,331	202
Cornwall-Lebanon SD	**12,278**	**34,515**	**n/a**	**14,048**	**14,787**	**2,509**
Cornwall	1,261	4,122	2.59	1,592	1,675	414
Mount Gretna	205	234	1.68	139	147	-58
N. Cornwall	2,604	7,328	2.51	2,920	3,073	469
N. Lebanon	4,234	11,537	2.49	4,633	4,877	643
S. Lebanon	3,030	9,355	2.45	3,818	4,019	989
W. Cornwall	944	1,939	2.05	946	996	52
ELCO SD	**6,898**	**20,002**	**n/a**	**8,245**	**8,680**	**1,782**
Heidelberg	1,389	3,911	2.66	1,470	1,548	159
Jackson	2,478	7,888	2.29	3,445	3,626	1,148
Millcreek	1,090	3,553	2.73	1,301	1,370	280
Myerstown	1,339	3,116	2.19	1,423	1,498	159
Richland	602	1,534	2.53	606	638	36
Lebanon SD	**11,566**	**25,202**	**n/a**	**10,944**	**11,519**	**-47**
Lebanon City	11,220	24,333	2.30	10,580	11,136	-84
W. Lebanon	346	869	2.39	364	383	37
Northern Lebanon SD	**5,836**	**16,728**	**n/a**	**6,537**	**6,882**	**1,046**
Bethel	1,710	4,971	2.73	1,821	1,917	207
Cold Spring	25	47	2.16	22	23	-2
E. Hanover	1,091	2,946	2.38	1,238	1,303	212
Jonestown	418	1,363	2.50	545	574	156
Swatara	1,487	4,556	2.64	1,726	1,817	330
Union	1,105	2,845	2.40	1,185	1,248	143
Palmyra Area SD	**8,283**	**22,172**	**n/a**	**9,822**	**10,339**	**2,056**
N. Londonderry	2,782	8,063	2.21	3,648	3,840	1,058
Palmyra	3,363	7,141	2.13	3,353	3,529	166
S. Londonderry	2,138	6,968	2.47	2,821	2,970	832

Source: U.S. Census Bureau, RETTEW Associates, Inc.

Table 2-18 Year 2020 Estimated Additional Housing Unit Needs

	2010 Projected Housing Unit Need (5% vacancy rate)	2020 Projected Population	2020 Estimated Average Household Size	2020 Projected Housing Unit Need (0% vacancy rate)	2020 Projected Total Housing Unit Need (5% vacancy rate)	Net 2020 Housing Unit Need (5% vacancy rate)
Lebanon County	**57,317**	**140,075**	**2.31**	**60,639**	**63,830**	**6,513**
Lebanon County (municipal aggregate)	**57,607**	**140,075**	**n/a**	**61,640**	**64,886**	**7,278**
Annville-Cleona SD	**5,400**	**12,825**	**n/a**	**5,816**	**6,123**	**723**
Annville	2,199	4,723	2.09	2,260	2,379	180
Cleona	966	2,098	2.12	990	1,042	76
N. Annville	904	2,358	2.66	886	933	29
S. Annville	1,331	3,646	2.17	1,680	1,769	438
Cornwall-Lebanon SD	**14,787**	**37,165**	**n/a**	**15,652**	**16,475**	**1,688**
Cornwall	1,675	4,619	2.60	1,777	1,870	195
Mount Gretna	147	234	1.29	181	191	44
N. Cornwall	3,073	8,023	2.53	3,171	3,338	265
N. Lebanon	4,877	12,098	2.37	5,105	5,373	496
S. Lebanon	4,019	10,230	2.36	4,335	4,563	544
W. Cornwall	996	1,961	1.81	1,083	1,140	144
ELCO SD	**8,680**	**21,813**	**n/a**	**9,865**	**10,385**	**1,705**
Heidelberg	1,548	4,066	2.47	1,646	1,733	185
Jackson	3,626	8,974	1.98	4,532	4,771	1,145
Millcreek	1,370	4,074	2.67	1,526	1,606	236
Myerstown	1,498	3,120	2.05	1,522	1,602	104
Richland	638	1,579	2.47	639	673	35
Lebanon SD	**11,519**	**25,257**	**n/a**	**11,079**	**11,663**	**144**
Lebanon City	11,136	24,308	2.28	10,661	11,223	87
W. Lebanon	383	949	2.27	418	440	57
Northern Lebanon SD	**6,882**	**18,152**	**n/a**	**7,473**	**7,868**	**986**
Bethel	1,917	5,399	2.65	2,037	2,145	228
Cold Spring	23	49	1.74	28	30	7
E. Hanover	1,303	3,057	2.13	1,435	1,511	208
Jonestown	574	1,405	2.47	569	599	25
Swatara	1,817	5,110	2.54	2,012	2,118	301
Union	1,248	3,132	2.25	1,392	1,465	217
Palmyra Area SD	**10,339**	**24,863**	**n/a**	**11,754**	**12,372**	**2,033**
N. Londonderry	3,840	9,588	2.00	4,794	5,046	1,206
Palmyra	3,529	7,186	2.06	3,488	3,672	143
S. Londonderry	2,970	8,089	2.33	3,472	3,654	684

Source: U.S. Census Bureau, RETTEW Associates, Inc.

Table 2-19 Projected Population and Housing Units, 2010 and 2020

	2000 Population	2000 Total Housing Units	2010 Population Projection	2010 Projected Housing Unit Need (5% vacancy rate)	2020 Population Projection	2020 Projected Total Housing Unit Need (5% vacancy rate)	2000-2020 Net Housing Unit Need,
Lebanon County	**120,327**	**49,320**	**130,682**	**57,317**	**140,075**	**63,830**	**14,510**
Lebanon County (municipal aggregate)	**120,327**	**49,320**	**130,682**	**57,607**	**140,075**	**64,886**	**15,566**
Annville-Cleona SD	**11,891**	**4,459**	**12,063**	**5,400**	**12,825**	**6,123**	**1,664**
Annville	4,518	1,556	4,638	2,199	4,723	2,379	823
Cleona	2,148	913	2,093	966	2,098	1,042	129
N. Annville	2,279	861	2,311	904	2,358	933	72
S. Annville	2,946	1,129	3,021	1,331	3,646	1,769	640
Cornwall-Lebanon SD	**31,052**	**12,278**	**34,515**	**14,787**	**37,165**	**16,475**	**4,197**
Cornwall	3,486	1,261	4,122	1,675	4,619	1,870	609
Mount Gretna	242	205	234	147	234	191	-14
N. Cornwall	6,403	2,604	7,328	3,073	8,023	3,338	734
N. Lebanon	10,629	4,234	11,537	4,877	12,098	5,373	1,139
S. Lebanon	8,383	3,030	9,355	4,019	10,230	4,563	1,533
W. Cornwall	1,909	944	1,939	996	1,961	1,140	196
ELCO SD	**17,770**	**6,898**	**20,002**	**8,680**	**21,813**	**10,385**	**3,487**
Heidelberg	3,832	1,389	3,911	1,548	4,066	1,733	344
Jackson	6,338	2,478	7,888	3,626	8,974	4,771	2,293
Millcreek	2,921	1,090	3,553	1,370	4,074	1,606	516
Myerstown	3,171	1,339	3,116	1,498	3,120	1,602	263
Richland	1,508	602	1,534	638	1,579	673	71
Lebanon SD	**25,297**	**11,566**	**25,202**	**11,519**	**25,257**	**11,663**	**97**
Lebanon City	24,461	11,220	24,333	11,136	24,308	11,223	3
W. Lebanon	836	346	869	383	949	440	94
Northern Lebanon SD	**14,992**	**5,836**	**16,728**	**6,882**	**18,152**	**7,868**	**2,032**
Bethel	4,526	1,710	4,971	1,917	5,399	2,145	435
Cold Spring	49	25	47	23	49	30	5
E. Hanover	2,858	1,091	2,946	1,303	3,057	1,511	420
Jonestown	1,028	418	1,363	574	1,405	599	181
Swatara	3,941	1,487	4,556	1,817	5,110	2,118	631
Union	2,590	1,105	2,845	1,248	3,132	1,465	360
Palmyra Area SD	**19,325**	**8,283**	**22,172**	**10,339**	**24,863**	**12,372**	**4,089**
N. Londonderry	6,771	2,782	8,063	3,840	9,588	5,046	2,264
Palmyra	7,096	3,363	7,141	3,529	7,186	3,672	309
S. Londonderry	5,458	2,138	6,968	2,970	8,089	3,654	1,516

Source: U.S. Census Bureau, RETTEW Associates, Inc.

Affordable Housing Unit Needs

Housing is considered to be affordable if a household can afford to buy or rent a quality dwelling without spending more than 30% of its income. Hence, affordability can be applied to all income levels, not just low income, as the U.S. Census Bureau has done with its cost burden analysis. Some housing specialists specifically characterize affordable housing for moderate-income families as America's "workforce housing" to distinguish it from publicly subsidized housing for low income households.[4]

For this planning effort, affordable housing unit needs were based upon those households that are considered to have the greatest need for affordable housing in the county – those of extremely low income, defined as those households making less than 30% of the county's median income. The percentage of total households in this category, as presented in table 2-15, was applied to the total number of projected housing units for 2010 and 2020 to project the number of extremely low income households that will require affordable housing in each year, as shown in Table 2-20. Like the housing unit projections, affordable housing unit needs were projected at the county level and at the municipal level; municipal projections were then aggregated at the school district level.

Countywide Statistics and Trends

- A range of 5,594 to 5,866 housing units will need to be affordable throughout the county by 2020.

School District Statistics and Trends

- Among the school districts, the Lebanon School District shows the greatest need for affordable housing units; 2,119 units are needed by 2020. The Cornwall-Lebanon district has the second greatest need in terms of number of affordable housing units, 1,041

Municipal Statistics and Trends

- The affordable housing unit needs of Lebanon City, Annville Township, and Myerstown, Jonestown, and Palmyra Boroughs are the largest contributors to the county's affordable housing needs and to the needs within their respective school districts. Each has a higher percentage of extremely low income households than the county and together they comprise a need for 2,887 affordable unit needed in the county by 2020.
- All other municipalities have percentages of extremely low income households lower than the county and most are less than the school district percentage. Yet, the need for affordable housing throughout the county is clear; nine of the 16 second class townships have need for more than 100 affordable housing units by 2020.

The projected affordable housing unit needs are included in, not in addition to, the total projected housing units for the given year. For example, by 2020 it is projected that Lebanon County will need a total of 63,830 housing units to accommodate the population in the county; 5,594 to 5,866 of these units will need to be affordable to those households earning less than 30% of the area median income.

The projected numbers of affordable housing unit needs do not necessarily represent a need for new affordable unit construction. Rather, they represent the number of housing units that will need to be affordable among the total housing opportunities in the county or a given municipality. Many affordable housing opportunities already exist in a variety of locations throughout the county, though they are occupied by more affluent households. These homes may become available as natural socioeconomic shifts occur, i.e. as households mature and experience increases in their income and move to higher priced homes, making lower priced homes available for sale or rent.

[4] U.S. Department of Housing and Urban Development

Table 2-20 Projected Housing Units and Projected Affordable Housing Units, 2010 and 2020

	2000 Total Housing Units	% of Total Households Classified as Extremely Low Income, 2000	2010 Projected Housing Units Need	2010 Projected Affordable Housing Unit Need	2020 Projected Housing Unit Need	2020 Projected Affordable Housing Unit Need
Lebanon County	**49,320**	**9.19**	**57,317**	**5,267**	**63,830**	**5,866**
Lebanon County (municipal aggregate)	**49,320**	**n/a**	**57,605**	**5,106**	**64,886**	**5,594**
Annville-Cleona SD	**4,459**	**n/a**	**5,400**	**363**	**6,123**	**402**
Annville	1,556	9.30	2,199	205	2,379	221
Cleona	913	4.20	966	41	1,042	44
N. Annville	861	6.59	904	60	933	61
S. Annville	1,129	4.28	1,331	57	1,769	76
Cornwall-Lebanon SD	**12,278**	**n/a**	**14,787**	**925**	**16,475**	**1,028**
Cornwall	1,261	3.48	1,675	58	1,870	65
Mount Gretna	205	6.15	147	9	191	12
N. Cornwall	2,604	8.86	3,073	272	3,338	296
N. Lebanon	4,234	6.38	4,877	311	5,373	343
S. Lebanon	3,030	5.20	4,019	209	4,563	237
W. Cornwall	944	6.60	996	66	1,140	75
ELCO SD	**6,898**	**n/a**	**8,680**	**565**	**10,385**	**668**
Heidelberg	1,389	4.99	1,548	77	1,733	86
Jackson	2,478	6.25	3,626	227	4,771	298
Millcreek	1,090	4.71	1,370	65	1,606	76
Myerstown	1,339	10.45	1,498	157	1,602	167
Richland	602	6.06	638	39	673	41
Lebanon SD	**11,566**	**n/a**	**11,519**	**2,098**	**11,663**	**2,119**
Lebanon City	11,220	18.53	11,136	2,064	11,223	2,080
W. Lebanon	346	8.88	383	34	440	39
Northern Lebanon SD	**5,836**	**n/a**	**6,882**	**532**	**7,868**	**606**
Bethel	1,710	7.04	1,917	135	2,145	151
Cold Spring	25	25.00	23	6	30	7
E. Hanover	1,091	6.70	1,303	87	1,511	101
Jonestown	418	11.48	574	66	599	69
Swatara	1,487	7.30	1,817	133	2,118	155
Union	1,105	8.42	1,248	105	1,465	123
Palmyra Area SD	**8,283**	**n/a**	**10,339**	**539**	**12,373**	**679**
N. Londonderry	2,782	4.40	3,840	169	5,046	222
Palmyra	3,363	9.54	3,529	337	3,672	350
S. Londonderry	2,138	2.93	2,970	87	3,654	107

Sources: U.S. Census Bureau; HUD; RETTEW Associates, Inc.

Housing Agencies and Programs

Lebanon County Housing and Redevelopment Authority

The Housing and Redevelopment Authority offers an array of housing programs to county residents. The following description of programs, services and their use was developed with the assistance of the authority's staff. The authority office is located at:

Housing and Redevelopment Authority
39 North 12th Street, Rear
Lebanon, PA 17042
(717) 273-9328

- The Authority operates the tenant-based **Section 8 Housing Choice Voucher Program** in Lebanon County. The Authority has been allocated 625 total vouchers by HUD. However, because of funding reductions by the federal government over the past two years, the number of vouchers actually in use by participants is currently 553. In order to manage the reduction in federal funding and maximize the number of families assisted under the Voucher Program, the Authority reduced allowable payment standards by 10% in September 2004. It is anticipated that reduced payment standards will allow provision of assistance to approximately an additional 30 families in the calendar year 2005. However, reduced payment standards also greatly limit housing options for voucher holders, making the majority of suburban rental housing unaffordable to Section 8 participants. Rental options for voucher holders in Lebanon County are essentially limited to marginal housing stock in certain areas of the City of Lebanon. Unfortunately, additional budget reductions in the Section 8 program are anticipated over the next few years. It is anticipated that the FFY 2006 budget will further reduce the number of assisted families in Lebanon County.

- The Lebanon County Redevelopment Authority offers a **First Time Home Buyers Program**. To qualify, the buyer must be of low to moderate income with an acceptable credit history, and residing in Lebanon County. Homes that qualify in the program are single family residences priced up to $90,000 that are located in Lebanon County, excluding locations in the City of Lebanon. Affordable financing is available and includes generous down payment assistance and affordable mortgages.

- The Redevelopment Authority also has a **Housing Repair Program** that offers financial assistance to homeowners whose property needs repair in order to bring it up to the community's housing standards. Assistance plans vary from no interest to outright grants. The property must be located in Lebanon County, excluding the City of Lebanon, and income requirements for the household are taken into consideration.

- The Lebanon County Housing Rehabilitation Office administers the County **Housing Accessibility Program** (ACCESS). ACCESS provides grants to low and moderate income persons with permanent disabilities to modify their present home and make it accessible through modifications such as ramps, door widening, hallway widening, enlarging bathrooms, and installing grab bars. Funds are provided as a grant forgiven in two years if the recipient remains in the property. Assistances offered by ACCESS reduce the need for institutionalization and enable disabled persons to remain in their community setting.

Lebanon County Community Action Partnership (CAP)

In 1991, Governor Robert Casey designated the Lebanon County Human Services Agency as a Community Action Agency of Lebanon County. The agency is tasked with mobilizing federal, state and local resources to provide services to those living in poverty and to bring them into self-sufficiency. Beginning in 2007, the Lebanon County CAP began providing direct services to clients; prior to that time, services were subcontracted.

The Lebanon County CAP strives to prevent homelessness by providing rental or shelter assistance to families by intervening in cases were eviction is imminent, assisting with future rent, providing temporary shelter and helping person move into permanent housing. Where appropriate, education, transportation and child care assistance may also be provided. The Lebanon County CAP can provide transition and bridge housing for up to seven families at a time through one three-unit apartment building and four stand-alone units. The Lebanon County CAP participates in the Regional Homeless Advisory

Board (RHAB), the Local Housing Options Team (LHOT) and the Lebanon County Coalition to End Homelessness. The Lebanon County CAP office is located at:

Lebanon County Community Action Partnership
503 Oak Street
Lebanon, PA 17042
(717) 273-9328

The following information about the agency's programs and services was provided by CAP's administrator:

- Information and Referral Services provides a wide range of information useful to people working to improve their life circumstances.
- Medical Assistance Transportation Program (MATP) provides assistance for those using the Access card and those who need help with transportation for Medical Assistance appointments.
- Transportation and Child Care Program is provided to those who have started a job in the last 90 days and need help with child care or transportation.
- Housing Assistance Program provides help with rent or temporary shelter for people facing eviction or who are homeless or near homeless. Services are intended for those who have suffered; emergency or loss and income guidelines apply.
- Bridge and Transitional Housing provides funding to move homeless families with children into supportive living arrangements which prepare them to move to permanent housing. Families must meet eligibility requirements and go through an interview process.
- Bridge Life Skills and GED Preparation Programs utilize a unique approach to adult education, with small class size and individual goal plans for each student. Learning is student driven and uses a variety of real life teaching tools. Eligibility is based on income.
- Work Ready and Supported Engagement Programs are directed to individuals with significant barriers to employment. Eligibility is determined by the County Assistance Office (CAO) and referrals may only be accepted from the CAO.
- Female Offender Re-Entry (FORE) Program provides education and advocacy services to female ex-offenders.

County-to-County Housing Assistance Statistics and Trends

Homeless Assistance

- In 2003-2004, there were a total of 111,164 clients receiving homeless assistance in Pennsylvania, 905 of whom were in Lebanon County.
- Lebanon County had the second lowest number of clients receiving homeless assistance when compared with its contiguous counties.
- The increase in the number of total clients receiving housing assistance in Lebanon County and the surrounding counties has been much higher than the state rate from 1993-94 to 2003-04. Lebanon County had the second slowest growth in clients in the area (61.6%), next to Lancaster County (59.2%), but these numbers are still very high compared to the state increase of 20.4%.

Table 2-21 Homeless Assistance, 2004

	Clients Receiving Homeless Assistance, 2004	Number of Clients per 1,000 Residents, 2004	% Change in Total Clients, 1993-94 to 2003-04
Pennsylvania	111,164	9	20.40
Lebanon County	905	7	61.60
Berks County	3,350	9	91.10
Dauphin County	5,609	22	73.90
Lancaster County	5,075	11	59.20
Schuylkill County	191	1	430.60

Source: Center for Rural Pennsylvania

Total Rental Assisted Units

- In January 2004, there were 2,283 assisted rental housing developments in Pennsylvania that contained a total of 179,991 units. This provided for 15 units per 1,000 residents.
- Lebanon County contained 24 assisted rental housing developments in January of 2004 that included 1,635 units. This provided for 13 units per 1,000 residents, which is only slightly lower than Pennsylvania.
- Compared with the surrounding counties, Lebanon had the fewest developments and the fewest units.
- Taking population into consideration, Lebanon County offered the third highest ratio of units per 1,000 residents. Lancaster offered the lowest rate of rental units per 1,000 people, at 7, and Dauphin County offered the most, at 22.
- Between 1997 and 2004, the number of housing units receiving rental assistance fell in Pennsylvania, Lebanon County, and all of the counties surrounding Lebanon with the exceptions of Lancaster and Schuylkill Counties.
- Lebanon County lost assisted rental housing units at nominal rate of -1.1%, a slower rate than Pennsylvania.

Table 2-22 Rental Assistance, 2004

	Total Developments January 2004	Total Units, January 2004	Total Units per 1,000 Residents	% Subsidized Units	% Change in Total Units 1997-2004	Unit Type		
						% Elderly	% Family / General	% Special Needs
Pennsylvania	2,283	179,991	15	30.00%	-2.00%	40.50%	54.20%	5.30%
Lebanon County	24	1,635	13	34.70%	-1.10%	37.60%	58.40%	4.00%
Berks County	52	4,112	11	28.40%	-6.30%	53.50%	39.60%	6.90%
Dauphin County	62	5,462	22	11.00%	-0.10%	45.20%	50.40%	4.40%
Lancaster County	72	3,557	7	12.90%	2.90%	35.80%	58.10%	6.10%
Schuylkill County	45	2,223	15	50.70%	0.00%	62.50%	33.20%	4.40%

Source: Center for Rural Pennsylvania

Rental Assistance by Type of Unit

Subsidized Units

- Lebanon County had a slightly higher percentage (34.7%) of subsidized units in January 2004, than the state. The County had the second highest percentage of subsidized units in the area next to Schuylkill County, where 50.7% of assisted rental units were subsidized.

Elderly Units

- Lebanon County has a slightly lower percentage of assisted rental housing units that are designated for the elderly than the state—37.6% and 40.5% respectively.
- With the exceptions of Lebanon and Lancaster Counties, the rest of the counties in the study area provided a higher percentage of elderly housing.

Family Housing / General

- Lebanon County has a slightly higher percentage of assisted rental housing units designated as family or general housing than the state—58.4% and 54.2% respectively.
- Schuylkill and Berks Counties provided the lowest portion of family or general assisted rental housing at 33.2% and 39.6%, respectively.

Special Needs

- Assisted housing rental units that are designated for individuals with special needs make up the smallest percentage of all assisted rental housing in the state, and in all counties of the study area. Pennsylvania's percentage of assisted rental housing that is designated for individuals with special needs is 5.3%. Lebanon County had the lowest percentage of assisted housing rental units designated for individuals with special needs, 4.0%; Berks County had the highest at 6.9%.

Habitat for Humanity of Lebanon County5

Habitat for Humanity (HFH) of Lebanon County is a locally run affiliate of Habitat for Humanity International, a nonprofit, ecumenical Christian housing organization. The Lebanon County affiliate was founded in 1990 by a group of local church leaders and business persons. The HFH office is located at:

Habitat for Humanity of Lebanon County
Jubilee Ministries
235 South 12th Street
Lebanon, PA 17042
(717) 228-1490

Habitat for Humanity works in partnership with people in need to build and renovate decent, affordable housing. The houses then are sold to those in need at no profit and with no interest charged. Since its inception the organization has built or rehabilitated 17 homes in the county, affording 17 Lebanon County families the opportunity to purchase a safe and affordable dwelling. A list of Habitat completed projects in the county is shown in Table 2-23. Volunteers provide most of the labor, and individual and corporate donors provide money and materials to build Habitat houses. Partner families invest hundreds of hours of labor - "sweat equity" - into building their homes and the homes of others. Their mortgage payments go into a revolving Fund for Humanity that is used to build more houses. Habitat has contacted each municipality in Lebanon County to request a list of rundown or abandoned properties so that they can pursue these properties for potential HFH sites.

In addition, Habitat for Humanity in Lebanon County expects to complete 3-5 projects before the end of 2007. The organization currently works 3 days a week, but is planning to work 4 days a week starting in the fall of 2007 and at least 5 days a week by the summer of 2008. The organization projects that the additional working days will allow them to complete 4-5 houses in 2008, 6-7 houses in 2009, and as many as 10 houses in 2010. Several of the properties that HFH is currently working on, or plans to work on, are being made handicap accessible.

Table 2-23 Habitat for Humanity Completed Projects, 1990-2006

Location	Year Occupied	Appraised Value	Sales Price Range	Type of Project
Jonestown – Martin St.	1992	$60,000-$65,000	$45,000-$50,000	3-bedroom single family, new build
Lebanon – Mifflin St.	1995	$70,000-$75,000	$55,000-$60,000	3-bedroom single family new build
Lebanon – 12th St.	1998	$60,000-$65,000	$40,000-$45,000	4-bedroom townhouse, new build
Lebanon – 12th St.	1998	$55,000-$60,000	$35,000-$40,000	3-bedroom townhouse, new build
Lebanon – 12th St.	1999	$55,000-$60,000	$35,000-$40,000	3-bedroom townhouse, new build
Lebanon – Beechwood	2001	$80,000-$85,000	$40,000-$45,000	3-bedroom ranch, new build
Lebanon – Beechwood	2001	$80,000-$85,000	$40,000-$45,000	3-bedroom ranch, new build
Lebanon – 12th St.	2003	$40,000-$45,000	$40,000-$45,000	3-bedroom semi-detached rehab
Lebanon – Beechwood	2004	$90,000-$95,000	$45,000-$50,000	4-bedroom ranch, new build
Lebanon – Beechwood	2004	$80,000-$85,000	$40,000-$45,000	3-bedroom ranch, new build
Lebanon – 12th St.	2004	$35,000-$40,000	$35,000-$40,000	3-bedroom semi-detached, rehab
Lebanon – Beechwood	2005	$80,000-$85,000	$40,000-$45,000	3-bedroom ranch, new build
Lebanon – Beechwood	2005	$85,000-$90,000	$55,000-$60,000	3-bedroom ranch, new build
Lebanon – 12th St.	2005	$65,000-$70,000	$50,000-$55,000	3-bedroom semi-detached rehab
Lebanon – Lehman St.	2006	$105,000-$110,000	$50,000-$55,000	3-bedroom single, new build
Lebanon – Monument	2006	$35,000-$40,000	$35,000-$40,000	3-bedroom semi-detached, rehab
Lebanon – Church St.	2006	$60,000-$65,000	$35,000-$40,000	2-bedroom semi-detached, rehab

Source: Habitat for Humanity of Lebanon County

[5] Habitat for Humanity of Lebanon County website: http://www.habitatlebanon.org.

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Economy and Employment Profile

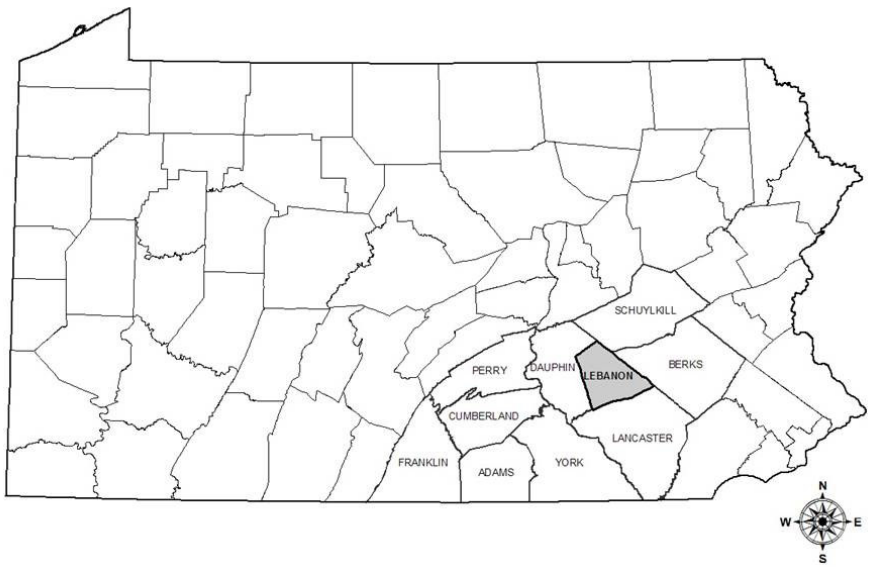
This profile provides a detailed assessment of Lebanon County's economic structure and performance, as well as its labor force. The profile begins with an overview of the economy and a description of the technical terms used throughout the text. It then analyzes available data for the following topics and provides a basis for strategic planning for a healthy and sustainable economy:

- Economic Performance
- Industrial Structure
- A Closer Look at Manufacturing
- Retention, Expansion, and New Business in Lebanon County
- Lebanon County Top Employers
- A Closer Look at the Agriculture Sector
- Workforce Characterization and Trends
- Employment by Place of Residence
- Resident Employment by Industry
- Commuting Patterns
- Educational Attainment
- Relationships to Infrastructure Conditions
- Other Conditions

Overview

Lebanon County's economy has evolved from one based primarily on agricultural pursuits to a diverse mixture of agricultural, industrial, and service enterprises. Agriculture is still very important to the county, as shown by land use and sales figures. The iron and steel industries also played a formative role in Lebanon County's economy. Early furnaces and forges took advantage of locally available natural resources to produce pig iron, agricultural tools, early machinery, and ultimately finished steel products. The American steel industry, led by Bethlehem Steel Corporation, was a focus of the county's economy from the 1910s through the 1960s. Stiff competition from overseas steel markets led to the decline of the American steel industry in the 1970s and resulted in the closure of several regional employers. Over the past 30 years, the county's economy has been in a state of transition and diversification. Today, manufacturing, retail trade and a variety of service industries are the leading employers in Lebanon County. The utilities, health care and social assistance industries also capture a significant percentage of total employment.

The City of Lebanon has traditionally been the population and economic center of the Lebanon Valley. However, in recent years, both population and jobs have migrated to the surrounding townships and in some cases, out of the county. Yet the city is still an integral part of the county's economy. It remained the top commuter destination for county residents in 2000. And organizations such as Lebanon 2000 and the Community of Lebanon Association are working to sustain the city's prominence within Lebanon County.



Lebanon County is part of a much broader regional economy that includes Adams, Berks, Cumberland, Dauphin, Franklin, Lancaster, Perry, Schuylkill, and York Counties. Its location in the Keystone State allows businesses in the county to take advantage of the northeastern and mid-Atlantic markets for raw materials and finished goods. The Lebanon Valley Economic Development Corporation (LVEDC) estimates that approximately 45% of the U.S. population, 60% of the Canadian population, and 45% of U.S. manufacturers are within 500 miles of Lebanon County. In addition to excellent highway access via Interstates 81, 78, and 76, the Norfolk Southern Harrisburg Line bisects the county and provides area businesses with access to rail freight services. Harrisburg International Airport, located in adjacent Dauphin County, provides nearby air freight and passenger transport for local enterprises.

Description of Terms

The following terms are used throughout this profile. Additional definitions can be found in the glossary.

Earnings
Earnings is defined as the algebraic sum of wage or salary income and net income from self-employment. Earnings represent the amount of income received regularly before deductions for personal income taxes, Social Security, bond purchases, union dues, Medicare deductions, etc.

Employed
Employed includes all civilians 16 years old and over who were either (1) "at work" -- those who did any work at all during the reference week as paid employees, worked in their own business or profession, worked on their own farm, or worked 15 hours or more as unpaid workers on a family farm or in a family business; or (2) were "with a job but not at work" -- those who did not work during the reference week but had jobs or businesses from which they were temporarily absent due to illness, bad weather, industrial dispute, vacation, or other personal reasons. Excluded from the employed are people whose only activity consisted of work around the house or unpaid volunteer work for religious, charitable, and similar organizations; also excluded are people on active duty in the United States Armed Forces. The reference week is the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed. This week may not be the same for all respondents.

Labor force
The labor force includes all people classified in the civilian labor force, plus members of the U.S. Armed Forces (people on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard). The Civilian Labor Force consists of people classified as employed or unemployed.

Resident employment by Industry and Occupation
Resident employment refers to a person's employment characteristics, as reported by responses to long-form questionnaire items, which were asked of a sample of the population 15 years old and over. Industry relates to the kind of business conducted by a person's employing organization; occupation describes the kind of work a person does on the job.

Unemployed
All civilians 16 years old and over are classified as unemployed if they (1) were neither "at work" nor "with a job but not at work" during the reference week, and (2) were actively looking for work during the last 4 weeks, and (3) were available to accept a job. Also included as unemployed are civilians who did not work at all during the reference week, were waiting to be called back to a job from which they had been laid off, and were available for work except for temporary illness.

Source: US Census Bureau

Economic Performance

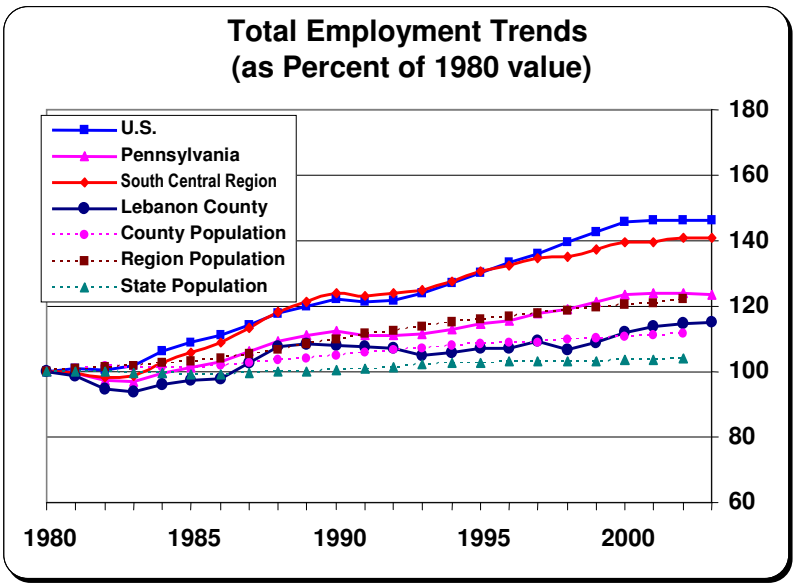
The structure and performance of Lebanon County's economy are evaluated primarily using available public data on employment figures and employee earnings.[1] This section examines the employment in terms of "place of work"; that is, workers employed in Lebanon County regardless of residency. These data thus reflect the local industry performance and employment opportunities available in Lebanon County. The south central Pennsylvania region referenced in this section comprises as Adams, Cumberland, Dauphin, Franklin, Lancaster, Lebanon, Perry, and York Counties.

A look at data on total employment trends reveals modest growth rates for Lebanon County, in stark contrast to the growth trends for the nation overall and the south central Pennsylvania region.

[1] Employment data come from three sources: 1) The Center for Workforce Information and Analysis within the state Department of Labor and Industry and 2) the U.S. Bureau of Labor Statistics. Both provide data on employment covered under unemployment insurance programs. The following categories are excluded from these data: federal employment, interstate railroads, self-employed, and household workers. These data include approximately 95% of all employment. 3) The U.S. Bureau of Economic Analysis begins with this data and adds estimates for the missing classes of employment (listed above), as well as provides earnings statistics for all of these categories. Employment data from the U.S. BEA, however, are only available at a more aggregated industry sectoring scheme. All of these employment data are for both full-time and part-time employment.

- The recession of the early 1980s hit Lebanon County the hardest of the four surveyed geographies (Figure 3-1). Lebanon County's total employment in 2003 was only 15% higher than in 1980, in contrast to 40% growth in jobs for the region overall. In relation to overall population growth, Lebanon County's population and employment growth have tracked closely, while employment growth in the region overall has well outpaced its population growth.
- Lebanon County is well within the mainstream of Pennsylvania counties in terms of total employment growth from 1990 to 2001 (Figure 3-2). Among counties in the south central region, Lebanon County lagged behind double-digit growth in Adams, Cumberland, Lancaster, and Perry Counties.
- Lebanon County's modest employment growth, for the most recent period for which data are available, 2001 to 2003, places it in a relatively favorable light, in contrast to widespread declines in employment across the state (Figure 3-3).

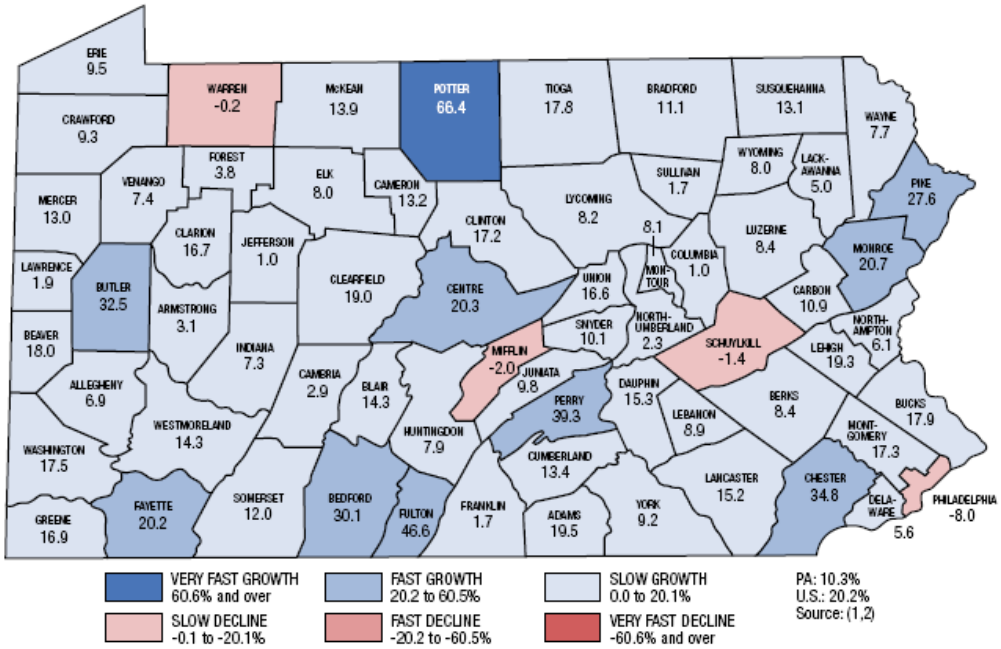
Figure 3-1 Total Employment Trends



Source: US Bureau of Economic Analysis

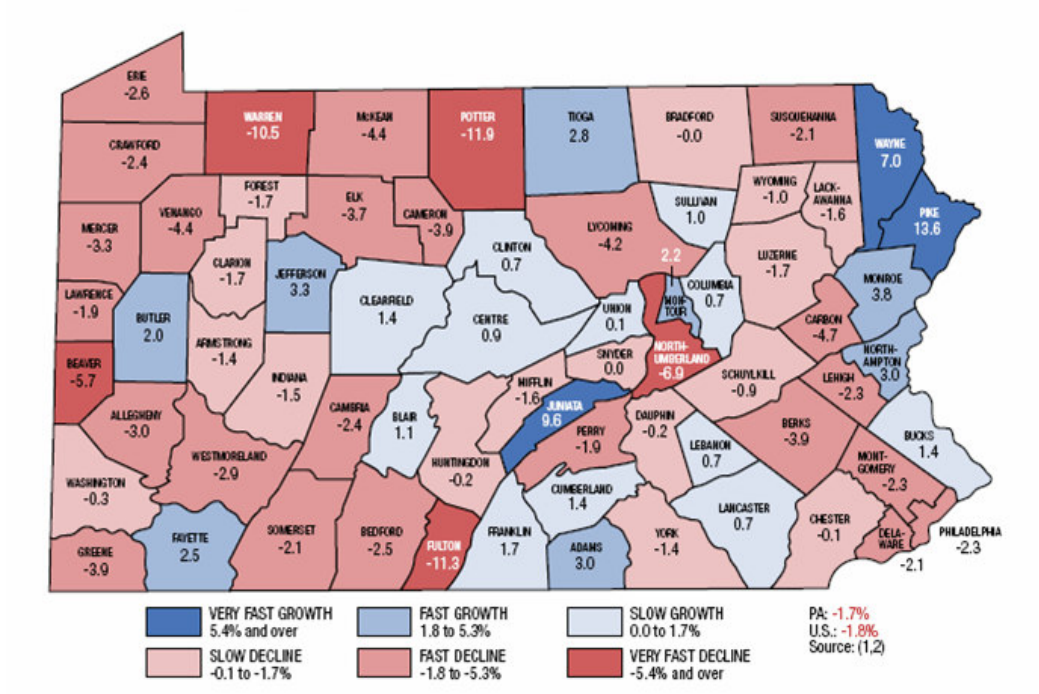
- Since 1980, employment growth in the county occurred exclusively in the private sector, and in fact, employment in the government sector has declined (Figures 3-4 and 3-5). The relative rankings of trends by the various geographies are the same: national, followed by regional, state, and county, for both private and government sectors. The region as a whole has kept closer pace with national trends than with Pennsylvania.

Figure 3-2 Percent Change in Total Employment, 1990–2001



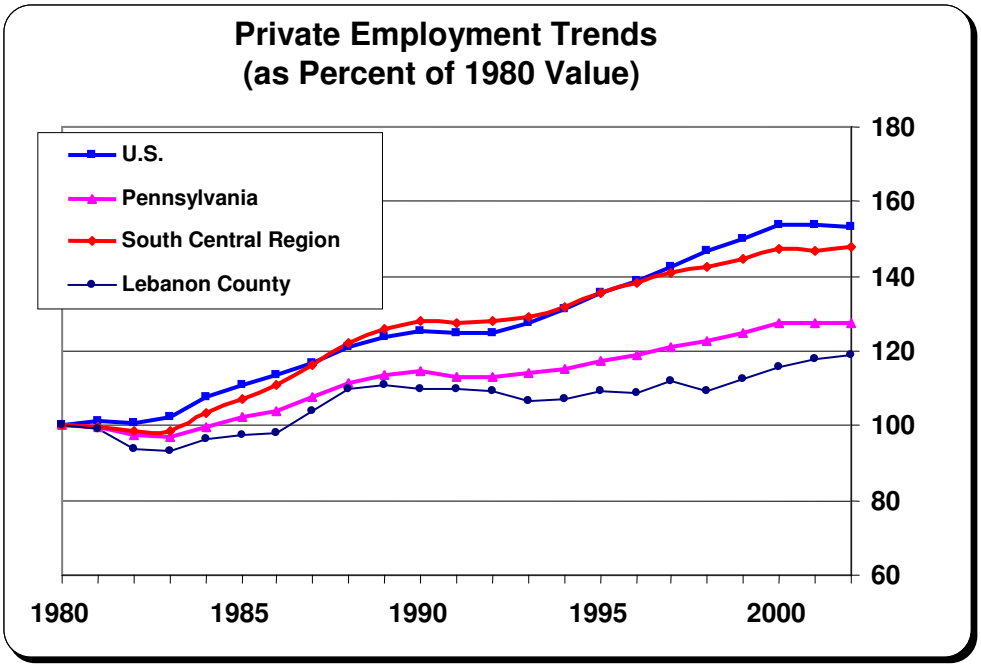
Source: Road to 2005, Center for Economic and Community Development, Penn State University, 2005.

Figure 3-3 Percent Change in Total Employment, 2001–2003



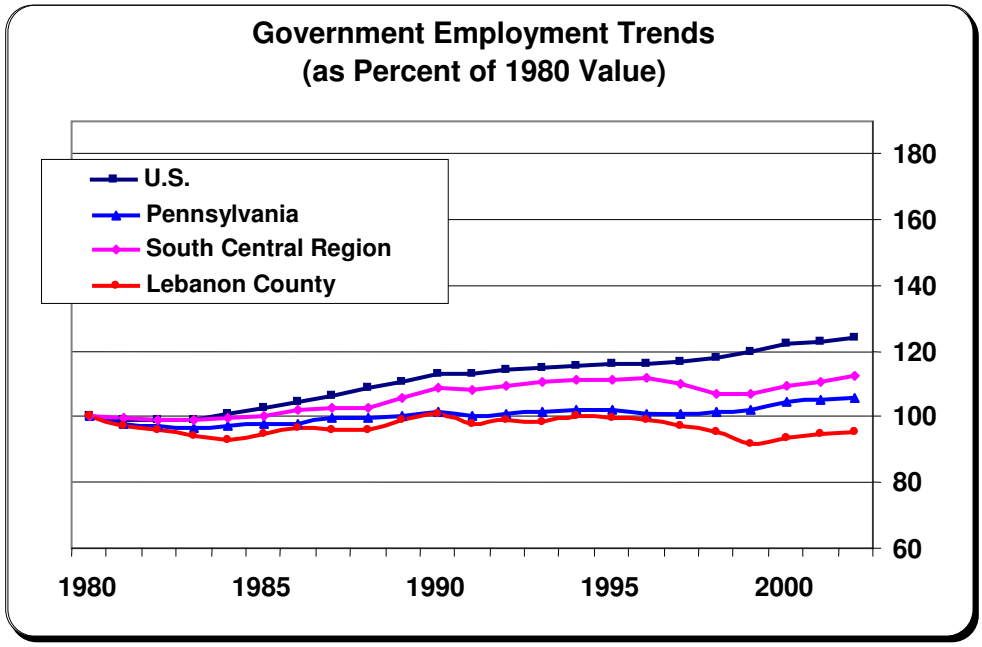
Source: Road to 2005, Center for Economic and Community Development, Penn State University, 2005.

Figure 3-4 Private Employment Trends



Source: US Bureau of Economic Analysis

Figure 3- 5 Government Employment Trends



Source: Bureau of Economic Analysis

Industrial Structure

The examination of Lebanon County's industrial structure begins with a snapshot look at employment and earnings in broadly defined sectors within the county. This assessment includes comparative figures for the region, the state, and the nation. A review of trends in manufacturing employment follows. The section concludes with a close-up view of more narrowly defined industrial categories that have special prominence in Lebanon County's economy. Readers interested in a better understanding of the makeup of these sectors are referred to Appendix A, which lists the industry categories in the North American Industrial Classification System (NAICS).

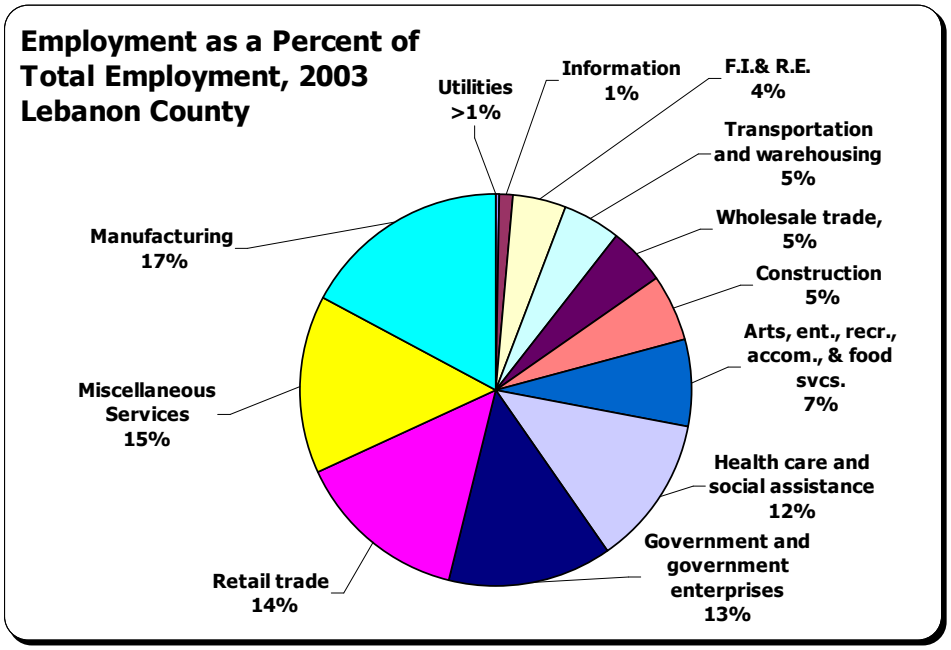
Employment and Earnings

Figures 3-6 and 3-7 depict the composition of Lebanon County's economy based on employment and earnings, respectively, based upon data available from the U.S. Bureau of Economic Analysis.

According to the Bureau of Economic Analysis, the following industries each comprised over 10% of total employment in the county in 2003 (Figure 3-6). This indicates a relatively diverse economy within the county.

- Manufacturing (17%)
- Miscellaneous Services other than health care and social assistance (15%)
- Retail trade (14%)
- Government and government enterprises (13%)
- Health care and social assistance (12%)

Figure 3-6 Employment as a Percent of Total Employment

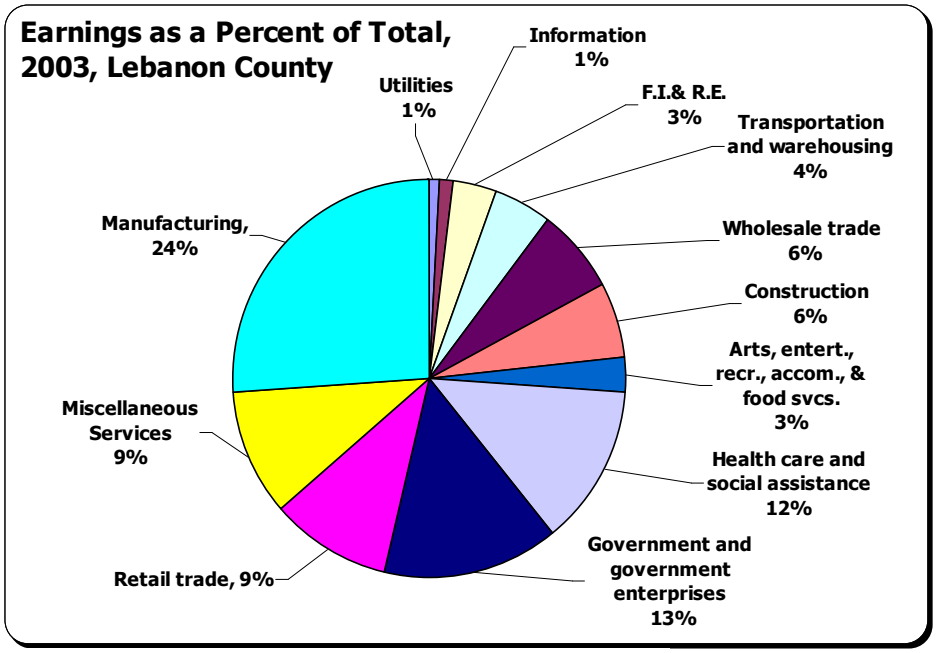


Source: US Bureau of Economic Analysis, REIS, Series CA25
Miscellaneous Services: services other than health and social assistance; includes education
F.I.&R.E: Finance, Insurance, Real Estate and Rental and Leasing
Arts, ent., recr., accom., & food svcs.: Arts, Entertainment, Recreation, Accommodations, & Food Services

The sheer number of jobs is only part of the picture. Some industries play a larger role in the economy by injecting more labor income, due to a higher rate of earnings per job. This higher earnings rate results from a combination of higher wages and higher average hours worked per job. Note that the employment figures do not distinguish between full- and part-time employments.

- When measured by earnings proportions, manufacturing takes on an even greater prominence, accounting for nearly one-fourth of all earnings in the county in 2003 (Figure 3-7). Not surprisingly, the retail trade and miscellaneous services (services other than health care and social assistance) decline in prominence when the measure changes from jobs to earnings due to higher proportions of part-time jobs and lower wages.

Figure 3-7 Earnings as a Percent of Total Earnings



Source: US Bureau of Economic Analysis, REIS, Series CA25.

Miscellaneous Services: services other than health and social assistance; includes education
F.I.&R.E: Finance, Insurance, Real Estate and Rental and Leasing
Arts, ent., recr., accom., & food svcs.: Arts, Entertainment, Recreation, Accommodations, & Food Services

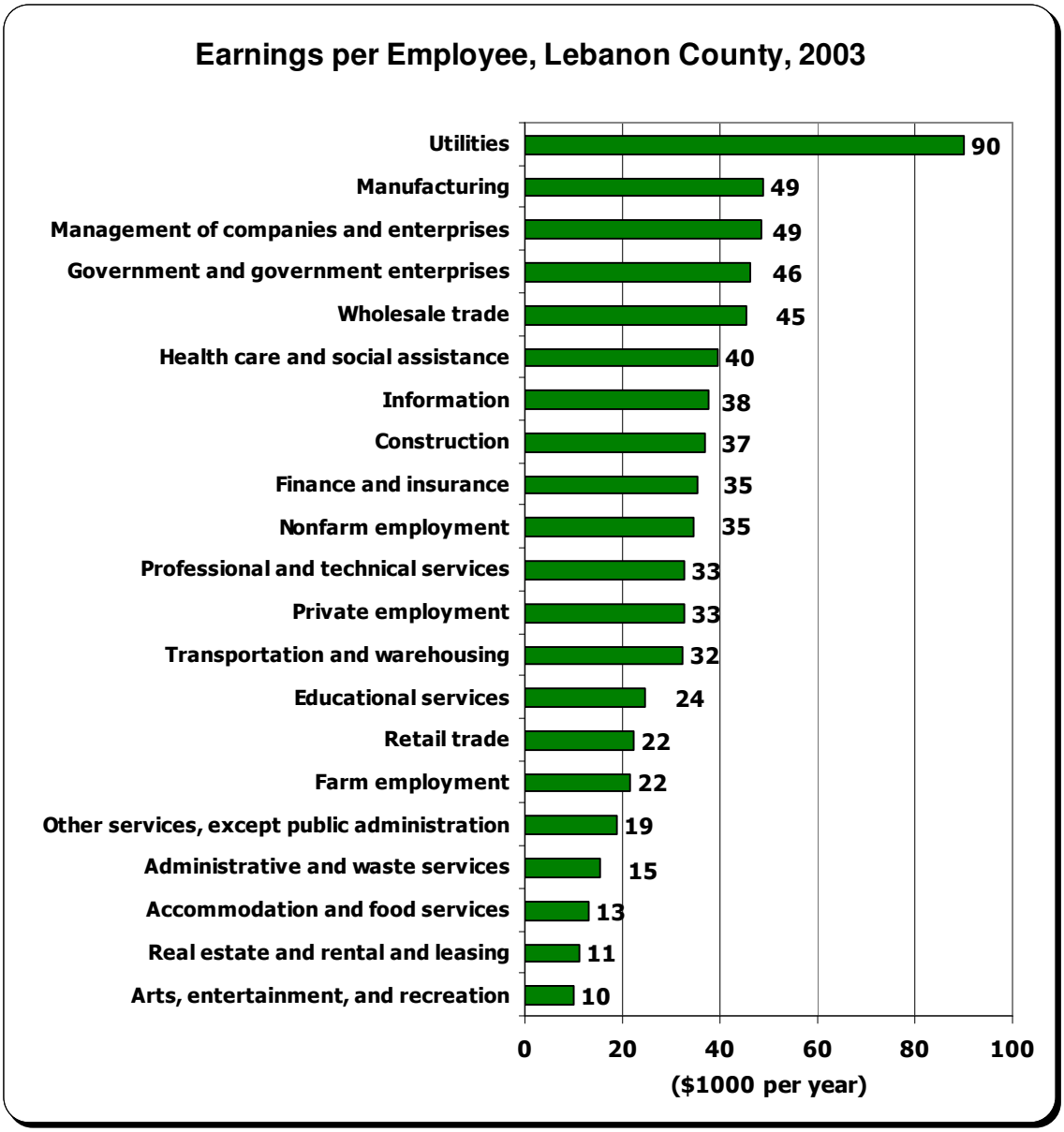
Figure 3-8 illustrates the differences between the previous two pie charts through earnings per employee comparisons.

- Top industries in terms of earnings per employee are utilities, manufacturing, wholesale trade, management, and government. Again, the prevalence of part-time work limits the use of this data to make hourly wage comparisons.

Figures 3-9 and 3-10 allow a comparison of non-farm industrial composition across geographies.

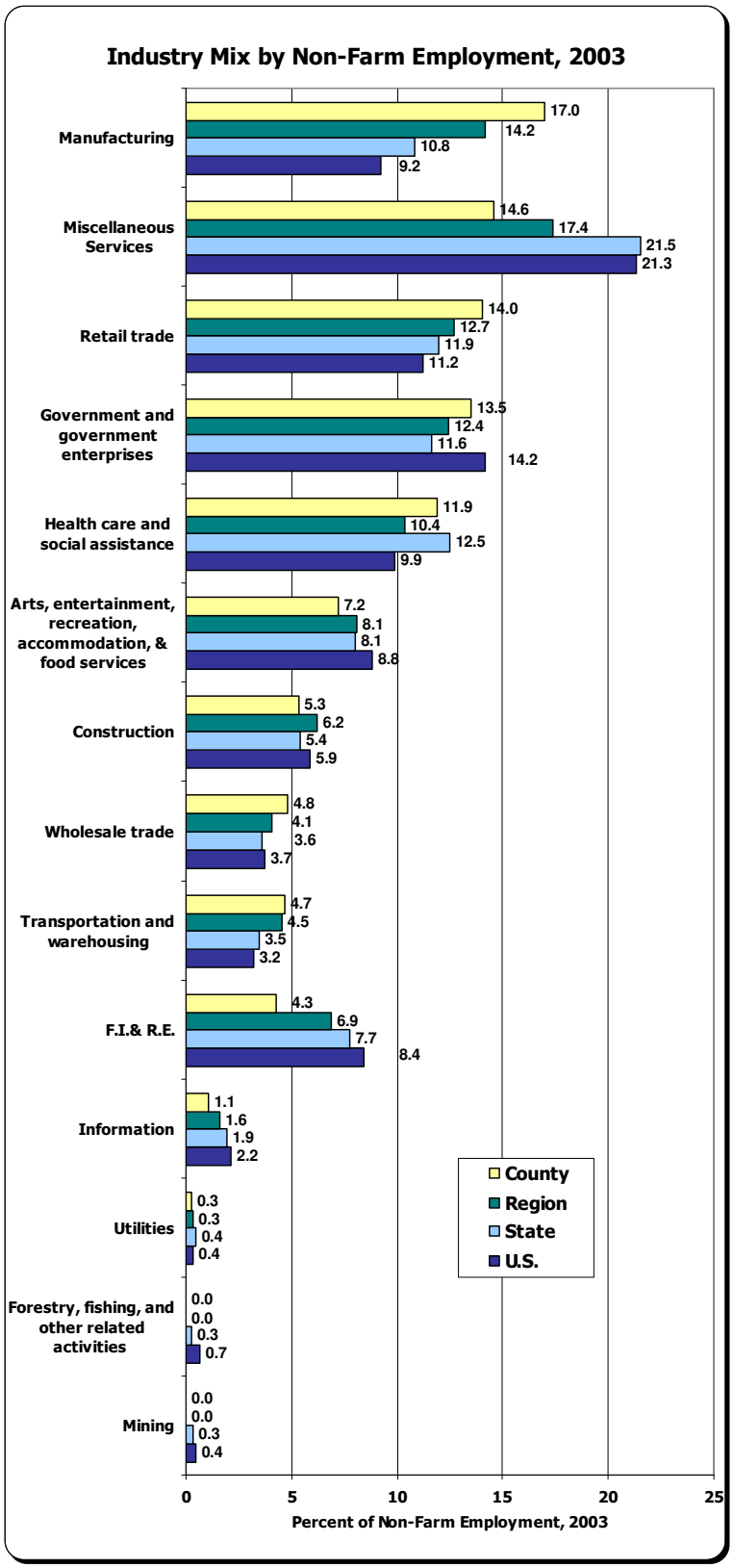
- With few exceptions, the economic compositions of the U.S., Pennsylvania, the south central region and Lebanon County are quite similar.
- Manufacturing, miscellaneous services, government, retail trade, health care and social assistance are the top sectors when measuring by proportion of total employment.
- The transportation and warehousing sector is more prominent in both Lebanon County and the region than at the state and national levels. On the other hand, the financial, insurance and real estate sector (FI&RE) is considerably less prominent in the county than at any of the other geographic levels.

Figure 3-8 Earnings per Employee



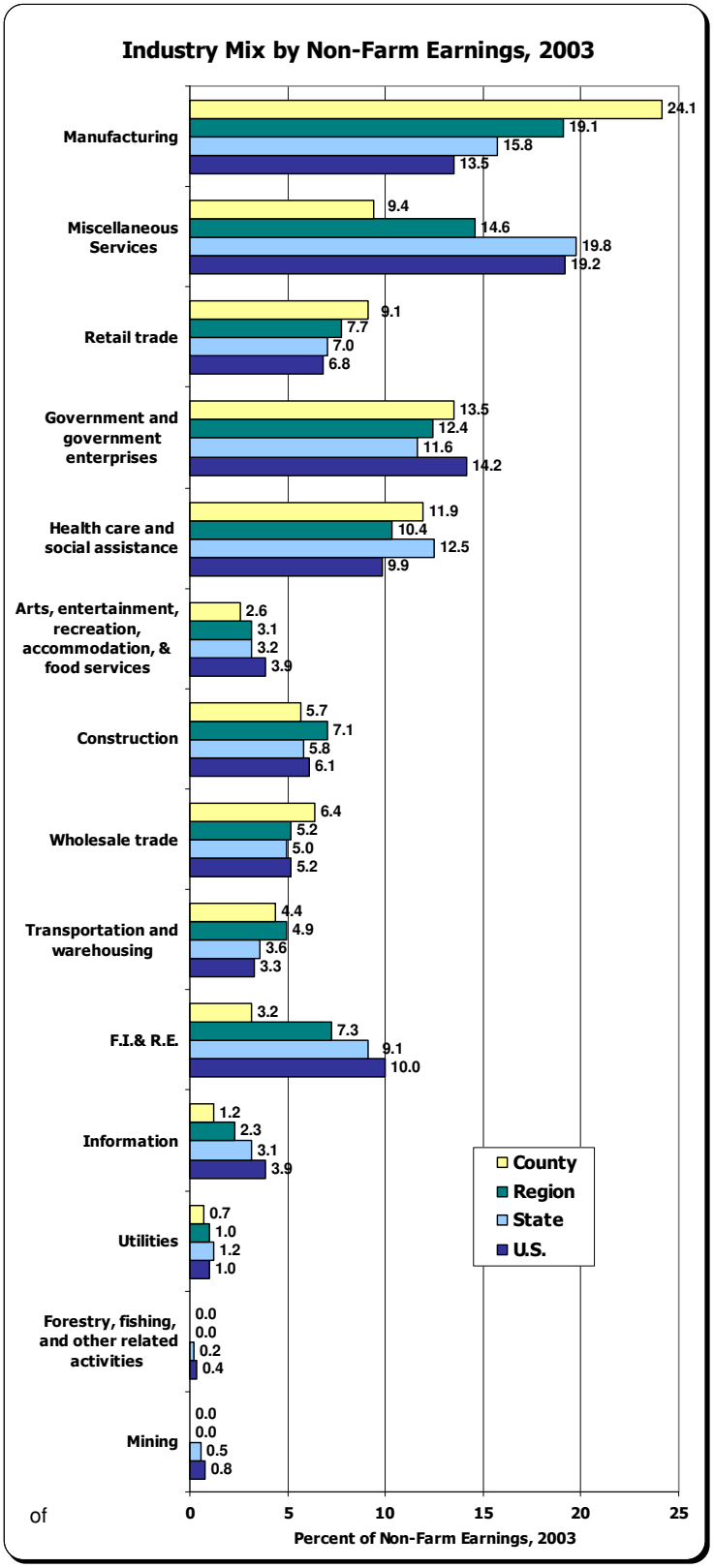
Source: US Bureau of Economic Analysis, REIS

Figure 3-9 Industry Mix by Non-Farm Employment



Source: Bureau of Economic Analysis

Figure 3-10 Industry Mix by Non-Farm Earnings



Source: Bureau of Economic Analysis

Earnings for Agriculture

Data for the forestry, fishing, and other related activities category and the mining category figures are not available at the regional and county levels due to disclosure policies and the fact that farming data is not included. Therefore, data from the 2002 Census of Agriculture provides some insight into the employment aspects of agriculture in Lebanon County.

- In 2002, there were 1,104 farms operating in Lebanon County, with a total market value of production of over $191,000,000. This places Lebanon County fifth among Pennsylvania counties.
- The average value of production per farm was $173,101 and the average net cash farm income from operations in 2002 was $45,649.
- Lebanon County ranks among the top five counties in Pennsylvania in the following agricultural production categories:
    - Value of livestock, poultry, and their products (3rd)
    - Value of sales by the following commodity groups:
        - Tobacco (5th)
        - Poultry and eggs (3rd)
        - Cattle and calves (5th)
        - Milk and other dairy products from cows (4th)
        - Hogs and pigs (2nd)
        - Aquaculture (5th)
    - Number of top livestock inventory items
        - Broilers and other meat-type chickens (3rd)
        - Layers 20 weeks old and older (3rd)
        - Turkeys (4th)
        - Hogs and pigs (2nd)
        - Cattle and calves (5th)
- According to the Center for Workforce Information and Analysis, annual average wages for farming, fishing, and forestry occupations was $24,297 in 2003.

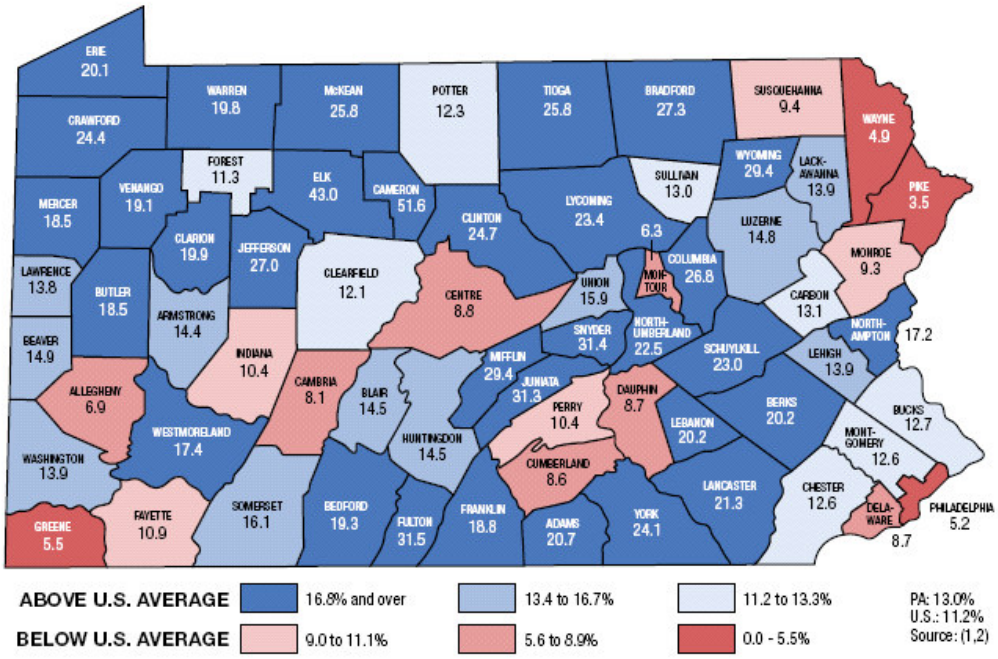
A Closer Look at Manufacturing

- Despite the closing of several large manufacturing companies in Lebanon County, manufacturing still plays a disproportionately large role in the county's economy.
- Pennsylvania and the south central region are very mixed with respect to the proportion of total employment in the manufacturing sector (Figure 3-11). Lebanon County is among the upper tier counties in the region as well as the state, and not as highly dependent on manufacturing as some other counties, such as Fulton (31.5%), Snyder (31.4%), and Juniata (31.3%).[2]
- Manufacturing employment demonstrated a slight decline in the county from 1980 to 2000 (Figure 3-12).[3] The decline was even more notable for the region overall and contrasts with an increase of over 20% in manufacturing jobs nationally.
- Non-manufacturing employment increased by over 40% in the county and by nearly 80% in the region (Figure 3-13).
- These manufacturing trends will likely continue with increased economic globalization.

[2] The percentages in each of the state maps are from the Bureau of Labor Statistics data, which excludes some public sector employment as well as a very limited amount of private sector employment that is not covered under the state unemployment insurance program. While somewhat different from other data presented in this profile, it is nonetheless useful for geographic comparisons.

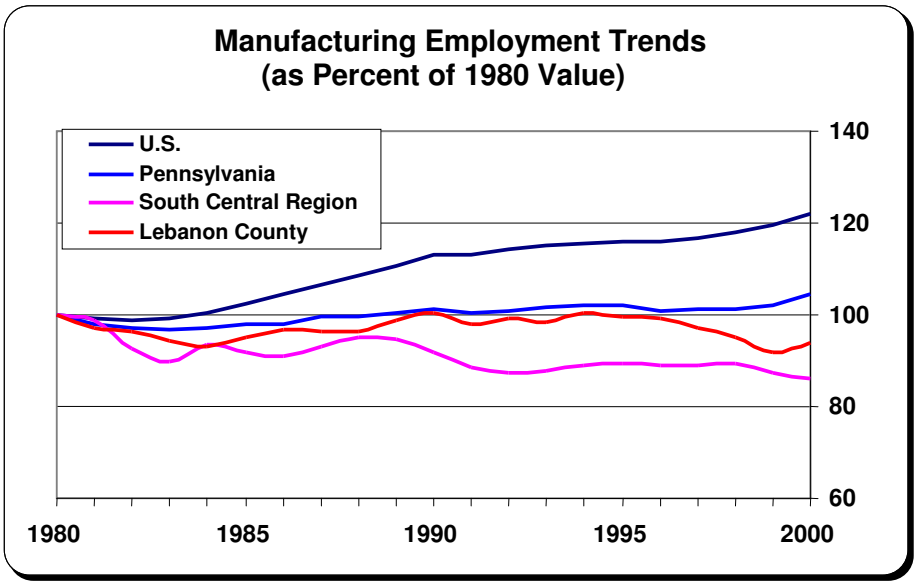
[3] A change in the industry classification system in 2001 makes it impossible to make reliable comparisons of data collected under the two systems.

Figure 3-11 Percent of County Employment in Manufacturing, June 2003



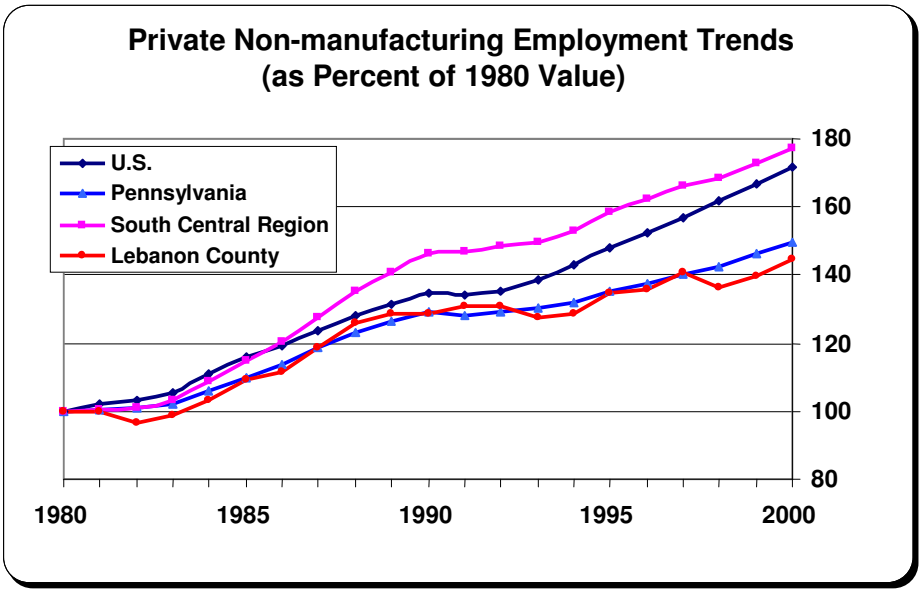
Source: Road to 2005, Center for Economic and Community Development, Penn State University, 2005.

Figure 3-12 Manufacturing Employment Trends, 1980–2000



Source: Bureau of Economic Analysis

Figure 3-13 Non-Manufacturing Employment Trends, 1980–2000



Source: Bureau of Economic Analysis

Detailed Sector Analysis of Economic Industries

The remaining analysis of the county's economy examines industries more closely at the "three-digit" level of the NAICS (North American Industrial Classification System).[4] The data are from the Bureau of Labor Statistics, and therefore exclude some public sector employment, as well as some industries not participating in the state unemployment insurance program.

Figure 3-14 depicts the percentage of total employment in each three-digit industry group for each industry with greater than one percent of total county employment and reveals a number of industries in which the county is not typical of the region overall.

- Food service jobs are prominent in both the county and regional private markets.
- Food manufacturing is also prominent in Lebanon County, with nearly 6% of employment (over 2,000 jobs) in the year 2003, followed closely by nursing and residential care facilities (5.2%). These figures were notably higher than the region.
- Among the manufacturing subsectors, fabricated metals and wood products manufacturing are notable, each with over 2% of employees in the county in 2003.

The following sectors are underrepresented in the county compared to the region: professional and technical services, administrative and support services, and specialty trade contractors. On the other hand, the county offers more employment than the region in wood products manufacturing, food manufacturing, nursing and residential care facilities, truck transportation, general merchandise stores, electronic markets and agents and brokers, among others.

While the data in Figure 3-14 are interesting, they more effectively characterize the county's economic strengths when placed in the context of earnings. Figure 3-15 illustrates this comparison in terms of location quotients. The location quotient allows a comparison of Lebanon County's economy to the United States economy by calculating the ratio of the category's percentage of employment in Lebanon County to its percentage of employment in the United States. Industries with a location quotient greater than one are more highly represented in the county than they are in the nation. A location quotient well over one suggests that the county "specializes" in that industry. Traditionally, a location quotient over one indicates that the industry is likely one in which the specified geography exports product outside its borders, providing a source of income coming *into* the region.

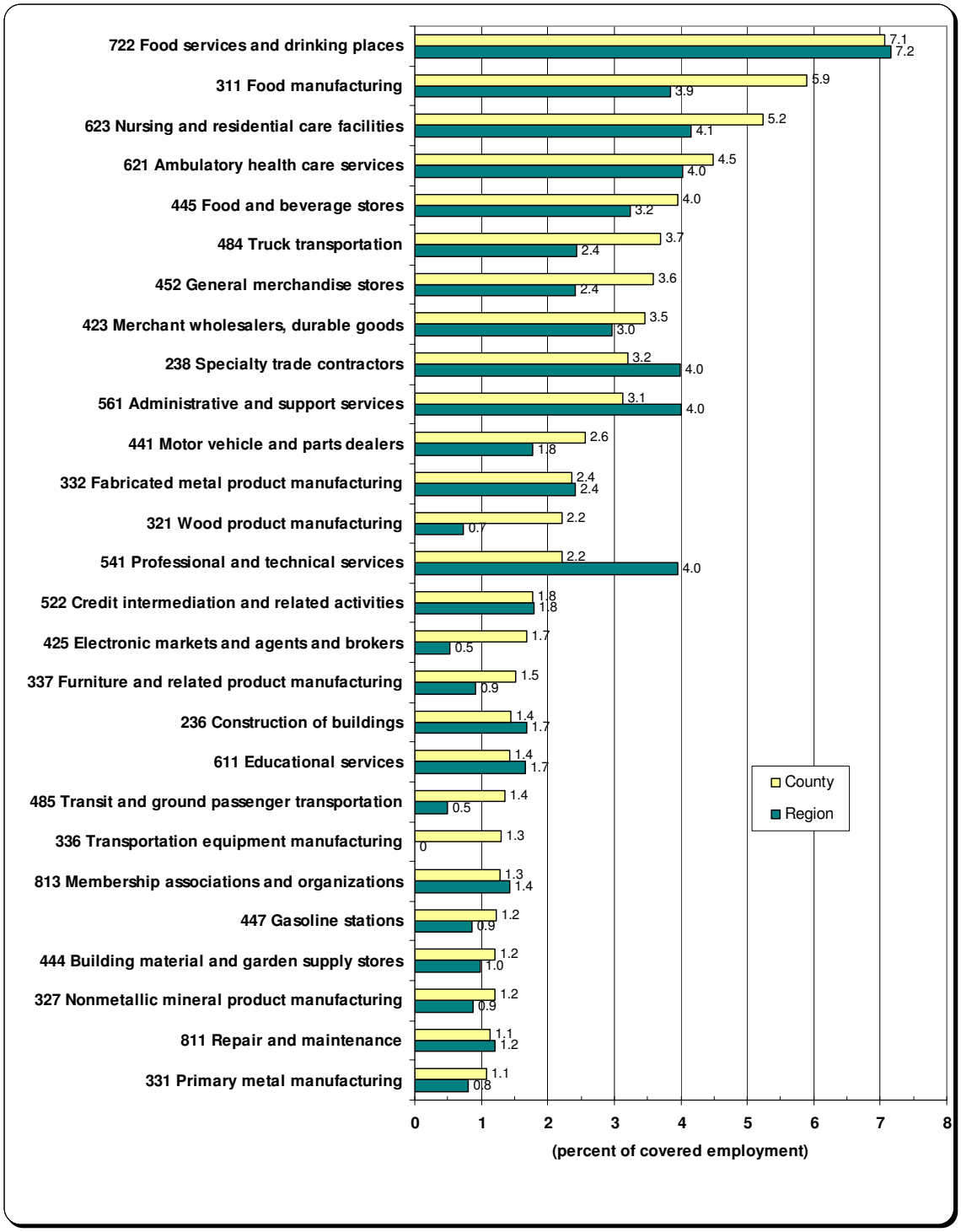
[4] More information on the NAICS can be found at the U.S. Department of Labor, Bureau of Labor Statistics website, http://www.bls.gov/bls/naics.htm.

- Based on location quotients, the top two industries in the county are wood product manufacturing and food manufacturing, both with a percentage of total employment that is over four times higher than in the nation. Weaber Inc., Farmer's Pride/Bell Evans, ASK Foods, and others contribute these economic specialties.
- The county also shows specialization in a number of other manufacturing sectors, including furniture and related products, nonmetallic mineral products, primary metals, and apparel. High location quotients in manufacturing sectors are not surprising, as manufacturing typically exports its products.

Note that an industry may comprise a minor percentage of the county's economy yet still have a high location quotient. That is, the location quotient measures specialization, not prominence in the economy. Industries that are especially important to the county economy—that are high in both employment and location quotient—include:

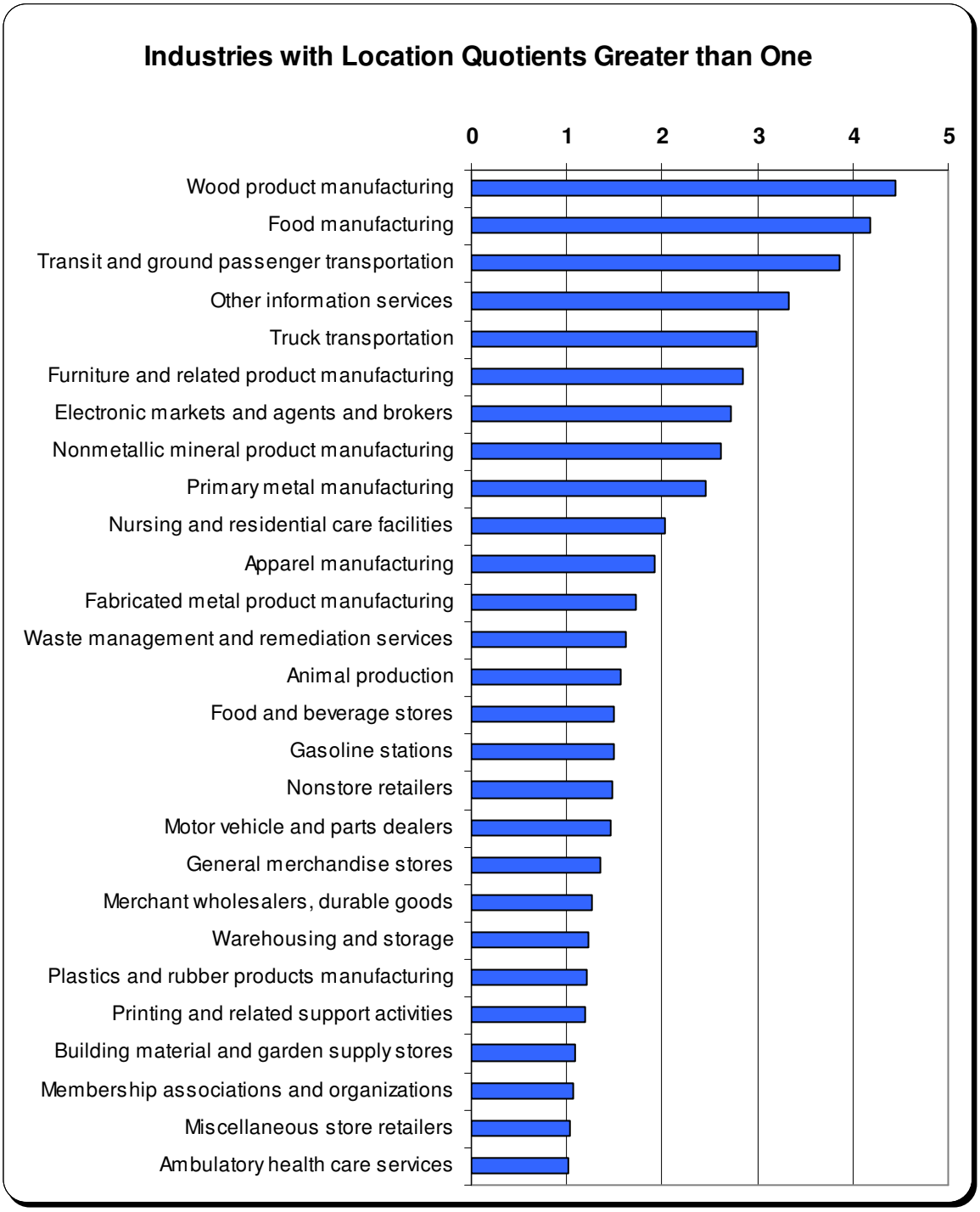
- Food manufacturing, likely resulting from the strong agricultural presence in the region, coupled with its strategic location to the consumer markets of the middle Atlantic region.
- Truck transportation, reflecting Lebanon County's strategic location for goods movement and availability of land for logistics facilities such as warehouses and break-bulk facilities.
- Nursing and residential care facilities, partially attributable to the presence of the regional Veterans Administration hospital, one of the top ten county employers.

Figure 3-14 Top Industries in Lebanon County and the Region by 3-Digit NAICS code, 2003



Source: US Bureau of Labor and Statistics, Location Quotient Calculator
Note: Includes only employment covered under state unemployment insurance laws.

Figure 3-15 Industries in Lebanon County with Location Quotient Greater than One



Source: US Bureau of Labor and Statistics, Location Quotient Calculator
Note: Includes only employment covered under state unemployment insurance laws.

Table 3-1 presents location quotients for Lebanon County along with its five neighboring counties and Cumberland County. It allows an evaluation of how Lebanon County compares to its neighbors in the each of the subsectors listed above, helping to indicate whether the county has a distinctive specialty or is part of a regional specialization. .

Table 3-1 Location Quotients, Select Regional Counties, 2004

NAICS	Industry	Lebanon	Berks	Lancaster	Dauphin	York	Cumb.	Schuyl.
311	Food manufacturing	4.6	1.9	3.1	2.7	2.4	1.1	1.5
623	Nursing and residential care facilities	2.0	1.3	1.9	1.2	1.4	1.3	1.7
484	Truck transportation	2.8	1.2	1.1	1.2	1.4	4.8	1.6
332	Fabricated metal product manufacturing	1.8	1.4	2.6	0.8	2.4	0.5	1.7
321	Wood product manufacturing	4.4	0.6	1.9	0.3	0.9	0.2	5.7
425	Electronic markets and agents and brokers	2.8	0.6	0.7	1.0	0.5	0.9	0.4
337	Furniture and related product manufacturing	3.2	1.0	3.0	0.2	2.0	0.1	ND
325	Chemical manufacturing	2.1	0.9	0.8	ND	0.4	0.0	1.5
485	Transit and ground passenger transportation	3.8	1.6	1.3	0.7	1.7	0.9	1.9
447	Gasoline stations	1.6	1.0	0.8	0.8	1.1	1.1	1.6
327	Nonmetallic mineral product manufacturing	2.5	1.2	1.3	0.7	2.3	1.7	1.2
493	Warehousing and storage	1.8	1.1	3.2	2.0	1.5	9.4	6.2
331	Primary metal manufacturing	2.0	7.1	3.0	1.3	2.1	0.7	7.4
562	Waste management and remediation services	1.8	1.4	0.7	0.4	0.9	0.8	0.9
315	Apparel manufacturing	1.9	1.8	2.0	ND	2.2	ND	11.9
112	Animal production	1.7	1.2	3.7	0.3	0.3	0.6	1.8
519	Other information services	3.0	ND	2.1	ND	2.0	2.9	3.0

Source: U.S. Bureau of Labor Statistics, 2006.

Note: ND = No Data

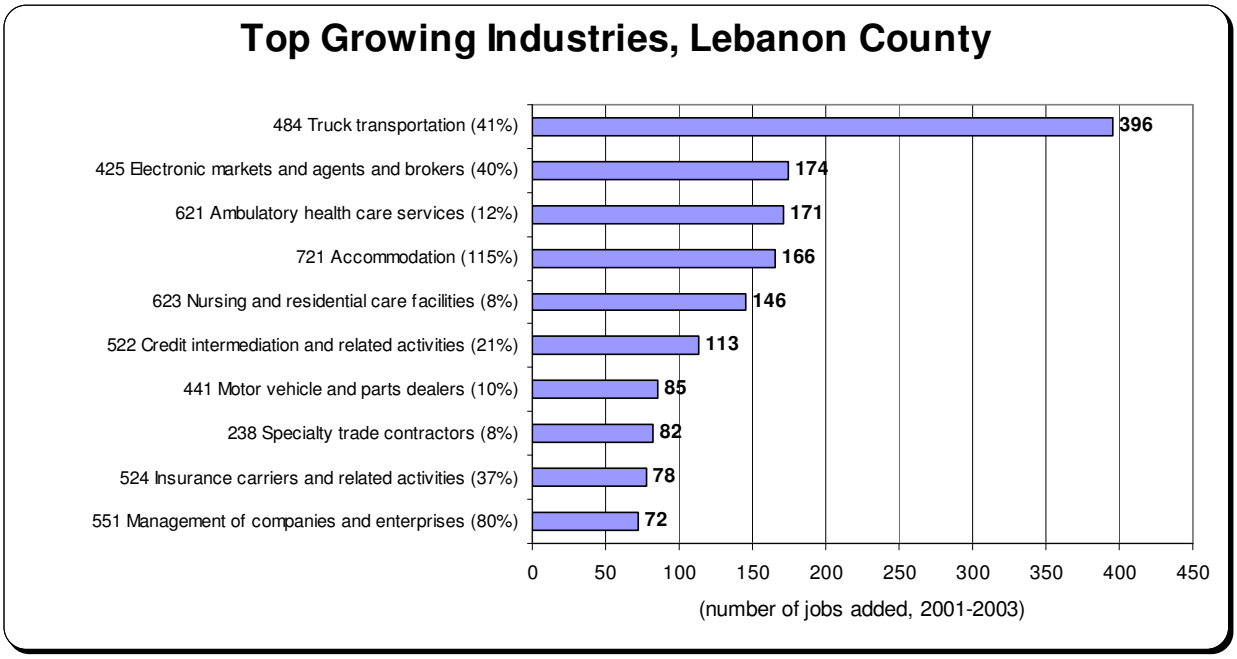
Growing and Declining Industries

An examination of the county's industrial structure concludes with a look at industries that are notable in terms of gains or losses in jobs in recent years, 2001-2003. Figure 3-16 depicts the recent top-growing private industries, measured in terms of the increase in number of employees.

- Truck transportation tops the list of recent top-growing private industries, adding nearly 400 jobs, an increase of 41% in just two years. Electronic markets and agents and brokers, represented by Internet, system networking, and web hosting service providers such as Comcast, Evenlink, Pipeline Communications, and Kingdom Computers, ranked second, adding fewer total jobs (174) to its employment but growing at a similar rate.
- The increases in truck transportation and in electronic markets and agents and brokers are particularly notable because these are industries important to the county's economy in terms of having a high location quotient. That is, the county is both specializing and increasing in these industries.
- The growth in these industries is especially good news, considering the relatively high average wages of jobs in these industries.

- The growth in accommodations is impressive in absolute numbers and on a percentage basis; employment in this industry more than doubled in the past two years. On the other hand, its wages are among the lowest of industries for which wage data are available.
- Management of companies and enterprises added only 72 jobs from 2001-2003, but this was a notable 80% increase in total employment in this sector.

Figure 3-16 Top Growing Industries in Lebanon County, 2001–2003

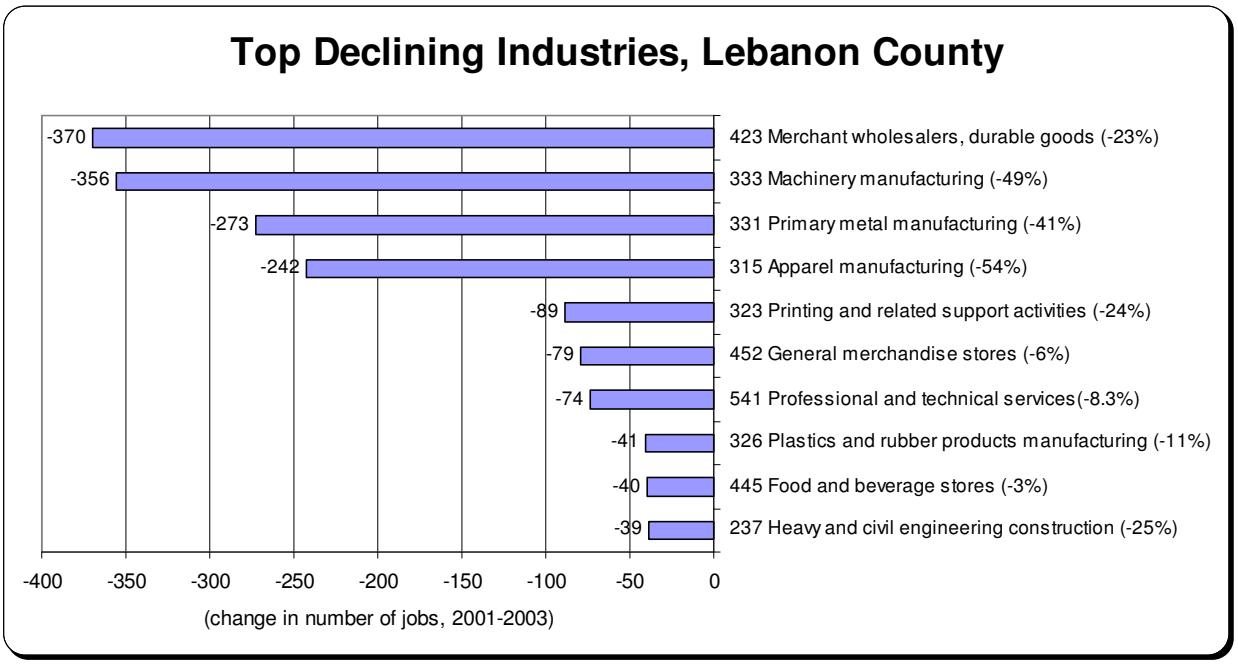


Source: U.S. Bureau of Labor Statistics, Location Quotient Calculator
Note: Includes only employment covered under state unemployment insurance laws.

A look at declining industries illustrates where the county may have some cause for concern. (See Figure 3-17).

- The largest absolute decline was in durable goods wholesalers. These businesses lost nearly 1 in 4 jobs.
- Large absolute declines (more than 240 jobs) and the three largest percentage declines (41% to 54% declines) were in three manufacturing sectors: apparel, machinery, and primary metals. Together, the county lost nearly 900 jobs in these three manufacturing industries in the two-year period. Apparel and primary metals are important to the county's export base in that they have high location quotients (Figure 3-15). On the other hand, none of these three industries individually contributes a substantial proportion of total county employment.

Figure 3-17 Top Declining Industries in Lebanon County, 2001–2003



Source: U.S. Bureau of Labor Statistics, Location Quotient Calculator
Note: Includes only employment covered under state unemployment insurance laws.

Table 3-1 summarizes the top industries by location quotient, employment growth trends, and wages.

- Truck Transportation is a star performer in terms of its high rank across categories: good wages, a substantial proportion of total employment, and phenomenal employment growth in recent years. The county's prime location in terms of the interstate highway and rail transportation networks make it poised for continued high growth in this industry.
- The other high wage industries, namely wood products and primary metals manufacturing, are important employers in terms of number of employees and wages, but have seen a decrease in employment in recent years.

Table 3-2 Wage and Growth Comparisons of Top Industries in Lebanon County, 2003

Industrial Classification (NAICS Code)	Location Quotient	% of Total Employment	Average Weekly Wage, 2nd Quarter 2004		Employment Change 2001–2003	
			$	Rank	#	%
321 Wood Products Mfg.	4.4	2.2	$708	10	-9	-1.1
311 Food Mfg.	4.2	5.9	$523	30	26	1.2
485 Transit and Ground Passenger Transportation	3.9	1.4	$263	54	9	1.8
484 Truck Transportation	3	3.7	$674	14	396	41.0
337 Furniture and Related Mfg.	2.9	1.5	$548	26	28	5.3
425 Electronics Markets and Agents	2.7	1.7	$614	20	174	39.1
327 Non-metallic Minerals Mfg.	2.6	1.2	$611	21	-29	-6.1
331 Primary Metals Mfg.	2.5	1.1	$623	19	-273	-40.6
623 Nursing and Residential Care	2	5.2	$442	38	146	8.2
332 Fabricated Metals Manufacturing	1.7	2.4	$772	8	-31	-3.4

Source: US Bureau of Labor and Statistics' Pennsylvania Center for Workforce Information and Analysis

Occupational Wages and Family Sustainability

Average occupational wages in the Lebanon Metropolitan Statistical Area (MSA), the smallest level available, are significantly lower than for the Harrisburg-Carlisle MSA, the Commonwealth as a whole, and the U.S. According to the Bureau of Labor Statistics, the average hourly wage across all occupations in the county was $15.75. This is approximately 87% of both the Harrisburg-Carlisle MSA and Pennsylvania's averages of $18.20 and $18.07, respectively and 83% of the U.S. average. As shown in Table 3-3, there are only seven occupational categories in the Lebanon MSA that have average wages that exceed those of the Harrisburg-Carlisle MSA, and only five that exceed the Pennsylvania and U.S. averages. Management occupations command the highest average wage in the Lebanon MSA - $31.99; however, this is less than averages wages for Harrisburg-Carlisle ($40.20), Pennsylvania ($41.81), and the U.S. ($44.20). Food preparation and Serving Related Occupations have the lowest average wage, $8.62, which is comparable to each of the comparison geographies.

Table 3-3 Comparison of Average Hourly Wages for Lebanon MSA - May 2006

Occupation	Average Hourly Wages Reported May 2006				Lebanon MSA Wages as a % of		
	Lebanon MSA	Harrisburg-Carlisle MSA	PA	US	Harrisburg-Carlisle MSA	PA	US
Total All Occupations	**$15.75**	**$18.20**	**$18.07**	**$18.84**	**86.5%**	**87.2%**	**83.6%**
Management	$31.99	$40.20	$41.81	$44.20	79.6%	76.5%	72.4%
Business and Financial Operations	$23.64	$26.46	$27.55	$28.85	89.3%	85.8%	81.9%
Computer and Mathematical	$25.20	$30.07	$30.85	$33.29	83.8%	81.7%	75.7%
Architecture and Engineering	$26.00	$28.09	$30.50	$31.82	92.6%	85.2%	81.7%
Life, Physical, and Social Science	$26.36	$26.01	$26.90	$28.68	101.3%	98.0%	91.9%
Community and Social Services	$18.86	$18.03	$17.04	$18.75	104.6%	110.7%	100.6%
Legal	$22.53	$34.23	$36.13	$41.04	65.8%	62.4%	54.9%
Education, Training, and Library	$21.97	$22.61	$22.96	$21.79	97.2%	95.7%	100.8%
Arts, Design, Entertainment, Sports, and Media	$15.70	$20.07	$19.22	$22.17	78.2%	81.7%	70.8%
Healthcare Practitioner and Technical	$27.06	$27.41	$28.18	$29.82	98.7%	96.0%	90.7%
Healthcare Support	$11.85	$11.77	$11.58	$11.83	100.7%	102.3%	100.2%
Protective Service Occupation	$18.50	$17.81	$17.55	$17.81	103.9%	105.4%	103.9%
Food Preparation and Serving Related	$8.62	$8.62	$8.56	$8.86	100.0%	100.7%	97.3%
Building and Grounds Cleaning and Maintenance	$10.42	$10.67	$10.98	$10.86	97.7%	94.9%	95.9%
Personal Care and Service	$9.26	$10.86	$10.32	$11.02	85.3%	89.7%	84.0%
Sales and Related	$14.57	$16.36	$16.15	$16.52	89.1%	90.2%	88.2%
Office and Administrative Support	$13.10	$14.56	$14.02	$14.60	90.0%	93.4%	89.7%
Farming, Fishing, and Forestry	$14.98	$14.27	$11.79	$10.49	105.0%	127.1%	142.8%
Construction and Extraction	$18.17	$18.12	$19.65	$18.89	100.3%	92.5%	96.2%
Installation, Maintenance, and Repair	$17.41	$18.77	$18.36	$18.78	92.8%	94.8%	92.7%
Production	$14.26	$15.79	$15.21	$14.65	90.3%	93.8%	97.3%
Transportation and Material Moving	$12.44	$14.05	$13.95	$14.16	88.5%	89.2%	87.9%

Source: Bureau of Labor Statistics; Occupational Employment Statistics, 2006

The 2006 Self Sufficiency Standard for PA[5] report helps put occupational wage data into the context of family sustaining wages. The report is completed annually for PathwaysPA, an organization that helps low income women, teen, children, and families achieve economic independence and family well-being. Self-sufficiency wages, the wages required to meet basic needs without public assistance or private help, are established by identifying real costs for each of Pennsylvania's 67 counties and linking them to 70 different family configurations. Included in the calculation are the following costs: housing, child care, food, transportation, health care, miscellaneous expenses, and taxes. Also included in the calculations are Earned Income Tax Credits, Child Care Tax Credit, and the Child Tax Credit. According to the report, a family of five living in Lebanon County with one working adult, one stay-at-home adult, and three children (infant, preschooler, school age) would need an annual income of $45,265 or an hourly wage of $21.43.

Table 3-4 compares the Self Sufficiency Wages for each of the counties in the region for two different family types. As shown, Lebanon families need less than Berks, Cumberland, Dauphin, and Lancaster families for both family types, and more than Adams, Franklin and York families. Perry County families with two working adults need more than Lebanon County families; however, families with one working adult in Perry County actually need less than Lebanon County families. While this data reflects lower costs of living in the county, when compared to occupational wages in the county, there are only eight occupational categories in Lebanon County that provide sustainable wages for a family of five with one working adult: management; business and financial operations; computer and math; architecture and engineering; life, physical, and social science; legal; education, training, and library; and healthcare practitioner and technical occupations. These occupations are among the targeted clusters discussed in the next section. With both parents working and only two children, there are only two occupational categories that do not pay enough for that family to be self sufficient: food preparation and serving related, and personal care and service.

Table 3-4 Comparison of Self Sufficiency Wages

County	Self Sufficiency Wages for			
	Family with Two Working Adults w/ 2 Children (preschooler and school age)		Family with One Working Adult and One Stay-at-Home Adult w/ 3 Children (infant, preschooler, and school age)	
	Annual	Hourly per Adult	Annual	Hourly per Adult
Adams	$38,029	$9.00	$42,401	$20.08
Berks	$42,113	$9.97	$47,679	$22.58
Cumberland	$45,457	$10.76	$50,496	$23.91
Dauphin	$43,704	$10.35	$48,552	$22.99
Franklin	$34,838	$8.25	$38,758	$18.35
Lancaster	$42,885	$10.15	$47,325	$22.41
Lebanon	$39,855	$9.44	$45,265	$21.43
Perry	$39,989	$9.47	$43,442	$20.51
York	$31,500	$7.34	$39,593	$18.75

Source: The Self Sufficiency Standard for PA, May 2006

Potential Target Industry Clusters for Lebanon County

The identification of industries that would make the best targets for support and recruitment efforts in Lebanon County began with a brief review of existing industry and industry cluster lists identified in several recent statewide studies, which are summarized below. In addition, several regional and local studies were reviewed, including Berks County's Initiative for a Competitive Greater Reading and the Lancaster County Blue Ribbon Commission on Agriculture. Additional information from this profile, particularly information provided by the Lebanon Valley Economic Development Corporation has also been used. The results of the analyses are summarized and grouped according to the nine "targeted industry clusters and sub-

[5] "The Self Sufficiency Standard for PA", Diana Pearce, May, 2006.

clusters" identified by the Department of Labor and Industry. A summary table of recommended clusters for Lebanon County can be found on page 31.

Precedent Studies for Target Industry Analysis

1. Pennsylvania Department of Labor and Industry: Targeted Industry Clusters

The Department of Labor and Industry's Targeted Industry Clusters report (2004) identifies nine major cluster groupings for which the Department intends to focus its workforce development efforts. The study defines an industry cluster as "a group of industries that are closely linked by common product markets, labor pools, similar technologies, supplier chains, and/or other economic ties" (p.2). The clusters were selected as ones in which Pennsylvania has both a competitive advantage and the potential for long term economic and employment growth. The nine target clusters, along with sub-clusters of significance, are listed below.

- Life Sciences – Bio-medical and Health Care Sub-Clusters
- Business and Financial Services
- Education
- Advanced Materials and Diversified Manufacturing – Chemicals, Rubber and Plastics, Electronics, Metals and Metal Fabrication, Printing, and Vehicle and Vehicle Equipment Sub-clusters
- Building and Construction
- Agriculture and Food Production – Food Processing Sub-Cluster
- Information and Communication Services
- Logistics and Transportation
- Lumber, Wood and Paper

2. Pennsylvania Department of Community and Economic Development, et al.: Manufacturing Pennsylvania's Future

The Department of Community and Economic Development, the Industrial Resources Centers of Pennsylvania, and the Team PA Foundation commissioned a study of the state's manufacturing industries in 2004. ***Manufacturing Pennsylvania's Future: Regional Strategies that Build from Current Strengths and Address Competitive Challenges***, prepared by Deloitte Consulting in 2004, consisted of a detailed examination of the state's manufacturing industries. It uses a statistical analysis to identify "driver" industries and groups industry clusters by these drivers. The study also includes research on the market position of the driver industries and their distinctive needs, as well as an evaluation of the functioning and performance of the Industrial Resource Centers, including the Manufacturers Technology Center (MANTEC), which serves small and mid-sized manufacturers in south central Pennsylvania.

The study identified fourteen industries as "drivers" in MANTEC's service region of south central Pennsylvania, listed from highest to lowest regional sales output. Those industries with high sales (productivity) and a relatively high output location quotient were classified as "drivers" and are listed below.

- Pharmaceuticals
- Printing
- Sugar and Confectionary Products
- Plastics
- Agriculture, Construction and Mining Machines
- Architectural and Structural Metals
- Bakeries and Pasta
- Other Electrical Equipment and Components
- Paper
- HVAC and Refrigeration Equipment
- Beverages
- Electric Lighting Equipment
- Other Food
- Fruit and Vegetable Preserving and Specialty Foods

3. Center for Rural Pennsylvania: Rural Pennsylvania in the New Economy

A 2001 study sponsored by the Center for Rural Pennsylvania examined the causes of economic growth in Pennsylvania's rural areas and translated the findings to policy recommendations and an identification of industries that offer growth potential for rural areas of Pennsylvania. The industries listed below are ones in which employment grew faster in comparative rural areas of the US than nationally, and faster nationally than in rural Pennsylvania. Only four of the industries listed are typical "export" industries, namely miscellaneous manufacturing, accommodations, food and kindred products, and insurance carriers. However, growth in the other predominantly local serving industries may still help rural economies by

filling unmet local demand and thereby reducing spending leakages out of the area. The report cautions that the industries should be seen as a starting point for further investigation, not as targets.

- Amusement and Recreation
- Business Services
- Holding and Other Investment Offices
- Specialty Construction Trades
- Home Furniture, Furnishings, and Equipment Stores
- Heavy Construction (other than building)
- Automotive Dealers and Service Stations
- Miscellaneous Manufacturing Industries
- Accommodations
- Food and Kindred Projects
- Insurance Carriers

4. Pennsylvania Department of Community and Economic Development: The Global Competitiveness Initiative

The Department of Community and Economic Development commissioned an extensive study of the competitive position of Pennsylvania and its eleven economic regions in terms of their ability to attract industry in eleven selected subsectors. The orientation of the study is toward large investments of global capital for which the Governor's Action Team should be prepared to make the most effective marketing and recruitment efforts. As such, the study may exclude some subsectors that are nonetheless an important component of the region's economic future, particularly homegrown industries, regional market serving industries, and industries that tend to have relatively modest scale capital investments. Lebanon County falls into two of the study regions: Harrisburg ("south central") and Lancaster-Reading. The findings for the regions in the subsectors are summarized in Table 3-5. Each subsector is assigned to an upper, mid, or lower competitiveness tier, based on the study region's score in for qualitative location factors (general business environment, workforce skill and availability, presence of industry cluster, flexibility of labor and relations, infrastructure, availability of real estate and quality if life) and costs (labor, real estate, utilities, and taxes), when compared to other locations in the U.S. and abroad,. In some subsectors, overseas locations were not examined because the facilities in the subsector were only considering a North American location. If the study teamed deemed the region non-competitive for a subsector, the competitiveness ranking is replaced with a dashed line.

Table 3-5 Global Competitiveness Initiative Subsector Study Results

Cluster	Subsector	Competitiveness (Tier)			
		Harrisburg		Lancaster-Reading	
		Quality	Cost	Quality	Cost
Life Science	Bio-Pharmaceutical Mfg.	Lower	MID	Lower	MID
	Biotechnology Research	Lower	UPPER	Lower	UPPER
	Medical Equipment & Devices	MID	MID	--	--
High Technology	Next Generation Electronics	Lower	UPPER	Lower	UPPER
	Alternative Energy	--	--	MID	MID
Advanced Manufacturing & Materials	Powdered Metals	Lower	MID	--	--
	Agro-food Processing	UPPER	Lower	UPPER	MID
	Pre-fabricated Housing	--	--	UPPER	MID
Business Services	Creative Industries	--	--	--	--
	Regional Headquarters	Lower	UPPER	--	--
	Financial Services	Lower	UPPER	--	--

Source: Pennsylvania Department of Community and Economic Development, 2006, "Pennsylvania, A World Class Economy", a Global Competitiveness Initiative Presentation prepared for the Lebanon County Planning Department, June 5, 2006.

A second study phase, currently underway, includes an evaluation of the state's and region's competitive positions in the following additional eleven subsectors:

- Wind generator components
- Wind turbine rotors
- Solar energy panels
- Waste coal-fired power
- Biofuel manufacturing
- Advanced medical devices
- Financial services/back office operations
- Tooling and metal fabrication
- Fine chemicals
- Engineering and defense
- Printing and publishing

5. The "Smart Market"

The South central Pennsylvania Smart Market is a cooperative regional branding initiative meant to market the region as an attractive location to site a business. The Smart Market website states that the region has world class resources to serve the following business clusters:

- Advanced Materials and Diversified Manufacturing
- Plastics
- Printing
- Biotechnology and Life Sciences
- Information and Communication Technology
- Business and Financial Services
- Food Processing and Agribusiness
- Logistics
- Technology Solutions and Support

6. Lebanon Valley Economic Development Corporation (LVEDC) - Target Industries for Business Attraction

In 2006, the LVEDC established a list of industries and clusters to target in the near to medium term in its business marketing efforts. The following industries and clusters were selected as those for which the Lebanon Valley has a comparative advantage:

- Agriculture and Food Products
- Construction Materials
- Plastic Products
- Pharmaceuticals
- Metal Products
- Paint and Ink

Cluster and Sub-cluster Analysis and Recommendations

The following discussion is a more detailed examination of each of the clusters and sub-clusters listed in the Department of Labor and Industry's target cluster report. Each cluster is evaluated and ends with conclusions regarding its suitability as an economic development target for Lebanon County. The summary table of recommendations is found on page 31.

Advanced Materials and Diversified Manufacturing Cluster

This cluster includes nearly all durable goods manufacturing, as well as several non-durable goods industries. The Department of Labor and Industry does not include food products, lumber and wood products, wooden furniture, and pharmaceuticals in this cluster. Despite statewide employment declines in this cluster, it is nonetheless critical to the health of state and county economies due to its high wages and the fact that sales of its products serve as an export base, bringing money from outside into the state and local economies. This cluster will be examined in terms of four specific sub-clusters.

1. The chemicals, rubber, and plastics sub-cluster includes manufacturers of a wide variety of products, including petrochemicals, plastic plumbing fixtures, and tires. Manufacturing Pennsylvania's Future (MPF) identified plastics as a "driver" industry for south central Pennsylvania. The study found the industry to be one of the largest in the region, with a recent period of strong growth, and one in which the region is reasonably well specialized. The NAICS category 326, "plastics and rubber products," is modestly represented in Lebanon County, with nearly one percent of total year 2004 employment, a location quotient of 1.2, and a nine percent decline in number of jobs since 2001, which is similar to the ten percent decline nationally. The best local prospects for new plastics industry recruitment might be in plastics for packaging food products, or plastics used in pharmaceutical packaging or other life sciences applications. The paint industry, which is also within this sub-cluster, now has a presence in the county due to the new Valspar facility, which may serve as a foundation on which to recruit manufacturers of similar and related products.

The plastics sub-cluster is recommended for inclusion as a target industry on the basis of it having already been selected by both the county and regional economic developers. Plastics bottling and packaging is especially promising for the region. The Deloitte study identified packaging and bottling as one of the few growing plastics segments. In addition, there is potential for downstream tie-in to the flourishing regional food production cluster and pharmaceutical industry. Plastics tend toward the high volume/low value product line, meaning transportation costs can be a significant component of product cost. This factor can give the region a competitive advantage in its ability to save on transportation costs. Another factor in favor of targeting plastics is that wages per employee are well above average. Any initiatives designed to target plastics will likely benefits other industries in the sub-cluster, such as paint and ink.

2. The electronics sub-cluster includes electronic components, electronic instruments, household appliances, electric motors, electric lighting equipment, semi-conductors, and fiber optic cables. Statewide average annual wages were highest in this sub-cluster among all other advanced materials and diversified manufacturing sub-clusters. Employment in the manufacture of electrical and electronic equipment was the fastest growing "high technology" industry in rural Pennsylvania during the 1990s, adding nearly 5,000 rural jobs for a growth rate of 48 percent. (Shields and Vivanco 2004, p. 9)

The electronics sub-cluster has had a strong presence in the south central Pennsylvania region, as the home of AMP, Inc., now Tyco Electronics. The Tyco facility in northern Lebanon County is one of the top county employers; however, the county's employment in this sub-cluster is nearly exclusively dependent on this single employer.

The electronics sub-cluster includes many industries that are struggling with competition from low-cost foreign producers. The county is not especially well established within this sub-cluster nor does it have distinct comparative advantages for this sub-cluster. At the present time it does not appear worthwhile for the county to expend great resources in developing or diversifying this sub-cluster. However, it is nonetheless prudent to offer continued support to existing firms in this sub-cluster.

3. The metals and metal fabrication sub-cluster includes manufacturers of raw metals, as well as metal products such as hardware and plumbing fixtures. Primary metals production remains somewhat prominent in Lebanon County despite the departure of Bethlehem Steel and Alcoa. There are a number of foundries and casting operations in the county. With nearly one percent of total private employment in primary metals production, the county has a location quotient of 2.0 in primary metals. The neighboring counties of Berks, Schuylkill, and to a lesser extent, Lancaster are even more specialized in primary metals production. The region is less specialized in fabricated metals based on location quotients; however, they constitute a much higher percentage of total private employment. In addition, the subsector has seen some employment growth (four percent) from 2001 to 2004.

The Manufacturing Pennsylvania's Future study found that south central Pennsylvania specializes in the architectural and structural metals segment of this cluster. Firms in architectural and structural metals are especially well-represented in Lancaster and York Counties. With the exception of the presence of Butler Manufacturing in Annville (prefabricated metal buildings), the segment is not as notable in Lebanon County. The Manufacturing Pennsylvania's Future study also noted that much of the market for architectural and structural metals involves highly specialized, custom-made products, which affords relatively high profit margins and provides some protection against low cost foreign imports. On the other hand, the architectural and structural metals industry suffers regionally from relatively low output per worker rates and recent declines in output.

A very strong local and regional presence, county wages that are well above average, and the fact that the sub-sector achieved growth locally despite substantial declines nationally, all argue for the inclusion of fabricated metals as a target subsector. The case for primary metals is less compelling, as such products tend to be more commodity products, for which competition focuses on cost. The fabricated metals subsector's close ties with construction are an advantage and a disadvantage. Market proximity is regarded as a distinct advantage in construction, although construction is subject to fluctuations in the overall economic health of the country.

4. The printing sub-cluster includes printing and related support activities, as well as manufacturers of printing machinery and equipment. Among neighboring counties, Lancaster, York, and Cumberland Counties specialize strongly in printing and related support activities, with 2004 location quotients of 4.8, 3.3, and 2.2, respectively. Printing is less stellar in Lebanon County, accounting for 0.7 percent of total private employment, with a location quotient of 1.1, and a net loss of 117 jobs (a 32 percent decline) over the period 2001-2004. The Manufacturing

Pennsylvania's Future report finds that the printing industry has been in decline regionally since 1998, and suffers from low labor productivity. The industry makes the list of regional drivers, chiefly because it is so prominent, with the second highest regional output among the driver industries (Deloitte Consulting 2004).

An overall negative assessment of the conditions for the printing industry, combined with a significant local decline in employment and the absence of a particularly attractive average wage lead to the conclusion that the printing sub-cluster/industry is not suitable for targeting for expansion and attraction.

5. The vehicles and vehicle equipment sub-cluster includes manufacturers of vehicles, as well as vehicle components, such as truck bodies and electrical equipment. Lebanon County is not specialized in this sub-cluster; its location quotient for the NAICS subsector "transportation equipment manufacturing" is 0.62, while it accounts for one percent of total private employment. Moreover, the county experienced a net loss of 103 jobs (a 21 percent decline) in this sub-sector.

This sub-cluster makes none of the above lists for the region, indicating that the region does not already have a presence in any of the industries in the sub-cluster. This fact, in turn, means that the region does not have a basis upon which to build the cluster, as well as suggesting that the region lacks any particular comparative advantages for hosting industries in this sub-cluster. Accordingly, the sub-cluster is not recommended for targeting.

Agriculture and Food Production cluster

The **Agriculture and Food Production cluster** covers a wide range of activities from growing food and raising livestock to the wholesale and retail distribution of the food products. The cluster includes agriculture, food processing, and food distribution support industries such as fertilizer manufacturing and refrigerated warehousing. Pennsylvania ranks second among states in the dollar value of agricultural products sold for human consumption. Agriculture and agribusiness (defined for this plan as businesses supplying inputs and services to farms) remain a vital component of Lebanon County's economy. Unlike many other traditional farming regions, Lebanon County continues to retain a critical mass of farms that can support a fairly vibrant local agribusiness sector.

The food processing sub-cluster includes the industries that process raw agricultural products into human and animal food as well as manufacturers of food product machinery. The south central Pennsylvania region is ideally situated for food processing industries, being located at the source of much of the necessary raw materials, and very accessible to tens of millions of consumers. These advantages are reflected in the very strong presence of food production in Lebanon County and its neighbors. York, Dauphin, Lancaster, and Lebanon Counties have location quotients greater than two, and Lebanon County tops the list with a location quotient of 4.6. In Lebanon County, food production is the second largest private employer among three-digit NAICS industrial categories, with 6.3 percent of total private employment in 2004. Moreover, employment in the food production category increased by eleven percent (232 jobs) over the period 2001-2004.

Food production is a "safe" industry in the sense that it is among the industries most cushioned from global competition and from economic downturns. Unfortunately, wages in food processing have been relatively low compared to other manufacturing sector wages, and there is no lack of domestic competition in many product segments.

The agriculture and food production cluster, encompassing all aspects of producing food from supplying farms to delivering product to the consumer, is strongly represented in the region and has excellent prospects for continued strength. The region's excellent access to consumer markets is a competitive advantage that is not expected to erode. Despite the overall modest wages in most of this cluster, its industries are currently an essential component of the county's and the region's economic foundation, and are expected to remain so. Agriculture, agribusiness, food processing, and plastic packaging (identified previously) are all worthy industries for targeting county economic development efforts.

Lumber, Wood, and Paper Cluster

The **lumber, wood, and paper cluster** includes the complete "supply chain" from timber: from logging, through sawmills, to the production of furniture, paper, and converted paper products. The NAICS subsectors "Wood Products (321)" and "Furniture and Related Products" (337) are both very prominent in Lebanon County, with a combined total of nearly four percent of total private employment, and very high location quotients for each subsector. Employment in furniture making has actually increased in the period 2001-2004, despite declines nationally. Average compensation per employee in wood products is very good, at $721 per week in 2004. Average compensation in furniture making is not as high ($610), but is above the county average of $555.

Wood product manufacturing is also a substantial employer in Schuylkill County, with nearly three percent of total private employment. Lebanon County has a higher percentage of its employment in this sub-sector; however, Lancaster and York each have far more employees in the subsector.

Paper manufacturing is not significant in Lebanon County; however, York and Schuylkill Counties have high location quotients and substantial employment in paper manufacture.

Lebanon County is in a very good position for the continued vitality of several industries in the lumber, wood, and paper cluster. Weaber's sawmill is a major employer at the heart of the wood products subsector. Local timber supplies, access to markets booming in construction activity, and a heritage of craftsmanship in woodworking all contribute to the strength of this sector. The cluster also makes an attractive cluster for industry targeting in that, like agriculture and food products, it is an established cluster, with various industries in the supply chain already interconnected; economic developers do not need to "invent" the cluster. Efforts to nurture this target would include supporting existing businesses in process improvements, worker skills training, product innovations, new market penetration, and facility expansions. New company recruitment would be a much lower priority.

Life Sciences Cluster

1. The bio-medical sub-cluster includes industries involved in the development and use of technology to enhance health, such as research laboratories, pharmaceutical manufacturing, surgical and medical equipment manufacturing, and imaging centers. To a large extent, industries in this sub-cluster employ advanced technology or serve as a foundation for enhanced medical services.

The pharmaceutical industry is one in which Lebanon County is already well-positioned. Pharmaceutical production, particularly at the Bayer plant, makes up the lion's share of the employment in the "chemicals" subsector. In other words, Lebanon County has a specialty in this industry (with higher percentage of employment than the national average). The industry is a significant employer in terms of numbers employed and employment has grown over the period 2001-2004. In addition, the industry is the highest paying among the manufacturing industries in the county.

Lebanon County is fairly well situated for the bio-medical sub-cluster as it is reasonably close to the mid-Atlantic hub of activity of this sub-cluster, namely Philadelphia and surrounding counties in southeastern Pennsylvania.

The bio-medical sub-cluster is very attractive due to its domestic growth prospects and high output per worker rate. A typical facility makes only modest demands on local infrastructure (transportation, water and wastewater), is relatively benign in terms of environmental impact, and offers outstanding employee compensation. As such, the cluster is prized by nearly all economic developers across the country. Nevertheless, Lebanon County and the region in general are in a strong position to compete for industries in this cluster, particularly pharmaceuticals. Therefore, this sub-cluster, and pharmaceutical producers in particular, make very good targets for the county and region.

The Tuck Business Park in North Cornwall Township has developed into a "cluster" of medical facilities – good paying jobs and great medical treatment opportunities for Lebanon County and Central Pennsylvania residents. Recent rezoning will facilitate southward expansion of this use, augmenting the growing health care network for an aging population.

2. The health care sub-cluster includes industries that provide direct patient health care services, as well as industries that support direct patient care such as retail drug stores and health insurance carriers. This sub-cluster has seen very strong growth across Pennsylvania, and is a major source of employment growth in the state's rural areas. (Shields and Vivanco, 2004, p.6). Thanks to the presence of the Good Samaritan Hospital, the Veterans Administration Medical Center, Philhaven, and other facilities, this sub-cluster is highly represented in Lebanon County. The economic subsector "health care and social assistance," which largely corresponds with the health care sub-cluster, employed over 16 percent of the county's private employees in 2004, substantially higher than its neighboring counties and the national average of 13 percent.

While the health care sub-cluster is strongly represented in the county, it is primarily composed of local-serving industries and as such does not offer promise for economic development targeting.. However, the strong presence of the health care sub-cluster is good for the county in that it is a major employer, it keeps health care spending in the

county, and the services offered locally are valued by county residents. For these reasons, businesses within this sub-cluster do merit the continued support of state and local governments.

Building and Construction Cluster

The building and construction cluster includes industries directly involved in the construction of buildings, roads, and other structures, as well as manufacturers of HVAC equipment and building materials such as cement, flat glass, and fabricated structural metals. (Fabricated structural metals are included for this County Economic Development Plan under the Fabricated Metals sub-cluster, and wood building materials are included under "Lumber, Wood, and Paper".) The construction services industries are not well-represented in Lebanon County, with location quotients ranging from 0.3 (heavy and civil engineering construction) to 0.9 (construction of buildings). Other counties in the region also tend to be relatively weak in the construction services industries.

While the construction trades are lightly represented in terms of local employment, local markets are strong for their services, including major construction planned at Fort Indiantown Gap. The issue for local economic developers in supporting construction trades is providing a workforce suitably trained in construction skills and even language skills for Lebanon County's rapidly expanding Hispanic workforce. Lebanon County is in a strong logistical position for supplying construction materials to mid-Atlantic and northeast markets, having good access, quality natural resources, and the region's legacy of metals production. The region has some advantages over overseas suppliers of construction materials due to its better accessibility to the consumers.

Business and Financial Services Cluster

The business and financial services cluster includes banking and credit institutions, insurance carriers and brokers, personal and professional business services, advertising and marketing agencies, employment agents, and various other business support services. Currently, this cluster is concentrated in the major metropolitan centers of Pittsburgh and Philadelphia. This cluster offers many of the employment opportunities that are believed to attract the young, educated, and motivated workforce; therefore, its vitality is one of special interest in countering the "brain drain" of young educated Pennsylvanians.

The Center for Rural Pennsylvania study found potentially untapped growth opportunity for the "business services" categories, which nearly doubled in employment nationally and in rural areas of comparison states, but grew by 50 percent in rural Pennsylvania. It also found growth potential in the category "holding and other investment offices," which grew by nearly 75 percent in comparison rural areas, nearly 30 percent nationally, but only 19 percent in rural Pennsylvania.

The good news for Lebanon County is that it is situated very close to a major hub for this cluster, which stretches from Lancaster County eastward into Philadelphia and its suburbs. The bad news is that many of the industries in this cluster are very poorly represented in the County. Lebanon County lags most of its neighboring counties in the percentage of its employment in credit intermediation; insurance carriers; real estate, rental and leasing; professional and technical services; management of companies; and administrative and support services. The fact that new, Class-A office space does not exist in the county, but is abundant in its neighbors to the east, south, and west, is testament to the very weak presence of this cluster in Lebanon County.

Information and Communication Cluster

The information and communication cluster includes a variety of industries involved with the production and dissemination of information, from publishing to internet service providers. The cluster also includes manufacturers of communications equipment, wired and wireless telecommunications carriers, and consulting in technical fields such as engineering and computer systems design. While the cluster may not appear significant when viewed in terms of employment, the average wage is quite high, at $56,700 in 2002. The technical design and consulting services sub-clusters have added the most jobs in this cluster in recent years. Employment in the cluster is concentrated in Allegheny County, southeastern Pennsylvania, and Lebanon County's south central neighbors of Dauphin, Cumberland, and Lancaster counties.

The absence of vibrant, predominantly "white collar", business and financial services and information and communications clusters is a pronounced gap in the county's economic diversification, and may also be partly to blame for the much bemoaned "brain drain" of many of the county's educated young people. The county's complete economic development, along with other aspects of local quality of life, such as revitalization of downtowns, depends on the further development of this cluster. Economic developers are somewhat limited in their capacity to attract and retain businesses in this cluster. Businesses are typically local service providers, and thus require adequate local markets. Location assets focus on amenities of the site and its immediate surroundings and, especially for small firms, the location preferences of the owners.

Education Cluster

The education cluster encompasses elementary schools through colleges, technical schools, museums and historic sites, and support services such as school bus transportation and child day care services. Educational institutions are not especially highly represented in Lebanon County. Lebanon Valley College (LVC) and the Lebanon campus of Harrisburg Area Community College (HACC) are the major postsecondary institutions in the county.

Similar to business and financial services, the health of the educational services cluster is an element in other aspects of local quality of life. Also, the educational services cluster is a foundation that can support other business retention, expansion, and recruitment efforts. As such, educational services enterprises merit the continued support of state and local governments, as well as their private sector partners.

The Logistics and Transportation Cluster

The **logistics and transportation cluster** includes industries involved in the storage, transportation, and distribution of goods. Pennsylvania is in an excellent position for this cluster as its transportation network, comprising water ports, major rail lines, and interstate highways, links the vast middle Atlantic and northeast markets to the rest of the nation. Statewide, the general warehousing and storage industry completely dominate this cluster, with the largest job volumes, as well as job growth. However, wages in this industry are among the lowest in the cluster, and are below the average wage for the state. In Lebanon County, trucking dominates this cluster, and is one of the county's major employers. It also has a relatively high location quotient and strong growth over the period 2001 to 2004. The warehousing industry experienced far stronger growth on a percentage basis, but remains less well represented in the county than trucking. Trucking, warehousing, and storage, are very strong industries throughout the region, especially in Cumberland County, where over eleven percent of private employees worked in these industries in 2004.

South central Pennsylvania is perfectly situated for distribution operations, being less than a day's drive from most major northeast markets. Accordingly, logistics firms have located in the region even without recruitment efforts by economic development organizations. Warehousing and distribution operations tend to become controversial when their growth becomes very rapid, as evidenced by response of many of the communities around Carlisle in Cumberland County. At first the tax base and employment is welcomed, and then growing numbers of local residents become concerned with the large tracts of land used, the perceived traffic generated, and the low availability of family supporting jobs. At current levels of development, the logistics and transportation cluster is a good source of tax revenue growth and entry level jobs (warehousing). However, with very low unemployment levels, what the county's labor force needs is more middle- to upper-income jobs. Combined with the fact that logistics operations are already highly attracted to the county based purely on unassisted market forces, there is no compelling reason to add industries in the logistics cluster to the list of industries to target for expansion and attraction efforts.

The table below summarizes the recommendations regarding the targeting of support and recruitment for the listed industrial clusters and sub-clusters. "Primary Target" indicates that the county should actively target the cluster/sub-cluster. "Secondary Target" indicates that the cluster is already developed within the county; however, funding or workforce development support may be appropriate to further enhance the success of the cluster/sub-cluster. "Non-Target" indicates that the cluster is either inappropriate for the county given the current workforce or other key factor *or* that the cluster is of sufficient strength that there is no need for governmental support or assistance to sustain the industry.

Table 3-6 Recommended Target Industries for Lebanon County

Cluster/sub-cluster	2002 Average Annual Wages	Recommendation
Life Sciences	$39,366	
Bio-Medical	*$64,657*	Primary Target
Health Care	*$36,763*	Secondary Target
Business and Financial Services	$42,845	Primary Target
Education	$35,121	Secondary Target
Advanced Materials and Diversified Manufacturing	$43,061	
Chemicals, Rubber and Plastics	*$46,643*	Primary Target
Electronics	*$50,792*	Secondary Target
Metals and Metal Fabrication	*$41,060*	Primary Target
Printing	*$37,196*	Non-Target
Vehicle and Vehicle Equipment	*$48,267*	Non-Target
Building and Construction	$40,927	Secondary Target
Agriculture and Food Production	$26,308	
Food Processing	*$36,106*	Primary Target
Information and Communication Services	$56,742	Primary Target
Logistics and Transportation	$36,588	Non-Target
Lumber Wood and Paper	$34,317	Secondary Target
Average across targeted clusters	$39,836	
Average over all industries	$35,791	

Retention, Expansion, and New Business in Lebanon County

Economic success in recent years has been measured by the retention and expansions of existing businesses, resulting in job stability and growth. Additional success has been achieved by locating new businesses on previously developed industrial properties or planned business and industrial parks. These achievements have occurred as a result of strong community development policy at the county and local level, supported in part by state funding.

APR Supply – This Lebanon-based regional distributor of plumbing and heating supplies purchased the 270,000 sf former New World Pasta complex on North 8th Street in Lebanon. The site allowed them to expand and provides room for additional growth.

College Hill Poultry – After its purchase by Premium Protein Products, this Fredericksburg-based processor of organic chickens decided to remain at its location and refurbish its facility, with assistance provided through efforts of the Governor's Action Team and the Lebanon Valley Economic Development Corporation

Schott Pharmaceutical – This maker of glass vials for pharmaceuticals represents the largest tenant to date in the LVEDC's Lebanon Valley Business Park. The company opened with 155 employees in 2003, with plans to grow to approximately 275 employees.

Supreme Mid-Atlantic – This truck-body fabricator located in Jonestown is one of the county's largest employers. It purchased the adjacent former Sterling Lebanon Packaging Building in 2004 to allow for expansion of its operations with minimal disruption.

Valspar Corporation – This company is constructing a 222,000 square foot latex paint manufacturing and distribution facility in the North Lebanon Business Park in North Lebanon Township. The company plans to employ 120 workers at this facility.

East Lehman Street Industrial Park – This site was previously home to the Lebanon Steel Foundry. After the foundry closed, the site had a number of environmental clean-up issues. Since 1997, many of the original buildings have been removed, making land available for new buildings. Four original buildings remain and have been renovated. The East Lehman Street Industrial Park is also a Keystone Opportunity Zone and, as such, is exempt from state taxes until 2013. The Park is currently home to I. Auman Machine Company and a metal fabricating shop.

The Alcoa Property – The departure of Alcoa from its South Lebanon Township facility in 2002 had a heavy economic impact on the county. The LVEDC has been working to find new tenants for the property. The 122-acre site, with an 800,000 square foot structure, is adjacent to the Lebanon Valley Business Park. High Concrete is the first tenant to locate to the site and occupies approximately one fourth of the facility.

The Aspens Business Park and Incubator Building – This brownfield site located in the northwest corner of Lebanon is a Keystone Opportunity Zone. In addition to the tax advantages offered by the KOZ status, the site will be home to an incubator building aimed at supporting start-up technology-oriented business.

I-81 Lickdale Exit – This area is quickly becoming a hub of warehousing and distribution facilities. Spurred by easy access to Interstates 81and 78, as well as the development of the NorthPort Business Park, a number of new businesses have located here, including Tyco, Swift Trucking, and Ingram Micro.

North Londonderry Township – New facilities for Hershey Foods and General Mills have recently been constructed in the southwestern section of the township, which may lead to additional spin-off opportunities to service these facilities.

Lebanon County Top Employers

Table 3-7 Top Employers located in Lebanon County and Eastern Dauphin County

Employer	Industrial Classification (NAICS Code)	Location	Full Time Employees	Part Time Employees
Department of Military and Veterans Affairs	National Security (928)	Fort Indiantown Gap	1,200	0
Lebanon County	Public Administration (921)	Lebanon	950	0
Veterans Administration Medical Center	Health Care (622)	Lebanon	910	40
Good Samaritan Hospital	Health Care (622)	Lebanon	784	363
Tyco Electronics	Electronics Manufacturing (334)	Jonestown	700	0
Farmer's Pride, Inc./ Bell & Evans	Food Manufacturing (311)	Fredericksburg	700	0
Weaber, Inc.	Wood Product Manufacturing (321)	Lebanon	600	0
Philhaven	Health Care (622)	Mt. Gretna	552	239
Cornwall-Lebanon School District	Education (611)	Lebanon	490	164
Bayer Consumer Care	Pharmaceutical Manufacturing (325)	Myerstown	480	3
Lebanon School District	Education (611)	Lebanon	449	31
Wal-Mart #2073	Retail (452)	Lebanon	363	73
Supreme Mid-Atlantic Corporation	Truck Body Manufacturing (336)	Jonestown	300	13
Pennfield Farms	Food Manufacturing (311)	Fredericksburg	300	0
Hershey Area Employers (Dauphin County)				
Hershey Medical Center[1]	Health Care	Hershey	6,059	N/A
Hershey Foods Corporation	Food Manufacturing	Hershey	2,500	0
Hershey Entertainment & Resorts	Recreation and Accommodations	Hershey	1,189	3,191
H.B. Reese Candy Co.	Food Manufacturing	Hershey	1,000	0
Milton Hershey School	Education	Hershey	877	749

Source: Lebanon Valley Chamber of Commerce, 2005 Membership Directory
[1] Hershey Medical Center/Penn State College of Medicine, Fast Facts 2004. Employment data were not available by full time and part time employees.

The County's Largest Employer: Fort Indiantown Gap[6]

History
Fort Indiantown Gap was first established by the state in 1931, as the primary training base for the Pennsylvania National Guard. It is also home of the Pennsylvania Department of Military & Veterans Affairs (DMVA), which oversees both the Army and Air National Guard and the state's programs for serving the needs of Pennsylvania's 1.3 million veterans. Since 1940, most of its 19,000+ acres have been leased to the federal government for military training purposes. Its mission expanded in recent years to include all active and reserve components, as well as selected civilian customers. In October 1998, pursuant to the recommendations of the BRAC Commission, the U.S. Army garrison at the Gap closed, and responsibility for day-to-day management of the post was transferred to the Pennsylvania National Guard.

Mission
The primary mission of Fort Indiantown Gap is military training for the active and reserve components of all the services. Civilian organizations with compatible interests and training needs are also accommodated whenever possible. On average, more than 100,000 individual students and trainees rotate through the installation every year.

Employment
Some 1,300 state and federal civilians; military technicians; members of the Active Guard and Reserve program; active-duty soldiers; and employees of contractors and non-DMVA tenants full-time at Fort Indiantown Gap. This total makes Fort Indiantown Gap the largest employer in Lebanon County. Its annual economic impact exceeds $100 million.

Military facilities at Fort Indiantown Gap
- State headquarters of the Pennsylvania Army and Air National Guard
- 35 separate Army and Air Guard units, with a total of 3,500 drilling members
- 140 maneuver areas, firing ranges and bivouac sites
- 166th Regiment (Combat Arms), a regional training academy with state-of-the-art distance learning capability
- Eastern Army National Guard Aviation Training Site, the only reserve component training center for utility and medium-lift helicopters
- Muir Army Airfield, second busiest helicopter base in the world
- Air-to-Ground Bomb Range for active and reserve fighter pilots from all the services
- 3rd Weapons of Mass Destruction Civil Support Team, one of 10 Guard units in the nation dedicated to assisting civilian responders in the event of a terrorist attack
- Northeast Counterdrug Training Center, one of three in the nation providing no-cost support to civilian drug enforcement agencies and drug demand professionals
- 756th Ordnance Company (EOD), an active Army "bomb squad" providing emergency coverage across the state
- Regional Equipment Operators Training Site, a unique Air Guard "schoolhouse" serving construction engineers across the total Air Force
- "Lightning Force" Academy, another unique school for Air Force and Air Guard specialists in fiber optics and network installation
- Medical Company Training Site, one of two in the National Guard for combat lifesaving and other critical medical skills

Other organizations on post
- State offices of AMVETS and Marine Corps League
- Civil Air Patrol - Pennsylvania Wing
- Pennsylvania State Police
- Valley Foods, Inc., food service distributor for the entire Pennsylvania Army National Guard
- MountainTop Technologies, concessionaire operating the Gap's distance learning facility
- The All Army Sports Program, a competitive athletic program for soldier athletes
- Pennsylvania National Guard Associations

[6] Fort Indiantown Gap, a National Guard Training Center, http://www.dmva.state.pa.us/ftig/site/default.asp.

Immediately adjacent

- Indiantown Gap National Cemetery (operated by the U.S. Department of Veterans Affairs) and the Pennsylvania Veterans Memorial.

Recreational opportunities and customer services

- Hunting and fishing on post (including special access for the disabled)
- Community Club
- Blue Mountain Sports Arena
- Swimming pool (outdoor)
- Post Exchange, gas station, convenience store, military clothing store
- Scouting trips, youth camps, civic tours
- Major public events (Armed Forces Day celebration, Battle of the Bulge re-enactment)
- Pennsylvania National Guard Military Museum

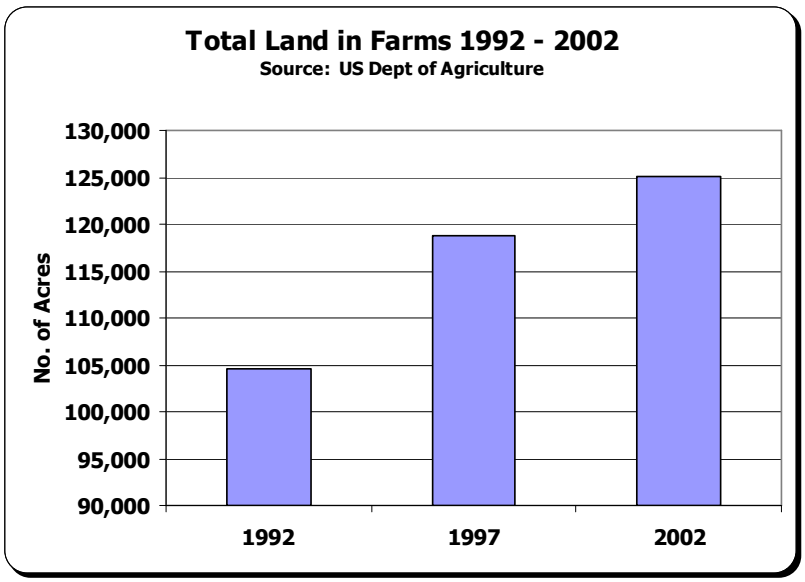
Environmental Stewardship

Working in close concert with regulatory agencies, conservation groups and scientific consultants, Fort Indiantown Gap maintains a strong commitment to protect and preserve the environment. For example, 158 acres of training land have been set aside as research habitat for a rare species of butterfly. Stream banks and wetlands on post are being restored in cooperation with the Chesapeake Bay Foundation and The Nature Conservancy and Fort Indiantown Gap is now developing a comprehensive Environmental Impact Statement to guide plans for future expansion of training areas and infrastructure.

A Closer Look at the Agriculture Sector

Agriculture continues to thrive as an important component of the county's economy. Results from the 1992, 1997, and 2002 Censuses of Agriculture were examined to identify notable features and patterns in the county's agricultural sector.

Figure 3-18 Land in Farms in Lebanon County

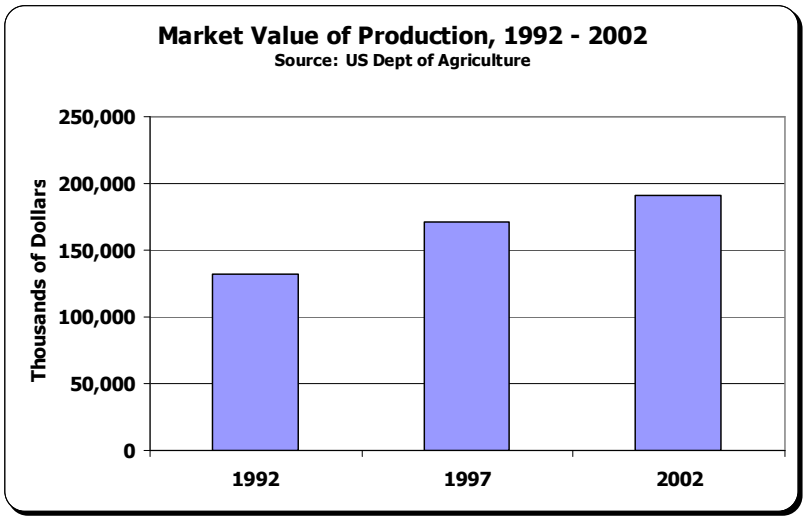


- Approximately 54%, or 125,000 acres, of Lebanon County's land area was being farmed in 2002.
- Since 1992, due to subdivisions, the number of farms and the acreage in farms has increased; the acreage has been increasing more slowly, resulting in a declining average acreage per farm. Regional and state data for 1997 and 2002 display similar trends.
- The greatest increase, for all geographic areas, has been in the number of farms between 10 and 49 acres. The county had 359 farms in this size range in 2002, compared to 214 in 1992. In contrast, the number of farms with 500 or more acres was 17 in 2002, down from 22 in 1992.
- In Lebanon County, the total value of agricultural products sold increased by 45% in the ten-year period ending in 2002, while the value per farm increased by 17%.
- While the data are reported in current dollars, the prices of agricultural products have been flat (i.e. crops) or decreasing (i.e. livestock and animal products). Thus, these sales increases reflect very impressive increases in volumes sold.
- The biggest gains occurred between the 1992 and 1997 censuses. Since 1997, the total value of products sold increased 12% in Lebanon County, and the sales per farm actually decreased by 10%. The trends at the regional and state levels are similar in kind, but different in degree. That is, the increase in sales was more moderate (6%), and, combined with the decreasing average farm size, resulted in a decrease in the value of products sold per farm in this most recent five-year period.

The most striking feature of the agricultural statistics is the prominence and growth in livestock production, particularly hog farming.

- The value of livestock, poultry and their products (e.g., milk and eggs) represents more than nine out of every ten dollars in agricultural product sales in Lebanon County. This proportion has been virtually constant in the county over the 10-year period ending in 2002.
- Livestock farming is important in much of the rest of the south central Pennsylvania region, and comprised 84% of the value of agricultural products sold in the region in 2002. At the state level livestock is not quite as dominant, accounting for just over two thirds (69%) of the value of agricultural products sold.
- When measured by number of farms, cattle dominate livestock farms in the county, with 519 of the county's 1,104 farms having sold cattle or calves in 2002. In contrast, 131 farms sold hogs or pigs in 2002. When measured by number of animals sold, and growth in number sold, hog and pig farms clearly dominate, with over a half million sold in 2002, compared to over 31 thousand cattle and calves. Moreover, the number of hogs and pigs sold increased three-fold from 1992 to 2002.

Figure 3-19 Market Value of Farm Production in Lebanon County



The Economic Contribution of Forestry to Pennsylvania report published by the Penn State School of Forest Resources estimated that agricultural processing adds $81 million to the local economy, thus illustrating that the importance of livestock and poultry production to the county's economy extends beyond the farms. This same report estimates that the annual economic contribution of the agricultural production sector to Lebanon County is approximately $24.5 million dollars.

Workforce Characterization and Trends

The characteristics of the workforce are among the factors that influence a company's decision to locate a new facility or expand operations. In the past, the cost of labor, i.e., the hourly wage, was the primary labor-related consideration. Today, those responsible for making corporate site selection decisions are also looking very closely at the skills, productivity, work ethic, and size of the prospective labor force, as well as quality of schools, recreational amenities, cultural and entertainment activities offered by a community or region.

This section profiles Lebanon County's workforce. It is intended to help county officials, the LVEDC, the Chamber of Commerce, and Community of Lebanon Association (CLA) assess the desirability of the county as a place to do business and also to plan strategically for the future. It will also provide the LVEDC and the Chamber with the statistical data that companies typically request as they proceed through the site selection process.

Civilian Labor Force, Employment, and Unemployment

Table 3-3 compares the change in the size of the labor force in Lebanon County between 1990 and 2000 with the surrounding counties. It does not distinguish between the civilian labor force and those in the armed forces because less than one-half of one percent of the labor force in each county reported being in the armed forces.

- The regional labor force increased by 77,086 or 7.2% (Figure 3-20).
- Each county experienced an increase in the total number of residents in the labor force, except Schuylkill County. Lebanon County's labor force increased by 3,125 workers or 5.3% between 1990 and 2000. Lancaster and York Counties had the largest numerical increases, with an additional 20,824 and 18,932 new workers, respectively. Adams County experienced the greatest percentage increase in the labor force at 15.5%.
- As a percentage of the total 16 year+ population, the labor force is decreasing for each county except Perry and Berks Counties, which may reflect a larger number of retirees living in each county.

Table 3-8 Change in Size of Labor Force

Municipality	Total Residents 16 Years and Over		Residents 16 Years and Over in the Labor Force			
	1990	2000	1990		2000	
			#	% of total	#	% of total
Pennsylvania	9,392,816	9,693,040	5,797,937	61.7	6,000,512	61.9
Lebanon County	***89,179***	***95,090***	***59,342***	***66.5***	***62,467***	***65.7***
Adams County	60,850	71,242	41,834	68.7	48,299	67.8
Berks County	266,721	291,683	174,416	65.4	190,703	65.4
Cumberland County	157,450	172,209	105,784	67.2	111,105	64.5
Dauphin County	188,054	197,683	126,583	67.3	128,945	65.2
Franklin County	95,008	101,768	62,590	65.9	65,289	64.2
Lancaster County	321,751	358,317	222,379	69.1	243,203	67.9
Perry County	31,353	33,808	20,958	66.8	22,607	66.9
Schuylkill County	122,962	122,842	68,567	55.8	67,989	55.3
York County	266,104	298,226	184,564	69.4	203,496	68.2

Source: US Census Bureau

The unemployment rate for Lebanon County has decreased significantly since 1990. However, after reaching a low of 2.7% in 2000, it has started to increase again. In comparison to the rest of the counties in the south central region, Lebanon County had the second lowest unemployment rate in 2003 and has been consistently below the regional average.

- As shown in Figure 3-21, unemployment figures for each of the south central Pennsylvania counties have followed a similar trend between 1990 and 2003. Unemployment rates peaked in the early 1990s, followed by a general decline through 2000, at which point they began to ascend. Recent trends indicate that unemployment rates are once again declining.
- Overall, unemployment rates have ranged from a low of approximately 2.5% in Cumberland County in 2000 to a high of just over 6% in Perry County in 1991. Since 1995, only York County has seen a rate in excess of 5%, indicating that the regional economy seems to have stabilized.

Figure 3-20 Percent Change in Labor Force

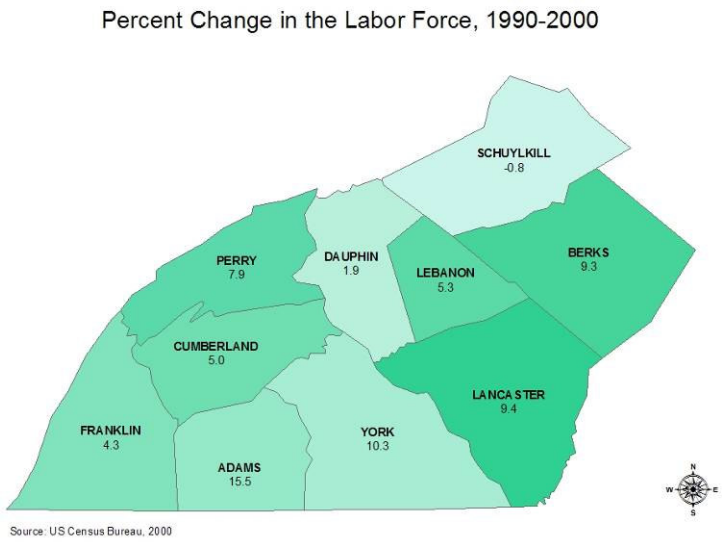
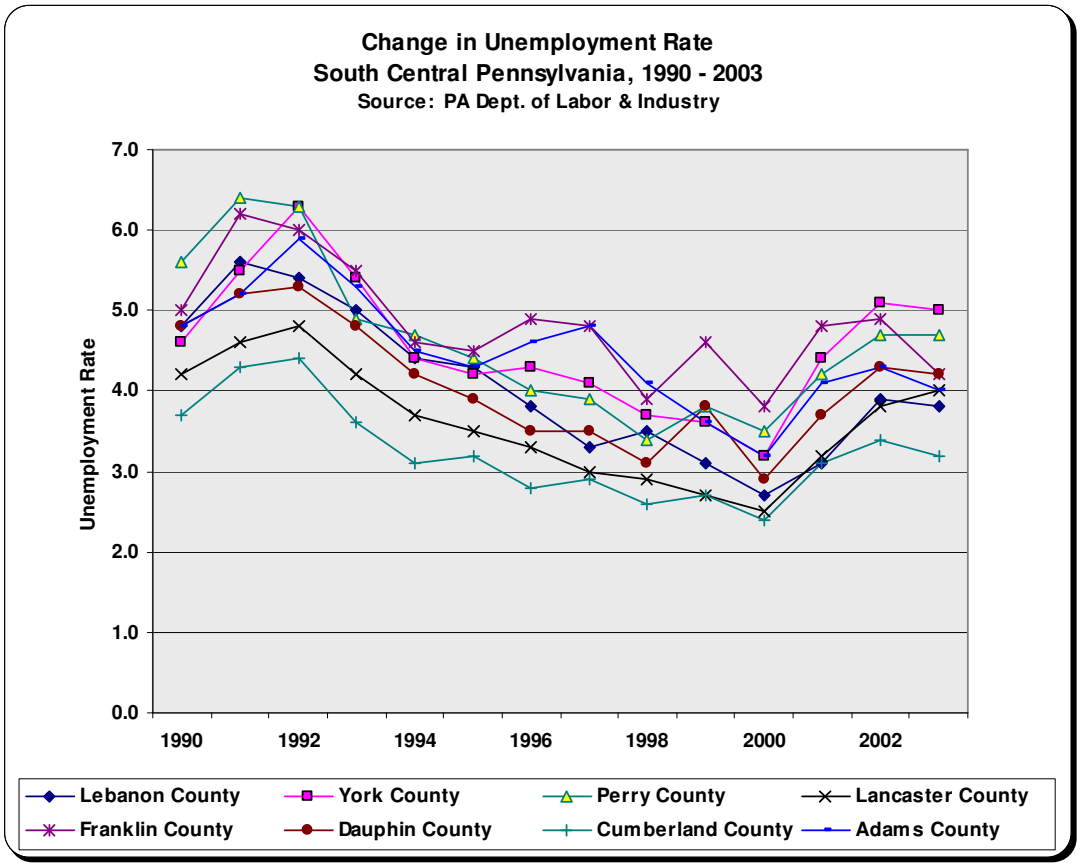


Figure 3-22 Change in Unemployment Rates, 1990–2003



Employment by Place of Residence

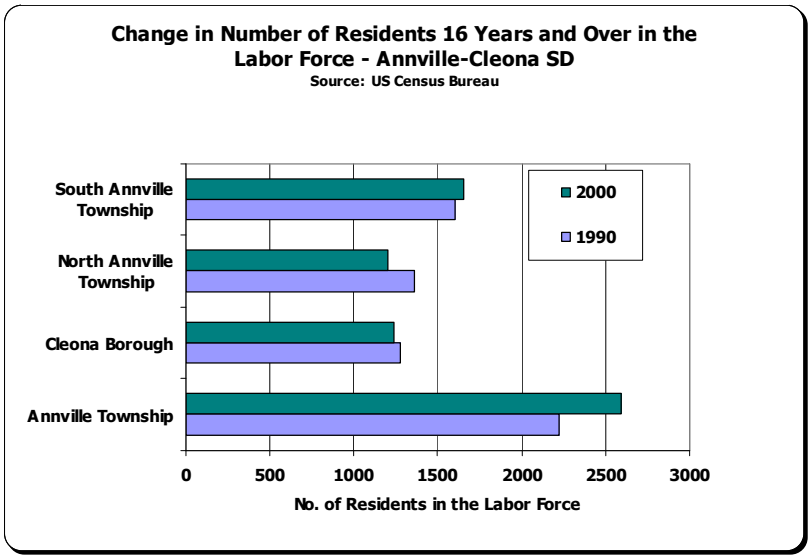
A review of employment data at both the county and municipal level is included to determine if any significant spatial patterns can help the county prioritize or redirect its economic development resources. The data compares labor force, industry, and occupation statistics from the Census Bureau for 1990 and 2000. Most of the information is organized by and presented at the school district level.

Labor Force Data by School District

Annville–Cleona School District

- Overall, the school district experienced a net increase in the labor force of 3.4% or 218 people. Growth in Annville and South Annville Townships has offset declines in the other two municipalities.
- This growth is in contrast to a 1% decrease in population during the same period.
- Annville–Cleona ranks 4th among the county's school districts with regard to increases in the labor force.
- Annville Township has seen the greatest increase in the workforce, 16.6% or 369 people. This increase is primarily due the expansion of Lebanon Valley College.

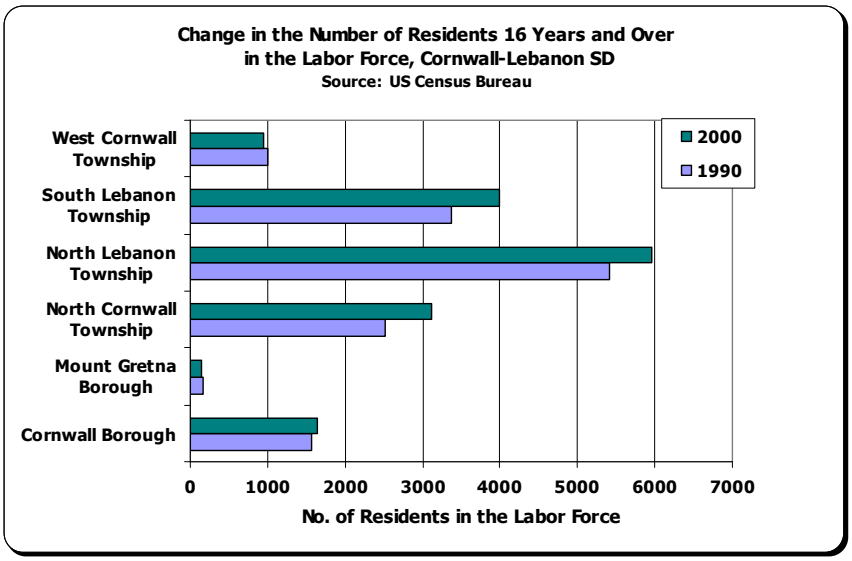
Figure 3-23 Change in Labor Force, Annville–Cleona SD



Cornwall–Lebanon School District

- Cornwall–Lebanon experienced the greatest numerical (1,817) and percentage (13.1%) increase in their workforce, as well as in overall population.
- South Lebanon Township experienced the greatest numerical increase in the district, 634 new workers.
- North Cornwall Township experienced the greatest percentage increase, 23.7%, in the district and the third largest in the county.
- West Cornwall Township and Mount Gretna Borough each experienced a decrease in the workforce: 5.4% and 7.7% respectively.

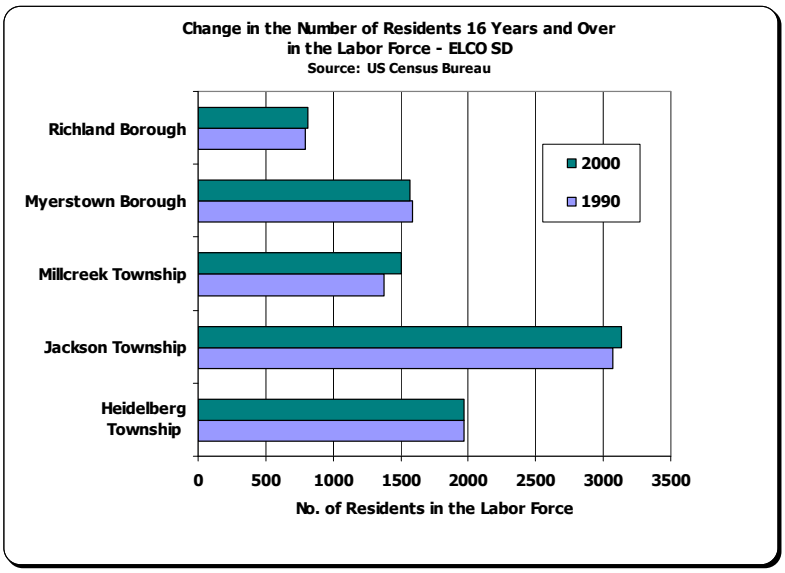
Figure 3-24 Change in Labor Force, Cornwall-Lebanon SD



ELCO School District

- ELCO ranked 5th among the school districts in labor force growth at 2.2% or 195 new workers.
- Population growth in the district was approximately 5% during the same period.
- Millcreek Township experienced the greatest growth in the school district, 9.6% or 132 new workers.
- Heidelberg Township is the only municipality in the entire county that experienced *no change* in the size of the resident workforce.

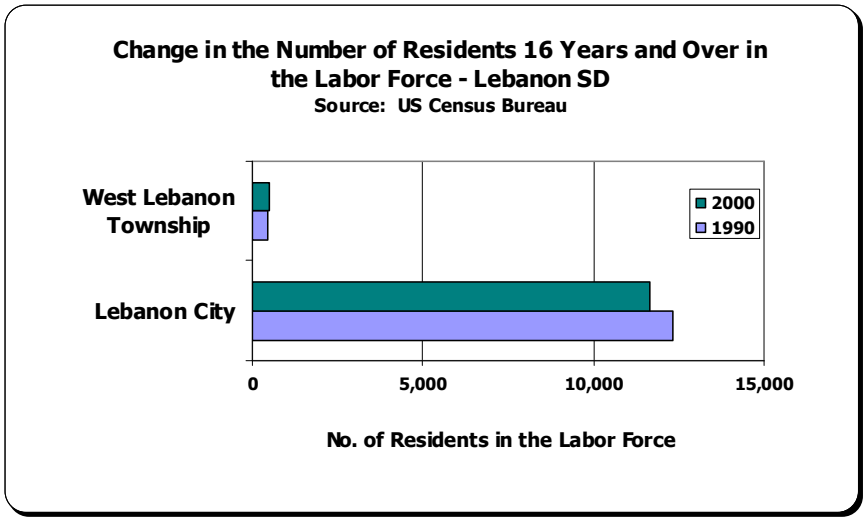
Figure 3-25 Change in Labor Force, ELCO SD



Lebanon School District

- The Lebanon School District experienced the greatest numerical decrease in labor force in the county, 699 fewer workers or 5.5%.
- The Lebanon School District's total population declined by approximately 1% or 375 people between 1990 and 2000.
- From a percentage standpoint, the 5.5% decrease in Lebanon City's labor force ranked fourth among the county's municipalities.

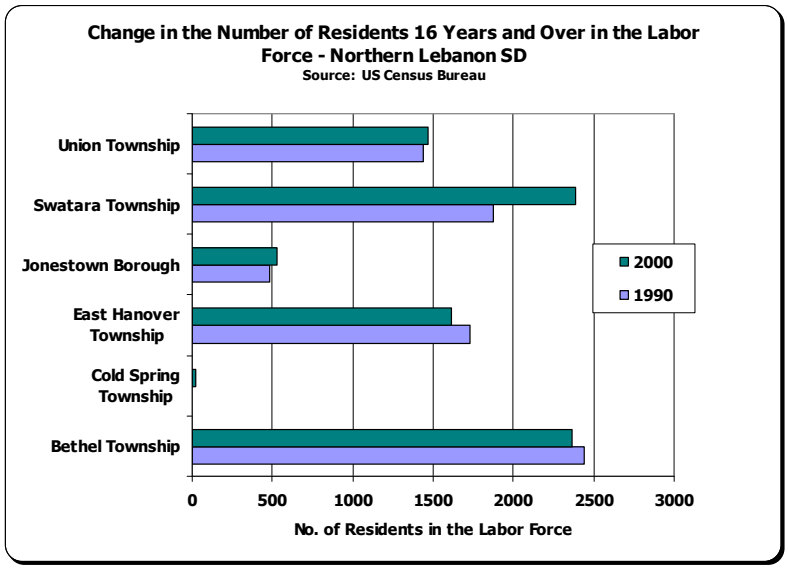
Figure 3-26 Change in Labor Force, Lebanon SD



Northern Lebanon School District

- Northern Lebanon ranks 3rd among the school districts in growth in the labor force.
- Four of the district's six municipalities experienced increases in the labor force.
- Swatara Township's labor force grew by 27.5% or 516 workers between 1990 and 2000. This is the highest percentage increase in the county, but only the 5th highest with regard to number of workers.

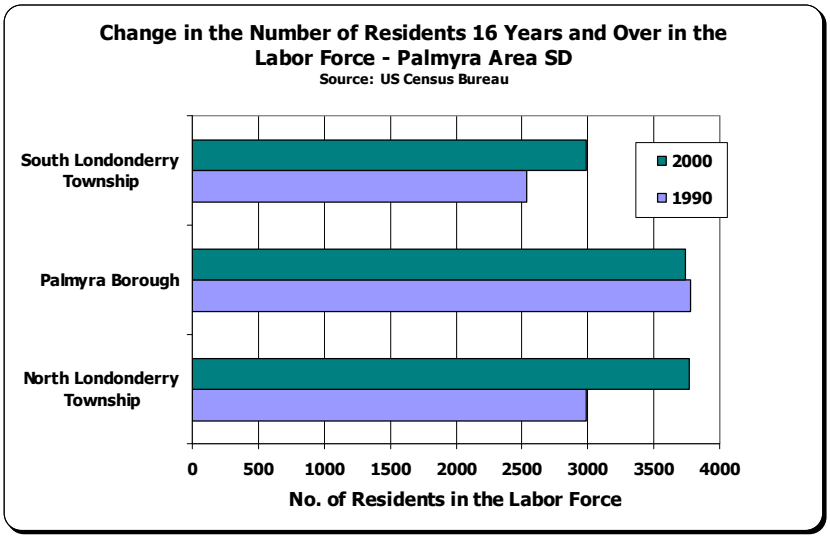
Figure 3-27 Change in Labor Force, Northern Lebanon SD



Palmyra Area School District

- The Palmyra Area School District had the second fastest growing labor force in Lebanon County with 1,184 new workers.
- However, the district ranks first in population growth at 13%.
- Growth in North and South Londonderry Townships more than compensated for the workforce loss in Palmyra Borough.
- North Londonderry Township experienced the largest increase in the county numerically, 778 new workers. However, its percentage increase (26%) was second to Swatara Township (27.5%).

Figure 3-28 Change in Labor Force, Palmyra Area SD



Resident Employment by Industry

There are thirteen broad industrial categories of resident employment reported by the 2000 Census.

- Agriculture, Forestry, Fishing, Hunting and Mining
- Construction
- Manufacturing
- Wholesale Trade
- Retail Trade
- Transportation and Warehousing, and Utilities
- Information Industries
- Finance, Insurance, Real Estate, and Rental and Leasing (FIRE)
- Professional, Scientific, Management, Administrative, and Waste Management
- Educational, Health and Social Services
- Arts, Entertainment, Recreation, Accommodation, and Food Services
- Other Services (except public administration)
- Public Administration

The data reflect industry statistics from the 2000 Census at the county, school district, and regional levels. Comparison with the 1990 data is not reliable because the classification system used in 2000 differs from the one used in 1990.

Agriculture, Forestry, Fishing, Hunting, and Mining

- Lebanon County's percentage of the resident workforce in the agriculture, forestry, fishing, hunting and mining industries (2.8%) is more than double that for Pennsylvania (1.3%).
- Within the county, the ELCO and Northern Lebanon School Districts had the highest percentage of workers in these industries, with 6.3 and 5.3%, respectively. Lebanon and Palmyra had the lowest percentages.
- At the regional level, Adams, Franklin, Lancaster, and Perry Counties had similar percentages of their resident workforce employed in these industries as shown in Figure 3-29.

Figure 3-29 Resident Employment: Agriculture, Forestry, Fishing, Hunting and Mining Industries

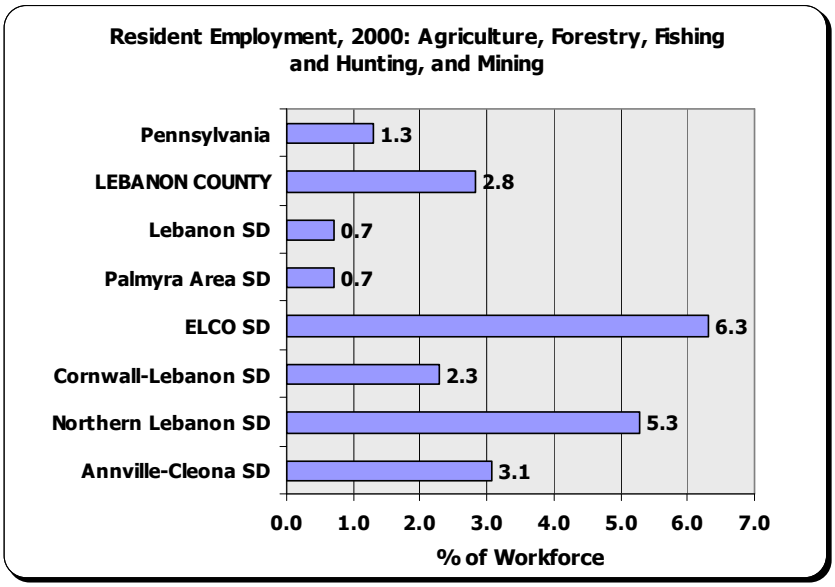
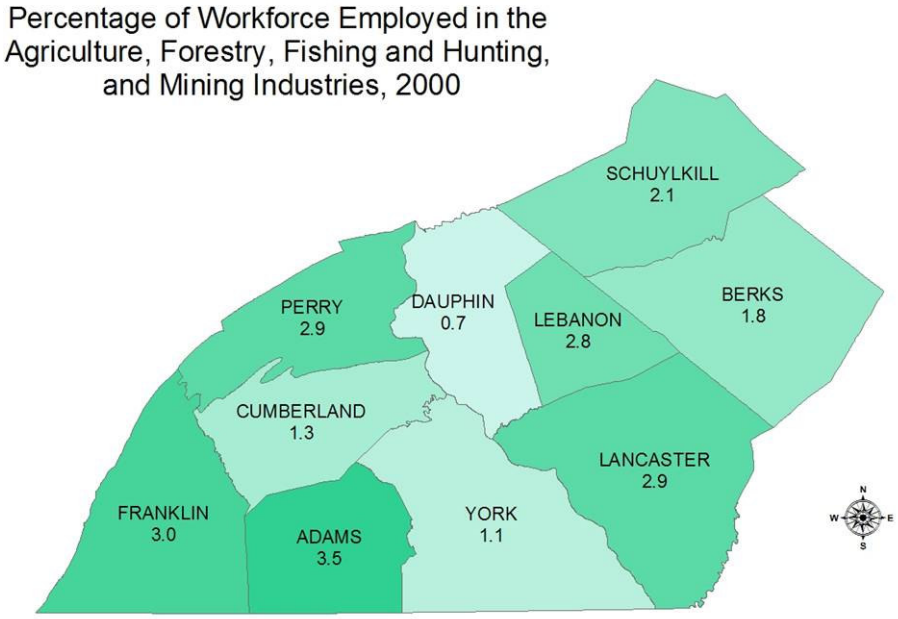


Figure 3-30 Comparison by County, 2000



Source: US Census Bureau, 2000

Construction Industries

- Lebanon County had a slightly higher percentage of the workforce in construction industries (6.5%) than the Commonwealth (6.0%).
- Percentages of resident workers in construction in the ELCO, Northern Lebanon, and the Palmyra Area School Districts exceeded both the county and the state percentages.
- Regionally, Adams and Perry Counties had the highest percentages of residents employed in construction industries with 8.0 and 8.8%, respectively. Dauphin County had the lowest (5.1%).

Figure 3-31 Resident Employment: Construction Industries

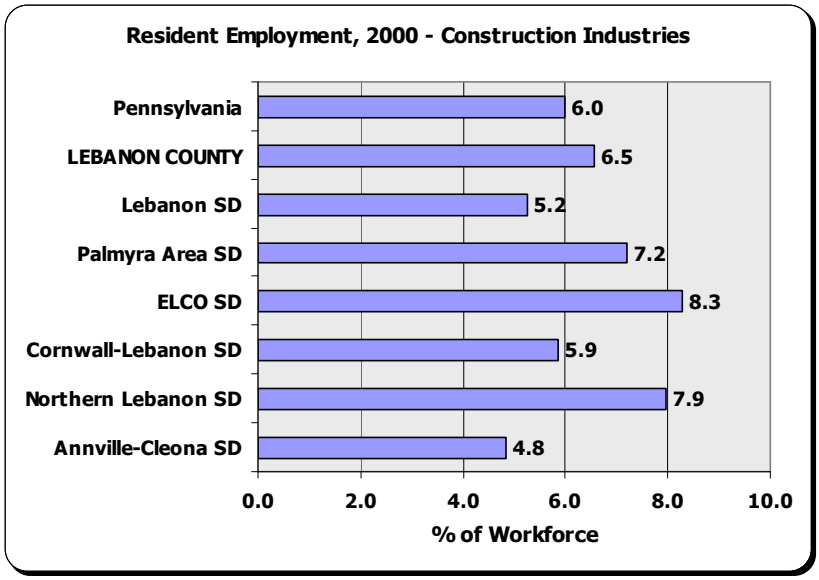
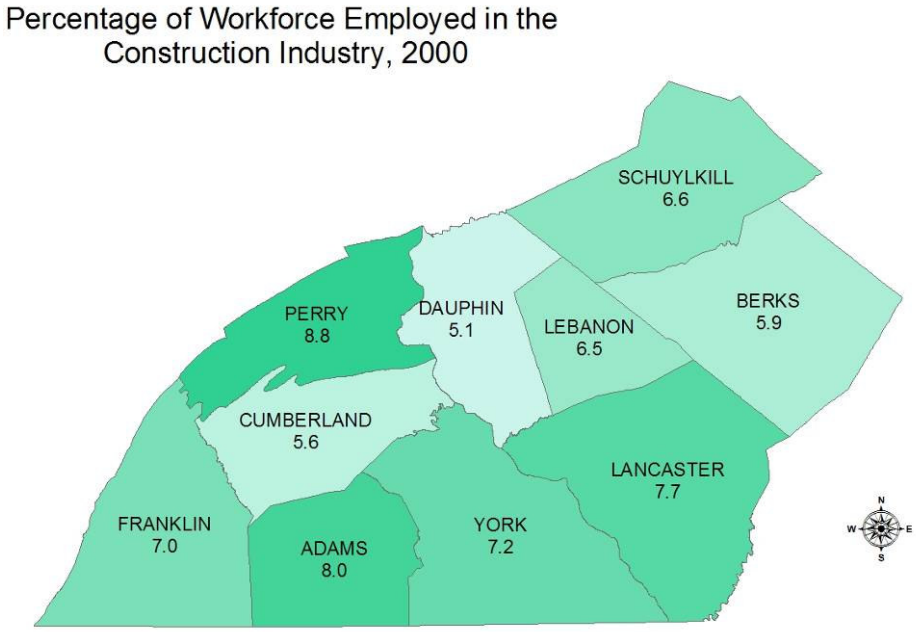


Figure 3-32 Comparison by County, 2000



Source: US Census Bureau, 2000

Manufacturing Industries

- Lebanon County had a greater percentage of the workforce in manufacturing than Pennsylvania, at 21.9% and 16.0%, respectively.
- The Lebanon School District had the highest percentage of the workforce employed in manufacturing industries – over 26%. Each of the school districts had higher percentages of residents employed in manufacturing than the state.
- Cumberland, Dauphin, and Perry Counties had a significantly smaller percentage of the resident workforce employed in manufacturing industries.

Figure 3-33 Resident Employment: Manufacturing Industries

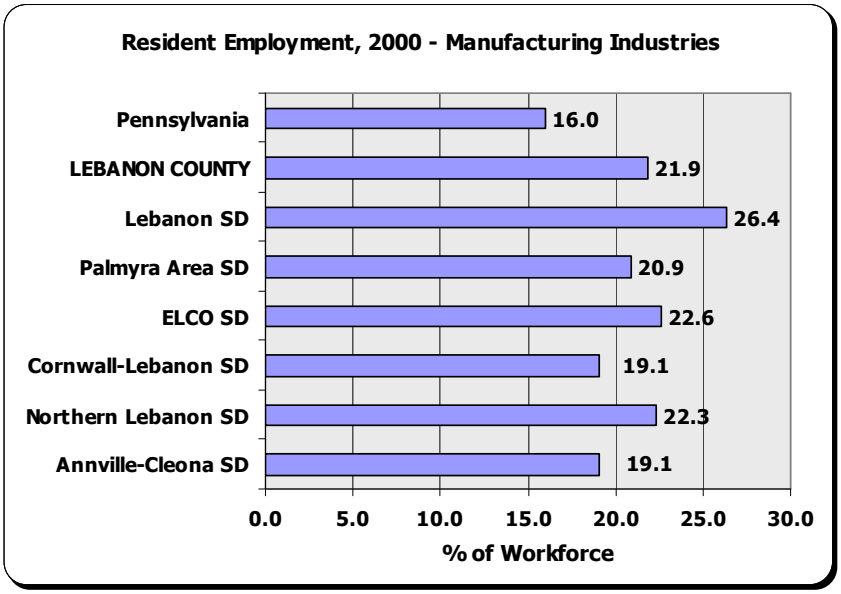
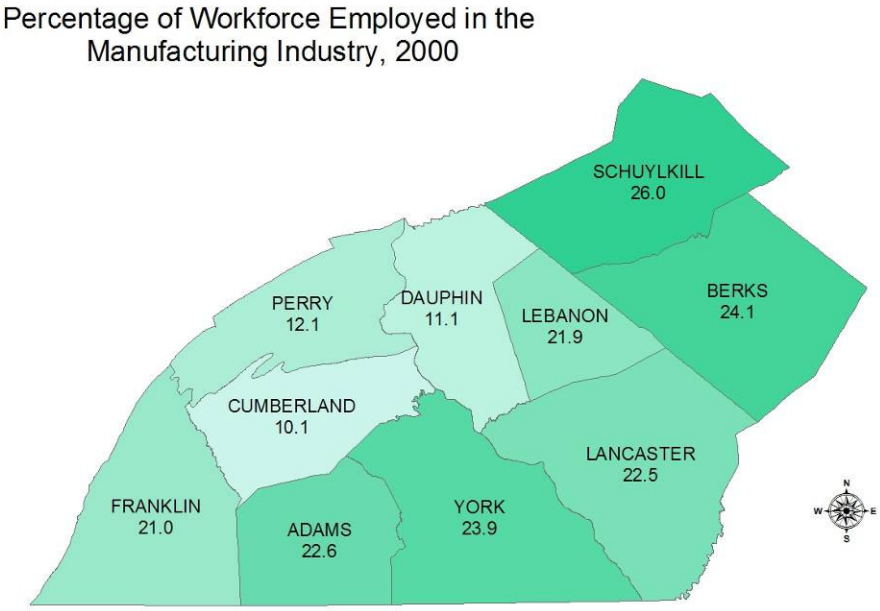


Figure 3-34 Comparison by County, 2000



Source: US Census Bureau, 2000

Wholesale Trade Industries

- The percentage of workers in Lebanon County employed in wholesale trade related industries (4.9%) exceeded the state rate of 3.6%. This is likely due to the presence of several large wholesaling companies within the county, including ASK Foods and other food wholesalers.
- As with manufacturing industries, each school district had a higher percentage of residents employed in wholesale industries than the state average.
- The ELCO and Northern Lebanon School Districts each had over 6% of the resident workforce employed in wholesale industries.
- Lebanon and Perry Counties each had 4.9% of the workforce employed in these industries. Franklin County had the smallest percentage at 3.1%.

Figure 3-35 Resident Employment: Wholesale Trade

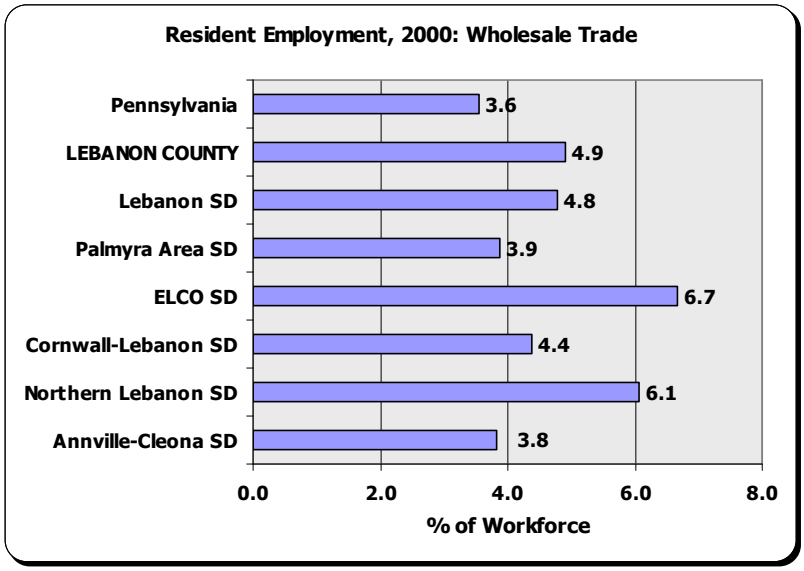
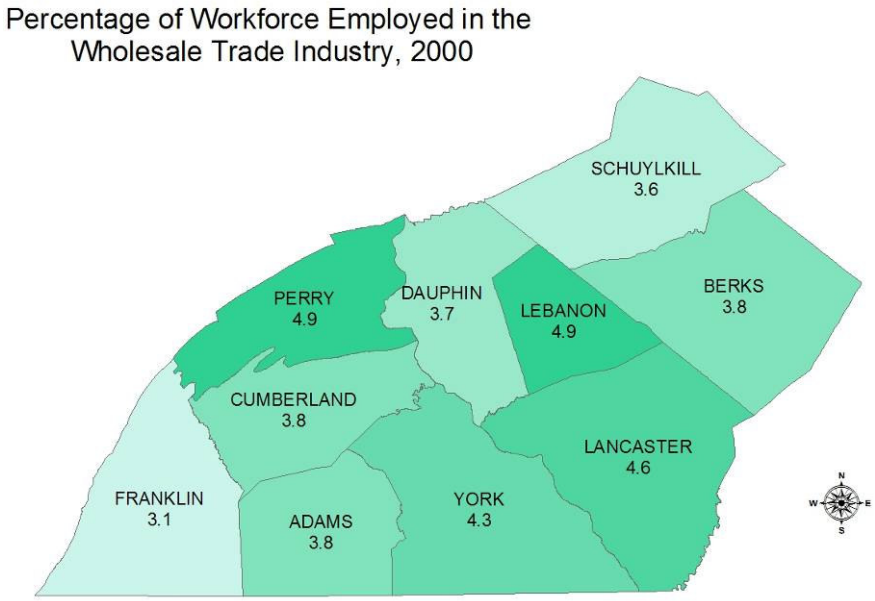


Figure 3-36 Comparison by County, 2000



Source: US Census Bureau, 2000

Retail Trade Industries

- The percentage of county workers employed in retail industries (11.3%) is very similar to the state (12.1%).
- Within the county, only the ELCO School District exceeded the state average and only Palmyra Area School district had less than 10% of the resident workforce employed in retail industries.
- The percentage of residents employed in the retail trade is also comparable to the surrounding counties, which had a range of 10.5% to 13% of the resident workforce employed in retail trade industries.

Figure 3-37 Resident Employment: Retail Trade Industries

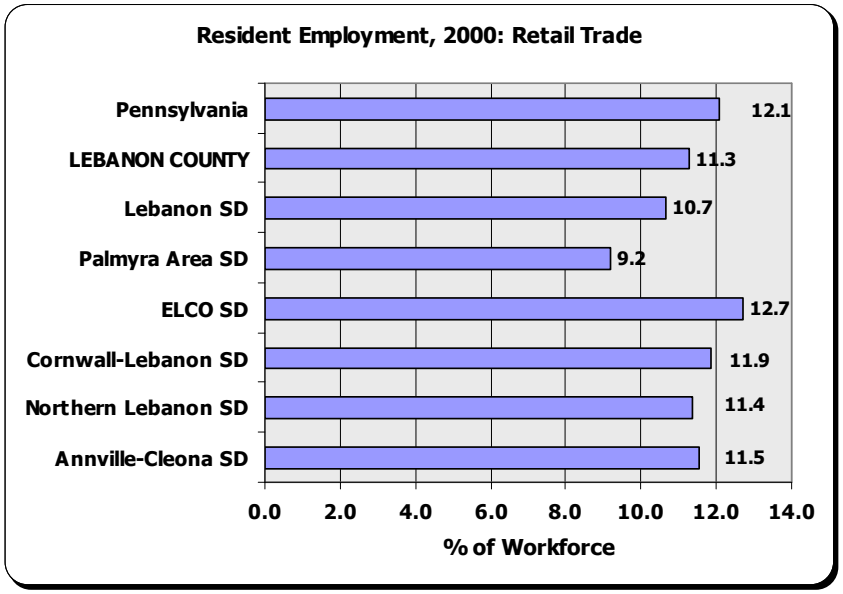
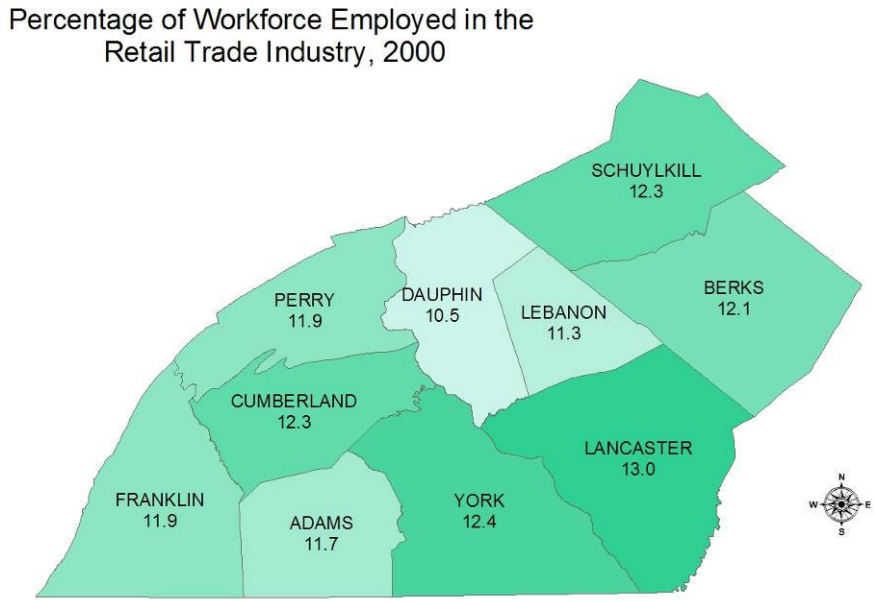


Figure 3-38 Comparison by County, 2000



Source: US Census Bureau, 2000

Transportation and Warehousing, and Utilities

- The county's percentage of the workforce employed in transportation and warehousing and the utilities industries (4.6%) is slightly lower than for the state (5.4%).
- Within the county, each of the school districts had similar percentages with the exception of Northern Lebanon, which had over 6% of residents employed in these industries. This is likely due to the presence of Swift Trucking and other wholesale shippers located along major highway corridors.
- At the regional level, transportation and warehousing and utilities are concentrated in Cumberland, Dauphin and Perry Counties. Perry County had the highest percentage of workers in these industries (9.9%).

Figure 3-39 Resident Employment: Transportation and Warehousing, and Utilities Industries

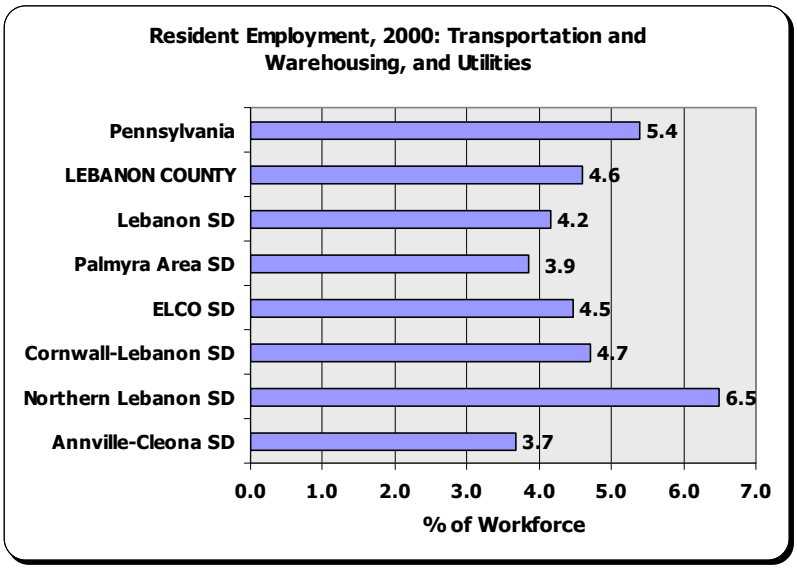
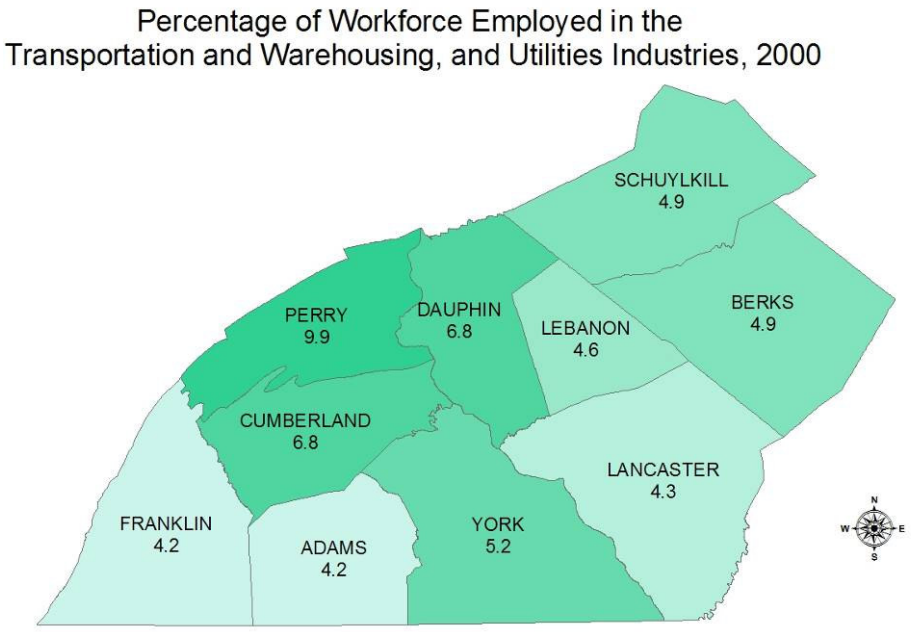


Figure 3-40 Comparison by County, 2000



Source: US Census Bureau, 2000

Information Industries

- Information industries employed the smallest percentage of the county's workforce (1.7%)—significantly less than the state (2.6%).
- The Lebanon and Palmyra Area School Districts had percentages most comparable to the state. Northern Lebanon had less than one percent of the workforce employed in these industries.
- Cumberland and Dauphin Counties had the highest percentages in the region (2.8% each).

Figure 3-41 Resident Employment: Information Industries

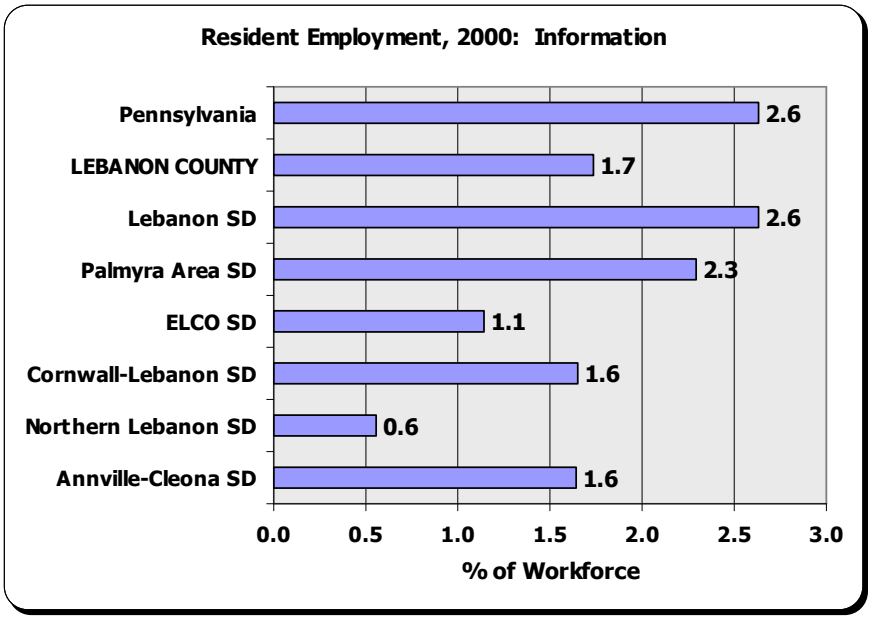
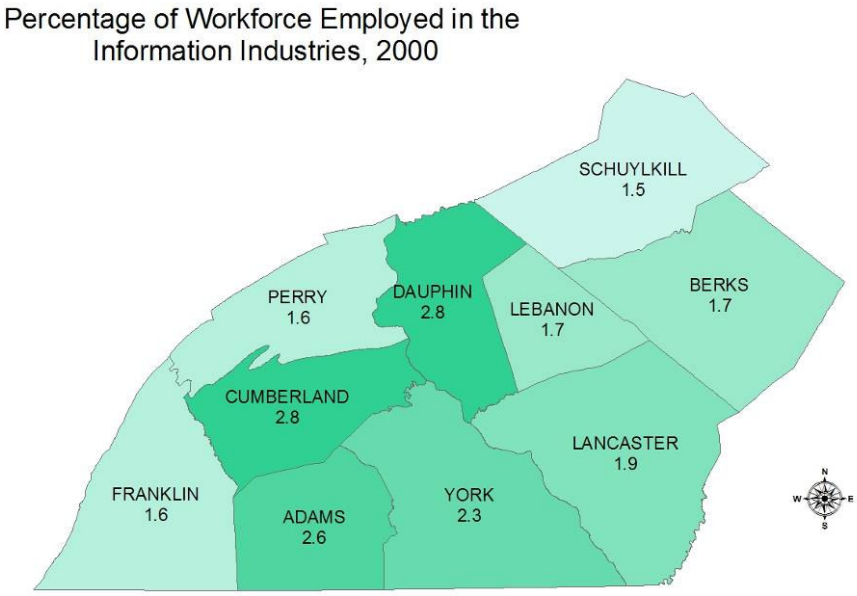


Figure 3-42 Comparison by County, 2000



Source: US Census Bureau, 2000

Finance, Insurance, Real Estate, and Rental and Leasing (FIRE) Industries

- Lebanon County had a substantially smaller percentage of the resident workforce employed in the FIRE industries (3.8%) than the Commonwealth (6.6%).
- The Cornwall-Lebanon and Palmyra Area School Districts had the highest percentages of the resident workforce employed in the FIRE industries within the county, yet were still significantly below the state level.
- At the regional level, Lebanon County ranks low (3.8%); only Adams County had a smaller percentage of the workforce employed in these industries (3.7%), while Cumberland, Dauphin and Perry Counties had significantly higher percentages employed (each over 8%).

Figure 3-43 Resident Employment: Finance, Insurance, Real Estate, and Rental Leasing Industries

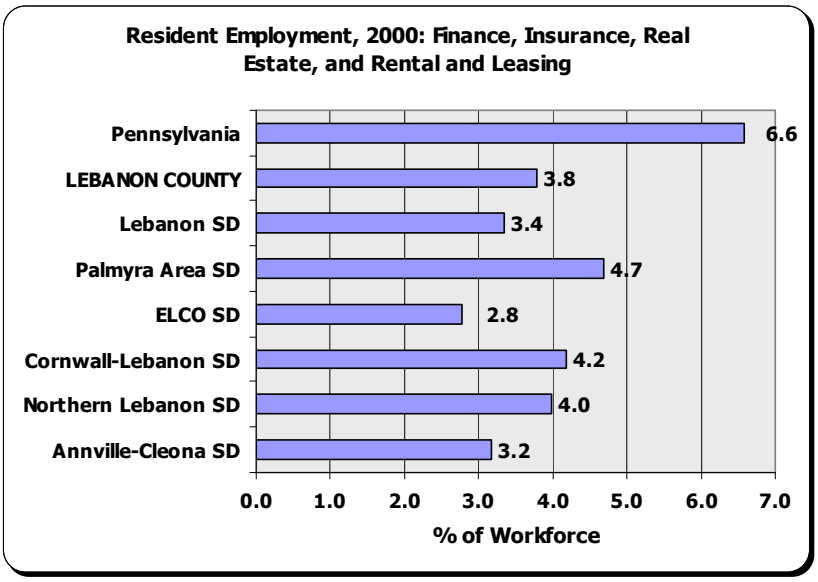
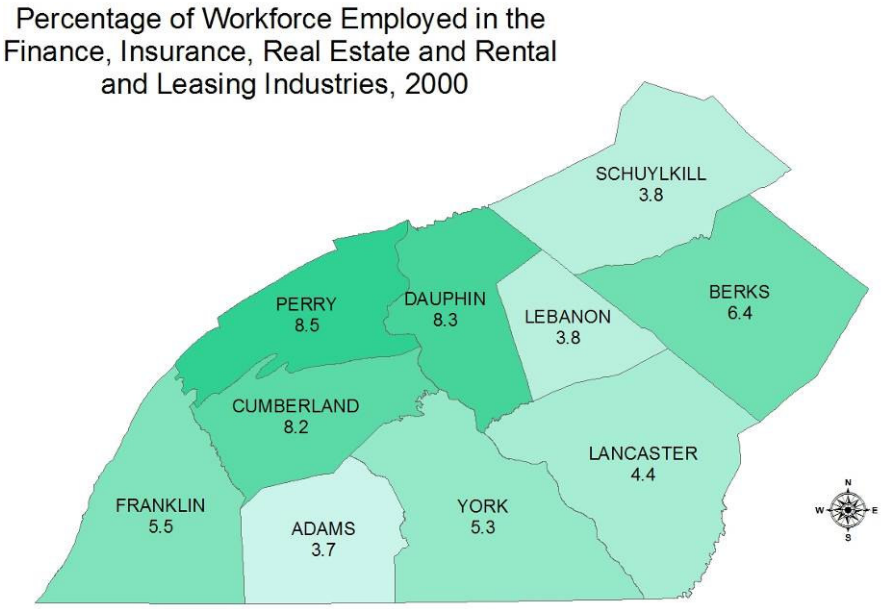


Figure 3-44 Comparison by County, 2000



Source: US Census Bureau, 2000

Professional, Scientific, Management, Administrative, and Waste Management Services Industries

- As with the FIRE industries, Lebanon County had a smaller percentage of the resident workforce employed in the Professional, Scientific, Management, Administrative, and Waste Management Services industries (5.6%) than found at the state level (8.5%).
- Among the county's school districts, Cornwall-Lebanon and Palmyra Area ranked first and second with 6.7% and 6.6%, respectively.
- At 5.6%, Lebanon County ranked in the middle range for employment in professional, scientific, management, administrative, and waste management services. Dauphin County topped the list with 8.0%.

Figure 3-45 Resident Employment: Professional, Scientific, Management, Administrative, and Waste Management Services Industries

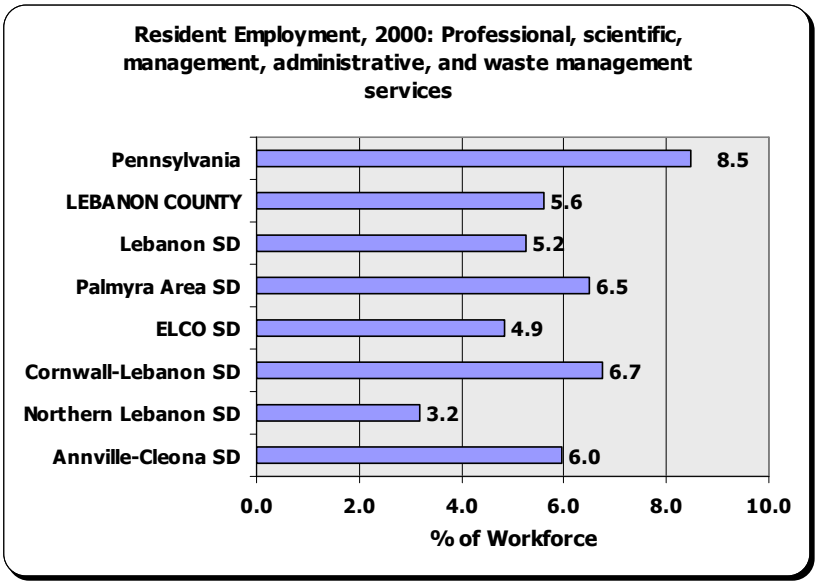
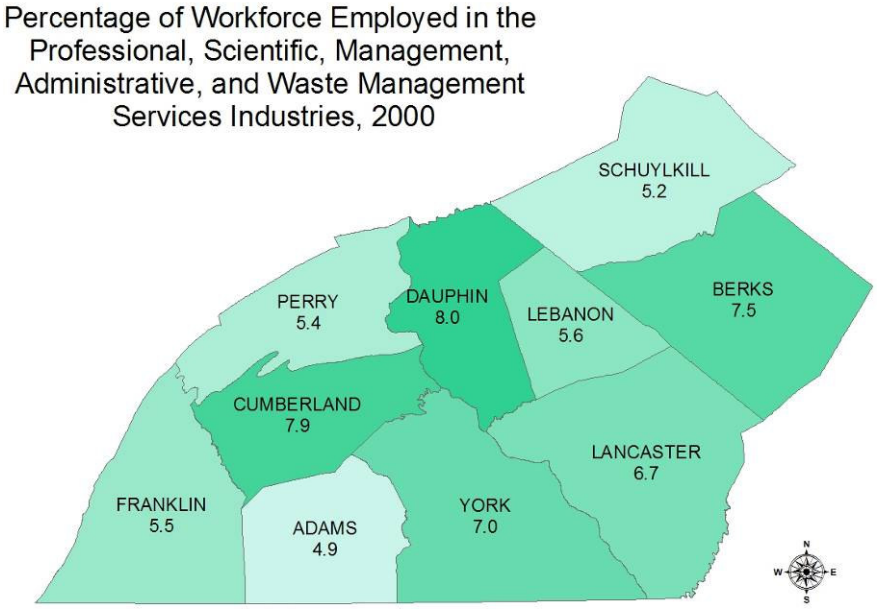


Figure 3-46 Comparison by County, 2000



Source: US Census Bureau, 2000

Education, Health and Social Services Industries

- Lebanon County is comparable to the state with regard to the percentage of the workforce employed in these industries, 21.1% and 21.9% respectively.
- Three of the school districts' percentages exceed the state rate: Cornwall–Lebanon, Palmyra Area, and Annville–Cleona.
- Among the surrounding counties, Lebanon County ranks first in the percentage of residents employed in the education, health and social services industries. Most of the surrounding counties have similar percentages, although Perry and York Counties lag somewhat at 16.4% and 16.7% respectively.

Figure 3-47 Resident Employment: Education, Health and Social Services Industries

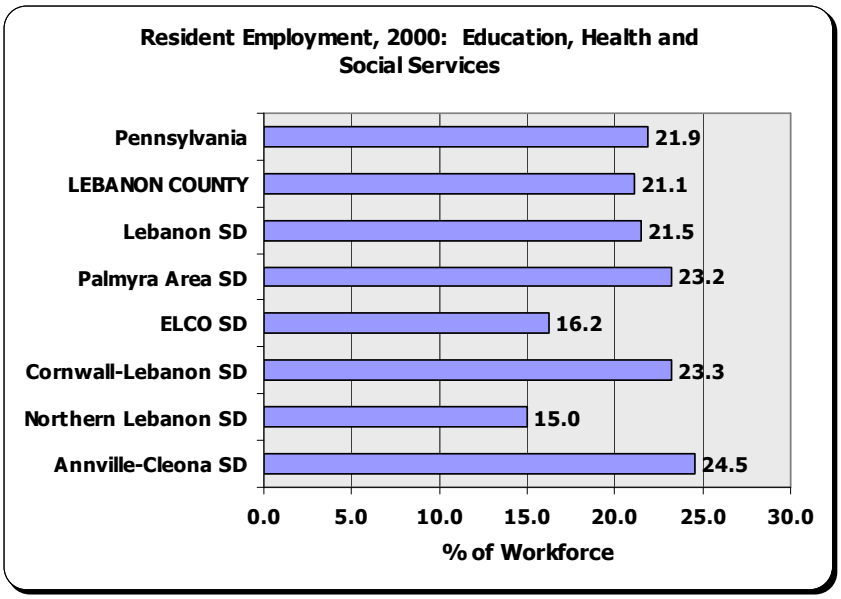
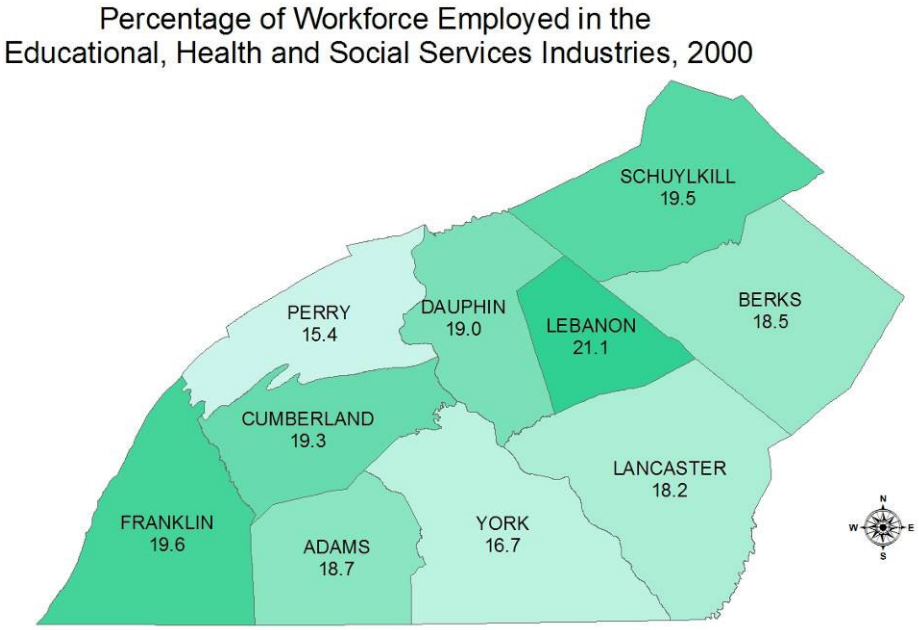


Figure 3-48 Comparison by County, 2000



Source: US Census Bureau, 2000

Arts, Entertainment, Recreation, Accommodation, and Food Services Industries

- Lebanon County had a slightly higher percentage of workers in the arts, entertainment, recreation, accommodation, and food service industries (7.4%) compared to the Commonwealth (7.0%).
- Adams and Lebanon Counties are leaders in these industries. Lebanon County's lead may be due in large part to the Hershey Entertainment and Resorts complex located in Dauphin County, which employs almost 1,200 full-time and 3,200 part-time workers.
- Within the county, the Annville-Cleona School District surpasses the state and county with just over 10% of residents working in these industries.
- As shown previously in Figure 3-8, these industries pay relatively low wages.

Figure 3-49 Resident Employment: Arts, Entertainment, Recreation, Accommodation, and Food Services Industries

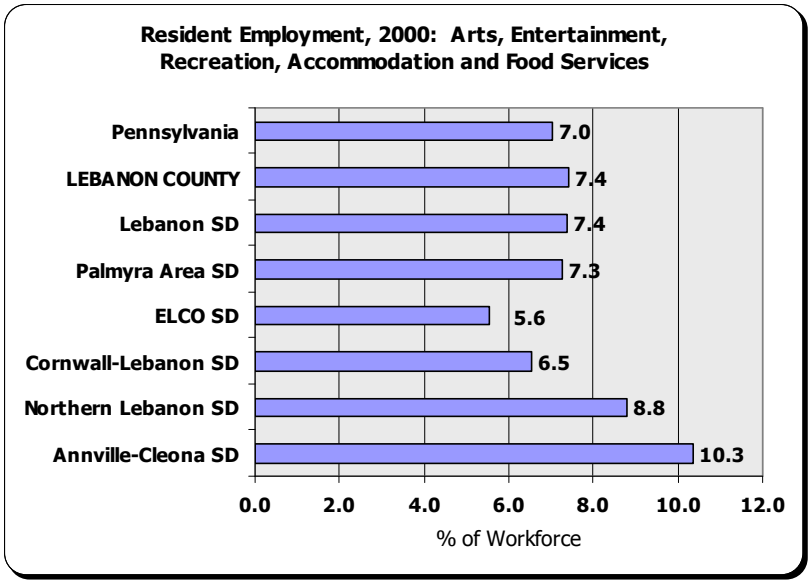
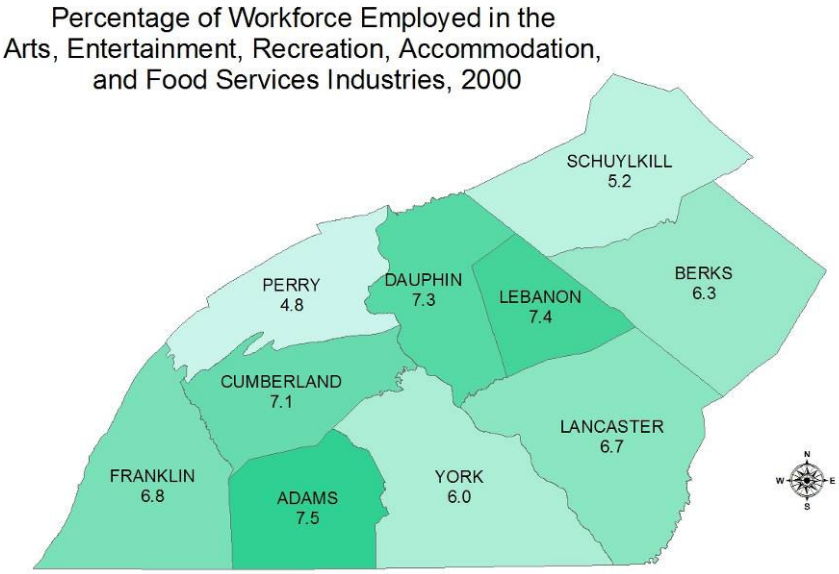


Figure 3-50 Comparison by County, 2000



Source: US Census Bureau, 2000

Other Services (Except Public Administration)

- Lebanon County is similar to the Commonwealth with regard to the percentage of residents employed in other services, 4.6% and 4.8%, respectively.
- Within the county, the ELCO School District stands out with over 6% of the workforce employed in these industries in 2000.
- The range for the surrounding counties is very narrow—Adams County at the low end with 4.4% and Lancaster County at the high end with 5.2%.

Figure 3-51 Resident Employment: Other Services Industries

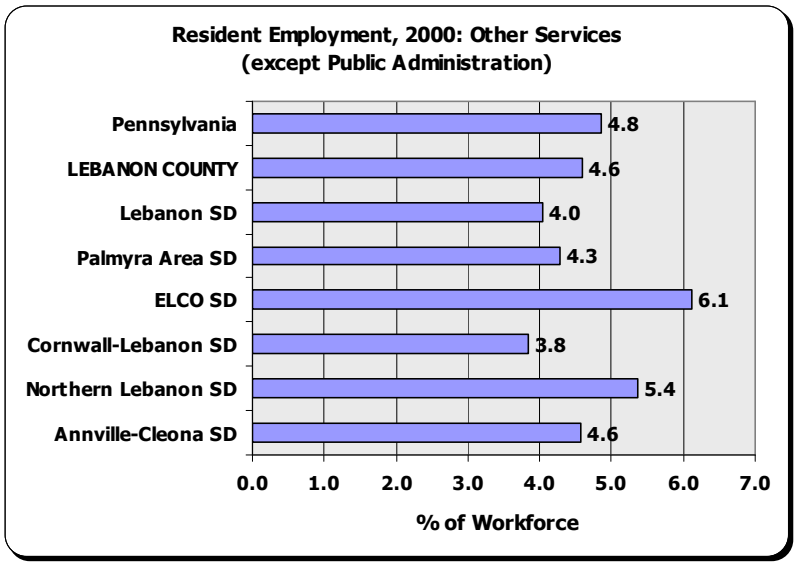
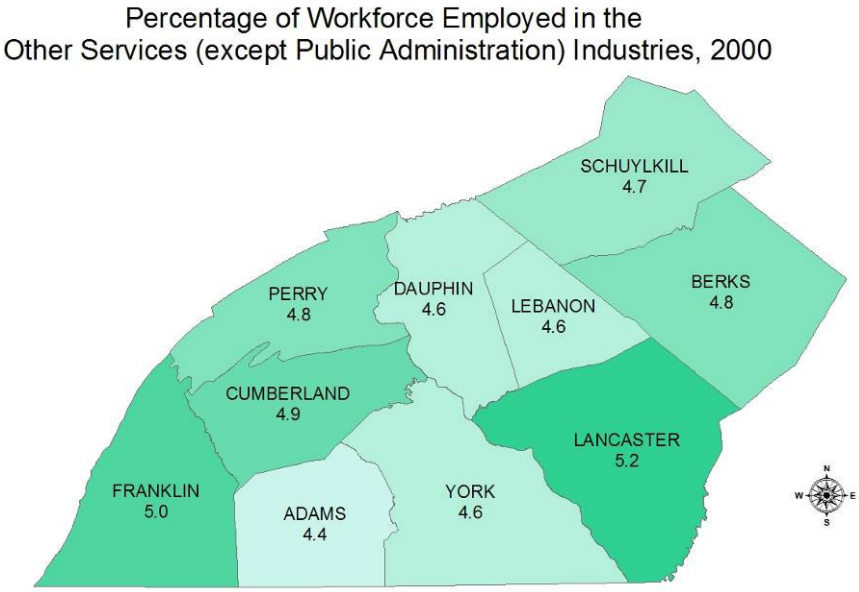


Figure 3-52 Comparison by County, 2000



Source: US Census Bureau, 2000

Public Administration

- Lebanon County had a slightly smaller percentage of the workforce employed in public administration industries (3.8%) than Pennsylvania (4.2%).
- The Lebanon and Palmyra Area School Districts had the highest percentages of the workforce employed in public administration. This is likely due to the City's position as the county seat, and Palmyra's proximity to Harrisburg.
- Cumberland and Dauphin Counties had the highest percentages employed in this category, with 10.0% and 12.0% respectively. Again, proximity to Harrisburg, the state capitol, is the likely rationale.

Figure 3-53 Resident Employment: Public Administration Industries

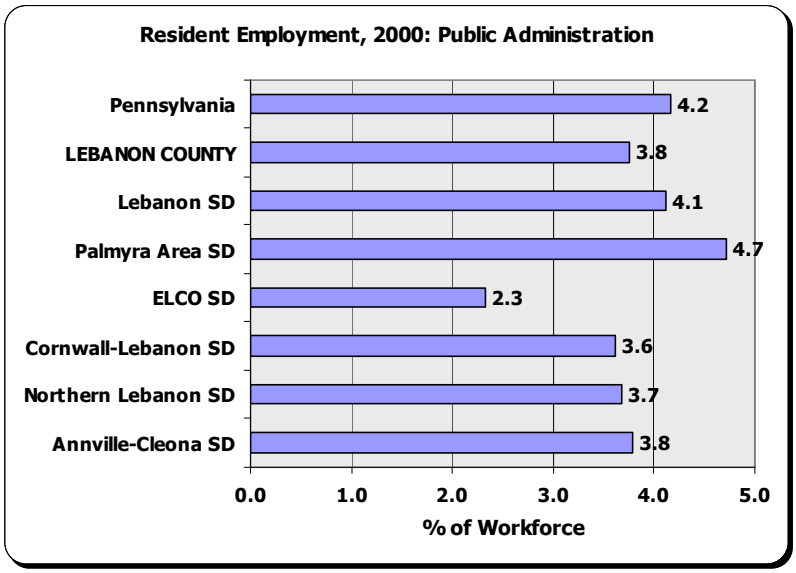
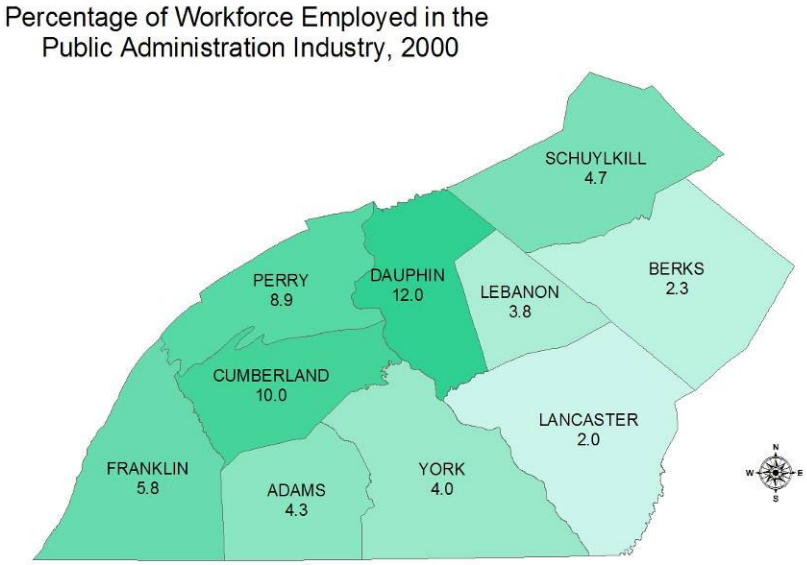


Figure 3-54 Comparison by County, 2000



Source: US Census Bureau, 2000

Employment by Occupation

This section examines the types of jobs, or occupations, that residents have within the industries reviewed in the previous section. The Census Bureau divides occupations into six major categories:

- Management, professional, and related occupations
- Service occupations
- Sales and office occupations
- Farming, fishing, and forestry occupations
- Construction, extraction, and maintenance occupations
- Production, transportation, and material moving occupations

As with the industrial data, the occupations classification system used for the 1990 Census is not the same as the one used for 2000; therefore, only 2000 data is analyzed and presented at the county, school district, and regional levels.

Management, Professional and Related Occupations

Lebanon County had a significantly smaller percentage of residents employed in management, professional and related occupations (25.4%) relative to the state (32.6%).

- The Palmyra Area School District exceeded both the state and county percentages, with almost 35% of residents employed in these occupations. Lebanon School District had the smallest percentage (15.8%).
- Regionally, the percentage of Lebanon County residents employed in these types of occupations (25.4%) is relatively low. Dauphin County has the highest percentage (34.9%), and Schuylkill County the lowest (23.7%).

Figure 3-55 Management, Professional and Related Occupations

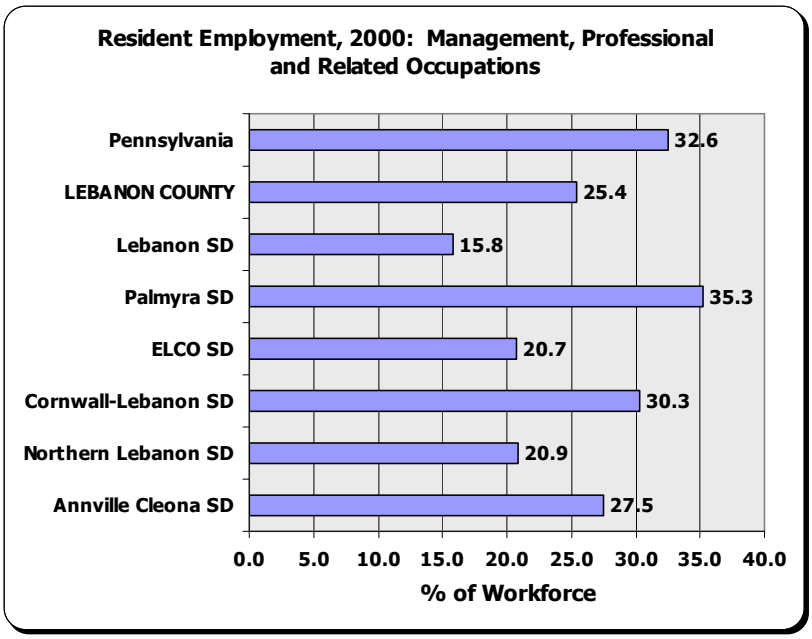
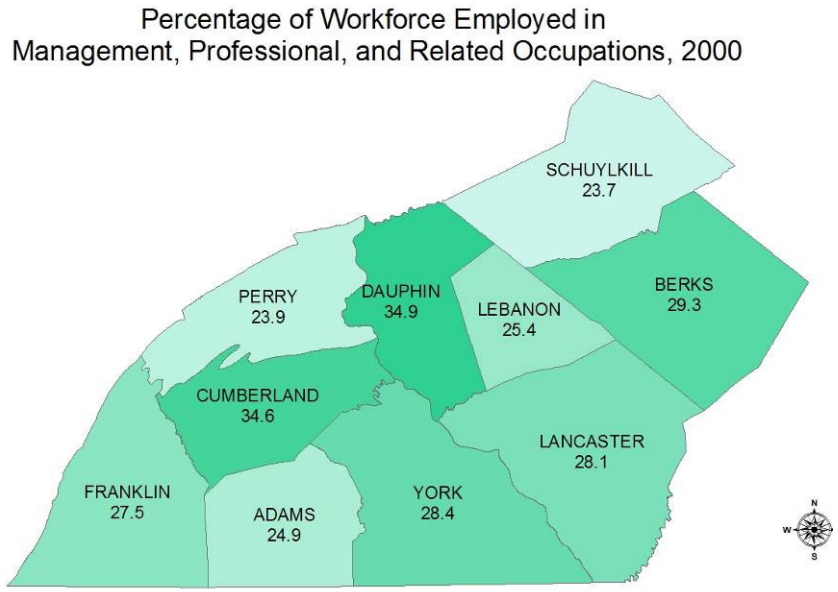


Figure 3-56 Comparison by County, 2000



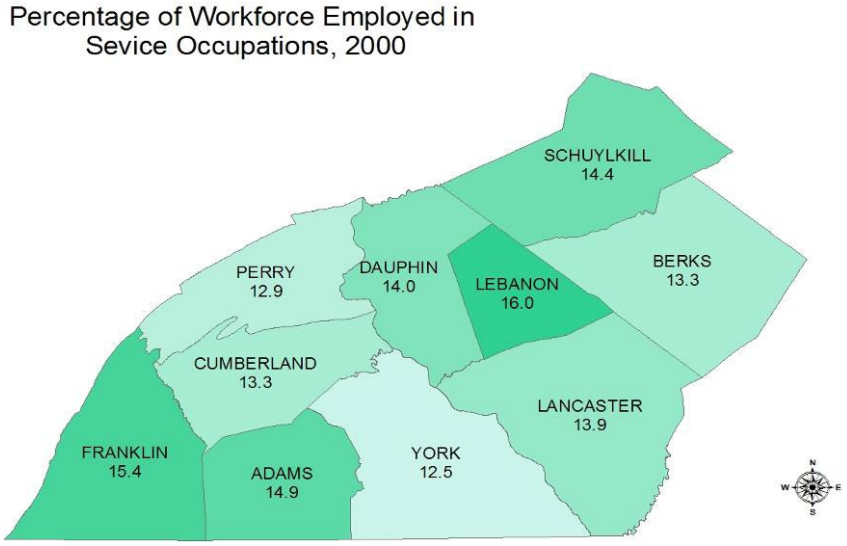
Source: US Census Bureau, 2000

Service Occupations

- The percentage of Lebanon County residents employed in service occupations (16.0%) was slightly higher than the state (14.8%).
- The Lebanon and Annville–Cleona School Districts surpasses the county with 20% and 18.4%, respectively, of residents employed in these occupations.
- Lebanon County also had the highest percentage of the labor force (16%) employed in these occupations relative to the surrounding counties. Franklin County ranked second with just over 15% and York County was last with 12.5%.

Figure 3-57 Service Occupations

Figure 3-58 Comparison by County



Source: US Census Bureau, 2000

Sales and Office Occupations

- Lebanon County had a smaller percentage of residents employed in sales and office occupations (23.9%) compared to Pennsylvania (27.0%).
- Within the county, the Cornwall–Lebanon and the Palmyra Area School Districts ranked first and second with 24.9% and 24.3% respectively.
- Relative to surrounding counties, Lebanon County has fewer resident workers employed in sales and office occupations. The capitol region, comprised of Cumberland, Dauphin and Perry Counties, had much higher percentages of workers in sales and office occupations.

Figure 3-59 Sales and Office Occupations

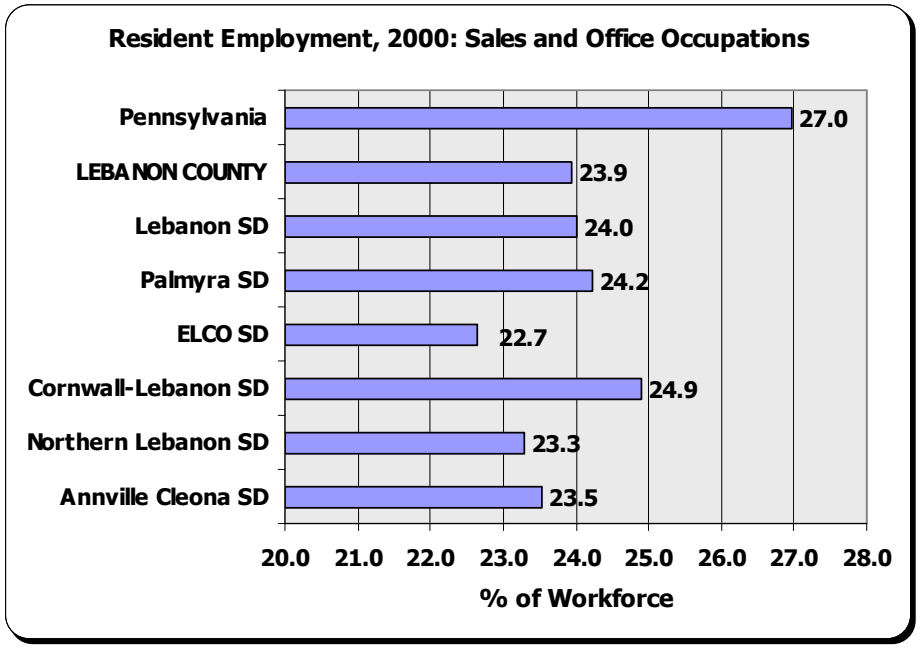
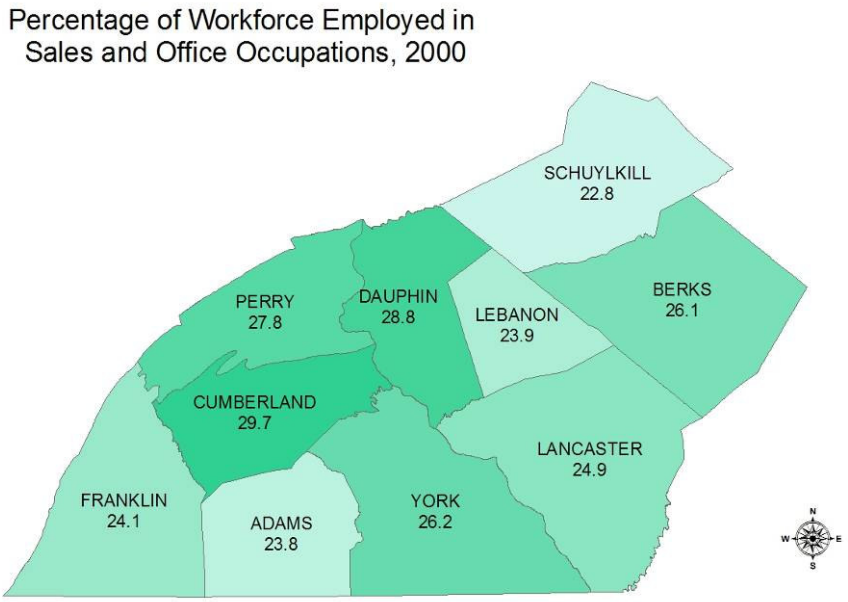


Figure 3-60 Comparison by County, 2000



Source: US Census Bureau, 2000

Farming, Fishing, and Forestry Occupations

- The percentage of Lebanon County workers employed in farming, fishing and forestry (1.1%) is more than double that of the state (0.5%). The relatively high percentage is supported by the quality farmland located in the county, the proximity to markets in the central Pennsylvania and mid-Atlantic regions, and the accessibility of the transportation network to reach those markets.
- Within Lebanon County, the ELCO and Northern Lebanon School Districts had the highest percentages of residents employed in these occupations, 2.3% and 1.9%, respectively.
- Among the surrounding counties, Adams and Perry Counties had the highest percentages of the resident workforce employed in these occupations (1.7% and 1.2%, respectively). Lebanon, Lancaster, and Franklin Counties each had 1.1%.

Figure 3-61 Farming, Fishing, and Forestry Occupations

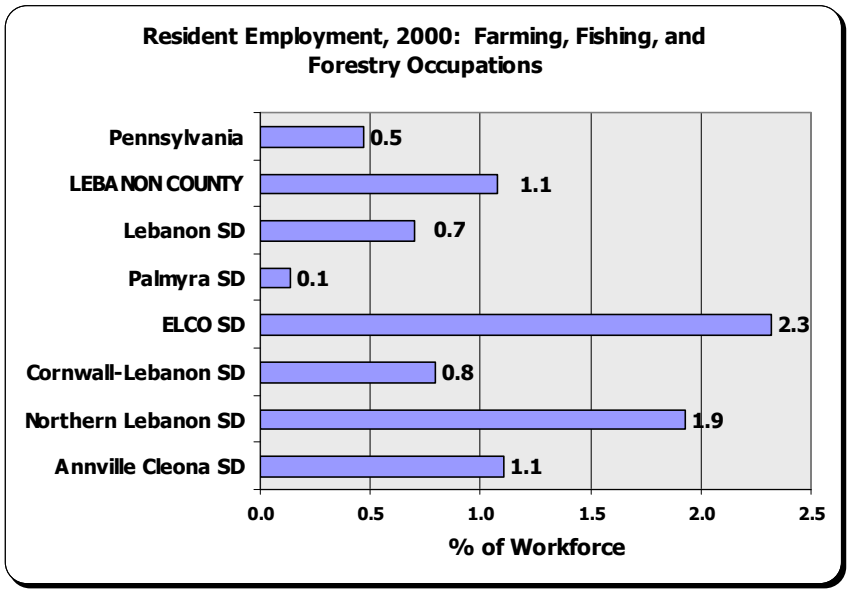
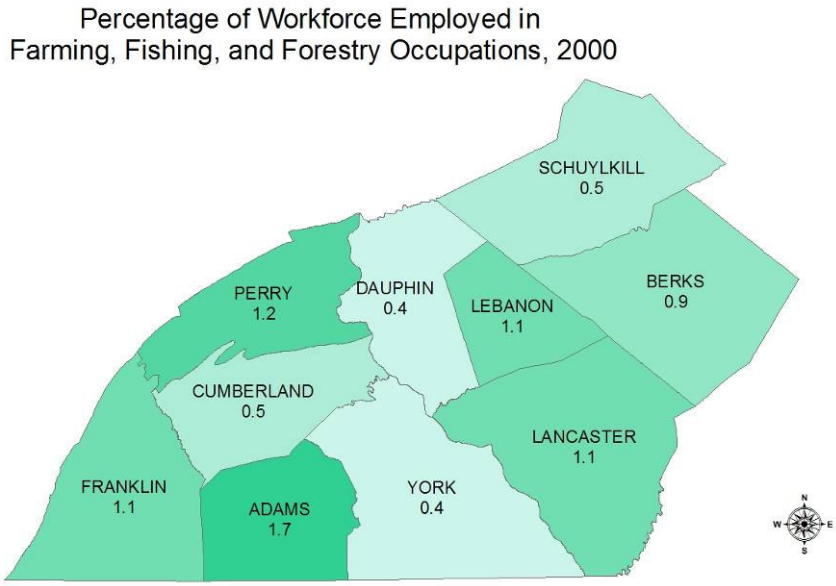


Figure 3-62 Comparison by County, 2000



Source: US Census Bureau, 2000

Construction, Extraction, and Maintenance Occupations

- Lebanon County (10.4%) exceeded the state (8.9%) in the percentage of residents employed in construction, extraction, and maintenance occupations. Employment strength in these occupations is supported by strong regional growth and development, as well as valuable subsurface geology.
- Within Lebanon County, the ELCO and Northern Lebanon School Districts had the highest percentages (approximately 13% each).
- The County ranks fourth among the surrounding counties, exceeded by Adams, Perry, and Schuylkill Counties. Lebanon County is most similar to Franklin County, which had 10.3% of the resident workforce employed in these industries.

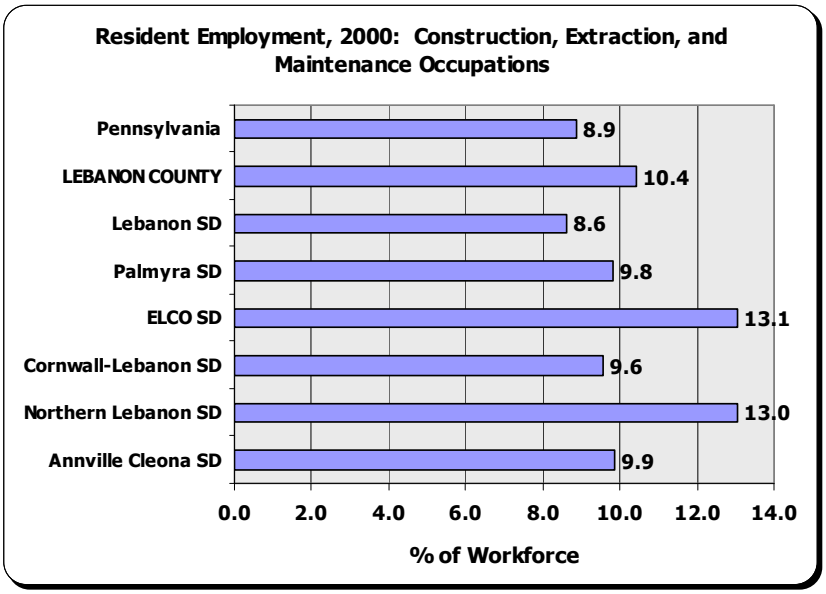
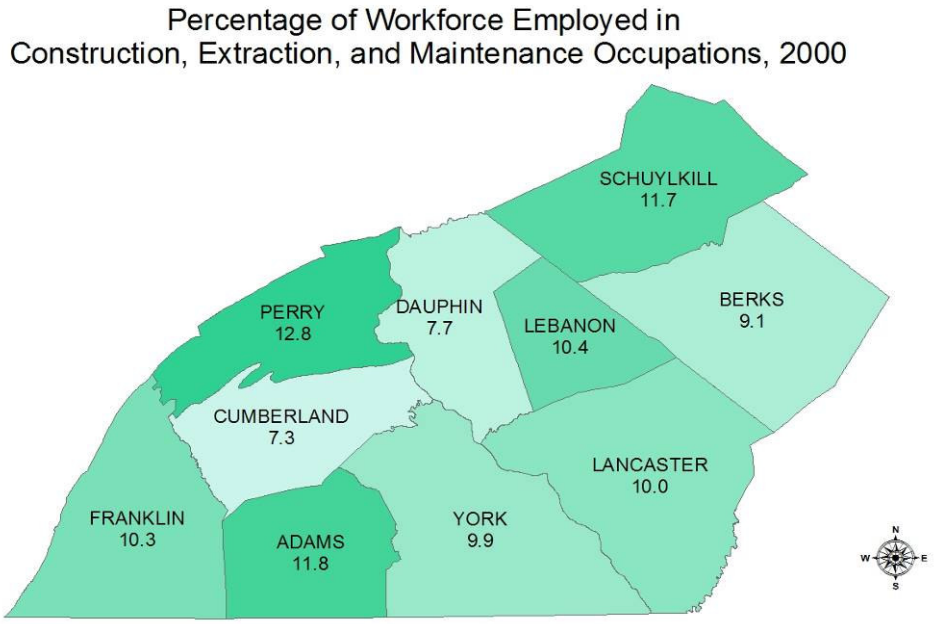


Figure 3-64 Comparison by County, 2000



Source: US Census Bureau, 2000

Production, Transportation, and Material Moving Occupations

- Lebanon County has a significantly larger percentage of the resident workforce (23.2%) employed in production, transportation and material moving occupations than Pennsylvania (16.3%).
- Among the school districts, the Lebanon School District had the highest percentage (30.9%); the Palmyra Area School District has the lowest (16.1%).
- Lebanon County ranks second only to Schuylkill County (26.9%) among the surrounding counties. Adams County follows closely with 23% of residents employed in these types of occupations.

Figure 3-65 Production, Transportation, and Material Moving Occupations

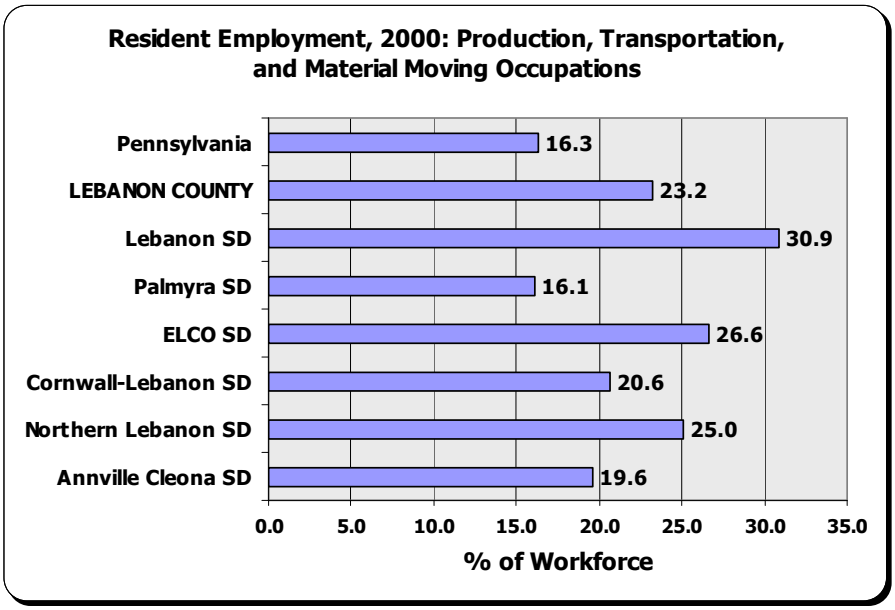
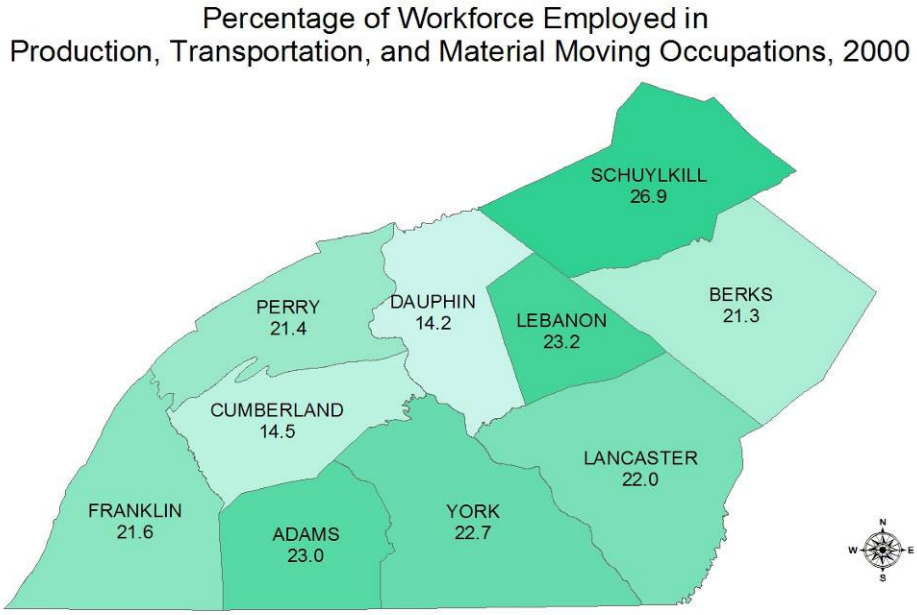


Figure 3-66 Comparison by County, 2000



Source: US Census Bureau, 2000

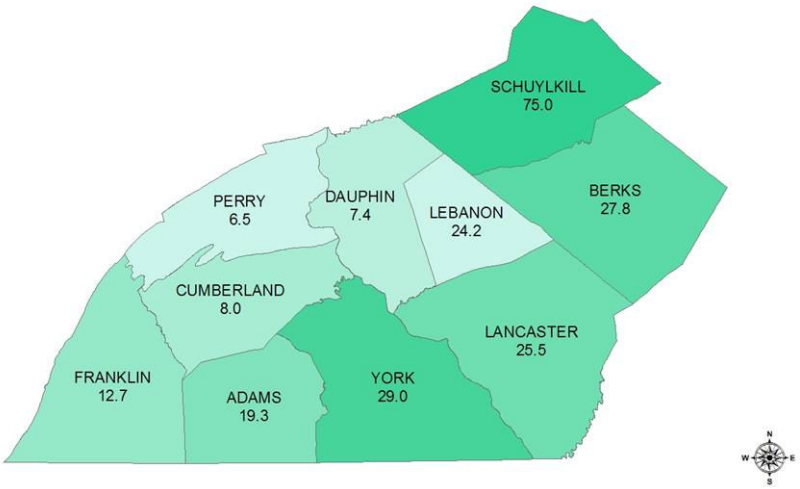
Commuting Patterns

A review of the commuting patterns of the county's workforce helps to further define Lebanon County's economic position in terms of employment distribution. By comparing 1990 and 2000 data, changes in the location of the county's and the region's employment centers are revealed. This section begins with a comparison at the county level and then reviews commuter patterns at the school district level.

Place of Work by County 1990–2000

- The percentage of Lebanon County residents traveling outside the county for employment increased between 1990 and 2000 by 24.2%.
- The increase in residents traveling outside their home county is a regional trend, as evidenced by the fact that each of the surrounding counties also experienced increases in the number of residents traveling outside their borders to work in 2000.
- Schuylkill County experienced the greatest percentage and numerical increase at 75% and 11,900 residents, respectively.

Figure 3-67 Percent Increase in Number of Residents Working Outside County of Residence, 1990-2000



Source: US Census Bureau, 2000

- York County ranked second in percentage increase at 29%, which may reflect the influence of the Baltimore, MD job center. Berks County ranked second numerically – 7,722 residents, which may be due to the job markets in Philadelphia and Allentown.
- Census data for 2000 also indicates that 80% of the people who work in Lebanon County also live there. Approximately 5% are traveling from Dauphin County and an additional 8% are traveling from Berks and Dauphin Counties (4% each). Other top counties of origin include Schuylkill (3%), Cumberland (1%), and York (1%).
- Figures 3-67 and 3-68 compare the top county-level destinations for Lebanon County's resident workforce in 1990 and 2000. As shown, Lebanon County had fewer residents working within their borders in 2000 than in 1990, with only 63% traveling to destinations within the county in 2000 versus 68% in 1990.
- The percentage of residents traveling to Dauphin County increased from 17% in 1990 to 22% in 2000. There was no change in the percentage of residents traveling to Berks, Cumberland, and Lancaster Counties.
- Other Pennsylvania counties that topped the list of destinations in 2000 include York County (0.4%), Schuylkill County (0.3%), and Montgomery County (0.2%). Out of state locations included New York and Washington, D.C.

Figure 3-68 County Level Commuter Destinations, 1990

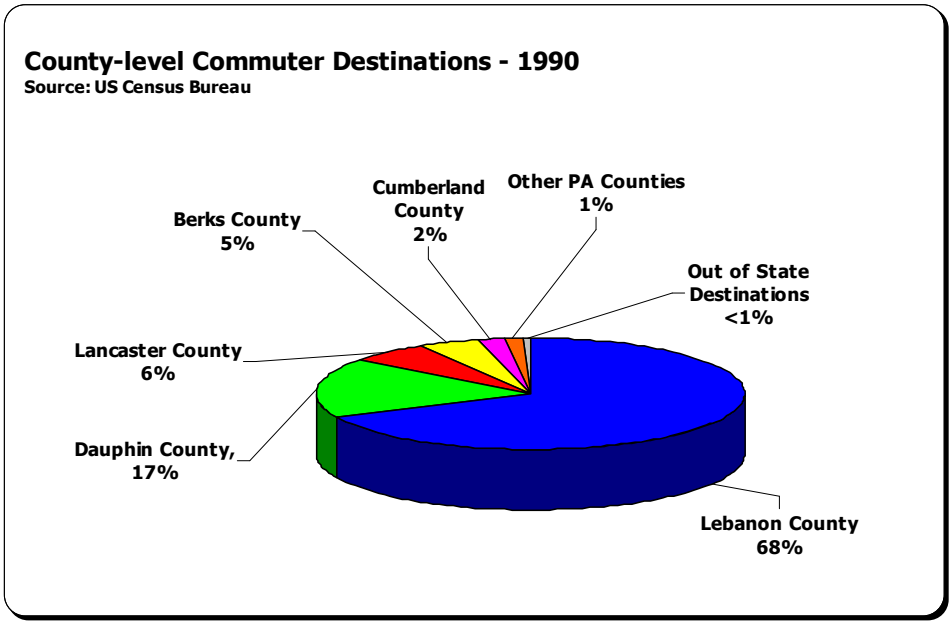


Figure 3-69 County Level Commuter Destinations, 2000

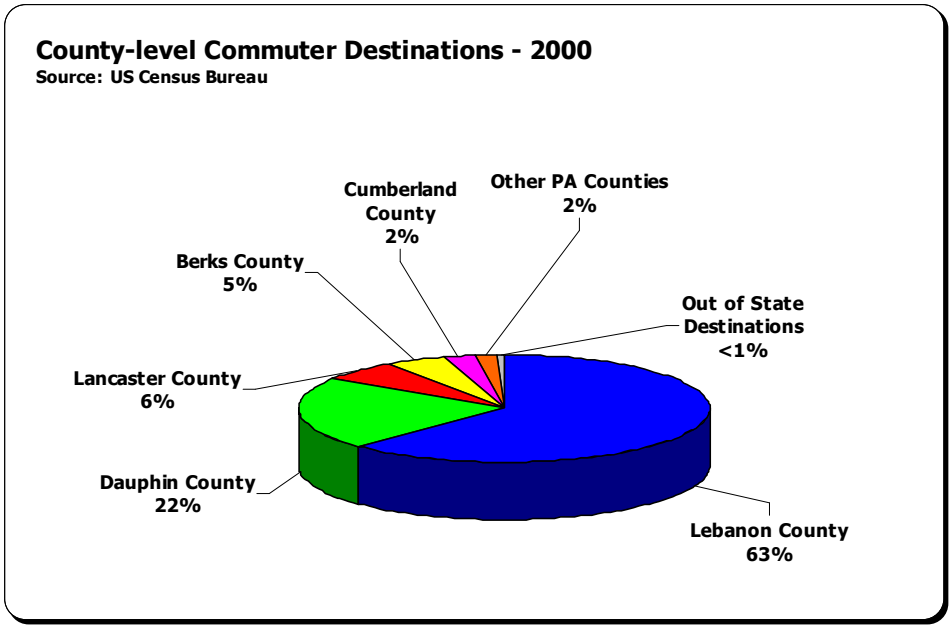
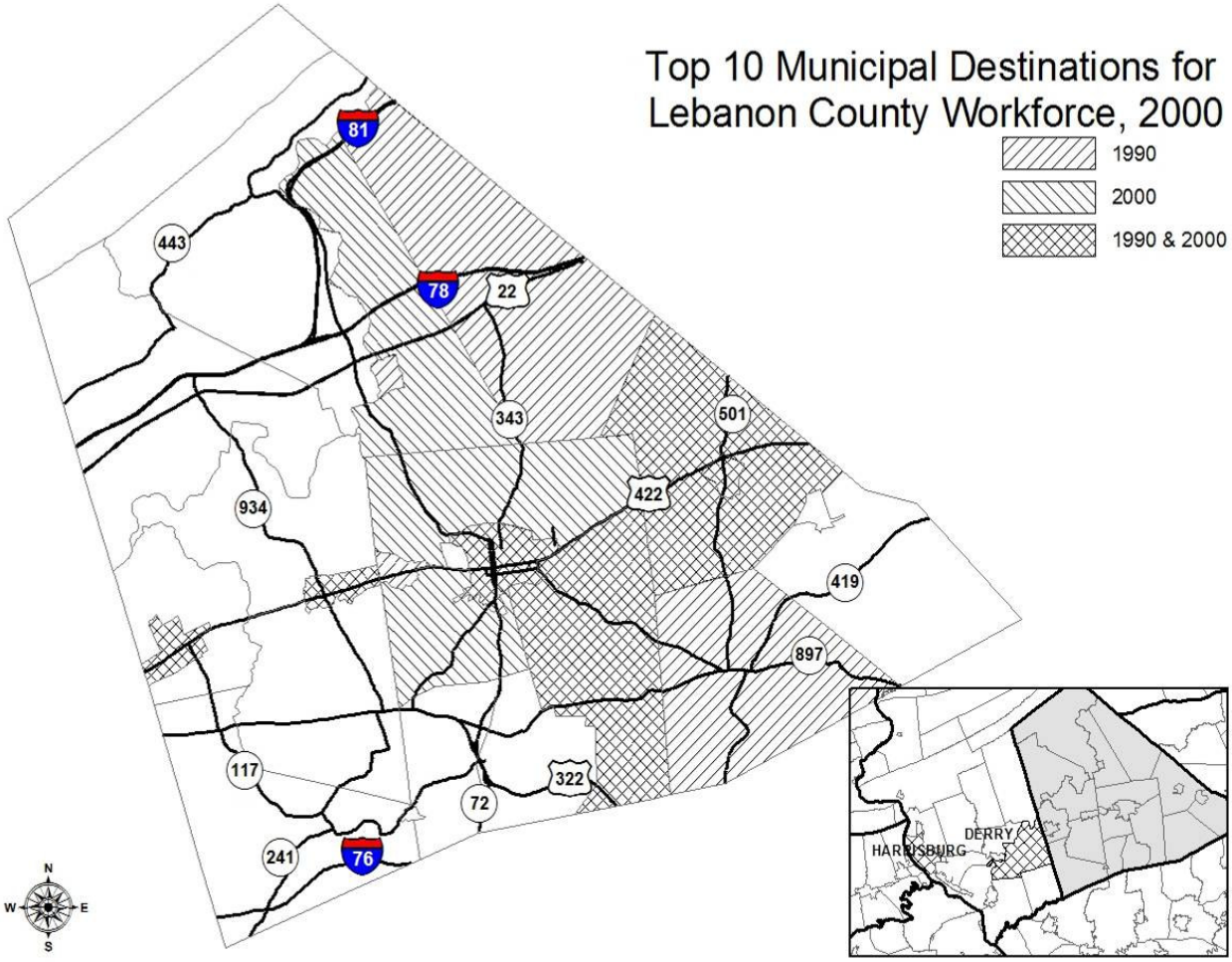


Table 3-9 Top Commuter Destinations, Lebanon County

1990 Top Commuter Destinations	Commuters			2000 Top Commuter Destinations	Commuters	
	#	percent			#	percent
Lebanon City	14,953	27.6		Lebanon City	9,689	16.5
South Lebanon Township	6,016	11.1		Derry Township	6,858	11.7
Derry Township	5,897	10.9		South Lebanon Township	3,593	6.1
Annville Township	3,407	6.3		North Cornwall Township	2,625	4.5
Palmyra Borough	2,781	5.1		North Lebanon Township	2,401	4.1
Myerstown Borough	1,935	3.6		Annville Township	2,190	3.7
Jackson Township	1,582	2.9		Palmyra Borough	1,906	3.2
City of Harrisburg	1,351	2.5		Jackson Township	1,819	3.1
Bethel Township, Lebanon	1,303	2.4		Myerstown Borough	1,690	2.9
Jonestown Borough	915	1.7		City of Harrisburg	1,669	2.8
Total traveling to top 10	***40,140***	***74.1***		***Total traveling to top 10***	***34,440***	***58.6***

- Of the top ten destinations in 1990, eight were among the top ten in 2000 (Table 3-4 and Figure 3-69). Bethel Township and Jonestown Borough dropped out, while North Cornwall and North Lebanon Townships moved onto the list.
- The City of Lebanon remains the top destination for Lebanon County commuters. However, the number of commuters traveling to the City dropped by 5,264 or 35.2% from 1990 to 2000.
- The total number of commuters traveling to the top 10 employment destinations declined by 5,700 or 14.2%, reflecting a decentralization of employment across the county.

Figure 3-70 Top Municipal Destinations



Source: US Census Bureau

Place of Work by School District

Because over 60% of Lebanon County's commuters are traveling to destinations within Lebanon County, a closer look at internal commuter patterns offers a greater understanding of the locations of employment centers. Using the school districts as the point of origin, top commuter destinations for each are analyzed. The data is also referenced within the transportation plan to identify changes in commuter routes.

- As with the county, many of the top municipal destinations for each school district's resident workforce in 1990 remained the same in 2000. However, the percentage of residents traveling to those destinations has decreased. What becomes evident is more Lebanon County commuters are traveling throughout the region for employment, which in turn highlights the interconnected nature of the *regional* economy.

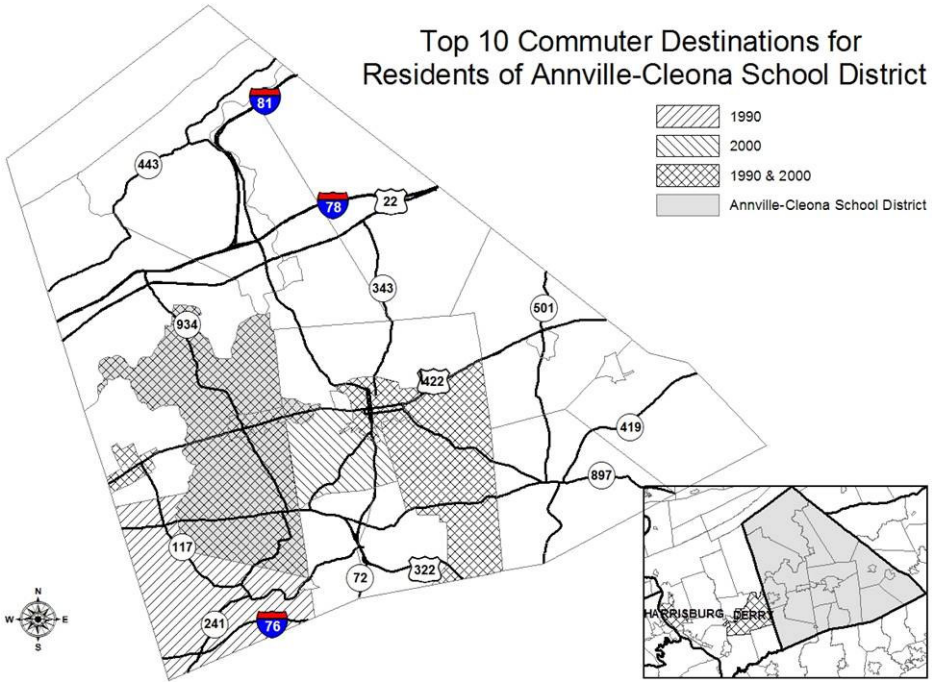
The Annville-Cleona School District

Table 3-10 Top Commuter Destinations, Annville-Cleona School District

1990 Top Commuter Destinations	Commuters			2000 Top Commuter Destinations	Commuters	
	#	percent			#	percent
City of Lebanon	1,192	19.3		Derry Township, Dauphin Co.	1,016	16.4
Annville Township	1,113	18.0		Annville Township	909	14.7
Derry Township, Dauphin Co.	878	14.2		City of Lebanon	634	10.2
South Lebanon Township	546	8.8		South Annville Township	268	4.3
Palmyra Borough	500	8.1		Cleona Borough	224	3.6
Cleona Borough	253	4.1		Palmyra Borough	206	3.3
City of Harrisburg, Dauphin Co.	208	3.4		City of Harrisburg, Dauphin Co.	187	3.0
North Annville Township	103	1.7		North Cornwall Township	161	2.6
South Annville Township	85	1.4		North Annville Township	152	2.5
South Londonderry Township	60	1.0		South Lebanon Township	144	2.3
Total traveling to top 10	***4,938***	***80.0***		***Total traveling to top 10***	***3,901***	***63.0***

- In 1990, 80% of commuters living in the Annville-Cleona School District traveled to the top ten destinations. By 2000, the percentage had decreased to 63%.
- The top three destinations in 1990 were also the top three in 2000; however, their relative importance changed. Derry Township moved to the top position, while the City moved to third. Annville Township retained second place, but with a smaller percentage of total commuters.

Figure 3-71 Top Municipal Destinations



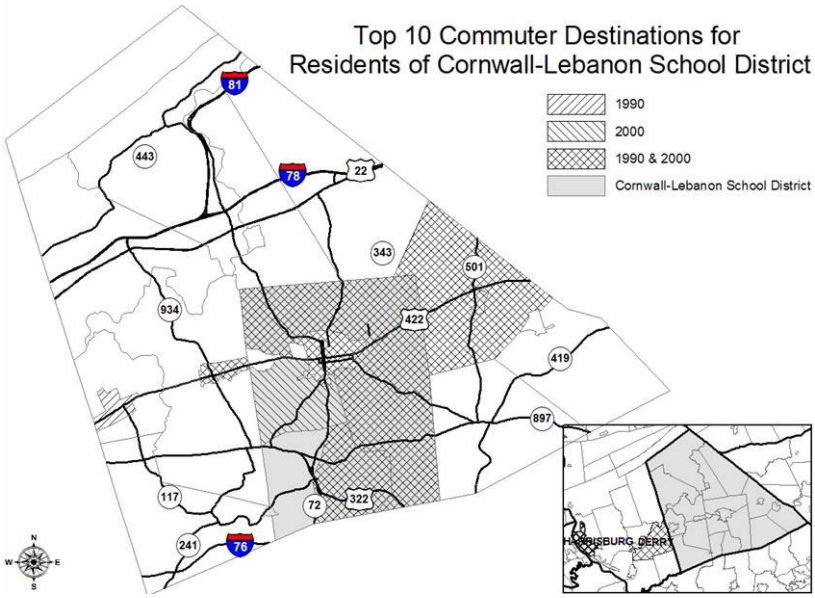
Cornwall-Lebanon School District

Table 3-11 Top Commuter Destinations, Cornwall-Lebanon School District

1990 Top Commuter Destinations	Commuters		2000 Top Commuter Destinations	Commuters	
	#	% of total		#	% of total
City of Lebanon	4,790	35.9	City of Lebanon	3,355	22.3
South Lebanon Township	2,353	17.6	South Lebanon Township	1,578	10.5
Derry Township, Dauphin Co.	874	6.6	Derry Township, Dauphin Co.	1,304	8.7
Annville Township	508	3.8	North Lebanon Township	1,085	7.2
Myerstown Borough	305	2.3	North Cornwall Township	1,062	7.1
City of Harrisburg, Dauphin Co.	255	1.9	Myerstown Borough	380	2.5
Palmyra Borough	225	1.7	Annville Township	362	2.4
Jackson Township	191	1.4	City of Harrisburg, Dauphin Co.	194	1.3
North Lebanon Township	173	1.3	Jackson Township	192	1.3
Cornwall Borough	141	1.1	Cornwall Borough	174	1.2
Residents traveling to top 10	***9,815***	***74.0***	***Residents traveling to top 10***	***9,686***	***64.7***

- The top three destinations of resident commuters in the Cornwall-Lebanon School District in 1990 were the same in 2000; however, only Derry Township increased its share of the total, from 6.6% to 8.7%.
- Palmyra Borough is the only 1990 top destination that was not among those in 2000. It dropped to 14th in 2000, capturing less than one-half of one percent of commuters from the school district.
- As with each of the other districts, the top ten destinations in 2000 account for a smaller percentage of resident commuters, approximately 9% less. The remaining commuters are traveling primarily to locations in Lancaster and Berks Counties, as well as to other locations within Lebanon County.

Figure 3-72 Top Municipal Destinations



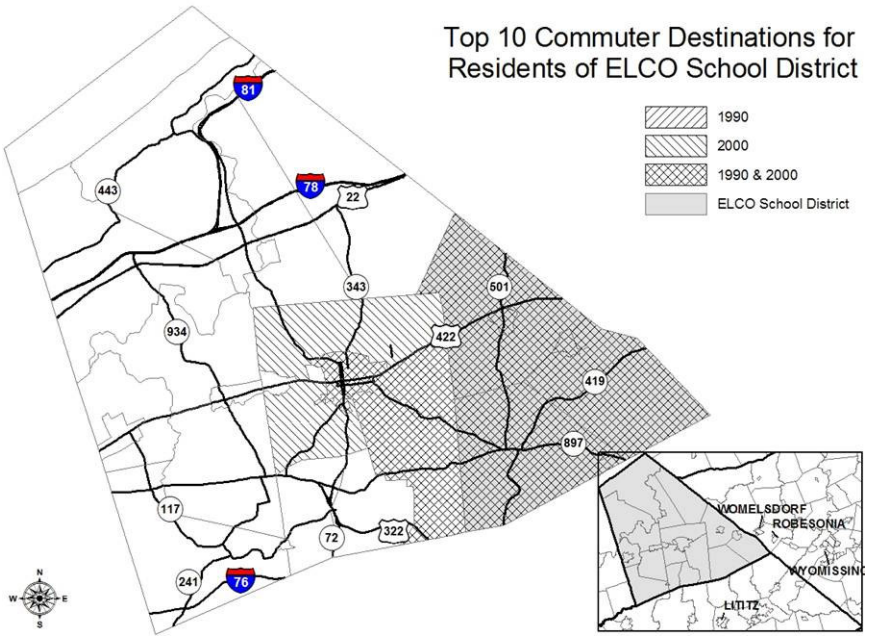
ELCO School District

Table 3-12 Top Commuter Destinations, ELCO School District

1990 Top Commuter Destinations	Commuters		2000 Top Commuter Destinations	Commuters	
	#	% of total		#	% of total
Myerstown Borough	1,297		Jackson Township	1,205	14.1
City of Lebanon	1,118	13.5	Myerstown Borough	868	10.1
Jackson Township	1,051	12.6	City of Lebanon	849	9.9
South Lebanon Township	471	5.7	Heidelberg Township	570	6.7
Heidelberg Township	452	5.4	South Lebanon Township	362	4.2
Millcreek Township	412	5.0	Richland Borough	305	3.6
Richland Borough	383	4.6	Millcreek Township	302	3.5
Robesonia Borough, Berks Co.	254	3.1	Wyomissing Borough, Berks Co.	184	2.2
Lititz Borough , Lancaster Co.	172	2.1	North Lebanon Township	180	2.1
Womelsdorf Borough, Berks Co.	138	1.7	North Cornwall Township	155	1.8
Residents traveling to top 10	***5,748***	***69.2***	***Residents traveling to top 10***	***4,980***	***58.2***

- Myerstown Borough, the City of Lebanon, and Jackson Township were among the top three destinations for ELCO resident commuters in both 1990 and 2000; however, Jackson Township moved from third to first in 2000.
- The total share of commuters from the ELCO School District captured by the top ten destinations decreased by 11% between 1990 and 2000.
- Although the relative position of the top seven destinations changed slightly between 1990 and 2000, the remaining three changed significantly. The 1990 destinations dropped from the top ten lists and were replaced by Wyomissing Borough, North Lebanon Township, and North Cornwall Township.

Figure 3-73 Top Municipal Destinations



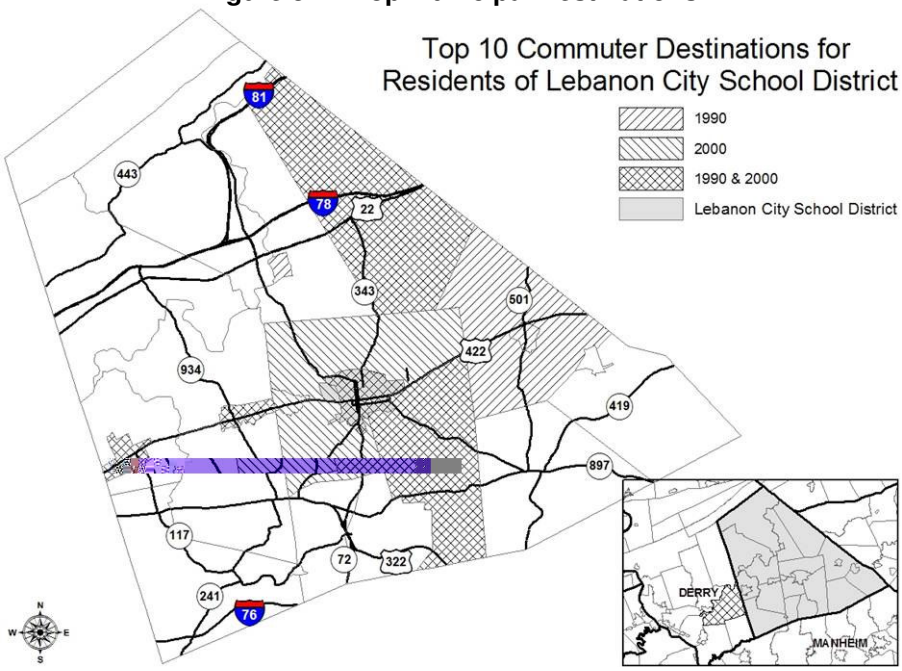
Lebanon School District

Table 3-13 Top Commuter Destinations, Lebanon School District

1990 Top Commuter Destinations	Commuters			2000 Top Commuter Destinations	Commuters	
	#	% of total			#	% of total
City of Lebanon	5,935	49.5		City of Lebanon	3,494	31.1
South Lebanon Township	1,707	14.2		South Lebanon Township	1,043	9.3
Derry Township, Dauphin Co.	523	4.4		North Cornwall Township	783	7.0
Annville Township	412	3.4		North Lebanon Township	695	6.2
Bethel Township	293	2.4		Derry Township, Dauphin Co.	651	5.8
Palmyra Borough	221	1.8		Bethel Township	440	3.9
Myerstown Borough	178	1.5		Annville Township	237	2.1
Jackson Township	163	1.4		Palmyra Borough	203	1.8
Jonestown Borough	146	1.2		West Lebanon Township	203	1.8
Manheim Borough	145	1.2		Cleona Borough	199	1.8
Residents traveling to top 10	***9,723***	***81.1***		***Residents traveling to top 10***	***7,948***	***70.8***

- The City of Lebanon remained the top destination for commuters living in the Lebanon School District in 2000. However, by 2000 only one third of the district's commuters traveled to businesses located in the city, versus almost half in 1990.
- Derry Township dropped from third to fifth place, yet still captured a greater number and percentage of the districts' resident commuters in 2000 than in 1990. This drop was due largely to the emergence of North Cornwall and North Lebanon Townships as top destinations in 2000.
- Annville and Bethel Townships fell in rank in 2000. They also switched places - Bethel Township captured an additional 1.5% of the school district's residents in 2000.
- Four of the top 10 destinations in 1990 did not make the list in 2000: Jackson Township and Myerstown, Jonestown, and Manheim Boroughs. They were replaced by Cleona Borough and North Cornwall, North Lebanon, and West Lebanon Townships.

Figure 3-74 Top Municipal Destinations



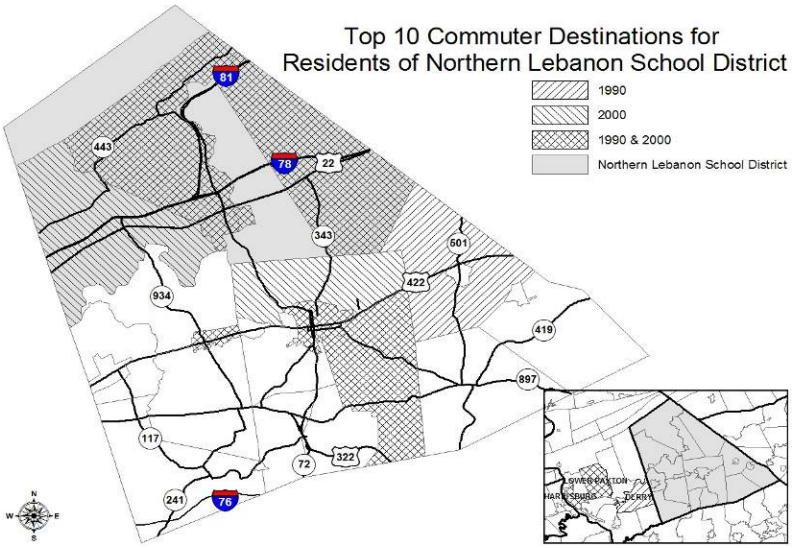
Northern Lebanon School District

Table 3-14 Top Commuter Destinations, Northern Lebanon School District

1990 Top Commuter Destinations	Commuters		2000 Top Commuter Destinations	Commuters	
	#	% of total		#	% of total
City of Lebanon	1,260	16.6	City of Lebanon	945	11.8
Annville Township	879	11.6	Derry Township, Dauphin Co.	769	9.6
Bethel Township	786	10.4	Bethel Township	679	8.5
Derry Township, Dauphin Co.	547	7.2	Jonestown Borough	407	5.1
Jonestown Borough	545	7.2	City of Harrisburg, Dauphin Co.	353	4.4
South Lebanon Township	519	6.9	North Lebanon Township	320	4.0
City of Harrisburg, Dauphin Co.	232	3.1	Annville Township	314	3.9
Jackson Township	105	1.4	East Hanover Township	255	3.2
Union Township	94	1.2	Union Township	218	2.7
Lower Paxton Township	90	1.2	South Lebanon Township	196	2.5
Residents traveling to top 10	***5,057***	***66.8***	***Residents traveling to top 10***	***4,456***	***55.8***

- Two of the 1990 top ten destinations for commuters living in the Northern Lebanon School District were not among the 2000 top ten – Lower Paxton Township and Jackson Township; they were replaced by North Lebanon and East Hanover Townships.
- Of the eight that were among the top ten in both 1990 and 2000, only three experienced an increase in the number of commuters traveling to work there: Derry Township, the City of Harrisburg, and Union Township.
- The top ten destinations for residents of the Northern Lebanon School District in 1990 captured almost 67% of commuters. By 2000, only about 56% were traveling to these locations. The remaining 44% travel to destinations as far away as Pittsburgh and Washington, DC, as well as to businesses in Cumberland, Franklin, and Schuylkill Counties.

Figure 3-75 Top Municipal Destinations



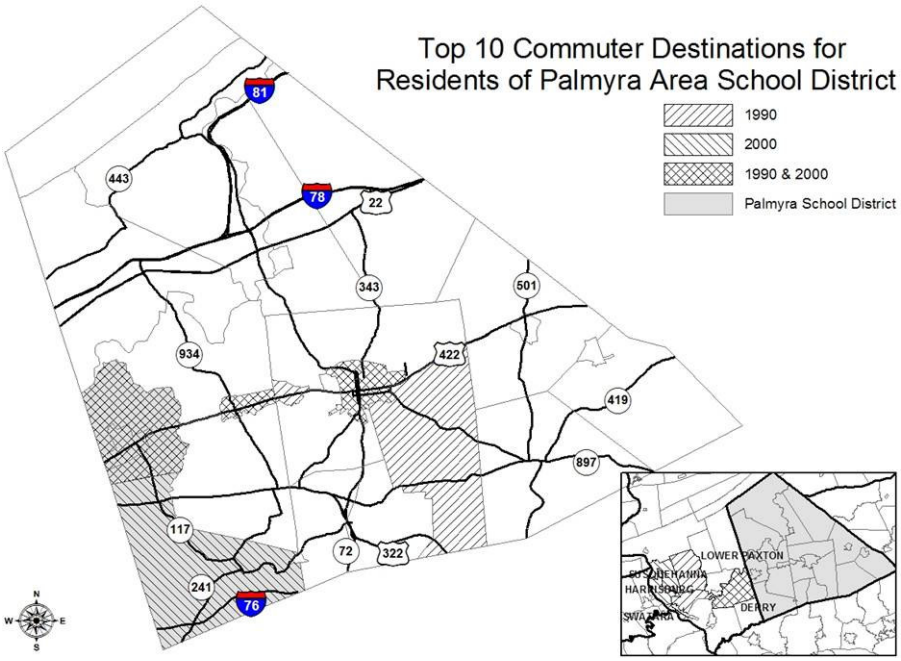
Palmyra Area School District

Table 3-15 Top Commuter Destinations, Palmyra Area School District

1990 Top Commuter Destinations	Commuters		2000 Top Commuter Destinations	Commuters	
	#	% of total		#	% of total
Derry Township, Dauphin Co.	2,956	33.2	Derry Township, Dauphin Co.	2,955	30.1
Palmyra Borough	1,569	17.6	Palmyra Borough	1,005	10.2
City of Lebanon	486	5.5	City of Harrisburg, Dauphin Co.	647	6.6
City of Harrisburg, Dauphin Co.	456	5.1	North Londonderry Township	483	4.9
Annville Township	365	4.1	Lower Paxton Township	429	4.4
North Londonderry Township	331	3.7	City of Lebanon	412	4.2
South Lebanon Township	258	2.9	Annville Township	281	2.9
Susquehanna Township	258	2.9	Susquehanna Township	262	2.7
Swatara Township	199	2.2	South Londonderry Township	266	2.7
Cleona Borough	62	0.7	Swatara Township, Dauphin Co.	196	2.0
Residents traveling to top 10	***6,940***	***78.0***	***Residents traveling to top 10***	***6,936***	***70.6***

- Derry Township and Palmyra Borough retained their positions as the top two destinations of commuters residing in the Palmyra Area School District. However, they also experienced a decline in the percentage of residents captured.
- The City of Lebanon fell from third to sixth place, while the City of Harrisburg moved into third. Cleona Borough fell out of the top ten, while Lower Paxton Township moved in.
- Half of the top ten destinations for Palmyra Area School District commuters in 2000 were located outside of Lebanon County. This is unique among the county's school districts.

Figure 3-76 Top Municipal Destinations

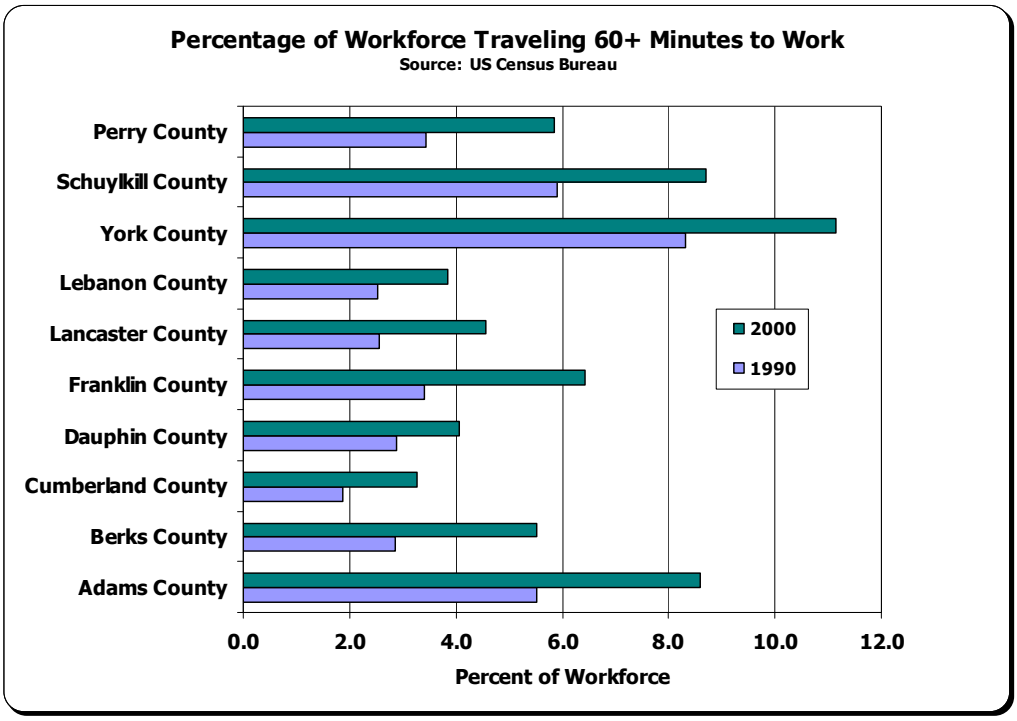


Travel Time to Work

Travel time to work can indicate distance to work and level of congestion. The following illustrates the trends in travel time for Lebanon County residents from 1990 to 2000. The data is also referenced in the transportation plan.

- Almost 70% of Lebanon County's workforce traveled less than thirty minutes to their place of employment in 2000; approximately 5% less than in 1990.
- This is comparable to other counties in the region where between 65% and 76% of the resident workforce traveled less than 30 minutes. These regional figures also represent a decrease relative to 1990 figures.
- York County is the exception; less than 40% of the workforce less than 30 minutes to get to work.
- The number of residents traveling more than 60 minutes to work has increased dramatically in Lebanon County and surrounding counties. This is consistent with the commuter destination data, which shows that between 1990 and 2000 more residents were willing to live farther from their place of work.

Figure 3-77 Change in Percent of Residents Traveling 60+ Minutes to Work



Travel time to work by municipality

- Only seven of the county's municipalities had more residents traveling less than 15 minutes to work in 2000 relative to 1990: Cleona Borough (1.4%), North Annville Township (6.4%), Jonestown Borough, (7.2%), Swatara Township (6.8%), South Lebanon Township (8.6%), North and South Londonderry Townships (27.5 and 19.3% respectively).
- Eleven of the county's municipalities experienced a decrease in the number of residents traveling 15 to 29 minutes to work between 1990 and 2000.
- The remaining fifteen municipalities experienced increases ranging from one half of one percent (West Cornwall Township) to 36.1% (North Cornwall Township).
- All but four municipalities–North and South Annville Townships, East Hanover Township, and West Lebanon Township–had more residents traveling 30 to 59 minutes to work in 2000 than in 1990. Swatara Township experienced the greatest increase (193%), followed by North Cornwall Township (87.2%) and North Londonderry Township (79.2%).

- The most significant percentage increases occurred in the "60 to 89 minutes" and "90 minutes or more" categories. These increases ranged from just over 4% in the City of Lebanon to 1900% in Cornwall Borough. In the "90 minutes or more" category, increases ranged from approximately 6% in North Annville Township to 700% in East Hanover Township. While the actual numbers are relatively small, the trend towards longer commute times is evident.

Educational Attainment (Decennial Census)

According to a 1991 report regarding the practice of economic development,[7] "the increasing incorporation of technology in virtually every type of job…calls for better reading and mathematical skills and a generally higher level of employee competence." This section analyzes trends in the educational attainment levels of Lebanon County's 25 years and older population as reported by the Census Bureau for 1990 and 2000. See Background Study #1, Demographic Profile, for additional details regarding educational attainment, including statistics for some college and advanced degrees, as well as school district and municipal level data.

Approximately half of the county's 25 year and older population (46.6%) have a high school diploma or GED, while an additional 16.6% have had some college classes. This indicates a good labor pool for manufacturing and similar enterprises that do not require a college degree; however, it may be a limiting factor to attracting new businesses that need employees with scientific, professional, and managerial level skills.

- Adams, Franklin, and Perry Counties are comparable to Lebanon County, with approximately 50% of the 25 year and over population attaining at least a high school diploma.
- The ELCO School District has the lowest percentage of the 25+ population that have at least a high school diploma: 70.9%. The Palmyra Area has the highest, 87%. These figures correlate strongly with the resident employment data, particularly with regard to occupations.
- The percentage of residents in Lebanon County over 25 years with a college degree increased from 11.8% to 15.4% between 1990 and 2000. This is comparable to increases in Perry (15.8%) and Franklin (15.7%) Counties, and slightly higher than the increase in Schuylkill County (12.8%). However, it is significantly lower than in Cumberland (26.6%) and Dauphin (23.9%) Counties.
- Among the county's school districts, Lebanon School District has the smallest percentage (8.5%) of college graduates, while the Palmyra Area SD had the highest percentage (24.5%). Palmyra Area SD also experienced the greatest increase in the percentage of residents with college degrees between 1990 and 2000 – a 6.6% increase..

Workforce Education and Training Resources

Secondary Education

- There are six public and one private high school in Lebanon County. According to the Department of Education's 2001-02 School Report Cards, between 59% and 71% of the graduating seniors were planning to attend post secondary degree granting institutions. This is well below the state average of 77%.
- Between 17% and 33% of high school seniors planned to obtain jobs, and between 1% and 10% expected to join the military.
- Less than 6.5% of graduates planned to attend a non-degree granting post-secondary institution, with the exception of those at the Northern Lebanon Senior High School, where almost 16% plan to attend such institutions.

Post Secondary Education and Other Workforce Development Opportunities

- **Harrisburg Area Community College** is the primary provider of workforce development and continuing education in Lebanon County. Specific programs are developed in cooperation with community representatives for helping businesses and public agencies incorporate new technologies or systems-management procedures, improving employee well being, upgrading skills of existing employees, and providing entry-level training for new employees. HACC's Lebanon campus offers computer skills training, professional development, certification, and community education classes. Additional information can be found at their website, www.hacc.edu.

[7] American Economic Development Council Education Foundation, "Practicing Economic Development", 1991.

- **Lebanon Valley College** (www.lvc.edu) was founded in Annville in 1866. The College has 1,530 full-time undergraduate students, 235 part-time undergraduates, 141 graduate students and 100 full-time faculty. U.S. News & World Report's 16th annual "America's Best Colleges" issue and guidebook has ranked LVC among the top tier of colleges and universities in the category of "Best Universities Master's in the North". The college offers Bachelor of Arts, Bachelor of Music, Bachelor of Science, Associate of Arts, Associate of Science, Master of Business Administration, Master of Music Education, Master of Science Education, Doctorate of Physical Therapy programs.
- **Lebanon County Career and Technology Center** (www.lcctc.k12.pa.us) is a state-of-the-art technical training facility housing 27 programs that provides high school and adult students with skills, knowledge and understanding necessary to attain employment, advance in careers, pursue post-secondary education and enrich their lives. Students work with the latest in technology and have unsurpassed opportunities for career advancement. From college articulation agreements and cooperative education to real world experiences, students receive the training needed for a successful future.
- **Quality Employment Services and Training, Inc. (QUEST)** (www.paquest.com) – provides vocational rehabilitation services targeted to people with disabilities over the age of 17. Services include vocational evaluation, personal and work adjustment training, industrial training, job placement, the Mobile Janitorial Work Program, and the Student Transition and Employment Program (STEP).
- **Lebanon Adult Education Center** – provides free training programs for adults interested in acquiring or improving reading, writing, and math skills as preparation for the GED Exam, higher education and employment. English as a second language classes, as well as a Family Literacy program in cooperation with Lebanon School District and the Lebanon Head Start Program, are also available. These programs are primarily designed for adults 16 years and older (not enrolled in public school) seeking to further their education. The Center is part of the Lancaster-Lebanon Intermediate Unit 13.
- **Lancaster-Lebanon Intermediate Unit 13** (www.iu13.k12.pa.us) **–** The Exceptional Children Services Division of the Intermediate Unit 13 serves as a partner to local school districts in meeting the special educational needs of children in the 22 school districts in Lancaster and Lebanon Counties. The IU responds to the requests of the districts to develop and deliver needed programs and services.
- **Pennsylvania Careerlink System** (www.pacareerlink.state.pa.us) **–** provides one-stop access to employment, education and training resources to job seekers, employers and other interested individuals. Resources are available online or at local Pennsylvania Careerlink offices. Two local offices are located in Lebanon County: PA Careerlink Lebanon County at 243 Schneider Drive, Lebanon and Central Jubilee Ministries, at 235 South 12th Street, Lebanon. When available, Careerlink can rent office space for incubating small business start-ups. Recent activities of PA CareerLink include:
  - Placement of over 4,000 individuals in jobs
  - Finalization of the eight-county CareerLink System to include the development of the new Capital Region CareerLink in Harrisburg and the formation of the "SEC Fypon Center" to address specific needs of Latino dislocated workers
- **South Central Workforce Investment Board (WIB)** and **the Southcentral Employment Corporation (SEC)** (http://www.pasec.org) - provide career development services in Adams, Dauphin, Cumberland, Perry, York, Franklin, Lebanon and Juniata (SEC only) Counties. SEC is a direct deliverer of core, intensive, and training services through the Pennsylvania Careerlink System. The WIB and SEC are federally and state funded, and services are provided at no charge to customers. 2005 activities of the WIB and SEC included:
  - SEC's meeting or exceeding all performance measures for workforce goals including entered employment, job retention, earrings gain and job placement representing successful service to thousands of area employers and job seekers.
  - Applying for and receiving grants over $1.2 M to train over 1,000 incumbent workers in selected industry clusters.
  - Applying for and receiving $540,000 in state funds to support the 4 Industry Consortiums.
  - Applying and receiving a grant for $425,000 for tuition assistance for dislocated workers at a local educational institution.
  - Creation of four (4) public-private Industry Consortiums consisting of over 100 Companies in the Construction, Logistics/Transportation, Health Care and Manufacturing to address regional workforce concerns and skill gaps.
  - Creation of an "Early Warning Network" Office at the WIB/SEC offices for South Central Pennsylvania to help firms that are experiencing financial difficulties and to access needed capital.

- Retraining of over 240 dislocated workers who lost their jobs because of imports utilizing over $2M in Trade Act Funds and Rapid Responses to over 20 company dislocations.
- Excellent relations between SEC and the WIB that cumulated in an agreement between the "Local Elected Officials" and the WIB for the WIB to act as SEC's fiscal agent and SEC's realization of over $300,000 in cost savings.

- ***The Manufacturers Association of South Central Pennsylvania (MASCPA)*** is an association of more than 350 manufacturers which, among other functions, offers worker training programs. The food manufacturers consortium of MASCPA offers an extensive set of training courses in food production

Labor Force Intangibles

- Business Retention and Expansion Calling Program (formerly the Business Calling Program) – This program is sponsored by the TeamPA Foundation and is administered locally by the Lebanon Valley Economic Development Corporation (LVEDC). The statewide program intends to provide economic development agencies with a better understanding of the concerns and issues of existing businesses.

  LVEDC has conducted over 300 interviews since 2001. The results of these interviews have allowed the LVEDC to be more responsive to the business community. Recent success stories presented earlier in the chapter are due in part to the information obtained through the interview process. According to the director of the Lebanon Valley Economic Development Corporation, there are some common reasons that companies have (or have not) located in the county. These include the following, as well as quality of life offerings–-schools, recreation, culture and entertainment.

  - Access to markets
  - Transportation logistics (i.e. rail, interstate highways, etc.)
  - Access to workforce, including trained workers
  - Utilities with capacity (sewage, water, electric, gas, etc.)
  - Business climate
  - Access to research and training, and
  - Financing and incentives

Relationships to Infrastructure Conditions

The county's ability to sustain and expand its economy is related not only to market and workforce trends but also to the availability of land and physical infrastructure (roads, water, sewer, waste disposal and telecommunications networks). While more detailed inventories of land use and infrastructure are provided in other profiles, the relationships of these elements to the county's economy and employment are outlined here. [This section may be revised upon the development of other profiles.]

Land Markets

Land availability is critical for business retention and new business development. Existing businesses need land for expansion and new businesses, whether initial start-ups or relocating businesses, need land for new facilities. The location of available land in relation to other infrastructure conditions is equally if not more important.

Lebanon County is amply supplied with industrial sites, including seven Keystone Opportunity Zone (KOZ) sites, all of which are in the City of Lebanon. The KOZ Program gives an exceptional assortment of tax benefits, including the suppression of city, school and county real estate taxes, earned income/net profits taxes, and personal income taxes, among many others, until 2013. Some KOZ sites are owned and/or marketed by the Lebanon Valley Economic Development Corporation, while others are privately owned and marketed. Some of the notable LVEDC business parks are described below.

Lebanon Valley Business Park. This Park is located just south of the City in South Lebanon Township and is owned by the LVEDC. Approximately 110 acres are available for new development, with large lot expansion opportunities on an additional 120 acres. It is a designated State Select Site, which means that it has been certified as having the necessary infrastructure for immediate site construction. A Tax Increment Financing District (TIFD) has also been created to allow infrastructure extensions to occur.

Table 3-16 KOZ Sites in Lebanon, PA

KOZ Site	Size and Land Use/Zoning	Features
Aspens Business Park	49-acre light manufacturing site	Close to rail service; ideal for smaller users; proposed site for a Technology Incubator Facility
Colonial Theater Property	.27 acre commercial business site	This site is currently being developed, and space may soon be available for commercial lease
East Lehman Street (Former Lebanon Steel Foundry)	17 acres light manufacturing site; four buildings	Two buildings occupied; two available
Fourth Street Complex	9 acres; four buildings	Suitable for most heavy industry
Lincoln Fifth Corporation	43-acre heavy manufacturing sites	Rail service
Jonestown Road	74.5 acre light manufacturing site	Infrastructure improvements needed
Seventh & Mifflin Streets	1.07-acre	

Source: Lebanon valley Economic Development Corporation

North Lebanon Business Park. This 180-acre business park just west of the City in North Lebanon Township is served by all infrastructure, including natural gas, electric, telecommunications and public water and sewer. The availability of Class I rail service to this site makes it very attractive for certain types of enterprises. Another distinct advantage of the site is that the land is very level.

Flightpath Business Park. This 68-acre commercial-industrial Park is located in South Londonderry Township, near Campbelltown on State Route 117. The Park is already home to a number of businesses, and has public water and sewer, electric, and telecommunications.

NorthPort Industrial Park – This 132 acre mixed use industrial park is located adjacent to I-81 just north of the I-81/I-78 interchange. With an emphasis on warehousing and distribution, tenants include Ingram Micro, Lebanon Valley Farmers Bank and Voight Schweitzer.

A current (May 2005) listing from the LVEDC business site locater identifies sixteen different parks and sites zoned manufacturing or industrial, with a total land area of more than 900 acres. Land prices are comparatively low for the region. For example, land in the Lebanon Valley Business Park is approximately $42,500 per acre, compared to up to $100,000 per acre elsewhere in the south central Pennsylvania region.

Transportation

The role of the transportation network is to move people, materials, and products. While the network has traditionally focused on roadways, railways, and air transport, the network also includes bicycle and pedestrian modes of travel. Each of these modes has potential for moving people (employees and clients) and goods more efficiently.

Businesses tend to favor road and rail-based modes for the sheer volumes of materials they can transport. Results from the business calling program indicate that roads are often too narrow and in poor condition; and intersections frequently have inadequate turning radii. Route 72 through the City of Lebanon was noted as a major choke point for thru-travel. On the positive side, two primary rail hubs – the Enola and Rutherford Yards – are close at hand in the City of Harrisburg and East Pennsboro Township.

Based on the location of KOZ sites, businesses might consider the availability of pedestrian employees, thus reducing the need for expansive parking lots. Additionally, the County of Lebanon Transit (COLT) operates over 14 bus routes that serve most of the county.

Water and Sewer Utilities

Water and sewer infrastructure are important, especially to businesses involved in processing and refining materials into finished goods. The availability, cost, and adequacy/capacity (i.e. size of the service pipes/treatment facilities) of these utilities relative to other locations can be an important factor to expanding or relocating business operation. See the Community Facilities Profile for further information on water and sewer systems.

Waste management

Much like water and sewer, waste disposal is important to processing and production operations. The types of waste facilities, distance to waste facilities, capacities of those facilities, and relative cost of waste disposal frequently influence a business's site selection.

Telecommunications

Telecommunications is perhaps the newest element of basic operating infrastructure. A company's ability to market its products and services across town and around the world is increasingly important to regional and global competitiveness. Statewide broadband service by 2015 has been legislated in Pennsylvania but not all areas are served today.

Quality of Life

Beyond the basic needs of the business itself, there are a variety of other variables that influence the decision to expand or relocate. Many are related to the quality of life an area has to offer the company's employees. Amenities such as shopping, dining, recreational facilities, and health care options can often tip the scales in favor of a region, with all other things being equal. Lebanon County has much to offer in this regard. The reader is referred to the Open Space, Greenways, and Recreation Profile (Background Study #5) and Community Facilities Profile (Background Study # 7) for greater details regarding these amenities.

Other Conditions

Business Tax Structure and Tax Burden

Taxes can be a factor in a company's site location decision. Among counties in the region, and in comparison to Pennsylvania's large urbanized regions, the county's taxes are reasonably attractive. However, state level business taxes (including worker compensation rates) can be a disadvantage compared to other states.[8]

Public and Quasi-Public Support Programs and Partners

Multi-purpose Economic Development and Business Assistance Organizations

The ***Lebanon Valley Economic Development Corporation (LVEDC)*** is a not for profit organization that has been promoting economic development in the county for over 20 years. LVEDC helps businesses access financing options including various public supported loan programs, job training funding, and other grant and loan assistance. LVEDC maintains a database of available sites and buildings that can be accessed online, and also offers personal assistance in locating the right site for a prospective business. LVEDC also owns and has developed two business parks: the Lebanon Valley Business Park and the Lebanon Rails Business Park. LVEDC provides some technical assistance to county businesses, particularly in the areas of exporting and securing permits and other regulatory approvals. LVEDC also serves as an information clearinghouse to connect county business to one or more of the many other technical assistance providers.

The ***Lebanon Valley Chamber of Commerce*** is the primary business membership organization in the county. The Chamber of Commerce undertakes a variety of activities in support of economic development. ALERT, a Lebanon Economic Resource Team, is a sort of rapid-response team to link companies that are considering closing to available services to help them be able to stay in business in the County. A number of other activities and committees promote education, leadership development, networking, and advocacy.

REDDI, Regional Economic Development District Initiatives of south-central Pennsylvania, is one of eight Economic Development Districts (EDD) in the Commonwealth of Pennsylvania. REDDI targets both urban and rural economic development projects with a concentration on distressed communities. The REDDI region consists of the following counties: Adams, Berks, Cumberland, Dauphin, Franklin, Lancaster, Lebanon, and York. REDDI's approach to achieving economic development is to use collaboration, facilitation, and building of alliances among key stakeholders of District. REDDI is preparing a Comprehensive Economic Development Strategy (CEDS) for the region, pursuant to a federal Economic Development Administration requirement. Under federal law, consistency with a CEDS is a prerequisite for all applications for federal funding for public works and economic adjustment projects.

[8] Ralph Rhode, First Energy Corporation, May 2005

Ben Franklin Technology Partners is a statewide network that fosters innovation to stimulate Pennsylvania's economic growth and prosperity. With a focus on the entrepreneur as the ultimate engine of growth, BFTP delivers crucial resources for technology-driven enterprises in sectors such as information technology, life sciences, communications, advanced manufacturing, advanced materials and environmental technology. BFTP invests risk capital in emerging technology-based enterprises and established businesses; provides hands-on technical and business expertise to spur enterprise growth and accelerate commercialization activities; and delivers customized solutions that draw on an extensive network of public and private resources, including universities, federal laboratories and research institutions.

The BFTP Challenge Investment Program supports Pennsylvania's entrepreneurs and their companies. About 65% of BFTP's annual budget goes into funding companies focused on developing innovative products or processes. Much of the remainder of BFTP's technology enterprise support occurs via funding the efforts of other organizations and institutions, such as "Centers of Excellence" at research organizations, funding to support other organizations' development of business incubators, and funding to support the establishment of workforce training consortia.

The ***Pennsylvania Department of Community and Economic Development*** administers a variety of financing and other economic development programs. An up to date inventory of the business assistance programs available through DCED can be found at www.NewPA.com. Some of the DCED economic development efforts, such as in depth studies, are funded with the assistance of the ***TeamPA Foundation****, a public*-private membership organization that channels donations to support economic development in the state.

Organizations Specializing in Financing

The ***Innovation Partnership*** is a consortium of economic development and business assistance organizations located throughout the Commonwealth of Pennsylvania. Its goal is to help early stage technology companies secure federal funding opportunities. Its special interest is biotechnology, nanotechnology, advanced manufacturing and communications technology businesses that show early signs of commercial success.

The ***Life Sciences Greenhouse of Central Pennsylvania (LSGPA)*** is a private, non-profit corporation created under the Tobacco Settlement Act of 2001. The organization supports new and expanding commercial entities in central Pennsylvania through direct investment and delivery of business development services. The organization partners with a range of institutions, including local research universities, colleges, medical centers, economic development agencies and companies both small and large, to identify needs and opportunities. LSGPA then works to help transfer technologies, to develop new companies, to provide support for existing companies (particularly those seeking to expand or relocate), and to ensure that the infrastructure necessary to support a thriving life sciences industry keeps pace with development. A typical LSGPA investment is founded on a novel life sciences technology with strong market potential that is supported by a skilled management team and sound financial plan. Further, the investee will have demonstrated a long-term commitment to Pennsylvania and a high likelihood of raising matching funds and/or follow-on funding.

The ***Community First Fund*** was founded in 1992 as a federally certified Community Development Financial Institution. It provides loans and technical assistance for small business owners, affordable housing developers and community groups in low-wealth communities in central Pennsylvania. CFF operates out of five offices covering a thirteen county region in central Pennsylvania. The majority of loans are made to Persons of Color, women and low-wealth individuals. Loans are made to a wide spectrum of business sectors, including retailers, the service industry, wholesalers, light manufacturing, construction entities, housing developers and social service providers.

PA Grows is a program of the ***Pennsylvania Department of Agriculture*** that specializes in helping farmers, food processors, farmer's market operators, and other agricultural businesses access the variety of state and federal lending programs. **The First Industries Fund**, a part of PA Grows, is a grant and loan program aimed at strengthening Pennsylvania's agriculture and tourism industries.

Penn Venture Partners, ***LP***, is a private equity fund whose objective is to seek long-term capital appreciation primarily through growth and expansion stage venture capital investments in companies located within Central and Northern Pennsylvania. The Fund invests in equity and equity-like securities, and may also provide operational assistance grant funding to enterprises in which Penn Venture Partners has made or expects to make an investment. The Fund invests in companies that possess a proprietary technological niche or uniquely exploit a proven technology to gain a competitive advantage. Industries targeted for investment include manufacturing, basic industries (such as material and material

technology, printing, powdered metals, tool and die, agribusiness, and environmental technology), computer hardware and software, interactive media, networking, educational products and services, control systems, industrial automation, energy, telecommunications, biotechnology and the life sciences.

Organizations Specializing in Technical Assistance

The ***Small Business Start-Up Center at HACC, Lebanon Campus*** is a new center dedicated to helping local entrepreneurs to be successful by providing hands-on technical assistance for the business' crucial first three years.

The ***Lebanon County Conservation District*** is actively involved in Farmland Preservation, gypsy moth management, Erosion and Sedimentation Pollution Control, Nutrient Management, Biosolids, the Chesapeake Bay Program and NPDES Storm Water Management permitting, Dirt and Gravel Roads Program, and Watershed Improvement Opportunities and the Lebanon County Conservation Awards Program. The Conservation District is a subdivision of state government, administered by a Board of Directors, composed of at least four farm directors, no less than two public directors and one County Commissioner. It operates under supervision of the State Conservation Commission of the Pennsylvania Department of Environmental Protection. The Directors serve without pay and are chosen primarily for their interest in soil and water conservation.

Penn State College of Agricultural Sciences, Cooperative Extension provides educational programs to enable the Commonwealth to maintain a competitive, environmentally sound food and fiber system, as well as to prepare youth, adults, and families to participate more fully in community decisions. The Lebanon County Cooperative Extension office is staffed with a number of educators, with specialties in a variety of fields of interest to agricultural producers.

The ***Small Business Development Center, Kutztown University of Pennsylvania*** fulfills its mission to encourage regional economic growth by providing existing and potential entrepreneurs with consulting services and learning opportunities. The Kutztown SBDC has outreach office in Reading, Lancaster, Harrisburg, and Exton.

MANTEC, the Manufacturers Technology Center, is one of the seven private, non-profit Industrial Resources Centers providing technical assistance to small and mid-sized manufacturers in Pennsylvania. Headquartered in York, MANTEC maintains satellite offices in Carlisle, Chambersburg, Lancaster, and Lebanon.

PENNTAP, the Penn State Technical Assistance Program, is an outreach program of Penn State University to help Pennsylvania businesses improve their competitiveness by providing a limited amount of free technology assistance and information, on a confidential basis, to help resolve specific technical questions or needs.

Organizations and Programs Promoting the Location or Local Products

The Lebanon Valley Tourist Promotion Agency organizes events and conducts marketing campaigns to draw visitors to the county's tourist attractions.

The ***Community of Lebanon Association*** is a professional/business organization focused on the City of Lebanon and its immediate surroundings. The Association sponsors a variety of activities geared to brining foot traffic to the City, including the Fall and Spring Craft Festivals and the Halloween Parade.

South central TeamPA organizes efforts to market the eight-county south central region as a place to do business. Its most noteworthy current initiative is the "Smart Market" regional branding campaign, conducted in partnership with the economic development corporations of the region, the Life Sciences Greenhouse of Central PA, and MANTEC.

The Pennsylvania Department of Agriculture Pennsylvania Preferred™ program assists Pennsylvania farmers by encouraging consumers to purchase Pennsylvania farm and forest products.

Community Facilities and Utilities Profile

Introduction

This profile inventories Lebanon County's community facilities, services and utilities and discusses the issues associated with their provision and operation. Educational facilities, libraries, public safety services, solid waste services, medical facilities, emergency and hazard mitigation services, public water and sewer utilities, county and municipal facilities and private utilities are presented. The operation and provision of these various facilities and services are the duties of both private and public organizations, as noted throughout this profile.

Educational Facilities

Public Education

Lebanon County is served by six public school districts, one countywide career and technology center, and the Lancaster-Lebanon Intermediate Unit 13. Locations of these facilities are illustrated in Figure 4-1.

Analysis of the public school districts is based on the recent data available from the Pennsylvania Department of Education and supplemented with data from each district. Countywide analysis of historic and projected enrollments and post-secondary education rates is followed by district level discussion of alternative enrollment projections, facilities and special programs.

Figure 4-1 Educational Facility Locations in Lebanon County

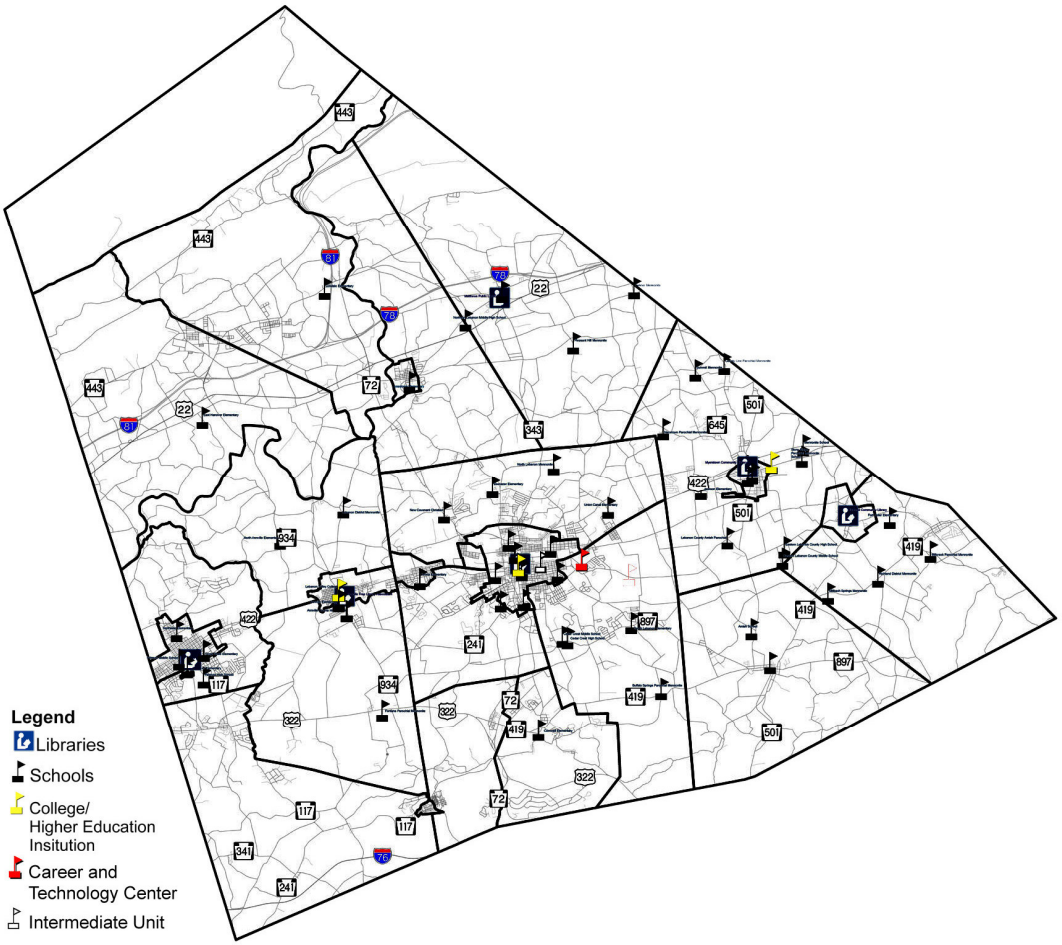


Table 4-1 Historic Enrollments for Lebanon County Public Schools

School Year	Annville-Cleona SD	Cornwall-Lebanon SD	ELCO SD	Lebanon SD	Northern Lebanon SD	Palmyra Area SD	Countywide
Enrollments							
1999-2000	1,734	4,606	2,340	4,267	2,434	2,733	18,114
2000-2001	1,687	4,607	2,305	4,173	2,391	2,717	17,880
2001-2002	1,664	4,677	2,396	4,128	2,428	2,682	17,975
2002-2003	1,655	4,642	2,392	4,236	2,448	2,775	18,148
2003-2004	1,686	4,714	2,425	4,243	2,454	2,911	18,433
2004-2005	1,703	4,770	2,436	4,299	2,486	3,007	18,701
2005-2006	1,674	4,836	2,410	4,341	2,555	3,057	18,873
2006-2007	1,619	4,815	2,485	4,431	2,510	3,142	19,002
Change							
Change 99-00 to 06-07	-115	209	145	164	76	409	888
% Change 99-00 to 06-07	-6.6%	4.5%	6.2%	3.8%	3.1%	15.0%	4.9%
Source: PA Department of Education							

The countywide student population in public schools in the 2006-2007 school year was 19,002. This was an increase of 888 students, 4.9%, since the 1999-2000 school year. The Palmyra Area School District had the largest increase, 409 students, and the most rapid rate of growth, 15.0%. The Cornwall-Lebanon School District had the second largest increase, 209 students, but a less significant increase, 4.5% due to its already larger student population. The Annville-Cleona School District was the only district that experienced a decline in its student population from 1999-2000 to 2006-2007.

Table 4-2 Projected Enrollments for Lebanon County Public Schools

School Year	Annville-Cleona SD	Cornwall-Lebanon SD	ELCO SD	Lebanon SD	Northern Lebanon SD	Palmyra Area SD	Countywide
Projections							
2007-2008	1,695	4,869	2,413	4,401	2,480	3,143	19,001
2008-2009	1,690	4,835	2,417	4,401	2,446	3,131	18,920
2009-2010	1,681	4,849	2,426	4,453	2,453	3,156	19,018
2010-2011	1,677	4,891	2,445	4,531	2,482	3,166	19,192
2011-2012	1,656	4,937	2,475	4,570	2,475	3,192	19,305
2012-2013	1,642	4,968	2,523	4,652	2,499	3,243	19,527
2013-2014	1,632	5,021	2,564	4,704	2,523	3,223	19,667
2014-2015	1,633	5,075	2,614	4,684	2,573	3,260	19,839
2015-2016	1,617	5,116	2,683	4,579	2,639	3,283	19,917
Projected Change							
Change 07-08 to 15-16	-78	247	270	178	159	140	916
% Change 07-08 to 15-16	-4.6%	5.1%	11.1%	4.0%	6.4%	4.5%	4.8%
Source: PA Department of Education							

Projections prepared by the Department of Education suggest an increase of 916 students, or 4.8%, in the countywide student population by the 2015-2016 school year. These projections indicate double-digit growth rates in student populations for the ELCO School District and 4% to 7% growth in student populations for all remaining school districts except Annville-Cleona, where a slight decline in enrollment is projected by the PA Department of Education projection method. Local projections, that reflect proposed development, indicate growth in the student population within the Annville-Cleona School District.

Table 4-3 Public Schools High School Graduates and Postsecondary Education Rates, 2000-2001and 2005-2006

Lebanon County	Total Graduates	2 or 4 yr. college/ university	Specialized Associate Degree-Granting Institution	Total College Bound	Nondegree-Granting Postsecondary School	Total Postsecondary Bound
		%	%	%	%	%
2000-2001						
Annville-Cleona JSHS	149	57.7%	8.7%	66.4%	0.7%	70.5%
Cedar Crest HS	323	56.0%	5.6%	61.6%	0.9%	83.6%
ELCO HSH	166	58.4%	4.2%	62.7%	3.6%	77.7%
Lebanon SHS	194	48.5%	14.4%	62.9%	6.2%	70.1%
Northern Lebanon Area SHS	156	51.3%	5.1%	56.4%	14.7%	73.1%
Palmyra Area SHS	169	64.5%	7.1%	71.6%	0.0%	76.3%
Lebanon County Total	1,157	55.9%	7.4%	63.4%	3.9%	76.3%
2005-2006						
Annville-Cleona JSHS	135	71.9%	3.7%	75.6%	2.2%	77.8%
Cedar Crest HS	363	64.5%	4.4%	68.9%	5.5%	74.4%
ELCO HS	181	69.1%	0.0%	69.1%	1.7%	71.3%
Lebanon HS	212	55.7%	5.7%	61.3%	2.8%	64.2%
Northern Lebanon HS	210	54.3%	0.0%	54.3%	0.0%	54.3%
Palmyra Area HS	205	61.0%	2.0%	62.9%	0.0%	62.9%
Lebanon County Total	1,306	62.3%	2.8%	65.1%	2.5%	67.6%
5-year Change						
Annville-Cleona JSHS	-14	14.1%	-5.0%	9.1%	1.6%	7.3%
Cedar Crest HS	40	8.4%	-1.2%	7.3%	4.6%	-9.2%
ELCO HS	15	10.6%	-4.2%	6.4%	-2.0%	-6.4%
Lebanon HS	18	7.2%	-8.8%	-1.6%	-3.4%	-6.0%
Northern Lebanon HS	54	3.0%	-5.1%	-2.1%	-14.7%	-18.8%
Palmyra Area HS	36	-3.5%	-5.1%	-8.7%	0.0%	-13.4%
Lebanon County Total	149	6.3%	-4.6%	1.7%	-1.4%	-8.7%

Source: Public Schools High School Graduates and Postsecondary Education Rates 2005-06, Pennsylvania Department of Education, 2007

Source: Public Schools High School Graduates and Postsecondary Education Rates 2000-01, Pennsylvania Department of Education, 2002

More than two of three graduates of Lebanon County school districts, 67.6%, pursued some type of postsecondary education in 2006. The highest postsecondary enrollment was in the Annville-Cleona School District, 77.8%; the lowest was in Northern Lebanon School District, 54.3%. The majority of high school graduates, 62.3%, enrolled in 2-4 year college and university programs. Another 2.8% attended specialized associate degree programs; Lebanon High School had the highest percentage of students enrolling in specialized associate degree programs, likely influenced by special agreements this district has with HACC and other postsecondary schools. Finally, 2.5% attended non-degree programs. The five year trends show an increase of 6.3% for 2-4 year college and university enrollment and a 4.6% decline in specialized degree program enrollment. The five year trend for enrollment in non-degree programs was a nominal 1.4% decline. The most significant school district trends were Annville-Cleona's 14.1% increase in 2-4 year college and university enrollment and Northern Lebanon's 14.7% decline in non-degree program enrollment.

Annville-Cleona School District

The Annville-Cleona School District serves Annville Township, North Annville Township, South Annville Township and Cleona Borough and their 11,891 residents in 4,254 households over a total area of 39.4 square miles. The district operates three elementary schools and one junior/senior high school.

Enrollment projections for the Annville-Cleona School District prepared by the PA Department of Education indicate a stable, aging population with fewer students enrolling in the school system in each of the coming years. Alternative projections prepared by the district indicate even more conservative enrollment projections in the school district, ranging from 1,450 to 1,560 students in the 2013-2014 school year. However, plans for development and sewer extension along PA 934 in South Annville Township are expected to increase total population and school age population beginning in 2008 through 2012, which are not included in either of these estimates.

Table 4-4 Annville-Cleona School District Facilities

Facility	Address	Date of Construction	Date of Improvement
Annville Elementary School	205 S. White Oak Street, Annville	1927	1987, 1990
North Annville Elementary	470 N State Route 934, Annville	1954	1990*
Cleona Elementary	50 East Walnut Street, Cleona	1951	1989*
Annville-Cleona Jr/Sr High School (Will replace existing school)	520 S White Oak Street, Annville	1959	2005*

*Date of building permit.

District-wide, major building and renovation projects have provided the district with modern, well-equipped facilities designed to meet current enrollment projections, safety standards and program requirements. Special features housed in the various schools include computerized library management in each building, the high school's linkage to ACCESS PA, modern band and music facilities containing a piano laboratory, a business computer laboratory, enlarged gymnasiums in each building, up-to-date science facilities, a career resource center, full internet access from every classroom, and long-distanced satellite learning capabilities.[1]

A Secondary Building Feasibility Study was completed in 2004 by Reese, Lower, Patrick & Scott, Ltd. Architects of Lancaster. The assessment portion of the study concluded that, "The current site and building have served the Annville-Cleona School District well for the past 45 to 46 years. The site and the building were noted as functional; however, many compromises were made by students, faculty and staff to continue use of this facility. Safety and code violations were noticed inside and outside the secondary building; typical area requirements for various occupied spaces within the building are below code and conventional practice; the building envelope needs repairs and upgrades; and interior finishes are worn, failing in some cases and need upgrading." The study also developed and evaluated multiple design solutions to address these issues. Ultimately, a new, two-story secondary building and demolition of the existing building were deemed the district's most effective solution. Construction began in 2005 and the new building is scheduled to open for the 2007-2008 school year.[2]

Students in the high school grades have the opportunity to take classes at Lebanon Valley College for enrichment and for college credit.

[1] Annville-Cleona SD website, http://www.acschools.org
[2] Ibid.

Cornwall-Lebanon School District

The Cornwall-Lebanon School District serves North Lebanon, South Lebanon, North Cornwall and West Cornwall Townships, and Cornwall and Mount Gretna Boroughs and their 31,052 residents in 11,575 households over 67.1 square miles. The district operates four elementary schools, one middle school and one high school.

The Department of Education projections for the Cornwall-Lebanon School District indicate continued growth in the school age population, with the district passing the 5,000 student mark in the year 2013-2014. Alternate enrollment projections have been prepared for the Cornwall-Lebanon School District by the Pennsylvania Economy League (PEL). PEL's study of the Cornwall-Lebanon School District resulted in more conservative projections of continued enrollment growth, ranging from approximately 4,800 to 4,900 students in the 2013-2014 school year. At roughly 500 students less than the state's projections, PEL's projections indicate nominal growth from the historic 2003-2004 enrollment. The PEL study also stated, "Public school enrollment over the next ten years will be more dependent on recent and future births, migration patterns, the age composition of the child population and the role of non-public education than the overall population pattern…. The trends in public school enrollments will not necessarily directly mirror the pace of population growth,"[3] shown as a 10.0% population increase from 2000 to 2010 and another 6.78% increase from 2010 to 2020 as prepared for the county comprehensive plan.

Table 4-5 Cornwall-Lebanon School District Facilities

Facility	Address	Date of construction	Date of Improvement
Cornwall Elementary School	45 Burd Coleman Road, Cornwall	1927	1957, 2000*
Ebenezer Elementary School	1600 Colonial Circle, Lebanon	1995*	—
South Lebanon Elementary School	1825 S. Fifth Avenue, Lebanon	1957	1978, 2005
Union Canal Elementary School	400 Narrows Drive, Lebanon	1990	1994*
Cedar Crest Middle School	101 East Evergreen Road, Lebanon	1969	1997
Cedar Crest High School	115 East Evergreen Road, Lebanon	1966	1997*

*Date of building permit.

During the past twelve years, significant renovations and new construction have taken place at all six district buildings. Upgrades to buildings have made them more energy efficient and technology friendly. The additional space added during renovations responded to the steady enrollment growth. Ebenezer Elementary School and Cedar Crest High School are at or nearing their expected capacity. The district administration and Board of School Directors are monitoring residential developments and enrollment trends within the district to ensure that adequate classroom space is available at each building. In September 2006, the district launched a $1.2 million capital improvement campaign to improve athletic facilities at Cedar Crest High School. The "Catch the Falcon Spirit" campaign will fund the installation of artificial turf, team room facilities, and upgrades to the bleachers and press box.

The Falcon Foundation, incorporated in 2000, supports innovative programs and events within the district and community – educational, cultural or athletic. The Foundation has provided funding through donations, grants and awards for technology and equipment and financial backing for staff, community members and district students. The Foundation also supports the Cornwall-Lebanon Recreational/Educational Classes (C-L REC) program, an after-school enrichment and activity program which offer classes on crafts, cooking, languages, dancing, and tennis. Cornwall-Lebanon also offers academic and physical education classes of general interest, as well as visits to the new digital planetarium at the high school, bus trips, discounted tickets to local events, and communitywide swimming, bowling and skating.[4] In 2005, the Foundation contributed funding toward construction of a multi-use pavilion for school and community use at each elementary school campus. Major capital purchases such as computers and tennis court lights have been financed through the Foundation. Students seeking enrichment opportunities receive need-based awards and merit-based awards. Financial donations to the Foundation have come from

[3] An Analysis of Demographic and community Growth Patterns and Projections of Public School Enrollment in the Cornwall-Lebanon School District, 2004-2005, Pennsylvania Economy League, February 4, 2005.
[4] C-L Connection: Newsletter of the Cornwall-Lebanon School District, Summer 2006.

Cornwall-Lebanon community members and businesses, such as Lebanon Valley Farmers Bank, Frederick Chevrolet, Giant Foods, APR Supply, and Hoaster Gebhard and Company.

Eastern Lebanon County (ELCO) School District

The ELCO School District serves the 17,770 residents in 6,633 households located across the 70.9 square miles of Myerstown and Richland Boroughs and Jackson, Heidelberg and Millcreek Townships. The district operates four elementary schools, a 6-8 grade middle school and a four-year high school.

The Department of Education projections for the ELCO School District suggest steady growth among school age residents over the next decade; district enrollment is projected to pass 2,500 students in the 2012-2013 school year. Municipal population projections prepared for the county comprehensive plan suggest a similar rate of student enrollment growth for the district; a 9.24% growth rates for the 2000-2010 decade.

Table 4-6 ELCO School District Facilities

Facility	Address	Date of Construction	Date of Improvement
Myerstown Elementary School	101 South Railroad Street, Myerstown	1915	1936, 1978
Fort Zeller Elementary School	243 North Sheridan Road, Richland	1972	2005
Jackson Elementary School	558 West Main Avenue, Myerstown	1958	1997
Schaefferstown Elementary School	Oak & Carpenter Streets, Schaefferstown	1936	1978
ELCO Middle School	60 Evergreen Drive, Myerstown	1972	2005
ELCO High School	180 ELCO Drive, Myerstown	1962	1991

Recent renovation projects at the ELCO Middle School and Fort Zeller Elementary School were completed in 2004 and 2005. In addition to gaining expanded square footage, each building had substantial renovations to existing classrooms, offices, and cafeterias. Fort Zeller obtained a new gymnasium and the middle school gymnasium was completely renovated. State of the art technology, e.g. new security systems, was added to each building. The district plans to renovate Schaefferstown and Myerstown Elementary Schools in the coming years.

The students and faculty of the ELCO School District receive supplemental support from a community foundation. The foundation conducts the annual golf outing, talent show and Oldies Dance, which support teacher grants to enhance student learning.

Lebanon School District

The Lebanon School District serves the City of Lebanon and West Lebanon Township and their 25,297 residents in 10,599 households over 4.3 square miles. The district operates five elementary schools, one middle school and one high school – the most facilities of any district in the county. The district is the most ethnically diverse district in the county. The student profile from May 2005 indicates that one student or less than 1% are American Indian, 51 students or 1.23% are Asian, 269 students or 6.49% are Afro-American, 1,656 students or 39.97% are Hispanic. Furthermore, the Lebanon School District has the least affluent resident population, as indicated by the fact that the majority of students have qualified for free or reduced fee lunches in seven of the past 10 years.

Table 4-7 Percentage of Students Qualifying for Free and Reduced Lunches in the Lebanon School District

School	School Year									
	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Harding	45%	60%	62%	59%	54%	41%	51%	72%	82%	80%
Henry Houck	40%	62%	63%	67%	67%	33%	44%	53%	63%	62%
Northwest	54%	65%	76%	70%	76%	57%	59%	83%	92%	90%
Southeast	32%	68%	70%	72%	69%	45%	49%	68%	78%	76%
Southwest	30%	54%	55%	42%	64%	35%	39%	44%	43%	53%
Middle School	n/a	n/a	n/a	n/a	n/a	n/a	51%	55%	56%	58%
High School	n/a	n/a	n/a	n/a	n/a	n/a	42%	52%	37%	40%
District Average	40%	62%	65%	62%	66%	42%	48%	60%	60%	61%

The Department of Education projections for the Lebanon School District suggest a steady 3% increase in student enrollment. This growth projections stands in sharp contrast to municipal population projections prepared for the county comprehensive plan that suggest that recent population declines may only stabilize in the coming years.

Table 4-8 Lebanon School District Facilities

Facility	Address	Date of Construction	Date of Improvement
Harding Elementary School	600 Chestnut Street, Lebanon	1918	2006
Henry Houck Elementary School	315 East Lehman Street, Lebanon	1924	2006
Northwest Elementary School	900 Maple Street, Lebanon	1976	—
Southeast Elementary School	398 East Locust Street, Lebanon	1956	1991, 2007/08
Southwest Elementary School	1500 Woodland Street, Lebanon	1956	1991, 2007/08
Lebanon Middle School	350 North Eighth Street, Lebanon	1936	1960, 1990's
Lebanon High School	1000 South Eighth Street, Lebanon	1968	2001

*Date of building permit.

The district is working on the development of new recreation facilities including a 22-acre property adjacent to the high school. This parcel will be developed for field hockey, baseball, softball and soccer fields. Private funds will be raised to meet the $3.1 million campaign goal and trails will eventually connect the new athletic facility with the Lebanon Valley Rail Trail.

The Polaris School is a partnership between the Lebanon School District and Cornell Companies, Inc. intended to meet the academic, social, emotional, and behavioral needs of students who have had difficulty finding success in the regular school setting because of behavioral, attendance, and academic problems. Polaris aims to help young people develop the knowledge and skills necessary to optimize their potential as students, citizens, and contributing members of society in an alternative educational setting. The program began Nov 1, 2004 as one of several means to improving student performance across the district. The Polaris staff cooperates with local agencies, providers, and hospitals in coordinating treatment and services for students beyond their academic needs.[5] Lebanon's program is a modification of the ACTS Program, a Harrisburg School District Program, and is supported by a contract with a private education consulting firm. The Cornwall-Lebanon and Palmyra School Districts also participate in Lebanon's Polaris Program, though the availability of the program to other districts is based on funding.[6]

[5] Polaris Overview factsheet, provided by Lebanon School District.
[6] Per communication with Superintendent Marianne Bartley, January 4, 2007.

Lebanon School District and the Lebanon Country Career & Technology Center (CTC) currently have Articulation Agreements with seven post secondary institutions - Berks Technical Institute, Penn State-Berks and York campuses, Reading Area Community College, Harrisburg Area Community College, Penn College of Technology, and Thompson Institute. Articulation Agreements apply to specific programs of study and the mastery of specific competencies. Successful completion of these programs results in college credit for high school course work. This affiliation contributes to the district's high rate of graduates attending associates degree programs.

Northern Lebanon School District

The Northern Lebanon School District was formed in 1956 and serves six municipalities: Swatara Township, Union Township, Cold Spring Township, Bethel Township, East Hanover Township, and Jonestown Borough. The district covers an area of 144 square miles and encompasses a population of approximately 15,000 in 5,500 households. The district operates four elementary schools, one middle school and one high school.

The Department of Education projections for the Northern Lebanon School District suggest a 6.4% increase in student enrollment by 2015-1016. Alternative projections prepared by the district indicate more substantial growth based on an average annual increase of 120 students over the past five years. The district's intent to plan for continued growth is consistent with municipal population projections prepared for the county comprehensive plan for this district, which suggest an increase of 1,500 residents over the next 15 years.

Table 4-9 Northern Lebanon School District Facilities

Facility	Address	Date of construction	Date of Improvement
East Hanover Elementary School	1098 Schoolhouse Road, Annville	1958	1995*
Fredericksburg Elementary School	119 E. Walnut Street, Fredericksburg	1953	1964, 2002*
Jonestown Elementary School	135 S. King Street, Jonestown	1958	1965, 2002
Lickdale Elementary School	40 Fisher Avenue, Jonestown	1958	1997
Northern Lebanon Middle School	345 School Drive, Fredericksburg	1958	1965, 2002*
Northern Lebanon High School	345 School Drive, Fredericksburg	1958	1965, 2002*

*Date of building permit.

The Northern Lebanon School District has used innovative methods in financing and contracting in its building program. The use of outside funding and grant development in conjunction with performance contracting has set a new standard for efficiency and effectiveness in planning and implementing building construction.[7]

Northern Lebanon had the largest percent of students attending postsecondary programs in 2003-2004 and the largest percent change of students attending 2 or 4 year colleges/universities and total college, between 1998 and 2004. This is explained by the fact that students at Northern Lebanon High School can earn college credits from Harrisburg Area Community College in their junior and senior years through eight three-credit courses for students. Course offerings include: Major American Writers, Historical Geology, Early Childhood Professional, Healthful Living, Environmental Science, National Political System, Pre-Calculus and Calculus 1. Students may take up to 18 credits from the eight courses offered. A one time fee of $35.00 for HACC registration and $50.00 for each course is required. HACC credits are transferable to a wide variety of universities and colleges in and out of Pennsylvania.

[7] Northern Lebanon School District website, http://www.norleb.k12.pa.us

Palmyra Area School District

The Palmyra Area School District serves Palmyra Borough and North Londonderry and South Londonderry Townships and their 19,325 residents in 7,978 households located across 36.7 square miles. The district operates three elementary schools, one middle school and one high school.

The Department of Education projections for the Palmyra Area School District suggest an increase of 140 students or 4.7%, in student enrollment in the county by the 2015-2016 school year. Alternate enrollment projections prepared for the Palmyra Area School District by the Pennsylvania Economy League (PEL) show more liberal estimates of continued growth, ranging from 3,600 to 3,650 students in the 2013-2014 school year or 125 to 175 more than the state's projections. The alternative projections better reflect the growth potential of the district, given that additional sewage treatment capacity is to be made available. The PEL study also stated, "Public school enrollment over the next ten years will be more dependent on recent and future births, migration patterns, the age composition of the child population and the role of non-public education than the overall population pattern…. The trends in public school enrollments will not necessarily directly mirror the pace of population growth."[8] Municipal population projections prepared for the county comprehensive plan and totaled for this district indicate a population increase of 1,595 or 8.25% from 2000 to 2010.

Table 4-10 Palmyra Area School District Facilities

Facility	Address	Date of construction	Date of Improvement
Forge Road Elementary School	400 South Forge Road, Palmyra	1958	1990, 2003
Northside Elementary School	301 East Spruce Street, Palmyra	1967	1989, 2003
Pine Street Elementary School	50 West Pine Street, Palmyra	1962	2004
Palmyra Area Middle School	50 West Cherry Street, Palmyra	1915	1958, 2000
Palmyra Area High School	1125 Park Drive, Palmyra	1936	1960, 2005/2008

*Date of building permit.

Through long-term planning, the Palmyra Area School District has demonstrated its commitment to maintaining functional educational facilities that meet the needs of students, while considering what is affordable for the community. Renovations to the Pine Street Elementary School in the amount of $12.1 million were completed in 2004. The project included the addition of five regular classrooms to accommodate growth, three additional special education classrooms and offices for the Special Education Administrative staff, a separate full-size gymnasium and a new media center. This was the first major renovation to Pine Street since it was built in 1962. The school district's other two elementary schools, Northside and Forge Road Elementary, were last renovated in 1989 and 1990. In 2002-2003, approximately $2 million in upgrades were completed at these two elementary schools, including air conditioning at Forge, a new roof at Northside, painting, carpeting, telecommunications upgrades, furniture, playground equipment and improvements for handicapped accessibility at both schools. Renovations to Palmyra Area Middle School and the adjacent stadium in the amount of $12.5 million were completed in 2000.

Substantial renovations to the high school began in 2006. The plans include the addition of a two-story classroom wing resulting in 60 new or renovated classrooms, a net addition of 20 classrooms to address enrollment growth. Other key features are new site circulation, expanded parking, a renovated auditorium, a new and enlarged media center, a new kitchen and cafeteria with seating for 400 students, upgraded administration areas, more secure entryways, new electrical, plumbing and HVAC systems, and a new and enlarged maintenance building. Renovations are schedule to be completed by the start of the 2007/2008 school year and are estimated to cost $31.9 million.

The district continues to evaluate the need for additional facilities as the community grows. In November 2006, Superintendent Larry Schmidt recommended a new elementary school likely to be located in the southern portion of the district. Construction of a new elementary school was considered in 2004 but the board opted to expand and renovate the

[8] An Analysis of Demographic and community Growth Patterns and Projections of Public School Enrollment in the Palmyra Area School District, 2003-2004, Pennsylvania Economy League, April 29, 2004.

Pine Street Elementary School. In early 2007, the district decided to update its enrollment projections prior to further investment in its facilities.

Keystone Healthy Zone (KHZ) Schools Program

Keystone Healthy Zone (KHZ) Schools Program recognizes and rewards schools for making a commitment to improve nutrition and physical activity. The program provides resources, templates, trainings, technical assistance and mini-grant funding for schools to make healthy changes. Enrollment in the Keystone Healthy Zone School program is FREE.

KHZ schools are asked to complete a confidential, online assessment about current policies and practices that impact nutrition and physical activity. In return, schools receive a confidential report card that indicates strengths and weaknesses related to healthy school practices. KHZ schools also receive a Keystone Healthy Zone School banner to hang in their building. Participating schools are invited to apply for a $2,000 mini-grant to support positive improvements that support nutrition and activity. One hundred grants are awarded annually.

Ten schools in Lebanon County are enrolled in the KHZ program:

- Cedar Crest High School (Cornwall-Lebanon)
- Cornwall Elementary School (Cornwall-Lebanon)
- Union Canal Elementary School (Cornwall-Lebanon)
- Myerstown Elementary School (ELCO)
- Lebanon Senior High School (Lebanon)
- Cedar Crest Middle School (Cornwall-Lebanon)
- Ebenezer Elementary School (Cornwall-Lebanon)
- ELCO Senior High School
- Schaefferstown Elementary School (ELCO)
- Fredericksburg Elementary School (Northern Lebanon)

Lebanon County Career and Technology Center

The Lebanon County Career and Technology Center (CTC) was organized in 1964 to provide technical training to high school students and adults. Today the Lebanon County Career and Technology Center is a state-of-the-art technical training facility housing 27 programs. From college articulation agreements and cooperative education programs to real world experiences, students receive the training needed for job placement and career advancement. The CTC is located at 833 Metro Drive, Lebanon.

The CTC offers three distinct types of education service programs: high school student technical programs, adult student technical programs, and custom job training programs.

High school programs include:

- Transportation - Auto Body Technology, Automotive Technology, Diesel Truck Technology
- Arts, A/V Technology & Communication - Commercial Art & Design, Graphics Technology, Visual Broadcast Technology
- Health Services - Allied Health Science, Health Careers Technology
- Manufacturing - Industrial Machine Technology, Welding Technology, Occupational Transition-Mfg.
- Information Technology - CISCO Basic Networking, Computer Repair Technology, Office Technology
- Human Services - Child Care Services, Cosmetology, Criminal Justice, Law Enforcement & Security
- Architecture & Construction - Carpentry / Residential Construction, Computer Aided Engineering, Drafting & Design, Electrical Technology, Electrical Pre-Engineering, Masonry, Plumbing/Heating/Air Conditioning, Occupational Transition-Carpentry
- Hospitality - Culinary Arts, Pastry Arts, Occupational Transition-Hospitality

These courses are increasingly linked to two-year college degree programs. These courses are commonly known as “Tech Prep” or “School-to-Careers” courses. Such courses at CTC are affiliated with these institutions:

- Art Institute of Philadelphia
- Berks Technical Institute
- Harrisburg Area Community College
- PA College of Art and Design
- PA College of Technology
- PA Culinary Institute
- Reading Area Community College
- Restaurant School-Walnut Hill
- Thompson Institute
- Yorktowne Business Institute

Adult programs are offered in day and evening formats. These programs include:

- Auto Body Technology
- Automotive Technology
- Basic Computer-4 weeks
- Basic Computer-9 weeks
- Carpentry
- Cosmetology
- Cosmetology Nail Technician
- Cosmetology Teacher
- Culinary Arts
- Diesel Truck Technology
- Electrical Technology
- Graphics Technology
- Industrial Machine Technology
- Practical Nursing Program
- Office Technology
- Office Technology-600 hours
- Pastry Arts
- Plumbing, Heating & Air Conditioning Technology
- Welding Technology

The Customized Job Training (CJT) Program is designed primarily to assist companies that are developing and implementing new training initiatives that will promote companies' growth and competitiveness. The CJT Program, enacted into law by the Customized Job Training Act of 1985 (P.L. 492, No. 116), as amended, is a tool to support the educational training of working Pennsylvanians. CJT funds are available for projects that will result in full-time employment opportunities, significant wage improvements, and the retention of otherwise lost jobs. The following businesses have utilized CJT services:

- Cleaver Brooks
- Henry Molded Products
- Millet, Inc.
- Peirce Welding
- PRL Industries
- Sterling Drugs

Table 4-11 Historic Enrollments for the Lebanon County CTC

School Year	Lebanon CTC
2002-2003	625
2003-2004	626
2004-2005	646
2005-2006	709
2006-2007	564
Projected Change	
Change 02-03 to 06-07	-61
% Change 02-03 to 06-07	-9.8%

Enrollment at the CTC has been steadily growing. Enrollment boomed 19% for the 2005-06 school year and then dropped in 2006-2007.[9] The largest enrollment increases have been in the healthcare services programs. The CTC has supported this growth with additional staff, additional offerings of survey courses and accelerating student progress through cooperative agreements with the school districts, allowing students to earn seven college credits by taking Biology 104 and Allied Health 105. Other recent changes include the re-establishment of a masonry program. The center has also introduced a change to the health-careers technology program, in which students can get a certified nursing certificate in one year instead of two. This allows for students in the program to get a head start in preparing to become a practical nurse.[10] Amid this growth, the CTC is faced with programming challenges from the state. The Department of Education has changed its view on the mission of technical schools from one of job-readiness to exam proficiency. Most of the items included on the Pennsylvania System of School Assessment (PSSA) are already being taught at the center, but how they are taught will have to be adjusted to give the students the best shot at doing well on the state exam. This will not cause the center's students to spend significantly more time in the classroom, but it will change how information is presented for better recognition during testing.[11]

The second major challenge is how the state treats the school's two-period courses. Students planning to continue their education at two- or four-year schools after high school currently can take classes at the center for only two periods a day, allowing them more time for regular classes at their home schools. Other programs, for students not interested in postsecondary education, run for either a half-day or a full day. Students in the two-period program put in about 240 hours per year at the center. But in order to keep the school's designation as an intensive vocational program, the two-period programs will soon have to expand to 360 hours per year. If the technology center does not expand the programs, it will lose state subsidies that currently help to fund the programs, potentially affecting about 100 students in the allied health, Sysco food services, pre-electrical, criminal justice and computer-aided drafting programs. The state has not yet officially ordered a

[9] Lebanon Daily News, April 20, 2005.
[10] Lebanon Daily News, January 20, 2006.
[11] Ibid.

change in program requirements. When the change is ordered, it would not go into effect for at least two years, giving the schools time to get together and chart a path for the future. [12]

Lancaster-Lebanon Intermediate Unit (IU 13)

Lancaster-Lebanon Intermediate Unit 13 (IU 13),[13] one of 29 intermediate units across Pennsylvania, is a regional educational agency whose mission is to assist local school districts to enhance educational opportunities by providing quality, cost-effective services. The IU 13 regular workforce includes over 1,300 full-time and part-time employees, plus approximately 300 substitutes and seasonal employees. It serves the 22 school districts in Lancaster and Lebanon Counties as well as students in nonpublic schools, preschoolers, and adult learners. IU 13 is headquartered at 1 Cumberland Street, Lebanon.

IU 13 is organized into the Office of the Executive Director and five departments -- Business Services, Human Resources, Instructional Services, Special Education Services, and Technology Services. IU 13 is governed by a Board of School Directors representing the 22 school districts it serves. In addition, IU 13's buildings are owned and managed by the Lancaster-Lebanon Intermediate Unit Joint Authority.

IU 13's Business Services division is a support team which assists IU employees, school districts, and other educational/service agencies in providing unique, quality services and programs. The IU 13 serves school districts by supporting and supplementing literacy programs, assisting with student assessments that help to monitor a school's progress towards Pennsylvania's Academic Standards, as well as strategic planning and management. Financial management, insurance, joint purchasing, and facilities management services are also available.

IU 13's Human Resources department is responsible for employment and personnel matters but also provides local assistance for recruitment, management studies, substitute teacher dispatch, orientation and training, certification, and benefit coordination.

IU 13's Instructional and Special Education Services departments serve children, youth, adults and professionals. A variety of regular and special education classes and support services are available for children and youth ages 3 to 21. The IU 13's student programs focus on

1) Special education, e.g. early intervention for 3 to 5 year olds with special needs and alternative education for middle and high school students that have difficulty succeeding in traditional classroom settings due to chronic disruptive behavior.
2) Preparatory training, e.g. Headstart and transition programs, which help prepare a student for the workforce
3) Enrichment programs, e.g. Secondary Enrichment Experience (SEE) for gifted junior high/middle and high school students and Pennsylvania Governor's Schools of Excellence, a summer residential program for artistically or academically talented high school students, sponsored by Pennsylvania Department of Education.

The IU 13's adult education services focus on family literacy, General Education Development (GED) instruction and testing, English as a Second Language (ESL), and workforce development programs for employers and individual workers. Free ESL classes are offered to adults that are permanent U.S. residents in Lancaster or Lebanon County. Individuals that are not permanent residents may attend classes through the International English Training program, a tuition-based instruction program.

IU 13 offers professional development services that are an integral part of broad school-wide and district-wide school accountability planning, focusing on the major components of curriculum, assessment, instruction and organization. Professional education activities are aligned with national, state and local initiatives, and support the strategically identified needs of constituent school districts. Professional development initiatives, seminars, workshops, continuing education courses and other activities are available to local administrators, teachers, parents, agency personnel and community members. On-site program and staff development through customized training and technical assistance allows the IU 13 to provide services that are specific to a particular district's needs. Professional development topics include academic subjects (literacy, math, science, and social studies), ESL gifted education, technology and software, standards and assessments, leadership and safety.

[12] Ibid.
[13] Intermediate Unit 13 Website, www.iu13.k12.pa.us

The Technology and Media Services division provides technical assistance in the areas of software and hardware sales, instructional materials, network and internet systems, video support and production, and distance learning.

Private Education Facilities

There are 22 private primary and secondary schools serving the central and eastern regions of Lebanon County. The majority of private/nonpublic schools are Mennonite or Amish Schools, which tend to be small in student population and provide schooling only through Grade 8. The remaining schools are a mix of religious affiliations.

Statistics from the Pennsylvania Department of Education indicate that 7.8% of school age children in Lebanon County attended private schools in 2005-2006 and that enrollments in private schools have declined 3.8% between the 2000-2001 and 2005-2006 school years.

Table 4-12 Public, Private and Nonpublic Student Enrollment, 2005-2006

	Public	% of Total	Private[1] & Nonpublic[2]	% of Total	Total
Elementary Enrollment	9,974	89.2%	1,210	10.8%	11,184
Secondary Enrollment	9,193	95.7%	415	4.3%	9,608
Both	19,167	92.2%	1,625	7.8%	20,792

[1] Private School - A nonpublic school defined by the licensing regulations as one that maintains or conducts classes for the purpose of offering instruction for consideration, profit or tuition, to five or more students at one time, or to 25 or more students.

[2] Nonpublic School - A school that is privately controlled by a nonpublic entity and is financed from sources other than public taxation.

Lebanon Catholic School is the county's largest private school, with 448 students enrolled in grades K – 12. New Covenant Christian School is the largest Mennonite school in the county, and the 2nd largest private school overall, with 161 current students. Myerstown Mennonite has 154 students in grades K-10. Lebanon Christian Academy, the only Baptist private school in the county, currently enrolls 128 students in grades K-12[14]. Myerstown Mennonite School and Millbach Mennonite School have enrollments between 75 and 100 students in their K-10 programs. The remaining schools enroll less than 75 students. Enrollments for elementary grades of private schools are shown in Table 4-13.

Postsecondary enrollments from graduates of private education instructions were lower than those of public schools in 1999-2000 and higher in 2004-2005.Overall private school graduate enrollment increased 51.1%. Of the 52 Lebanon Catholic graduating seniors in the 2004-2005 class, 92.3% went on to a 2 or 4 year college or university, significantly higher than the public school average of 67.6%. Of the 16 New Covenant Christian graduates of the 2004-2005 class, 12 went on to 2 or 4 year colleges or universities. Matriculation rates of Lebanon Christian Academy graduates are high, with all but one graduate attending a 2 or 4 year college or university in the 2004-2005 graduating classes. Matriculation rates of Blue Mountain Christian School graduates are low for past graduating classes, with none of the three 2004-2005 graduates attending postsecondary schools of any kind.

[14] Ibid.

Table 4-13 Private Elementary Education Facilities

School	Location	Affiliation	2000-2001 Enrollment	2005-2006 Enrollment	Change	% Change
Annville-Cleona SD						
Fontana Parochial School	902 Horseshoe Pike, Lebanon	Amish	19	18	-1	-5.3%
Cedar Run Mennonite School	2770 Cedar Run Road, Lebanon	Mennonite	33	39	6	18.2%
Cornwall-Lebanon SD						
New Covenant Christian School	452 Ebenezer Road, Lebanon	Mennonite	160	83	-77	-48.1%
Meadow Ridge School	2001 South 5th Avenue, Lebanon	Amish	7	19	12	171.4%
ELCO SD						
Blue Mountain View Parochial School	RR 1 Box 150, Myerstown	Amish	42	40	-2	-4.8%
Buffalo Springs Parochial	Schaeffer Rd, Lebanon	Amish	11	52	41	372.7%
Cherry Lane School	RR 2 Box 275B, Myerstown	Amish	29	25	-4	-13.8%
County Line School	1 High Street, Myerstown	Amish	12	18	6	50.0%
Hope Christian School	RR 2 Box 424A, Myerstown	Mennonite	62	71	9	14.5%
Jacksonville Parochial School	Myerstown,	Amish	10	21	11	110.0%
Millbach Mennonite School	601 State Route 419, Newmanstown	Mennonite	70	76	6	8.6%
Millbach Springs School	750 State Rt. 419, Myerstown	Amish	41	42	1	2.4%
Millcreek Parochial School	506 State Route 419, Newmanstown	Amish	20	45	25	125.0%
Myerstown Mennonite School	739 E Lincoln Avenue, Myerstown	Mennonite	129	97	-32	-24.8%
Nacetown Mennonite School	703 W Stracks Drive, Myerstown	Mennonite	36	33	-3	-8.3%
Reistville School	RR 2 Box 285A, Myerstown	Amish	23	33	10	43.5%
Rocky Ledge School	351 E Mill Avenue, Myerstown	Amish	20	18	-2	-10.0%
Stony Ridge Parochial School	800 E Main Street, Myerstown	Amish	28	36	8	28.6%
Stracks Dam School	720 Stracks Dam Road, Myerstown	Amish	n/a	25		
Sun Valley Parochial School	241 S Millbach Road, Newmanstown	Amish	n/a	40		
Lebanon SD						
Lebanon Catholic School (Our Lady of the Valley School)	1400 Chestnut Street, Lebanon	Diocese of Harrisburg	306	296	-10	-3.3%
Lebanon Christian Academy	875 Academy Street, Lebanon	Baptist	97	63	-34	-35.1%
Northern Lebanon SD						
Blue Mountain Christian School	RR 4 Box 5126 Jonestown	Christian	82	40	-42	-51.2%
Pleasant Hill School	286 Chestnut Hill Road, Fredericksburg	Christian	n/a	0		
Palmyra Area SD - None						
Lebanon County Total			**1,237**	**1,190**	**-47**	**-3.8%**

Source: Private and Nonpublic Schools, Elementary Enrollments 2005-06, Pennsylvania Department of Education 2006

Table 4-14 Private and Nonpublic High School Graduates and Postsecondary Education Rates

Lebanon County	Total Graduates	2 or 4 yr. college/ university	Specialized Associate Degree-Granting Institution	Total College Bound	Nondegree-Granting Postsecondary School	Total Postsecondary Bound
		%	Percent	Percent	Percent	Percent
1999-2000						
Blue Mountain Christian School	2	0.0%	0.0%	0.0%	0.0%	0.0%
Lebanon Catholic School	59	83.1%	0.0%	83.1%	0.0%	83.1%
Lebanon Christian Academy	11	45.5%	0.0%	45.5%	9.1%	54.5%
New Covenant Christian School	NA	NA	NA	NA	NA	NA
Lebanon County Total	72	63.9%	0.0%	63.9%	1.4%	65.3%
2004-2005						
Blue Mountain Christian School	3	0.0%	0.0%	0.0%	0	0.0%
Lebanon Catholic School	52	92.3%	3.8%	96.2%	0	96.2%
Lebanon Christian Academy	10	90.0%	0.0%	90.0%	0	90.0%
New Covenant Christian School	16	75.0%	0.0%	75.0%	0	75.0%
Lebanon County Total	81	85.2%	2.5%	87.7%	0	87.7%
Change						
Blue Mountain Christian School	1	—	—	—	—	—
Lebanon Catholic School	-7	-2.0%	—	2.0%	—	2.0%
Lebanon Christian Academy	-1	80.0%	—	80.0%	-100.0%	50.0%
New Covenant Christian School	16	—	—	—	—	—
Lebanon County Total	9	50.0%	—	54.3%	-100.0%	51.1%

Source: Private and Nonpublic Schools High School Graduates and Postsecondary Education Rates 2004-05, Pennsylvania Department of Education, 2006

Source: Private and Nonpublic Schools High School Graduates and Postsecondary Education Rates 1999-2000, Pennsylvania Department of Education, 2001

* New Covenant Christian School was opened in 1999.

Lebanon Lighthouse Academy is an affiliate of the National Association of Street Schools (NASS), (www.streetschools.com), which supports non-public schools offering a Christian education to at-risk youth, particularly in urban areas. [15] Lebanon Lighthouse Academy is still in the planning stages and intends to open for the fall 2007 semester.

Home Education

In 1988, the Pennsylvania General Assembly passed Act 169. This law amended the Pennsylvania School Code to allow parents or guardians to home school their children as an option to compulsory school attendance. This law specifies the requirements and responsibilities of the parents and the school district where the family lives. Pennsylvania Department of Education has issued a Basic Education Circular (BEC) to provide school districts with a list of nationally normed standardized tests, per the law. Sample affidavits which may be used by the supervisor of the home education program for children at the elementary school level or secondary school level are an attachment to the BEC. There are several additional requirements for home schooling students who have been identified as handicapped per the federal Individuals with Disabilities Education Act (20 U.S.C. 1400 et. seq.).[16]

Statistics from the Pennsylvania Department of Education indicate that 2.6% of school age children in Lebanon County are home schooled and that participation in home school programs has increased 20.4% over the past five years. The ELCO School District had the highest numbers of students in home school programs in 1999-2000 and 2004-05. All but the

[15] http://www.streetschools.com/index.html
[16] PA Department of Education website, www.pde.state.pa.us.

Annville-Cleona School District has experienced double digit growth in home school participation. The ELCO School District had the largest increase in the number of students in home education programs, followed by the Cornwall-Lebanon and Northern Lebanon School Districts.

Table 4-15 Home Education Students by School District and Age Group

School District	1999-2000			2004-2005			Change	
	Ages 5-11	Ages 12-18+	Total	Ages 5-11	Ages 12-18+	Total	Number	% Change
Annville-Cleona SD	29	29	58	25	25	50	-8	-13.8%
Cornwall-Lebanon SD	50	42	92	55	64	119	27	29.3%
ELCO SD	56	54	110	68	75	143	33	30.0%
Lebanon SD	11	13	24	9	20	29	5	20.8%
Northern Lebanon Area SD	27	39	66	46	42	88	22	33.3%
Palmyra Area SD	41	36	77	35	50	85	8	10.4%
Lebanon County Total	214	213	427	238	276	514	87	20.4%

Source: Home Education in Pennsylvania 2004-05, Pennsylvania Department of Education, 2006

Source: Home Education in Pennsylvania 1999-2000, Pennsylvania Department of Education, 2001

Postsecondary Institutions

There are three degree-granting institutions for higher education in Lebanon County: Harrisburg Area Community College – Lebanon Campus, Lebanon Valley College, and Evangelical School of Theology.

Table 4-16 Higher Education Enrollments, 2001 and 2005

	2001			
	Full-time Undergraduate	Part-time Undergraduate	Graduate/ Professional	Total
HACC/Lebanon Campus	347	635	0	982
Lebanon Valley College	1,537	342	191	1,827
Evangelical School of Theology	0	0	160	65
	2005			
	Full-time Undergraduate	Part-time Undergraduate	Graduate/ Professional	Total
HACC/Lebanon Campus	396	714	0	1,110
Lebanon Valley College	1,652	152	157	1,961
Evangelical School of Theology	0	0	177	177
	2001-2005 % Change			
	Full-time Undergraduate	Part-time Undergraduate	Graduate/ Professional	Total
HACC/Lebanon Campus	14.12%	12.44%	—	73.98%
Lebanon Valley College	7.48%	-55.56%	-17.80%	7.33%
Evangelical School of Theology	—	—	10.63%	172.31%

Source: Pennsylvania Department of Education, Higher Education and Adult Education Statistics, 2002 and 2006

Harrisburg Area Community College - Lebanon Campus

The Harrisburg Area Community College - Lebanon Campus originally opened in 1990, on the site of the former Haak Brothers Department Store at 735 Cumberland Street in downtown Lebanon. A devastating fire destroyed the Haak building in late 1990; HACC constructed a new building and reopened the Lebanon Campus in 1994. HACC's Lebanon Campus is the smallest of its four satellite campuses. Courses are offered at additional locations throughout southcentral Pennsylvania and online.

The Lebanon Campus offers 29 two-year associate degree and certificate programs, credit and non-credit courses, and customized employee training programs for business, industry, and other organizations. Students can take developmental and general education courses to prepare for diploma, certificate, and career and transfer degree programs offered at the college. Credits are transferable to other community colleges and two and four year institutions for the completion of a bachelor's degree.

The Lebanon Campus has 18 classrooms with four state-of-the-art computer labs, a computer hardware technical lab, and a bio-feedback and science laboratory. Lebanon Campus also houses the 11,000 volume Pushnik Family Library, a Learning Center, a Child Play Center, a Student Lounge, Student Activities Office, a Career and Transfer Center, a Multipurpose/Physical Education Room, an Art Gallery, and Offices for Faculty and Staff[17]. Student services include assistance with financial aid, placement testing, career and academic counseling, and special needs support.

Total enrollment at the Lebanon campus for the Fall 2006 semester was 1,110 students, and the campus has experienced double-digit percentage increases in enrollment since Spring 1998. Approximately 60% of students are adults attending classes after work.

The Lebanon Campus operates at near capacity. The college plans to expand its operation by locating additional satellite facilities throughout the county, particularly in the northern region.

The college makes its resources and facilities available to enhance quality of life and economic development in the community. Through its various continuing education components, it develops credit and non-credit courses for life long learning, vocational pursuits, and job-skills enhancement. Specific programs are developed in cooperation with community representatives for such purposes as helping businesses and public agencies incorporate new technologies or systems-management procedures, improving employee well being, upgrading skills of existing employees, or providing entry-level training for new employees. HACC's Lebanon Campus offers Computer Skills Training, Professional Development, Certification, and Community Education classes.[18]

HACC has several unique programs at the Lebanon Campus. The college partners with public schools to provide advanced placement (AP) courses to high school students in the Cornwall-Lebanon, ELCO, and Northern Lebanon School Districts, as well as at Lebanon Catholic and the Lebanon County Career and Technology Center. These partnerships support enrollment and program growth for the college's future. A pre-English as a Second Language (ESL) program assists workers with conversational English necessary for tradesman. This program may be expanded to support developmental ESL courses in the future. In addition, the college offers a Child Development Associate Diploma, which trains entry-level child care providers and prepares them for assessment by the Council for Professional Development; a non-credit home health aide certificate program; preliminary courses for allied health careers; and Gerontology Diploma, which prepares students for further study or enhance current education/certifications in such areas as nurse aide, home health aide, practical nurse, registered nurse, social service worker, activity professional and business related careers.

In 2006, HACC received a Keystone Education Yields Success (KEYS) grant award. The KEYS program, part of the PA Welfare-to-Work initiative from the Pennsylvania Department of Public Welfare, provides funding to community colleges statewide for case management services for TANF students - Temporary Assistance for Needy Families. Case management services may include assisting students with referral services, personal goal assessment and planning. The program is beneficial for college students who may have barriers to success, such as transportation issues, limited income, being a single parent, and a lack of family or parental support. Data has shown that TANF clients who earn a certificate or degree are better able to get jobs with family-sustaining wages, benefits, and opportunities for advancement. A program facilitator based at

[17] http://www.hacc.edu.
[18] Ibid.

each of HACC's campuses serves as a liaison between the student and the program services. Although the KEYS program has only been in place for one year, retention is strong and the majority of students have GPAs over 2.0.[19]

HACC has several new initiatives planned for the Lebanon Campus. The Small Business Development Center will offer free business and market planning services. The college is working with the Lebanon County Career and Technology Center to develop a geospatial technology center to offer students additional skills in information management, marketing, and planning. The college has also received a capital donation of an existing building in downtown Lebanon. The building was donated for the development of a technology training center. The training center will potentially accommodate 600 students and may suggest the need for on-site or nearby housing for these additional students. HACC is seeking public and private funds to renovate the building and establish its new function.

Lebanon Valley College

Lebanon Valley College (LVC) is a private four-year college located on a 275 acre campus in Annville. LVC was founded in 1866 and is affiliated with the Independent United Methodist Church. LVC offers 28 undergraduate/ baccalaureate programs, 4 graduate programs in Business Administration, Music Education, Physical Therapy and Science Education, and special programs in Military Science (ROTC); Cytotechnology, Cytogenics, Diagnostic Imaging, Occupational Therapy, Physical Therapy; Engineering (all major fields); Forestry, Environmental Sciences; and Medical Technology. Few other small colleges have received more Fulbright awards than Lebanon Valley College – thirteen awards in the past thirty-four years – with mathematics majors receiving five during that period. U.S. News & World Report's 16th annual "America's Best Colleges" issue and guidebook ranked LVC among the top tier of colleges and universities in the category of "Best Universities Master's in the North".[20] The following are some available student support services: academic advisor, Dean of Student Services, Associate Academic Dean, Career Services, Disability Services, Multicultural Affairs, Health Services, Counseling Services, academic tutoring, and Writing Center.

The largest institution of higher education in the county, Lebanon Valley College had a Fall 2006 student population of 1,804 undergraduates of whom 93% were fulltime and 61% were women, 152 part-time, and 157 part-time graduate students. The new freshmen and transfer students became part of a student body that represents twenty-one states and five countries. [21] Of the 100 professors at Lebanon Valley, 85 percent have earned a Ph.D. or equivalent terminal degree. [22] Senior citizens and employees or children of employees are eligible for reduced tuition and fee waivers.

LVC's campus comprises 40 buildings including 25 residence halls, numerous classroom buildings, two student centers, a recreational sports center, one varsity gymnasium, a library, music center, art gallery and recital hall, art studio, and chapel. Campus housing is university owned and required through senior year. Freshman campus housing is guaranteed.

The school has had major upgrades in the last 5 years, with the construction of a new residence hall/quad and a new student center in 2002, a new gymnasium in 2003, the conversion of Lynch Memorial Hall to an academic building in 2004, and the Garber Science Center in 2006.

Evangelical Theological Seminary

Evangelical Theological Seminary, located in Myerstown, is approved by a variety of church and denominational groups for the preparation of candidates for ordination and is accredited by the Middle States Association of Schools and Colleges and the Association of Theological Schools in the U.S. and Canada. The school was founded in 1952 on a campus that dates back to the Civil War. Evangelical's student body has grown by 10% over the past 5 years to just over 175 graduate students representing over two dozen denominations. The most popular programs are Master of Divinity followed by the MA in Marriage and Family Therapy. By way of seminary enrollment, students have access to additional graduate courses offered at Messiah College in Grantham, Pennsylvania.[23]

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[19] Ibid., Press Release, Wednesday, July 26, 2006.
[20] www.petersons.com.
[21] www.petersons.com.
[22] Ibid.
[23] http://www.evangelical.edu.

Other Postsecondary Schools

Lebanon County Career School, Inc., and the **Central PA Carpenters Joint Apprenticeship & Training Committee** are the two trade schools in the county. Lebanon County Career School is a 15 year old professional truck driving school that is part of the nationwide company SAGE Technical Services. Lebanon County Career School, located in the City of Lebanon, is listed as having 30-35 full-time, and 5-10 part-time students, with 6 full- or part-time faculty members. Four programs are offered at the school: a tractor trailer driver basic training course, an externship course (field experience generally shorter than a semester-long internship), an advanced course, and a refresher course.

The **Central PA Carpenters Joint Apprenticeship & Training Committee** provides four year apprenticeship training by the member contractors on construction projects in central Pennsylvania. The program is approved by the U.S. Department of Labor's Bureau of Apprenticeship and Training and is registered with the Pennsylvania Apprenticeship Council. Initial training begins in the classroom followed by hands-on training. Apprentices are able to earn money on the job and pay rate increases every six months. Those who complete this apprenticeship leave as experienced journeymen. In 1988, a training center was completed in Northern Lebanon Township and includes all equipment needed to train aspiring carpenters. The center was renovated and expanded in 2005.

Library Facilities and Services

The Lebanon County Library System is a major component in the intellectual, educational and cultural life of the county. It is the 29th system library in the state, and the latest district system to be created. It is composed of six independent libraries; Annville Free Library, Lebanon Community Library, Matthews Public Library, Myerstown Community Library, Palmyra Public Library, and Richland Community Library.

The Annville Free Library, located at 216 East Main Street in Annville has over 40,000 volumes in a variety of formats, and provides several additional services such as Internet access, young adult, adult, and summer reading programs, and meeting space. There is a six member staff and an 11-member Board of Directors. Additionally, Annville Free Library has six trustees.[24]

The Lebanon Community Library is located on North 7th Street in Lebanon, and while it has only been in operation at this site since 1985, there has been a library in Lebanon City for 135 years. The library is led by a 17-member board. The library has a wide array of media available, including 85,000 books, newspapers, magazines, CDs, audios, videos, DVDs and software and circulates over 295,000 items per year to its over 47,000 patrons. Services include reading programs for toddlers and preschool children, summer programs, and a computer center with Internet access. Additionally, it hosted a Children's Festival, a charity auction, and a poetry contest in 2006[25].

The Matthews Public Library is located on West Main Street in Fredericksburg, on the square in the center of town. Originally founded in 1982, the new building was opened in 2002. Listed services at the library include story times for toddlers and preschoolers, a summer reading program, a computer center with Internet access and classes for computer use and programs. The library is led by a seven member Board of Directors and operated by four staff members[26].

The Myerstown Community Library is at 199 North College Street (Route 501) in Myerstown. Services include Internet access and fax availability. The collection includes over 40,000 items including audio and visual materials as well as large print books. Listed events include story time, summer programs for all ages, and library showcases and book discussions. Additionally, Myerstown Community Library has an exceptional collection of local and Pennsylvania German materials as well as the Pennsylvania Archives. The staff of three is governed by a library board of 15 members. Annual fundraisers include a silent auction in spring and a book and bake sale in fall.[27]

The Palmyra Public Library is located on South Railroad Street in Palmyra. The library was established in 1954, and has been on South Railroad Street since 1970. Over 40,000 books and materials are available in the library's growing collection, with a

[24] http://www.lebanoncountylibraries.org/annville/index.php
[25] http://www.lebanoncountylibraries.org/lebanon/index.php
[26] http://www.lebanoncountylibraries.org/matthews/index.php
[27] http://www.lebanoncountylibraries.org/myerstown/index.php

wide array of media including newspapers, videos, CDs, and even puppets. The library is governed by a board of 11 members, with representatives from Palmyra Borough Council, the South Londonderry Board of Supervisors, the North Londonderry Board of Supervisors, the Palmyra Area School Board, and the borough-at-large. The library staff includes professional librarians, paraprofessional librarians, technical assistants, and local volunteers. In 2006, the library prepared a strategic plan to better meet the needs of the community. Among other trends, the strategic plan found that library use has dramatically increased over time while the available space has remained constant; new users of the library were often people familiar with a higher level of service than what the library had traditionally offered; and funding and fundraising have been very limited. Based on its findings, the plan made recommendations to enhance and expand the facility and its services, diversify its funding and fundraising program, and strengthen its relationships with the school district and community partners and the public at large.[28]

The Richland Community Library is located on East Main Street in Richland, but also serves Millcreek Township and other areas surrounding Richland Borough. Its three person staff is overseen by a director. The first library in Richland opened in 1886, with its current location opened in 1969. Services provided at the Richland Library include internet access, fax and copy services, monthly children's story-times and teen programs. Available media now include books, including a growing graphic novel and teen section as well as a local history section, magazines, videos and DVDs.

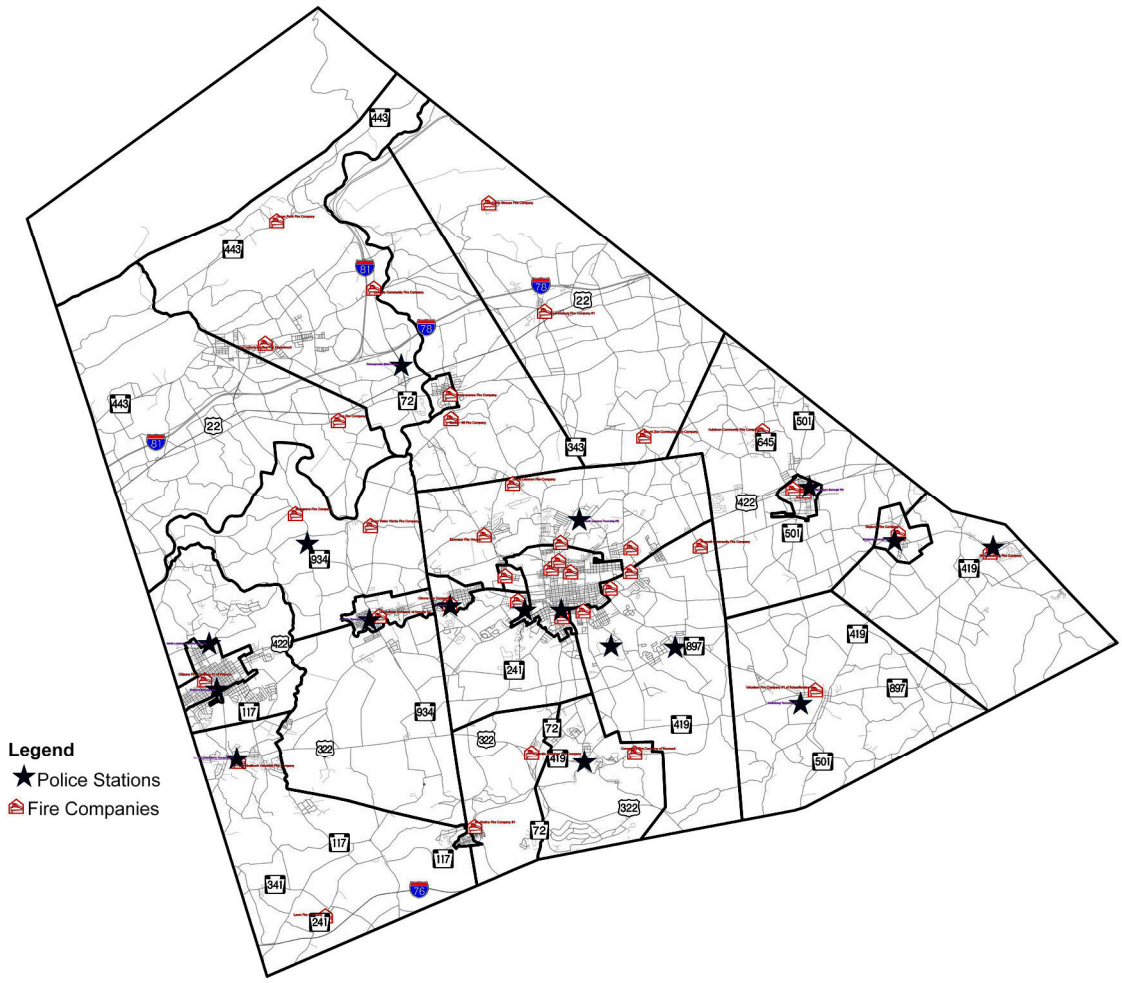
While these six facilities operate independently, they do participate in an interlibrary loan program, which allows accessibility of almost all materials available in libraries to residents throughout the county. Library materials for all of the libraries can be found on the web (www.lebanoncountylibraries.org) via the Online Catalog (Polaris) and reserved using this same site. Requests can also be made through library staff. Requested materials are transferred to the user's home library for pickup and return. Materials are available from out-of-county libraries as well.

[28] A Bright Future for the Palmyra Public Library, Strategic Plan for 2006-2009, The Ivy Group, July 2006.

Public Safety

Public safety services include those services provided by local and state police and public and volunteer fire departments or companies. Locations of these facilities are illustrated in Figure 4-2.

Figure 4-2 Public Safety Facilities in Lebanon County



Police Departments

Police protection is an essential public service required for the protection of local residents and the business community. The traditional role of the police involves three functions—(1) law enforcement, (2) order maintenance, and (3) community service. Law enforcement involves the application of legal sanctions, usually arrest, to persons who injure or deprive innocent victims of life or property. Order maintenance involves the handling of disputes. And while community service tasks vary from one community to another according to tradition and local ordinances, it often includes traffic control and public safety and educational activities.

Police protection in Lebanon County is provided by the Pennsylvania State Police, the County Sheriff's office, and municipal police departments.

The Pennsylvania State Police[29] force was established in May 1905 as the very first state police agency in the country. The PSP force is divided into 16 troops that serve designated multi-county regions. Troop L serves Lebanon, Berks, and Schuylkill Counties and its estimated population of 651,812 over 2000 square miles. Troop L is headquartered in Reading, and has local stations in Hamburg, Berks County; Jonestown, Lebanon County; and Frackville and Schuylkill Haven, Schuylkill County. The Jonestown station is located at 2632 SR 72, Jonestown. Troop H serves adjacent Dauphin County and south central PA counties west of the Susquehanna River, and Troop J serves Lancaster and Chester Counties.

The local force at Jonestown comprises 19 patrol officers, 4 crime investigators, 2 specialty officers, 4 corporals, and 5 support staff. The size of the troop is based on a formula that includes population and incident rates for the service region, regardless of the number or size of local police forces. State Police respond to calls where local police services are not available. In other words, state police will respond to calls 1) in municipalities without local police forces and 2) in municipalities with off-duty part-time police forces. State Police will also respond to emergency calls received by the state police directly from the caller or when assistance is requested by local forces. Such assistance may include personnel, equipment and facilities.

State Police assistance was requested in July 2004 when a category F3 tornado with 200 mph winds struck a residential community in South Londonderry Township. The Pennsylvania State Police Mobile Command Post was set up at the scene to help coordinate security and recovery efforts. State Police personnel from Troop L, with assistance from Troop H and the Bureau of Emergency and Special Operations, worked with local law enforcement, PEMA, Lebanon County EMA, Campbelltown Fire Company and municipal officials to stabilize the scene, control access to the neighborhood, and ensure the continued flow of traffic in the area.

In addition to responsive police services, the state police organization provides many other services through its various bureaus and offices. Those most relevant to county and local planning include the following:

- The Bureau of Training and Education, which provides training for municipal and campus police officers.
- The Office of Domestic Security (ODS), which oversees the Risk and Vulnerability Assessment Team (RVAT) and its professional vulnerability assessments for critical infrastructures in the public and private sectors.
- The Bureau of Patrol, which oversees patrol and safety programs such as DUI and driver/passenger safety checks.
- The Bureau of Criminal Investigations, which coordinates special investigations such as the Amber Alert program.
- The Bureau of Emergency and Special Operations, which provides aerial support to the field and municipal police departments, special emergency response teams, and canine units for drug and bomb searches.
- The Bureau of Liquor Control Enforcement, which conducts prevention programs.
- The Bureau of Drug Law Enforcement, which investigates the manufacture, possession, and distribution of illegal drugs and narcotics in the Commonwealth.
- The Office of Gaming Enforcement, which conducts background investigations on all board employees and all applicants for manufacturer's and supplier's licenses.
- The Bureau of Records and Identification, which coordinates the collection of fingerprints, crash reports, background checks for firearms licenses, and information on sex offenders.

The Lebanon County Sheriff's office is primarily involved in the civil work of county government and is housed at the County-City Municipal Building in Lebanon. The Sheriff's office assists the county court by serving bench warrants, criminal warrants, and protection from abuse orders (PFAs), as well as transporting prisoners. The Sheriff's office also issues licenses to carry weapons, real estate liens, levies and conducts sales of property. When called upon, the Sheriff and staff assist the District Attorney's Drug Task Force and local, state and federal agents with special investigations. Finally, the Sheriff's office is responsible for protection and security of the courts, municipal building and other county properties. The Sheriff's office is currently staffed by 22 positions: including one sheriff, one chief deputy sheriff, 1 sergeant, four full-time and fifteen part-time deputies and 4 clerical staff. Ten certified constables assist the Sheriff's office in serving the courts, the Commissioners, local municipalities and their police departments.

There are 16 municipal police departments in Lebanon County. The departments and their locations are shown in Table 4-17. Mutual aid among police departments is mandated by the state; therefore, police officers are permitted to respond to emergency calls outside of their municipality. Emergency calls and response dispatches are handled through the Lebanon County Emergency Management Agency located in the County-City Municipal Building.

[29] http://www.psp.state.pa.us/psp/site/default.asp.

Table 4-17 Local Police Departments in Lebanon County

Unit #	Name	Address	# of Staff
Annville-Cleona SD			17
110-119	Annville Township Police Dept.	36 North Lancaster Street	7
140-149	South Annville Township Police Dept.	972 Church Road	3
150-159	North Annville Township Police Dept.	1020 N Rte 934	3
160-169	Cleona Borough Police Dept.	140 West Walnut Street	4
Cornwall-Lebanon SD			31
10-19	Cornwall Borough Police Department	36 Burd Coleman Road	9
20-29	South Lebanon Township Police Dept.	1800 South Fifth Avenue	7
30-39	North Cornwall Township Police Dept.	320 South Eighteenth Street	9
40-49	North Lebanon Township Police Dept.	725 Kimmerlings Road	8
ELCO SD			11
80-89	Heidelberg Township Police Dept.	West Market & Center Streets	2
90-99	Millcreek Township Police Dept.	81 East Alumni Avenue	4
120-129	Myerstown Borough Police Dept.	101 East Washington Avenue	4
130-139	Richland Borough Police Dept.	5 Pine Street	1
Lebanon SD			47
	City of Lebanon Police Department	400 S 8th Street	47
	City of Lebanon Police Department (substation)	9th and Mifflin Street	n/a
Northern Lebanon SD			e
	No local police departments		
Palmyra Area SD			23
50-59	Palmyra Borough Police Dept.	325 South Railroad Street	9
60-69	South Londonderry Township Police Dept.	West Market & Center Streets	6
70-79	North Londonderry Township Police Dept.	655 East Ridge Road	8

Source: Lebanon County Emergency Management Agency (EMA), August 2005

There are four methods available for providing police services: state, local department/traditional, contract, and regional. Most of the departments in the Lebanon County are traditional in nature, meaning the municipality provides the service directly under state and federal laws and regulations. A few municipalities in the county contract or purchase limited police services from another municipality under an agreement that specifies the type of service and rate of compensation: West Lebanon Township from North Lebanon Township; West Cornwall Township from North Cornwall Township; and Mount Gretna Borough from South Annville Township. There are no regional police departments in the county.

Local police departments in Lebanon County are typically small in size. Seven of the departments have less than 5 officers, eight have 6-10 officers, and the City of Lebanon Police Department is the largest with 47 officers. A full-time staff of five officers, or the part-time equivalent, is the minimum required to provide full-time basic patrol coverage. Until this level of service is reached, departments have little flexibility in scheduling more than one officer per shift and pursuing more developed services.[30] Alternatively, municipalities can rely on the Pennsylvania State Police. The municipalities in the northern region of the county currently utilize state police services. In addition to local police departments, large public and quasi-public institutions, such as the VA Medical Hospital, have their own police or security staff.

The police protection services available in Lebanon County are considered adequate by 87% of local officials and municipal administrators surveyed for the comprehensive plan. However, many municipal officials and managers also indicated that the cost of local police services is a concern. Police service is typically the largest single expense in a municipal budget. The total cost of staff, insurance, health care, equipment, training and facilities consumes upwards of 30% of the budget of some municipalities.

[30] Policing in the South Central Region – A Regional Police Study, South Central Assembly for Effective Governance.

According to the Policing in the South Central Region (2000) study conducted by the South Central Assembly for Effective Governance (SCAFEG), Lebanon County ranks first in the region and well above the regional average for the percent of municipalities with local police (Table 4-18). The county ranked third for the percentage of the population served by local police and fourth for the land area covered by local police services (Table 4-19).

The SCAFEG report also analyzed the per capita cost of local and regional police departments in the region. The study found that police services in Lebanon County cost $72.38 per capita, the third lowest in the region and similar to the average per capita cost of the eight regional police departments in the south central Pennsylvania region. (See Table 4-20)

Table 4-18 Police Services Data by County

County	Number of Municipalities	Number of Police Services	Percent of Municipalities with Local Police
Adams	34	21	61.80%
Cumberland	33	17	51.50%
Dauphin	40	20	50.00%
Franklin	22	6	27.30%
Lancaster	61	44	72.10%
Lebanon	**26**	**20**	**76.90%**
Perry	30	8	26.70%
York	72	52	72.20%
Total/Average	318	188	59.10%

Source: Policing in the South Central Region – A Regional Police Study by the South Central Assembly for Effective Governance

Table 4-19 Population and Area Served by Local and State Police by County

County	1990 Population	Population Served By Local Police	% of Population	Population Served By State Police	% of Population
Adams	78,274	47,300	60.4%	30,974	39.6%
Cumberland	195,257	149,175	76.4%	46,082	23.6%
Dauphin	237,813	190,713	80.2%	47,100	19.8%
Franklin	121,082	43,979	36.3%	77,103	63.7%
Lancaster	422,822	369,290	87.3%	53,532	12.7%
Lebanon	**113,744**	**95,260**	**83.7%**	**18,484**	**16.3%**
Perry	41,172	15,582	37.8%	25,590	62.2%
York	339,574	297,198	87.5%	42,376	12.5%
Total/Average	1,549,738	1,208,497	78.0%	341,241	22.0%
County	**Total Area in Square Miles**	**Square Miles Served By Local Police**	**% of Total Area**	**Square Miles Served By State Police**	**% of Total Area**
Adams	526	194.6	37.0%	331.4	63.0%
Cumberland	555	153.10	27.6%	401.90	72.4%
Dauphin	548	132.60	24.2%	415.40	75.8%
Franklin	754	44.70	5.9%	709.30	94.1%
Lancaster	974	685.00	70.3%	289.00	29.7%
Lebanon	**345**	**213.40**	**63.7%**	**131.60**	**36.3%**
Perry	553	85.90	15.5%	467.10	84.5%
York	914	548.50	60.0%	365.50	40.0%
Total/Average	5,187	2,057.80	40.0%	3,114.30	60.0%

Source: Policing in the South Central Region , 2000

Table 4-20 Police Financial Data by County

County	Population Served by Other Local Departments	Cost of Other Local Departments	Cost Per Capita Other Local Departments	Population Served Regional Departments	Cost of Regional Departments	Cost Per Capita Regional Departments
Adams	32,092	$1,762,156	$54.91	8,027	$527,375	$65.72
Cumberland	129,938	$9,439,976	$72.65	16,803	$1,643,881	$98.18
Dauphin	189,061	$23,829,216	$126.04	0	0	0
Franklin	33,008	$2,935,718	$88.94	0	0	0
Lancaster	238,091	$25,187,606	$105.79	10,673	$745,849	$69.88
Lebanon	**96,777**	**$7,004,697**	**$72.38**	**0**	**0**	**0**
Perry	7,498	$211,305	$28.18	0	0	0
York	205,073	$19,141,511	$93.34	69,000	$4,503,618	$65.27
Total/Average	931,538	$89,512,195	$98.87	104,503	$7,420,723	$71.01

Source: Policing in the South Central Region, 2000

In recent years, the public perception of crime in the City of Lebanon has increased. In response, Mayor Robert Anspach and the City Council established a Crime Commission in 2002. The Commission was tasked with assisting the Lebanon Police Department with the development of a Comprehensive Crime Reduction Strategy and uniting the community in a crime control and prevention effort.

In addition to this direct approach to crime reduction, the Commission also considered the effects of social issues that cause personal insecurity and drive criminal activity in and around the City. Such social issues include the perception of disorder and crime, fear of crime, neighborhood dissatisfaction, lack of trust in neighbors, unsupervised youth exacerbated by cultural conflicts, as well as neighborhood disorder, exemplified by housing code violations, vandalism, and noise. The 2004 Report of the Lebanon Commission on Crime explores five socio-economic and physical factors operating in Lebanon County that have been shown to influence crime and makes recommendations to remediate these conditions through local action, which would lead to building safe, healthy and therefore family-friendly communities. The action plan laid out in the report includes:

- Increasing drug and alcohol outreach and prevention services to reduce future criminal activity
- Urging city government to coordinate and spearhead an investment in city revitalization to spur economic development and job creation
- Stabilizing neighborhoods and increasing home ownership to instill a sense of stability, community and pride among neighbors
- Addressing the juvenile justice system
- Reducing recidivism among criminals of all ages to improve the accountability of the justice system, deter criminal offenses, and increase the productivity of rehabilitated individuals through expanded programs rather than more police.

In addition, the Lebanon Police Department is implementing a community policing program to bring the police officers and the job they do, together with the community, in an effort to work together and solve problems. The department has enrolled numerous officers in an extensive training program. Once trained, the officers will begin to tailor their outreach and participation in the community, dependent on the needs of the community and the resources of the department.

Fire Protection Services

Lebanon County is served by 44 fire companies. Nine of these companies are based at 4 fire stations in the City of Lebanon, while the remaining 35 companies are located throughout the county, as shown in Table 4-21.

Fire protection services include emergency response to fires, weather-related and hazardous materials incidents, vehicle, industrial and agricultural accidents, and various rescues. Services also include homeland security preparedness and response to threats of weapons of mass destruction and biological terrorism. The fire companies also provide community services such as fire prevention and training programs, fire station tours and fire drills at public institutions and private locations. Company activities also include station and equipment maintenance, fund raising, and administration.

Fire response is coordinated by the Lebanon County Emergency Management Agency (LEMA), located in the County-City Municipal Building. The LEMA office receives all emergency (911) and hazardous materials calls and dispatches the appropriate responders and equipment in the vicinity of the incident through the emergency communications network. Mutual aid agreements have been established among all fire companies in the county to facilitate response to concurrent incidents and facilitate efficient access to equipment, as needed.

Historically, residents have organized volunteer companies in their communities rather than fund fire protection through local government. With the exception of the companies in the City of Lebanon, fire companies in the county are volunteer organizations. Companies range in size from 15 to 35 volunteers. The organizational structure of the companies varies, but most elect a fire chief at minimum; larger companies tend to have elected officers or a board of directors. Volunteer members are typically trained in one or more of the following roles: fire fighter, fire police, or emergency medical technician (EMT), though not all companies provide all services. Volunteer membership is grown through grassroots campaigning, including junior fire fighter programs that enable interested individuals to train and assist in select aspects of fire fighting.

Table 4-21 Fire Departments in Lebanon County

Name	Address	Primary Service Area	Apparatus	Facility
Annville-Cleona SD				
Bellegrove Fire Company	1743 Black Bridge Road, Annville	Bellegrove, North Annville Twp	Engine 6, Tanker 6, Tanker 6-1, QRS 6	Firehouse built in 1980
Cleona Fire Company #1	136 W. Walnut Street, Cleona	Cleona Boro	Engine 8, Squad 8, QRS 8, Fire Police 9	Firehouse built in 1960
Union Hose Company	215 E. Main Street, Annville	Annville Twp	Engine 5, Rescue 5, Truck 5, QRS 5	Firehouse built in 1973
Union Water Works Fire Company #1	2875 Water Works Way, Annville	Water Works, North Annville Twp	Engine 7, Tanker 7	
Cornwall-Lebanon SD				
Citizen's Fire Company - Avon	1220 King Street, Lebanon	Avon, South Lebanon Twp	Engine 27, Attack 27	Firehouse built in 1957
Community Fire Company of Cornwall Borough	300 Rexmont Road, Cornwall	Rexmont, Cornwall Boro	Wagon 36, Truck 36, Brush 36	Firehouse built in 1936 as social club, with addition in 1950 for 1-story, 2-bay garage; new firehouse built in 2007
Ebenezer Fire Company	442 Ebenezer Road, Lebanon	Ebenezer, North Lebanon Twp	Engine 9, Attack 9, Tower 9,	Firehouse built in 1947
South Lebanon Friendship Fire Company	610 S. 2nd Street, Lebanon	South Lebanon Twp	Engine 25, Rescue 25	Firehouse built in 1950, with new façade in 1970
Glenn Lebanon Fire Company	1711 Grace Avenue, Lebanon	Glenn Lebanon, North Lebanon Twp	Engine 42, Squad 42, Tanker 42	Firehouse built in 1952
Hebron Hose Fire Company #1	701 E. Walnut Street, Lebanon	Hebron, South Lebanon Twp	Engine 26, Tower 26	Firehouse built in 1993
Mt. Gretna Volunteer Fire Company #1	P.O. Box 117, Boulevard St., Mt. Gretna	West Cornwall Twp	Attack 38, Rescue 38, Tanker 38, Brush 38	Firehouse built in 1953
Neversink Fire Company	1912 Center Street, Lebanon	Pleasant Hill, North Cornwall Twp	Engine 14, Engine 14-1, Tanker 14	Firehouse built in 1980
Prescott Community Fire Company	300 Prescott Road, Lebanon	Prescott, South Lebanon Twp	Engine 29, Tanker 29, Tanker 29-1	Firehouse built in 1960
Quentin Volunteer Fire Company	30 Alden Lane, Lebanon	Quentin, West Cornwall Twp	Engine 37, Squad 37	Firehouse built in 1949
Rural Security Fire Company	1301 N. 7th Street, Lebanon	Reinoehlsville, North Lebanon Twp	Engine 43, Pumper/Tanker 43	Company started in old Reinoehlsville School house in 1956-addition & remodeling in 2005
Weavertown Fire Company #1	1528 Suzy Street, Lebanon	Weavertown, North Lebanon Twp	Engine 28, Engine 28-1	Firehouse built in 1945

Table 4-21 Fire Departments in Lebanon County (continued)

Name	Address	Primary Service Area	Apparatus	Facility
ELCO SD				
Goodwill Fire Company	155 W. Main Avenue, Myerstown	Myerstown Boro	Engine 30, Pumper/Tanker 30	Firehouse built in 1875
Keystone Hook & Ladder Company #1	25 S. Railroad Street, Myerstown	Myerstown Boro	Engine 31, Truck 31, Rescue 31, Supply 31, Boat 31	Firehouse built in 1875
Kutztown Community Fire Company	519A Kutztown Road, Myerstown	Kutztown, Jackson Twp	Engine 32, Tanker 32	Firehouse built in 1961
Neptune Fire Company	22 E. Main Street, Richland	Richland Boro	Engine 33, Squad 33, QRS 33	Firehouse built in early 1900s; 2005/2006 renovation underway
Newmanstown Volunteer Fire Company	20 S. Sheridan Road, Newmanstown	Newmanstown, Millcreek Twp	Engine 34, Rescue 34, Tanker 34, Attack 34	Firehouse built in 1950
Volunteer Fire Company #1 of Schaefferstown	Locust & West Oak Streets, Schaefferstown	Schaefferstown, Heidelberg Twp	Engine 35, Rescue 35, Tanker 35, Tanker 35-1, Brush 35	Firehouse built in 1972
Lebanon SD*				
Chemical Fire Company #22	Fire Station #1 City Owned 700 S. 8th Street	City of Lebanon	1970 Hahn engine 1978 Mack engine 2001 HME/Ferrara engine 1985 Mack aerialscope (tower) 1987 Ford/Saulsbury squad	Firehouse built in 1966; renovated in 1982 & 2000
Hook Ladder Fire Company #18				
Perseverance Fire Company				
Union Fire Company				
Good Will Fire Company #21	Fire Station #2 City Owned 909 Mifflin Sreet	City of Lebanon	1982 Seagrave engine 2002 KME engine	Firehouse built in 1971; renovated in 2000
Liberty Fire Company #19				
Washington Fire Company Engine #15				
Independent Fire Company	Fire Station #3 City Owned 712 Maple Street	City of Lebanon	2000 Pierce heavy rescue	Firehouse built in 1976; renovated 2000
Rescue House Company #20	Fire Station #4 400 Lehman Street	City of Lebanon	2004 New 100' aerial American LeFrance	Firehouse built in 1894
Speedwell Fire Company	322 N 22nd Street	West Lebanon Twp	Engine 39, Squad 39	Firehouse built in 1974

*** 2004 Lebanon City Comprehensive Plan**

As communities have grown, the operation of volunteer fire companies has become more challenging. Operating costs have increased through increased incident calls, equipment costs, and administrative requirements. At the same time, volunteerism for civic activities has declined, as more and more residents work outside the county and are not available to respond during the day. Residents feel burdened by the training and support activities required and prefer to pursue more leisurely activities in their spare time, making volunteer retention and recruitment evermore difficult. As these challenges become publicly apparent at the company level, the proximity and overlap of service areas and duplication of equipment can evolve into a discussion of service efficiency.

The Bureau of Fire of the City of Lebanon has 21 paid staff – the City Fire Commissioner, Deputy Fire Commissioner, and 19 career firefighters – as well as two volunteer fire chiefs and over fifty volunteer firefighters among the nine fire companies based in the City. Fire protection services are funded by various sources: special municipal tax, municipal contribution, private donations, fundraisers and grants received from the state and federal government.

There is no current mapping or GIS database of fire hydrants and other water sources to assist the EMA staff in dispatching responders and equipment. Such data is of significant interest to the EMA office.

Table 4-21 Fire Departments in Lebanon County (continued)

Name	Address	Primary Service Area	Apparatus	Facility
Northern Lebanon SD				
Bunker Hill Fire Company	434 S. Lancaster Street	Bunker Hill, Swatara Twp	Pumper/Tanker 47, Rescue 47, Attack 47	
Camp Strauss Fire Company	516 Camp Strauss Road	Camp Strauss, Bethel Twp	Engine 45, Pumper/Tanker 45	Firehouse built in 1951
Fredericksburg Fire Company	3052 S. Pine Grove Street Box 323	Fredericksburg, Bethel Twp	Engine 41, Engine 41-1, Tanker 41	Firehouse built in 1916, with addition in 1965
Green Point Fire Company	75 Moonshine Road	Green Point, Union Twp	Engine 46, Attack 46	
Lickdale Community Fire Company	352 Bordersville Road	Lickdale, Union Twp	Engine 11, Attack 11, Pumper/Tanker 11	Firehouse built in 1903
Mt. Zion Community Fire Company	1520 Mt. Zion Road	Mt. Zion, Bethel Twp	Engine 40, Engine 40-1	Firehouse built in 1951
Ono Fire Company	10805 Jonestown Road, Ono	Ono, East Hanover Twp	Pumper/Tanker 12, Truck12, Utility 12	Firehouse built in 1939 as office/garage and converted to firehouse in 1956
Perseverance Fire Company	P.O. Box 438, 107 King Street	Jonestown Borough	Engine 10, Engine 10-1 Rescue 10	Firehouse built in 1965-66; expansion in 2003
Fort Indiantown Gap	5-117 Fisher Avenue	Fort Indiantown Gap, Union Twp	Engine 75, Rescue 75, Tanker 75, Brush 75, Crash 75-4	
Palmyra Area SD				
Campbelltown Volunteer Fire Company	2818 Horseshoe Pike	Campbelltown, South Londonderry Twp	Engine 2, Engine 2-1, Rescue 2, Tanker 2, Tanker 2-1, Utility 2, Special Unit 2	Firehouse built in 1968
Citizen's Fire Company #1 - Palmyra	21 N. College Street	Palmyra Boro	Wagon 1, Engine 1-2, Rescue 1, Tower 1, Utility 1	Firehouse built in 1970
Lawn Fire Company	5596 Elizabethtown Road, Lawn	Lawn, South Londonderry Twp	Pumper/ Tanker 3, Attack 3, Tanker 40	Firehouse built in 1953, with new engine house built in 1968

Source: Lebanon County Emergency Management Agency (EMA), August 2005

The Lebanon County Firefighter's Association (http://www.lebanoncountyfire.com/index.html) supports local fire companies with training services, fire prevention education assistance and service recognition for firefighters, officers and volunteers. Members of any fire company in Lebanon County are eligible to join to the Association. There are currently approximately 600 members.

The County of Lebanon owns and the Association operates a training facility in Avon (South Lebanon Township). The facility includes a multi-story structure on which it conducts fire suppression training events. The facility was built in the mid 1970s. In the mid 1990s a new burn training building was constructed.

The Association hosts an annual convention to recognize outstanding service among the county's paid and volunteer firefighting service personnel. Awards are given for

- Firefighter of the Year
- Emergency Services
- Distinguished Fire Service (for fundraising, administration, or behind the scene activities)
- Fire Chief of the Year
- Medal of Valor

The Association's activities are planned by a board of 29 officers and 17 technical and organizational committees. The Association's programs and training facility are funded by a combination of membership dues, contributions from the Lebanon County Commissioners and grants received.

For some time now the Pennsylvania Fire Information Reporting System (PennFIRS) Task Force, has been assisting the Office of the State Fire Commissioner (OSFC) with development of a statewide fire information reporting system. The Office of State Fire Commissioner has purchased a statewide license for NFIRS 5.0 software. This means that a very robust basic fire-reporting package is available to every fire department in the state at no cost to the department. FireHouse Software is the software supplier. To date more than 1,400 fire departments have received their copy of the software.

As a practical matter, the OSFC is working with county agencies to encourage them to participate in PennFIRS as first level data collections sites to assure that this statewide data network works as smoothly and efficiently as possible. There is no requirement that county EMA or 911 agencies get involved in the PennFIRS program, but the OSFC believes the valuable information available through PennFIRS will be found to be beneficial and become an important resource for all those agencies and organizations that participle in the system. Lebanon County is participating in this program through the leadership of the Lebanon County Emergency Management Agency (LEMA) and support from the Lebanon County Firefighter's Association.

Table 4-22 Firefighting Organizations per 100,000 Residents

	Firefighting Organizations per 100,000 Residents
Pennsylvania (State Total)	20.4
Berks County	19.2
Dauphin County	17.1
Lancaster County	18.3
Lebanon County	39.2
Schuylkill County	84.0

Source: PA Fire Service Directory, PA State Fire Commissioner's Office

One comparative indicator of fire protection service is the number of firefighters per 100,000 residents. The PA Fire Service Directory, published by the PA State Fire Commissioner's Office, reports that Lebanon County has 39.2 firefighting organizations per 100,000 residents and ranks second among surrounding counties. This figure reflects the 44 local firefighting organizations as well as the Lebanon County Firefighter's Association and Chief's Association.

Another indicator is public opinion. The fire protection services available in Lebanon County are considered adequate by 95% of local officials and municipal administrators surveyed for the comprehensive plan. Residents participating in the planning process expressed an interest in further cooperation among public safety organizations, including fire companies, in order to efficiently provide services and equipment in a cost effective manner.

The efficient provision of fire protection services across Pennsylvania has been a concern for many years as communities face the challenges of increased service demand and declining volunteerism. Regionalization has been suggested as a possible approach, however many communities have discouraged discussions of regionalization fearing impacts to their sense of identity, independence, and ownership and a decline in the commitment to local service. This topic reached state level discussion and resulted in a 2003 House of Representatives resolution to explore the feasibility of regionalization through the Legislative Budget and Finance Committee. The resulting report, its recommendations and potential impacts to county and local government are discussed in the Community Facilities Plan.

Medical and Emergency Services

There are four medical services facilities in Lebanon County: Good Samaritan Health System, Lebanon Veterans Affairs (VA) Medical Center, New Perspectives at White Deer Run, and Philhaven Behavioral Healthcare Services.

Medical Services Facilities

Good Samaritan Health System (GSH), founded in 1889, is a not-for-profit community hospital located at Fourth and Walnut Streets in Lebanon. The acute care hospital has 207 beds, 160 staff physicians and physician assistants, 225 registered nurses, and a resident program approved by the American Medical Association. Good Samaritan has grown significantly over the past 20 years and has satellite facilities (e.g. laboratory and blood donor center, radiology facilities, physical therapy and ambulatory services, etc.) located at various locations throughout the county Recently, the main facility was expanded to include the addition of a cardiovascular center which opened in 2005, and major renovations were made throughout the building, the most obvious of which were to the main entrance and Emergency Services Department.

The **Hyman S. Caplan Pavilion of the GSH** is located at Fourth and Willow Streets. This facility, known first as the Lebanon Sanatorium and then the Lebanon Valley General Hospital, was originally founded in 1904 by Dr. Andrew Gloninger as a for-profit hospital. Operated by the Groh family until 1979, it was subsequently acquired by a Florida hospital chain. In 1988 it was purchased by the GSH and renamed in honor of a late community leader, GSH trustee and hospital benefactor. It is home to the GSH transitional care unit, inpatient rehabilitation program, residency program, and outpatient chemotherapy services.

Lebanon Veterans Affairs (VA) Medical Center, located on South Lincoln Avenue in Lebanon, serves veterans of 13 counties in south central Pennsylvania. In 2004, the Lebanon VA Medical Center ranked among the top ten VA's in the country. The center currently has 7 intensive care unit (ICU) beds, 43 acute care beds, 15 inpatient hospice beds, and 120 nursing home beds. [31] Hospital services include Mental Health and Behavioral Sciences, Extended Care, Acute Care, Clinical Support Services, and Primary Care. Hospital visits have increased in the last five years; inpatients served increased 74.84% and outpatient visits increased 94.05% between 1998 and 2004.

New Perspectives at White Deer Run, a licensed inpatient/outpatient methadone clinic, opened in 2006 at 3030 Chestnut Street in North Cornwall Township. The facility takes a multi-disciplinary team approach, utilizing individual and group therapy, to help patients and families struggling with drug addiction. The facility can accommodate 29 in patient detoxification clients, 27 inpatient drug free clients, and 105 outpatient drug free clients. The facility is fully licensed. There are an estimated 865 heroin addicts in the county, according to the Lebanon County Commission on Drug and Alcohol Abuse. Of those, 170 (1 in 5) are receiving some type of treatment. Only 41 are currently receiving methadone therapy. The problem of drug abuse and treatment is of increasing concern to the Lebanon County community.

A variety of other for profit and non-profit treatment and counseling centers are operated in the county, as shown in Table 4-23.

Philhaven Behavioral Healthcare Services is a not-for-profit behavioral health care facility that is an agency of the Lancaster Conference of Mennonite Churches. Following their service as Mennonite conscientious objectors during World War II by staffing state mental hospitals, a group of young Mennonites had a desire to respond to the mental health needs in their own communities. They believed that there had to be a better way to provide professional care for the mentally ill. Over the next decade, Mennonite mental health facilities opened across the United States. Philhaven was one of those centers - dedicated to providing the highest quality mental health services within a Christian environment where everyone was treated with dignity and respect. Philhaven's doors opened on May 7, 1952 as a 26-bed inpatient facility. It now has 83 beds, 13 physicians, 14 licensed nurses, and over 450 other personnel. Current services include inpatient and outpatient care, women's services, after-school programs for children, and drug and alcohol programs. In addition, Philhaven offers internships in professional psychology and clinical pastoral education.

[31] http://www1.va.gov/directory/guide/facility.asp?id=71

Until late 2005, Harrisburg State Hospital provided mental health services to the central Pennsylvania region. Due to its closing, such services need to be enhanced within the county. Proposed additions to the county's service programs include a mobile psychiatric team to handle emergencies, respite services for families, and services for people making the transition from treatment back into the community.[32]

Table 4-23 Drug and Alcohol Counseling and Treatment Facilities

Name/Address/Phone	Type of Ownership	Activity (Added On) - Client capacity, License Status	Last Inspection
Another Chance Counseling 756 Cumberland Street Suite #3 Lebanon, PA 17042	Non-Profit	Outpatient Drug-Free (01/24/2007) Client Capacity: 35 License Status: Provisional	01/25/2007
Another Chance Counseling 607 South 14th Avenue Lebanon, PA 17042	Profit	Outpatient Drug-Free (09/15/1993) Client Capacity: 20 License Status: Full	09/14/2006
Lebanon Treatment Center *(Advanced Treatment Systems, Inc.)* 3030 Chestnut Street Lebanon, PA 17042	Profit	Outpatient Maintenance (05/03/2006) Client Capacity: 175 License Status: Full	11/08/2006
New Perspectives at White Deer Run *(White Deer Run Inc.)* 3030 Chestnut Street Lebanon, PA 17042	Profit	Inpatient Non-Hospital Detoxification (08/10/1992) Client Capacity: 7 License Status: Full Inpatient Non-Hospital Drug-Free (08/10/1992) Client Capacity: 29 License Status: Full Outpatient Drug-Free (08/10/1992) Client Capacity: 105 License Status: Full	04/06/2007
Pennsylvania Counseling Services Renaissance *(Pennsylvania Counseling Services)* 701-703 Chestnut Street Lebanon, PA 17042	Profit	Outpatient Drug-Free (05/20/1986) Client Capacity: 230 License Status: Full	04/10/2007
Renaissance Crossroads of Pennsylvania Counseling Services *(Pennsylvania Counseling Services)* VA Medical Center, Building 183-B 1700 South Lincoln Avenue Lebanon, PA 17042	Profit	Inpatient Non-Hospital Drug-Free (02/12/2001) Client Capacity: 20 License Status: Full	04/19/2007

Source: PS Department of Health

Emergency Medical Services

Emergency medical services can be divided into two general types. The first, emergency ambulance service, involves the transportation of patients from the scene of a medical emergency to a local medical care facility for treatment. The second, routine transports, provides transportation to patients from one medical care facility to another.

Lebanon County is part of the Emergency Health Services (EHS) Federation,[33] which serves eight local counties. Through EHS, there are 11 listed Quick Response Services (QRS) providers, six Basic Life Support (BLS) providers, and one Advance Life Support (ALS) provider. These services are often provided by volunteers, which, in most cases, are insufficient

[32] Lebanon Daily News, June 01, 2005.
[33] http://www.ehsf.org

in number to handle the volume of calls received. All are listed in Table 4-24. Additionally, two other providers are listed as EMS stations; Mount Gretna Life Squad, and Bunker Hill Life Squad.[34]

Table 4-24 Emergency Medical Service Providers

Name	Address	Location	Service
Bellegrove Fire Company Life Squad	1743 Black's Bridge Road	Annville	QRS
Bunker Hill Fire Company Life Squad	434 S. Lancaster Street	Lebanon	QRS
Campbelltown Volunteer Fire Company	2818 Horseshoe Pike	Campbelltown	QRS
Central Medical Ambulance	3632 Hill Church Road	Lebanon	BLS
Citizens Fire Company #1 Palmyra	21 N. College Street	Palmyra	QRS
Cleona Fire Company	136 W. Walnut Street	Cleona	QRS
First Aid and Safety Patrol of Lebanon	1111 Guilford Street	Lebanon	ALS
Fort Indiantown Gap Fire Company QRS	5-117 Fisher Avenue	Annville	QRS
K & W Medical Services	254 S. 11th Street	Lebanon	BLS
Keystone Medical Response		Hershey	BLS
Lawn Fire Company Ambulance	Elizabethtown Road	Lawn, South Londonderry Twp	QRS
Lebanon County EMA	400 S. 8th Street – Room 12	Lebanon	QRS
Myerstown First Aid Unit	11 E. Jefferson Street	Myerstown	BLS
Neptune Fire Co. #1	20 E. Main Street	Richland	QRS
Newmanstown Volunteer Fire Co. Ambulance Corp.	20 South Sheridan Road	Newmanstown, Millcreek Twp	BLS
Ono Fire Company QRS	10805 Jonestown Road	Ono	QRS
Schaefferstown Community Ambulance Assn.	200 N. Locust Street	Schaefferstown	BLS
Union Hose Fire Company	215 E. Main Street	Annville	QRS

ALS – Advance Life Support
BLS – Basic Life Support
QRS – Quick Response Services

Nursing Homes and Special Care Facilities

There are 12 nursing homes and special care facilities in Lebanon County registered with the Pennsylvania Department of Health (PDH). Information provided by PDH indicates that the majority of nursing homes are small or medium, non-profit facilities[35]. Nursing hours per resident are fairly consistent across all 12 nursing homes, ranging from 2.8 to 4.89 hours per day and averaging 3.5 hours per day. All but one facility accepts private, Medicare and Medicaid payments; the Rothermel L. Caplan Transitional Care Unit accepts private and Medicare payments only. Detailed information about the county's Cedar Haven facility is provided in the Public Facilities section of the profile.

PDH provides facility performance profiles for all nursing homes. All 12 facilities in Lebanon County compared favorably to the statewide average of deficiencies and citations and to similar sized facilities.

Several facilities have made significant recent facility improvements. Spang Crest Manor constructed the Willis R. and Helen M. Christman Memory Center, which includes a 35,000 square foot support center wing with assisted living units, an adult day-care program, and a rehabilitation and therapy room. The Christman Memory Center started accepting assisted living residents in December 2006 and adult care clients in January 2007. Cornwall Manor is currently expanding to include 60 new residences, and the Lebanon Valley Brethren Home is presently constructing an expansion of four greenhouse units, which will include ten inpatient rooms per unit.

[34] https://home.comcast.net/~wa3rey/TOM/FireEMSNumbers.htm
[35] http://app2.health.state.pa.us/commonpoc/Content/PublicWeb/NHInformation2.asp

Table 4-25 Nursing Homes and Special Care Facilities

Name/Address/Phone	Type of Owner-ship	Licensure Status	Last Inspection	Size of Facility	Number of Beds	Payment Options	Nursing Hours Per Resident Per Day
Annville-Cleona SD							
Countryside Christian Community 200 Bellann Court Annville PA 17003	Non-Profit	Regular	05/10/07	Small	33	Private Medicare Medicaid	3.47
Lebanon Valley Home 550 East Main Street Annville PA 17003	Non-Profit	Regular	04/26/07	Small	55	Private Medicare Medicaid	3.73
Cornwall-Lebanon SD							
Cedar Haven - Lebanon County Home 590 South 5th Avenue Lebanon PA 17042	County	Regular	10/25/06	Large	324	Private Medicare Medicaid	3.64
Cornwall Manor 125 Boyd Street Cornwall PA 17016	Non-Profit	Regular	05/10/07	Small	117	Private Medicare Medicaid	3.90
Manor Care Health Services -Lebanon 900 Tuck Street Lebanon PA 17042	Profit	Regular	05/01/07	Medium	159	Private Medicare Medicaid	2.93
ELCO SD							
Evangelical Congregational Church Retirement Village – Albright Campus 7 West Park Avenue Myerstown PA 17067	Non-Profit	Regular	06/07/07	Medium	152	Private Medicare Medicaid	4.17
Evangelical Congregational Church Retirement Village – StoneRidge Village 450 East Lincoln Avenue Myerstown PA 17067	Non-Profit	Regular	05/21/07	Small	60	Private Medicare Medicaid	3.20
Lebanon SD							
Rothermel L. Caplan Transitional Care Unit 4th and Willow Street Lebanon PA 17046	Non-Profit	Regular	06/04/07	Small	19	Private Payment Medicare	4.95
Spang Crest Manor 945 Duke Street Lebanon PA 17042	Non-Profit	Regular	05/29/07	Small	105	Private Medicare Medicaid	3.06
Northern Lebanon SD - None							
Palmyra Area SD							
Lebanon Valley Brethren Home 1200 Grubb Street Palmyra PA 17078	Non-Profit	Regular	12/04/06	Medium	132	Private Medicare Medicaid	4.11
Palmyra Nursing Home 341 North Railroad Street Palmyra PA 17078	Non-Profit	Regular	06/07/07	Small	39	Private Medicare Medicaid	3.1
Twin Oaks Nursing Home 2880 Horeshoe Pike Campbelltown PA 17010	Profit	Regular	05/2207	Small	53	Private Medicare Medicaid	3.00
Total					**1,248**	**Average**	**3.61**

Source: PA Department of Health website, www.health.state.pa.us.

In addition, twenty-four personal care homes with a total 853 resident capacity are located throughout the county, as listed in Table 4-26. Personal care homes are residential facilities that offer personal care services, assistance and supervision to 4 or more persons who are not relatives of the operator. They are also known as "assisted living residences", "retirement homes" or "boarding homes". There are state licensing regulations that apply to personal care homes aimed at protecting the health, safety and well-being of the residents; these are enforced by the Department of Public Welfare. There are no federal regulations for personal care homes. There is no third party reimbursement for personal care homes, but many Personal Care Homes accept residents who receive Supplemental Security Income (SSI).

Table 4-26 Personal Care Homes

Facility	Resident Capacity	Type of Operation	Status and Licensure Type	Licensure Expiration
Annville-Cleona SD				
Countryside Christian Community 200 Bellann Court, Annville	24	NON-PROFIT	LICENSED / FULL	01/01/2007
Hill Farm Estate 200 Kauffman Road, Annville	65	PROFIT	LICENSED / FULL	07/03/2007
Lebanon Valley Home 550 East Main Street, Annville	40	NON-PROFIT	LICENSED / FULL	12/27/2006
Cornwall-Lebanon SD				
Cornwall Manor 125 Boyd Street, Cornwall	35	NON-PROFIT	LICENSED / FULL	06/21/2007
Hearthstone Manor 1125 Birch Road, Lebanon	90	PROFIT	LICENSED / FULL	11/23/2006
Outlook Point at Lebanon 860 Norman Drive, Lebanon	65	PROFIT	LICENSED / FULL	10/31/2007
ELCO SD				
Evangelical Congregational Church Retirement Village – Albright Campus 7 West Park Avenue, Myerstown	49	NON-PROFIT	LICENSED / FULL	08/27/2007
Evangelical Congregational Church Retirement Village – Stoneridge Village 450 East Lincoln Avenue, Myerstown	36	NON-PROFIT	LICENSED / FULL	05/16/2007
Twin Spruce of Myerstown 301 South Railroad Street, Myerstown	39	PROFIT	LICENSED / FULL	09/22/2006
Lebanon SD				
American House T A Hotel – Lebanon 23-25 South 9th Street, Lebanon	74	PROFIT	LICENSED / FULL	04/20/2007
Kar Lyn Homes 111 North 12th Street, Lebanon	13	PROFIT	PDR-APPEAL PEND / FULL	10/25/2006
Kar Lyn Homes 109 11 North 12th Street, Lebanon	8	PROFIT	PDR-APPEAL PEND / FULL	10/25/2006
Linden Village Manor Care Health Services Mt Hope Cottage 100 Tuck Court, Lebanon	16	PROFIT	LICENSED / FULL	04/28/2007
Linden Village Manor Care Health Services Quentin Cottage 100 Tuck Court, Lebanon	16	PROFIT	LICENSED / FULL	04/28/2007

Table 4-26 Personal Care Homes (continued)

Facility	Resident Capacity	Type of Operation	Status and Licensure Type	Licensure Expiration
Lebanon SD continued				
Linden Village Manor Care Health Services Stoy Cottage 100 Tuck Court, Lebanon	16	PROFIT	LICENSED / FULL	04/28/2007
Linden Village Manor Care Health Services Tabor Cottage 100 Tuck Court, Lebanon	16	PROFIT	LICENSED / FULL	04/28/2007
Keisch Boarding Home 1005 Cumberland Street, Lebanon	8	PROFIT	LICENSED / FULL	07/1/2006
(Jack Shirk) Willow Square 901 Willow Street , Lebanon	50	PROFIT	LICENSED / FULL	08/1/2006
Spang Crest Manor 945 Duke Street, Lebanon	18	NON-PROFIT	LICENSED / PROVISIONAL	08/23/2007
Susan Dowhower Personal Care Home 120 South 10th Street, Lebanon	25	PROFIT	LICENSED / FULL	11/6/2007
York Street Personal Care Home 970 York Street, Lebanon	8	PROFIT	LICENSED / FULL	11/8/2006
Northern Lebanon SD - None				
Palmyra Area SD				
Columbia Cottage of Hershey 103 North Larkspur Drive, Palmyra	60	PROFIT	LICENSED / FULL	02/22/2006
Lebanon Valley Brethren Home 1200 Grubb Street, Palmyra	58	NON-PROFIT	LICENSED / FULL	06/15/2007
Twin Oaks Nursing Center 2880 Horseshoe Pike, Campbelltown	24	PROFIT	LICENSED / FULL	01/10/2007
County Total	**853**	14 PROFIT 7 NON-PROFIT	2 PDR-APPEAL PEND / FULL 1 LICENSED / PROVISIONAL 21 LICENSED / FULL	

Source: Pennsylvania Department of Public Welfare, http://www.dpw.state.pa.us/.

Finally, six senior centers in Lebanon County provide meeting places for social interaction, games such as pinochle and bingo, aerobics, bus trips, and food services. These centers and their locations are shown in Table 4-27.

Table 4-27 Senior Community Centers

Senior Center	Address
Annville Senior Community Center	200 S. White Oak Street, Annville, PA 17003
Northern Lebanon Senior Community Center	N. Lancaster Street, P.O. Box 463, Jonestown, PA 17038
Maple Street Senior Community Center	710 Maple Street, Lebanon, PA 17046
Myerstown Senior Community Center	51 W. Stoever Avenue, Myerstown, PA 17067
Palmyra Senior Community Center	101 S. White Oak Street, Palmyra, PA 17078
Southern Lebanon Senior Community Center	Rt. 419 & Alden Road, Cornwall, 17016

Source: Pennsylvania Senior Centers website, http://www.paseniorcenters.org

Solid Waste Management

The Pennsylvania Municipal Waste Planning, Recycling and Waste Reduction Act 101 of 1988 requires counties to develop formal plans for managing municipal wastes. Plans are subject to municipal ratification and approval from the Pennsylvania Department of Environmental Protection (PA DEP). In accordance with the Act, each county must ensure 10 years of available disposal capacity and establish a post-closure care trust fund for landfills.

The Greater Lebanon Refuse Authority (GLRA)[36] was formed under the guidance of the Regional Planning Commission in 1957. Today, the GLRA is responsible for managing a comprehensive solid waste disposal system for Lebanon County, in accordance with the 2000 Lebanon County Solid Waste Management Plan. The GLRA owns land and is responsible for contiguous landfill masses located in North Annville, Swatara, and North Lebanon Townships, with active land filling taking place in North Lebanon Township. All told, the GLRA occupies 412 acres of land. Of this, approximately 115 acres is made up of the old "inactive" landfills, and 38 acres is of state-of-the-art RCRA (Resource Conservation and Recovery Act) Subtitle "D" double lined landfill cells. The remainder of the property consists of offices, a maintenance building, the scale house, a leachate treatment facility, a waste-to-energy methane plant, a natural aquatic treatment system, the recycling area, a composting area, borrow areas, and a trail along three original locks of the Union Canal.

Waste transferred to the Greater Lebanon Refuse Authority (GLRA) landfill site comes from the 26 municipalities within the county and Fort Indiantown Gap. With the exception of "out-of-state" disposal facilities, Lebanon County directs all Lebanon County-generated municipal waste to the GLRA landfill. The facility currently accepts municipal solid waste (MSW) and municipal-like residual waste (Type "S"). The waste that is delivered to the GLRA landfill site is hauled directly by commercial haulers to the disposal face of the landfill for dumping. GLRA requires a hauler permit to dispose of waste at the GLRA site. Hauler permits enable the county to impose minimum standards on waste collection and transportation and to exercise waste management and flow control. Flow control is particularly important as the facility is permitted to accept an average of 366 tons per day, with a maximum of 535 tons of MSW in any one day.

During the 1995-1999 period, the GLRA accepted 82,700 tons of waste annually (approximately 227 tons per day); approximately 53% from residential sources, 25% from commercial sources, 19% from construction/demolition sources, and 4% from industrial sources. This tonnage represents a 10% increase over the 10 year average of 75,000 tons. Trends indicate that the annual disposal volume rose to 88,510 tons from 2000-2006. The quantity of refuse disposed is projected to rise to 90,000 tons annually by the year 2010. Given these current and projected waste generation rates, the site is expected to reach capacity no sooner than 2016, which satisfies the available disposal capacity requirement of Act 101.

Leachate from the lined landfill is collected by a network of collection pipes that were placed in the liner. Leachate may be pumped to a one million gallon storage tank before going to the Lebanon City Sewage Treatment Plant. The GLRA Pre-Treatment plant is fully capable of handling the liquid waste, however, it is not currently used because the quality of the leachate does not require pre-treatment. The leachate from the lined landfill areas is effectively treated via a natural wetland treatment system located on the landfill property.

Table 4-28 Landfill Disposal Trends

Year	Total Tons Disposed in Landfill	Population	Tons/Person
1992	73,861		
1993	73,907		
1994	83,267		
1995	82,317		
1996	88,480		
1997	81,749		
1998	88,722		
1999	83,858		
2000	84,993	120,327	0.71
2001	86,746	120,999	0.72
2002	100,915	121,633	0.83
2003	98,801	123,057	0.80
2004	104,300	124,489	0.84
2005	99,158	125,429	0.79
2006	96,576	126,883	0.76
Average	88,510		
Change 2000-06	11,582	6,556	0.05
% Change 2000-06	13.6%	5.4%	7.8%

Source: Greater Lebanon Refuse Authority

[36] Greater Lebanon Refuse Authority website, http://www.goglra.org

The Greater Lebanon Refuse Authority has become a model landfill because of its innovative natural wetland treatment system. GLRA uses a combination of native warm-season grasses, wildflowers, shrubs and other plants to help with the natural decomposition process and to create a productive wildlife habitat. Animals that have made a home on GLRA's treatment ponds include turtles, snakes, egrets, blue heron, ring-necked pheasants, bluebirds, geese, ducks, red winged blackbirds, muskrats, rabbits, red fox, deer, and a variety of other wildlife. Aerators have been placed in some of the ponds to give the water a higher dissolved oxygen level, keeping the bacteria strong. These bacteria feed on the organics in leachate to naturally decompose the liquid refuse. It takes about a month for the leachate to travel from the first pond to the discharge point at which the water is clean and the quality is high. The Authority has received numerous awards and national recognition for its economically and environmentally pleasing answer to the problem of leachate refuse.

The Greater Lebanon Refuse Authority, in cooperation with Lebanon Methane Recovery, currently has a collection program that burns landfill gas to produce electricity. Lebanon Methane Recovery, Inc., a methane recovery facility located on GLRA's property, has been in operation since 1986. The facility generates an average of 1,200 kilowatts of electricity per hour. This is enough electricity to supply approximately 120 homes with electricity each day. The process removes the gas from GLRA's landfill, burns the gas in a converted diesel engine to produce electricity, and sells the electricity to GPU Energy. In return for the use of the gas by Lebanon Methane Recovery, the GLRA receives a royalty payment from the sale of the electricity. The vacuum that a waste-to-energy plant uses to collect the gas eliminates the problem of dangerous methane gas escaping from the landfill and at the same time it recycles a by-product of the landfill into an extremely valuable resource.

As a secondary means of landfill gas management, the Greater Lebanon Refuse Authority has recently added a flaring unit to its landfill gas management program. In the event that Lebanon Methane Recovery Inc. is unable to operate its facility to produce electricity, the gas will be directed from the network of gas collection pipes to an "Enclosed Flare". The Enclosed Flare is so named because its burners are located at the base of a 40-foot high stack. This flaring unit is adjacent to Lebanon Methane Recovery Inc.'s facility. The flare uses the flammable portion of landfill gas, methane, to destroy the balance gases that are the cause of landfill odors, controlling both the explosive issues and the odor issues with one operation.

To further demonstrate their commitment to the environment and community, the GLRA has constructed a walking trail on the landfill property. This trail is a mile long hike encompassing forest, farmland and three locks of the historic Union Canal. The Union Canal operated in the 1800's as a transportation waterway through the Lebanon Valley. The project began with the planting of trees along the Union Canal. Today the trail can be walked in either direction from the parking area. The scenic loop runs along pasture, wooded areas, the canal and farmland. Along with its recreational uses, the site is also used to demonstrate GLRA's pledge to community and environmental well-being.

The 2000 Lebanon County Solid Waste Management Plan recommends several programs to sustain and improve management and potentially extend the life of the landfill. The current status of each program is noted below.

- Diversion of waste from landfill disposal by increasing recycling activity through municipal efforts, e.g. ordinance modifications and standardized recycling methods, and by processing waste to minimize disposal quantities, e.g. incineration and materials recovery facility (MRF) operations. These programs were initiated shortly after the 2000 plan was adopted with the exception of the MRF initiatives, which are programmed for 2006-2008.
- Development and implementation of a standardized hauler licensing program to provide a single license to operate and collect waste, decreasing administrative burden. This program was implemented in 2000.
- Flow control management to address landfill capacity and revenue requirements to sustain operations. This program began prior to the 2000 plan and is on-going.
- Landfill gas recovery and disposal to make economic use of landfill gas for power generation. This program began in 1986 and is on-going.
- Leachate monitoring to identify needs for leachate pre-treatment prior to release to the sanitary sewer system. This program began prior to the 2000 plan and is on-going.
- Additional evaluation of site recovery potential to recover recyclables and re-dispose of non-recyclable materials in lined sites. This program is scheduled to be implemented 2006-2008.
- Public education programs to promote waste reduction and recycling and municipal education regarding enforcement of waste management ordinances. Public education is on-going, while municipal education was implemented in 2000.
- Emergency disposal plans 1) to assure disposal capacity for waste resulting from natural disasters, 2) to assure waste management services in the event that the waste management system (collection and disposal) is in-operational, and 3) to assure recyclables are collected during an emergency. This planning effort was completed between 2000 and 2001.

Several issues, not addressed through recommendations, were noted in the plan for future consideration.

- County Waste Generation Database – to collect waste generation data and standardize reporting for improved accountability and monitoring.
- Forwarding Facility – As previously mentioned, the waste that is currently delivered to the GLRA landfill site is hauled directly by commercial haulers to the disposal face of the landfill for dumping. This creates a lot of on-site traffic and potential safety problems for individuals traveling onto the landfill site. Construction of a "forwarding" facility would allow waste to be received onto a tipping floor at a single on-site location. The GLRA staff would then move the waste to the face of the landfill for disposal with on-site vehicles. A forwarding facility was not recommended in the short term, but was noted for GLRA's future consideration.
- Materials Recovery Facility (MRF) – to process commingled waste.

In addition, four programs were suggested but were not able to be evaluated during the 2000 plan preparation:

- Green Waste Collection
- Centralized Waste Collection
- Pay As You Throw (PAYT)
- Contract Hauling

The plan recommends evaluating these programs in future waste management planning efforts.

Finally, Lebanon County has negotiated back up agreements with other landfills to assure the availability of capacity to be used in the event that the GLRA's Waste Management System is unable to accept waste for any reason. However, a method for collection of Lebanon County waste consistent with these back up agreements should be defined as part of an emergency plan in the event that an abnormal event would occur that would prevent waste collection in any area of the County. Tentative agreements would then need to be established with the disposal sites and haulers. This information would be input as part of the emergency plan for approval by the municipalities, the GLRA, and the County Commissioners.

Recycling

All municipalities with a population of more than 5,000 people (or a population density of more than 300 people per square mile) are required to implement a curbside collection-recycling program per Section 1501 of Act 101. Recycling in the county is done by both curbside collection and drop-off centers. Currently there are eleven drop off centers; of these, six receive Act 101 recyclable materials. Items that are recycled at no charge include glass bottles and jars; steel and aluminum cans; soda, milk, water and detergent bottles; newspapers, phone books, magazines, catalogs, office paper and junk mail; corrugated cardboard; and empty propane tanks. Typical costs to the county to collect recyclables range from $1.00 to $1.50 per residence per collection. Recycling collection is funded through landfill tipping fees and DEP grants.

Lebanon County's recycling rate was 28% in 2006 – up from 17% in 2000. This increase is due, in part, to the increasing number of municipalities participating in recycling programs; 13 municipal curbside collection programs existed in the county in 1999, while at most recent count, 17 municipalities have curbside recycling programs and another two rely on drop-off centers. The increase in recycling is also due to increased use of these programs by Lebanon County residents. Recycling rates are presented by school district in Table 4-29. The largest average recycling rate increase occurred in the Cornwall-Lebanon School District.

Despite the rapid increase in recycling in Lebanon County, there is ample room for further increase in recycling participation. While 50% of paper, metals, and yard wastes are recycled, recycling of glass is low and could be increased. Less than a fourth of the plastics generated are being recycled. Demand for household hazardous waste disposal for such items as paint, car batteries, used oil, poisons and spray cans, old computers, TVs and VCRs is growing.

Recycling rates can be improved through several methods. Lebanon County could increase the number and types of components being recycled. Improved marketing and public education of recycling efforts, either by program or countywide, would also support higher rates. In addition, ordinance review and modification could identify restrictions in existing municipal ordinances that hinder recycling efforts, identify restrictions in waste collection and hauling that do not promote recycling, and support preparation of ordinances for municipalities that currently do not practice recycling.

Table 4-29 Recycling Rates by School District

Municipality	2000 Recycling Rate	2006 Recycling Rate	Change In % Recycling Rate
Lebanon County	17%	28%	6.95%
Annville-Cleona SD	15%	20%	4.50%
Annville	24%	21%	-2.48%
Cleona	9%	33%	24.30%
N. Annville	13%	6%	-7.22%
S. Annville	17%	20%	3.42%
Cornwall-Lebanon SD	19%	37%	17.86%
Cornwall	7%	48%	40.53%
Mt. Gretna	10%	9%	-0.78%
N. Cornwall	24%	60%	36.03%
N. Lebanon	57%	51%	-5.85%
S. Lebanon	8%	43%	35.44%
W. Cornwall	10%	12%	1.82%
East Lebanon SD	10%	22%	12.08%
Heidelberg	7%	31%	23.77%
Jackson	15%	27%	11.70%
Millcreek	7%	7%	-0.17%
Myerstown	4%	32%	27.83%
Richland	15%	12%	-2.72%
Lebanon SD	36%	47%	10.60%
Lebanon City	22%	25%	3.07%
W. Lebanon	50%	68%	18.14%
Northern Lebanon SD	9%	19%	10.59%
Bethel	1%	7%	5.76%
Cold Spring	0%	0%	0.00%
East Hanover	11%	4%	-6.64%
Jonestown	2%	17%	15.37%
Swatara Township	2%	2%	0.01%
Union Township	37%	86%	49.02%
Palmyra Area SD	16%	22%	6.49%
N. Londonderry	11%	30%	18.97%
Palmyra	32%	30%	-1.48%
S. Londonderry	5%	7%	1.97%

Source: Greater Solid Waste Authority of Lebanon County

Utility Services

Public Water Systems

Public water systems facilitate development and provide water to the more intensively developed areas of Lebanon County. The City of Lebanon, the boroughs and the first class townships are each fully or nearly fully served by public water systems. Several villages and mobile home communities as well as the Fort Indiantown Gap Military Reservation are also served by public or community water systems. These areas total more than 26,000 acres and serve approximately 64,000 people, slightly more than half of the county population. Water service is planned or anticipated for nearly 6,000 additional acres in adjacent areas along Routes 422 and 322, as well as PA 343, 419 and 897 and one new system is planned for a portion of the Monroe Valley in Swatara Township. The general boundaries of these existing and future water service areas are illustrated in Figure 4-3. Acres for these areas are estimated in Table 4-30. Properties throughout the remaining 86.3% of the county use private on-lot wells for their domestic and non-domestic water supply.

Figure 4-3 Existing and Future Water System Service Areas

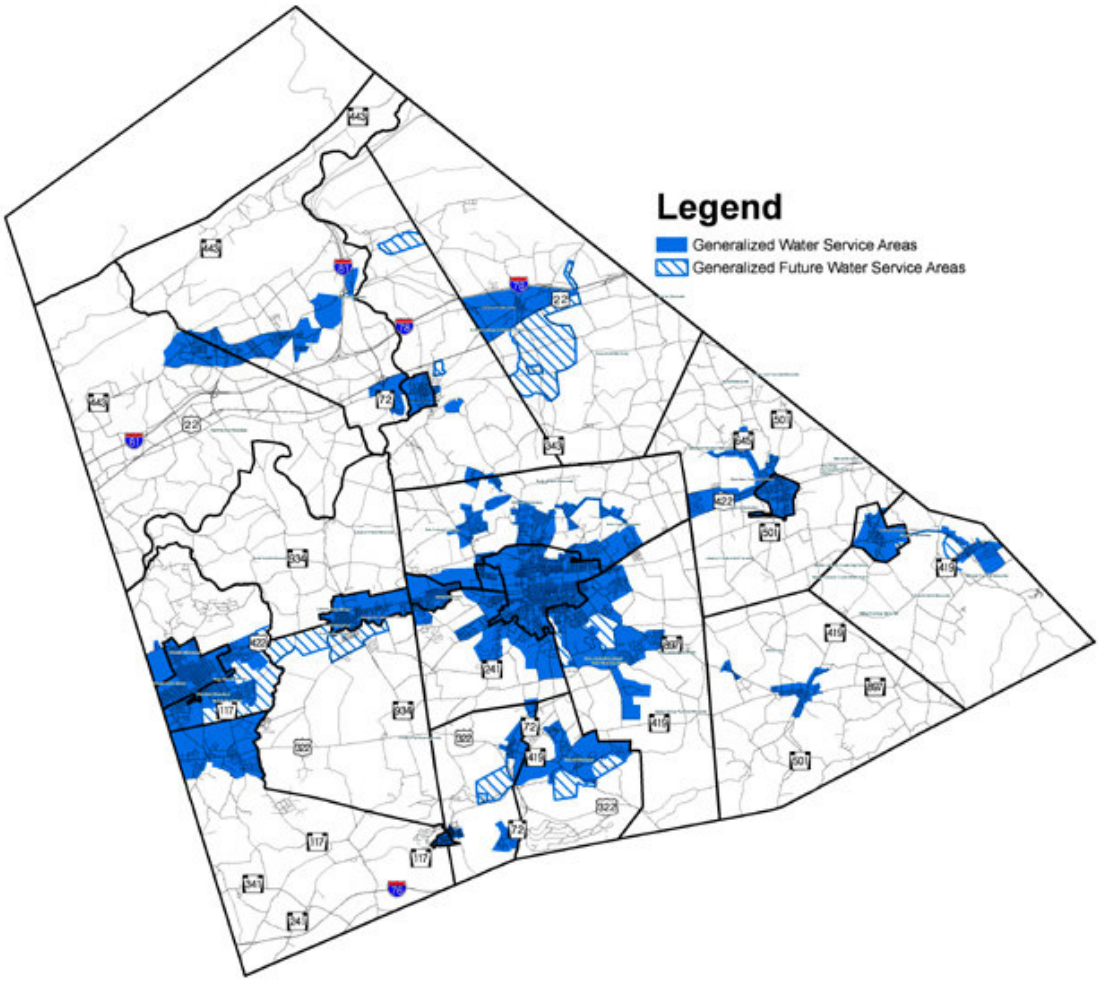


Table 4-30 Lands Served by Public Water Service

	Generalized Water Service Area		Generalized Future Water Service Area		Generalized Well Use Areas	
	Acres	% of Area	Acres	% of Area	Acres	% of Area
Lebanon County	**26,244.1**	**11.2%**	**5,936.1**	**2.5%**	**202,124.5**	**86.3%**
Annville-Cleona SD	**1,580.5**	**6.3%**	**1,059.6**	**4.2%**	**22,452.8**	**89.5%**
Annville	1,040.6	100.0%	0.0	0.0%	0.0	0.0%
Cleona	539.9	100.0%	0.0	0.0%	0.0	0.0%
N. Annville	0.0	0.0%	0.0	0.0%	11,058.1	100.0%
S. Annville	0.0	0.0%	1,059.6	8.5%	11,394.7	91.5%
Cornwall-Lebanon SD	**9,245.1**	**21.7%**	**1,353.0**	**3.2%**	**32,011.7**	**75.1%**
Cornwall	1,357.4	21.8%	480.3	3.9%	4,399.5	70.5%
Mount Gretna	91.5	100.0%	0.0	0.0%	0.0	0.0%
N. Cornwall	1,964.0	32.3%	0.0	0.0%	4,112.1	67.7%
N. Lebanon	2,312.3	21.5%	0.0	0.0%	8,459.4	78.5%
S. Lebanon	2,795.0	20.1%	499.9	8.2%	10,603.5	76.3%
W. Cornwall	724.9	13.1%	372.8	3.5%	4,437.2	80.2%
ELCO SD	**3,106.4**	**6.8%**	**186.5**	**0.4%**	**42,272.3**	**93.2%**
Heidelberg	439.9	2.8%	0.0	0.0%	15,001.2	97.2%
Jackson	874.5	5.6%	0.0	0.0%	14,708.1	94.4%
Millcreek	507.0	3.9%	160.3	1.0%	12,435.3	94.9%
Myerstown	548.2	100.0%	0.0	0.0%	0.0	0.0%
Richland	736.8	82.7%	26.2	0.2%	127.7	14.3%
Lebanon SD	**2,847.0**	**97.5%**	**0.0**	**0.0%**	**73.8**	**2.5%**
Lebanon City	2,594.0	97.2%	0.0	0.0%	73.8	2.8%
W. Lebanon	253.0	100.0%	0.0	0.0%	0.0	0.0%
Northern Lebanon SD	**4,666.5**	**4.9%**	**2,260.2**	**2.4%**	**87,538.9**	**92.5%**
Bethel	1,463.7	6.6%	1,952.6	8.8%	18,797.9	84.6%
Cold Spring	0.0	0.0%	0.0	0.0%	18,160.9	100.0%
E. Hanover	758.2	3.6%	0.0	0.0%	20,124.6	96.4%
Jonestown	400.9	100.0%	0.0	0.0%	0.0	0.0%
Swatara	202.5	1.5%	307.6	1.5%	13,273.2	96.3%
Union	1,841.2	9.7%	0.0	0.0%	17,182.3	90.3%
Palmyra Area SD	**4,798.6**	**20.3%**	**1,076.8**	**4.6%**	**17,775.0**	**75.2%**
N. Londonderry	1,709.1	24.9%	1,076.8	5.7%	4,090.9	59.5%
Palmyra	1,235.1	100.0%	0.0	0.0%	0.0	0.0%
S. Londonderry	1,854.4	11.9%	0.0	0.0%	13,684.1	88.1%

Source: Gannett Fleming, Inc.

The City of Lebanon

The City of Lebanon Authority (CoLA) was formed in 1935 to oversee public water and sewer service to city residents. In 1980, CoLA became an operating authority with a management agreement for workforce, insurance and other administration duties handled by the City of Lebanon. CoLA is in the process of establishing its own management and terminating the management agreement with the City. CoLA has relocated its office from the City/County Municipal Building to 2311 Ridgeview Road adjacent to CoLA's wastewater treatment plant.

Recent and Proposed Legislation regarding Municipal Authorities

- House Bill 893-2006 was signed into law in 2006 to protect municipalities served by another municipal authority from take over by the authority's municipality without their approval. The legislation requires a vote and 75% rate of approval by the municipalities before the dissolution and take-over can occur.
- House Bill878-2007 was proposed to modify the approved legislation to make the vote non-binding.
- House bill 1649-2007 was proposed to require mandatory fluoridation of public water.

CoLA serves about 57,000 people through over 15,100 residential service connections in the city and throughout the central and eastern urbanized areas of the county. The system has 18,708 connections, including commercial, industrial, institutional, and bulk customers as well as, the Indiantown Gap Military Reservation, Cornwall Borough, Fredericksburg, West Lebanon Township, and Pennsylvania American Water.

Table 4-31 City of Lebanon Authority Customer Distribution

Customers	Customers	% of Total Customers	% of Water Consumption
Direct Customers			
City of Lebanon	8,421	35.52%	34.65%
Annville Township	134	0.57%	0.39%
Cleona Borough	840	3.54%	2.51%
Jonestown Borough	472	1.99%	1.48%
North Cornwall Twp	2,056	8.67%	10.92%
North Lebanon Twp	2,967	12.52%	10.54%
South Lebanon Twp	2,748	11.59%	15.53%
Swatara Twp	640	2.70%	1.79%
Union Twp	361	1.52%	2.50%
Subtotal	**18,638**	**78.62%**	**80.33%**
Bulk Customers			
Cornwall Borough	1,108	4.67%	5.00%
Fredericksburg (Bethel Township)	582	2.46%	2.60%
West Lebanon Twp	376	1.59%	1.66%
Fort Indiantown Gap	3,000	12.66%	9.53%
PA American Water	1	0.00%	0.88%
	5,076	**21.38%**	**19.67%**
Total	**23,706**	**100.00%**	**100.00**

The system's raw water is drawn from the Swatara Creek and the Christian E. Siegrist Reservoir and treated at the city's water treatment plant. The reservoir has a total storage capacity of 1.2 billion gallons. The permitted withdrawal rate is 7 million gallons per day (mgd) for the Siegrist Reservoir and 8 mgd for the Swatara Creek. After treatment, the water is pumped into the distribution system or to finished water storage tanks. The system has five (5) finished water storage facilities, with a total capacity of 12.3 million gallons. The clearwell at the water treatment plant extends this capacity to 15.3 million gallons.

The plant has a treatment capacity of 10 mgd and an average rate of 7.7 mgd. Treatment processes include coagulation, sedimentation, filtration, disinfection, and fluoridation. With some modification, the plant can be upgraded to 12 mgd. Further enhancements to the processing systems could increase the rating to 15 mgd. The addition of more filters could raise the rating to 20 mgd. The general limitation to the plant is the hydraulic capacity of the pumps at the reservoir and the creek.

A study from October 2000 indicates that the current average daily source water demands exceed the safe yield of the existing sources of supply, i.e. the Swatara Creek and Siegrist Reservoir, under drought conditions. Significant reductions in demand could be needed in the event of a drought. The reductions in demand would likely consist of water conservation measures that would significantly limit water use, especially outdoor water use, e.g. for irrigation. Further investigation of interconnection of systems and potential sources of supply are needed to ensure a safe water supply for current customers and potential community and economic growth.

CoLA plans to address the issue of limited water supply in the coming 5-10 years. Previous plans considered construction of a dam and reservoir at Swatara State Park; however, the approved master plan for the park does not include a dam or reservoir. CoLA has considered this decision final and expects to pursue investigation of groundwater sources for additional supply.

Water quality from the plant is monitored regularly for contaminants. While the recent water quality samples have met state and federal standards, it is possible that additional treatment processes, e.g. presedimentation with coagulation, ozone, UV, or membrane filtration, may be needed in the future.

The city's distribution and transmission mains consist of 4-inch, 6-inch, 8-inch, 10-inch, 12-inch, 16-inch, 20-inch, 24-inch, and 30-inch mains made of cast iron pipe, cement-lined ductile iron pipe, and transite pipe. The pipe system is in fair to good condition, considering its age, though unaccounted for water averages about 20%. Maintenance of the system consists of regular flushing to maintain good water quality and replacement of parts and equipment, as needed. With capacity to serve additional customers, the distribution system is extended by the construction and dedication of new water lines by developers to the respective municipalities.

The water system is bounded to the south by Cornwall Borough's system, to the west by PA American Water's system and to the east by the Susquehanna and Delaware River Basin divide. Extension of service across the river basin divide would require return transfer of water – as water or wastewater – back to the Susquehanna River basin to maintain the integrity of the natural water cycles in each basin. Further water system extension is likely to occur within the municipalities already served – primarily North Lebanon, South Lebanon, North Cornwall, Swatara and Union Townships. Extension of water service to the Monroe Valley is anticipated, as well. Heidelberg Township has inquired about potential water and sewer service but has not reached a preference for any of its service options.

Extensions of the water system may be made by municipalities to address failing wells and/or septic systems; by developers for new construction; or by CoLA to create loops that eliminate dead ends and to balance system flow and pressure. Extensions by municipalities and developers require an agreement with CoLA for water service based on the developer's construction of system components to CoLA's standards. CoLA plans to formalize the dedication process. CoLA requires that an approved agreement with CoLA be made part of the municipal subdivision and land development approval procedures. Extensions typically include installation of hydrants every 500-800 feet.

PA American Water

PA American serves the western portion of Lebanon County. The service area generally includes all of Palmyra Borough and Annville Township; 73% of North Londonderry adjacent to the Borough; 33% of South Londonderry including Campbelltown; 8% of South Annville adjacent to Annville Township; and 4% of North Annville (two reservoirs are located there). The water system is interconnected with Hershey at the Dauphin County line and with Lebanon City at east end of Annville Township.

The system serves a total of approximately 6,896 residential customers, 646 commercial customers and 69 bulk customers from these municipalities, as shown in Table 4-32.

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Table 4-32 Distribution of PA American Water Customers by Type

Municipality	Residential Customers	Commercial Customers	Industrial Customers	Institutional Customers	Other Customers
Annville	1,190	105	4	8	13
North Annville	33	3	—	—	—
South Annville	93	1	—	—	—
North Londonderry	2,100	76	—	5	5
Palmyra	2,745	431	10	9	12
South Londonderry	735	30	—	2	1
System Total	**6,896**	**646**	**14**	**24**	**31**

Raw water for the PA American Water system is drawn from the Manada and Swatara Creeks and two reservoirs. The creeks are prone to surface pollution and high turbidity. Water is treated at the Gerald C. Smith plant, which is a super pulsator clarification and filtration plant. Treated water goes into two finish tanks or the distribution system. The system draws 6 million gallons per day (mgd) on average, but is permitted to withdraw more.

There is no system tap-on fee for customers, however an initial $30 fee is charged to cover administrative set-up costs. PA American Water follows a series of aggressive maintenance programs. Its distribution infrastructure replacement program covers mains, and service lines. Water lines (mains and service lines to the curb) are characterized by age, pressure, flow, water quality, and breaks to prioritize inspection. Leaks are detected via an electronic sounding system and repairs made as they are found. The costs for maintenance are shared system wide with a single tariff system; no one customer pays more for maintenance than another. The company offers a meter replacement program for customers to defray the cost of a new meter over a period of time.

PA American Water has interest in expanding its service along Rt. 934 across from the Annville-Cleona High School, and to fringe areas north of the existing Annville and Palmyra service areas. Municipal planning in these areas indicates a need for expanded water service: based on a projected population increase of 293 people in Palmyra over the next twenty years, the borough anticipates that it will require an additional 14,650 gallons of water per day over the next twenty years.

Other Small Water Systems in Lebanon County

The U.S. Army Corps of Engineers conducted a study in 1995 to identify and evaluate operation and maintenance options for 27 small systems in Lebanon County. Options ranged from improving maintenance inspections at individual sites to incorporation of one system with another. Recommendations to interconnect systems to provide adequate supply and quality for daily and emergency uses were made for systems in the Lebanon, Mt. Gretna and Myerstown areas; interconnections between smaller systems were made for remote areas. Recommendations to improve maintenance and monitoring by certified operators were made almost across the board. The later study began to investigate the economic feasibility of the 1995 study recommendations; the efforts of the U.S. Army Corps of Engineers were superseded by the January 1996 winter flooding throughout the Susquehanna River Basin and the study was not completed. Progress was made, however, in determining that several water systems were indeed interested in exploring the recommended options.

Table 4-33 Small Water Systems in Lebanon County

System	Location	Connections	Comments	Recommendations
Annville-Cleona SD - None				
Cornwall-Lebanon SD				
Countryside	East of Lebanon	43-62	2,000 feet to CoLA system; this would require pump to MHP location and inter-basin transfer	• Wait for city service extension to determine whether to connect to or pursue new well option
Gretna Springs	West Cornwall Township	211		• No recommendation for capital investment; operational improvements only
Mt. Gretna Authority	Mt Gretna Borough	208 (40% seasonal)	No growth	n/a
Mt. Gretna Camp Meeting Association	Mt. Gretna Borough	243		• Replace distribution system; • Interconnect with Mt. Gretna Authority system for emergency supply at minim; • Consider contracting for regular certified inspection
Mt. Gretna Heights	Mt. Gretna Borough	68		•New well and chlorination for reserve supply; • Interconnect with Mt. Gretna Authority
Quentin Water Company	West Cornwall Township	178	Growth projected	
Sycamore Hill	Cornwall Borough	37	2000 to city system	• Interconnect and incorporate with Lebanon system
Timber Service Corporation	West Cornwall Township	16 homes, 1 restaurant		• Investigate interconnection with Mt. Gretna Authority; • Have certified operators and lab services
ELCO SD				
Country Acres	Myerstown Borough	116	Was connected to Myerstown	• Improved interconnection; • Frequent inspection by a certified operator
Greenacres	Lebanon City - Myerstown Borough	94		• Source Water Influence Protocol (SWIP) should be conducted to determine if water source is under direct influence of surface water. If so, water should be filtrated. • Interconnection with Lebanon or Myerstown based on SWIP result
Heidelberg Township Municipal Authority	Heidelberg Township	371 (324 domestic)		• Pursue interconnection with Lebanon in concert with planned service extension to Kleinfeltersville
Hillcrest View Cooperative Water System	Heidelberg Township	35		• SWIP wells
Juliada Heights Water District	Heidelberg Township	29		• SWIP wells
Myerstown water Authority	Myerstown Borough		Problems with turbidity	• New filtration plant, as recommended by independent study; • Determine safe yields from sources • Develop and implement wellhead protection program for each source • Protect water quality through zoning, agreements, education, land purchases
Newmanstown Water Authority	Millcreek Township	454	275 town homes proposed in Newberry Village; 11-home subdivision expected	• Investigate interconnection with Womelsdorf; • investigate interconnection for adequate supply • SWIP

Table 4-33 Small Water Systems in Lebanon County (continued)

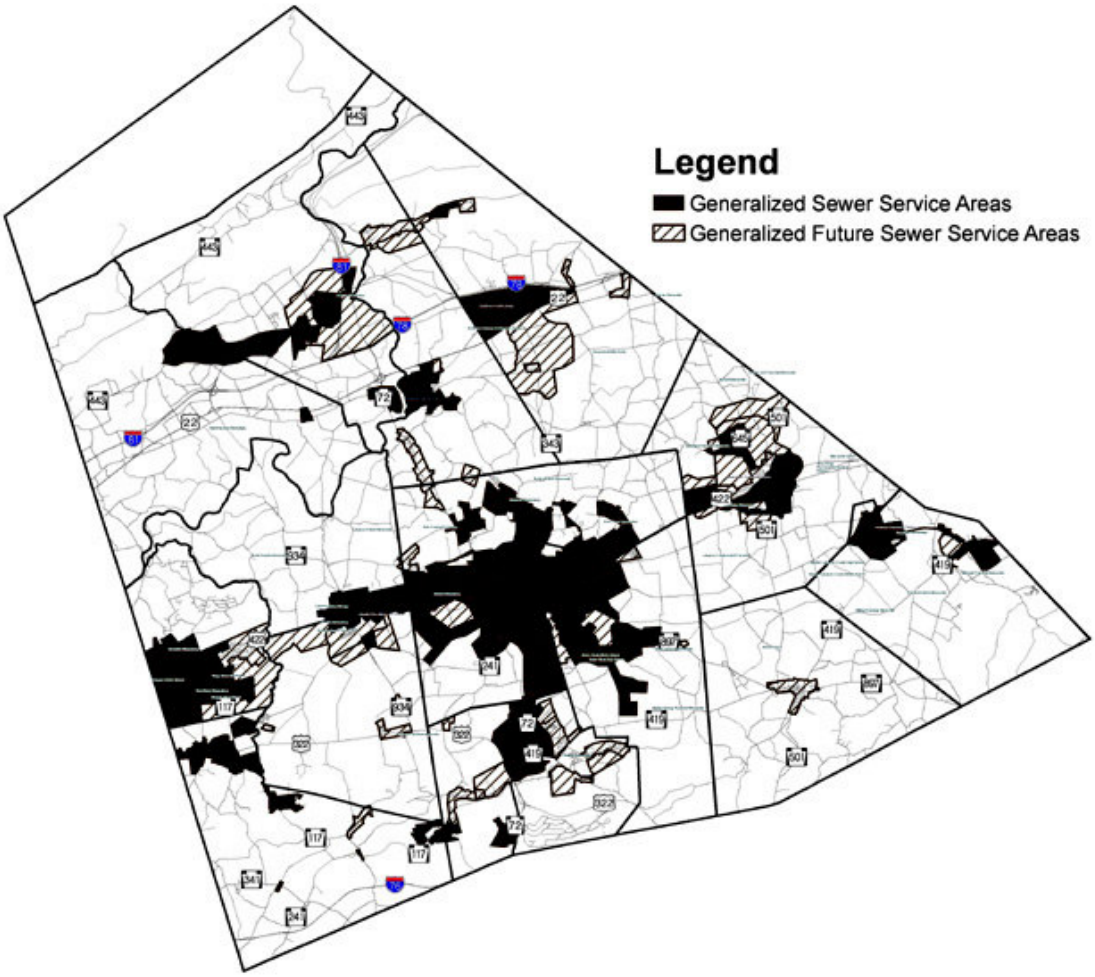
System	Location	Connections	Comments	Recommendations
ELCO SD continued				
Richland Borough Water Company	Richland Borough	572		• SWIP all wells; • Consult with PA DEP to determine future suitability of spring source; interconnect with Myerstown for additional supply
Twin Maples	Jackson Township	95	1.75 miles to city/Myerstown system	• New standpipe; • Further study the system needs
Lebanon SD				
Lakeside	Northwest side of city	20	1,000 feet to city system	• Interconnect with city, or provide new well and emergency back-up generator
West Lebanon Township Water Supply	West Lebanon Township	361 (75% domestic)		• Educate residents on efforts to provide adequate water supply; • Limit lawn applications; • Consider interconnection to city prior to substantial system improvements
Northern Lebanon SD				
Big Boulder	Swatara Township	17	1.5 miles to city system	• Cluster with Long's
Fredericksburg Sewer and Water Authority	Bethel Township	240	Variable industrial user demand; growth of 80 acre industrial park, 10 homes and 70 unit mobile home park expected	
Lebanon Valley	Bethel Township	70	2-3 miles to City	• Cluster with Sunrise
Long's	Swatara Township	11	1.5 miles to city	• Cluster with Big Boulder
Sunrise	Bethel Township	69	2-3 miles to City	• Cluster with Lebanon Valley
Palmyra Area SD - None				

Source: Small Systems Water Study, U.S. Army Corps of Engineer, 1995.

Public Sewer Systems

Six regional, three municipal, and several small systems provide sewer service to areas of Lebanon County. The City of Lebanon Authority operates the largest system, serving municipalities in the central region of the county. Systems in Myerstown and Palmyra serve the eastern and western communities along the 422 corridor, respectively. The Mt. Gretna sewer system serves the borough as well as portions of West Cornwall and South Londonderry Townships in the southern region. The Northern Lebanon County Authority and Fredericksburg Sewer & Water Authority operate two regional systems in the northern portion of the county. Annville, South Londonderry and Union operate individual municipal systems. Additional areas throughout the county are served by small community systems. The sewage collection and treatment system at Fort Indiantown Gap serves the installation exclusively. These areas total almost 27,000 acres or 11.5% of the county. Sewer service is planned for another 14,091 acres or 6.0% of the county by 2020. The general boundaries of these existing and future sewer service areas are shown in Figure 4-4; acreage of land served or planned for sewer service is estimated in Table 4-35. The remaining land area, slightly more than 80 %, does not have and is not planned for public sewer service.

Figure 4-4 Existing and Future Sewer System Service Areas



The Pennsylvania Sewage Facilities Act of 1965 requires every municipality to have a sewage facilities plan approved and filed with the Pennsylvania Department of Environmental Protection. The plan outlines the municipality's needs for public and private sewerage facilities for the next 20 years. The plan requires testing of at least 15 percent of residents' septic systems and wells to ensure that systems are not malfunctioning and contaminating drinking water. Half (13) of the municipalities' plans are more than 20 years old. Seven are between 10 and 20 years old. One is between five and 10 years old, and five are less than five years old.

The Lebanon County Planning Department enforces the Pennsylvania Sewage Facilities Act for 23 of the 26 municipalities in Lebanon County. As part of those duties, the planning department conducts permitting and inspections of on-lot sewage disposal systems. The Lebanon County Planning Department does not perform sewage enforcement for Bethel Township, Mt. Gretna Borough, or Union Township.

North Cornwall, South Londonderry, Union, and West Cornwall Townships have ordinances requiring regular pumping of on-lot disposal systems every 3 or 4 years. The Lebanon County Planning Department administers sewage management programs in North Lebanon, South Annville and West Cornwall Townships. North Cornwall, South Londonderry and Union Townships provide their own administration of these programs. Requiring pumping gives the property owner and the municipalities a way to identify and fix problems before they become severe. Contractor's pumping costs vary widely. Fines ranging from $100 to $300 are imposed for violations of the ordinances.

Table 4-34 Status of Act 537 Sewage Facilities Plan in Lebanon County

Municipality	Plan Approval Date	Status
Annville-Cleona SD		
Annville Township	03/21/1975	Plan older than 20 years
Cleona Borough	09/1/1969	Plan older than 20 years
North Annville Township	10/17/1973	Update in progress
South Annville Township	04/04/1993	Plan between 10 and 20 years old
Cornwall-Lebanon SD		
Cornwall Borough	10/20/1993	Plan between 10 and 20 years old
Mount Gretna Borough	09/1/1969	Plan older than 20 years
North Cornwall Township	02/16/2005	Plan less than 5 years old
North Lebanon Township	10/30/2003	Plan less than 5 years old
South Lebanon Township	04/26/1988	Plan between 10 and 20 years old
West Cornwall Township	06/11/1992	Plan between 10 and 20 years old
ELCO SD		
Heidelberg Township	06/11/2001	Plan between 5 and 10 years old
Jackson Township	2006	Plan less than 5 years old
Millcreek Township	12/17/1990	Plan between 10 and 20 years old
Myerstown Borough	02/13/2006	Plan less than 5 years old
Richland Borough	12/17/1990	Plan older than 20 years
Lebanon SD		
Lebanon City	02/18/1972	Plan older than 20 years
West Lebanon Township	05/08/1981	Plan older than 20 years
Northern Lebanon SD		
Bethel Township	04/1/2004	Plan older than 20 years
Cold Spring Township	09/1/1969	Plan older than 20 years
East Hanover Township	11/09/2004	Plan less than 5 years old
Swatara Township	01/08/1966	Plan older than 20 years
Union Township	10/30/2003	Plan less than 5 years old
Palmyra Area SD		
Palmyra Borough	09/01/1969	Plan older than 20 years
North Londonderry Township	10/08/1987	Draft plan submitted to DEP in January 2007
South Londonderry Township	06/09/2005	Plan less than 5 years old
Source: PA DEP		

Table 4-35 Lands served by Public Sewer Service

	Generalized Sewer Service Area		Generalized Future Sewer Service Area		Generalized Septic Use Areas	
	Acres	% of Area	Acres	% of Area	Acres	% of Area
Lebanon County	**26,959.1**	**11.5%**	**14,091.6**	**6.0%**	**193,251.7**	**82.5%**
Annville-Cleona SD	**1,654.3**	**6.6%**	**1,647.7**	**6.6%**	**21,790.8**	**86.8%**
Annville	1,040.6	100.0%	0.0	0.0%	0.0	0.0%
Cleona	539.9	100.0%	0.0	0.0%	0.0	0.0%
N. Annville	0.0	0.0%	14.0	0.1%	11,044.1	99.9%
S. Annville	73.8	0.6%	1,633.7	13.1%	10,746.7	86.3%
Cornwall-Lebanon SD	**10,733.7**	**25.2%**	**2,591.6**	**6.1%**	**29,282.3**	**68.7%**
Cornwall	698.0	11.2%	1,089.0	17.5%	4,450.2	71.3%
Mount Gretna	91.5	100.0%	0.0	0.0%	0.0	0.0%
N. Cornwall	3,311.6	54.5%	0.0	0.0%	2,762.4	45.5%
N. Lebanon	2,836.1	26.3%	288.7	2.7%	7,646.8	71.0%
S. Lebanon	2,779.5	20.0%	613.7	4.4%	10,505.3	75.6%
W. Cornwall	1,017.0	18.4%	600.2	10.8%	3,917.6	70.8%
ELCO SD	**3,002.7**	**6.6%**	**3,105.3**	**6.8%**	**39,457.2**	**87.0%**
Heidelberg	0.0	0.0%	321.3	2.1%	15,119.8	97.9%
Jackson	1,210.7	7.8%	2,597.5	16.7%	11,774.4	75.6%
Millcreek	507.0	3.9%	160.3	1.2%	12,435.3	94.9%
Myerstown	548.2	100.0%	0.0	0.0%	0.0	0.0%
Richland	736.8	82.7%	26.2	2.9%	127.7	14.3%
Lebanon SD	**2,847.0**	**97.5%**	**0.0**	**0.0%**	**73.8**	**2.5%**
Lebanon City	2,594.0	97.2%	0.0	0.0%	73.8	2.8%
W. Lebanon	253.0	100.0%	0.0	0.0%	0.0	0.0%
Northern Lebanon SD	**4,739.6**	**5.0%**	**5,139.3**	**5.4%**	**84,586.7**	**89.3%**
Bethel	1,463.7	6.6%	2,212.6	10.0%	18,537.9	83.5%
Cold Spring	0.0	0.0%	0.0	0.0%	18,160.9	100.0%
E. Hanover	827.5	4.0%	0.0	0.0%	20,055.3	96.0%
Jonestown	400.9	100.0%	0.0	0.0%	0.0	0.0%
Swatara	312.2	2.3%	1,000.9	7.3%	12,470.2	90.5%
Union	1,735.3	9.1%	1,925.8	10.1%	15,362.4	80.8%
Palmyra Area SD	**3,981.8**	**16.8%**	**1,607.7**	**6.8%**	**18,060.9**	**76.4%**
N. Londonderry	1,277.1	18.6%	1,508.8	21.9%	4,090.9	59.5%
Palmyra	1,235.1	100.0%	0.0	0.0%	0.0	0.0%
S. Londonderry	1,469.6	9.5%	98.9	0.6%	13,970.0	89.9%

Source: Gannett Fleming, Inc.

Lebanon County Faces Future with Chesapeake Bay Strategy

Lebanon County is blessed with good farm land, open space and active communities. The communities and their economies are intertwined with the agricultural prosperity. The agricultural industry produces quality food products that support the economy of the county. Our quality of life depends on the protection of the water environment that supports our agriculture and communities – clean water for drinking, industry, agriculture, and recreation.

Because much of Lebanon County's water resource network is linked to the Chesapeake Bay, so too are its water quality management practices. Unfortunately, the water quality conditions within the Bay have caused significant losses of shellfish beds, fish reserves, submerged aquatic vegetation, and other aquatic life. This has adversely affected the quality of life and economy of those who depend on fishing for food production, as well as those who may enjoy recreation in clean water.

To comply with federal law, those states that are contributing to the impairment of the Bay are required to address this problem. Pennsylvania, Maryland, Virginia, and the District of Columbia first entered into an agreement with the EPA and the Chesapeake Bay Commission in 1983 to restore the Bay. In a further effort to remove the Bay from the federal list of impaired watersheds by the year 2010, an additional agreement was signed in 2000. In collaboration, the states developed strategies for each tributary watershed to reduce the amount of sediment, nitrogen and phosphorus entering the Bay. Pennsylvania's Chesapeake Bay Tributary Strategy was released in December 2004. The Strategy will improve water quality in the Bay as well as in the 13 sub-basins that make up the Susquehanna and Potomac River watersheds.

The Strategy may prompt many questions to Lebanon County residents. What is our connection to the problem with the Bay? How will this affect our communities? What is the impact on our agricultural community?

Nutrient loading is the most critical problem affecting the Bay. Excess nutrients increase the growth of algae in the water. Excessive algae growth leads to oxygen depletion and blocks the sunlight that is critical to support plant and aquatic life. The amount of nutrients entering the Bay has declined over the past several years; however, further reductions are necessary to achieve the Bay's overall water quality goals.

In developing the Strategy, the Pennsylvania Department of Environmental Protection (DEP) found that the nitrogen and phosphorus came from many sources. Some are from point discharges (point sources) like municipal wastewater treatment plants. But most are from nonpoint sources, such as forest land, open space, mixed open land and farm land. About 11% of the nitrogen and 18% of the phosphorus comes from point sources, and the rest from nonpoint sources. The most significant nonpoint source contributor is agriculture.

Pennsylvania's strategy is to share the burden of nutrient and sediment reductions among the several groups of sources, primarily municipal wastewater plants, industrial wastewater plants, and agricultural activities. For each group, the state has determined a maximum annual limit. The Strategy embraces a suite of best management practices for nonpoint and point sources—agriculture, wastewater treatment plants, urban stormwater, and septic systems.

For the agricultural community, DEP has identified 26 management practices that can significantly reduce nutrient and sediment discharges. Some of these are already state requirements, such as maintaining manure. Others are supported by funding, such as stream side buffers under the Conservation Easements for Riparian Buffers (CREP) program, but many will have to be undertaken voluntarily by farmers.

One innovative way to fund some of these agricultural management practices is through a program called "nutrient trading." Nutrient trading is a program in which one party can pay another to remove nutrients if it might be less costly than to fulfill their own obligation. Therefore, if new a development needs a larger wastewater plant (for which the DEP will not allow any more nitrogen or phosphorus), the developer might pay a farmer to implement a useful management practice that would remove a necessary amount of those nutrients.

The nutrient limits for wastewater treatment plants will affect 185 significant plants, five of which are in Lebanon County. Each plant will have fixed annual limits for nitrogen and phosphorus. In order to achieve the level of treatment to remove the nutrients below the limits, nearly all wastewater treatment plants would need to build new or modified processing equipment. The cost of such upgraded treatment could vary from plant to plant, depending on how much construction is needed.

The Point Source Workgroup recommended that DEP distribute the burden for upgrading the treatment processes over time. DEP accepted that recommendation and has divided the point sources among three phases. The first third of the plants will have to complete construction by September 2010. In Lebanon County, the Phase 1 communities include Lebanon, Palmyra, and Ft. Indiantown Gap. Phase 2 communities include Annville and the Northern Lebanon County Authority. DEP advised each of the Phase 1 communities to report their proposed plans for upgrading their plants by June of 2007.

Gannett Fleming, Inc., a planning, design, and construction management firm based in Camp Hill, has been working with the City of Lebanon Authority and the Borough of Palmyra to evaluate the necessary upgrades to their wastewater treatment plants. Planning studies are currently underway to identify the best method of complying with the nutrient removal limits and the required modifications to their wastewater treatment plants. This will enable the communities to report to DEP by June of this year with their plans for the most cost effective program to comply with the DEP limits. The necessary construction will then proceed during the next three years.

The result of the Strategy will be an improvement to the Bay, but will come with changes in agricultural practices and increased costs to the citizens of our communities with wastewater treatment plants. The key is determining a combination of practical and cost effective solutions to minimize the local burden, while enabling those who depend on the Bay to enjoy the benefits of the clean water that we all value.

James Elliott, P.E., Vice President, and Kerry Hines, Senior Marketing Strategist, Gannett Fleming, Inc, March 2007

Municipal and Community Systems by School District

Annville-Cleona School District

Annville Township

The Annville Township Authority manages sewage facilities for the Township of Annville. The township's wastewater treatment plant is located along US Route 422 and discharges to the Quittapahilla Creek. The plant has capacity for additional development though the township is essentially built-out.

In 2003, the U.S. Environmental Protection Agency presented the Township of Annville, in Lebanon County, Pa., with a regional award for excellence in operation and maintenance of its wastewater treatment facility. The award honors the staff involved in the day-to-day operations of the facility, and recognizes local officials for their commitment to maintain and protect their community's environment. The authority received the award in the "small-advanced" category, which consists of facilities that treat less than 1 million gallons of sewage per day.

Annville Township's Act 537 plan was approved in 1975 and has not been updated since then. As long as the system retains its current size and is regularly maintained, there is little need for a comprehensive update.

Annville Township maintains approximately 18.9 miles of sanitary sewers, ranging in size from 8-inch collector sewers to the 18-inch Quittapahilla interceptor. Flow to the wastewater treatment plant is by gravity. The only pumping station in the system is the main pumping station located at the treatment plant. The system serves all properties in the township; there are no on-lot systems, and therefore no need for an on-lot management program.

The wastewater treatment plant is a two-stage activated sludge plant with a design annual average daily flow capacity of 0.75 mgd. Current flows to the plant average approximately 0.57 mgd, representing a little over 75% of the annual average daily hydraulic loading capacity of the facility. The plant is a regional facility, serving all of Annville Township and two locations in North Annville Township - properties along Shanmantown Road and the Hill Farm Estates Retirement Village.

After entering the wastewater treatment plant, the raw wastewater is pumped to the first stage biological treatment process. The first stage is a contact-stabilization activated sludge process designed to remove the bulk of the organic loading. Following the first stage processes, the wastewater flows by gravity to the second stage bioreactors where the remaining organics are removed and ammonia is converted to nitrate through the nitrification process. Ferrous sulfate is added to the effluent from the second stage bioreactors to remove phosphorus from the wastewater. The resulting precipitate is removed with the waste activated sludge in the final clarifiers. Following final clarification, the treated wastewater can either be processed through multi-media filters, or sent directly to chlorination for disinfection prior to discharge to the Quittapahilla Creek. Waste sludge generated as a consequence of the removal of pollutants from the wastewater is aerobically stabilized and applied to farmland. The stabilized biosolids are permitted for land application by DEP as a Class B sewage sludge.

Annville Township employs a consulting engineer to perform a system wide facilities inspection twice per year. These inspections focus on the condition of the sewer system and treatment plant, and a report is written detailing the observations and recommendations resulting from each inspection. Generally, the collection system is in good condition. The system is maintained by the plant staff. Furthermore, there are no known location nitrate contaminants.

The existing wastewater treatment plant is also in good condition and well operated. It consistently complies with all of its current NPDES discharge permit effluent limitations. The facility is designed to remove most of the organic and suspended solids pollutants from the wastewater. It is also designed to remove orthophosphate and to convert ammonia to nitrate by

nitrification in the second stage brioreactors. However, the existing facility is not designed to achieve total nitrogen reduction to 6 mg/L as proposed by Pennsylvania's Chesapeake Bay Nutrient Reduction Strategy. The township is preparing to upgrade its treatment plant to incorporate a post-denitrification nitrogen removal technology that will allow the facility to comply with the proposed total nitrogen effluent limitations. Since the Quittie is not a nutrient impacted stream, this upgrade will have minimal impact on water quality, though it will help to improve water quality downstream and into the Chesapeake Bay.

The existing facility currently serves approximately 2,400 EDUs from Annville Township, and an additional 62 from North Annville Township. According to the 2006 Annual Municipal Wasteload Management Report prepared in accordance with Title 25 Chapter 94 of DEP's Rules and Regulations, the number of EDUs served is projected to increase to approximately 2,780 EDUs by 2010, for a projected annual average daily flow of 0.652 mgd, which is still within the annual average daily flow capacity of the treatment plant. At this time, none of the adjacent municipalities other than North Annville Township indicated any interest in purchasing additional capacity at the treatment plant. Expansion, therefore, is currently not planned through 2010.

Cleona Borough

The Borough of Cleona is also essentially built-out and is completely sewered. The borough conveys sewage to the City of Lebanon for treatment. No planning for sewage facilities has been completed for the borough since the 1972 Comprehensive Water and Sewer Study prepared by the county.

The borough has sewage connections for 824 residences and 70 businesses (which are counted as 180 equivalent dwelling units), for a total of 1,004 equivalent dwelling units (EDUs). The connections contributed approximately 0.3 mgd during 2005. The number of EDUs is projected to increase by one EDU per year for the next five years.

The average system flow increased from 252,600 gallons per day (gpd) in 2002 to 472,600 gpd in 2003. Flow was less in 2004 (356,000 gpd), and was less again in 2005, with 298,400 gpd. The increase in flows was due to leaks in the sewer system and higher than average rainy weather. The reduction in flow in 2004 and 2005 was due to Cleona's efforts to improve the system and repair the leaks. However, the system is in fair to poor condition with clay pipes in low-lying areas subject to infiltration. The pump station is in good condition.

North Annville Township

North Annville Township is served by individual and community on-lot disposal systems. The 1973 sewage facilities plan indicated that a 0.136 mgd treatment plant at an estimated total cost of $1.2-$1.6 million could be sited on the Quittapahilla Creek but that construction of a sewer system was not likely to be feasible in the foreseeable future and was never funded or constructed. A 2004 update to the 1973 plan explored extension of service from Annville Township to the Hill Farm Estates retirement home at an estimated cost of $1.2 million. The extension was privately constructed and completed in 2005.

The new sewers constructed to service the Hill Farms Estates have required little or no maintenance in the 2 years since they were installed. At the present time all maintenance is performed by the township staff and/or by contracted outside services. There is planning underway for two potential line extensions and, should the need arise for additional maintenance beyond that which can be addressed by the current township staff, additional staff or contracted services will be employed.

North Annville Township's sewage facilities plan is currently being updated as a new Act 537 Plan. Approval of the Task Activity Report for this plan was approved by DEP in late 2006. It is anticipated that the field work and property surveys will be completed in the summer of 2007 and the plan will be prepared for public comment in late 2007 or early 2008. This plan was undertaken as part of the township's overall planning process and joint efforts with Annville Township to address the North Annville Township future sewage management needs. No mandate or restrictions have been placed on North Annville Township by DEP to complete this plan. Thus, other than planning that was approved over 30 years ago, there are no mandated or regulated deficiencies in the township.

The township is aware that there are a few areas of potential sewer planning needs. The survey and water sampling of these areas is part of the current Act 537 planning effort. At the present time, the township does not have an on-lot disposal system (OLDS) management ordinance. The formulation and enactment of an OLDS Management Ordinance is also part of the on-going Act 537 planning effort.

South Annville Township

The South Annville Township Authority is responsible for sewage disposal management in the township. The Authority's 1973 plan stated that on-lot systems were functional and the most feasible option for meeting sewage disposal needs, though a public sewer system may ultimately be required if and when significant growth occurs.

The 1992 sewage facilities plan outlined three planning areas – immediate need (for public sewer), limited growth and non-growth. Within the immediate need area, the plan recommended public sewer service equivalent to 289 equivalent dwelling units (EDUs) for the already developed northern portion of the township, including the Bahney and Fink developments, Valley View Estates, and homes along Spruce Street where on-lot systems were no longer adequate as evidenced by high nitrate levels and fecal coliform in the groundwater, and extension of service to the Palm City Mobile Home Park to replace its treatment system. The limited growth areas included areas adjacent to developed lands in the north as well as the village of Fontana. The remainder of the township was identified as the non-growth area, where on-lot systems were used in spite of hazardous soils and limestone geology.

The 2002 update to the sewage facilities plan was prepared in two phases; the first focused on the details of sewering the northern portion and Palm City Mobile Home Park at an estimated total cost of $5.29 million, and the second phase for sewage planning for the rest of the township. The recommendation to sewer the northern portion of the township was pursued by the township resulting in multiple planning studies to explore service options. The 2004 update to the sewage facilities plan documents a feasible approach to providing public sewer to this area. The township is now in the process of financing and constructing a sewage collection system with conveyance of up to 0.200 mgd from approximately 1500 EDUs to the Lebanon wastewater treatment plant. The estimated total cost of the project is $5.3 million with capital contributions from developers for design costs and agreements for post-construction contributions toward the township's debt service.

Cornwall-Lebanon School District

Cornwall Borough

The Cornwall Borough Municipal Authority oversees sewage facilities for selected areas of existing development in the borough. It is a collection system, and its waste is sent to the wastewater treatment plant in Lebanon City. In 2005, the number of EDUs connected to the Cornwall Borough system was 1,551, which generated an average of 310,200 mgd. By 2010, the total number of EDUs is projected to be 2,187, generating an average of 437,400 mgd. There are no overload conditions in the system, and none are anticipated.

The 1993 Official Sewer Plan for Cornwall Borough outlined a two phase approach to sewering the existing developed areas of the borough. Phase 1 sewers were constructed in 1990, with approximately 700 EDUs between Fairview Estates, Burd Coleman Village, and Miners Village connecting to the new sewer system in 1991 and 1992. A $500,000 grant and 1% interest rate loan were obtained from Pennvest.

The 1993 plan called for Phase 2 sewers to be constructed around the year 1997. The Phase 2 area included the older villages of Rexmont and Anthracite, where on-lot system malfunctions were obvious and severe, as well as Karinchville and Toytown, where problems were less urgent. The borough accelerated its timetable for Phase 2 in order to take advantage of the competitive construction market and low interest rates that prevailed at the time, and to address the ongoing environmental problems caused by 1,869 malfunctioning OLDS in the Phase 2 area. Phase 2 was completed by 1997.

The plan documented benefits of the new public sewer service area to the community as 1) eliminating health risks; 2) incentivizing industrial and commercial development; 3) creating new jobs and new tax revenues as a result of development; and 4) increased revenue for local businesses as a spin-off of new industry.

Mt. Gretna Borough

Mt. Gretna Authority owns and operates a tertiary treatment plant located along Route 117, approximately one-half mile southwest of Conewago (Mt. Gretna) Lake. The plant processes sewage collected from the borough and the nearby Timber Hills development in South Londonderry and the Camp Meeting and Mount Gretna Heights portions of West Cornwall. The peak design capacity for the plant is 0.3 mgd with an average capacity of 0.2 mgd. Historic flows from the early 1980s indicated that the average flow was 0.16 mgd and the peak flow of 0.24 mgd occurred in March when spring waters heavily infiltrated the terra cotta piping in the older sections of the system. The collection system comprises 6", 8" and 10" mains.

The plant discharges to the Conewago Creek. Historic data further estimates the plant's service to 628 EDUs but notes that many of the properties served are seasonal homes and would not likely generate the full 350 gpd flow even during the peak season. Based upon the 1980 figures, the Authority had no plans to expand the treatment plant but would pursue reduction of infiltration if flow neared capacity.

North Cornwall Township

The North Cornwall Township Municipal Authority oversees sewage facilities planning and management in the township. Current public sewer service is provided in the northern portion of the township adjacent to Lebanon City and the US Route 422 corridor. Sewage from the township is sent to Lebanon City's sewage treatment plant. The township's annual average daily flow during 2005 was estimated to be approximately 0.69 mgd. There were approximately 2,138 residential and non-residential EDUs connected to the township's system in 2005. The projected 2010 hydraulic flow is 0.872 mgd, reflecting the projected addition of 236 EDUs (for a total of 2,374 EDUs). Existing problems with the current collection system include lack of adequate conveyance capacity at the Dairy Road Pumping Station and in the Chestnut Street Interceptor, as well as high levels of nitrate and fecal coliform throughout the township.

The 2004 sewage facilities plan recommended that the township pursue the following structure for sewage management:

1. Increase the capacity of the Dairy Road Pumping Station to 4 mgd,
2. Upgrade and install new meters at select locations,
3. Conduct sewer system capacity study after all pump station and interceptor meters are installed, and
4. Continue to implement its on-going infiltration/inflow reduction program.

Due to the extent and cost of public sewer service, the plan recommended the following non-structural alternatives throughout the balance of the township:

5. Implement an on-lot management program that requires regular pumping and inspection of all on-lot septic systems; this recommendation was implemented by the township in 2005.
6. Provide revisions to the Holding Tank Ordinance to incorporate provisions contained in state law, namely Title 25, Chapter 71.63 of the Pennsylvania Code.
7. Provide revisions to the township Subdivision and Land Development Ordinance addressing replacement sewage absorption areas and the requirement for a preliminary hydrogeological study for parcels proposing use of on-lot sewage systems.

North Lebanon Township

The North Lebanon Township Municipal Authority oversees management of the public sewer system in areas adjacent to the City of Lebanon, in the Ebenezer area, and along Tunnel Hill Road, and administers an on-lot management program throughout the remainder of the township. The authority contracts with the Lebanon Wastewater Treatment Plant for sewage treatment.

The township's system consists of approximately 60 miles of gravity sewer and eight sewage pumping stations. It connects to the city's system in 18 locations. In 2005, 4,436 EDUs were connected to the system (representing 3,834 customers). The average daily flow was 696,452 gallons per day. By 2010, the system is project to have 5,019 EDUs contributing 860,160 gallons per day.

The authority follows the city's industrial waste regulations and their own "Strong Waste Management Regulations." At the end of 2005, there was only one industrial user permitted through the Strong Waste Management Program — College Hill Poultry located along Route 422. The township was reviewing plans to permit three more industrial users under the Strong Waste Management Program.

Industrial users of some concern to the township are the Spruce Park Apartment Complex, the Green Acres Mobile Home Park — both of which have pumping stations with long mains leading to long detention times and hydrogen sulfide buildups — and the Greater Lebanon Refuse Authority (GLRA). The GLRA conveys its wastewater to the City of Lebanon via North Lebanon Township's sewer lines. GLRA's typical flow is 0.04 mgd, though it maintains a reserve allocation of 0.150 mgd. The landfill leachate from the GLRA causes organic growth on the inside wall of the main that can cause problems further along in the system. To prevent the growths from becoming a problem, the GLRA agreed to periodically clean the main.

Due to the minor ridge that divides the township into its northern and southern regions, the township has had many pump stations and significant challenges with operations of these pump stations over the years. The 2000 sewage facilities plan divided the township into 10 sewer service districts in order to recommend the fewest number of pumping stations which would be required to provide public sewer service to the entire township, if and when such service was needed.

The 2000 plan acknowledged economic growth in the township and the need for additional housing. Its recommendations for service extensions intended to solve the most severe operational problems and increase on-lot management provisions to protect groundwater quality.

The 2000 plan recommended future public sewer service for the Rockwood area by 2002. (The Rockwood area received water service in the 1980s.) Service for the Lovers Lane area and the Heffelfinger Road area were studied but not recommended due to excessive cost. Service for the Strack Drive area was recommended for no immediate action by the township but for connection to the public system when development was proposed. Service for the Mountville area was recommended, only if siting of infrastructure for service to the Rockwood area was favorable to providing service. Recommended non-structural alternatives included:

1. A comprehensive sewage facilities ordinance
2. Supplemental planning module requirements
3. An on-lot disposal system (OLDS) education program
4. A nitrate monitoring policy
5. Comprehensive plan and zoning revisions

To assist with monitoring the capacity of its collection system and the volume of its sewage generation, North Lebanon Township developed a sewer system database and master map. The township compares a development proposal to the current system using these tools. Additionally, the township has flushed approximately 250,000 feet of mains between 2001 and 2005, completing an initial round of cleaning the older mains in the system. In 2006 the township began a second five-year cleaning and flushing cycle. The overall condition of the system is good.

Future improvements to the system include replacing the discharge piping between the wet well and valve vault for the Orange Street and Hill Street pumping stations. The township is in the process of replacing its pump stations with gravity systems where practical.

South Lebanon Township

South Lebanon Township's public sewer system sends sewage to the wastewater treatment plant in Lebanon City. South Lebanon Township's 1987 sewage facilities plan stated that the area known as Iona historically had subsurface sewage failures and was in dire need of public sewers. It recommended that Iona receive public sewers and that the township require any further subdivision in non-agriculturally zoned areas of the township to be connected to public sewers. It also recommended that any development with proposed flows in excess of 2,000 gallons of wastewater flow per day and proposing subsurface disposal should be required to perform a preliminary hydrologic study.

At the end of 2005, there were 2,436 EDUs connected to the township's sewer system contributing 0.637 MGD. By 2010, the township is projected to have 2,836 EDUs (a rate of 100 new EDUs a year), contributing 0.732 MGD. Five sewer extensions were approved for construction in 2006. The system's three pump stations are in good condition. There are no known industrial waste dischargers.

Table 4-36 EDU Projections for South Lebanon Township

Name of Extension	EDUs Permitted	Construction to Start	Construction to Finish
Falcon Crest	36	2006	2008
Strathford Meadows	130	2006	2012
Fox Ridge	271	2006	2011
Southfield	100	2006	2010
The Estates of Beckley's Corner	22	2006	2008
Total	**559**		

West Cornwall Township

The West Cornwall Township Municipal Authority is responsible for sewage facilities and planning in the Township. Public sewer service is available in Quentin with sewage conveyed to the Lebanon wastewater treatment plant via agreements for conveyance through Cornwall and North Cornwall Townships and in Stoberdale with conveyance to the Mt. Gretna Borough wastewater treatment facility via the Gretna Heights sewers. In 2005, West Cornwall Township's sewer system had 365 EDU

connections contributing 0.050 mgd. By 2010, the township is projected to have 535 EDU connections contributing 0.628 mgd. The sewer system is in overall good condition; there is no inflow or infiltration according to the township.

The authority's sewage facilities plan was completed in 1992 and amended in 2003 to study the Mine Road/Butler Road and Northwood Drive areas. The Mine Road/Butler Road area contains soils that are not well suited for on-lot sewage disposal and small developed lots with on-lot systems that already encroach upon the 100-foot isolation radius specified by DEP. There have been confirmed and suspected sewage malfunctions and findings of contaminated water samples in the area. Design and construction for sewer service is underway. With larger lots, the Northwood Drive area found not to need sewer.

ELCO School District

Heidelberg Township

The Heidelberg Township Municipal Authority oversees sewage facilities planning and management in the township. The authority's sewage facilities plan dates to 1993 with updates in 1997 and 2000. Due to widespread conditions that include hazardous soils and limestone geology, planning efforts have recommended limited sewer service for Schaefferstown, the Flintville-Juliada Heights area and parts of Kleinfeltersville, including four pump stations and a 200,000 gpd treatment facility to serve 687 EDUs only in these existing development areas. The treatment facility was proposed for a location just south of the Old Mill Road and Mill Road intersection and would require an interbasin transfer of water resources. The estimated project costs totaled $8.8 million. The 2000 plan update scheduled completion of construction by 2003. Plans to construct a treatment facility have not moved forward. DEP is presently evaluating the stream designation for the proposed plant discharge location.

Recommended non-structural alternatives included:

1. An on-lot disposal system (OLDS) management program and education program
2. Preliminary hydrogeological analyses for all subdivisions proposing OLDS
3. Denial of all non-building planning module waivers such that lots cannot be created that do not have adequate area or conditions for a replacement OLDS.
4. A capped sewer ordinance to require installation of capped sewers may be required by the township for land developments in areas which are proposed for public sewer service within five or ten years
5. Provisions for a dispersion plume easement

Jackson Township

The Jackson Township Authority (JTA) oversees sewage facilities planning and management in the township and coordinates with the Myerstown Sewer Authority for the treatment of public sewage. Through a leaseback agreement, Jackson Township operates the sewage collection and conveyance facilities in the township. The Myerstown Sewer Authority currently manages a regional 1.600 MGD wastewater treatment plant (WWTP) with an allocation of 0.571 MGD for Jackson Township. Current efforts are underway to upgrade this facility and increase the capacity to 2.000 MGD with a Jackson allocation of 0.693 MGD.

Initial sewers for the developed areas of the township adjacent to the borough were completed in the late 1970s. As areas surrounding the borough have been developed, the developers have installed sewer extensions and dedicated them to the JTA. Requests for additional reserve commitments increased through the 1980s as development continued throughout the township. Therefore, the township's original Draft 1989 plan recommended:

1. Long range planning for sewer and water service extension to the east and west of the existing service area to address the problems associated with high levels of nitrates in groundwater
2. Acquisition of additional treatment capacity at the Myerstown WWTP
3. Authorization of additional community sewage systems and
4. Provisions and oversight to ensure proper maintenance and operations

This planning was an on-going effort for over 15 years and in 2006, the township received DEP approval of their Act 537 Plan. Areas in the township outside the sewer service areas which exhibited high nitrates when sampled as part of the Act 537 Plan process must now complete the required hydrological studies before development can progress. The township enacted an OLDS Management Ordinance as part of the Act 537 process and is presently working with the Lebanon County Planning Department for the administration and reporting of the associated monitoring program.

Efforts to address the growing sewage disposal needs in the township continued throughout the development of the 537 plan. In the mid 1990s, the township explored the feasibility of constructing a township WWTP in addition to the use of the regional Myerstown WWTP. The economics of attempting to convey all of the projected sewage growth in Jackson to the Myerstown WWTP verses the construction of a Jackson WWTP for the majority of the growth flows and a portion of the existing flows resulted in the planning of a Jackson Township WWTP. After over a decade of environmental and regulatory delays, the permitting process for a Jackson Township WWTP began in 2006. It is anticipated that the Jackson Township WWTP will begin operating in 2009 or 2010.

Prior to the activation of the Jackson Township WWTP, all of the sewage flow from Jackson continues to flow through approximately 16 miles of sewers, one pump station, and three metering stations. In addition, there are approximately 6 miles of additional sewers that are either private or pending dedication to the authority, and one additional private sewage pumping station. When the Jackson Township WWTP is brought on-line, both of the current conveyance system pump stations will be decommissioned and the flows currently being pumped will flow by gravity to the Jackson Township WWTP.

The township has a regular maintenance program in place for the upkeep and oversight of the authority's collection and conveyance system, including the pump station. The original sewers and the original conveyance pump station were part of the 1970s project and on-going maintenance of the terracotta lines and the 30-year old pump station are an increasing burden on the township sewer maintenance staff. The JTA initiated an Infiltration and Inflow (I/I) program in the early 1990s. From the initiation of the I/I effort through 2003, the authority invested over $226,000 in efforts to locate and eliminate I/I. In 2003, as a result of continued high flows during flooding events, DEP required a Corrective Action Plan from the Authority and the I/I corrective efforts were increased. In the last three and a half years, the authority has invested an additional $347,000 in I/I efforts and additional expenditures are budgeted for 2007.

In addition to the DEP mandated Corrective Action Plan for the authority collection and conveyance system, the Myerstown WWTP was also placed under a separate Corrective Action Plan, as the aging plant was unable to address the increasing flows and to meet its effluent permit limits (primarily ammonia-nitrogen). As a municipal partner in the Myerstown WWTP, the Jackson Township Authority is participating in the $20 million Myerstown WWTP upgrade, in addition to planning its own wastewater treatment plant. The Myerstown WWTP upgrade will be completed in 2009.

The Act 537 tabulation of EDUs for Jackson Township included a connected EDU total of 2,300 EDUs as of January 2006. Growth projections through 2010 estimate the January 2010 EDU total to grow to 2,800 EDUs. Growth projections beyond 2010 will be affected by the impact of a township rezoning initiative in 2006. Original projections included the potential for an additional 500 to 700 new EDUs between 2010 and 2020. However, that value may be significantly decreased as a result of the 2006 rezoning. The impacts of the rezoning are still being evaluated and may change in the near future.

Millcreek Township

The Millcreek-Richland Joint Sewer Authority serves Millcreek Township and Richland Borough with sewage collection and contracts with the Myerstown Sewer Authority for sewage treatment. As of 1990, the system served 2,500 residents in the Borough of Richland and unincorporated villages of Newmanstown and Sheridan.

The authority's sewage facilities plan was prepared in 1990; it is currently updating this plan. The 1990 plan conducted a hydrogeoligcal analysis and found that the entire planning area had problems with high nitrate-nitrogen concentrations.

The plan proposes a three-phase extension of service throughout the community to the base of South Mountain. The proposed service area includes 2,565 acres surrounding the existing service area with an estimated development potential of 2,500 units between1990 and 2010. The projected service area comprises the next 3,075 acres with potential for 2,200 units to be developed between 1990 and 2030. The potential service area includes another 3,080 acres to be developed between 2020 and 2050. The non-service area comprises the remaining 4,508 acres including South Mountain.

These projections suggested that sewer service to the existing and proposed service areas would exceed the total reserved capacity at the Myerstown treatment plant by approximately 50,786 gpd by 2010. Therefore, the plan recommended the acquisition of an additional 200,000-300,000 gpd for the Millcreek-Richland Joint Sewer Authority. Until public sewer service is made available throughout the community, on-lot systems continued to be used; however, the authority does not have a scheduled inspection of on-site sewage disposal systems.

Myerstown Borough

The Myerstown Sewer Authority oversees sewage facilities for the borough. Much of the borough has soils which have limitations for conventional on-lot sewage disposal systems. As a result of this and historic development, all but one property in the borough are sewered.

The authority owns and operates the Myerstown-Eastern Lebanon County Wastewater Treatment Plant. The plant was upgraded in 1978 from 0.5 mgd to 1.4 mgd. It was later hydraulically and organically rated for treatment of 1.6 mgd. Myerstown's reserve allocation is 0.571 mgd. Jackson Township and the Millcreek-Richland Joint Sewer Authority send their sewage to Myerstown for treatment with reserve capacities of 0.571 mgd and 0.458 mgd, respectively. The plant processes 1.157 mgd on average.

The authority's 1989 plan recommended an expansion to the wastewater treatment plant at an estimated total cost of $4.8 million; however, no expansion was completed. The 2006 plan also recommended expansion to increase capacity to 1.938 mgd (a 21% design flow capacity increase) and technology upgrade of the treatment plant at an estimated cost of $13.4 million. Increased capacity would be allocated as follows: 0.1 mgd to Myerstown, 0.1 mgd to Jackson Township, and 0.138 to Millcreek-Richland.

The plan's recommendations are supported with specified benefits to the community:

1. Protection of water quality in the Tulpehocken Creek and in the groundwater by preventing back-ups and overflows,
2. Enabling continued economic growth, and
3. Protecting recreational opportunities in the Tulpehocken Creek.

Richland Borough

See Millcreek Township above.

Lebanon School District

City of Lebanon

The City of Lebanon Authority (CoLA) is responsible for the operation and maintenance of the water and sewer systems. It no longer has a "current" Act 537 plan since nearly the entire city has public sewer, but it does have a 201 facilities plan prepared in 1979.

Nearly the entire city is served by the public sewer system. In addition to treating the city's sewage, it treats sewage from Cleona and Cornwall Boroughs and North Cornwall, North Lebanon, South Annville, South Lebanon, West Cornwall, and West Lebanon Townships. It also receives and treats effluent from the Greater Lebanon Refuse Authority for a total of 18,811 connections and nearly 37,000 customers.

Only an estimated 50 to 75 properties in the city have on-lot sewage systems; most of these are located in low areas that would require grinder pumps and long connections, which exacerbate the cost of connection. Failing systems however are required to connect.

Table 4-37 City of Lebanon Wastewater Treatment Allocation by Municipality/User, August 2006

Municipality*	Wastewater Allocation (gallons per day)	Connections
City of Lebanon	Approx. 1,025,916	8,457
Cleona Borough	186,350	839
Cornwall Borough	864,813	982
Greater Lebanon Refuse Authority	150,000	1
North Cornwall Twp	860,376	2,169
North Lebanon Twp	1,047,340	3,215
South Annville Twp	113,300	0
South Lebanon Twp	1,001,905	2,474
West Cornwall Twp	100,000	316
West Lebanon Twp	150,000	358
Total	**Approx. 5,500,000**	**18,811**

* The city owns all remaining capacity in the plant. Total plant capacity is 8.0 MGD

The Lebanon Wastewater Treatment Plant is located at the western end of the city along the Quittapahilla Creek. The facility is permitted to provide secondary treatment with nitrification and phosphorus removal. The plant is rated for an annual average flow of 8.0 mgd, and a maximum month flow of 9.18 mgd. Actual average flows are much lower than the design capacity. The 2006 Chapter 94 Report indicated that average flow in 2006 was 5.24 mgd. This is slightly lower than the average 2002-2006 flow of 5.33 mgd. Flows are projected to increase to 5.79 mgd for 2011 and a projected maximum 3-monthly flow of 6.31 mgd; long term projections indicate a treatment rate of 6.55mgd for 2020. These projections indicate that wastewater treatment capacity is adequate through 2020. The remaining available capacity is owned by the city and is roughly estimated at 0.75-1.5 mgd. A study to more accurately establish the remaining capacity is planned in the next two to three years. CoLA anticipates re-rating of the wastewater treatment plant to 10 mgd as a result of the planned plant upgrades. The additional 2 mgd will be available to municipalities.

Table 4-38 Current and Projected 2010 and 2020 EDUs

City of Lebanon Authority Flow Projections	
Current	
Current Annual Average Flow (2006), gpd	5,240,000
Current EDU's (2006 est.)[1]	23,818
2010 Projection	
Projected 2010 Flow, gpd	5,630,300
Projected 2010 EDU's[1]	25,592
2020 Projection	
Projected 2020 Flow, gpd	6,545,668
Projected 2020 EDU's[1]	29,753

[1] 220 gpd/EDU

Organic loading in 2006 required the plant to operate beyond its daily organic loading capacity. Five year trends show a slightly lower loading rate below capacity, though projections for 2011 indicate both daily and monthly loadings nearing capacity.

Treatment processes at the Lebanon WWTP include mechanical screening, grit removal, flow metering, primary clarification, trickling filtration, intermediate clarification, submerged turbine aeration-activated sludge, final clarification, multi-media filtration, ultraviolet light disinfection, and post aeration. A portion of the treated effluent is reclaimed for cooling water by the AES-Ironwood Power Plant. Solids generated by the various liquid treatment train processes at the Lebanon WWTP are stabilized by two-stage anaerobic digestion. Digested biosolids are normally dewatered by Belt Filter Presses (BFP) and can be hauled directly to permitted land application sites or stored in a covered biosolids storage building prior to land application. Digested biosolids can also be applied in liquid form to the permitted agricultural sites.

Industrial pretreatment is required by CoLA. Municipalities can establish pretreatment requirements, e.g. for large volume customers, by ordinance. CoLA requests that such ordinances be coordinated with CoLA's minimum and maximum requirements. LVEDC is aware of these requirements, as well, and has coordinated discussions about industrial discharges with new and expanding industries.

The collection and conveyance facilities include approximately 4.5 miles of trunk and sanitary sewer mains ranging in size from 18 to 42 inches in diameter, 65 miles of interceptor sewers ranging in size from 6 to 15 inches in diameter, and four (4) wastewater pumping stations. The Chapter 94 Report shows the condition of the wastewater collection system and pumping stations during 2006 was satisfactory; there are no known major problems. The overall condition of the collection system is good considering that parts of the sewer system have been in service since 1910. When defective sewer sections or deteriorated pipes are identified, repairs or replacement projects are undertaken. Proactive maintenance, such as flushing and televising work, is conducted on a regular schedule. All four pumping stations operated significantly under capacity in 2006. Projections for 2008 indicate that the South 8th and Orange Street pumping station may reach 56% capacity as a maximum monthly flow; all other projections are for 30% capacity or less.

Inflow and infiltration are a concern. A peak flow reached 23 mgd during heavy rains in 2006. The authority lacks a good understanding of flows from the various contributing municipalities. Flow information is based on EDU calculations rather than actual metering. CoLA is re-instituting monitoring and analysis of water and flows to identify potential sources of inflow and infiltration.

Table 4-39 City of Lebanon Authority Pumping Stations Flow Projections

Name/Location	Rated Capacity (mgd)	2006 Average Daily Flow (mgd)	2006 Maximum Month Flow (mgd)	2008 Average Daily Flow (mgd)	2008 Maximum Month Flow (mgd)
		0.08	0.093	0.11	0.14
12th & Walnut Streets	0.461	17%	20%	24%	30%
		0.007	0.009	0.015	0.02
Sixth & Yarrow Streets	0.144	5%	6%	10%	14%
		0.002	0.003	0.003	0.08
South 8th and Orange Streets	0.144	1%	2%	2%	56%
		0.039	0.069	0.04	0.073
Hanover Street	0.49	8%	14%	8%	15%

Source: City of Lebanon Authority

PA DEP, in conjunction with US EPA, has modified its nutrient discharge limits for wastewater treatment plants as one component of its Chesapeake Bay Strategy. The proposed nutrient limits change the nitrogen parameter from ammonia to total nitrogen – ammonia, organic nitrogen, and nitrate-nitrite and change the loading period from daily and monthly pounds per day to annual pounds. These limits are calculated from the permitted flow (8 mgd) and standard concentrations of nitrogen and phosphorus. The nutrient loads for CoLA are 146,117 lbs/year of total nitrogen and 10,482 lb/.year of total phosphorus. A comparison of current loads and proposed load limited is shown in Table 4-40.

Table 4-40 Current Loads and Proposed Load Limits

Discharge Parameter	Current annual Load (lbs/yr)	Proposed Annual Load Limit (lbs/yr)	Exceedance to Proposed Limit (lbs/yr
Total Nitrogen	306,455	146,117	160,338
Total Phosphorus	21,400	19,482	1,918

The authority_is planning a major plant upgrade to meet these nutrient limit requirements. Biological Nutrient Removal (BNR) processes will be added to the plant at an estimated cost of $18 million. CoLA plans to overdesign this improvement in anticipation of lower nutrient limits in the future. As a result, the improvement will generate nutrient credits that will be available for sale. CoLA anticipates letting this project for bid in late 2008. The necessary construction will then proceed during the next three years with DEP compliance achieved by 2012.

Additional upgrades to the aging plant are also needed.

1. Primary Power Center Alterations - The wastewater treatment plant presently has a primary and secondary power station. Due to the demand for power, neither station can be taken offline for maintenance. Furthermore, parts are increasingly difficult and expensive to acquire. A replacement station is needed to allow for preventative maintenance.
2. Supervisory Control And Data Acquisition (SCADA) – This system will computerize control systems within the treatment plant, enabling an operator to monitor and adjust operations from the central control room. SCADA is required by the BNR operations.
3. Electrical Replacement and Upgrades – These are needed to address deficiencies and safety hazards in the plant.
4. Class A biosolids equipment – Class "A" biosolids are essentially garden soils quality solids. Effluent processing to achieve class "A" biosolids will be needed in the near future to minimize phosphorus loadings from land applied biosolids.
5. New Maintenance Garage – No significant maintenance or expansion of the original garage has been made since 1962.
6. Anaerobic Digestion Process – This equipment is needed to replace the digester domes and could supply waste gas as an internal energy source.

These projects, with the exception of the anaerobic digestion process, may be consolidated into a single project estimated at $30 million.

West Lebanon Township

West Lebanon Township provides public sewer service to most of the township. The southern portion of the township, between the railroad and US Route 422, and along 16th street has been served for many years. Sewer service was extended to the rest of the township as a result of the 1992 sewage facilities plan. Sewage treatment is provided by the wastewater treatment plant in Lebanon City.

In 2005, West Lebanon Township had 406 EDU connections to its sewer system, contributing 0.04 mgd of sewage. The township anticipates a possible 4 new EDUs in 2007, but there are limited opportunities for additional growth within the township. The township's pump station is in good condition and is well-maintained.

Northern Lebanon School District

Bethel Township

The Fredericksburg Sewer and Water Authority (FSWA) originally was formed in the late 1970s to serve only the village of Fredericksburg. Since then, development has stretched the service area of the FSWA north and westward. Additional development is now planned to the south and east. Water and sewer lines were constructed to Blue Mountain Road in 2000, as reported by the 2002 FSWA Sewage Facilities Plan.

The present collection system of the FSWA is sufficient to serve existing and planned development within the service area. The conveyance system consists of four pump stations and associated force mains. Two of the four pump stations were upgraded in 2000 and 2002 to larger and more reliable pumps to handle the additional flow expected from planned developments. Upgrade of the other two pump stations will occur when development that exceeds existing capacity is proposed.

The FSWA's existing treatment system is theoretically inadequate for present connections and all planned developments which have been approved to date, though the plant has continued to operate without any significant problems. The year 2000 Chapter 94 Report submitted to PA DEP projected both a hydraulic and organic overload at the treatment plant within four years. A corrective action plan was developed which planned for treatment plant expansion by the end of year 2003. FSWA has committed to increase the capacity of the treatment plant from the presently permitted capacity of 150,000 gallons per day (gpd) to 250,000 gpd pursuant to its five-year capital plan and the approved corrective action plan. Additional improvements needed to upgrade the treatment technology have not been made to date.

The 2002 sewage facilities plan recommended two areas of the township receive public sewer service within five years.

1. The Elk Drive, Deer Drive, and Greble Road area south of Fredericksburg (the South Fredericksburg Area) require a combination of gravity sewers, low pressure sewers, a pump station, and force main to the existing treatment plant to serve 178 EDUs. Total costs of facilities were estimated at $1.8 - $2.26 million and user fees were estimated at $579-$968 per year per EDU.
2. Camp Strause/Monroe Valley would have to be served by a new treatment plant, at least one pump station, a force main and low pressure mains estimated at a total cost of $2.5 million to serve 180 EDUs and a user fee of $482-$910 per year per EDU. However, in 2002 an intermunicipal agreement was executed between the FSWA and Swatara Township to provide sanitary sewer service to the Monroe Valley and Camp Strause areas. FSWA would own and operate the new treatment plant.

In 2005, the FSWA received a $2.9 million loan and a $288,628 grant from PENNVEST to construct the new sewage treatment plant, a pump station and over six miles of collection lines to eliminate the use of malfunctioning on-lot septic systems impacting groundwater sources, as well as Lake Strause, Lake Weiss and Monroe Creek.

Two additional areas were studied: the Sunrise Mobile Home Park and the Lebanon Valley Mobile Home Park, which bridges Bethel and Swatara Townships. The most feasible structural alternative for the Sunrise Mobile Home Park is to connect to the Lebanon Valley Mobile Home Park treatment facility by 2005. Such a connection would require plant improvements and increased capacity.

A fifth area, the village of Hamlin/Mt. Zion Road corridor, will be identified as a "ten year service area" due to high nitrates in the groundwater.

Recommended non-structural alternatives include:

1. A comprehensive sewage facilities ordinance that would address:
    a. Mandatory satisfaction testing of each lot prior to planning module approval and
    b. System maintenance requirements, including pumping every three years, for individual and community on-lot disposal systems.
2. Supplemental planning module regulations, including requirements for preliminary hydrogeological studies.
3. Creation of a sewage management district for the Hamlin/Mt. Zion Road Corridor and an on-lot disposal system education program to promote proper maintenance of on-lot sewage disposal systems.
4. A nitrate monitoring policy to evaluate the consistency between this plan and hydrogeological studies submitted by a developer as a part of a planning module.
5. Comprehensive plan and zoning revisions "to allocate future land use in a manner that is in harmony with the availability of public sewer service."
6. A well drilling ordinance to establish drilling standards for various geological formations, minimum yield standards (in gallons per minute), and specifications regarding casing depth and grouting standards. This ordinance would safeguard against surface contamination of new wells and provide information to users of existing wells whose water quality may be compromised by surface conditions.

Cold Spring Township

Property owners in Cold Spring Township rely exclusively on on-lot sewage disposal systems.

East Hanover Township

The Fort Indiantown Gap Military Reservation has its own sewage collection and treatment system which serves only the military land in East Hanover Township. The remaining portions of the township have no public sewer services. All sewage disposal is done by on-lot disposal systems. The soil characteristics and density of existing development in the Ono area of the township have caused malfunctions among these systems.

The 2002 East Hanover Township Sewage Facilities Plan recommended a sewer service district for Ono and nearby properties and wastewater treatment at the Fort Indiantown Gap Wastewater Treatment Facility. The system requires gravity and low pressure mains, a pump station, and a force main to the treatment facility. The plan scheduled major milestones for the development of this system between DEP's approval of the plan in 2003 and completed construction and connections in 2005.

Jonestown Borough

Jonestown Borough's sewage facilities plan was adopted in 1967. The borough's sewage system serves the borough and adjacent developed areas of Swatara and Union Township. Sewage from this service area is treated at Northern Lebanon County Authority wastewater treatment plant located in the western portion of Jonestown. The 1967 plan recommended a new treatment plant at a cost of $965,000 to serve its 500 EDUs.

Swatara Township

Portions of the township surrounding Jonestown Borough are serviced by the Northern Lebanon County Authority Plant located in Jonestown Borough. The Northern Lebanon County Authority provides sewer service to the village of Lickdale in Swatara Township and conveys sewage to the Jonestown wastewater treatment facility. All other areas of the township are served by on-lot disposal systems. Sewer service was considered for the Beverly Heights area in the late 1960s but was deemed not economically feasible.

The authority's 2000 sewage facilities plan identified the Rockwood and Mountville Drive areas as problem areas as a result of failing septic systems and a historical feasibility study to sewer these areas. The plan recommended sewer service for 122 EDUs with connection to the Jonestown wastewater treatment facility.

The authority's 2002 plan update studied sewer service for the Monroe Valley, in response to failing septic systems and historical feasibility studies to sewer this area. The update recommended sewer service for 100 EDUs to the valley and construction of a new treatment plant off Monroe Valley Drive to be operated by the Fredericksburg Sewer & Water Authority. The new treatment facility was completed in 2007.

Union Township

Sewer service is available in portions of Union Township. Fort Indiantown Gap Military Reservation owns and operates its own system and treatment plant. Areas adjacent to Jonestown and Lickdale are served by the Union Township Authority plant located at the intersection of Routes 81and 443. The small residential/commercial area of the township just west of Jonestown Borough is serviced by the Northern Lebanon County Authority Plant located in the Borough.

Union Township's 2002 sewage facilities plan focused on the unserved areas of the township. It identified five problem areas:

1. Campmeeting Woods Road
2. Jonestown Road
3. Silvertown Road, and portions of AWOL Road, Route 72, and Route 22
4. Fisher Avenue
5. Moonshine Road

Structural alternatives were deemed too expensive, therefore non-structural alternatives were recommended, including an on-lot management program, a small flow treatment agreement and proactive planning on the part of the township.

The township's 2003 update recommended an upgrade to the township's wastewater treatment facility and extension of public sewer service south and west of Lickdale in 2004/2005.

Palmyra Area School District

North Londonderry Township

The North Londonderry Township Authority provides public sewer service to areas of the township adjacent to Palmyra Borough and conveys sewage to the Palmyra treatment plant, which was built in the 1950s. The township has developed significantly through the 1990s and early 2000s and expects to continue to grow. Palmyra's plant does not have sufficient design capacity to handle the expected growth in the township. Due to pump stations that were operating near capacity, the township was not able to consider any major subdivisions since 2003.

The authority completed a sewage facilities plan in late 2006.[37] The plan was required by DEP since the previous plan was approved in the late 1980s. The 2006 plan recommended construction of a new sewer plant to eliminate three existing pumping stations in need of replacement and to accommodate an additional 2,500 homes in the southern portion of the township; the other three pumping stations would remain connected to the Palmyra wastewater system and treatment plant. The estimated cost of the new plant is $15.5 million. The $15.5 million cost includes $4.5 million for sewer lines, $10 million for the plant, which would accommodate 750,000 gallons of flow per day, and the rest for land and rights of way. The plant would be built just north of Route 422 along Killinger Creek and construction could begin as early as 2008. Capacity would remain an issue for the township even if the Palmyra Plant were upgraded as the plan outlined. Therefore, the township plans to pursue financing and construction of the new and separate treatment plant.

The northern part of the township would remain served largely by on-lot septic systems. The plan includes a requirement that on-lot systems be maintained and pumped every three years.

Palmyra Borough

Palmyra Borough owns and operates a wastewater collection and conveyance system and a wastewater treatment plant serving the borough.[38] The wastewater collection and conveyance system consists of approximately 126,000 lineal feet of sanitary sewers ranging in diameter from 8 to 18 inches. Most of Palmyra's collection system and the pumping stations were built in the late 1960s and consist primarily of vitrified clay pipe. The main pumping station was expanded in the early 1980s and pump station 32 was upgraded in 2000.

The existing wastewater treatment plant is a two-stage biological treatment facility with an annual average daily design capacity of 1.42 mgd. The regional plant serves approximately 3,300 connections in Palmyra. Two properties in the borough are not served by the sewage system. As of 2002, average daily flows to the treatment facility averaged 0.75 to 0.9 mgd.

[37] Lebanon Patriot News, Thursday, December 21, 2006.
[38] 2002 Palmyra Comprehensive Plan

In the past, Palmyra's wastewater treatment plant would experience overloading conditions during extreme wet weather. The causes of the overflows were identified and mitigated, but Palmyra is continuing efforts to identify and remediate sources of inflow within its collection system. Based on a projected population growth of 293 people over the next 20 years, Palmyra expects to contribute an additional 29,300 gallons of sewage to the system over the next 20 years.

South Londonderry

The South Londonderry Township Municipal Authority provides sewer service to Campbelltown, properties along US Route 322, and to the villages of Lawn and Colebrook. Due to the topographic conditions of the township, the authority owns and operates four treatment plants to serve these areas:

1. Campbelltown West, which discharges to Spring Creek
2. Campbelltown East, which discharges to Killinger Creek
3. Lawn, which discharges to Conewago Creek
4. Colebrook, which discharges to Conewago Creek

Additional sewage treatment facilities are located in the township and operated by the Pennsylvania Turnpike Commission, Olivers Mobile Home Park, and Mt. Gretna Borough.

The 1995/1996 sewage facilities plan noted certain neighborhoods were experiencing a relatively high rate of on-lot sewer malfunctions and/or exhibited small lot sizes and difficulty with replacement of on-lot systems that might be failing, and therefore studied selected areas for public sewer service: the Lawn Road/Lyndel Drive area; the Weaber Sawmill and Route 117 Area; the Upper Lawn Area, and the Mt. Wilson area. Service to these areas was not recommended.

The 1995/1996 sewage facilities plan recommended that the township revise the sewer service district boundary and replace the Campbelltown East plant with an expanded facility (210,000 gpd) at an estimated total cost of $3.7 million. It also recommended that the township prepare and adopt an on-lot management ordinance which would require property owners to pump their septic tank and require inspection of their own on-lot sewer systems once every three years. In 1997, the township adopted such an ordinance. Finally, the plan recommended subdivision and development provisions for hydrogeological studies for subdivision or development areas within one-quarter mile of high nitrate areas, as shown in the plan.

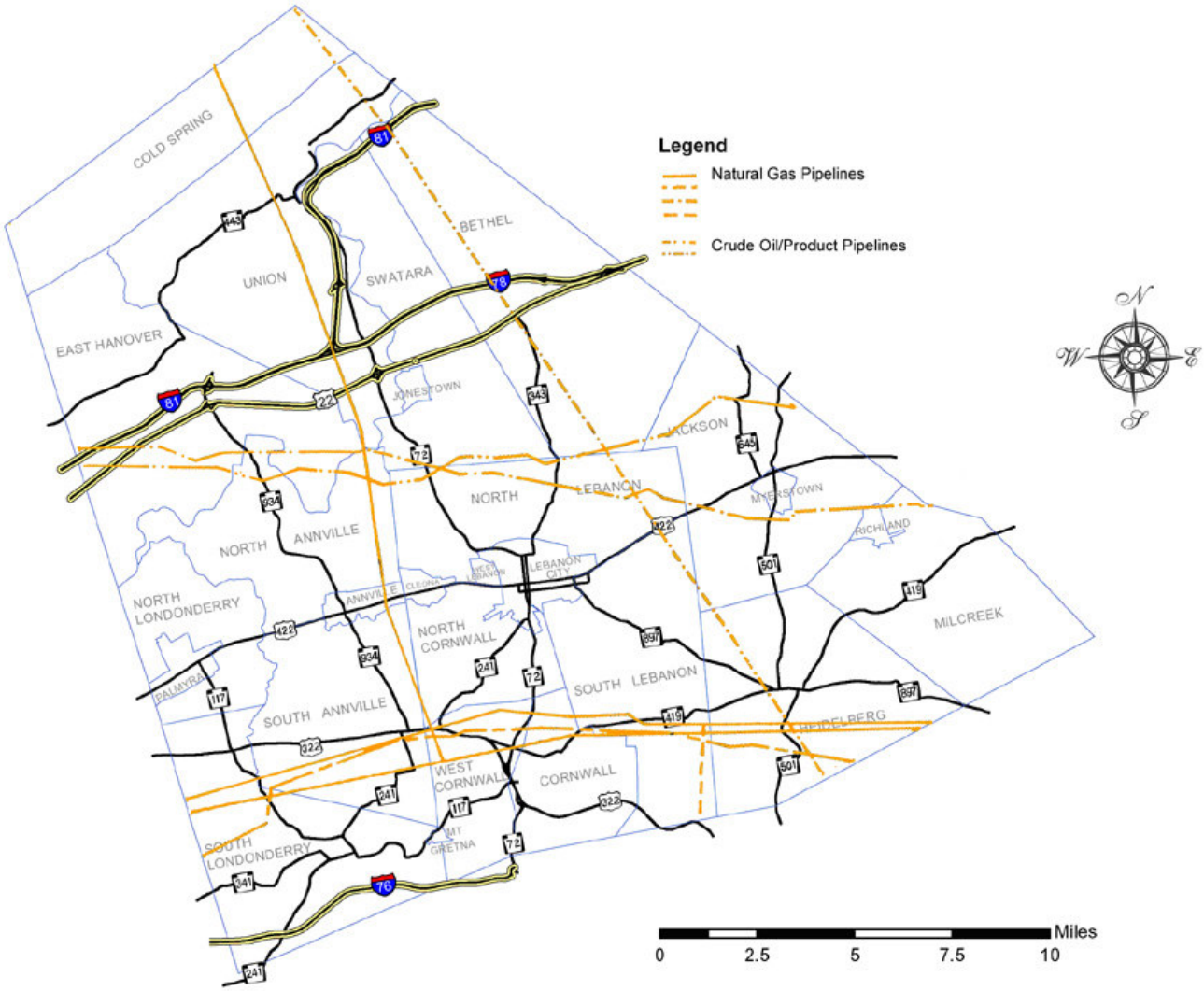
The 2003 update to the sewage facilities plan specifically studies the Mt. Wilson area. The Mt. Wilson area has been documented as a problem area over 20 years ago, however, service was not economically feasible. This update recommended service to 81 EDUs along Mt. Wilson Road, Raven Lane, Sylvan Lane and Mt Pleasant Road with treatment provided at the Colebrook plant.

Private Utilities

Natural Gas and Crude Oil Pipelines

Several natural gas and crude oil pipelines are located in Lebanon County. The majority generally traverse the county east to west, but two lines run north and south, as shown in Figure 4-5. The lines are owned by the Buckeye Pipe Line Company, the Sunoco Pipeline LP Company, TEPPCO (Texas Eastern Products Pipeline Company), and the Texas Eastern Transmission, LP Company.

Figure 4-5 Natural Gas and Crude Oil Pipelines



Natural Gas and Electricity

Public utilities provided to the residents of Lebanon County include natural gas and electrical service. The sole provider of natural gas within the county is the United Gas Improvement Company (UGI). Customers requesting gas line extensions to their homes, businesses, or industries deal directly with UGI. Electrical power is predominantly supplied by the Metropolitan Edison Company (Met-Ed), which serves nearly the entire county excepting the southeastern corner. The remainder of the county (including sections of Jackson, Heidelberg, and Millcreek Townships) is served by Pennsylvania Power & Light. As

is the case with UGI, extension of existing lines and the erection of new lines is done through direct dealings with the electric companies themselves.[39]

Electric Distribution Company Performance Data

Electric utilities are made available to county residents and property owners by the Metropolitan Edison Company (Met-Ed) and PPL Electric Utilities Corporation (PPL). The Electricity Generation Customer Choice and Competition Act of 1996 mandated that the Pennsylvania Public Utility Commission ensure that levels of reliability that existed prior to the restructuring of the electric utility industry continue in the new competitive markets. In response to this mandate, the Commission adopted reporting requirements designed to ensure the continuing safety, adequacy and reliability of the generation, transmission and distribution of electricity in the Commonwealth. The Commission also established reliability benchmarks and standards to measure the performance of each electric distribution company (EDC). According to the 2005 Electric Service Reliability in Pennsylvania report[40], in 2005 Met-Ed provided service at a performance level below established standards; service interruption frequency was roughly double that of the established standard and interruption duration was 5 minutes greater than the standards. In contrast, PPL provided service to its customers at a performance level that was better than the standards established by the Commission; interruption frequency and duration were both lower than established standards.

Telecommunications

Telephone service in Lebanon County is provided by Verizon. Other telephone companies with service in the county include:

- Choice One Communications
- CTSI, LLC
- D&E Telephone Company
- Metro Teleconnect Companies, Inc.
- Reconex
- Trinsic Communications
- United Telephone Company of PA (Embarq Pennsylvania)
- XO Communications

Internet service providers in Lebanon County include:

- EarthLink
- AT&T Dial
- Verizon DSL
- Comcast
- Covad DSL
- EMBARQ

[39] From 1987 Lebanon County Interim Plan
[40] Electric Service Reliability in Pennsylvania, 2005, Pennsylvania Public Utility Commission, August 2006.

Hazard Response and Mitigation

The Lebanon County Emergency Management Agency (LEMA)[41] is the county agency responsible for training, education, coordination, and assistance relating to natural disasters, hazards and other emergencies. LEMA considers all aspects of emergency awareness including preparedness, response, recovery, and mitigation. A large part of LEMA's responsibilities relate to partnerships among citizens, employers, and emergency response agencies in order to provide for the safety and prosperity of life, property, and the environment in Lebanon County. The LEMA office is located in the County-City Municipal Building at 400 South 8th Street, Lebanon.

The duties and responsibilities of LEMA revolve around specific core functions of the emergency management programs.

- Conducts hazard identification and vulnerability analyses that identify the hazards presenting the greatest danger to the county and the consequences and impact of the occurrences. Known hazards in Lebanon County include flooding, sinkholes, tornadoes, and potential malfunctions at the Three-Mile Island Nuclear Power Plant in Londonderry Township, Dauphin County. The Lebanon EMA office began developing a Lebanon County Hazard Mitigation Plan to formally address these types of incidents in February 2006. A draft plan was made available for public review in June 2007.
- Develops and maintains relationships with emergency response agencies, as well as, government, private, and voluntary sectors of the community, facilitating mutual consultation, exchanging information and providing agreements for cooperative action.
- Develops and maintains various emergency response systems, such as communications, warning, emergency public information, damage assessment, shelter, resource management, radiological defense and the emergency operations center. The LEMA office operates the 911 Communications Center, which answers all emergency and non-emergency calls and dispatches responders for Lebanon County, except those made within the City of Lebanon and those made directly to the state police. The 911center supports communications between local fire, police, EMS, EMA, Haz-Mat, and highway agencies and organizations.
- Coordinates the response and recovery activities of the departments and organizations involved in emergencies, and reports to the responsible executive, be it a city manager, mayor, or county executive, during a disaster or emergency situation.
- Provides oversight and motivation to departments and agencies to carry out their duties in ways that avoid or minimize potential emergency conditions.
- Identifies training needs and develops, participates in, and provides training programs.
- Reviews and revises operation, recovery, mitigation, and other supporting plans on a regular basis.
- Coordinates drills that test the written plans and procedures of emergency management and supporting agencies that are involved in emergency response and recovery.
- Participates in and contributes to the legislative and regulatory process as it relates to emergency management.
- Develops and implements public information and public relations activities.

The LEMA office maintains CADD maps of streets and addresses to aid in the dispatch of emergency responders. The office is interested in acquiring digital mapping of fire hydrants, facilities housing hazardous materials, and other infrastructure as developed for the comprehensive plan and through other planning and mapping efforts. The office employs five officers, two CADD map makers, 20 dispatchers, and a clerical staff person.

Requirements for county EMA offices continue to evolve in light of technological advances in communications and the ever-present threat of terrorism. Communications systems developed to receive telephone calls made from land-based phone lines are now required to be able to receive cell phone calls. Communications systems are also now required to be connected to property name and address information. In recent years, the incompatibility of local communications equipment and the inconsistency of incident reporting became increasingly apparent. In 2004, the county made a substantial investment in a new computer-aided dispatch system to facilitate dispatch of emergency responders through cell phones, faxes, and on-board vehicle data terminals. The new system can support dispatch of emergency units and equipment and automatically documents incidents and dispatch details for improved reporting.

Each of the 67 counties in Pennsylvania is required under Act 165 (Act 1990-165 Hazardous Materials Response Fund) to have contracted a state certified hazardous materials response team. The program, which is managed by the Pennsylvania

[41] http://mail.lebanonema.org/lema/default.aspx (Dec 1, 2005)

Emergency Management Agency (PEMA), establishes operational, staffing, training, medical monitoring, supply, and equipment guidelines.

The Lebanon County EMA provides a 24-hour Pennsylvania state-certified Hazardous Materials Response Team to handle chemical spills and biohazards.[42] In addition to emergency response involving hazardous materials, other services include:

- Search and Rescue
- Fire Support
- Confined Space Rescue
- Response and Recovery for any man-made or natural disaster
- Weapons of Mass Destruction (WMD)
- Quick Response Service (QRS)
- Water Rescue
- Bomb threat techniques and searches

In addition, the 756th Ordinance Company (EOD), an active Army "bomb squad" reservation providing emergency coverage throughout the state, is based at Fort Indiantown Gap Military.

The South Central Regional Counter-Terrorism Task Force serves Adams, Cumberland, Dauphin, Franklin, Lancaster, Lebanon, Perry, and York Counties. The county EMA director from each of the member counties is an executive board member of the Task Force. The Task Force's objectives are to:

- Assess the vulnerability of the region
- Coordinate emergency operations plans to develop a regional response plan
- Develop and maintain an inventory of responders' facilities and equipment and foster their compatibility across the region.

Funding for Task Force projects and initiatives has been available from the federal government; however, the expenditures were limited to equipment, facilities, and other investments to harden physical infrastructure. It was not available to fund day-to-day operations, where funding was locally needed. Funding is now being directed specifically toward regional initiatives. Fortunately for Lebanon County, the City/County GIS Department was able to take advantage of this funding to acquire data, upgrade hardware and software, and improve the networking capability of the department in order to facilitate exchange of data on a regional level.

[42] http://mail.lebanonema.org/lema/default.aspx (Dec 1, 2005)

Other Public Facilities

State Facilities

Fort Indiantown Gap Military Reservation

Fort Indiantown Gap was first established by the state in the 1930s, as the primary training base for the Pennsylvania National Guard. When the Pennsylvania National Guard needed a larger area for training maneuvers and firing ranges, the government authorized the acquisition of 12,047 acres in Dauphin and Lebanon counties. The 55th Infantry Brigade was the first unit to use Fort Indiantown Gap when it held its annual maneuvers at the reservation in summer 1932. The following year, the 53rd Field Artillery first trained at Indiantown Gap, and in 1934, the 28th Infantry Division and 52nd Cavalry Brigade were assembled there. Over 100 buildings from nearby Mount Gretna—including officers' mess halls, administration buildings, latrines and bathhouses—were dismantled and hauled by truck to the present location at Indiantown Gap.

After World War II, Indiantown Gap became a separation center for officers and enlisted men returning from overseas, and eventually home to the 32,000 troops of the 5th Infantry Division and a training center during the Korean War. From 1962 to 1973, Indiantown Gap was the host installation for the largest Reserve Officers Training Corps advanced summer camp nationwide. During this 11-year period, 41,158 cadets completed training. In 1975, Fort Indiantown Gap became a camp for Southeast Asian refugees. For eight months, more than 22,000 Vietnamese and Cambodian refugees were resettled through this facility. A number of these refugees continue to live in Lebanon County.

Since 1940, most of its 19,000+ acres have been leased to the federal government for military training purposes. Its mission expanded in recent years to include all active and reserve components, as well as selected civilian customers. In October 1998, pursuant to the recommendations of the BRAC Commission, the U.S. Army garrison at the Gap closed, and responsibility for day-to-day management of the post was transferred to the Pennsylvania National Guard. Today, “the Gap” is also home of the Pennsylvania Department of Military & Veterans Affairs, which oversees both the Army and Air National Guard and the state’s programs for serving the needs of Pennsylvania’s 1.3 million veterans.

On average, more than 100,000 individual students and trainees rotate through the installation every year. Fulltime employment tops 1,200 state and federal civilians; military technicians; members of the Active Guard and Reserve program; active-duty soldiers; and employees of contractors and non-DMVA tenants. This makes Fort Indiantown Gap the largest employer in Lebanon County. Annual economic impact exceeds $100 million.

Several non-military organizations operate offices on the post:

- State offices of AMVETS and Marine Corps League
- Civil Air Patrol - Pennsylvania Wing
- Pennsylvania State Police
- Valley Foods, Inc., food service distributor for the entire Pennsylvania Army National Guard
- Mountain Top Technologies, concessionaire operating the Gap’s distance learning facility
- All Army Sports Program
- Pennsylvania National Guard Associations.

Limited civilian use of abundant open space and recreational lands and other services listed below is permitted at the installation’s discretion:

- Hunting and fishing on post (including special access for the disabled)
- Community Club
- Blue Mountain Sports Arena
- Swimming pool (outdoor)
- Post Exchange, gas station, convenience store, military clothing store
- Scouting trips, youth camps, civic tours
- Major public events (Armed Forces Day celebration, Battle of the Bulge re-enactment)
- Pennsylvania National Guard Military Museum.

For additional details, see the Economy and Employment Profile, Background Study #3.

Indiantown Gap National Cemetery

Indiantown Gap National Cemetery (operated by the U.S. Department of Veterans Affairs) and the Pennsylvania Veterans Memorial is located adjacent to Fort Indiantown Gap. In 1976, the site was selected as the national cemetery for the states of Pennsylvania, Delaware, Maryland, New Jersey, Virginia and West Virginia. The Commonwealth of Pennsylvania donated Land for the 677-acre site to the Veterans Administration.

Pennsylvania Army National Guard Armory

National Guard units may have offices, store equipment, or train at armory sites. The PA Army National Guard Armory on East Cumberland Street in Lebanon operates as one of the local family assistance centers in the Harrisburg region. The office offers guidance on medical, legal, financial issues, etc., and helps families of any Active, Guard, or Reserve service members, regardless of branch of service.

Pennsylvania State Parks

Two state parks are located in the northern portion of the county. Memorial Lake State Park is surrounded by Fort Indiantown Gap Military Reservation in East Hanover Township. The park consists of 230 acres near the southern base of Blue Mountain and offers boating, fishing, hiking, picnicking, cross-country-skiing, ice fishing and ice skating. The 3,520-acre Swatara State Park consists of rolling fields and woodlands situated along Interstate 81 between Second and Blue Mountains. One of the main focal points is the eight miles of Swatara Creek that winds through the park. Swatara State Park was acquired with capital development funds appropriated by the Pennsylvania General Assembly. A master plan for the recreation area programmed canoeing, fishing, hiking, picnicking, bicycling, swimming, camping and environmental education for the site. For further details, see the Open Space, Greenways and Recreation Profile, Background Study #5.

Pennsylvania State Game Lands

Pennsylvania State Game Lands total over 22,000 acres in Lebanon County. Rock State Game Lands (#80) bridges Lebanon, Berks, and Schuylkill Counties, while Manada Gap/Green Point (#211) spans Lebanon, Dauphin & Schuylkill Counties. For further details, see the Open Space, Greenways and Recreation Profile, Background Study #5.

PennDOT Photo and Exam Center

PennDOT operates a Photo and Exam Center at 900 East Cumberland Street, Lebanon.

Magisterial District Court

Magisterial District Court is the first level of judicial authority in Pennsylvania and is the court where most people experience the judicial system for the first time. Magisterial District Judges handle all traffic cases, other minor criminal cases and civil cases involving amounts up to $8,000. District Justices also set bail and conduct preliminary hearings in misdemeanor and felony criminal cases to determine if the cases should be dismissed or transferred to the Court of Common Pleas for further proceedings. There are six Magisterial District Judges located in offices throughout Lebanon County. They are elected to six year terms and are employees of the Commonwealth of Pennsylvania.

Table 4-41 Magisterial Districts and Office Locations

District	Office Location
1st, 2nd, 3 rd, 6th & 7th Wards in the City of Lebanon	502 State Drive Lebanon, PA 17042
4th, 5th,8th, 9th & 10th Wards in the City of Lebanon	502 State Drive Lebanon, PA 17042
Cornwall, Mt. Gretna, Myerstown, Richland Boroughs and Heidelberg, Jackson, Millcreek, South Lebanon and West Cornwall Townships	728 E. Walnut St. Lebanon, PA 17042
Cleona Borough and Cold Spring, Annville, East Hanover, North Annville and Union Townships	Cleona Borough Hall 138 W. Walnut Street Cleona, PA 17042
Jonestown Borough, Bethel, North Lebanon, Swatara and West Lebanon Townships	Jonestown Borough Hall 37 W. Market Street Jonestown, PA 17038
Palmyra Borough and North Cornwall, North Londonderry, South Annville and South Londonderry Townships	325 S. Railroad Street Palmyra, PA 17078

State Legislative Representation

Lebanon County is represented by two Pennsylvania House Districts and one Senate District. The 101st legislative district represents Annville Township, Cleona, the City of Lebanon, Mount Gretna, North Cornwall Township, North Londonderry Township, Palmyra, and South Londonderry Township . The Honorable Maurie Gingrich (Republican), 2003-present, maintains a local office at 445 W. Penn Avenue, Cleona as well as one in Harrisburg. The 102nd legislative district includes the boroughs of Cornwall, Jonestown, Myerstown, and Richland, and the townships of Bethel, East Hanover, Heidelberg, Jackson, North Lebanon, South Lebanon, West Cornwall, Union, Swatara, North Annville, Millcreek, and West Lebanon. The Honorable Rose Marie Swanger (Republican), 2006-present, maintains an office in North Lebanon Township as well as one in Harrisburg. The 48th senate district represents all of Lebanon County, as well as portions of Dauphin, Berks Chester and Lancaster Counties. Senator Mike Folmer (Republican), 2006-present, maintains an office in the Lebanon Municipal Building on 400 S. 8th Street, Lebanon as well as offices in Robesonia, Elizabethtown and Harrisburg.

County Facilities and Services

County Administration

The **Lebanon County Board of Commissioners** constitutes the chief governing body of the county. Statutory authority of the Commissioners is primarily of an administrative nature with legislative or policy-making powers. The County Commissioners are, in effect, the business managers of the county. Administrative powers of County Commissioners include voter registration and elections, assessment of property for tax purposes, human services, veteran affairs, appointment of county personnel and fiscal management. The Commissioners constitute the County Board of Elections, the Registration Commission, the County Retirement Board, the County Board of Assessment Revision of Taxes and they also serve as the administrative and executive officers of the county home, Cedar Haven.

The structure of Lebanon County's service departments, elected officials and justice system is illustrated in Table 4-42.

Service Departments

Cedar Haven Nursing Home in Lebanon is a county owned long-term nursing facility, which provides nursing, physician, physical therapy, mental health, and occupational therapy services. There are approximately 490 total full and part-time employees in the 400 bed home. There are approximately 20 registered nurses (not including supervisors), 65 licensed practical nurses and 150 certified nursing assistants. In addition to the paid staff, there are approximately 300 volunteers who provide services in nursing, sewing, transportation, quilting, social services, special laundry and the gift shop.

The **Lebanon County Correctional Facility** is a 5th class county prison and a short-term confinement facility. Since 1996, it has had a maximum capacity of 420 persons. The goal of the Lebanon County Correctional Facility is to maintain custody of inmates for the duration of their incarceration. The Lebanon County Correctional Facility has a number of rehabilitative programs. Work Release, Detail, Drug and Alcohol Programs, and an excellent educational program are available to all inmates to aid them in their return to society as productive citizens.

The need for correctional facilities and services has continued to rise since 1996. Rather than pursue expansion of the existing facility, the county is considering a range of options for the housing and treatment of offenders. The need for an off-site work-release program, as found in Dauphin County, would benefit Lebanon County. However, the current grants to expand prison facilities can't be used to pay for an off-site work release center, so a new funding source would need to be identified.

Table 4-42 Structure of the Lebanon County Government

Lebanon County Board of Commissioners	400 South 8th Street, Lebanon PA	Room 207
Service Departments		
→ Cedar Haven Nursing Home	590 South 5th Avenue	
→ Corrections/Prison	730 East Walnut Street	
→ Planning	400 South 8th Street	Room 206
→ Human Services		
→ Mental Health/Mental Retardation Program	220 East Lehman Street	
→ Renova Center	25 Metro Drive	
→ Area Agency on Aging	710 Maple Street, 2nd Floor	
→ Children & Youth Services	400 South 8th Street	Room 401
→ Commission on Drug and Alcohol Abuse	220 East Lehman Street	
→ Community Action Partnership	503 Oak Street	
→ Board of Assessment	400 South 8th Street	Room 118
→ Tax Claim Bureau	400 South 8th Street	Room 103
→ Human Resources	400 South 8th Street	Room 207
→ Management Information Systems (MIS)	400 South 8th Street	Room 211
→ Purchasing Department	400 South 8th Street	Room 207
→ Emergency Management Agency	400 South 8th Street	Room 12
→ Lebanon City/County GIS Department	400 South 8th Street	Room 208
→ Lebanon County Conservation District	2120 Cornwall Road, Suite 5	
→ Penn State Cooperative Extension - Lebanon County Office	2120 Cornwall Road, Suite 1	
→ Department of Veterans Affairs	400 South 8th Street	Room 102
→ Bureau of Elections & Voter Registration	400 South 8th Street	Room 209
Elected Offices		
→ District Attorney	400 South 8th Street	Room 11
→ Recorder of Deeds	400 South 8th Street	Room 107
→ Register of Wills/Clerk of Orphans' Court	400 South 8th Street	Room 105
→ Prothonotary's Office /Clerk of Courts	400 South 8th Street	Room 104/102
→ Treasurer	400 South 8th Street	Room 103
→ Controller's Office	400 South 8th Street	Room 205
→ Sheriff's Office	400 South 8th Street	Room 3
→ Coroner's Office	940 Cumberland Street	
Courts		
→ District Court Administration	400 South 8th Street	Room 311
→ Domestic Relations	400 South 8th Street	Room 202
→ Adult Probation Department	508 Oak Street	
→ Juvenile Probation Department	508 Oak Street	
→ Law Library	400 South 8th Street	Room 305
→ Office of the Public Defender	400 South 8th Street	Room 122

Source: Lebanon County

The **Lebanon County Planning Department** (LCPD) provides technical assistance to local municipalities preparing and updating land use plans and ordinances and assists the County Commissioners, as needed, on a wide variety of other county planning projects. The LCPD also functions as the lead staff agency for Transportation planning and programming for the LEBCO MPO and provides planning and administrative support services for the MPO's transportation planning activities. Furthermore, the department also serves as a repository for county, municipal and demographic information, including the latest U. S. Bureau of Census population figures.

As a review and/or enforcement agency for local municipalities, the LCPD either monitors activities on or develops and administers regulations dealing with zoning, land use and environmental issues within Lebanon County. Additionally, the LCPD enforces the *Lebanon County Subdivision and Land Development Ordinance*, which contains stormwater standards for most of the municipalities in Lebanon County. Furthermore, as a part of the 1972 Federal Clean Water Act, the department is providing technical assistance to the county and local municipalities required to implement the MS4 Program.

The LCPD enforces the Pennsylvania Sewage Facilities Act of 1965 for most municipalities in Lebanon County. This includes permitting and inspection of on-lot sewage disposal systems as well as sewage planning and module approval in accordance with its Delegated Local Agency status. The department also acts as the Zoning Enforcement Agent for most municipalities, which includes permit issuance for all new construction. Finally, certified Building Code officials from the LCPD enforce minimum construction standards for one and two family dwellings in many municipalities in the county.

The department, located in the County-City Municipal Building in Lebanon, consists of 17 employees led by an executive director.

Lebanon County Community Action Partnership provides an array of services to Lebanon County residents. Services include child care, transportation, case management, rental assistance, shelter assistance, bridge & transitional housing, information & referral, counseling, job readiness and job placement, GED preparation and life-skills education. Funds for these services are received from the Department of Community & Economic Development, the Department of Public Welfare, and the U.S. Department of Housing and Urban Development. All services are coordinated by the ten current Community Action Partnership employees.

The **Lebanon County Mental Health/Mental Retardation Program** mission is to assure the availability of quality mental health and mental retardation services in Lebanon County, which are effectively managed and responsive to a changing health care environment, and which meet the clinical and support needs of persons with mental disabilities and their families in ways which enable the person and the family to function at the highest possible level and to live as independently as possible in the community.

Through case management, MH/MR provides intake, assessment, and coordination of the following services: outpatient psychotherapy, psychiatric and psychological evaluation, medication monitoring, residential programs for the mentally retarded, vocational and social rehabilitation, short-term inpatient, partial hospitalization, early intervention services (birth to three years) and 24-hour emergency services. There are 60 total employees in the two programs. Most employees are care givers or case workers. Currently, the programs are stable, but there is some concern that new regulations on privately-owned personal care homes may impact the program in unanticipated ways.

The **Renova Center** is an intermediate care facility that provides a home-like atmosphere with 24-hour services for 25 individuals with severe or profound mental retardation. These services include medical care, social services, recreation, physical, occupational, speech and music therapies. Their goal is to encourage and help each individual to achieve the fullest potential of his or her mental, physical and social abilities. There are approximately 45 full and part-time employees working at the facility.

The **Area Agency on Aging** in Lebanon County serves clients age 60 and over who are residents of Lebanon County. Available services include on-site and in-home personal care as well as a wide array of services for health, safety and welfare of older Lebanon County residents. There are approximately 40 employees at the agency.

The **Children and Youth Services Program** identifies dependent children and provides for the care and protection of these children through agency and community services. Referrals to Children & Youth Services are often made by hospitals, police departments, schools, community agencies and private citizens. The agency investigates all child abuse and neglect referrals that comply with the Child Protective Service Law and in accordance with the law provides protective services, foster care services, residential services and adoption services.

The **Lebanon County Commission on Drug and Alcohol Abuse** (LCCDAA) was established to provide drug and alcohol services to people in Lebanon County. LCCDAA is the overall agency for planning services to prevent, intervene, and treat substance abuse problems through contracts with private providers. LCCDAA finances education and information services to all Lebanon County residents. In addition, LCCDAA finances treatment for eligible uninsured, low-income residents of Lebanon County through licensed professional providers.

The **Assessment Office** identifies and assesses all properties in Lebanon County using fair and equitable standards. Current assessments are based on 100% of the 1968 market value of property. Property files must reflect the most current owners of record, their mailing addresses and updated information on their property records. The office also maintains the tax rolls and processes and mails Assessment Change Notices to property owners and taxing authorities, ensuring that assessment totals are correct and synchronized with the taxing authorities.

The **Tax Claim Bureau**, located in the Municipal Building in Lebanon, collects payment of delinquent real estate taxes, or if necessary, sell the properties to recover the taxes owed against the properties.

The **Department of Human Resources** directs and coordinates activities such as employment, compensation, labor relations, benefits and other employee services. There are three employees at the department, though there are also two full-time and one part-time human resources employees at Cedar Haven Nursing Home that fall under the department umbrella.

The **Management Information Systems (MIS) Department** is responsible for all computer operations in the county courthouse, and some of the satellite offices. The staff consists of a director, a systems analysts, programmers, and a personal computer (PC) technician. An IBM System I5 is used as the main computer with numerous PC's working in local and wide area network environments.

The **Purchasing Department** supervises and directs all purchasing activities for county facilities, including the Cedar Haven Nursing Home, Prison and Satellite Offices. The Purchasing Agent deals with the technical work involved in the daily purchase of materials, services, supplies and equipment, as well as organizes bulk purchases, negotiates PA State contracts when feasible, and prepares bid specifications and processes contracts for items over $10,000. Additionally, the County's Printing Department is supervised by this office.

The **Lebanon County Emergency Management Agency** (EMA) trains, educates, coordinates, and assists in the activities relating to disaster preparedness, response, recovery, mitigation, and developing a partnership with all citizens, visitors, employers, and emergency response agencies in order to provide for the safety and prosperity of property, the environment, and all living beings within Lebanon County and the surrounding area. EMA provides 911-telephone emergency service to all of Lebanon County. Additional services include Search and Rescue, Confined Space Rescue, Emergency Planning, and Response and Recovery operations for any man-made or natural disasters. It also operates an Emergency Operations Center in times of emergencies.

The **Lebanon City/County GIS (Geographic Information Systems) Department** is jointly funded by the Lebanon Water Authority and the County of Lebanon. The department is currently developing GIS data for use in both City and County government offices, as well as by the Water Authority. 1997 planimetric data has been input into the GIS, with current data continually being to be added to the system. Street addressing, road centerlines, 2005 color photography and data from the new County Comprehensive Plan are also being input into the GIS.

The **Lebanon County Conservation District** makes technical, financial, and educational resources available to meet the needs of the local land user for conservation of soil, water, and related resources. Program participation is determined and policy set by a volunteer board of nine directors. Implementation is handled by the twelve employees. Current services include, but are not limited to, the following:

* Erosion & Sediment Pollution Control
* Environmental Education
* Farmland Preservation
* Agricultural Conservation Technical Assistance
* Watershed Technical Assistance

Recently, funding has not kept pace with the conservation needs of a rapidly changing county landscape. There is an emphasis on farm preservation easements, but no operational support funding is provided, limiting the impact of the program.

The **Penn State Cooperative Extension in Lebanon County** gives local residents easy access to the resources and expertise of the Pennsylvania State University. Through educational programs, publications, and events, cooperative extension agents deliver unbiased, research-based information to Lebanon County citizens. Services include adult informal education to farm families on issues of agribusiness, financial planning, and social services. Short classes and individual instruction on a range of subjects are available as well.

The **Lebanon County Department of Veterans Affairs** administers a comprehensive array of benefit programs and provides counseling services to the veterans of Lebanon County, their dependents, widow (ers), and orphans. Some Veterans Affairs benefits provided are as follows: service and non-service pensions, dependency and indemnity compensation, health care enrollment, education benefit, vocational and rehabilitation training, home loan guarantees, life insurance, burial benefits, tax exemptions, and emergency assistance.

The **Bureau of Elections & Voter Registration** manages all aspects of the election and voter registration process for the County of Lebanon. Public services provided by the three full-time and one part-time employees include: registering to vote, updating voting records, applying for an absentee ballot, filing a petition for public office, filing a campaign expense report, and obtaining election results.

The **Sealer of County Weights & Measures** typically enforces laws and regulations pertaining to the accuracy of weighing and measuring devises. On April 30, 2004, the Lebanon County Commissioners discontinued the position of Sealer of Weights & Measures.

While Lebanon County has **no parks and recreation department**, the county does own parkland and the Board of Commissioners has taken an active interest in parks and recreation in the county. Lebanon County holds full or partial ownership in two parks, Monument Park and Union Canal Tunnel Park, totaling almost 35 acres and approximately 12.5 miles of the Lebanon Valley Rail Trail corridor. Additionally, the county is represented on the Board of Trustees of the SICO Foundation, which manages the Clarence Schock Memorial Park at Governor Dick.

Elected offices

The **Office of the District Attorney** of Lebanon County employs more than 30 people, and is responsible for prosecuting more than 2,000 adult and 400 juvenile criminal cases each year. In addition, the office administers more than 15 different criminal justice programs covering specialized prosecutions, diversionary programs, specialized investigations and victim assistance programs. The office is funded by the County of Lebanon, though the office receives Federal and State monetary grants to assist in funding programs.

The **Recorder of Deeds** maintains all documents relating to real estate, notary public board, and commissions, and uniform commercial order filings. Copies and certified copies of all documents are available. The seven-member office also offers computer access to its official records database on a subscription basis. The office is working towards improved imaging capability via the prothonotary's office and indexing of military records, as some files date to the 1920s and are degrading from regular handling.

The **Register of Wills and Clerk of Orphans' Court** handles all court-related administration in the areas of marriage, probate and estates, adoptions, and guardianships. The office also serves as the collection agent for Pennsylvania inheritance tax owed by decedents that lived in Lebanon County. The Register of Wills and Clerk of Orphans' Court is a dual office responsible for court related and non-court related activities.

The **Prothonotary's Office** is the Civil/Family Division of the Court of Common Pleas. The Prothonotary records all documents which include all family, abuse, civil and judgment files. The primary function of the Prothonotary's Office is that of a filing office, and as such staff does not provide the public with advice about how to proceed or act in any kind of matter. The office is open to the public, who are welcome to search any kind of record or suit, unless it has been impounded by Order of Court.

The **Clerk of Courts Office** maintains all of the records for the Juvenile and Criminal Divisions of the Fifty-Second Judicial District, consisting of the Lebanon County Court of Common Pleas. The Clerk of Courts is responsible for maintaining the records, files, dockets and exhibits of the Court. All records in the Clerk's Office are public records except when specifically precluded by law.

The Lebanon County **Treasurer's Office** is responsible for the collection of the County Real Estate Tax and Hotel Room Rental Tax. The six person office acts as Tax Collector for all the City Wards and City District 36 plus several other boroughs and townships. The Treasurer's Office is responsible for investing with PLGIT, Invest and Certificates of Deposits, and for the issuing of some recreational licenses in addition to tax collection duties.

The Lebanon County **Controller** supervises the fiscal affairs of the county including accounts and acts relating to all officers or other persons who collect, receive, hold or disburse county public monies. The Controller's Office payroll staff handles all phases of the county payroll. The accounts payable staff process for payment all invoices and other county obligations after those obligations are reviewed by the Controller for legality and reasonableness. The accounting and auditing staff maintains the financial records of the county and prepares financial statements including the Annual Financial Report.

The Lebanon County **Sheriff** provides security for the County Courts, the Municipal Building, and other county properties. Additionally, the office issues bench warrants, criminal warrants, and Protection from Abuse orders (PFAs); transports prisoners; handles extraditions; issues licenses to carry weapons, real estate liens, levies and sales; and assists local, State and Federal agents and DA's Drug Task Force. There are approximately 20 full and part-time Deputy Sheriffs currently in the sheriff's office, as well as one Chief, one Sheriff and four clerical staff.

The Lebanon County **Coroner** is an elected official whose job it is to investigate deaths of a suspicious or violent nature. When necessary, a jury of inquest can be called to determine the cause of death. When inquests are warranted, the coroner is empowered to perform autopsies, subpoena witnesses, administer oaths, and compel attendance at an inquest. The Coroner is required to issue a certificate of cause of death if such occurs without medical attention or attendance.

Courts

The primary mission of the 52nd Judicial District is to provide access to, and justice for, all of the residents of Lebanon County. There are four justices in Lebanon County. Enormous change has been experienced both in the type and quantity of matters presented for disposition. For example, in 1997, the most recent year for which complete statistics were available, the Court disposed of 43% more criminal cases than in 1991. Further, data indicates the judges disposed of 150% more cases during that same year than in 1981. Finally, according to Judge Robert J. Eby, Lebanon County was rated as number one of the Fifth Class Counties and number two for all of the Counties of the Commonwealth for Statewide Jury Efficiency.

The Lebanon County **Domestic Relations Office** is the agency charged with establishing and enforcing support obligations involving Lebanon County residents and including support for spouses and minor children. The agency also assists in establishing paternity in matters where parentage is in question.

The **Adult Probation Department** provides for the safety of the community through effective supervision of offenders and to enforce Court ordered rules and regulations in order to assist offenders to successfully adjust to a crime-free lifestyle by providing positive and proactive guidance for the offender. There are 22 employees in the department.

The **Juvenile Probation Department's mission is to** rehabilitate youthful offenders and encourage them to become responsible and productive members of the community. Programs include: Community Service, Restitution, Prison Tour, Aftercare (youth in placement), Drug & Alcohol Evaluation/Treatment, Mental Health Evaluation/Treatment, and many others. The department is staffed by 16 employees.

The office of the **District Court Administrator** was created in 1974 to reduce the burden of administrative duties of the Judges of the Court of Common Pleas. The District Court Administrator's Office provides technical assistance and administrative support to the various departments of the Court. Other Court business that involves this office includes receiving applications for the 10% Bail Program, personnel, fiscal operations, budget, jury management, scheduling, public relations, and liaison functions with various groups and agencies.

The Lebanon County **Law Library** is available for attorneys and the public for legal research. Available materials include Federal and State Statutes, Federal, State and County Reports, Federal, State and County Rules of Procedure, Treatises, Law Reviews and Form Books. Westlaw is also available, which combines all state and federal primary laws. The law library is run by one librarian.

The **Office of the Public Defender** primarily represents indigent adult defendants and juveniles with misdemeanor or felony criminal charges. It also represents clients facing involuntary commitment at mental health hearings, persons charged with violating county and state probation or parole, persons charged with violations of the Protection from Abuse Act (PFA's), and persons facing summary charges where incarceration is a potential sentence. There is currently one full-time public defender and a part-time district attorney.

Municipal or Local Facilities

There are twenty five municipal buildings in Lebanon County – one for each local government. Cold Spring Township has no local governing body and therefore no need for a municipal building. Addresses for these facilities are listed in Table 4-43 and illustrated in Figure 4-6.

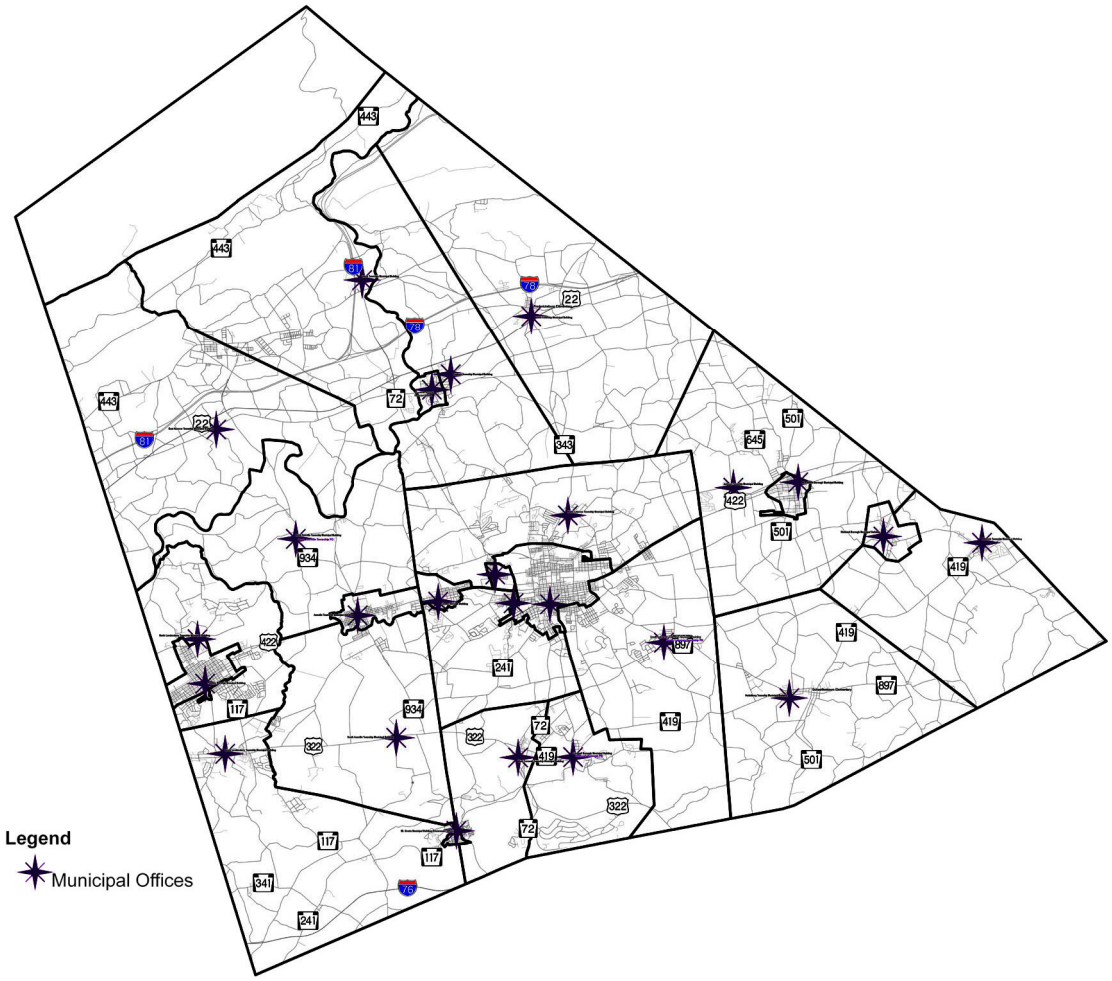
In addition to these public facilities, the Latino American Association Center of Lebanon serves as an information hub where new residents, and specifically Hispanic residents, can find out what is happening in the city and how to address problems and issues. The center will be one of the outlets where a "new resident handbook" will be available in English and Spanish. The center was started with funding from a Community Development Block Grant which pays for rent and utilities; the center is fully staffed by volunteers.[43]

Table 4-43 Municipal Buildings

Name	Address	
Annville Township Municipal Building	36 North Lancaster St Box 178	Annville
Bethel Township Municipal Building	3015 South Pine Grove Street	Fredericksburg
Cleona Borough Building	140 West Walnut Street	Cleona
Cornwall Borough Municipal Building	PO Box 667 -36 Burd Coleman Road.	Cornwall
East Hanover Township Municipal Building	1117 School House Road	Annville
Heidelberg Township Municipal Building	111 Mill Road, box 188	Schaefferstown
Jackson Township Municipal Building	60 North Romona Road	Myerstown
Jonestown Borough Municipal Building	37 West Market Street	Jonestown
Lebanon County/City Municipal Building	400 South 8th Street	Lebanon
Millcreek Township Municipal Building	81 East Alumni Avenue	Newmanstown
Mt. Gretna Municipal Building (Chautauqua Office)	PO Box 61 -101 Chautauqua Drive	Mt Gretna
Myerstown Borough Municipal Building	101 East Washington Avenue	Myerstown
North Annville Township Municipal Building	1020 N. Rte. 934	Annville
North Cornwall Township Municipal Building	320 South 18th Street	Lebanon
North Lebanon Township Municipal Building	725 Kimmerlings Road	Lebanon
North Londonderry Township Municipal Building	655 East Ridge Road	Palmyra
Palmyra Borough Municipal Building	325 South Railroad Street	Palmyra
Richland Borough Municipal Building	5 Pine Street	Richland
South Annville Township Municipal Building	1000 Clearview Lane	Lebanon
South Lebanon Township Municipal Building	1800 South 5th Avenue	Lebanon
South Londonderry Township Municipal Building	20 West Market Street	Campbelltown
Swatara Township Municipal Building	68 Supervisors Drive	Jonestown
Union Township Municipal Building	3111 SR 72	Jonestown
West Cornwall Township Municipal Building	73 Zinns Mill Road	Lebanon
West Lebanon Township Municipal Building	322 North 22nd Street	Lebanon

[43] The Patriot News. "Latino group opens information hub," July 14, 2005.

Figure 4-6 Locations of Municipal Buildings



Open Space, Greenways and Recreation Profile

Recreation is an essential public service. Parks, trails, recreation programs, cultural attractions, festivals, and other special events breathe life into individuals and communities. They offer "things to do" for young citizens, employees and their families, and visitors. They contribute to the economic vitality of the county through direct and indirect spending in local businesses and are often a cornerstone of community revitalization plans. Parkland can protect and integrate natural and scenic features into communities and recreation programs foster socially responsible citizens and healthy families, the foundation of our society.

Recreation is a key factor in the quality of life in Lebanon County, as revealed through the public participation activities of this planning process. The Lebanon Valley Rail Trail, scenic open spaces and cultural activities, as well as the recent planning for the Tulpehocken Greenway, were commonly listed among the positive aspects of life in Lebanon County. At the same time, more facilities, more linkages between existing parks, and more programs were clearly expressed as citizen needs throughout the county.

Within a half hour drive, the 120,000+ citizens of Lebanon County can enjoy a wide range of outdoor recreation experiences. They can hike, cycle, boat, fish, hunt, camp, bird watch, ride horses, and enjoy cultural and historic experiences in more than 42,000 acres of recreation land in two state parks, six state game lands, a wildlife management area, the Fort Indiantown Gap Military Reservation, two state-designated historic sites, three county-owned or county-cooperative parks, a 16-mile section of the Appalachian Trail, and the 12.5-mile Lebanon Valley Rail Trail. In addition, Lebanon County municipalities have a long tradition of providing community parks where residents recreate and attend community celebrations. Furthermore, the school districts in Lebanon County play a vital role in community recreation by making their campus grounds and athletic fields and facilities available for community recreation programs. Finally, private organizations contribute to recreation opportunities through lands owned by sportsmen's clubs, fire companies, golf courses, and campgrounds and services offered by commercial operators. Recreation in Lebanon is truly a multi-faceted community service.

The Recreation Profile provides a benchmark of existing recreation conditions in Lebanon County in 2006 and evaluates how recreation needs are being met and where the gaps in service exist. The profile inventories existing park and recreation sites, trails, and greenways and documents how these recreation facilities are managed, operated, funded and promoted. The profile considers trends in program participation and diversity and explores needs and opportunities for expansion of recreational facilities and services based on the school district planning regions. It records the challenges and benefits of recreation specific to Lebanon County and its municipalities and school districts. On-site investigation, discussions with the County Planning Department staff, contacts with municipalities, outreach to school district officials, and input from citizens through the public participation process provided the local knowledge and perspectives presented here.

Inventory of Park and Recreation Lands

Different types of park and recreation lands serve different recreational purposes. Municipal neighborhood and community parks typically serve the active, close-to-home recreation needs of nearby citizens. County and regional parks provide larger sites for resource-based recreation; preservation of natural, cultural, and historic resources; and enjoyment of scenic resources. State and federal agencies typically establish recreation lands where recreation is compatible with resource conservation policies.

Table 5-1 presents the Lebanon County Park and Recreation Land Classification System. It shows the range of park types, their benefits, appropriate facilities, and the maintenance levels appropriate for the type of park and resources available. Tables 5-2 through 5-7 inventory public recreation lands in Lebanon County, as well as, school properties, and quasi-public and other protected recreation lands. The Recreation Lands Map illustrates the locations of these park and recreation lands in Lebanon County.

Table 5-1 Lebanon County Park and Recreation Land Classification System

Type/Size/ Service Radius	Definition	Benefits	Appropriate Amenities	Maintenance Level
Mini Park *0-5 acres* *¼-mile service radius*	Smallest park type, addresses limited recreation need	▪ Provides close-to-home recreation	▪ Playground ▪ Benches, seating area	High level of maintenance associated with well developed park and playground and reasonably high visitation
Neighborhood Park *5-15 acres minimum* *½-mile service radius*	Focus of neighborhood; in walking/biking distance of visitors	▪ Provides access to basic recreation opportunities ▪ Contributes to neighborhood identity ▪ Establishes sense of community	▪ Play areas ▪ Ball fields ▪ Game Courts ▪ Picnic/Seating ▪ Pathways ▪ Community gardens	High level of maintenance associated with well-developed park and reasonably high visitation.
Community Park *25-50 acres, preferably 50-80 acres* *2-mile service radius*	Large park for active & passive recreation; serves residents municipality-wide. Accommodates large groups.	▪ Variety of recreation opportunities for all ages and interests ▪ Space for organized, large scale, high participation events ▪ Family destination ▪ Fitness and wellness opportunities	▪ Play areas ▪ Organized sports facilities ▪ Pavilions ▪ Permanent restrooms ▪ Lighting ▪ Amphitheaters ▪ Pools, Rinks ▪ Parking	Moderate level of maintenance associated with moderate level of development, budget restrictions, inability to perform higher levels of maintenance. Potential for park "friends" or adopt-a-park partners.
School/ Community Park *Variable*	Parkland adjoining a school used for both recreation and education.	▪ Combines two public entities for expanded year round recreation. ▪ Maximizes public resources ▪ Expands recreation opportunities	▪ Youth-oriented game courts and ball fields ▪ Play areas ▪ Seating ▪ Pathways ▪ Lighting ▪ Parking	Moderate level of maintenance associated with moderate level of development, budget restrictions. Potential for cooperative agreement with school.
Sports Complex *30+ acres; preferably 50-80 acres*	Consolidates sports fields and related facilities in a centralized location.	▪ Economy of scale ▪ Improved management ▪ Municipal showcase ▪ Attracts visitors who stimulate local economy	▪ Ball fields ▪ Lighting ▪ Spectator areas ▪ Restrooms, Concessions ▪ Landscaping ▪ Parking	State of the art maintenance applied to high quality facilities. Associated with high visitation; revenue generating facilities, tourism.
Special Use Facility *Variable*	Facility for a single purpose use.	▪ Provides special focus recreation opportunities ▪ Contributes to community identity	▪ Depends on purpose	High level of maintenance associated with well-developed park and reasonably high visitation.
Greenways and Trails *Variable*	Tie park areas and community together to form a contiguous park environment.	▪ Connects community ▪ Reduces auto dependency ▪ Improves air quality ▪ Contributes most desired recreation facility for people throughout their lifetime ▪ Attracts visitors	▪ Pathways – multipurpose ▪ Trailheads ▪ Support facilities ▪ Signage	Lowest level of maintenance. Focus on trailheads and trail safety.
Natural Resource Area/ Preserve	Natural areas for the protection and management of natural environment	▪ Protects resources ▪ Provides wildlife habitat ▪ Offers opportunities for environmental education	▪ Trails ▪ Signage ▪ Support facilities	Lower level of maintenance.

Federal Recreation Lands in Lebanon County

Two federal land holdings contribute to recreation opportunities in Lebanon County. These large natural resource-based areas provide outdoor recreation opportunities to both residents of Lebanon County and the tourists who contribute to Lebanon County's economic vitality through their discretionary spending.

The Appalachian National Scenic Trail stretching from Maine to Georgia traverses the northern portion of the county through State Game Lands No. 80 and No. 211 and Swatara State Park. Approximately 16 miles of the trail are located in Lebanon County and a majority of this segment is located on permanently protected public lands.

Fort Indiantown Gap Military Reservation (FTIG) is comprised of over 140 training facilities. These facilities are fairly concentrated, leaving the approximately 11,500 acres of the 17,000-acre reservation as open space. FTIG makes these woodlands, streams, lakes and mountain vistas available to the public for hunting, fishing, and bird watching; the military training areas are off limits to the general public. Shuey Lake, Marquette Lake and the athletic fields and other recreation lands of FTIG have restricted hours and all recreation users must attend a safety briefing and pay a fee.

For these large recreation landscapes, the total area listed on the inventory tables indicates the acreage of the specified park or recreation site in Lebanon County; the site may extend beyond Lebanon County.

Table 5-2 Federal Recreation Lands in Lebanon County, 2006

Federal Recreation Lands	Acres in Lebanon County	Municipality	Comments
Northern Lebanon SD			
Appalachian National Scenic Trail	Approx. 16-mile length through Lebanon County predominantly on state lands	Cold Spring, Union, Swatara and Bethel Townships	Primitive hiking trail connects three large protected natural areas in northern Lebanon County, State Game Lands No. 211, Swatara State Park and State Game Lands No. 80.
Fort Indiantown Gap National Guard Training Center	11,501.2	East Hanover and Union Townships	Recreation opportunities open to the public include hunting, fishing, wood gathering and bird watching on lands not used as training grounds.

State Parks and State Game Lands in Lebanon County

There are two Pennsylvania State Parks and portions of six State Game Lands in Lebanon County. These larger landholdings are primarily located along the northern and southern ridgelines of Lebanon County.

Memorial Lake State Park is located in northwestern Lebanon County adjacent to Fort Indiantown Gap. The park contains an 85-acre lake with access for fishing, electric boating, sailing and paddling, as well as picnic areas and trails. Boats can be rented at the park.

Swatara State Park is a 3,516-acre park spanning Lebanon and Schuylkill Counties in the gap of land traversed by Swatara Creek between Second and Blue Mountains. Approximately 2,538 acres of the park are within Lebanon County. The park offers trails for hiking, biking, horseback riding, and cross-country skiing and natural areas for hunting, fishing, and non-motorized boating and is traversed by the Appalachian Trail. A Master Plan Feasibility Study was completed in 2003 to define the appropriate facilities for this park; further development is anticipated but has not been a state priority.

Table 5-3 State Parks and State Game Lands in Lebanon County, 2006

State Park	Total Area (Acres)	Municipality	Comments*
Northern Lebanon School District			
Memorial Lake State Park	217.6	East Hanover Township	Memorial Lake (85 acres), picnic areas, trails, and lake access for fishing and boating (electric motor only)
Swatara State Park	2,538.5	Union, Bethel and Swatara Townships	The Master Plan Feasibility Study was completed in 2003. Additional park development is anticipated.
Rock, State Game Lands No. 80	5,552.30	Bethel Township and Swatara Township	Located in Lebanon, Berks & Schuylkill Counties. Primarily wooded mountain land. Deer, grouse and turkey are prevalent game species.
Manada Gap/Green Point, State Game Lands No. 211	16,543.3	Cold Spring Township and Union Township	Located in Lebanon, Dauphin & Schuylkill Counties. Largely wooded tract covering portions of the Fishing, Stony and Clarks Creeks drainages. Assorted wildlife species found. Includes portions of Appalachian and Horseshoe Trails and has good access roads.
Cornwall-Lebanon School District			
Cornwall Iron Furnace	5.3	Cornwall Borough	Pennsylvania Historical and Museum Commission site
Poplar Grove, State Game Lands No. 156	1,561.9	South Lebanon Township and Cornwall Borough	Located in Lebanon & Lancaster Counties. Rexmont Dam is located here with wooded land accessible from Rte. 322. Some deer and all types of small game.
ELCO School District			
Middle Creek Wildlife Management Area, State Game Lands No. 46	1,123.3	Heidelberg Township	Located in Lebanon & Lancaster Counties. Highly developed waterfowl and small game area with lake and nature center. Opportunities for fishing, picnicking, hiking and nature study. Regionally significant bird watching facility. Wooded areas provide grouse, squirrel and deer habitat.
State Game Lands No. 225	299.4	Millcreek Township	Wooded land providing habitat primarily for deer, rabbits and squirrel
Palmyra Area School District			
Colebrook, State Game Lands No. 145	2,895.2	South Londonderry Township	Highly developed open areas interspersed with woodlots. Deer, pheasants, grouse and rabbits prevalent.
Total in County	**30,736.8**		

* Comments compiled from interviews and agency publications.

Lebanon County Parks

Lebanon County holds full or partial ownership in three parks and approximately 12.5 miles of the Lebanon Valley Rail Trail corridor. These sites offer opportunities for passive recreation and historic interpretation.

Monument Park is wholly owned by Lebanon County and occupies a city block at 8th and Lehman Streets in the City of Lebanon. The park contains a monument dedicated to the memory of Lebanon County Civil War veterans.

The Union Canal Tunnel Park is located in North Lebanon Township, just west of the City of Lebanon and offers opportunities for walking, picnicking, and interpretation of the 600 foot long Union Canal Tunnel, a National Historic Landmark and a National Historic Civil Engineering Landmark. The Union Canal was built to connect the Philadelphia area with the Susquehanna Valley via a man-made canal from the Schuylkill River in Reading, Berks County, to the Susquehanna River in Middletown, Dauphin County. The park occupies 109.1 acres; Lebanon County owns 33.7 acres and the Lebanon County Historical Society owns the remaining 75.4 acres. The Historical Society manages the entire property.

The Clarence Schock Memorial Park at Governor Dick is located on South Mountain in West Cornwall Township. Lebanon County and the SICO Foundation are co-trustees of the park. The Governor Dick Board of Directors manages the park. This park provides an extensive forested natural area for hiking and nature study. An observation tower provides views of a five county area. A newly constructed Environmental Education Center provides a home for environmental education programming and hosts group activities.

The Lebanon Valley Rail Trail is discussed in detail in the Greenways and Trails section of the profile, though it is worthy to note here that a spur to the Lebanon Valley Rail Trail is being explored to connect the trail to the Governor Dick Environmental Education Center.

Table 5-4 Lebanon County Parks, 2006

County Park	Total Area (Acres)	Municipality / School District Location	Description
Monument Park	2.0	Lebanon City / Lebanon SD	A small urban park located in the City of Lebanon. A monument in the memory of Lebanon County's Civil War veterans.
Union Canal Tunnel Park	109.10	North Lebanon Township / Cornwall-Lebanon SD	The tunnel is designated as a National Historic Landmark and is the oldest existing transportation tunnel in the U.S. Park ownership is shared between Lebanon County and The Lebanon County Historic Society.
Lebanon Valley Rail Trail	12.5 Mile Length, 46.6 acres	Cornwall Borough, W. Cornwall Township, S. Londonderry Township / Cornwall-Lebanon SD	Converted rail line between the Lancaster Lebanon County boundary to Zinns Mill Road in Cornwall Borough.
Clarence Schock Memorial Park at Governor Dick	1,079.0	West Cornwall Township / Cornwall-Lebanon SD	The property is a wooded natural area with an environmental education center, hiking trail, and observation tower. Lebanon County is a co-trustee of the park with the SICO Foundation.
County Total	**1,236.7**		

Source: Lebanon County Planning Department; interviews with park operators/managers

Municipal Parks in Lebanon County

Twenty of the 26 municipalities of Lebanon County have one or more municipal parks. These range from traditional community parks such as Levitz Park in East Hanover Township and neighborhood parks like Ebenezer Park in North Lebanon Township, to small playgrounds like Jackson Heights Playground in Jackson Township and natural areas like the Quittie Creek Nature Park in Annville Township. The inventory of municipal parks shown in Table 5-5 classifies each park by type based on the Lebanon County Park and Recreation Land Classification System: Community Parks of 25 acres or more, Neighborhood Parks of between 5 and 15 acres, Mini-Parks of less than five acres, and Natural Resource Areas/Others

for nature parks and undeveloped park and recreation lands. Parks with acreage between 15 and 25 acres are generally categorized by use; if the park is used as a community park, it is classified as such, even though the acreage may fall below the 25 acres defining a community park.

Table 5-5 Municipal Parks in Lebanon County

Municipality	Community Park (acres)	Neighborhood Park (acres)	Mini-park (acres)	Natural Resource Area / Other (acres)	Total Area (Acres)
Annville-Cleona School District					
Annville Township				Quittie Creek Nature Park (23.1)	23.1
Cleona Borough		Cleona Community Park (15.0)			15.0
North Annville Township					0.0
South Annville Township					0.0
Total Acres	**0**	**15.0**	**0**	**23.1**	**38.1**
Cornwall-Lebanon School District					
Cornwall Borough		Miner's Village Field (5.7), Bus Garage Football Field (2.0)*	Harold Basehore Memorial Field (4.4), Cornwall Borough Municipal Park (2.9)		15.0
Mt. Gretna Borough					0.0
North Cornwall Township	City of Lebanon Authority Fields (30.0 leased from the City of Lebanon)		Pleasant Hill Playground (0.3)	Undeveloped parcel (Oak St.) (20.2)	50.5
North Lebanon Township	Lion's Lake Park (34.9), Community Park (17.0)	Ebenezer Park (9.5)		Moyer Tract – undeveloped (28.4)	89.8
South Lebanon Township	South Hills Park (100.1 acres)		Avon Memorial Park (3.9)	Quittapahilla Educational Wetlands Preserve (7.0), undeveloped parcel (1.0)	112.0
West Cornwall Township			Quentin Tot Lot (0.3)		0.3
Total Acres	**182.0**	**17.2**	**11.8**	**49.6**	**267.6**
Eastern Lebanon County School District					
Heidelberg Township		Heidelberg Township Park (8.7)			8.7
Jackson Township			Grumbine Field (1.8),Jackson Heights Meadows Playground (2.0)	Lakeside Recreation Area (20.8), Future Jackson Recreation Area (34.8)	59.4
Millcreek Township		Millcreek Township Park (8.3), Newburg Recreation Area (14.4)	Millcreek War Memorial Park (1.6)		24.3
Myerstown Borough	Myerstown Borough Park (26.6)				26.6
Richland Borough			Dr. E.O. Moehlmann Field (2.6)		2.6
Total Acres	**26.6**	**31.4**	**8.0**	**55.6**	**121.6**

Municipality	Community Park (acres)	Neighborhood Park (acres)	Mini-park (acres)	Natural Resource Area / Other (acres)	Total Area (Acres)
Lebanon School District					
Lebanon City	Coleman Memorial Park (104.2), Stover's Dam Park (148.9), located in North Lebanon Township) Northeast Park (24.5), Southwest Park (26.5)	Skateboard Park (5.8),	Fishers Park (0.9), Veteran's Walkway (7.1), Beautex Park (4.2), Meadowbank Park (1.7), Tot lots (0.3), East End Playground (0.9), Southeast Playground (1.6), Progressive Playground (0.4)		327
West Lebanon Township		Henry Arnold Recreational Area (7.8)			7.8
Total Acres	**304.1**	**13.6**	**17.1**	**0**	**334.8**
Northern Lebanon School District					
Bethel Township		Bethel Township's Lions Park and Pool (10.3)			10.3
Cold Spring Township					0.0
East Hanover Township	H.M. Levitz Memorial Park (104.9)				104.9
Jonestown Borough	Jonestown Community Park (16.6)				16.6
Swatara Township				Undeveloped Township Parcel (7.0), undeveloped Blatt tract (13.0)	20.0.0
Union Township					0.0
Total Acres	**121.5**	**10.3**	**0**	**20**	**151.8**
Palmyra Area School District					
North Londonderry Township					0.0
Palmyra Borough		Southeast Family Park (8.5), Palmyra Borough Fireman's Park (8.0)	Heritage Park (0.9), Town Square (0.1)		26.5
South Londonderry Township		Lawn Community Park (2.4), Thistledown (3.1)	Londonderry Village (0.8), Colebrook Park (0.6), Country Squire Estates Park (1.0), Phillipy Park (1.2)	Kreider Glen Wetland (1.0 acres)	10.1
Total Acres	**0**	**22.0**	**4.6**	**1.0**	**36.6**
County Total Parks	**11.0**	**14.0**	**23.0**	**9.0**	**57.0**
County Total Acres	**634.2**	**109.5**	**41.5**	**149.3**	**934.5**

*approximate acreage

Other Park and Recreation Lands in Lebanon County

There are many quasi-public and private park and recreation lands in Lebanon County. Tables 5-6 through 5-9 list private parks, campgrounds, golf courses, and fish and gun club lands. These sites offer specialized recreation opportunities that, in many cases, supplement public recreation facilities. This is particularly true of the private parks owned and maintained by fire companies, American Legions or other community-based groups, while campgrounds, fish and gun clubs, and golf courses, are typically member-based or commercial (for-fee) operations.

Table 5-6 Private Parks in Lebanon County, 2006

Private Parks	Total Area (Acres)	Municipality	Ownership
Annville-Cleona School District			
Annville Cleona Community Park	14.5	Annville Township	Annville Cleona Recreation Assoc. and the American Legion
Lebanon Valley College Ball Fields	89.1	Annville Township	Township leases fields from Lebanon Valley College
Waterworks Park	6.6	North Annville Township	Union Water Works Fire Company
Total	110.2		
Cornwall-Lebanon School District			
Rexmont Fire Company Playground	3.1	Cornwall Borough	Community Fire Company
Mt. Gretna Men's Club	6.0	Mt. Gretna Borough	Mt. Gretna Men's Club
Chautauqua Playground	1.0 +/-	Mt. Gretna Borough	Pa. Chautauqua Assoc.
Neversink Fire Company Park	1.2	North Cornwall Township	Neversink Fire Company
Ebenezer Fire Company Park	1.7	North Lebanon Township	Ebenezer Fire Company
Fifth Ward Athletic Club Park	5.2	North Lebanon Township	Fifth Ward Athletic Club
Union Canal Tunnel Park	75.4	North Lebanon Township	Lebanon County Historical Society & County of Lebanon
South Lebanon Lions Club Park	4.3	South Lebanon Township	Lions Club of South Lebanon
Prescott Field	15.6	South Lebanon Township	Prescott Community Fire Company
AES Ironwood Corp.'s Avon Sports Center	10.3	South Lebanon Township	AES Ironwood Foundation
Quentin United Church of Christ's Power Park	11.1	West Cornwall Township	Quentin United Church of Christ
Valley Beach Club, Inc.'s Park	5.1	West Cornwall Township	Valley Beach Club Inc.
Total	140.0		
Eastern Lebanon County School District			
Fountain Park	4.2	Heidelberg Township	Friends of the Park Group's Fountain Park
Schaefferstown Fireman's Park	13.4	Heidelberg Township	Volunteer Fire Co 1
Willow Springs Park	46.4	Jackson Township	John Stokes
Newburg Village Park	14.0	Millcreek Township	Peter Shirk
Newmanstown Athletic Association Park	5.2	Millcreek Township	Newmanstown Athletic Association
Myerstown American Legion Park	1.8	Myerstown Borough	James Litschi
Memorial Park	10.2	Richland Borough	Neptune Fire Co.
Richland Borough Community Swimming Pool	4.0	Richland Borough	Richland Community Swimming
Richland American Legion Park	5.5	Richland Borough	American Legion Post 880
Total	104.7		
Lebanon School District			
None			
Northern Lebanon School District			
Fredericksburg Fireman's Park	16.9	Bethel Township	Fredericksburg Fireman's Park Association
American Legion Ball Field	2.0+/-	Bethel Township	American Legion Home
Total	18.9		

Private Parks	Total Area (Acres)	Municipality	Ownership
Palmyra Area School District			
Palmyra Community Pool	10.4	North Londonderry Township	Palmyra Area Recreation and Park Commission
Palmyra Bologna Company Park	5.5	Palmyra Borough	Palmyra Bologna Co.
Campbelltown Fireman's Park	16.3	South Londonderry Township	Campbelltown Volunteer Fire Co.
Conewago Lake	149.8	South Londonderry Township	Eastern Enterprises Inc.
Horseshoe Trail (acreage as 19.4 mile corridor estimated at 25' wide)	58.79	South Londonderry, South Annville, West Cornwall Townships and Cornwall Borough	Created and Managed by the Horseshoe Trail Club
Lawn Fire Company Playground	12.1	South Londonderry Township	Lawn Fire Company
Total	252.89		

Table 5-7 Golf Courses in Lebanon County, 2006

Golf Course	Total Area (Acres)	Municipality	Ownership
Annville-Cleona School District			
None			
Cornwall-Lebanon School District			
Iron Valley Golf Course	304.4	Cornwall Borough	Byler Management Co. LLC
Royal Oaks Golf Course	153.9	North Cornwall Township	ROGC Golf Partners LP
Lebanon Country Club	147.3	North Cornwall Township	Lebanon Country Club
Fairview Golf Course	168.3	West Cornwall Township	Fairview Golf Course Inc.
Eastern Lebanon County School District			
Lebanon Valley Golf Course	118.5	Jackson Township	Lebanon Valley Golf Club, Inc.
Lebanon School District			
None			
Northern Lebanon School District			
Pine Meadows Golf Course	70.1	Bethel Township	Larry Rabold
Blue Mountain View Country Club	140.7	Bethel Township	Lebanon Valley Golf Club Inc.
Freeport Mills Golf Course	63.2	Bethel Township	James Schock
Monroe Valley Golf Club	153.1	Swatara Township	Monroe Valley Golf Club
Palmyra Area School District			
None			

Table 5-8 Campgrounds in Lebanon County, 2006

Campground Facility	Total Area (Acres)	Municipality	Ownership
Annville-Cleona School District			
Thousand Trails Campgrounds PCOA #2467	190.5	South Annville Township	Thousand Trails Inc.
Cornwall-Lebanon School District			
Penryn Park YMCA Camp	112.8	Cornwall Borough	Lancaster Family YMCA
Mt. Lebanon Camp Meeting	21.6	North Lebanon Township	Mt. Lebanon Camp Meeting Association
UMC Gretna Glen Camp	215.1	West Cornwall Township	Eastern PA Conference
Eastern Lebanon County School District			
Camp J. Edward Mack Scout Reservation, BSA	211.0	Heidelberg Township	Lancaster County Council, BSA
Shady Oaks Campgrounds PCOA #2432	22.6	Millcreek Township	Lewis McNally
Eagles Peak Family Camping Resort PCOA #2128	79.2	Millcreek Township	E/P Campground Inc.
Lebanon School District			
None			
Northern Lebanon School District			
Baptist Churches Camp Area	68.9	Bethel Township	Central Baptist Association
Camp Carson	343.3	Bethel Township	Alletta Schadler
Camp Strause	69.8	Bethel Township	Joint ownership of Lake Strause Inc. & Camp Strause Fire Co
Camp Greble	9.8	Bethel Township	Vincent Althouse
Kenbrook Bible Camp	65.7	Swatara Township	Atlantic Conference
Jonestown KOA Campground	24.8	Swatara Township	Jonathan Bacon
Lickdale Campground PCOA #2246	25.1	Union Township	Kyle Boltz
Twin Grove Park Campground, KOA Camp	33.2	Union Township	Conestoga Log Cabin
Camp Bashore BSA	405.3	Union Township	Lancaster Lebanon Council
Palmyra Area School District			
Camp Seltzer	6.8	North Londonderry Township	First UB Church in Christ
Camp Kirchenwald	342.9	South Londonderry Township	Lutheran Camping Corporation

Table 5-9 Fish and Game Clubs in Lebanon County, 2006

Fish and Game Clubs	Total Area (Acres)	Municipality	Ownership
Annville-Cleona School District			
C.B. Sportsmen's Club	11.5	North Annville Township	CB Sportsmen's Club
Quittapahilla Rod and Gun Club	22.6	South Annville Township	Quittapahilla Rod and Gun Club
Cornwall-Lebanon School District			
'R' Field and Stream	16.9	North Lebanon Township	R' Field and Stream Association
Tulpehocken Fishing Club	6.1	North Lebanon Township	Tulpehocken Fishing Club
Quentin Riding Club	61.8	West Cornwall Township	Quentin Riding Club
Willow Spring Farm Trout Hatchery	102.7	West Cornwall Township	Clifford Good
Eastern Lebanon County School District			
Heidelberg Sportsmen's Club	26.6	Heidelberg Township	Heidelberg Sportsmen's Club
Limestone Springs Trout Hatchery	36.1	Jackson Township	Tulpehocken Parsonage
Myerstown Rod and Gun Club	77.6	Jackson Township	Myerstown Rod and Gun Association
Millcreek Rod and Gun Club	100.7	Millcreek Township	Millcreek Rod and Gun Club
Arrowhead Springs Trout Hatchery	97.6	Millcreek Township	Edmund, Darlene and Michael Ludwig
Lebanon School District			
None			
Northern Lebanon School District			
Kittatinny Hunting and Fishing Club	119.8	Bethel Township	Kittatinny Hunting and Fishing Club
Lebanon Beagle Club	209.2	Bethel Township	Lebanon County Beagle Club Inc.
Sweet Arrow Rod and Gun Club	0.7	Bethel Township	Sweet Arrow Rod and Gun Club
Jonestown Fish and Game	15.2	Swatara Township	Jonestown Fish and Game
Izaak Walton League of America	39.5	Union Township	Izaak Walton League
Yellow Springs Hunting Club	14.3	Union Township	Yellow Springs Hunting Club
Palmyra Area School District			
Palmyra Sportsman's Club	138.7	North Londonderry Township	Palmyra Sportsman's Association
Delches Fishing Club	73.8	South Londonderry Township	Delches Fishing Club
Hempfield Farmers' and Sportsmen's Club	38.7	South Londonderry Township	Hempfield Farmers' and Sportsmen's Club

Public School and College Recreation Lands in Lebanon County

The six public school districts in Lebanon County all have lands dedicated to recreation purposes, as does Lebanon Valley College. Typically, school acreage is not included in the assessment of public recreation lands, as the first priority for school facilities is school district-related activities whereby public access is often limited. However, school and campus land acreage can be significant and recreational facilities that are available even on a limited basis do supplement public recreation opportunities, especially in rural areas. Table 5-10, School and College Recreation Lands, inventories school and college properties and their total acreage, inclusive of the buildings, parking, and recreation facilities.

Table 5-10 School and College Recreation Lands in Lebanon County, 2006

School Facility	Total Area (Acres)	Municipality
Annville-Cleona School District		
Annville-Cleona Secondary School	76.0	South Annville Township
Annville Elementary School	7.7	Annville Township
North Annville Elementary School	11.6	North Annville Township
Cleona Elementary School	10.7	Cleona Borough
Lebanon Valley College Campus and Lands	119.6	Annville Township
Cornwall-Lebanon School District		
Cedar Crest High School and Middle School	92.8	South Lebanon Township
Cornwall Elementary School	22.7	Cornwall Borough
Ebenezer Elementary School	23.1	North Lebanon Township
South Lebanon Elementary School	38.1	South Lebanon Township
Union Canal Elementary School	15.2	North Lebanon Township
Eastern Lebanon County School District		
Eastern Lebanon County High School and Middle School	99.5	Jackson Township
Fort Zeller Elementary School	27.3	Millcreek Township
Jackson Elementary School	12.0	Jackson Township
Myerstown Elementary School	2.8	Myerstown Borough
Schaefferstown Elementary School	5.4	Heidelberg Township
Lebanon School District		
Lebanon High School	40.1	Lebanon City
Lebanon Middle School	10.9	Lebanon City
Harding Elementary School	1.8	Lebanon City
Henry Houck Elementary School	1,9	Lebanon City
Northwest Elementary School	3.5	Lebanon City
Southeast Elementary School	9.1	Lebanon City
Southwest Elementary School	13.5	Lebanon City
Northern Lebanon School District		
Northern Lebanon High School	71.1	Bethel Township
Northern Lebanon Middle School	48.7	Bethel Township
East Hanover Elementary School	8.7	East Hanover Township
Fredericksburg Elementary School	5.5	Bethel Township
Jonestown Elementary School	5.3	Jonestown Borough
Lickdale Elementary School	9.5	Union Township
Palmyra Area School District		
Palmyra Area High School	41.6	North Londonderry Township
Palmyra Area Middle School	21.8	Palmyra Borough
Forge Road Elementary School	13.2	Palmyra Borough
Pine Street Elementary	9.9	Palmyra Borough
Northside Elementary School	12.9	Palmyra Borough

Analysis of Parkland

Amount of Parkland

Based on local land ownership, Lebanon County and its municipalities have 970.2 acres of local active public parkland distributed among 57 municipal park sites and two county parks. This equates to 8.06 acres of parkland per 1,000 residents based on the 2000 U.S. census population count of 120,327.

This type of population-based analysis is typically used to evaluate the amount of local active public parkland. State parklands and game lands, as well as local passive parks, greenways and trails, and nature preserves, are not included in this kind of analysis because their size is based primarily on the amount of land needed to conserve the resources and secondarily on the needs for public access and recreational activities. Therefore, the state parks and game lands (totaling 30,736.8 acres), the Lebanon Valley Rail Trail (46.6 acres) and the Clarence Schock Memorial Park at Governor Dick (1,079.0 acres) are not included in the analysis above. Furthermore, if the municipal park land categorized as Natural Resource Area / Other (totaling 9.0 acres) is segregated from this analysis, there are 820.9 acres of active public parkland or approximately 6.82 acres per 1,000 residents provided throughout Lebanon County.

Parkland Standards

In 1983, the National Recreation and Park Association (NRPA) published standards and guidelines for parks and recreation services. In its classification system, NRPA outlines a range of traditional parks and recreation areas, as well as special purpose facilities, such as historic parks, waterfront parks, riverwalk parks, athletic parks, cultural parks, aquatic parks, etc. It notes that the diversity of park types offers a wide range of recreation environments, but that the provision of basic park and recreation areas is most important; other types supplement and enhance recreational opportunities for special interests. In addition, "geographic location, demographics, economic base, and history are important variables that influence the availability of resource patterns" to meet recreation needs. Yet, these should not outweigh the primary need to provide basic recreation opportunities. Furthermore, a community should have a number of different types of parks - not a single large park - that together meet standards for acreage and diversity of recreational opportunities.

With this background, NRPA recommended that "a park system, at a minimum, be composed of a core system of parklands, with a total of 6.25 to 10.5 acres of developed open space per 1,000 population." This core system would be comprised of traditional mini-parks, neighborhood parks, community parks, regional parks, and regional park reserves. "The size and amount (number) of "adjunct" (or special use) parks would vary from community to community" but must be considered when accounting for the total of all park and recreation areas. Since its publication, this standard has been widely interpreted by community and recreation planners as 10 acres per 1,000 population.

In 1996, NRPA updated its standards and guidelines. It attempted to present a more community-based approach to determining the appropriate acreage for parkland and diversity of recreational opportunities. While many communities recognized the flexibility in this approach, others longed for a simple standard. Reluctantly, the editors published a standard of 10 acres per 1,000 population, noting that this should be starting point for community discussion of parkland needs. Some communities rich in resources (natural and historic, as well as staff and volunteer) may find that a much higher acreage meets their needs for parkland and open space. Other communities with fewer resources may determine that a lower figure is suitable. Due to Lebanon County's abundant, high quality natural and cultural resources, the higher end of the original parkland standard, 10.5 acres per population, is noted here as the minimum parkland standard for the purposes of this analysis. Further consideration of the parkland standard will be given in the recreation profile and plan.

NRPA Park, Recreation, and Open Space Guidelines 1983; Revised, 1996

Lebanon County has no park and recreation land standard, however using this formula to establish one would provide the basis for acquiring additional parkland for current and future residents. The land standard could range from the minimum standard of 10.5 acres per thousand residents used widely over the past three decades to a standard of 15 acres or more per thousand residents. This standard should recognize the availability of suitable lands for active recreation sites, the trends in recreation participation witnessed over the past 30 years, and the needs and desires of Lebanon County residents for recreation opportunities.

Table 5-11 Parkland Acreage Standard Analysis

Year	Lebanon County Population Projections	Parkland Required @ 10.5 Acre Standard	Parkland Deficit @ 10.5 Acre Standard	Parkland Required @ 15 Acre Standard	Parkland Deficit @ 15 Acre Standard
2000	120,327	1,263	442	1,805	984
2010	130,682	1,372	553	1,960	1,139
2020	140,075	1,471	650	2,101	1,280

Table 5-11 shows that per the 10.5 acre standard, Lebanon County should have had approximately 1,263 acres of active public park and recreation land available for residents in 2000. The current active recreation acreage of approximately 821acres results in a deficit of 442 acres of active public parkland throughout the county. If no additional lands are acquired, the deficit of park and recreation land throughout the county will grow as the county's population grows. Population projections for 2020 suggest that there should be 1,471 acres of park and recreation land based on a 10.5 acre standard, and 2,101 acres based on a 15 acre standard; an additional 650 acres and 1,280 acres respectively, of park and recreation land would need to be acquired to provide adequate park and recreation lands.

This real value in selecting this standard is revealed when the cost of land is factored into the equation. At $30,000 per acre, the value of 650 acres (the 10.5 acre standard) is $ 19,500,000 and the value of 1,280 acres (the 15 acre standard) is $38,400,000 - a difference of $18,900,000 considered either a cost savings or a revenue source for local recreation.

Suitability of Lands for Parkland

All land set aside for recreation should be suitable to serve the purpose of the recreation needs. The size, shape, location, and topography, as well as other criteria the community may define, should be evaluated by the local parks and recreation board, elected officials, and if in conjunction with Lebanon County, with county planners.

Local communities could identify the major vacant parcels in their community and evaluate them according to criteria that the community develops for recreation land. The municipality could use these evaluations when the jurisdiction moves ahead with acquiring parkland through outright purchase, mandatory dedication of parkland, conservation by design land planning or other techniques.

Mandatory Dedication of Parkland

One mechanism that many municipalities use to ensure that future residents have adequate park and recreation opportunities is mandatory dedication. The Mandatory Dedication of Parkland provision in the Pennsylvania Municipalities Planning Code (MPC)(Article V, Section 503(11)) allows a municipality to require developers to dedicate open space within proposed developments for public recreational purposes. As an alternative, and if the municipality and the developer agree, the proposed development may accomplish one or more of the following in place of public land dedication: 1) construct recreational facilities, 2) pay fees in place of land dedication, or 3) reserve land in private ownership.

It should be noted that it is not legal to use mandatory dedication to make up for past or current deficiencies in park and recreation land for the existing residents. A municipality's future need for parkland and recreation facilities depends on future population growth. The MPC recognizes that it would be unfair to place the burden of meeting past and current recreational needs on new development and therefore requires "a reasonable relationship" between the land to be dedicated or the fees to be paid and the recreation needs of future inhabitants of the development.

Municipalities Planning Code Article V Section 503 (11)

(11) Provisions requiring the public dedication of land suitable for the use intended; and, upon agreement with the applicant or developer, the construction of recreational facilities, the payment of fees in lieu thereof, the private reservation of the land, or a combination, for park or recreation purposes as a condition precedent to final plan approval, provided that:

(i) The provisions of this paragraph shall not apply to any plan application, whether preliminary or final, pending at the time of enactment of such provisions.

(ii) The ordinance includes definite standards for determining the proportion of a development to be dedicated and the amount of any fee to be paid in lieu thereof.

(iii) The land or fees, or combination thereof, are to be used only for the purpose of providing park or recreational facilities accessible to the development.

(iv) The governing body has a formally adopted recreation plan, and the park and recreational facilities are in accordance with definite principles and standards contained in the subdivision and land development ordinance.

(v) The amount and location of land to be dedicated or the fees to be paid shall bear a reasonable relationship to the use of the park and recreational facilities by future inhabitants of the development or subdivision.

(vi) A fee authorized under this subsection shall, upon its receipt by a municipality, be deposited in an interest-bearing account, clearly identifying the specific recreation facilities for which the fee was received. Interest earned on such accounts shall become funds of that account. Funds from such accounts shall be expended only in properly allocable portions of the cost incurred to construct the specific recreation facilities for which the funds were collected.

(vii) Upon request of any person who paid any fee under this subsection, the municipality shall refund such fee, plus interest accumulated thereon from the date of payment, if the municipality had failed to utilize the fee paid for the purposes set forth in this section within three years from the date such fee was paid.

(viii) No municipality shall have the power to require the construction of recreational facilities or the dedication of land, or fees in lieu thereof or private reservation except as may be provided by statute.

In order to impose this requirement, the municipality must comply with the following standards:

1. The ordinance must include “definitive standards” for amounts of land or fees to be dedicated. The generally accepted standards are those set forth through the recreation planning process identified by the National Recreation and Park Association. For over 30 years, these standards equated to a minimum of 10.5 acres per 1,000 residents. Since then, many trends in parks and recreation have occurred that merit consideration of raising this standard including new sports emerging such as soccer, lacrosse and field hockey; sports moving from one traditional season to year round play; more girls playing; people playing at younger and older ages, and a healthy aging population who are more involved in active lifestyles. In 1996, the NRPA updated the recreation planning process to encourage municipalities to plan for a standard that meets the true community need. In other words, recreation planning should respond to the local needs for specific types of recreation facilities based on the interest and well-being of residents, not just the land required for “all-purpose” play. Therefore fees and other alternatives to land dedication should respond to these local needs.
2. The land or fees shall only be used to provide facilities “accessible” to the development.
3. There must be an adopted recreation plan.
4. The amount and location of land or fees must bear a “reasonable relationship” to the use of facilities by future inhabitants.
5. Fees from each development shall be designated for specific recreation facilities and shall only be spent for those facilities.
6. If the municipality does not use the fees within three years after they are paid, the person who paid the fees may, upon request, receive a refund including interest earned.
7. The municipality cannot require the dedication of land, fees, or facilities except in accordance with these standards.

Generally these standards are met through these three actions:

1. Adoption of a recreation plan that establishes open space standards and park service areas, identifies areas in need of open space and includes a capital improvement program.
2. Adoption of a mandatory dedication ordinance that contains definite standards for determining the portion of a development to be dedicated and the amount of any fee to be paid in lieu of land.
3. Creation of a separate interest bearing account for the placement of any collected fees.

Mandatory Dedication of Parkland for Commercial Development

The PA MPC does not distinguish between residential development and other types of development with regard to mandatory dedication. While most municipalities enforce their mandatory dedication requirement only on residential land development submissions, many municipalities in Pennsylvania have been enacting mandatory dedication of parkland ordinances for commercial development as well. This has resulted in the generation of significant lands and revenues for parkland and recreation facilities in these communities. For example, South Londonderry Township in Chester County has generated nearly $200,000 in fees-in-lieu from non-residential development since 2005.

The Cost Savings of Mandatory Dedication

If every jurisdiction were to adopt a mandatory dedication ordinance with this standard, the jurisdictions of Lebanon County would be able to add a minimum of 207 acres of parkland by 2020 at virtually no cost.

Mandatory Dedication in Lebanon County Municipalities

Few Lebanon County municipalities are taking advantage of their authority to require the dedication of land during the land development process. Ten municipalities in Lebanon County have mandatory dedication provisions in their ordinances; the remaining 16 municipalities have no provisions for recreation or open space land dedication. Municipalities with adopted provisions are shown in Table 5-12.

Location and Service Areas of Active Public Parkland

The Lebanon County Recreation Lands and Service Areas Map illustrates the locations of public and private parkland in Lebanon County. In conjunction with the inventory tables, the map reveals that park and recreation land is not evenly distributed by location or by type throughout the county. Expansive, contiguous areas of protected recreation land are located in the northern portion of county and significant but smaller areas of protected recreation lands across South Mountain. Relatively small municipal park, private park and school parcels are scattered throughout the central valley.

There are eleven community parks, 14 neighborhood parks and 23 mini-parks across 20 of the county's 26 municipalities. The eleven community parks in the county are concentrated in seven communities. These parks are predominantly clustered in and around the City of Lebanon, though East Hanover Township and Jonestown and Myerstown Boroughs also have community parks. Based on the two mile service area for community parks, most county residents are underserved by community parkland that provides traditional active recreation facilities and activity areas.

The 14 neighborhood parks are found in 10 municipalities. Each school district region contains at least one and at most four neighborhood parks; however, based on a ½-mile service area for neighborhood parks, county residents are also underserved by neighborhood parks that provide close-to-home parkland.

The 23 mini parks are located in 10 municipalities. The Annville-Cleona and Northern Lebanon School Districts have no mini parks. With a ¼-mile service radius, these mini parks help fill the gap in close-to-home parkland, though large areas of the county are still underserved.

The nine natural resource areas or other parklands are found in seven municipalities; only the Lebanon School District has no natural resource areas, though it has the most total park and recreation acreage. These resource areas are not classified as active parkland since they are resource-based or undeveloped at present.

Table 5-12 Lebanon County Municipalities with Mandatory Dedication Provisions

Municipality	Land Area Requirement	Fee-In-Lieu Option
Annville-Cleona School District		
Annville	(Fee only)	$175 per dwelling unit[1]
Cornwall-Lebanon School District		
Cornwall	0.029 acres/dwelling unit	Fee – equivalent to fair market values of equivalent land as developed or improved property
N. Cornwall	0.029 acres/dwelling unit	Fee – based on number and market value of lots in development for single family developments, and on number units and number of bedrooms per unit for multi-family development
N. Lebanon	(Fee only)	$1,250 per residential lot
S. Lebanon	0.025 acres/dwelling unit	$1,225 per residential lot
ELCO School District		
Jackson	0.029 acres/dwelling unit	Fee – equivalent to fair market values of equivalent land as developed or improved property
Northern Lebanon School District		
Bethel	0.06 acres per dwelling unit	Fee – equivalent to the value of the lots or land being developed.
Swatara	0.054 acres/dwelling unit	$750 per residential lot
Union	0.051 acres/dwelling unit	Fee – based on proportional fair market value of land; or $750 per residential lot if no appraisal is available; 3% for non-residential development
Palmyra Area School District		
South Londonderry	Units in Sub-Division	Land to be dedicated for recreation/open space
	1-2	None
	3-4	.25 acre -.99
	25-50	1 acre
	51-150	3 acres
	151-300	6 acres
	301-450	9 acres
	451-600	12 acres
	each additional 150 units	3 acres
	Multi-family developments	1,000 sq. ft per dwelling unit;. 5,000 sq. ft. minimum
		$1,200 per single family attached or detached dwelling unit to be adjusted annually. For multi-family dwelling developments, the developer shall provide land with recreational improvements which shall be maintained by the land owner for recreation.

Source: Lebanon County Planning Department

Six municipalities have no municipal parks: Mount Gretna Borough and South Annville, North Londonderry, North Annville, Cold Spring, and Union Townships. Cold Spring, and Union Townships have State Game Lands or State Parks within their borders, though these recreation lands serve vastly different recreation and open space purposes from municipal parks.

Recreation Facilities

Recreation facilities are the fields, courts, and playground equipment that recreation participants require. These facilities should be provided across the community to meet the local needs and demands of individuals, families, community groups, and organized adult and youth leagues. These needs and demands should be based on need, as defined by current facility usage, and should consider local and regional trends in recreation and leisure activities. Table 5-13 provides the facility inventory for Lebanon County municipal parks.

Table 5-13 Municipal Park Facility Inventory

Municipality	Multi-purpose Field	Football Field	Baseball or Softball Field	Basketball Courts	Tennis Courts	Volleyball Courts	Swimming Pool	Playground
Annville-Cleona School District								
Annville Township								
Cleona Borough			1	1	1			1
North Annville Township								
South Annville Township								
Totals	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**1**
Cornwall-Lebanon School District								
Cornwall Borough		1	3		2			1
Mt. Gretna Borough								
North Cornwall Township	2		2					1
North Lebanon Township	5		7	2	1	1		3
South Lebanon Township	1	1	5	4	4	2		2
West Cornwall Township								1
Totals	**8**	**2**	**17**	**6**	**7**	**3**	**0**	**8**
ELCO School District								
Heidelberg Township	1		2					
Jackson Township	2		4		1			1
Millcreek Township	1		2	1		1		1
Myerstown Borough		1	1	2	4		1	1
Richland Borough			1	1				1
Totals	**4**	**1**	**10**	**4**	**5**	**1**	**1**	**4**
Lebanon School District								
City of Lebanon			13	6	14	1	2	7
West Lebanon Township			1			1		
Totals	**0**	**0**	**14**	**6**	**14**	**2**	**2**	**7**
Northern Lebanon School District								
Bethel Township			1	1			1	
Cold Springs Township								
East Hanover Township			1		2	1		1
Jonestown Borough			3	2	1	1		1
Swatara Township								
Union Township								
Totals	**0**	**0**	**5**	**3**	**3**	**2**	**1**	**2**
Palmyra Area School District								
Palmyra Borough	2	1	3	1				3
North Londonderry Township								
South Londonderry Township	2		1	1	2	1		5
Totals	**4**	**1**	**4**	**2**	**2**	**1**	**0**	**8**
County Totals	**16**	**4**	**51**	**22**	**32**	**9**	**4**	**30**

Recreation Trends

Recreation, the way we spend our leisure time and the activities we enjoy, has changed dramatically over the past several decades. New trends have emerged and factors have changed the number and type of the parks and recreation facilities that we need in our communities today. Consider the broad trends:

- People are living longer and remaining active longer.
- Persons with disabilities are to have full access to public programs, including recreation.
- Participation rates for females in athletics are increasing.
- Sports participation is increasing dramatically.
- Soccer has emerged as a ubiquitous sport.
- The decline of the rail industry and increase in recreation birthed the rail-to-trail movement.
- Interest in outdoor, nature-based recreation has increased.
- Despite increasing participation in recreation, new sports and activities, and a broadening of the participation base, obesity and the lack of physical activity in the United States is at an all-time high as cited in U.S. Surgeon General report entitled "Physical Activity and Health".

In Lebanon County, specific trends are influencing citizens' leisure time and their demands placed on parks and recreation facilities. The following local trends have emerged as part of the analysis of Lebanon County's parks and recreation facilities:

- First and foremost Lebanon County's quality of life attributes and the quality environment are attracting growth to the county.
- New sports are emerging that required specialized facilities. These include in-line hockey, skateboarding, and lacrosse.
- Expanding sports seasons and high use demands do not allow the overlapping use of facilities. Dedicated fields for individual sports enable multi-season play, provide higher quality field conditions, reduce maintenance requirements, and deter conflicts among leagues for different sports.
- More recreation facilities are needed to meet the demands of the organized sports groups.
- Development is transforming open spaces to more intensive uses with little conservation of land for recreational purposes.
- Citizens desire close-to-home recreation opportunities to reduce driving for activities.
- The growing population of senior adults is more active than ever. Facilities and activity areas are needed that provide opportunities for fitness and wellness activities. Lifetime recreation activities such as golf, tennis, walking, and bicycling will have sustained popularity.
- Trails are popular among all age groups. Citizens and visitors are interested in walking and bicycling opportunities throughout the county, particularly on the Lebanon Valley Rail Trail.
- In addition to hiking, other nature-based recreation activities are growing in popularity such as birding and geocaching.
- Safe non-motorized linkages from neighborhoods to parks are lacking.
- Recreation facilities serve more than the local population, as recreation sites are increasingly becoming travel destinations.

Park, Recreation and Open Space Planning

Park, recreation and open space plans help municipalities outline the purpose and improvements needed for their park and open space systems and recreation programs. Such planning is required to support a mandatory dedication of parkland provision in municipal ordinances.

Annville-Cleona School District

None of the municipalities in the Annville-Cleona School District have a park, recreation and open space plan. Annville Township adopted Ordinance 464 in 1993 to provide for the recreation needs of future residents through mandatory dedication of park land or fee-in-lieu of dedication.

Cornwall-Lebanon School District

Cornwall Borough, North Cornwall Township, North Lebanon Township, and South Lebanon Township each have a park, recreation and open space plan. The Cornwall Borough and South Lebanon Township plans provide the required foundation for a Mandatory Dedication of Park Land Ordinance and use a standard of 10 acres of park land per thousand residents. North Lebanon Township already had a Mandatory Dedication of Parkland Ordinance in place prior to its plan.

The major recommendations of the Cornwall Borough Plan (2001) are to:

- Acquire land for one community park and one neighborhood park. The total acreage should be 40 acres.
- Establish a place for community events.
- Develop two football soccer fields, a volleyball court and a swimming pool.
- Adopt a standard of 10 acres per thousand population for park land.
- Develop a capital improvement plan for improvements estimated at $782,300 at the new community park.

The major recommendations of the North Cornwall Plan (1999) are to:

- Develop master plans for all township parks.
- Develop a Capital Improvement Program for parks and recreation.
- Establish a community park and secondarily add one to two min-parks in conjunction with the land development process.

The major recommendations of the South Lebanon Plan (2002) are to:

- Promote the acquisition and development of the entire Lebanon Valley Rail Trail through the township
- Create trails to connect with Lebanon Valley Rail Trail.
- Provide additional sports fields, playgrounds and perhaps a swimming pool.
- Establish a standard of ten acres per thousand population thus forecasting no need for additional park land.
- Develop master plans for the parks.
- Develop a capital improvement program to fund about $2 million in recreation facility development.

The major recommendations of the North Lebanon Plan (2006, Draft) are to:

- Continue to improve the three existing township parks.
- Protect and expand Union Canal Tunnel park along with the Lebanon County Historical Society.
- Communicate and partner with other organizations such as Lebanon City, the Lebanon County Historical Society, the Cornwall-Lebanon School District, community groups,(especially volunteer groups), and private recreation providers.
- Conserve open space, natural and cultural features to contribute to community character.
- Establish connectivity throughout the community for both recreation and transportation.
- Strengthen year round recreation in township and school district facilities.
- Continue to manage the parks and recreation system effectively and efficiently through volunteers and staff leadership.
- Build awareness and promote recreation and parks as essential to the quality of life in North Lebanon Township.
- Continue to maintain open space, parks and recreation areas as attractive, safe and secure facilities.
- Secure adequate financing and partnerships to operate, maintain, and expand the park and recreation system.
- Update the Mandatory Dedication of Land Ordinance to increase the acreage and fees-in-lieu of dedication.

Eastern Lebanon County School District

None of the municipalities in this planning district have a park, recreation and open space plan.

Lebanon School District

There is no park, recreation and open space plan for the City of Lebanon or West Lebanon Township. The City of Lebanon and Lebanon County began a peer-to-peer study in 2003 to explore the feasibility of joint management of parks and recreation. The peer-to-peer study was not yet complete when the County's comprehensive planning project was initiated. Its final phases have been postponed until the county plan establishes recommendations and priorities and state grant funds are allocated for implementation.

Northern Lebanon School District

Bethel and Union Townships each have a park, recreation and open space plan. Both plans provide the required support for a Mandatory Dedication of Park Land Ordinance. Bethel Township set a standard of 10 acres of parkland per thousand residents while Union Township established 20 acres per thousand of population as their standard. Municipalities and the school district have been discussing recreation among their possible topics for regional planning.

The major recommendation of the Bethel Township Plan (2001) is to:

- Acquire 60 acres of parkland. The intent of this plan was to focus on park land needs.

The major recommendations of the Union Township Plan (2001) are to:

- Establish a Parks and Recreation Board.
- Develop three parks: a community or neighborhood park in West Jonestown and in the Village of Lickdale as well as a neighborhood park in the northern portion of the township.
- Conduct studies for rail trail feasibility and plans for the three parks recommended.
- Maintain parks and recreation with current township staff. Monitor parks and recreation improvements to determine when changes or additions to staff should be made to manage parks and recreation.

Palmyra Area School District

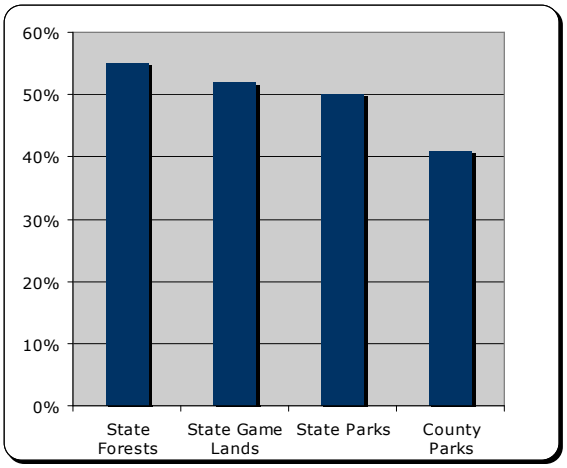
The Palmyra Area Recreation and Park Commission is in the process of developing a multi-municipal park, recreation and open space plan to serve Palmyra Borough, North Londonderry Township and South Londonderry Township.

Citizens' Perceptions of Parks and Outdoor Recreation Areas

In 2004 the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) conducted an in-depth public opinion survey. In the survey, Lebanon County residents rated their level of satisfaction with state and county parklands. Figure 5-1 presents the level of satisfaction with state and county parks, game lands and forests.

This chart provides valuable information as it sets a baseline on which to measure satisfaction levels in the future as Lebanon County implements its Parks, Recreation and Open Space Plan. Since 100% satisfaction is impossible to reach, the goal should be to work toward a citizen satisfaction level of 80%.

Figure 5-1 Percentage of Lebanon County Survey Respondents Satisfied or Very Satisfied with State and County Parks in Lebanon County



Additionally, respondents were asked to report their opinions on the weaknesses and threats to open space and municipal parks and recreation areas:

Open Space
- Four out of five respondents stated that development was threatening open space in Lebanon County.
- About one out of two respondents believe there was not enough open space; one out of five respondents agreed that there was enough open space.
- Two of five respondents agree that public access to open space should be increased.

Municipal Parks and Recreation Areas
- Only 38% thought that there was enough recreation areas close-to-home.
- About 50% of respondents thought that maintaining recreation areas is more important than adding new ones.
- 47% indicated that recreation areas for people with disabilities should be improved.
- 25% responded that parks were adequately policed.
- 42% agreed that the environmental quality of recreation areas were good.
- 83% stated that recreation areas were well maintained.

Parkland and Recreation Facilities Conclusions

The following are conclusions regarding parkland and recreation facilities in Lebanon County. The conclusions consider the diverse resources of the county, the opportunities offered by existing recreation facilities and trends affecting recreation county-wide and beyond.

Park System

- Lebanon County has many pieces of a comprehensive parks system: significant natural resources preserved through State Parks and State Game Lands, historic and cultural resources, municipal parks offering local recreation opportunities, school sites, trails and trail extension opportunities and many green corridors.

Parkland

- Nature based recreation is plentiful with over 30,000 acres of state parks, game lands, historic areas, and forests.

- There is a deficit of parkland throughout Lebanon County based on the current and projected population. The current parkland deficit is estimated at 984 acres and is projected to expand to 1,216 acres in 2020.

- The county has no parkland standard. A county-wide parkland standard of 15 acres per 1,000 residents should be adopted. Lebanon County and its municipalities should be working to provide 1,928 acres of parkland for residents by 2010 and 15 acres of parkland per 1,000 residents as the county's population grows.

- Lebanon County is beginning to experience the growth that is transforming open space to development in other Pennsylvania counties. Fortunately, opportunities for parkland acquisition and protection of land and corridors for recreation still exist. Decisive action is necessary to stay ahead of development to secure parkland for existing and future residents.

- The county and municipalities need to acquire parkland now to accommodate future needs or obtain options for future purchase and should land-bank parkland until community need emerges and capital funding is available.

- Mandatory dedication of parkland is an effective means for municipalities to obtain parkland for future residents. Municipalities without a mandatory dedication ordinance should adopt an ordinance that requires the dedication of parkland, or a fee-in-lieu of land dedication, based on the fair market value of land. Municipalities with mandatory dedication ordinances should review them annually to determine if their fee-in-lieu requirements align with the fair market value of land.

Parkland Distribution

- Parkland is not evenly distributed throughout Lebanon County. The State Parks, State Games Lands and Fort Indiantown Gap protect significant acreage at the northern and southern boundaries of the county.
- Of the 26 municipalities in Lebanon County, six lack any municipal parkland – Cold Spring Township, North Annville Township, South Annville Township, North Londonderry Township, Union Township and Mt. Gretna Borough.
- Much of the county is underserved by the existing community, neighborhood and mini parks. Residents of outlying areas must travel to participate in activities and enjoy traditional community park facilities.
- Parkland acquisition should be targeted to areas of the county that are experiencing growth and are currently underserved or have no parkland.
- Safe access to public recreation areas via non-motorized trails and pathways is needed for those who do not or cannot drive, i.e. children, youth, disabled and seniors.

Recreation Facilities

- Recreation facilities throughout the county should be updated and renovated to meet the requirements of the Americans with Disabilities Act (ADA). Trails and pathways should be located to provide accessible routes to facilities and to provide recreation opportunities for walkers and joggers.
- Playgrounds should be renovated to meet the guidelines of the Consumer Product Safety Commission (CPSC) guidelines for public playground safety. Equipment that does not meet these guidelines should be removed from parks and replaced with compliant equipment.
- Facilities should be developed to accommodate user needs and recreation trends, e.g. sports fields that do not overlap other facilities and facilities for non-traditional sports that have sustained popularity, such as skateboarding and in-line hockey.
- Provide facilities and lifetime recreation activity areas for the broad county population including youth, tots, teens, young adults, adults, seniors, and persons with disabilities.

Greenways, Trails and Open Space

Despite the abundance of open space in Lebanon County, development is gradually encroaching into these areas. This phenomenon reflects a reduction in population densities in the urban core communities and older settlements and an increase in land area used for residential, commercial and other uses in the outlying areas. The effects of this population shift can be seen on the landscape, with development occurring in formerly wooded or agricultural areas. The dispersion of residences and businesses brings with it other problems, including a lack of public services in rural areas, dependency on the automobile, decline of business centers and loss of strong social interaction. Scattered residential and business uses threaten environmentally sensitive resources, visually intrude into the scenic countryside, and weaken the agricultural and tourism economies of the county.

By planning for an open space and greenway network, the county would promote the importance of these features and ensure a high quality of life for residents, protect wildlife, and preserve natural features. Such a network would include natural greenways (primarily for conservation) and water trails and man-made greenways or land-based recreation trails. This section explores the existing greenway and trail resources of Lebanon County and opportunities for interconnection and expansion.

"Pennsylvania Greenways: An Action Plan for Creating Connections"

Pennsylvania Governor Tom Ridge enacted Executive Order 1998-3, charging DCNR, DEP, and PennDOT, assisted by the Pennsylvania Greenways Partnership Commission, to develop an action plan for advancing a Pennsylvania Greenways Partnership Program (PA Greenways Action Plan, 2001). In June 2001, "Pennsylvania Greenways: An Action Plan for Creating Connections" was completed. The plan sets forth a series of goals and action items in a coordinated and strategic approach aimed at developing a statewide system of connected greenways. One of the key action statements calls for all counties within the Commonwealth to develop and adopt greenway plans by 2007.

> A greenway is a corridor of open space. Greenways vary greatly in scale, from narrow ribbons of green that run through urban, suburban, and rural areas to wider corridors that incorporate diverse natural, cultural and scenic features. They can incorporate both public and private property, and can be land- or water-based. They may follow old railways, canals, or ridge tops, or they may follow stream corridors, shorelines, or wetlands, and include water trails for non-motorized craft. Some greenways are recreational corridors or scenic byways that may accommodate motorized and non-motorized vehicles. Others function almost exclusively for environmental protection and are not designed for human passage. Greenways differ in their location and function, but overall, a greenway will protect natural, cultural, and scenic resources, provide recreational benefits, enhance natural beauty and quality of life in neighborhoods and communities, and stimulate economic development opportunities.
>
> - Pennsylvania Greenways: An Action Plan for Creating Connections, Pennsylvania Greenways Partnership Commission, 2001

It is envisioned that Pennsylvania's greenways network will consist of individual greenways and regional networks of greenways of all kinds. While every greenway is important and adds value to Pennsylvania's landscapes and communities, a statewide greenways network achieves broad connections that are fundamental to sustainable environments in rural, suburban, and urban settings. Landscape connections throughout Pennsylvania will create a "green infrastructure" of open space vital to the health of Pennsylvania's ecological systems and manmade communities. The statewide greenways network can also provide a new connectivity within and among Pennsylvania's communities and promote healthier lifestyles with more abundant recreational opportunities and transportation alternatives, and stronger connections to cultural and historic places. This connectivity can be represented by the metaphor of the "hubs and spokes" of a wheel.

"Hubs and Spokes"

Pennsylvania's greenways network will ultimately take the form of "hubs and spokes." The "hubs" will include parks, forests, game lands, nature preserves, lakes, vistas, cultural attractions, or other destination areas, including sites and recreation systems within communities. The "spokes" will be greenways connecting these destinations with the places where we live, work and play; these greenways may conserve ecologically sensitive corridors, such as riparian buffer corridors; provide non-motorized public access to destinations; provide land and water trails for fitness and outdoor recreation; accommodate motorized recreational vehicles such as snowmobiles or ATVs; or host historic or cultural events. [1]

[1] Pennsylvania Greenways: An Action Plan for Creating Connections

Pennsylvania Municipalities Planning Code

Amendments to the Pennsylvania Municipalities Planning Code (MPC), known as Acts 67 and 68 or "Pennsylvania's growing smarter laws," were signed into law in 2000. These acts encourage multi-municipal planning and set forth new growth control laws for a balanced and coordinated approach to development. Specifically, the acts enhance the authority of municipalities to protect agricultural, natural, and historic resources and provides funding incentives to adopt ordinances and actions that are consistent with local and county plans.

Natural Greenways

As identified in the natural resources profile, the physiography of Lebanon County has had an incredible influence on development patterns. Mild slopes and well drained soils attracted farmers and the majority of community centers to the great valley, leaving the forested slopes and ridges of Blue Mountain/Kittatinny Ridge and South Mountain relatively undisturbed. Across the state, these mountains are classified by DCNR as "Major Greenway Corridors," or long-distance corridors (at least 50 miles) that pass through two or more counties and are recognized in official county planning documents. They represent the major "arteries" of the developing statewide greenway system in Lebanon County. Smaller natural greenways, such as the Tulpehocken Greenway, also exist in the county. The Lebanon County Greenways and Trails Map illustrates the existing greenways in the county.

Blue Mountain and Kittatinny Ridge Greenway

Blue Mountain and Kittatinny Ridge are names for a 185-mile mountain ridge that stretches across 11 Pennsylvania counties and extends nearly to the Maryland state line. It is known in eastern Pennsylvania as Kittatinny Mountain, in central Pennsylvania as Blue or North Mountain, and in Franklin County as Front Mountain. The Kittatinny Ridge is one of Pennsylvania's most prominent natural features, forming the eastern-most edge of the "ridge and valley" region - a forested series of folds in the earth's crust that uniquely defines the landscape of the southeast quadrant of Pennsylvania. This ridge is recognized as a "globally significant" migration flyway for thousands of hawks and eagles and millions of songbirds and has been officially designated by Audubon Pennsylvania as the state's largest "Important Bird Area." The ridge provides the headwaters for many of the streams in south central and southeast Pennsylvania, supplying drinking water for human water supplies and fresh-water habitat for fish. The interior forests of the ridge also provide some of the best wildlife habitat in the state. In short, the Kittatinny Ridge is a valuable natural resource that defines the region and enhances its quality of life.

State Game Lands account for the majority of the public land ownership along the Kittatinny Ridge. Audubon Pennsylvania is currently working on a conservation project to assist in protecting and buffering the remaining land areas along the ridge from development and its impacts.[2]

Highlands Greenway and Trail

The Highlands is a rugged series of discontinuous, steep-sided ridges and narrow valleys spanning the states of Connecticut, New York, New Jersey, and Pennsylvania. The rivers born in the Highlands – the Hudson, Delaware, Schuylkill, and Susquehanna – slice through the Highlands' corrugated topography.

In 1990 Congress directed the USDA Forest Service to conduct a study of the Highlands that would assess the region's resources and land use patterns, examine the impacts of change, and propose strategies to protect the long-term integrity of lands and traditional land uses within the region. The USDA Forest Service published its first study of the New York – New Jersey Highlands in 1992. USDA Forest Service has begun the Pennsylvania and Connecticut Update study in cooperation with the Pennsylvania Department of Conservation and Natural Resources, and the Connecticut Department of Environmental Protection. The first stage of the study will focus on: public involvement to identify issues, opportunities and concerns; resource data collection; and resource assessment with the aim of identifying land having high conservation value due to sensitivity and/or vulnerability.[3]

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[2] Audubon Pennsylvania
[3] Highlands Regional Study/Pennsylvania Update

Benefits of Greenways

Creating a network of green corridors throughout the municipality is one means of protecting the character and landscape of the municipality. Greenways provide an array of direct and indirect benefits that add to the quality of life of both a place and region. Protection of green corridors and open spaces provides numerous economic, social, transportation, recreation, environmental education and ecological benefits as identified below:

Economic Benefits

- Increase nearby property values.
- Precipitate new and expanded businesses related to greenway and trail use. New businesses will provide employment opportunities and revenues.
- Create tourist destinations which will generate expenditures on food, services and lodging.
- Reduce damage and financial loss from flooding by providing buffer areas along stream and river corridors.

Social Benefits

- Provide access to historically and culturally significant features in our communities.
- Provide opportunities to reconnect with the natural environment and urban fabric of our communities.
- Help to preserve the character and aesthetic appeal of a place or landscape.
- Provide significant new public places which can help to connect people and communities.
- Increase quality of life.
- Improve health and wellness of greenway and recreational trail users.
- Heighten sensitivity to the natural environment by providing for interaction between people and nature.

Transportation Benefits

- Promote non-motorized transportation.
- Provide safe alternative transportation routes for pedestrians and bicyclists which will lessen our dependency on automobiles.
- Provide emergency access via trails to undeveloped areas.
- Reduce roadway congestion through redistribution of users to alternative transportation routes.

Ecological Benefits

- Promote plant and animal species diversity.
- Serve as a filtering zone; wetlands absorb pollutants and nutrients and slow surface run-off thereby enhancing stream health
- Provide corridors for wildlife migration and movement.
- Preserve and protect vital wildlife, plant, and aquatic habitats.
- Improve air quality and reduce noise.
- Reduce stormwater damage and promote flood mitigation within protected floodplains.
- Protect natural areas.
- Connect fragmented landscapes.
- Store and convey floodwaters.
- Clean up abandoned corridors.

Recreation Benefits

- Provide areas to jog, walk, bike, ride horses and canoe.
- Serve as sites for passive pursuits such as picnicking, fishing and enjoying nature.
- Connect existing and planned trails.
- Encourage ecotourism.
- Provide connections between parks and other protected lands.

Environmental Education Benefits

- Provide landscapes for learning.
- Create an awareness and appreciation for the environment.
- Introduce and illustrate environmental concerns to the general public.

In Pennsylvania, the Highlands form a chain of ridges and hills that culminate in the dramatic heights above the City of Reading. In Lebanon County, the Highlands traverse the southern portion of the county. Similar to the Kittatinny Ridge, a portion of the lands that fall within the Highlands greenway of Lebanon County are protected through state ownership; however, many more are not protected. Much of the study being conducted now is to determine which lands are most sensitive and most vulnerable to intrusive development.

A recreation trail is proposed to traverse the Highlands corridor. The Highland Trail is in the conceptual stage of development and is initially envisioned as a main trunk trail with loop trails off of the trunk. In Lebanon County the Lebanon Valley Rail Trail and Horseshoe Trail are the potential trunk corridors.

Swatara Creek Water Trail

The Swatara Creek Water Trail is a 42-mile segment of Swatara Creek from Jonestown, Lebanon County, to the PA Fish & Boat Commission's Middletown Access in Dauphin County. Farms and bank barns, Union Canal locks, forested riparian buffers, the abandoned Lebanon to Tremont railroad and bridge, historic Harper's Tavern, limestone outcrops and the only lava deposits in the state can be seen along the trail.

Access to the Swatara Creek Water Trail is provided at two formal trailheads: one in Jonestown, Lebanon County and one at the Boat House Road Park, Derry Township, Dauphin County, and at other public and private access points identified on the trail guide/map. The normal flow of the Swatara Creek accommodates most non-motorized recreational watercraft throughout the summer. [4]

In addition, a Swatara Creek Greenway has been evaluated in Dauphin County and could extend into Lebanon County. This greenway has potential for land-based trails but no trails exist along the creek at this time.

Tulpehocken Greenway

The Tulpehocken Greenway extends through the Tulpehocken Creek watershed from the City of Lebanon to the upper reaches of Blue Marsh Lake in Berks County. The watershed encompasses prime farmland, rolling hills, wooded slopes, villages, and remnants of the Union Canal. A feasibility study was completed in 2005 that proposed a five-component greenway concept: natural resource conservation greenways, land preservation greenbelts, land-based trails, a water trail, and auto and bike routes. The implementation plan charges the Lebanon Valley and Berks County Conservancies with guiding the implementation of the Tulpehocken Greenway to create protected green areas along the Tulpehocken Creek and it tributaries.

Additional natural greenway opportunities identified in Lebanon County are associated with the Little Swatara Creek, Quittapahilla Creek, and the Conewago Creek corridors.

[4] Pennsylvania Fish and Boat Commission

Recreation Trails

Lebanon County is fortunate to have seven existing recreation trails located throughout the county as well as other linear resources that present additional trail opportunities. The Appalachian National Scenic Trail and the Horseshoe Trail offer long-distance footpaths for hiking, while the other trails are rail-to-trail conversions. The Lebanon County Greenways and Trails Map illustrates the proposed greenway and trail network for Lebanon County, which includes existing trails and trail opportunities.

Appalachian National Scenic Trail

The Appalachian National Scenic Trail is a 2,174-mile footpath along the ridgecrests and across the major valleys of the Appalachian Mountains from Maine to northern Georgia traversing 14 east coast states. An approximate 16-mile length of the trail passes through Cold Spring, Union, Swatara, and Bethel Townships in northern Lebanon County. The Appalachian Trail provides a recreation corridor linking the major natural areas in northern Lebanon County from State Game Lands No. 211 to Swatara State Park to State Game Lands No. 80. The trail intersects with the Stony Valley Railroad Grade, the Swatara State Park Trail, and Swatara Creek Water Trail. The trail also passes under Interstate 81 in Inwood, Lebanon County just north of Exit 90.

The Horseshoe Trail

The Horseshoe Trail is a 140-mile multi-use trail that originates in Valley Forge National Park and terminates at the Appalachian Trail on Sharp Mountain, just northeast of Hershey. A 19.4-mile segment of the trail crosses Lebanon County's southwestern corner passing through South Londonderry, South Annville and West Cornwall Townships and Cornwall Borough. The trail intersects with multiple recreation areas and corridors including the Lebanon Valley Rail Trail, State Game Lands No. 145, Clarence Schock Memorial Park at Governor Dick, Cornwall Iron Furnace, and the Middle Creek Wildlife Management Area.

Lebanon Valley Rail Trail

The Lebanon Valley Rail Trail is a rail to trail conversion on the former Penn Central line of the Cornwall-Lebanon Railroad. The trail currently extends approximately 12.5 miles from the Lancaster-Lebanon County line to Zinns Mill Road in Cornwall Borough. The corridor connects to the existing Conewago Trail in Lancaster County, a 5-mile trail from the Lebanon County border to Elizabethtown. Lancaster County recently received grant funding to resurface this portion of the trail and install other improvements.

The Lebanon Valley Rail Trail passes through South Londonderry Township, West Cornwall Township and Cornwall Borough. The trail is located in close proximity to many other recreation areas including Cornwall Furnace National Historic Site, recreation and cultural sites in Mt. Gretna, Clarence Schock Memorial Park at Governor Dick, and State Game Lands No. 145. A 1000' spur trail has been built to give direct access into Mt. Gretna and convenient access to the Jigger Shop; hence it's local name, the "Ice Cream Trail".

Several trail extensions are in the planning and development stages with the vision of extending the trail northward through the county to Swatara State Park. A spur trail was recently constructed to Mt. Gretna following the alignment of the Mt. Gretna Narrow Gauge Railroad. This spur will provide a safe link between the main trail and points of interest in Mt. Gretna.

Federal funding was recently secured for a 2.5 mile extension of the Lebanon Valley Rail Trail from Zinns Mill Road north to the City of Lebanon. This section of the corridor will pass in close proximity to the Lebanon Expo Center and Fairgrounds, South Hills Park in South Lebanon Township, Cedar Crest High School, and Lebanon High School. South Lebanon Township is proposing a link to this trail extension that will connect to South Hills Park, the Cedar Crest Middle & High School campus, South Lebanon Elementary School and nearby residential areas.

An additional 9+ mile segment is proposed to extend the Lebanon Valley Rail Trail north from the City of Lebanon to Swatara State Park. The proposed segment would follow the former Conrail line through North Lebanon, Swatara and Union Townships and join with the Swatara State Park Trail along the Swatara Creek corridor. Recently the LEBCO MPO and the Lebanon Valley Rails To Trails Inc. has received funding to assess the feasibility of a rail to trail conversion on this rail

corridor. This corridor has the potential to connect with the Union Canal Tunnel Park; however, it is not intact as many pieces were sold to adjoining property owners.

Stony Valley Railroad Grade Trail

The Stony Valley Railroad Grade Trail is a 22-mile multi-use trail that runs on the old Reading Railroad line through State Game Lands No. 211 from Middle Paxton Township in Dauphin County to the Lebanon Reservoir in Pine Grove Township, Schuylkill County. An approximate 11-mile segment transverses northern Lebanon County through Cold Spring Township running parallel to the Lebanon-Dauphin County line. Stony Valley Railroad Grade is extremely removed from any urban areas in Lebanon County. The trail intersects with the Appalachian National Scenic Trail approximately five miles from where the Appalachian Trail enters Swatara State Park and State Game Lands No. 80.

Swatara State Park Trail

The Swatara State Park Trail is a 9.53-mile corridor that follows the Conrail line for 6.82 miles and the Reading Railroad line for 2.71 miles. The trail extends from the southern tip of Swatara State Park along the Swatara Creek corridor in Swatara and Union Townships, Lebanon County, through Swatara State Park to Interstate 81 in Pine Grove Township, Schuylkill County. The trail intersects with the Appalachian Trail, State Game Lands No. 80 and connects to other loop trails within Swatara State Park and connects many park facilities.

Whitmoyer Trail

The Whitmoyer Trail, also known as the Quittie Trail, is located parallel to the Quittapahilla Creek within the City of Lebanon. The trail is paved and extends from approximately 4th Street to the intersection of Cumberland Street and 12th Street. The paved trail is developed as an urban park corridor and is located on one or both sides of the stream as land is available. As the Lebanon Valley Rail Trail is extended into Lebanon City, opportunities to extend the Whitmoyer Trail west to join the Rail Trail near Union Canal Tunnel Park should be explored.

South Lebanon Township Trail

South Lebanon Township has developed a plan to link to the Lebanon Valley Rail Trail at the Lebanon City High School. The trail would extend through South Hills Park and the grounds of the Veterans Administration golf course to the Cedar Crest Middle and High School campus. From the school campus, the trail would extend east across various parcels, some which will require right-of-way purchase or easement, to the South Lebanon Elementary School and surrounding residential neighborhood.

Recreation Trail Opportunities

Linear manmade corridors that may contribute to the interconnection or extension of the above listed trails are discussed below. These transportation corridors represent recreational re-use opportunities with potential to interpret industrial and transportation history in Lebanon County. Other historic resources in proximity to these corridors may offer additional themes for trail development and historical interpretation throughout the county. Ideas for Lebanon County Heritage Trail are beginning to emerge.

Lebanon City Abandoned Rail Lines

A portion of the former Avon Industrial rail line in the northern section of city runs parallel to Maple Street from North 7th Street to Lincoln Avenue where it ends at the active Conrail line. This portion of the former rail corridor remains open and presents an opportunity for rail-to-trail conversion.

Governor Dick Trail Link

The Lebanon Valley Rails to Trails organization is exploring a link from the rail trail to the Environmental Education Center at Clarence Schock Memorial Park at Governor Dick. This link would require easements from private property owners and would provide a connection to a destination along the trail.

Cornwall Rail Line

The former Cornwall Railroad extends 8.4-miles from Route 419 in Cornwall Borough south to Manheim Borough in Lancaster County. From north to south, the line begins at the Lebanon Valley Rail Trail, intersects with the Horseshoe Trail in southern Cornwall Borough and links to Penryn Lake before the Lancaster-Lebanon County Line. Another abandoned line extends eastward from the Lebanon Valley Rail Trail just north of Cornwall to the former Alcoa site.

Regional Greenways and Trails

Greenways typically extend beyond government boundaries due to the expansive nature of the streams, abandoned rail lines and ridge lines on which they are based. Of the two major and five minor greenways identified for Lebanon County, six extend beyond the county boundary. Additionally, three trails extend beyond the county boundary. These greenways have been identified as part of county planning efforts and are presented in Table 5-14. Cooperation and partnerships with adjacent counties and municipalities to promote these connections would promote greenway and conservation objectives regionally, therefore the lead greenway or trail development agency is also provided.

Table 5-14 Regional Greenways and Trails

Greenway or Trail	Additional Counties Crossed	Lead Development Agency
Kittatinny Ridge Greenway	Dauphin, Berks	PA Audubon
Highland Greenway	Dauphin, Berks, Lancaster	Highland Coalition
Swatara Creek Water Trail/Greenway	Dauphin	Swatara Creek Watershed Association
Tulpehocken Greenway	Berks	Lebanon Valley Conservancy/ Berks County Conservancy
Little Swatara Creek Greenway		Swatara Creek Watershed Association
Conewago Creek Greenway	Dauphin	Tri-County Conewago Creek Association
Appalachian Trail	Dauphin, Schuylkill	National Park Service/ Appalachian Trail Club
Horseshoe Trail	Dauphin, Lancaster	Horseshoe Trail Club
Lebanon Valley Rail Trail/Conewago Trail	Lancaster	Lebanon Valley Rails to Trails/Lancaster
Stony Valley Railroad Grade Trail	Schuylkill	PA Game Commission
Swatara State Park to Sweet Arrow Lake Trail (proposed by Schuylkill County)	Schuylkill	Schuylkill County

Greenway and Trail Conclusions

The following conclusions consider the existing greenway and trail opportunities, the diverse resources of the county, opportunities offered by existing recreation facilities and trends affecting recreation in Lebanon County and beyond.

Greenway Network

- Major resource-based greenways cross the northern and southern borders of the county.
- The smaller Tulpehocken Greenway spans the eastern border with Berks County. It is the only local greenway in the county and still in its infancy.
- The existing east-west greenways are not interconnected with north-south corridors. Interconnection would provide greater mobility for recreationists and wildlife.
- There are no other local greenways that connect park sites, open space, residential neighborhoods, schools and community destinations, provide trail opportunities for recreation, transportation, and environmental education, and/or protect and conserve “green infrastructure” of the county for environmental quality and biodiversity.
- Greenway planning and development will require communication and coordination with municipal and county partners as the greenway corridors span many jurisdictions.
- Pennsylvania’s Growing Greener program helps to fund the study and conservation of greenways corridors and the revision of ordinances to protect sensitive resources.

Trail Network

- The Lebanon Valley Rail Trail is the major local trail in Lebanon County. It has the potential to connect South Mountain and the Kittatinny Ridge through the City of Lebanon, if extended.
- The South Lebanon Township Trail is an excellent example of a local trail that connects a trail spine with community destinations.
- Abandoned rail lines and select roadways offer additional corridors for trail development. PennDOT, the LEBCO MPO and municipal public works departments may be able to provide bicycle and pedestrian friendly facilities when upgrades are undertaken for public roads and bridges.
- Like greenways, trail planning and development will require communication and coordination with municipal and county partners as the trail corridors span many jurisdictions.
- The benefits of greenways and trails are not widely understood throughout the county. Interviews found that greenways are still a relatively new concept to the citizens of Lebanon County and were frequently synonymous with trails. While trails are popular, they tend to generate a NIMBY reaction in which citizens want trail access but "Not In My Back Yard". Trails and greenways developed in advance of extensive subdivision and land development is often more affordable and there are fewer NIMBY problems. An urbanizing county such as Lebanon County still has time to get ahead of the curve. It is very expensive to go in and retrofit an area with trails and greenways after an area is developed. Promoting the benefits of greenways will help to advance greenway development throughout the county.
- Derry Township in Dauphin County has an extensive trail system. Linkage from the Palmyra Area School District region to this system should be explored to facilitate commuting for the many employees that work and residents that visit the Hershey area.

Outdoor Recreation Participation in Lebanon County

In 2004 the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) conducted an in-depth public opinion survey to determine the recreational preferences and participation rates of citizens statewide. Lebanon County was included in PA DCNR's planning region for south central Pennsylvania with seven other counties including: Lancaster, Dauphin, York, Perry, Cumberland, Adams and Franklin. The information presented in Table 5-15 below is based upon the participation rate for PA DCNR's south central planning region. The assumption was made that participation in Lebanon County is roughly the same as that of the south central Pennsylvania planning region overall, and the regional participation rate was applied to Lebanon County's population to project the number of county participants.

Outdoor Recreation Participation

By far the most popular recreation activity listed in the study was walking. About seven out of every ten citizens in Lebanon County walk for pleasure. The other top activities include sightseeing, swimming, viewing nature, visiting wild areas, picnicking, hiking, nature walks, fishing and sledding.

Table 5-15 Top Ten Most Popular Activities by Participation Rate and Numbers in the Lebanon County Region

Activity	South Central PA Participation Rate (%)	Participants in Lebanon County
1. Walking	68.4	82,303
2. Sightseeing	54.7	65,818
3. Swimming	49.6	59,682
4. View Nature	49.3	59,321
5. Visit Wildlife Areas	46.9	56,433
6. Picnicking	44.0	52,943
7. Hiking	36.6	44,039
8. Nature Walks	34.1	41,031
9. Fishing	29.6	35,616
10. Sledding	28.1	33,811

Recreation Trends found by PA DCNR since 1990

Since 1990, more Pennsylvanians are participating in bird and wildlife watching, golf, off-road motor sports and camping. Participation in organized sports such as soccer, basketball, field hockey, and lacrosse also is increasing.

Close-to-Home Recreation Participation

Nearly half of all recreation experiences in Pennsylvania take place in municipal parks. In rural communities where recreation programs and services are available, such programs and services are usually provided by numerous volunteer, school and faith based institutions. Activities are typically focused on youth, sports, summer recreation and community festivals. Little coordination is achieved because the efforts are rooted in volunteerism and there is no single entity responsible for overseeing community recreation. In Lebanon County, municipalities tend to operate independent parks and recreation programs that are centered on youth sports. Several municipalities also offer a six to eight week summer playground program as well as a few community festivals.

The notable exception is the Palmyra Area Recreation and Park Commission (PARPC), which is a regional parks and recreation organization, consisting of Palmyra Borough, North Londonderry Township, South Londonderry Township, and the Palmyra Area School District. Formed in 1974, PARPC is a model in the state for multi-municipal and school district partnerships for the purpose of providing close-to-home regional recreation and parks. PARPC offers over 200 programs annually.

Perceived Socio-Economic Value of Recreation and Parks by Lebanon County Citizens

- 70 percent agreed that recreation reduces youth crime.
- 62 percent agreed that parks increase property values.
- 58 percent agreed that greenways increase property values.
- Outdoor recreation was important or very important to 64% of the respondents.
- Access to public recreation areas was important or very important to 62%.
- Indoor recreation was important or very important to one out of three.

Source: 2004 PA DCNR Resident Recreation Survey

Recreation Programs and Organization in Lebanon County

There are numerous organizations that provide recreation programs and services to the residents of Lebanon County. These include municipal recreation boards and committees, school districts, non-profit organizations and the commercial providers. The Lebanon Valley Family YMCA is the only recreation service provider operating countywide, providing summer enrichment programs, school age child care at several elementary schools, facilities downtown and at the VA Hospital, and expanded recreation services in the Northern Lebanon School District.

The following section details the public recreation programs that are organized by local government and the schools districts, as identified through interviews with municipal representatives and school district superintendents.

Municipalities of Annville-Cleona School District: Annville Township, Cleona Borough, North Annville Township and South Annville Township

The four jurisdictions operate independently without any joint services other than public education through the Annville-Cleona School District. Of the four municipalities, only Cleona Borough has a Parks and Recreation Board. The Borough offers recreation programs in the summer such as movie night, summer programs for youth and a fall festival. Annville Township has a volunteer recreation association that oversees sports programs.

Annville-Cleona School District

The Annville-Cleona School District has about 1,700 students, down from an all time high of about 2,500. The decline has leveled off since 2004. Growth is projected to result from 600 new houses proposed in South Annville Township; this cluster of developments includes potential trails and greenways linking the neighborhood to the nearby junior and senior high school

complex. Cleona Borough is nearly fully developed without potential for additional park land. Annville Township is fully developed with development now in the revitalization arena. North Annville Township is predominantly agricultural and, with rolling topography and no public sewer, has limited opportunities for significant growth. Still, residents have generally been moving out of the established communities with older homes into outlying areas with larger more expensive housing.

The school district provides use of its facilities for public recreation and has been working to improve and expand such facilities. This includes the addition of lights on the football field, community use of the outdoor track and ball fields, expansion of gym time through the construction of an oversized gym that will double the practice area. The sports fields, however, are overused due to high demand.

The Annville-Cleona School District identified the following focus areas or initiatives regarding recreation:

- More programs for people of all ages. Additional programs for youth. Adult recreation and self-improvement especially in the area of technology. Services for senior adults. There is no adult evening school in the district.
- Nature study including facilities close to the Annville-Cleona Schools.
- Biking and walking paths.
- Prevention programs to deter anti-social behavior and substance abuse.

Communities That Care is an organization that provides funding to the school district for youth services. As in all communities, there are drug and alcohol issues among the youth. Communities That Care works with the school district in addressing youth behavior and development through the 40 Assets Program, which includes recreation and healthful living as key assets.

It costs $36,000 annually to incarcerate one youth, more than 100 times the cost of providing pubic recreation throughout their lifetime. Recreation deters juvenile delinquency, crime and substance abuse.

Lebanon Valley College (LVC) provides community use of facilities for recreation. LVC opened its sports complex, which includes a track, gym and a pool, at relatively low membership rates to the public. The college also provides cultural opportunities through concerts, recitals, art festivals and the art gallery.

Municipalities of Cornwall-Lebanon School District: Cornwall and Mount Gretna Boroughs and North Cornwall, North Lebanon, South Lebanon, and West Cornwall Townships

Cornwall Borough and North Cornwall Township each provide a summer playground program. Cornwall Borough provides additional youth programs in the summer and winter basketball leagues. Sports groups provide programs, oriented towards youth sports, in North Lebanon Township. No programs are available in South Lebanon Township. The citizens of West Cornwall Township and Mt. Gretna Borough participate in sports groups based in other municipalities. All of the municipalities use school district facilities for recreation.

Cornwall- Lebanon School District

The Cornwall-Lebanon School District has an expanding tax base. The school district has 6,000 students, an increase of 1,100 since 1996. Another 400-500 housing units are approved in South Lebanon Township which will bring in more students. Industrial development is attracted by tax breaks given in return for the installation of infrastructure.

The district is committed to supporting public recreation through the use of its facilities, as well as by providing programs and services where possible. For example, the high school weight/fitness facility is open to district residents free of charge during weekday evenings; a qualified training specialist staffs the facility. The district is in good shape in terms of accommodating sports teams including little league, teener league, softball and football. The exception is accommodating girls' sports such as softball and field hockey. The school district programs receive first priority, but they are extensively used with permission for community events such as the annual car show. There are no fees charged except when a janitor has to be on site during hours when the schools are closed. South Lebanon Township and South Lebanon Elementary School recently put in dual use baseball/soccer fields. The toughest issue is the high school stadium field which hosts 60 events from August through November 1. The demand for use of this field greatly exceeds its capacity. The school district is so supportive of public recreational use of it fields that the overuse is a detriment to school programs. Consequently, the district

is considering an artificial turf surface. Parent groups have indicated that they are willing to do private fundraising for this project. Also needed are public restrooms, locker rooms and storage.

The district is fortunate to have supporters such as the parent groups willing to do fund-raising, individuals who provided a grant for tennis lights and facilities, and the Falcon Foundation. The Foundation provided $30,000-$35,000 to each of the four elementary school for restrooms, storage and refreshment stands to support sports use.

At one time, the school district provided funds for summer playground programs. Without the school district funding, the municipalities have had to provide summer programs either on their own, as done by Cornwall Borough and North Cornwall Township, or in partnership with community organizations, as North Lebanon Township has done with community sports organizations.

The Cornwall-Lebanon School District identified the following focus areas or initiatives regarding recreation:

- Artificial turf field
- Rail trail extension and repair of the bridge at Zinn's Mill Road
- Getting students safely to school via biking and walking
- Recreation that will get kids away from video games and computers to lead more active healthy life styles
- Continuation of the fitness and wellness program for both students and staff
- Lifetime sports
- Continuation of the lease of the VA Hospital Golf Course by South Lebanon Township or the course will be lost
- Restrooms at Lebanon County Career and Technology Center nature area used by 200 students for environmental education

Municipalities of Eastern Lebanon County School District: Heidelberg, Jackson, and Millcreek Townships and Myerstown and Richland Boroughs

Millcreek and Jackson Townships and Myerstown and Richland Boroughs each provide a summer playground program. Myerstown contracts its summer playground program. Myerstown is considering a skateboard facility. The Heidelberg Township Recreation Association provides youth sports. Heidelberg, Jackson and Millcreek use school district facilities for recreation, in addition to public parks. Sports in the municipalities are offered by community sports organizations. Jackson Township has been moving ahead in public recreation in its establishment of the three parks with street hockey, in-line hockey and skateboarding facilities and athletic fields.

Eastern Lebanon County School District

This district of 2,500 students is growing by about 20 students per year. The older smaller communities such as Myerstown and Richland are becoming rental communities as citizens leave for new, modern houses in the townships. Those who rent are generally less affluent than those who own their own homes, and the district has seen a tremendous shift in the numbers of Myerstown students who qualify for free and reduced lunch programs. The school district meets with each municipality two to three times annually to discuss proposed housing developments and projected student increases.

The Eastern Lebanon County School District facilities are the hub of recreation in the eastern portion of the county. Through a cooperative relationship, the municipalities share facilities and maintenance tasks, such as turf irrigation, and respond to community requests, such a lights for the tennis courts. Not only are the traditional ball fields and gyms available to the community, but the weight and fitness room is open to senior citizens weekdays from 10:30 a.m. until noon. A training specialist is on site to assist the senior citizens in their workouts.

The Eastern Lebanon County School District reported the following future objectives regarding recreation:

- Providing services for a population that is economically disadvantaged, diversifying and multi-lingual
- Providing more services as the district grows in response to development pressures
- Adding more school and support facilities
- Consideration of swimming facilities to teach people how to swim
- Continuing to grow collaborative relationships with the community
- More musical programs should be considered for teens as music tends to attract teens.

Municipalities of Lebanon School District: City of Lebanon and West Lebanon Township

Lebanon City once had a professional parks and recreation department. Financial challenges led to the demise of the department and regrouping as an arm of the mayor's office and partnering with the YMCA. The city gave up its recreation programs and services. In 2006, the City and the school district partnered on the Super Summer Camp in Coleman's Park. In 2007, the park's Board of Trustees began discussion on the need to update and master plan the park to meet contemporary recreation needs and standards.

Lebanon School District

The 154 year old Lebanon School District has 4,500 students. Half of the students are minorities with 43 percent being Latino. The District is working on the development of new recreation facilities including a 22 acre property adjacent to the high school. A bridge will be constructed to connect this site with the Lebanon Valley Rail Trail. The 22 acre parcel will be used for field hockey, baseball, softball and soccer. Private funds will be raised to meet the $3.1 million campaign goal. The school district received a 21st Century School grant of $468,000 over three years for elementary after school programs. The school district works with the YMCA and Big Brothers/Big Sisters in youth services. In 2006, the school district and the city partnered on the Super Summer Camp for middle school children at Coleman Park. Lebanon is one of the ten communities in the state to receive the designation of Blueprint Community. Housed in Northwest Elementary School, the program has a task force to coordinate all the best practices of city management and redevelopment, including recreation.

The Lebanon School District identified the following pressing issues for this school district:

- Involvement and services to the Latino community are much needed.
- Truly safe routes to school need to be established. Interviewees were particularly concerned with child "predators," individuals and groups who lurk in public places to engage students in negative behaviors such as substance abuse, gang participation, truancy, and other forms of self-destructive, anti-social behavior and juvenile crime.
- Generate feelings of trust among the citizens as a result of effective programs and improvements in public safety.
- Elimination of gangs.
- City-wide wireless network that would help to get people to move back into the city thereby adding more school support.
- Trail connectors.
- Adult programs.
- Funding for Coleman Park.
- Capacity for more kids to go to the YMCA
- More scheduled, organized activities and places for kids to congregate safely, away from negative influences.

Municipalities of Northern Lebanon School District: Jonestown Borough and Cold Spring, Bethel, East Hanover, Swatara, and Union Townships

Union Township is the only municipality with a recreation program. The other municipalities depend on the YMCA and the school district for recreation. The YMCA is an important provider of recreation services in northern Lebanon County including programs for people of all ages from tots through senior adults, aquatics, gymnastics, summer camps, adult sports leagues, off-site programs in partnership with municipalities and school districts and child care.

Northern Lebanon School District

The "Northern Lebanon Way" is rooted in collaboration and communication between the school district and the municipalities. The 144 square mile, 2,500 student School District instituted the Northern Lebanon Joint Planning Program in which the district and the municipalities meet every six to eight weeks. During an evening supper, the participants discuss issues of common concern in an open forum. There is no voting or priority setting. As a result of the discussions, municipalities are now sharing equipment and staff. There are three key areas of interest: Recreation, Land Use, and Growth. The district is teaming with the YMCA on recreation programming for citizens of all ages, not only students. Senior adults use the school facilities in the summer. During the senior adult recreation program development, transportation emerged as an issue. As a result, the district is studying transportation to determine how to provide transportation for senior adults who do not drive. They are a significant portion of the school district's tax base. The school district has worked with municipalities in creating safe routes to school by fronting the required match to the grant funds to enable the municipalities to participate. Other collaborative ventures include:

- Shared maintenance in which the municipalities provide the labor and equipment while the school district provides the materials
- Working with the municipalities to plan and guide new development towards planned growth areas and away from conservation areas
- Seeks grants for conservation and recreation facilities. The district has received Growing Greener funding for several construction projects
- Offering recreation programs, facilities and services are among the district's highest priorities.

The Northern Lebanon School District identified the following future objectives related to recreation:

- Transportation planning to develop the means to transport citizens who do not drive to recreation facilities and program sites
- Establishment of a YMCA facility in the northern end of the county
- Provide services to all citizens, not just the school age population, especially senior adults and active aging adults
- Establish the school district as source of assistance, information and direct services for recreation for senior citizens to keep this age group active and involved in the community
- Responding to the community and anticipating future opportunities and emerging needs
- Trails

Municipalities of Palmyra Area School District: Palmyra Borough, North Londonderry and South Londonderry Townships

Palmyra Borough and North Londonderry and South Londonderry Townships are progressive municipalities in the realm of regional recreation. PARPC provides over 200 programs and services year round for the citizens of these communities. Travel time to facilities is an issue for PARPC as residents want to have facilities close-to-home. Most programs are for youth. Senior Adult programs are AARP programs.

Palmyra Area School District

The Palmyra Area School District has the highest growth rate of the school districts in Lebanon County. There is an influx of new residents moving into this school district from Dauphin County. The school district is growing so quickly that it has 14 modular units serving as class rooms. The district and its municipalities formed the Palmyra Area Recreation and Park Commission (PARPC) in 1974. This formal, jointly funded organization with a full-time recreation professional is a statewide model and a progressive way of delivering community recreation services. The growth has resulted in pressure on sports fields and demand is exceeding capacity. Girls' lacrosse is a PIAA sanctioned sport, yet there is no field for this sport. All recreation programming is done by PARPC using both school district and municipal facilities. The high school pool is the home of the area's recreational aquatics program. The school district will be investing about $400,000 to renovate the pool. Over the next ten years, about 729 additional students are expected to join the student body. This equates to about 28 new classrooms with 25 students per classroom. Housing trends show that residents are moving out of the borough and into the outlying townships. People are also moving from Lebanon City to the Palmyra area. The Palmyra Area School District is the district with the highest proportion of students in the free and reduced lunch program. About 90 percent of the recreational use of school facilities is through PARPC and there is no charge for this use. The school district does not have enough soccer fields or gyms. Gyms are needed for middle and high school wrestling and basketball. The district is adding a full size gym in Pine Street Elementary School but had to eliminate plans for a second gym at the high school due to cost.

The Palmyra Area School District identified the following focus areas or initiatives regarding recreation:

- Addressing the need for additional gyms and soccer fields. School district facility expansion has resulted in the elimination of some existing soccer fields
- Continued association with PARPC
- Meeting the needs of a growing, diversifying and disadvantaged population
- Trails and rail trails
- Conveniently located recreation facilities and services
- More parks
- More areas for public gathering
- Conservation of open space and natural resources

Program and Service Conclusions

1. Lebanon County Planning Department provides quarterly housing reports, which help the school districts in planning for future students. In the school district work sessions, the superintendents reported the value of these reports in facility and service planning which encompasses community/school recreation.
2. Recreation programs and services are available in Lebanon County; however, they are scattered and not coordinated. Volunteer organizations such as athletic associations and parks and recreation boards provide most of the organized programs in the municipalities. Better coordination and promotion of parks and recreation would enhance public service and better allocate available funding
3. There is no on-going needs assessment regarding parks and recreation in Lebanon County.
4. Close-to-home recreation opportunities focus primarily on sports and summer recreation programs for youth and community festivals. Citizens of all ages need to have recreation opportunities that they can enjoy year-round throughout their lifetime. Services for a diversifying and aging population are needed; service to the Latino community and low income residents should be a priority. Recreation opportunities in addition to sports are important including, the arts, volunteerism, music, drama, special events, self-improvement, fitness and wellness and environmental education and nature.
5. Lebanon County is just beginning to become involved in the environmental education field. The programs that began in 2005 have already proven to be popular. Developing expertise in programming and environmental education, promotion, partnerships and revenue generation is needed.
6. The Palmyra Area Recreation and Park Commission provides full service municipal recreation services with over 200 programs annually and should serve as a model to other school districts in the county
7. Professional recreation programs and services are greatly needed in the City of Lebanon.
8. Since all six districts host community recreation programs at their facilities, school districts play a crucial role in community recreation programs and services. Several districts also provide programs and services including services for senior adults and during school hours.
9. Promoting recreation programs and services to increase public awareness of the opportunities is crucial.
10. There is a need for more public/private partnerships, like the AES Ironwood and Avon Playground collaboration.

Parks and Recreation Operation, Management and Financing

Federal and State Agencies

Due to the number and size of federal and state lands in Lebanon County, six federal and state agencies provide operation and management of recreation lands in the county. In association with the National Park Service, the 1,200 member Appalachian Trail Club oversees the 16-mile stretch of the trail in Lebanon County. The Pennsylvania National Guard oversees management of Fort Indiantown Gap Military Reservation. PA DCNR Bureau of State Parks manages the two state parks: Swatara and Memorial Lake State Parks. The Pennsylvania Game Commission is responsible for the six state game lands, and the Pennsylvania Historic and Museum Commission directs the Cornwall Furnace site.

Federal and state agencies' operations and management of these recreation lands is based on the purpose and needs of the resources in meeting each agency mission and is funded by tax payer dollars as a shared resource. Roughly 50% of residents reported being satisfied or very satisfied with state parks and state game lands. Residents are most interested in better promotion of the opportunities available on federal and state recreation lands among operation and management improvements. About 66% of the respondents in the 2004 statewide recreation survey agreed that local and state government needs to do more to increase awareness about parks and recreation. The county's role in promotion of parks and recreation was not addressed in the survey. However, it is assumed based on these findings, that promotion of parks and recreation is needed in Lebanon County overall.

Lebanon County

Lebanon County does not have a parks and recreation department nor does it budget for parks and recreation. The county works with its internal departments, private sector partners, and volunteers to operate and manage county-owned or county-affiliated parks. The Lebanon County Planning Department assists in park planning and development through grant preparation and coordination. The County Maintenance Department and volunteers provide park maintenance. The Lebanon County Historical Society provides the management and maintenance for Monument Park and Union Canal Tunnel Park.

The Clarence Schock Environmental Center at Governor Dick is partially funded with a $15,000 grant from the Clarence Schock Foundation (formerly known as the SICO Foundation) annually matched with a $15,000 appropriation from Lebanon County. As a 501(c)(3) corporation, the Advisory Board also accepts donations and utilizes volunteers. When the Center was developed, agreements were made that tax funds would only be used for the development of the center, that programs would be free to the public and that there would be no additional fund raising. This agreement has resulted in severe limitations on revenue generation either through fees and charges, tax support and private fund-raising. The only other categories of funding that remain available to the center are grants, gifts and bequests. Operations of the Clarence Schock Memorial Park are partially funded by the co-trustees; however, additional funds will be necessary in order for the Board to maintain the park.

Nature Centers typically generate significant revenue with upwards of two-thirds of their budgets originating from fee charges, memberships, fund raising, sales, rentals, grants, gifts, donations, and bequests. Without the ability to charge for services, the center cannot grow and provide public service to the extent possible with an adequate budget and staffing. Programs, services and management are extremely limited by the capacity of the staff that only works part time, about 900 hours per year. While volunteers are usually viewed as free labor, they actually cost money in terms of the supervision, recruiting, training, recognition, coordination, evaluation and management that results in quality, sustainable programs.

Regional Recreation Partnerships

The Palmyra Area Recreation and Parks Commission (PARPC) is a regional recreation commission supported by three municipalities and their school district and managed by a professional parks and recreation staff. While the PARPC's financial information has not been made available, it is known that the Palmyra Area School District contributes $12,500 annually and it is assumed that most of the operating budget is generated through fees, charges, partnerships and sponsorships from the programs and events.

Municipalities

Twenty-two municipalities manage independent municipal park and recreation functions. In many cases, municipalities work together with their school districts to provide facilities and with community organizations to provide organization and oversight to sports program. Such programs are often open to residents from surrounding municipalities.

The average annual per capita municipal investment in parks and recreation in Pennsylvania is about $23 per year. According to the Center for Local Government Services, about 69% of small Pennsylvania communities spent about $10,100 annually on parks and recreation in 1999, or roughly 2-4% of their municipal budgets. Small boroughs typically spent about $11,380 or $12.22 per capita, while small townships spent about $5,600 or $3.92 per capita. Municipalities with regional recreation agreements spent about $8.75 per capita while those operating independently spent about $9.30[5].

Levitz Park

East Hanover Township offers a fine example of how a small community can provide big recreation opportunities. With about 2,600 citizens, East Hanover Township developed and maintains the 105-acre Levitz Park with virtually no tax money. A school district employee bequeathed the land to the Township. Through grants, in-kind contributions, public-private partnerships, bartering, and a creative use of resources, the Township in collaboration with Lebanon County created this community park. Partnerships with organizations and agencies, such as PA DEP, enabled the Township to accomplish park improvements in return for lending the park facilities for use by the partners. Levitz Park has athletic fields, volleyball courts, rinks, a pond, picnic areas, pavilions, a log cabin, restrooms, and trails. Significant natural areas including the Swatara Creek provide important environmental education and recreational opportunities. An on-site caretaker provides park oversight and recreational programs and events in return for housing.

Interviews with most Lebanon County municipalities did not generate budget information for parks and recreation. Park and recreation budget figures from the five municipalities that provided them are shown in Table 5-16. Thirteen municipalities indicated that they have parks and recreation budgets or line items in their municipal budgets though they did not provide the figures; this unspecified support is noted as "Yes" in Table 5-16. Eight municipalities have no parks and recreation budget or did not reply to the request for information and are listed as "No" in the table: North Annville, South Annville, North

[5] Ibid. p.7.

Cornwall, Millcreek, West Lebanon, Cold Spring, East Hanover, and Union Townships. Based on this incomplete information, the municipal investment in parks and recreation in Lebanon County appears to be minimal, a likely condition in a county with a long rural history.

Other Operations and Management Organizations

In addition to municipal or regional funding for parks and recreation there are two organizations dedicated to operating two important parks in Lebanon County: the Advisory Board of the Clarence Schock Memorial Park at Governor Dick (described previously) and the Coleman's Park Board of Trustees. Coleman's Park in the City of Lebanon operates with a $150,000 annual budget. Of this budget, the City of Lebanon provides about $36,000 in cash along with in-kind services which add another $15,000-$20,000 in value. Furthermore, the City donates used equipment to the Board for park maintenance. The rest of the budget is generated through facility rentals and donations. In 2007, after a 3 year hiatus, the County of Lebanon reinstituted financial support to the park in the amount of $23,200 annually.

Model: Churchville Nature Center

The Churchville Nature Center in Bucks County provides environmental education for school districts, public programs, hosts clubs and community organizations, operates a gift shop, does fundraising, has a volunteer program and a Friends of the Churchville Nature Center group. Started in 1965, CNC serves over 42,000 people in organized programs, 38,000 visitors, 1,000+ volunteer hours, and about 5,000 participants in clubs and community events. CNC has developed school curricula for environmental education and trains teachers from four school districts in addition to providing actual programs on site for the students. Operating on a $425,000 annual budget, only 32 percent comes from tax dollars, which has not increased in over a decade. Park maintenance is performed by volunteers. CNC is a county treasure loved and visited by the citizens year round.

Operations, Management and Financing Conclusions

1. The operation and management of parks and recreation in Lebanon County is fragmented and uncoordinated.
2. The Palmyra Area Recreation and Park Commission is a model organization, for a formal written agreement, for the operation, management and financing of a regional parks and recreation system.
3. Although Lebanon County owns over 1,200 acres of park land, the county does not have a parks and recreation department. The county manages its holdings through partnerships and volunteers who are coordinated by partnering organizations. Consideration should be given to establishing a formal county role in parks and recreation given the county's existing investment in parks and recreation and the potential for an expanded network.
4. There is no formal planning, budgeting and evaluation of parks and recreation in Lebanon County. Maintenance management is performed as needed in most parks and recreation systems in the county without a documented maintenance and management program.
5. As a countywide trail network is planned and developed, the creation of an entity to oversee Lebanon County Trails should be considered.
6. Operating budgets for parks and recreation are lower than the averages of the state overall. There is little tracking of parks and recreation spending. Tracking of expenditures and revenues would help to set benchmarks and assist in future planning and more effective allocation of resources.
7. The Peer-to-Peer Study already funded by PA DCNR to explore operations, programming and financing of the Clarence Schock Environmental Center at Governor Dick Park is an important project that will help to ensure the future success of the Center through the development of strategies for effective management.
8. PA DCNR has agreed to fund a Peer Study for Lebanon City/County Parks and develop a recreation management plan when the environmental center peer project is completed. The County and the City can explore this opportunity in the future based upon the recommendations of this plan and circumstances at the time.
9. With a successful regional parks and recreation system in place for nearly 35 years, the creation of additional regional parks and recreations systems should be considered. Rather than having municipalities operating independently, several regional associations could be formed. These could be congruous with school districts for maximum efficiency and coordination.

Table 5-16 Municipal and Regional Park and Recreation Operating Budgets in Lebanon County

Jurisdiction	2006 Parks & Recreation Budget ($)	2000 Population	2006 Annual Per Capita Parks & Recreation Investment
Annville-Cleona School District			
Annville	$1,000	4,518	$0.22
Cleona	$22,375	2,140	$10.45
North Annville	No	2,279	
South Annville	No	2,946	
Cornwall-Lebanon School District			
Cornwall	Yes	3,486	
Mount Gretna	Yes	242	
North Cornwall	No	6,403	
North Lebanon	$142,091	10,629	$13.36
South Lebanon	Yes	8,383	
West Cornwall	Yes	1,909	
Eastern Lebanon County (ELCO) School District			
Heidelberg	$4,000	3,832	$1.04
Jackson	Yes	6,338	
Millcreek	No	2,921	
Myerstown	Yes	3,171	
Richland	Yes	1,508	
Lebanon School District			
City of Lebanon	$201,065	24,461	$8.22
West Lebanon	No	836	
Northern Lebanon School District			
Bethel	Yes	4,526	
Cold Spring	No	49	
East Hanover	No	2,858	
Jonestown	Yes	1,028	
Swatara	Yes	3,941	
Union	No	2,590	
Palmyra Area School District			
Palmyra Area Park and Recreation Commission	Yes	19,325	
North Londonderry	Yes	6,771	
Palmyra	Yes	7,096	
South Londonderry	Yes	5,458	
Palmyra Area School District	$12,500	19,325	

Source: Municipal interviews, 2005/2006.

Tourism: Recreation as Economic Development

Visitors are drawn to Lebanon County for its scenic, recreational and cultural attractions. The Lebanon Valley Exposition Center and Fairgrounds and the Lebanon County Tourism Promotion Agency serves as the tourism agency for Lebanon County. The four major tourist attractions promoted by this organization include two cultural parks (Cornwall Iron Furnace and Union Canal Tunnel Park), Historic Schaefferstown, and downtown Lebanon. Other public parks and recreation attractions promoted include Middle Creek Wildlife Management Area, Swatara Creek Water Trail, Lebanon Valley Rail Trail, the tower at Governor Dick, and Fort Indiantown Gap. In addition to public recreation attractions, the tourism agency promotes many private facilities including commercial fisheries, golf courses, camp grounds, a BMX facility, shopping areas and restaurants in the county. These facilities not only provide important recreation opportunities but also attract thousands of people who spend their money in Lebanon County. These facilities are crucial to tourism and the economic vitality of Lebanon County.

Economic Value of Outdoor Recreation Activities

Citizens spend a great deal of money on their recreational pursuits. Table 5-17 presents average activity costs by activity (2003) dollars.

Table 5-17 Average Annual Recreation Activity Costs

Activity	Equipment Cost	Non-Equipment Cost	Total Cost
Hunting/sport shooting	$2,616	$774	$3,390
Off-road motor sports	$2,646	$366	$3,012
Horseback riding	$1,618	$998	$2,616
Boating/canoeing/kayaking	$971	$221	$1,192
Camping	$953	$272	$1,225
Fishing	$204	$718	$922
Bird or wildlife watching	$150	$760	$910
Wilderness visits	$411	$161	$572
Snowmobiling	$230	$315	$545
Golf	$151	$357	$508
Sightseeing/driving for pleasure	$260	$345	$605
Hiking	$76	$410	$486
Snow skiing	$164	$246	$410
View nature	$159	$190	$349
Baseball/softball	$185	$61	$246
Tennis	$84	$112	$196
Picnicking	$46	$145	$191
Nature walks	$65	$117	$182
Bicycling/mountain biking	$92	$74	$166
Jogging	$58	$78	$136
Swimming	$240	$68	$308
Skateboarding	$98	419	$117
Basketball	$71	$43	$114
Football/soccer	$35	$72	$107
Walking for pleasure or fitness	$39	$67	$106
Rollerblading	$53	$38	$91
Ice skating	$23	$59	$82
Sledding	$12	$50	$62

Source: Pennsylvania's Recreation Plan 2004-2008 Executive Summary p17, as revised by Toole Recreation Planning

In 2003, Pennsylvanians spent over $11.5 billion dollars on their recreation activity costs. This amount extrapolated for Lebanon County equals over $103 million or about $860 per person.

Source: 2004 PA DCNR Resident Recreation Survey

Outdoor Traveler Study[6]

Outdoor recreation travel and heritage tourism represent a significant portion of the Commonwealth's total visitors. Tourism is Pennsylvania's second leading industry, second only to agriculture. Eco-tourism and nature-based recreation are growing in participation.

In 1997, about 14% of travel in Pennsylvania was for outdoor recreation and accounted for 23% of the total travel dollars spent. Between 1995 and 1997, Pennsylvania's outdoor recreation travelers' expenditures grew at more than double the rate of Pennsylvania total travelers' expenditures. The trend is toward increased travel for outdoor recreation at a growth rate of about 2% annually. Visitors to public lands such as game lands, parks and forests accounted for about 34% of the revenues generated by outdoor recreation travel or about 11.5% of all leisure travel in Pennsylvania.

PA DCNR Outdoor Traveler Study

Strong growth in the outdoor recreation market is becoming an increasingly critical component of Pennsylvania's tourism and future economic well being.

Pennsylvania Heritage Tourism Study[7]

Closely related to outdoor travel is heritage tourism. The Pennsylvania Heritage Tourism Study conducted in 1999 found considerable crossover between heritage travelers and outdoor recreation travelers. The main difference was that heritage tourists tended to be older.

Heritage tourism is an important and growing part of Pennsylvania's tourism economy. From 1996 to 1997, heritage tourism increased 23% while spending increased by 15%. About one in four of Pennsylvania's leisure travelers is a heritage tourist. A typical Pennsylvania heritage tourist is 43.2 years of age, married, employed in a white-collar position such as a professional or managerial position, with a high average annual household income and traveling as a family or in an adult party of three or more.

Heritage Tourism

The Pennsylvania Heritage Tourism Study defines Heritage Tourism for Pennsylvania as a broadly defined travel market that encapsulates a wide variety of historic, cultural and outdoors activities. The most popular attractions are Pennsylvania's historic towns/districts, the Liberty Bell, Gettysburg's battlefields, Amish country and various museums and attractions throughout the state.

Expansion of tourism attractions to include more heritage components has potential for Lebanon County and should include:

- Continuing to advertise the heritage locations and activities in Cornwall Iron Furnace and Union Canal Tunnel Park and add other sites in the future.
- Tying heritage promotion with outdoor recreation travel promotion, as there is a great deal of crossover between the two.
- Focusing on the promotion of Lebanon County's historic towns and districts as well as the Amish heritage.
- Promoting the fun, educational and scenic aspects of the county.
- Utilizing the extensive agricultural assets of the county to promote agri-tourism initiatives.

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[6] Shifflet, D.K. and Associates. (1998). DCNR Outdoor Traveler Study. Harrisburg: Pennsylvania Department of Conservations and Natural Resources.

[7] Shifflet, D.K. and Associates. (1999). Pennsylvania Heritage Tourism, Harrisburg: Pennsylvania Department of Conservation and Natural Resources.

MODEL: York Heritage Rail Trail

The York Heritage Rail Trail generates over $10 million annually for York County's economy. About 70 percent of the trail visitors are residents of the county while 30 percent are tourists. The York Visitors Bureau has a ten year agreement to fund the York Heritage Rail Trail Authority with $50,000 annually to support professional staff and other operating expenses. This funding is generated by the proceeds of the hotel tax because the rail trail is an important tourist attraction.

The Value of Outdoor Recreation Activities

How much is the outdoors worth in monetary terms? Quite a lot, according to a study conducted for the state of Pennsylvania. The study focused on three activities - hunting, fishing, and trapping - computing two measures of their economic significance. Although the study took into account the collateral activities (such as bird watching) of the survey participants and their families, it did not include hikers, canoeists, cross-country skiers, and the many others who use the outdoors.

The first measure was the total impact of expenditures on those activities, including both direct and induced expenditures. That value came to $9.6 billion in 1997, or equal to "more than half of Pennsylvania's total state budget" for that year. The study also found that more than 88,000 jobs were created by these sports. Most survey respondents in this study indicated that communities, families and individuals benefit from the existence and maintenance of wildlife resources.

The Value of Fishing, Boating, and Hunting in Lebanon County

The Pennsylvania Fish and Boat Commission tracks fishing and boating licenses purchased in Pennsylvania according to the county in which the licenses were purchased. While there is no tracking of where people fish or boat after they purchase their license, these figures in Table 5-18 give some sense of the economic benefit of fishing.

Table 5-18 Fishing, Boating, & Hunting Licenses Purchased in Lebanon County

License Type	Licenses Purchased in 1996	Licenses Purchased in 2005	Change in Licenses Purchased, 1996-2005	2005 Estimated Expenditures by Participants
Fishing	9,411	8,131	-13.6%	$1,951,440
Watercraft	3,529	3,659	3.7%	$878,160
Hunting	n/a	34,063	n/a	$4,189,749

Source: Pennsylvania Fish and Boat Commission

Annually, there are about 18 million fishing trips in Pennsylvania. A study by the U.S. Fish & Wildlife Service determined that the value of these trips translates into $1.3 billion dollars in the Commonwealth's economy. According to the Center for Rural Pennsylvania, anglers in Pennsylvania spend about $40 per trip for a median of six trips annually. Hunters take about half as many trips with three trips as the median annually. They spend about $41 per trip[8]. Based on these very rough figures and projections, the annual value of fishing for those licensed in Lebanon County is over $7 million in the economy although where they spend their money is unknown. No information is available on just where hunters and anglers go to hunt and fish nor is information available on how many people from outside the area come to Lebanon County for these purposes.

[8] Shafer, E.L. Dick. (2000) *Economic Values and Impacts of Sport Fishing, Hunting and Trapping Activities in Pennsylvania*. Harrisburg, PA: Center for Rural Pennsylvania. pp 8-10.

Tourism Conclusions

Outdoor recreation travel and heritage tourism have great potential in Lebanon County. Based on current facilities, programs and promotional efforts, the following conclusions about how to move ahead in this area are offered:

- Hunting, fishing and wildlife watching should be major components of promotion both within and outside of Lebanon County. The successful PA WILDS initiative in northern Pennsylvania demonstrates the value and interest in this subject.
- Potential topics related to tourism that could be pursued as tourism and recreation themes include: coal mining, railroads, City of Lebanon industrialists (e.g. Bethlehem Steel and individual.), bologna, agriculture, military history as related to FTIG. Individual sites of interests such as Babe Ruth's house in the City of Lebanon can contribute to a rich venue of things to see and do in Lebanon County. Combined these make up the unique heritage of Lebanon County.
- With hunting and fishing on the decline, it is important to offer programs in these sports to children and youth to cultivate the next generation of hunters and anglers.
- Public lands provide extensive opportunities for outdoor recreation by sportsmen. These lands should continue to be managed, and expanded where feasible. Since many people who hunt and fish also use private land, it is important to develop outreach programs with private landowners including education and incentives for wildlife habitat management.
- Develop and implement a system to collect, monitor and report information about the economic value of outdoor recreation, heritage and eco-tourism.

Summary

Recreation in Lebanon County plays an important role in the quality of life, community service, and economy. Nature-based recreation in the great outdoors, close-to-home parks and recreation programs and tourism are Lebanon County's themes in recreation. The Recreation Profile presents the existing elements of parks and recreation in Lebanon County along with the opportunities and challenges of the 21st century. The opportunities include the tremendous natural resources, the strong sense of community in which citizens and organizations work together, and a solid planning program that will foster implementation of actions towards a common vision for Lebanon County. The challenges for the future include:

- insuring an adequate supply of park land and recreation facilities, protection of natural resources that support both the environment and recreation
- creating connectivity through trails and greenways
- strengthening regional collaboration and partnerships
- tapping a mix of providers in the public and private sectors to offer programs and services and
- developing creative strategies to make the best use of limited financial resources.

Money spent on parks and recreation is an investment, not a cost! As this profile shows, parks and recreation yields important returns in tourism dollars, attraction and retention of businesses with jobs, elimination of social program costs through prevention and deterrence of anti-social behavior, and open space preservation.

Natural Resources Profile

The Natural Resources Profile is designed to identify and analyze the vast assortment of natural resources that are found within or have an influence on Lebanon County. These resources and features include the physical geography; topography; soils; geologic formations and physiographic provinces; water resources; wellhead protection; woodlands; and wildlife and their value to economic pursuits, such as agriculture and forestry, and to the county's overall environmental quality.

The purpose of the profile is to help local, regional, and state government officials and decision-makers, developers, and citizens make more informed planning decisions. Sensitive environmental resources, threats to resource existence and function, development impacts, and types of protection techniques are of specific interest, as they aid in the identification of natural resources in need of remediation, features that impose development constraints, areas to be preserved, and places that are well-suited for development.

Physical Geography

Lebanon County is located in the Lebanon Valley between South Mountain, which rises to an elevation of 800 to 1,000 feet, and the Blue Mountain Chain to the north, which reaches peaks of 1,300 to 1,500 feet. The Lebanon Valley is divided into several smaller valleys by lines of hills parallel to the ensconcing mountains. The valley lies on the northern edge of the Southeast Piedmont Climatological Division which also includes Dauphin, Berks, Lancaster, Chester, Bucks, Montgomery, Delaware, and Philadelphia Counties and is more or less a transition zone from the piedmont region to the East Central Mountain and Middle Susquehanna Climatic Divisions.[1]

Climate

The climate of Lebanon County is best described as humid continental. Most of the weather systems that affect the county develop in the Central United States and are modified considerably after traversing the Northern Plains and the Midwest and crossing the Appalachian Mountains. The climate is also influenced by the Atlantic Ocean. The proximity to the ocean, combined with modifying influences on frontal systems approaching from the west results in a climate where extremes only occur under the influence of unusually powerful weather systems.

During the summer, highs typically reach into the mid 80s and lows dip into the 60s at night. Extended periods of hot and humid conditions do occur, and 90 degree plus readings are recorded on an average of 25 days a year. The warmest month is usually July. During the winter, colder temperatures seep in through the Canadian air masses. Daytime highs average in the upper 30s, and nighttime lows drop into the lower 20s. On average, the coldest month is January.

Precipitation is distributed throughout the year though slightly less precipitation falls in the winter months. Total average annual rainfall is roughly 44 inches.

Table 6-1 Average Temperatures and Precipitation (Regional)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
East Central Mountains												
Temperature	25.5°	27.9°	37.8°	48.3°	58.9°	67.4°	72.3°	70.4°	63.0°	51.9°	41.9°	30.7°
Precipitation	3.12"	2.80"	3.27"	4.01"	4.54"	4.07"	4.42"	4.21"	4.12"	3.29"	3.95"	3.49"
Middle Susquehanna												
Temperature	25.2°	27.7°	37.8°	48.7°	58.9°	67.4°	71.9°	70.2°	62.9°	51.6°	41.5°	30.5°
Precipitation	2.46"	2.58"	3.08"	3.16"	4.00"	4.25"	3.89"	3.46"	3.60"	3.17"	3.56"	2.97"

Source: USDA, National Agricultural Statistics Service – PA Office

Topography and Steep Slopes

The topography of Lebanon County can be described as a fertile valley nestled between two ridges to the north (the Blue Mountains) and one ridge to the south (South Mountain). The steepest slopes (greater than 25%) are found along the ridges in the northernmost part of the county, but local areas of precautionary slope (15% to 25%) and steep slopes (greater than 25%) can be found throughout the county. Steep slopes can also be seen along the ridge in the southern portion of the county, most

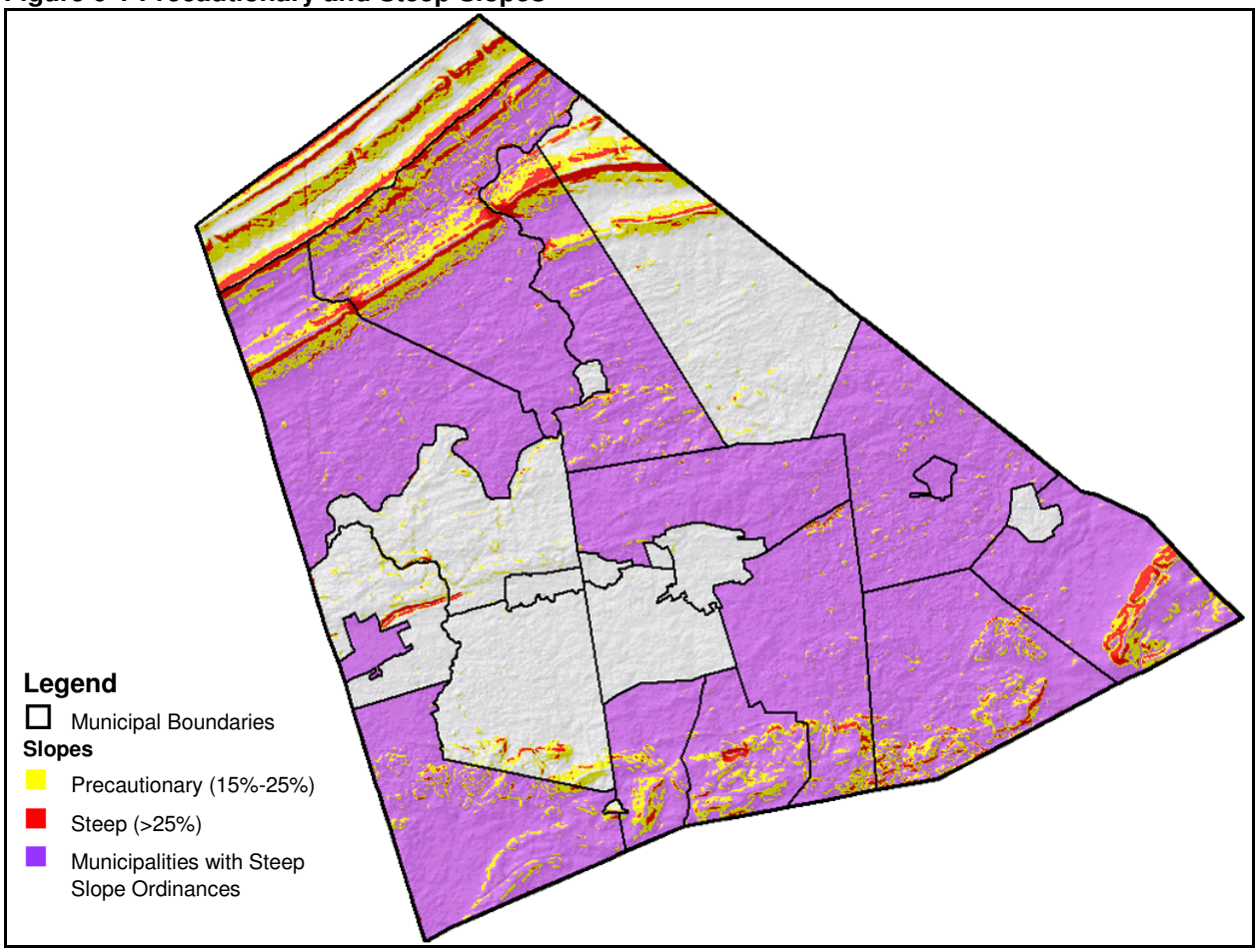
[1] Earth and Mineral Sciences, the Pennsylvania State University.

noticeably in Millcreek Township. Throughout the county, there are over 23,300 acres consisting of precautionary slopes of 15% to 25% grade. This amounts to 10.0% of all of the land in the county. Areas of steep slope (> 25%) are found in 4.0% of the county, over 9,200 acres. The topography of Lebanon County can be seen in Figure 6-1.

The topography of a landscape greatly affects the degree of development that is possible. Areas of steeper slope are more susceptible to erosion than shallow slopes and flatlands. As such, erosion concerns need to be considered prior to development approval and may result in limits to site disturbance. Additionally, it is often more difficult to install public utilities, such as sewer and water lines, in areas of steep slopes, limiting development to densities serviceable by on-lot systems. In addition, soils on steep slopes are often slightly to severely rocky. These constraints typically discourage agricultural uses and more intensive development from locating in these areas, leaving them naturally covered with woodlands and forests.

Municipal regulations have been implemented to formally address land use and development in these areas of steep or precautionary slope. These regulations are addressed at the end of this profile.

Figure 6-1 Precautionary and Steep Slopes



Sources: Lebanon County Soil Survey; United States Geological Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Blue Mountain - Kittatinny Ridge Conservation Project

The Kittatinny Ridge Project, led by Audubon Pennsylvania, is a collaborative effort of local, regional, and state organizations and agencies to focus public attention on the importance of the 185-mile long forested Ridge through Pennsylvania; and to promote conservation activities to protect the Ridge from further habitat loss, fragmentation, and inappropriate land use.

The Kittatinny Ridge (also known as Blue Mountain) is a long mountain ridge that winds 185 miles through eastern and central Pennsylvania, to the Maryland line. The Ridge is a globally-significant fall migration flyway used annually by tens of thousands of raptors and vultures and millions of songbirds, and has been designated by Audubon Pennsylvania, as the largest of the state's "Important Bird Areas." The many rock outcroppings along the ridge also make it an excellent place to watch migrating hawks, eagles and vultures. Hawk Mountain Sanctuary and Audubon's Hawk Watch at Waggoner's Gap are located along the Ridge. Locally, an excellent migratory bird watching location is Second Mountain Hawk Watch, just off Cold Spring Road at the northern edge of Fort Indiantown Gap Military Reservation.

Kittatinny Ridge Conservation Corridor includes 160 miles of the Appalachian Trail; and serves as a vital link in the Appalachian Forest that stretches the length of the East Coast, providing critical, high quality interior-forest habitat for dozens of species of songbirds, mammals, reptiles and amphibians. The Ridge also protects important drinking water supplies and stream habitat.

Currently, the project is working on implementation of the following goals for the Blue Mountain - Kittatinny Ridge Project

- Develop a long-term vision for the Ridge as a unique natural corridor through an open, public-input process
- Develop tools and programs to help empower citizens, local governments, landowners, and civic groups to implement the vision at the local level[2]

The Highlands

The northeast-to-southwest orientation of the Highlands is apparent across New York and New Jersey, where lakes and reservoirs speckle the mostly forested region. In Pennsylvania, the Highlands form a chain of ridges and hills that culminate in the dramatic heights above the city of Reading. Pennsylvania's Highlands region expands to include the forested hills south and west of the Reading extension. Within Lebanon County, the Highlands extend across the southern portion of the county following the South Mountains.

The region's rivers are often born in the Highlands; their courses conform to the region's corrugated structure. The major rivers of the four-state area, Hudson, Delaware, Schuylkill, and Susquehanna, slice through the Highlands' topography.

The majority of the region's timberland is privately owned, most of it in small lots of fifty acres or less. Large, unbroken tracts of forest are home to many species, especially large mammals such as black bear, bobcat, and river otter. The Highlands are a rich mosaic of habitats, the result of its many water bodies, rugged terrain, varied soils, and several forest types. Possessing wetlands, bogs, swamps, glades, ravines, ridges, and large tracts of forest interspersed with grassland, pasture and cropland, the Highlands support diverse plant communities and a large number of animal species; it is rich in biological diversity. Over 100 plants and almost 50 animals listed on Federal or State inventories of species that are endangered, threatened, or of concern find harbor in the Highlands. The Highlands are vital to neotropical birds, tiny songbirds which fly above the unbroken forest during their migration and shelter there during the day.

The Highlands Conservation Act of 2004, H.R. 1964, was passed by the 108th United States Congress and signed by President Bush. It is designed to assist the States of Connecticut, New Jersey, New York and Pennsylvania in conserving priority land and natural resources in the Highlands region.

The purposes of this Act are:

> To recognize the importance of the water, forest, agricultural, wildlife, recreational, and cultural resources of the Highlands region, and the national significance of the Highlands region to the United States.
>
> To authorize the Secretary of the Interior to work in partnership with the Secretary of Agriculture to provide financial assistance to the Highlands states to preserve and protect high priority conservation land in the Highlands region.

[2] Kittatinny Ridge Project Study

To continue the ongoing Forest Service programs in the Highlands region to assist the Highlands states, local units of government, and private forest and farm landowners in the conservation of land and natural resources in the Highlands region.

USDA Forest Service has begun the Pennsylvania and Connecticut Update study in cooperation with the Pennsylvania Department of Conservation and Natural Resources, and the Connecticut Department of Environmental Protection. The first stage of the study has focused on: public involvement to identify issues, opportunities and concerns; resource data collection; and resource assessment with the aim of identifying land having high conservation value. Within Lebanon County, the lands associated with and around the Middle Creek Wildlife Preserve have been identified by the public as a "hot spot" for protection.[3] The second stage of this study, which is schedule for completion in 2007, will analyze the pattern and rate of land use change, its implications for the region's resources, and the adaptations required for a sustainable future.

Soils

The qualities of soils determine a soil's capability of supporting various types and intensities of land uses. For example, agriculture typically requires soils that are level, well-drained and fertile. Residential development in general is adaptable to a wider range of conditions, though the intensity of residential development can be limited by the soil's suitability for on-lot disposal systems and the cost of excavation. Industrial uses favor soils that are sturdy enough to withstand the heavy weights associated with the construction and operation of large industrial plants. These qualities of soils are inventoried in this section to inform the land use portion of the comprehensive plan with areas of suitability, sensitivity and hazard to future development.

The Soil Conservation Service of the U.S. Department of Agriculture, in conjunction with the Pennsylvania Department of Agriculture and the Pennsylvania State University, has compiled a detailed soil survey of Lebanon County. The survey distinguishes soil types and determines their suitability according to their properties: texture; drainage conditions; chemistry; structure, color, depth to bedrock; and maturity. The texture of a soil indicates the stability, strength, and drainage of that soil, which are important characteristics to know before farming the land, constructing buildings and roads, or installing waste disposal systems. Soils that are poorly drained have low strength and cannot support structures well. Wet soils also do not allow plant roots to obtain the oxygen they need and thus, plants do not grow well. Chemistry refers to the complex chemical reactions that take place in the soils, measured by the acidity of the soil. All of these characteristics contribute to the identification of soils and their uses.[4]

Within this section, Lebanon County soils will be described in terms of their types and properties and the abundance in the county; their agricultural suitability; their on-lot disposal system suitability. Table 6-2 provides an overview of these characteristics and conditions.

Table 6-2 Characteristics of Lebanon County Soils

Agricultural Soil Status	Acres	Percent of County
Prime farmland soils	86,087	37.1%
Farmland soils of statewide importance	46,612	20.1%
Soils developed or not ideal for farmland	99,309	42.8%
Ability of Soil to Absorb Septic Drainage	**Acres**	**Percent of County**
Somewhat limited	70,067	30.2%
Very limited	150,736	65.0%
Not rated	11,206	4.8%
Hydric Soil Inclusions	**Acres**	**Percent of County**
Yes	61,215	26.4%
No	170,794	73.6%

Sources: United States Department of Agriculture, Natural Resource Conservation Service; RETTEW Associates, Inc.

[3] Highlands of Connecticut, New York, New Jersey, Pennsylvania/ Study Update
[4] Penn State University, College of Agricultural Sciences, Cooperative Extension

Prime Farmland Soils and Farmlands of Statewide Importance

The Pennsylvania Municipalities Planning Code (PAMPC) states that a county comprehensive plan must, "identify a plan for the preservation and enhancement of prime agricultural land and encourage the compatibility of land use regulations with existing agricultural operations." "Prime agricultural land" is defined as, "land used for agricultural purposes that contains soils of the first, second or third class as defined by the United States Department of Agriculture, Natural Resource and Conservation Services county soil survey." An "agricultural operation," is defined in the PAMPC as, "an enterprise that is actively and continuously engaged in the commercial production and preparation for market of crops, livestock and livestock products and in the production, harvesting and preparation for market or use of agricultural, agronomic, horticultural, silvicultural and aquacultural crops and commodities. The term includes an enterprise that implements changes in production practices and procedures or types of crops, livestock, livestock products or commodities produced consistent with practices and procedures that are normally engaged by farmers or are consistent with technological development within the agricultural industry." [5]

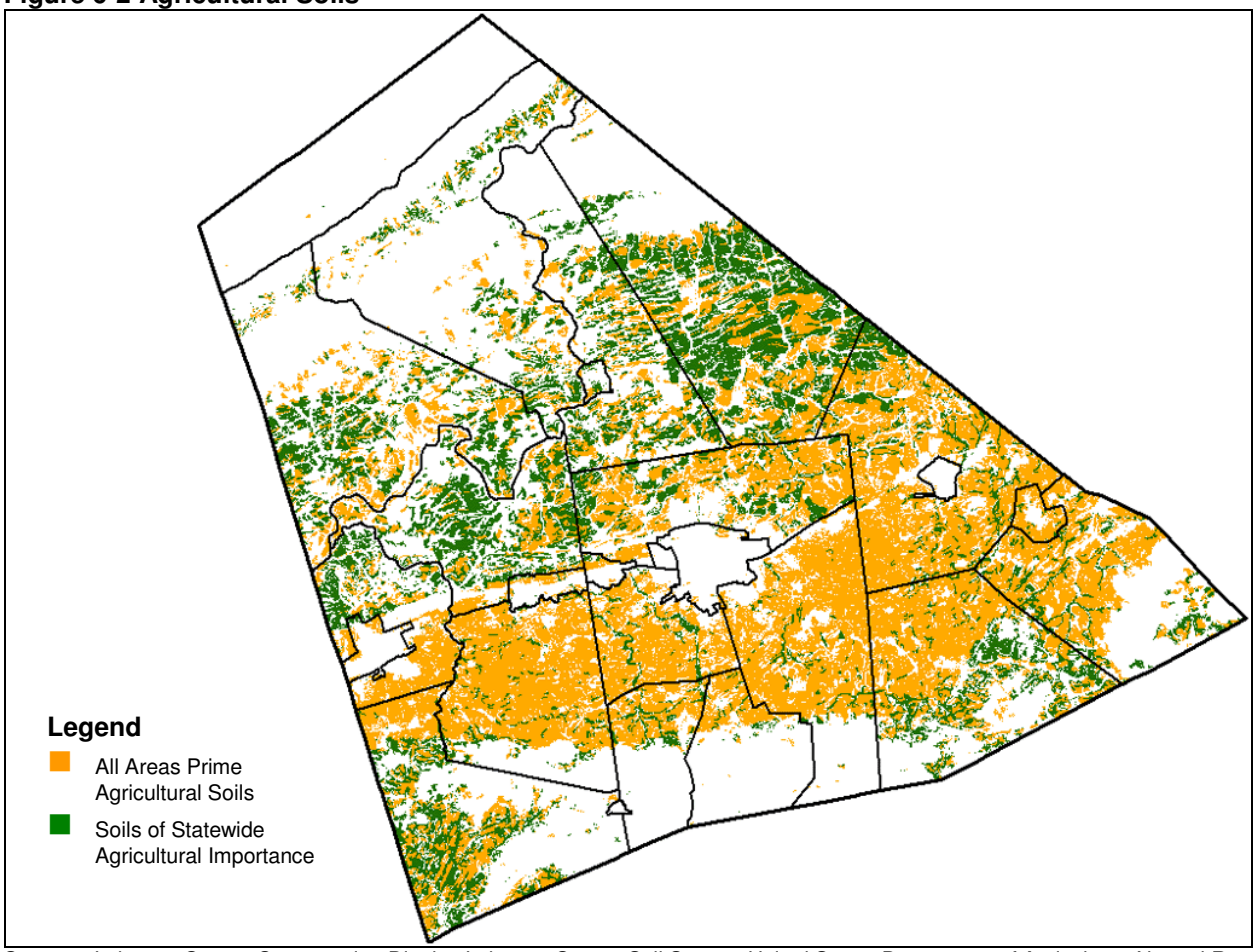
The U.S. Department of Agriculture's Natural Resource and Conservation Service classifies certain soils as Prime Farmland soils based on the following definition:

> "Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, and few or no rocks. They are permeable to water and air. Prime farmlands are not easily eroded or saturated with water for a long period of time; these soils either do not flood frequently or are protected from flooding."[6]

In addition to the Class I and II Prime Farmland soils, Class III soils are designated as additional farmland of statewide importance. Part 667 of the National Environmental Policy Act identifies additional farmland of statewide importance as, "land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land are to be determined by the appropriate State agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable. In some states, additional farmlands of statewide importance may include tracts of land that have been designated for agriculture by state law."

[5] Pennsylvania Municipalities Planning Code
[6] SSM, U.S.D.A. No. 18, 1993

Figure 6-2 Agricultural Soils



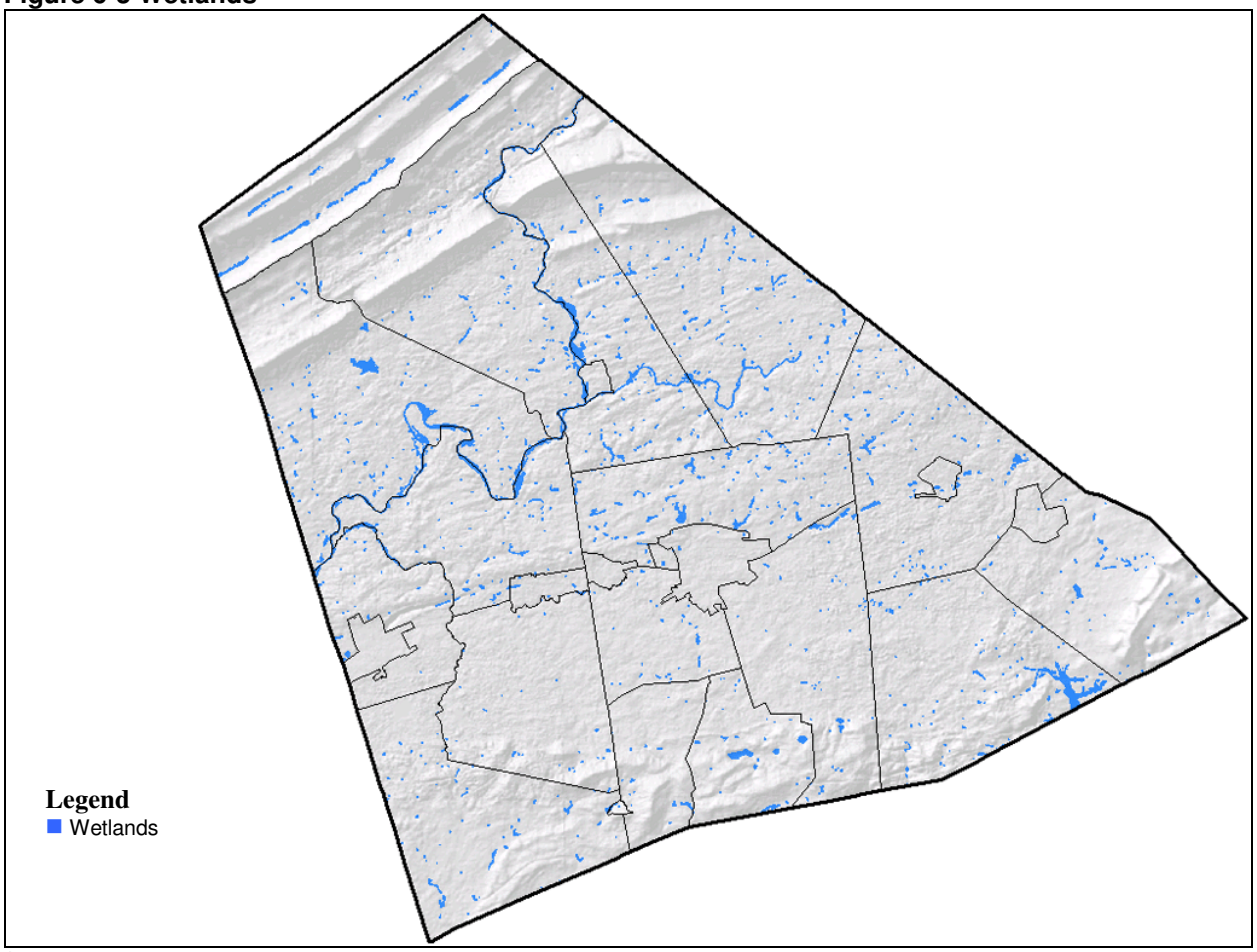
Sources: Lebanon County Conservation District; Lebanon County Soil Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Areas of Lebanon County containing Prime Farmland soils and farmland of statewide importance are shown in Figure 6-2. Approximately 86,000 acres, 37% of the county's soils are considered to be Prime Farmland Soils and 46,600 acres, roughly 20% are considered to be additional farmland of statewide importance. The bulk of County's prime farmland occupies an area bounded by US-422 to the north, and US-322/PA-419 to the south. These lands are a delicate resource that should be protected. Farmland preservation in Lebanon County occurs in the form of Agricultural Security Areas and Agricultural Easements. These will be discussed further in the "Agriculture" section of this profile. Municipal regulations relating to the protection of prime agricultural soils are included in the "Municipal Regulations" Section.

Hydric Soils

In recent years, wetlands have been given increased attention as a valuable resource. One of the decisive indicators of wetlands is the presence of hydric soils. Wetlands are further discussed in the "Water Resources" section of this profile.

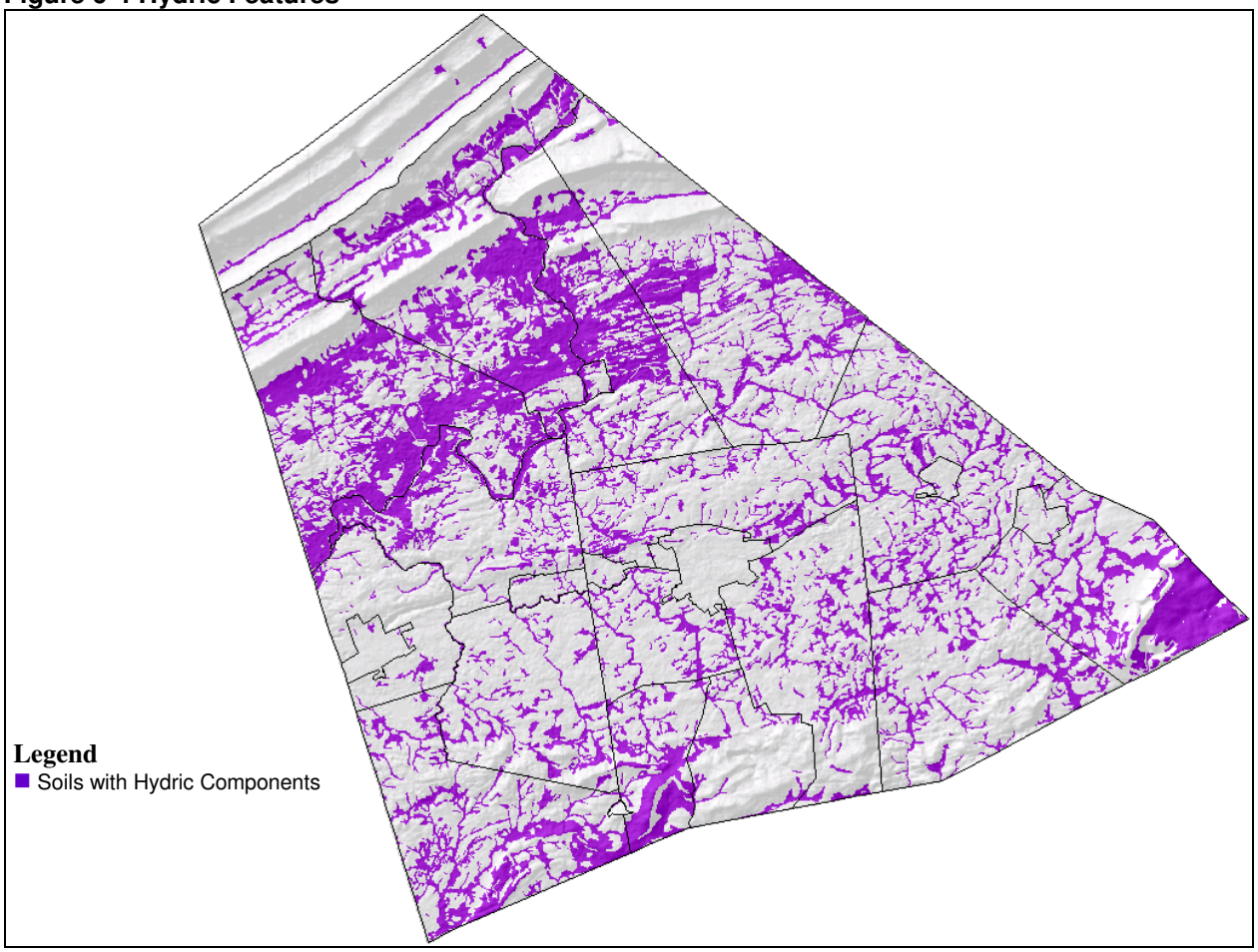
Figure 6-3 Wetlands



Sources: Pennsylvania Department of Environmental Protection; Environmental Resources Research Institute, Water Resources Division; FEMA; US Fish & Wildlife Services; Lebanon County Soil Survey; USGS; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

The USDA Natural Resources Conservation Service (NRCS) defines hydric soils as, "soils that form under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The concept of hydric soils includes soils developed under sufficiently wet conditions to support growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. Some series, designated as hydric, have phases that are not hydric depending on the water table, flooding, and ponding characteristics."

Figure 6-4 Hydric Features



Sources: USGS; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

When describing hydric soils, it is helpful to know the drainage conditions of the soil. The NRCS considers soils to be *somewhat poorly drained* if water is removed slowly enough that the soil is wet for significant periods during the growing season. A soil is *poorly drained* if water is removed from the soil so slowly that the soil is saturated periodically during the growing season or remains wet for long periods of time. A soil is considered *very poorly drained* if water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season.[7]

In Lebanon County, over 61,200 acres, 26% of the county is covered with soils containing hydric components/inclusions. Areas where these soils are found are shown in Figure 6-4. It is important to recognize these locations as potential wetlands. Onsite investigation is recommended for site development planning to determine the actual field presence or absence of hydric soils, soils with inclusions, and/or wetlands. Precautions should be taken to avoid, or if necessary to mitigate, disturbance of wetlands. Municipal regulations, as well as state and federal laws, pertaining to wetlands are discussed in a latter portion of this profile.

Soil Suitability for On-Lot Sewage Disposal Systems

Soil properties also help to determine the suitability of certain lands for development and the use of on-lot sewage systems. The system facilities with specific soil requirements are septic systems with absorption fields and sewage lagoons. Septic systems with absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid waste. The lagoon floor and sides require soil material that is nearly impervious to minimize seepage and contamination of groundwater.

[7] USDA, NRCS

Table 6-2 shows the degree and kind of soil limitations that affect septic systems with absorption fields and sewage lagoons. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. The first classification (not found in Lebanon County), "not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.[8] In addition, some of soils in Lebanon County were not tested for septic potential, and are listed as "not rated."

For septic systems with absorption fields, only that part of the soil to a depth of 72 inches or a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones, boulders, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the groundwater may become contaminated.

The main limiting factors and features of soils used in determining soils suitable for a standard on-lot disposal system (OLDS) are:

- Restricted permeability – which could limit absorption rates
- Steep slopes – which could decrease absorption and increase subsurface flow toward points of concentration
- Presence of cobbles, stones, or boulders – which could increase absorption rates
- Insufficient depth to bedrock – physical limitations to system installation
- Flooding – which could facilitate ground or surface water contamination
- The presence of high water table – which could facilitate water contamination
- Underlying cavernous limestone – which could facilitate groundwater contamination
- Hydric Soils – which are difficult to build upon and an indicator of wetlands, which are protected from development by state and federal regulations.

As discussed earlier, "Sewage lagoons" are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of groundwater. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (Ksat) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the groundwater. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

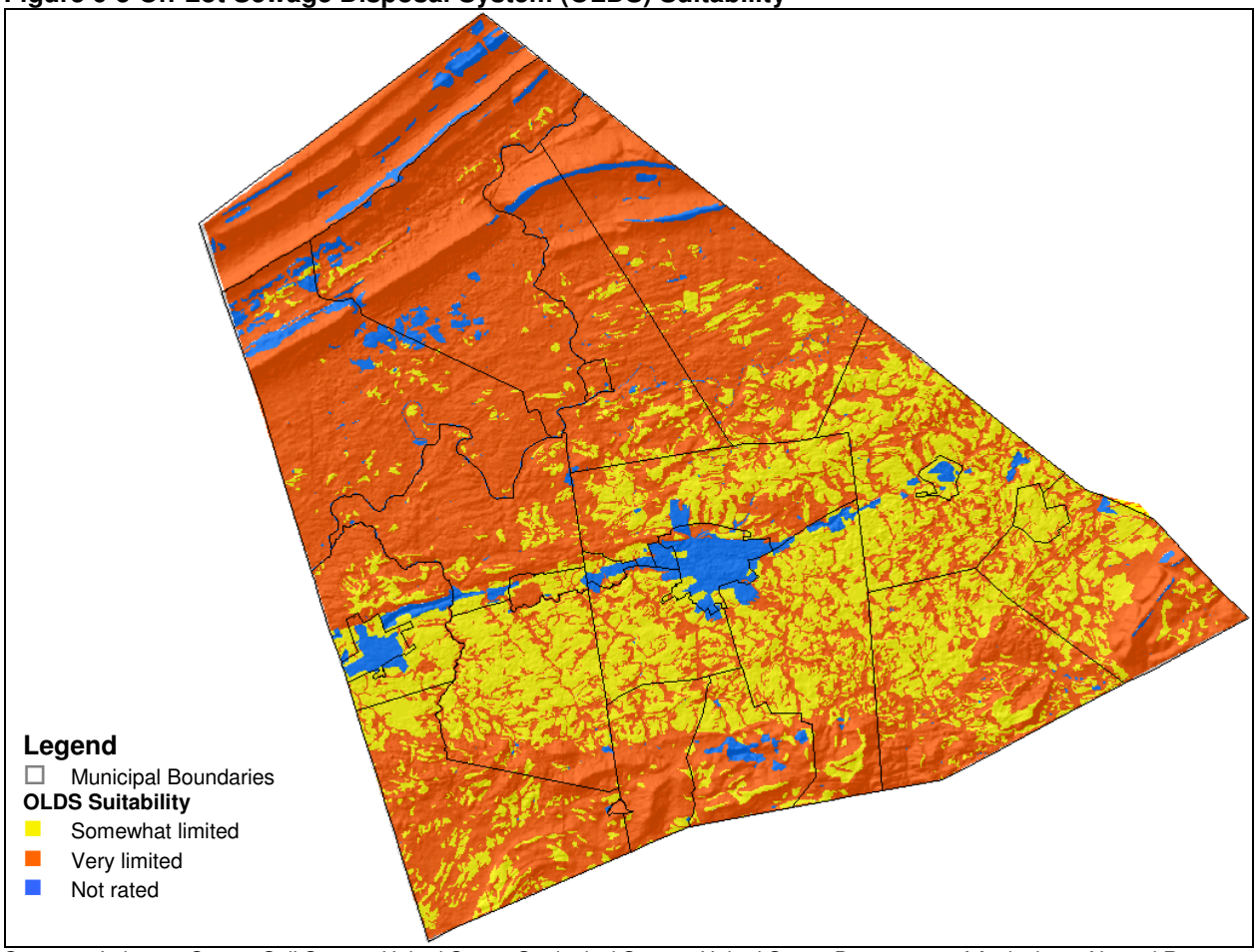
[8] United States Department of Agriculture, Natural Resource Conservation Service

Information in Table 6-4 is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil. The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works. More detailed information can be found in the current digital Lebanon County Soil Survey.

In Lebanon County, approximately 65%, or 150,736 acres of the county are considered "very limited" for the application of on-lot sewage disposal systems. The degree of suitability of the Lebanon County soils for an on-lot disposal system is described in Table 6-2 and depicted graphically in Figure 6-5.

There are several alternative methods to standard septic system designs that reduce the effects of limiting soil types. Alternatives include elevated sand mounds, oversized drain fields, individual spray irrigation systems, and system management. These techniques are designed to compensate for soil characteristics such as permeability which is too slow or too rapid and shallow depth to bedrock or high water table. Technology advances have allowed the Pennsylvania Department of Environmental Resources (DEP) to expand the authorized on-lot sewage system designs permitted in Pennsylvania to a matrix of conventional, alternate, and experimental sewage systems.

Figure 6-5 On-Lot Sewage Disposal System (OLDS) Suitability



Sources: Lebanon County Soil Survey; United States Geological Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Table 6-3 Major Soils Groups of Lebanon County (>1% of County)

Soil Group	Acres	Percent of County
Bedington	16,077.9	6.9%
Berks	28,264.2	12.2%
Brinkerton	4,136.9	1.8%
Buchanan	2,939.4	1.3%
Clarksburg	9,120.3	3.9%
Comly	5,430.8	2.3%
Duffield	21,171.5	9.1%
Hagerstown	29,523.1	12.7%
Hazleton	9,728.0	4.2%
Hazleton and Laidig	2,922.9	1.3%
Holly	8,150.8	3.5%
Joanna	2,280.5	1.0%
Klinesville	4,042.4	1.7%
Laidig	14,191.4	6.1%
Leck Kill	4,429.7	1.9%
Neshaminy	8,754.0	3.8%
Quarries	2,396.2	1.0%
Ungers	13,968.8	6.0%
Weikert	11,636.5	5.0%

Sources: Lebanon County Soil Survey; United States Geological Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Table 6-4 Major Soils of Lebanon County (>1% of County)

Symbol	Name and Description	Hydric Components	Agricultural Soil Status	On-Lot Sewage Disposal Suitability	Acres	Percent of Lebanon County
BeB	*Bedington shaly silt loam, 3 to 8 percent slopes*					
	Gently sloping, deep, well drained soil on dissected uplands with moderate permeability and moderate available water capacity.	No	All areas are prime farmland soil	Somewhat limited	11,792.7	5.08%
BkB	*Berks shaly silt loam, 3 to 8 percent slopes*					
	Gently sloping, moderately deep, well drained soil on dissected uplands with moderate to rapid permeability and very low available water capacity.	No	Farmland soil of statewide importance	Very limited	14,895.6	6.42%
BkC	*Berks shaly silt loam, 8 to 15 percent slopes*					
	Sloping, moderately deep, well drained soil on dissected uplands with moderate to rapid permeability and very low available water capacity.	No	Farmland soil of statewide importance	Very limited	8,890.4	3.83%
BkD	*Berks shaly silt loam, 15 to 25 percent slopes*					
	Moderately steep, moderately deep, well drained soil on dissected uplands with moderate to rapid permeability, very low available water capacity and rapid surface runoff.	No	Non-prime farmland soil	Very limited	2,511.5	1.08%
CkA	*Clarksburg silt loam, 0 to 3 percent slopes*					
	Nearly level, moderately well drained soil on concave areas on the uplands in the limestone valley. This soil has slow permeability and available water capacity is moderate.	Yes	All areas are prime farmland soil	Very limited	4,184.3	1.80%
CkB	*Clarksburg silt loam, 3 to 8 percent slopes*					
	Gently sloping, moderately well drained soil on concave areas on the uplands in the limestone valley. This soil has slow permeability and the available water capacity is moderate.	Yes	All areas are prime farmland soil	Very limited	4,936.0	2.13%
CmB	*Comly silt loam, 3 to 8 percent slopes*					
	Gently sloping, deep, moderately well drained and somewhat poorly drained soil on broad upland flats, in drainageways, and within areas having spring seeps. This soil has moderate permeability in the surface layer and upper part of the subsoil and moderately slow permeability in the lower part of the subsoil. Available water capacity is moderate.	Yes	All areas are prime farmland soil	Very limited	4,184.6	1.80%
DfA	*Duffield silt loam, 0 to 3 percent slopes*					
	Nearly level, deep, well drained soil on uplands in the limestone valley. This soil has moderate permeability and high available water capacity.	No	All areas are prime farmland soil	Somewhat limited	2,596.4	1.12%
DfB	*Duffield silt loam, 3 to 8 percent slopes*					
	Gently sloping, deep, well drained soil on undulating uplands in the limestone valley. This soil has moderate permeability and high available water capacity.	No	All areas are prime farmland soil	Somewhat limited	17,150.1	7.39%
HaB	*Hagerstown silt loam, 3 to 8 percent slopes*					
	Gently sloping, deep, well drained soil on undulating uplands. This soil has moderate permeability and a high available water capacity.	No	All areas are prime farmland soil	Somewhat limited	17,222.0	7.42%

Symbol	Name and Description	Hydric Components	Agricultural Soil Status	On-Lot Sewage Disposal Suitability	Acres	Percent of Lebanon County
HeC	*Hagerstown-Rock outcrop complex, 8 to 25 percent slopes*					
	Sloping and moderately steep complex on undulating uplands with moderate permeability and high available water capacity.	No	Non-prime farmland soil	Very limited	3,519.0	1.52%
HHE	*Hazleton extremely stony sandy loam, steep*					
	Steep and very steep, deep, well drained soil on ridges of mountains with moderately rapid to rapid permeability, low available water capacity, and rapid surface runoff.	No	Non-prime farmland soil	Very limited	5,948.4	2.56%
HLD	*Hazleton-Laidig association, moderately steep*					
	Extremely stony, sloping and moderately steep, deep, well drained soils on side slopes and near the ridge tops. These soils have moderately rapid to rapid permeability in the surface layer and upper part of the subsoil and moderately slow permeability in the lower part of the subsoil.	No	Non-prime farmland soil	Very limited	2,922.9	1.26%
Ho	*Holly silt loam*					
	Nearly level, deep, very poorly drained soil on floodplains of the larger, prominent creeks and narrow streams that dissect upland areas and is formed in sediment washed from uplands. This soil has moderately slow and moderate permeability and high available water capacity.	Yes	Non-prime farmland soil	Very limited	8,150.8	3.51%
LdC	*Laidig extremely stony loam, 8 to 25 percent slopes*					
	Sloping to moderately steep, deep, well drained soil on mountainsides and near ridge tops with moderate to moderately rapid permeability in the surface layer and upper part of the subsoil and moderately slow permeability in the fragipan and medium to rapid surface runoff.	No	Non-prime farmland soil	Very limited	7,844.2	3.38%
LdgD	*Laidig gravelly loam, 8 to 25 percent slopes, extremely stony*					
	No description available.	No	Non-prime farmland soil	Very limited	3,880.1	1.67%
NhC	*Neshaminy extremely stony silt loam, 8 to 25 percent slopes*					
	Sloping and moderately steep, deep, well drained soil on ridges with moderately slow permeability, moderate available water capacity, and medium to rapid surface runoff.	No	Non-prime farmland soil	Very limited	2,856.3	1.23%
Qu	*Quarries*					
	Miscellaneous area on uplands covered by surface mines from which the underlying rock has been removed. The quarry consists of the open pit and the spoil bank. The rock material mined may be limestone, coal, iron ore, quartzite, or quartzitic sandstone.	No	Non-prime farmland soil	Not rated	2,396.2	1.03%
UnB	*Ungers loam, 3 to 8 percent slopes*					
	Gently sloping, deep, well drained soil on uplands with moderate permeability and high available water capacity.	No	All areas are prime farmland soil	Somewhat limited	2,383.6	1.03%
UnC	*Ungers loam, 8 to 15 percent slopes*					

Symbol	Name and Description	Hydric Components	Agricultural Soil Status	On-Lot Sewage Disposal Suitability	Acres	Percent of Lebanon County
	Sloping, deep, well drained soil on uplands with moderate permeability and high available water capacity.	No	Farmland soil of statewide importance	Very limited	2,899.2	1.25%
UoC	*Ungers extremely stony loam, 8 to 25 percent slopes*					
	Sloping and moderately steep, well drained soil on mid and upper side slopes of ridges with moderate permeability, high available water capacity, and medium surface runoff.	No	Non-prime farmland soil	Very limited	6,604.1	2.85%
US	*Urban land-Hagerstown complex*					
	Nearly level to moderately steep complex within the limestone valley. The complex is used for houses, schools, factories, shopping centers, hospitals, other urban developments, and woods. The soils have been cut and filled, mixed, and mostly covered with asphalt or concrete to an extent that separation of soils is impossible at the scale of the soil map.	No	I Urban Land	Not rated	3,754.6	1.62%
WeB	*Weikert shaly silt loam, 3 to 8 percent slopes*					
	Gently sloping, shallow, well drained soil on tops of convex, dissected ridges and hills with moderately rapid permeability and very low available water capacity.	Yes	Non-prime farmland soil	Very limited	2,511.8	1.08%
WeD	*Weikert shaly silt loam, 15 to 25 percent slopes*					
	Moderately steep, shallow, well drained soil on convex side slopes of dissected ridges and hills with moderately rapid permeability, very low available water capacity, and rapid to very rapid surface runoff.	No	Non-prime farmland soil	Very limited	3,107.5	1.34%
WeE	*Weikert shaly silt loam, 25 to 50 percent slopes*					
	Steep and very steep, shallow, well drained soil on steeper side slopes of dissected ridges with moderately rapid permeability, very low available water capacity, and rapid to very rapid surface runoff.	No	Non-prime farmland soil	Very limited	2,416.5	1.04%

Sources: Lebanon County Soil Survey; United States Geological Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Physiographic Regions and Geological Formations

Lebanon County straddles three physiographic provinces. Almost all of Lebanon County lies in sections of the Ridge and Valley Physiographic Province. The southern most part of the county is in the Gettysburg-Newark Lowland Section of the Piedmont Province. The southeastern portion of the county is in the Reading Prong Section of the New England Province.[9] The Pennsylvania Department of Conservation and Natural Resources provides descriptions of the various sections of the different physiographic provinces.

Three sections of the Ridge and Valley Province can be found in Lebanon County.

- The northern most part of the county, in and around Cold Spring Township, lies in the Anthracite Upland Section. This section consists of an upland that has low, linear to rounded hills, many of which contain strip mines, and mining waste holes. The upland is surrounded by an escarpment, a valley, and a mountain rim. The dominant rock types are sandstone, siltstone, conglomerate, and anthracite coal in narrow folds with steep limbs. The local relief ranges from low to high; elevation in this section ranges from 320 feet to 2,094 feet.

- The Blue Mountain Section of the Ridge and Valley Province is a linear ridge to the south of the Anthracite Upland Section. The Blue Mountain Section is a south limb of a broad fold formed on sandstone, siltstone, and shale, and some limestone and conglomerate. Very resistant sandstones occur at the crests of the Blue Mountain. Shales and siltstones occur on the slopes and valleys. Local relief is moderate to high. The highest elevation is 1,680 feet.

- The Great Valley Section comprises the largest portion of Lebanon County. This section lies to the south of the Blue Mountain Section. The lowland has gently undulating hills eroded into shales and siltstones on the north side of the valley and a lower elevation and flatter landscape developed on limestones and dolomites on the south side. Local relief is generally less than 100 feet, particularly in the carbonate area, but may be up to 300 feet in the shale area.

The Gettysburg-Newark Lowland Section of the Piedmont Province traverses the southern portion of the county. This section consists mainly of rolling low hills and valleys developed on red sedimentary rock. Almost all of the underlying sedimentary rock dips to the north or northwest. Many of the smaller drainageways are oriented in the direction of dip. This section is made up of sediments that were deposited in a long, narrow island basin that formed when the continents of North America and Africa separated more than 200 million years ago. Relief generally ranges from 100 to 200 feet.

The Reading Prong Section of the New England Province consists of circular to linear rounded low hills or ridges that project upward in significant contrast to the surrounding lowlands. The hills and ridges are made up of granitic gneiss, granodiorite, and quartzite. These rocks are very resistant to erosion and thus the hills and streams are steep and have a very well defined change in slope where they meet the lower and gentler slopes of adjacent sections. Elevations range from 140 to 1,364 feet.[10]

Geology

The geology of Lebanon County is varied. The youngest formations are in the northwest portion of the county, where thin bands of formations from the Pennsylvanian, Mississippian, Devonian, and Silurian Periods are present. Geologic materials from these periods are comprised of red and grey sandstone, shale, limestone, and conglomerate. Chert, flagstone, and clay are also found in at least one of these portions, and coal is found in the extreme northwestern part of the county, from the Pennsylvanian Period.

The middle part of the county contains geologic material from the Ordovician Period. This comprises the largest land area in the county. Material from this period consists of shale, limestone, dolomite, and sandstone.

The southeastern portion of the county contains rocks from the Cambrian Period and the Precambrian. Rocks from the Cambrian Period include limestone, dolomite, sandstone, shale, quartzite, and phyllite. Precambrian material includes gneiss, granite, anorthocite, metadiabase, metabasalt, metarhyolite, and marble. Precambrian material is found in the extreme southeastern corner. Also evidenced in the southern portion of the county is a small outcropping of rocks from the Ordovician and a wider band of formations from the Jurassic and Triassic Periods. Material from the Jurassic and Triassic Periods includes red sandstone, shale and conglomerate, intruded by diabase.

[9] Pennsylvania Department of Conservation and Natural Resources
[10] Ibid.

Table 6-5 Geology of Lebanon County

Symbol	Name	Carbonate	Dominant Lithology	Secondary Lithology	Acres in County	Percent
Cbs	Buffalo Springs Formation	YES	Limestone	Dolomite	8,208.69	3.5%
Cha	Hardyston Formation	NO	Quartzite	Feldspathic sandstone	1,026.60	0.4%
Clv	Leithsville Formation	YES	Dolomite	Shaly dolomite	995.38	0.4%
Cms	Millbach and Schaefferstown Formations, undivided	YES	Limestone	Dolomite	7,665.81	3.3%
Cr	Richland Formation	YES	Dolomite	Limestone	12,681.17	5.5%
Csc	Snitz Creek Formation	YES	Dolomite	Limestone	6,506.26	2.8%
Dccf	Clarks Ferry Member of Catskill Formation	NO	Sandstone	Siltstone	843.81	0.4%
Dcd	Duncannon Member of Catskill Formation	NO	Sandstone	Siltstone	964.50	0.4%
Dciv	Irish Valley Member of Catskill Formation	NO	Siltstone	Mudstone	1,762.26	0.8%
Dcsc	Sherman Creek Member of Catskill Formation	NO	Mudstone	Siltstone	3,968.43	1.7%
Dh	Hamilton Group	NO	Shale	Siltstone	2,505.95	1.1%
DSop	Onondaga Formation through Poxono Island Formation, undivided	NO	Shale	Sandstone	483.24	0.2%
Dtr	Trimmers Rock Formation	NO	Siltstone	Shale	2,455.02	1.1%
gg	Graphitic felsic gneiss	NO	Graphitic gneiss	Felsic gneiss	49.35	0.0%
gn	Felsic to mafic gneiss	NO	Felsic gneiss	Intermediate gneiss	1,723.38	0.7%
hg	Hornblende gneiss	NO	Mafic gneiss		1,335.53	0.6%
Jd	Diabase	NO	Diabase		7,131.73	3.1%
MDsk	Spechty Kopf Formation	NO	Sandstone	Siltstone	920.32	0.4%
Mmc	Mauch Chunk Formation	NO	Shale	Siltstone	5,352.67	2.3%
Mp	Pocono Formation	NO	Sandstone	Siltstone	1,417.92	0.6%
Oan	Annville Formation	YES	High-calcium limestone		1,517.64	0.7%
Oe	Epler Formation	YES	Limestone	Dolomite	9,738.08	4.2%
Oh	Hamburg sequence rocks	NO	Shale	Siltstone	68,693.80	29.6%
Ohg	Graywacke of Hamburg sequence	NO	Graywacke		9,799.46	4.2%
Ohjv	Jonestown Volcanic Suite	NO	Andesite	Metadiabase	2,268.53	1.0%
Ohl	Limestone of Hamburg sequence	YES	Limestone		3,133.92	1.3%
Ohm	Hershey and Myerstown Formations, undivided	YES	Argillaceous limestone	Limestone	5,411.72	2.3%
Ohsg	Shale and graywacke of Hamburg sequence	NO	Shale	Graywacke	2,339.23	1.0%
Om	Martinsburg Formation	NO	Shale	Siltstone	5,389.11	2.3%
Oo	Ontelaunee Formation	YES	Dolomite	Limestone	5,185.53	2.2%
Ori	Rickenbach Formation	YES	Dolomite	Chert	2,334.88	1.0%
Os	Stonehenge Formation	YES	Limestone	Conglomeratic, siliceous limestone	9,669.60	4.2%
Pl	Llewellyn Formation	NO	Sandstone	Siltstone	3,103.92	1.3%
Pp	Pottsville Formation	NO	Sandstone	Conglomerate	3,140.83	1.4%
Sb	Bloomsburg Formation	NO	Shale	Siltstone	2,429.79	1.0%
Sc	Clinton Group	NO	Shale	Limestone	1,155.75	0.5%
Ss	Shawangunk Formation	NO	Sandstone	Conglomerate	1,045.69	0.5%
St	Tuscarora Formation	NO	Quartzite	Quartzitic sandstone	837.22	0.4%
Trfl	Limestone fanglomerate	YES	Limestone congl.		717.61	0.3%
Trg	Gettysburg Formation	NO	Silty mudstone	Shale	3,051.80	1.3%
Trh	Hammer Creek Formation	NO	Sandstone	Siltstone	17,177.74	7.4%
Trhc	Hammer Creek conglomerate	NO	Quartz congl.	Sandstone	6,004.23	2.6%
Trn	New Oxford Formation	NO	Arkosic sandstone	Shale	156.14	0.1%

Source: Pennsylvania Bureau of Topographic and Geologic Survey; Department of Conservation and Natural Resources

The Influences of Physiography and Geology

The geology and physiography of Lebanon County have had an incredible influence on development patterns. The great Lebanon Valley that traverses the middle portion of the county in an east-west fashion is bound by two ridges; one to the north and one to the south. The two ridges are often barriers to development or agriculture. Steeper slopes are often more susceptible to erosion and the soils tend to become rockier as elevation increases. Land cover in these areas often includes forests and rock outcroppings. Limited mining of bituminous coal has taken place in the northernmost part of the county and the Cornwall Mine extracted iron ore in the southern portion of the county.

The valley offers better opportunities for agriculture as the soils in this area tend to be deeper and more fertile with better drainage and less rock material. The valley is also more conducive to development and more susceptible to development pressures as it is easier to build on a flatter landscape. It is often difficult to balance agriculture and development on a landscape such as this. When considering development, the location of prime agricultural soils should be considered as well as the underlying bedrock.

The Lebanon Valley is largely comprised of limestone and dolomite carbonate rock formations, as shown in Table 6-5. In Lebanon County, over 73,700 acres are underlain by carbonate rock. This accounts for over 31% of the total acreage in the county. Both of these rock types are easily eroded by groundwater and as a result, landscapes comprised of these rock types are known for having karst topography and for subsidence occurrences (See next section for definitions and further details). Formations with carbonate components cover much of the Lebanon Valley, as illustrated in Figure 6-6 in yellow shaded regions. Development in areas of karst topography and especially in areas that have experienced subsidence in the past should be discouraged and avoided if possible. Sinkhole locations and subsidence are further discussed below.

Sinkholes and Subsidence

The geology of Lebanon County lends itself to a Karst landscape. Karst features form as the limestone and dolomite rock layers are eroded by groundwater underneath, creating a void in the landscape. Common features of a karst landscape include: a presence of underground caves, a lack of surface streams and an abundance of springs and swallets or underground streams. Also prominent is evidence of sinkholes and areas of subsidence on the landscape.

In geologic terms, a sinkhole refers to a surface collapse feature on the surface of the earth. These areas are prone to flooding and require stormwater management systems, especially if the area is developed for residential, commercial or industrial purposes, to reduce the concentration of stormwater on the landscape surface. Subsidence is a term used for downward movement of surface material. Subsidence occurs where carbonate bedrock, such as limestone or dolomite, is present. Subsidence occurs when there is a drop in the water table, and thus a void to be filled in, when water is channeled from its natural course and concentrated in a single area such as downspouts that are often found on residential housing units.

Locations of sinkhole, subsidence, and closed topographic features in Lebanon County include various locations in Palmyra Borough, and along Route 422 in the Lebanon Valley. Figure 6-6 shows the location of known sinkhole subsidence that has occurred in Lebanon County as of 1995.

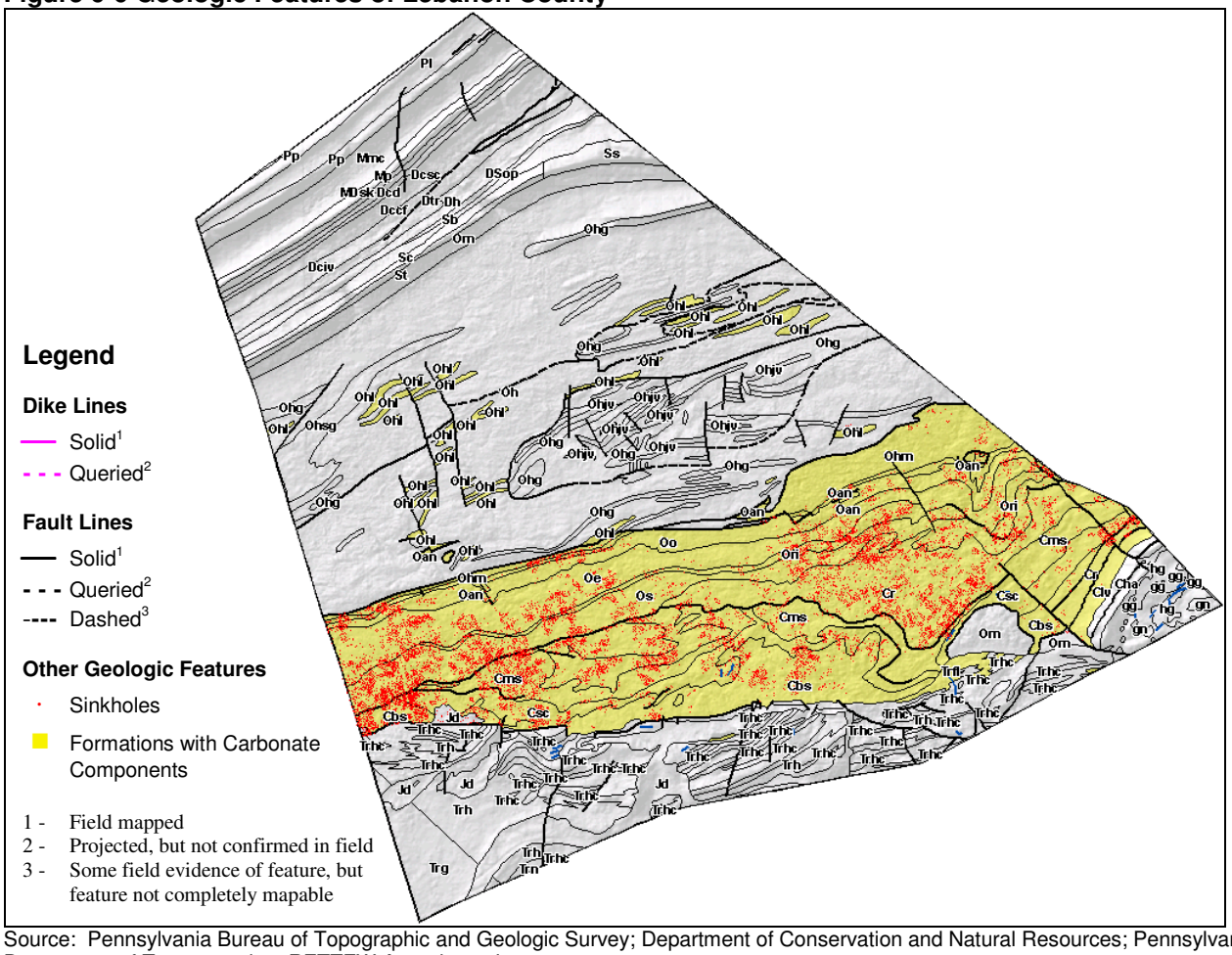
Sinkholes can be remediated to reduce the risk of sinkhole expansion. Best practices suggest that the void be filled with a tiered system of rock sizes, with large boulders at the bottom and smaller gravel toward the top covered with top soil or other surface material. This pyramid of rock soils allows the water to percolate through rather than being channeled in one area. Channeling water increases the chance for subsidence to reoccur. Locations where subsidence has occurred should be documented to ensure future uses of the land do not include residential, commercial, or industrial development.

Fault Lines

Pennsylvania has experienced earthquakes since European settlement, and as recently as the past decade. In the Commonwealth, the southeastern portion of the state has the greatest potential for seismic hazard, although this hazard is slight. Earthquakes often occur at faults, or fractures dividing rocks into two sections that have moved visibly relative to each other. Faults that are present in Lebanon County include the Sweet Arrow fault, which trends northeast to southwest. The Sweet Arrow fault extends to the eastern edge of the National Guard Training Center at Fort Indiantown Gap; however, the fault direction after that point is unknown. The Yellow Breeches thrust plate and associated faults are located along the south side of the Cantonment Area. Two other northeast-southwest trending, strike-slip faults are located south of Fort Indiantown Gap. One of these faults extends across the western end of Memorial Lake. Fault trends indicate that the faults could

potentially extend beneath Fort Indiantown Gap, and movement along these faults is possible.[11] Fault lines as well as dike lines (discordant, intrusive rock, as distinguished from the preexisting rock that surrounds it, that is substantially wider than it is thick) in Lebanon County can be seen in Figure 6-6.

Figure 6-6 Geologic Features of Lebanon County



Source: Pennsylvania Bureau of Topographic and Geologic Survey; Department of Conservation and Natural Resources; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Aquifers

The Pennsylvania Department of Environmental Protection defines an aquifer as a formation, group of formations, or part of a formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs. Hydrogeologists have identified four principle types of aquifers in the state: sand and gravel, sandstone and shale, carbonate rock, and crystalline rock. Two of these, sandstone and shale and carbonate rock aquifers can be found in Lebanon County. The carbonate rock aquifers consist of limestone and dolomite and traverse the middle portion of the county in an east-west direction. Caves, solution channels, subsidence and sinkholes are caused by water dissolving portions of the carbonate rock. Water in carbonate rock aquifers can be very hard and contain relatively large amounts of dissolved solids.[12] More detail on groundwater is presented in the following section.

[11] Draft Environmental Impact Statement for Fort Indiantown Gap; Schultz, 1999
[12] Pennsylvania League of Women Voters, *Groundwater: A Primer for Pennsylvanians*.

Water Resources

An understanding of a community's natural water resources is critical to planning for future land use and community facilities and services. Water resources provide on-lot and public water systems with domestic and commercial/industrial water supplies and recreation opportunities; support fire protection services; and have inherent value to the environment. Due to our extensive dependence on water, water is a valuable and essential resource that must be understood and managed in order to protect the health, safety and general welfare of the community. Protecting water supplies by strategically directing development to suitable areas, promoting safe use and disposal of pollutants, such as fertilizers, industrial wastes, sewage effluent from septic systems, and minimizing excessive erosion, is crucial in municipal planning. This section will present the classifications and conditions of groundwater and the impacts to groundwater from mineral extraction and agriculture; surface water and its protection status; related wetlands and floodplains; stormwater management planning; and watershed planning.

Water resources can generally be described as groundwater or surface water. Groundwater is water contained in the soils and rock formations. Groundwater is derived from precipitation that has infiltrated and percolated through the soil. After reaching the water table, groundwater slowly moves toward points of discharge, such as surface waters, springs, and man-made wells. The pumping of wells draws water from all directions, changing the natural groundwater flow. These areas of modified groundwater flow are called discharge areas. Surface water is water on the surface of the ground and consists of perennial and intermittent streams, lakes, reservoirs, ponds, wetlands, springs, natural seeps and estuaries, excluding water at facilities approved for wastewater treatment and constructed wetlands used as part of a wastewater treatment process.

Groundwater and Wellhead Protection

The Department of Environmental Protection defines groundwater as, "water beneath the surface of the ground within a zone of saturation, whether or not flowing through known and definite channels or percolating through underground geologic formations, and regardless of whether the result of natural or artificial recharge. The term includes water contained in aquifers, artesian and nonartesian basins, underground watercourses and other bodies of water below the surface of the earth." Groundwater is an extremely valuable resource and needs to be monitored closely.

Pennsylvanians ultimately depend on groundwater for drinking water. Public water companies use wells and springs to supply residents with water; residential homes, primarily in rural areas, use private wells and springs; and almost half of all Pennsylvanians get at least part of their water directly from the groundwater. In 1990, 77% of the total water used for domestic and commercial/industrial uses in Lebanon County came from groundwater.[13] Groundwater is a vital resource, and it is essential that measures are taken to ensure that it is kept clean from pollution and wisely used.

If groundwater becomes contaminated, the rate at which the substance reaches groundwater and the rate and extent at which the plume of contamination will travel and disperse depends on the thickness of the unsaturated zone and the nature of the rock itself. Groundwater can become polluted from a variety of human activities including mismanagement of on-lot sewage disposal systems, mineral extraction activities, leakage from underground tanks, and commercial agricultural production. In rural areas, nitrates and bacteria from household sewage and wastewater chemicals that are dumped into septic systems can contaminate groundwater when systems are not properly installed or maintained. Any water resource may also be threatened from a site specific hazardous materials spill or incident.

In areas of karst topography, such as exist in Lebanon County, the majority of water does not occur as surface water, but exists underground. Dissolution of the carbonate bedrock develops a subsurface drainage network along widened cracks or fractures within bedrock layers; the more interconnected and larger spaces or fractures lead to more permeable rock which water can generally pass through more quickly. Problems arise in that in any given area, it is difficult to determine exactly where this water travels underground or the rate at which it travels or what unknowingly might be added to it along the way.

Key to maintaining high-quality groundwater is wellhead protection. The Wellhead Protection Program (WHPP) is a proactive approach towards securing quality groundwater, to safeguard public health and limit the need for costly water treatment. Under the Federal Safe Drinking Water Act (SDWA), states are required to submit plans detailing their efforts to protect groundwater. In Pennsylvania, the implementation of these programs happens at the state, county and municipal levels, as well as with a variety of private stakeholders such as landowners and water suppliers.

[13] Pennsylvania Department of Conservation and Natural Resources

In Lebanon County, the implementation of a local wellhead protection program has potential for many benefits, both to public health and financially. Several components would be key to a local program, including creating a steering committee, creating an avenue for public participation, delineating wellhead protection areas (WHPAs), identifying key contaminant sources, developing management approaches, and contingency planning, including identifying future water supply sources. These programs have the potential to be implemented at the local level, though a countywide program would allow for greater resource protection across municipal lines. Water flow does not stop at township, borough and city boundaries, and as such, a comprehensive approach would have many benefits to the citizens of Lebanon County.

Wellhead protection areas can also play a key role in planning future development. The delineation of wellhead protection areas involves the considerations of many factors, such as geology, groundwater flows, and infiltration potential. As such, proper land planning, to assess both groundwater impacts and increased consumption needs, are critical to proper wellhead protection. By keeping land uses with potential negative impacts out of susceptible wellhead protection areas, and requiring best management practices in construction, industry and agriculture, the benefits can extend beyond just groundwater, and impact greater land use goals in the county.[14]

Impacts Associated with Mineral Extraction

Groundwater is essential to mining activities for product washing, sorting and refining, dust control and a variety of other activities. There are various ways in which mineral extraction pose a threat to groundwater. From a groundwater quality standpoint, removing the natural protection of the overlying strata in a working area, the groundwater is more susceptible to pollution as stormwater runoff will have less of a filtering period. This contamination may be transported by the groundwater and impact surface waters and points downstream. Large mineral extraction activities also impact the quantity of groundwater available to adjacent land uses and water filled quarries provide an opportunity for direct contamination of the groundwater.

The short and long term impacts of mineral extraction on groundwater and surface water have been so severe that the term acid mine drainage (AMD) has been defined. The Pennsylvania Department of Environmental Protection defines acid mine drainage as, "drainage flowing from or caused by surface mining, deep mining, or coal refuse piles that is typically highly acidic with elevated levels of dissolved metals." Acid mine drainage is formed by a series of complex geo-chemical and microbial reactions that occur when water comes in contact with pyrite in coal, refuse or the overburden of a mine operation. The resulting water is usually high in acidity and dissolved metals. The metals remain in solution until the pH rises to a level where they precipitate or fall out of the water solution. The precipitates form the red, yellow, and orange sediments found on the bottom of streams containing mine drainage. The acid mine drainage can further dissolve heavy metals such as copper, lead, and mercury from adjacent soils into the ground and surface water resulting in additional contamination.[15]

Impacts Associated with Commercial Agricultural Activities

Commercial agricultural activities can also have an adverse impact on the quality of groundwater in an area. The incorrect or excessive application of fertilizers, manure, and pesticides has degraded the quality of streams and shallow groundwater in agricultural areas across the country. The United States Geological Survey's National Water-Quality Assessment Program is assessing the sources, transport and fate of chemicals applied to crops in agricultural basins. Chemicals selected for study are nutrients, including nitrogen and phosphorus, and approximately fifty commonly used pesticides and their transformation products. The program divides its studies by drainage basin, with Lebanon County having land in the Delaware River and Lower Susquehanna studies. The Delaware River study began in 1997 and was completed in 2002, with a revised study to take place between 2008 and 2010. The Lower Susquehanna study was conducted between 1991 and 1994, and went into a low intensity phase in 1997 which continues today.

Nutrients are often elevated in agricultural areas. High levels of nitrate in drinking water can be harmful to humans and especially harmful to infants and pregnant women. Nitrates interfere with the blood's ability to transport oxygen which causes suffocation, known as methemoglobinemia ("blue-baby" syndrome) in infants. Extreme concentrations of phosphorus promote excessive plant growth in streams with physical and chemical implications: lower levels of dissolved oxygen in the water and subsequently harm to fish and other aquatic life; clog water-intake pipes and filters; cause a foul water smell and taste from decaying plant material; and interfere with fishing, swimming, and boating.[16]

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[14] Pennsylvania Department of Environmental Protection
[15] Ibid., Scottish Executive Environmental Group
[16] Unites States Geologic Survey, PA League of Women Voters

Pesticides are widely used in the agricultural industry, and commonly available in combination mixes. Across the state, it was found that pesticide concentrations are generally below United States Environmental Protection Agency drinking-water standards; however, the risk to humans and the environment from these low-level exposures is unclear, and standards do not exist for many pesticides or mixtures of pesticides. Furthermore, herbicides were found more frequently and at higher concentrations in streams and groundwater in agricultural areas than in urban areas. Insecticides that were used in the past, such as DDT, are still evidenced in streams and sediment.[17]

In considering the different kinds of contamination, it is important to note that different factors influence the contamination of ground or surface waters. Streams are most vulnerable to contamination from agricultural chemicals where poorly drained soils, agricultural practices, and topography encourage the rapid movement of water off fields, or where tile drains and ditches quickly transport agricultural runoff from fields to streams. Some chemicals readily dissolve in water bodies, while other chemicals attach to eroded soil particles carried by the water. Groundwater is typically less vulnerable to contamination by chemicals that strongly attach to soils. Chemical transport is also influenced by agricultural practices and chemical use. The use of drip irrigation rather than furrow irrigation decreases the amount of water lost to evaporation and allows more precise control of the amount and location of pesticide and nutrient applications.[18]

The water quality of the Lower Susquehanna River Basin was studied between 1992 and 1995. Major study issues and findings included the following:

- Water from wells in agricultural areas underlain by limestone and crystalline bedrock commonly exceeded the United States Environmental Protection Agency (USEPA) Maximum Containment Level (MCL) for nitrates in drinking water.
- Streams from agricultural areas underlain by limestone bedrock contributed large amounts of nitrate per unit area to the Lower Susquehanna River when compared to streams in areas with other land uses and bedrock types.
- Manure application rate may be the most important factor influencing nitrate concentrations in streams in agricultural basins underlain by limestone.
- It is unclear whether bacteriological contamination of well water is caused by inadequate protection of wells from surface runoff, septic system failure, the applying of animal manure to fields, or other causes.
- The presence of bacteria in water from rural wells is one of the most important water quality issues related to human health in the study unit.
- The fish population was influenced by agricultural activity in the agricultural settings, but the influence is related to habitat degradation rather than nutrients in the water.[19]

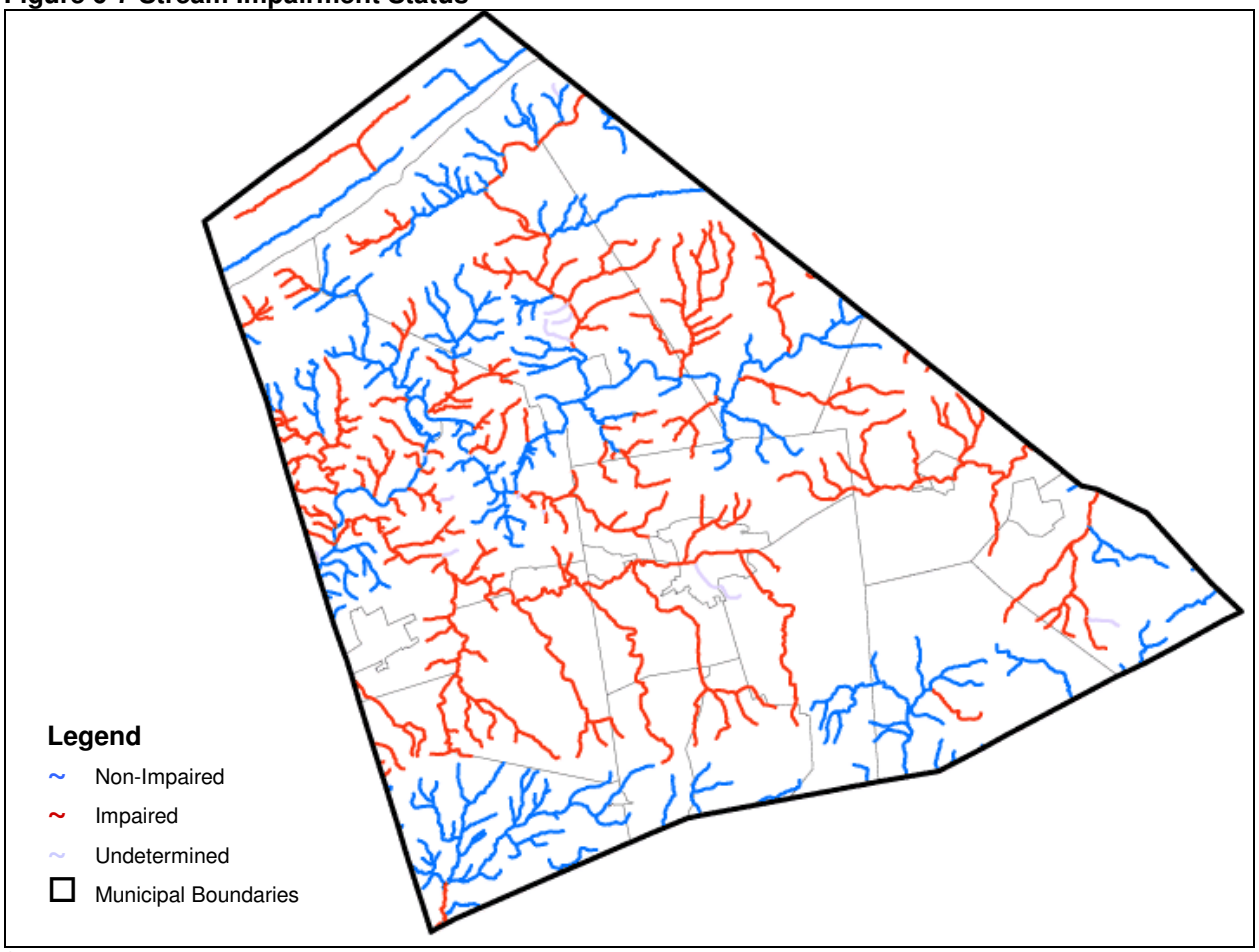
Surface Water

The Pennsylvania Department of Environmental Protection defines surface water as "water on the surface of the earth, including water in a perennial or intermittent watercourse, lake, reservoir, pond, spring, wetland, estuary, swamp or marsh, or diffused surface water, whether such body of water is natural or artificial. The term does not include recirculated process water or wastewater stored in an off-stream impoundment, pond, tank or other device unless such water or wastewater is withdrawn and used by a person other than the person who initially withdrew the water from a water resource or obtained such water from a public water supply agency."

Surface water is also intricately connected to groundwater. The two "feed" one another, and also have the potential to contaminate one another. Run-off and ground-based pollutants often percolate into the water table, degrading groundwater. At the same time, contaminated groundwater, emerging from springs, wells and marshes can pose threats to surface water.

[17] United States Geologic Survey
[18] Ibid.
[19] Ibid.

Figure 6-7 Stream Impairment Status



Sources: Pennsylvania Department of Environmental Protection; Environmental Resources Research Institute, Water Resources Division; FEMA; US Fish & Wildlife Services; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

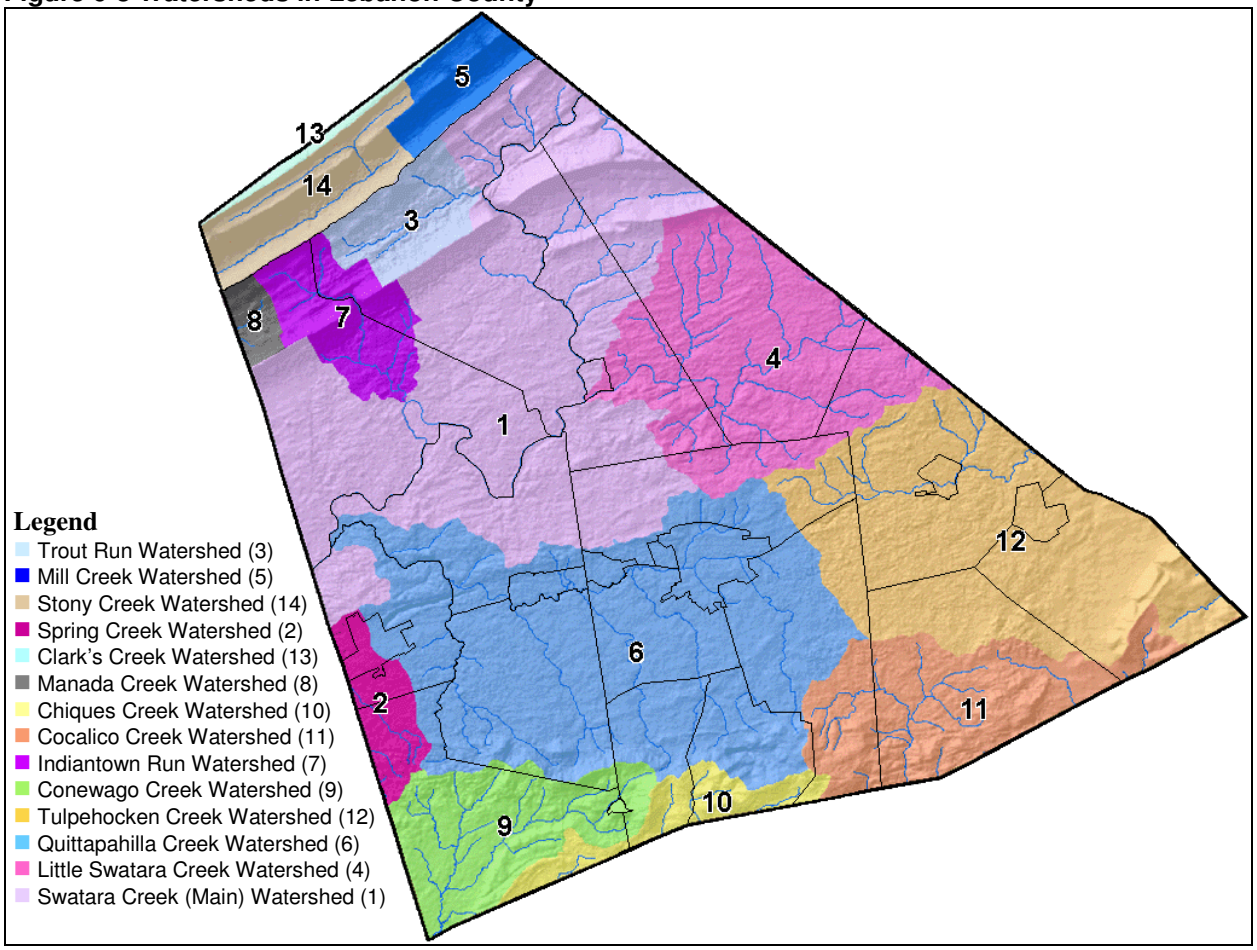
Table 6-6 Impaired Waterways in Lebanon County

Stream	Impairments
Aires Run	Agriculture/Flow Alterations, Agriculture/Siltation
Bachman Run	Agriculture/Nutrients
Beach Run	Urban Runoff/Storm Sewers/Siltation
Beck Creek	Agriculture/Nutrients
Bow Creek	Road Runoff/Siltation
Brandywine Creek	Urban Runoff/Storm Sewers/Flow Alterations
Buckholder Run	Agriculture/Flow Alterations, Agriculture/Siltation
Cocalico Creek	Crop Related Agric/Nutrients, Grazing Related Agric/Siltation, Urban Runoff/Storm Sewers/Cause Unknown
Conewago Creek	Agriculture/Nutrients
Coover Run	Crop Related Agric/Nutrients, Grazing Related Agric/Siltation
Crosskill Creek	Agriculture/Flow Alterations, Agriculture/Pathogens, Source Unknown/Pathogens
Deep Run	Agriculture/Nutrients, Agriculture/Suspended Solids, Agriculture/Siltation, Industrial Point Source/Cause Unknown, Industrial Point Source/Suspended Solids, Municipal Point Source/Nutrients
Earlakill Run	Agriculture/Nutrients
East Branch Rausch Creek	Abandoned Mine Drainage/pH
Elizabeth Run	Agriculture/Nutrients, Agriculture/Siltation, Industrial Point Source/Suspended Solids, Municipal Point Source/Nutrients, Source Unknown/Pathogens
Forge Creek	Agriculture/Flow Alterations, Agriculture/Siltation
Gingrich Run	Agriculture/Suspended Solids, Urban Runoff/Storm Sewers/Organic Enrichment/Low D.O.
Hoffer Creek	Agriculture/Nutrients, Agriculture/Siltation, Other/Other Habitat Alterations
Indiantown Run	Road Runoff/Siltation
Iron Run	Agriculture/Siltation
Killinger Creek	Agriculture/Flow Alterations, Agriculture/Siltation, Agriculture/Nutrients
Lynch Run	Agriculture/Siltation, Agriculture/Turbidity, Other/Cause Unknown
Manada Creek	Agriculture/Pathogens/Road Runoff/Siltation
Mill Creek	Agriculture/Nutrients, Agriculture/Organic Enrichment/Low D.O., Agriculture/Suspended Solids, Agriculture/Pathogens, Agriculture/Siltation, Erosion from Derelict Land/Siltation
Oil Creek	Crop Related Agric/Flow Alterations, Crop Related Agric/Siltation
Owl Creek	Agriculture/Nutrients, Agriculture/Siltation
Quittapahilla Creek	Agriculture/Flow Alterations, Agriculture/Siltation, Urban Runoff/Storm Sewers/Flow Alterations, Bank Modifications/Other Habitat Alterations, Urban Runoff/Storm Sewers/Flow Alterations
Rausch Creek	Abandoned Mine Drainage/pH
Red Run	Crop Related Agric/Flow Alterations, Crop Related Agric/Siltation
Reeds Creek	Agriculture/Flow Alterations, Agriculture/Siltation
Rife Run	Agriculture/Siltation
Snitz Creek	Agriculture/Nutrients
Spring Creek	Agriculture/Siltation, Natural Sources/Water/Flow Variability, Other/Suspended Solids, Urban Runoff/Storm Sewers/Suspended Solids
Swatara Creek	Abandoned Mine Drainage/Metals, Abandoned Mine Drainage/pH, Abandoned Mine Drainage/Suspended Solids, Agriculture/Pathogens
Trout Run	Agriculture/Nutrients, Agriculture/Siltation
Tulpehocken Creek	Agriculture/Siltation, Erosion from Derelict Land/Siltation, Urban Runoff/Storm Sewers/Siltation
Vesle Run	Road Runoff/Siltation

Sources: Pennsylvania Department of Environmental Protection

Surface water is organized into different watersheds and sub-watersheds by the topography of the landscape. The majority of Lebanon County is in the Lower Susquehanna River watershed, but a small portion of southeastern Lebanon County lies in the Delaware River watershed. The various sub-watersheds in Lebanon County can be seen in Figure 6-8; the streams that comprise them are listed in Table 6-7.

Figure 6-8 Watersheds in Lebanon County



Sources: Pennsylvania Department of Environmental Protection; Environmental Resources Research Institute, Water Resources Division; FEMA; US Fish & Wildlife Services; Lebanon County Soil Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Table 6-7 Watersheds in Lebanon County

Watershed	Acres	Percent of County
Total	**232,300.1**	**100.0%**
Delaware River (Schuylkill River)	**34,112.9**	**14.7%**
Tulpehocken Creek	*34,112.9*	*14.7%*
Tulpehocken Creek (Main Branch)	20,365.4	8.8%
Furnace Creek	1,922.7	0.8%
Mill Creek	9,841.0	4.2%
Owl Creek	1,983.1	0.9%
Susquehanna River	**198,187.2**	**85.3%**
Cocalico Creek	*16,172.6*	*7.0%*
Cocalico Creek (Main Branch)	1,336.8	0.6%
Hammer Creek	9,544.3	4.1%
Walnut Run	862.7	0.4%
Middle Creek	3,087.4	1.3%
Furnace Run	634.6	0.3%
Segloch Run	683.8	0.3%
Harnish Run	23.0	0.0%
Chiques Creek	*4,828.2*	*2.1%*
Chiques Creek (Main Branch)	896.8	0.4%
Little Chiques Creek	1,460.7	0.6%
Shearer's Run	2,470.6	1.1%
Conewago Creek	*12,451.3*	*5.4%*
Conewago Creek (Main Branch)	8,417.6	3.6%
Little Conewago Creek	3,803.6	1.6%
Hoffer Creek	230.2	0.1%
Swatara Creek	*156,015.6*	*67.2%*
Swatara Creek (Main Branch)	57,761.5	24.9%
Mill Creek	4,218.7	1.8%
Spring Creek	4,240.2	1.8%
Manada Creek	1,622.0	0.7%
Indiantown Run	7,397.9	3.2%
Little Swatara Creek	25,773.1	11.1%
Quittapahilla Creek	49,472.2	21.3%
Trout Run	5,530.1	2.4%
Stony Creek	*7,465.0*	*3.2%*
Stony Creek (Main Branch)	4,816.5	2.1%
Rausch Creek	2,648.5	1.1%
Clark's Creek	*1,254.5*	*0.5%*
Clark's Creek	1,214.1	0.5%
Wiconisco Creek	40.4	0.0%

Sources: Pennsylvania Department of Environmental Protection; Environmental Resources Research Institute, Water Resources Division

Stream Gauges

Accurate and reliable gauging and bankfull discharge figures need to be developed for the various waterways in Lebanon County. Gauging is the measurement of the volume of water flowing in a stream channel. Bankfull discharge is the volume of stream flow when waters reach the top of the stream bank, i.e. the floodplain. How a stream contains its flow during high-water events has a very significant impact on the shape of the stream channel, the strata found in the stream bed, as well as the habitat and aquatic life found in the stream. This is especially important in determining the stability of the stream, and the volume of sediment that would be discharged at various times. When restoring streams, these figures help to determine the best ways to manage sediment flows and bank erosion and to identify areas where habitat is at risk or new habitats can be created.

The most reliable method for estimating bankfull discharge is an evaluation of flow records from stream gauges located in the watershed. However, when working in watersheds without stream gauges, regional regression equations that relate drainage area to bankfull discharge can be developed by conducting field calibration surveys at stream gauges in adjacent watersheds or other watersheds with the same physiographic characteristics.

A watershed and stream gauge survey was sent to the watershed associations in Lebanon County. The following stream gauge sites were identified:

Quittapahilla Creek Watershed

Bachman Run
Beck Creek
at Bellegrove Road and Snyder Road

Forge Creek Watershed

Christian Seigrist/Highbridge Reservoir
Indianhead Reclamation

Indiantown Run Watershed

Killinger Creek
Lebanon Highbridge Reservoir

Manada Creek Watershed

Quittapahilla Mouth

Querg Run Watershed

Snitz Creek
Middle Creek Stream Reclamation

Trout Run Watershed

WQN211 (Testing site at the mouth of Swatara Creek)

USGS Gauges (Pine Grove, Inwood, Harper's Tavern, Hershey)

Protected Status of Streams

Chapter 93 of the Pennsylvania Code provides stream classifications which include Trout Stocking Fisheries (TSF), Cold Water Fisheries (CWF), Warm Water Fisheries (WWF), High Quality Waters (HQ), and Exceptional Value Waters (EV). Trout Stocking, Warm Water Fishery, and Cold Water Fishery classifications are based on the maintenance or propagation of the fish species, or both, and the flora and fauna native to their habitat. The Special Protection Waters, High Quality and Exceptional Value classifications are to be maintained and protected based on the chemical and biological water quality standards established for these classifications. High Quality and Exceptional Value waters are surface waters having quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water. The difference between the two is Exceptional Value waters are to be protected at their existing water quality because they have outstanding recreational or ecological values. High Quality waters are also to be protected, but their water quality can be lowered if a discharge is a result of necessary social and economic development and all in-stream uses are protected. In other words, Exceptional Value classification mandates a higher level of protection than the High Quality classification. The protected status of streams in Lebanon County is shown in Table 6-8.

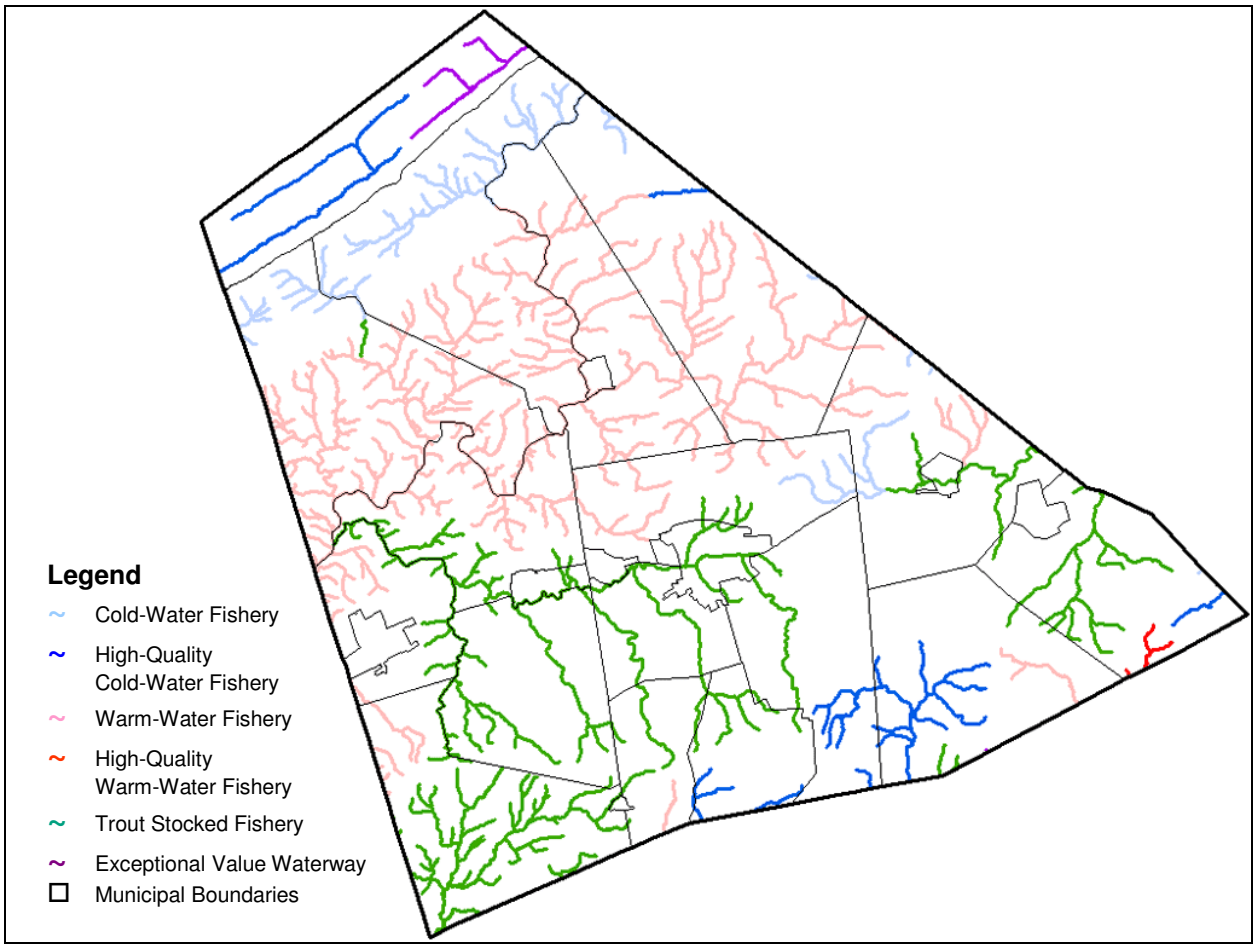
Table 6-8 Protected Status of Streams in Lebanon County

Name	Zone	Protected Water Uses
Cocalico Creek	Basin, source to Lancaster County	High-Quality Cold-Water Fishery
Furnace Creek	Basin, source to Berks/Lancaster County	High-Quality Cold-Water Fishery
Hammer Creek	Basin, source to Lancaster County	High-Quality Cold-Water Fishery
Indiantown Run	Source to Inlet of Marquette Lake	Cold-Water Fishery
Indiantown Run	Inlet of Marquette Lake to Inlet of Memorial Lake	Stocked Trout Fishery
Indiantown Run	Inlet of Memorial Lake to Mouth	Warm-Water Fishery
Little Swatara Creek	Source to Berks-Lebanon County Line	Cold-Water Fishery
Little Swatara Creek	Berks-Lebanon County Border to Mouth	Warm-Water Fishery
Mill Creek	Source to City of Lebanon Authority Dam (Schuylkill County)	Exceptional Value Waterway
Mill Creek	City of Lebanon Authority Dam to Mouth (Schuylkill County)	Cold-Water Fishery
Monroe Creek	Source to tailwaters of Lake Strause	High-Quality Cold-Water Fishery
Monroe Creek	Lake Strause Dam to Mouth	Warm-Water Fishery
Owl Creek	Basin	Warm-Water Fishery
Quittapahilla Creek	Basin	Stocked Trout Fishery
Segloch Run	Basin, source to Lancaster County	Exceptional Value Waterway
Shearers Creek	Basin, source to Lancaster County	High-Quality Cold-Water Fishery
Stony Creek	Basin, source to Dauphin County	High-Quality Cold-Water Fishery
Swatara Creek	Mill Creek to Proposed Swatara Gap Dam	Cold-Water Fishery
Swatara Creek	Main stem, proposed Swatara Gap Dam to mouth	Warm-Water Fishery
Unnamed Tributaries to Chiques Creek	Basins (Lebanon and Lancaster Counties)	Warm-Water Fishery
Unnamed Tributaries to Swatara Creek	Proposed Swatara Gap Dam to Mouth	Warm-Water Fishery

Source: Pennsylvania Code, Chapter 93

The Pennsylvania Fish and Boat Commission maintains a list of the state's Class A Wild Trout Streams. These are streams which "support a population of naturally produced trout of sufficient size and abundance to support a long-term and rewarding sport fishery." Shearers Run in Lebanon and Lancaster Counties is listed as a Class A Wild Trout Stream. Wild Brown Trout can be found from the headwaters downstream to the powerline near the county line, a total length of 1.7 miles.

Figure 6-9 Chapter 93 General Water Quality Criteria



Sources: Pennsylvania Department of Environmental Protection; Environmental Resources Research Institute, Water Resources Division; FEMA; US Fish & Wildlife Services; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Wetlands

The Pennsylvania Department of Environmental Protection, the United States Environmental Protection Agency, and the United States Army Corps of Engineers define wetlands as, "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas"[20]. Wetlands are identified by hydric soils, hydrophytic vegetation, and the presence of water during the growing season. Wetlands in Lebanon County can be seen in Figure 6-3.

Wetlands are important for a number of reasons. They provide habitat for most threatened and endangered species. Wetlands provide food for game fish and other animals, as well as nesting birds. They function to reduce flooding by absorbing additional waters and slowing the pace of water to neighboring creeks and streams. Wetlands also act to buffer creeks and streams from excessive erosion and sedimentation. The following listing outlines several other socioeconomic values and environmental functions of wetlands.

[20] Pennsylvania Code 93.1

Socioeconomic Values
- Flood Control
- Erosion Control
- Groundwater Recharge
- Recreation
- Aesthetics
- Education/Research

Environmental Quality Values
- Sediment Removal
- Oxygen Production
- Nutrient Recycling
- Chemical and Nutrient Absorption
- Aquatic Productivity

Wildlife Values
- Habitats or landscapes for fish, waterfowl, birds, mammals, plants, insects, and other forms of wildlife.

Forested Wetlands (approximately 1,082 acres within Lebanon County) are wetlands dominated by woody vegetation. Forested Wetland includes seasonally flooded bottomland hardwoods, and wooded swamps including those around bogs. Wooded swamps and floodplains contain primarily ash (*Fraxinus*), alder (*Alnus*), willow (*Salix),* tupelo (*Nyssa*), oaks (*Quercus)*, and red maple (*Acer rubrum*). These wetlands are of particular value to amphibian species, which depend on an interface between aquatic and land environments.

Nonforested/Emergent Wetlands (approximately 685 acres within Lebanon County) are dominated by wetland herbaceous vegetation or are nonvegetated. These wetlands are comprised of marshes and nonvegetated flats as well as flooded meadows, and open bogs. Both narrow-leaved emergents such as cattail (*Typha*), bulrush (*Scirpus*), sedges (*Carex*), sawgrass (*Cladium*) and other grasses (for example, *Panicum* and *Zizaniopsis miliacea*), and broad-leaved emergents such as waterlily (*Nuphar, Nymphea*), pickerelweed (*Pontederia*), arrow arum (*Peltandra*), arrowhead (*Sagittaria*), and water hyacinth (*Eichhornia crassipes*),can be found in nonforested/emergent wetlands. Additionally, flora such as mosses (*Sphagnum*) and sedges (*Carex*) may also be present.

Lebanon County's landscape encompasses a number of free-flowing watercourses which overflow their banks on occasion. Normally dry land subject to temporary inundation by water from these watercourses or the unusual and rapid accumulation or runoff of surface waters from any source is called a floodplain and is generally measured by the frequency of its occurrence (e.g. 100 year, 500 year, etc.). The Federal Emergency Management Agency (FEMA) is the agency responsible for floodplain designation and management and has chosen the 100 year flood as its base flood. FEMA also oversees the National Flood Insurance Program (NFIP), which provides subsidized flood insurance to property owners located in the floodplain.

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage and preventing new development from occurring in flood prone areas. These measures take a variety of forms and generally include zoning, subdivision, or building requirements, and special-purpose floodplain ordinances at the municipal level. In Pennsylvania, the Department of Community and Economic Development (DCED) provides assistance to local municipalities in their floodplain management programs and compliance with the NFIP. In Lebanon County, the Planning Department has been instrumental in developing model regulations and assisting communities to adopt floodplain management regulations which meet NFIP guidelines.

Adequate floodplain management is crucial to municipalities that have extensive floodplain areas. Preserving floodplain areas from development disturbances minimizes potential damages to property and risk of injury due to extensive flooding. Allowing the floodplain areas to remain in their natural state will also minimize any major changes to the balance of the hydrologic system and provide a protective buffer to the waterways, thereby reducing pollutant levels which may reach the waterway. The unplanned encroachment of structures and land filling activities in floodplain areas has the potential of reducing the floodplain land area and water carrying capacity, thus increasing water heights, velocities, and flood hazards in areas beyond these encroachments. Incorporating conservation areas in the landscape along watercourses will be effective in preserving floodplain areas. A community's agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction, is an important element in making flood insurance available to home and businesses owners. Additionally, communities can mitigate risk by reclaiming floodplains as older homes deteriorate or are destroyed by flooding with substantial damage. Municipalities that enforce floodplain ordinances are listed in the Municipal Regulations section of this profile.

In Lebanon County, approximately 14,100 acres of land are considered to be in the 100-year floodplain or the floodway. This accounts for over 6% of the total land area in the county. Floodplains in Lebanon County can be seen in Figure 6-12 and appear in much more detail on FEMA maps and municipal zoning maps. The success of Lebanon County's floodplain management program has been evident after recent flood events as the county has not experienced significant flood damage because it has instituted floodproofing measures and restricted substantial improvements whenever possible in existing structures and has prohibited new development from occurring in flood prone areas.

MS4 Stormwater Management Areas

Stormwater runoff is often transported by municipal Separate Storm Sewer Systems (MS4s) and ultimately discharged into local rivers and streams without treatment. A municipal separate stormwater system is a conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, storm drains) that channels and discharges water from rain events to the natural waterways.

In 1990, the EPA established Phase I of the National Pollutant Discharge Elimination System (NPDES) stormwater program. The Phase I program for MS4s requires operators of "medium" and "large" MS4s, those that generally serve populations of 100,000 or greater, to implement a stormwater management program as a means to control polluted discharges from these MS4s. Phase II, initiated in 2003, extends coverage of the NPDES stormwater program to certain small MS4s. A small MS4 is any MS4 located within U.S. Census defined Urbanized Areas and not already covered by the Phase I program as well as selected MS4s located outside of urban areas.

Phase II Rule establishes an MS4 stormwater management program that is intended to improve the nation's waterways by reducing the quantity of pollutants that stormwater carries into storm sewer systems during storm events. Common pollutants include oil and grease from roadways, pesticides from lawns, sediment from construction sites, and litter. These pollutants can impair the waterways, discouraging recreational use of the resource, contaminating drinking water, and interfering with fish and wildlife habitat.

The County of Lebanon and nineteen of its municipalities are required to apply for NPDES permits and develop a plan for their small MS4s. The county does not contain any medium or large MS4 permit municipalities. Operators of regulated small MS4s are required to design their programs to:

- Reduce the discharge of pollutants to the "maximum extent practicable"
- Protect water quality
- Satisfy the appropriate water quality requirements of the Clean Water Act.

Federal regulations establish six categories of minimum control measures with specific annual goals and an implementation schedule:

- Public Education and Outreach
- Public Participation and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post Construction Stormwater Management
- Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance.

The following municipalities in Lebanon County are required to implement MS4 management systems: Cleona Borough, Cornwall Borough, East Hanover Township, Jackson Township, Jonestown Borough, Lebanon City, Myerstown Borough, North Annville Township, North Cornwall Township, North Lebanon Township, North Londonderry Township, Palmyra Borough, South Annville Township, South Lebanon Township, South Londonderry Township, Swatara Township, Union Township, West Cornwall Township, and West Lebanon Township. The Lebanon County Planning Department has assisted county municipalities in implementing these regulations.

Municipalities within Lebanon County that are not required to implement an MS4 stormwater management program are: Annville Township, Bethel Township, Cold Spring Township, Heidelberg Township, Millcreek Township, Richland Borough and Mount Gretna Borough.

Watershed Planning

Several watershed groups and organizations, working at various watershed and sub-watershed levels, are active in Lebanon County. They have performed studies on their respective watersheds that analyze the environmental conditions and sustainability, as well as existing problems or remediation strategies that are currently taking place. The studies were reviewed in preparation for this profile and are described below. The watersheds of Lebanon County can be seen in Figure 6-8.

The Stormwater Management Act (No. 167) of 1978

The Stormwater Management Act (No. 167) of 1978 requires that the following policy and purpose be implemented by counties of the Commonwealth:

(1) Encourage planning and management of stormwater runoff in each watershed which is consistent with sound water and land use practices.
(2) Authorize a comprehensive program of stormwater management designated to preserve and restore the flood carrying capacity of Commonwealth streams; to preserve to the maximum extent practicable natural stormwater runoff regimes and natural course, current and cross-section of water of the Commonwealth; and to protect and conserve groundwater and groundwater recharge areas.
(3) Encourage local administration and management of stormwater consistent with the Commonwealth's duty as trustee of natural resources and the people's constitutional right to the preservation of natural, economic, scenic, aesthetic, recreational and historic values of the environment.
(4) Prepare and adopt watershed plans for each designated watershed. Each municipality within the watershed is to be represented on a plan preparation advisory committee.
(5) Within six months of the watershed plan adoption, all affected municipalities are required to amend local ordinances (zoning, subdivision, etc.) to comply with the watershed plan.
(6) The PADEP is to publish guidelines and model ordinances for county and municipal use during this process.
(7) State grants (up to 75%) are available from the PADEP for approved watershed planning activities.

The PADEP has designated eight watersheds within Lebanon County, as follows:
(1) Quittapahilla Creek
(2) Tulpehocken Creek
(3) Swatara Creek
(4) Spring Creek
(5) Cocalico Creek
(6) Conewago Creek
(7) Little Chiques Creek
(8) Stony Creek

According to Act 167, each county must prepare a stormwater management plan for each of its designated watersheds in consultation with the municipalities located within the boundaries of the watershed. The main objective of a stormwater management plan is to control stormwater runoff on a watershed-wide basis rather than on a site-by-site basis, taking into account how development in any part of the watershed will affect stormwater in all other parts of the watershed. Of the eight designated watersheds in Lebanon County, only two have approved Act 167 Stormwater Management Plans at the time of the Plan. The following provides a brief outline of these studies:

Tulpehocken Creek Watershed Act 167 Stormwater Management Plan

The Tulpehocken Creek watershed straddles Lebanon and Berks Counties. It lies in the southeast portion of Lebanon County in all or parts of the following municipalities: Heidelberg Township, Jackson Township, Millcreek Township, Myerstown Borough, North Lebanon Township, Richland Borough, and South Lebanon Township. The Lebanon County municipalities are principally within the headwaters of the watershed. The 23 municipalities within Berks and Lancaster Counties are primarily downstream, along the main watercourses and involve confluence areas. All of the municipalities within the watershed that administer their own subdivision/land development ordinances are required to adopt the Tulpehocken Creek Stormwater Management Plan as a regulatory document.

The plan is composed of three volumes. Volume I provides an overview of Act 167 with a summary of the standards and criteria. Volume II consists of the Plan Report (GIS maps and Model Ordinance). Volume III contains the background technical materials (supporting data, watershed modeling parameters and runs, as well as peak flows, release rates, the existing municipal ordinance matrix, and obstructions inventory). The plan preparers utilized the Penn State Runoff Model (PSRM), calibrated by streamflow, rain gauge and local data. Four watershed districts were identified with varying stormwater control criteria established for each, as well as exemptions for small scale projects.

In addition to these guidelines, five main objectives in addressing stream bank erosion, flooding, water quality, groundwater recharge, and stormwater management measures on development sites were created:

- Implement non-point source pollution removal methodologies;
- Maintain groundwater recharge;
- Reduce channel erosion;
- Manage overbank flood events; and
- Manage extreme flood events.

The affected municipalities within Lebanon County have revised their ordinances at the local and county level to comply with the Tulpehocken Creek Plan.[21]

Cocalico Creek Act 167 Stormwater Management Plan

The Cocalico Creek Watershed is located in the northern portion of Lancaster County, the southern part of Lebanon County, and parts of Berks County. The Cocalico Creek flows into the Conestoga River, draining a watershed area of approximately 140 total square miles; 25 sq. miles are in Lebanon County. Municipalities in Lebanon County that are in the Cocalico Creek Watershed include: Cornwall Borough, Heidelberg Township, Millcreek Township, and South Lebanon Township. Portions of the watershed are developed, but vast areas are still undeveloped with a potential for extensive growth under existing zoning. The effects of this potential growth and development on drainage, flooding, and erosion problems are a major concern for municipal officials and affected property owners. The watershed is acknowledged to be 32% underlain by carbonate rock (limestone and dolomite) which commonly facilitate sinkhole formation. This karst topography is hazardous for groundwater infiltration. The plan was prepared utilizing a calibrated version of the TR20 (SCS method) to model the watershed. A total of 107 subwatersheds were identified and modeled.

With implementation of the plan, the 100-year flood elevation at a particular site should be no higher nor wider in the future than it is now. This plan's effectiveness hinges on adherence to its proposed guidelines. These guidelines include certain performance standards for the control of stormwater runoff, listed here:

- *Match Pre-existing Hydrograph*: Developers and / or landowners are encouraged to provide infiltration facilities or utilize other techniques so that the post-development hydrograph will match the pre-existing hydrograph for the site. This option is most feasible for small subdivisions in areas of non-carbonate geology.
- *Groundwater Recharge Standard*: Stormwater management measures such as porous pavement with underground infiltration beds and infiltration/recharge structures or Best Management Practices (BMPs) can be designed to promote groundwater recharge. Minimum requirements for BMPs are listed.
- *Water Quality Standard*: Pollutants accumulate on impervious surfaces between rainfall events or during dry weather. Pollutant concentrations in runoff from developed land tend to be greatest at the beginning of the storm event, or the "first flush" of runoff. It has been found that 80% to 90% of rainfall events are 1.2 inches or less, and essentially simulate this "first flush." The majority of the nonpoint source pollutants, therefore, are being washed into streams during the smaller storms. Capturing this first flush and/or smaller storms will allow the stormwater to be detained and will allow pollutants to settle, thus allowing a cleaner outflow. Criteria are established to achieve this goal.
- *Description of the Performance Standard Districts*: It was found during the watershed study that a release rate of 50% of the pre-existing flow rates in all areas provided results which were not significantly different than any variable release rate scenario. The variable release rate scenarios evaluated for this basin indicated that most of the development potential of the basin exists around the edges of the watershed.

[21] Tulpehocken Creek Watershed Stormwater Management Plan.

- *Sub-Regional (Combined Site) Storage*: The goal should be the development and use of the most cost effective and environmentally-sensitive stormwater runoff controls which significantly improve the capability and flexibility of land developers and communities to control runoff consistent with the Cocalico Creek Management Plan.
- *No Harm Option*: For any proposed development, the developer has the option of using a less restrictive runoff control if the developer can prove that "no harm" would be caused by discharging at a higher runoff rate than that specified by the plan.

The four Lebanon County municipalities within the Cocalico Creek watershed have revised local and county ordinances to be consistent with the Plan requirements.

To summarize, Lebanon County Planning Department and local municipalities have amended their subdivision and land development ordinances to:

(1) Adopt required criteria for the Tulpehocken and Cocalico Creek watersheds; and
(2) Extend water quality standards, infiltration requirements, best management practices, and other PADEP stormwater management guidelines to the remainder of the county under the jurisdiction of the County ordinances.

Swatara Creek Watershed River Conservation Plan

The 571 square miles of the Swatara Creek Watershed originates in Schuylkill County and travels in a south – southwest direction through Schuylkill, Berks, Lebanon, and Dauphin Counties arriving at its confluence with the Susquehanna River in Middletown, Dauphin County. Just over 42% of the total watershed is found within Lebanon County or approximately 244 square miles.

The creek was a significant transportation route in the colonial period of North America up through the middle 19th century. The Union Canal, an early public works project conceived by William Penn in the 1690s and begun in 1792 to connect the Susquehanna and Delaware rivers, followed the lower course of the river below Quittapahilla Creek. The upper course above Quittapahilla Creek into the mountains provided the route of a feeder to the main canal, as well as providing a route to ship anthracite from the mountains to Philadelphia.

Water quality within the watershed has shown improvement over the last few decades, though there are many opportunities to better the Swatara's water quality. Much of the improvements have resulted from the mitigation of non-point pollution generated from anthracite coal mines to the north. While this is encouraging, significant growth of residential land use (up from 179,500 in 1960 to 252,300 in 1990) presents new challenges. In response to these the Swatara Creek Watershed Association was formed with the mission "to promote the conservation of the natural resources of the Swatara Creek Watershed by conducting scientific investigations and research, disseminating information, conducting educational programs, sponsoring conservation projects and all activities incidental thereto."

The Swatara Creek Watershed River Conservation Plan was designed to be a comprehensive document that outlines both natural and man-made resources of the watershed; identifies the challenges and problems of the watershed; and presents alternative solutions and strategies for preserving and protecting the watershed resources. The plan was completed in 2000 and determined management options to address the opportunities within the watershed and issues relating to water quality, population growth, land use within the watershed, Swatara Creek State Park, and the Swatara Greenway.

Much of the plan's goals involve state, county and municipal land use considerations in the watershed. At the state level, the plan encourages readers to show support for legislation to clean brownfield areas, limit point and non-point pollution, protect endangered species, support recycling efforts, and agricultural preservation. The plan encourages the comprehensive planning process at the local and county level to set proper goals for resource conservation and utilize environmentally conscious land use controls along the Swatara and its tributaries, especially floodplain management. The plan promotes effective sewer management through Act 537 planning, transportation and population impact studies, and forming partnerships with local school districts and universities for stream rehabilitation and education. At the grassroots level the plan seeks to hold watershed wide cleanup days, promote best management practices in local agriculture, conduct regular water quality testing, propagate riparian buffers, educate the public to the threats of non-native species, and make the stream corridor more user friendly.[22]

[22] Swatara Creek Watershed Association

Quittaphilla Watershed Association

The Quittaphilla Watershed Association was established in 1997 and became affiliated with the Swatara Creek Watershed Association in 1998. The entire Quittapahilla Watershed (77.3 square miles) is in Lebanon County. The creek's major tributaries include Killinger Creek, Bachman Run, Beck Creek and Snitz Creek. The Quittapahilla Creek flows into the Swatara Creek, which flows into the Susquehanna River and eventually into the Chesapeake Bay. Annville Township, Cleona Borough, Lebanon City, and West Lebanon Township lie completely within the Quittaphilla Watershed. North Annville, North Lebanon, South Lebanon, North Londonderry, North Cornwall, Heidelberg, South Annville, and West Cornwall Townships and Palmyra and Cornwall Boroughs are partially within the Quittapahilla Watershed.

The Quittapahilla Creek Watershed Assessment, completed in 2006, provided a detailed characterization and assessment of stream conditions for 18 miles of mainstem stream and 65 miles of tributaries within the 79 square mile watershed. The study examined and mapped in-stream conditions, inventoried land use conditions and impacts, determined bankfull dimensions and analyzed morphological (stream shape/type) stability, determined floodplain delineation, , and conducted biological assessment for aquatic habitat. Where poor, problematic or declining conditions were found, the study identified restoration and management strategies to address these conditions. By modeling streambank erosion rates and nutrient and sediment loading per various land uses, the study was also able to project future problems and recommend appropriate mitigation strategies. These projections can later be used to analyze the impact of restoration and mitigation strategies once implemented.

Overall, the study concluded that the Quittie suffers most significantly from heavy sedimentation, shallow water, low flow, and a lack of riparian cover. Its water quality is fair to poor water quality impacted predominantly by suspended solids, turbidity, and heavy metals (lead, zinc, copper), which exceed EPA standards. These conditions are more severe downstream from wastewater treatment plants. Urban impacts from channel alterations designed for flood mitigation in the early 1980s and non-point source pollution are heaviest downstream. Flow diversions (ponds for livestock, irrigation supply, etc.) have typically not caused problems except in drought years. The stream's biological community is in good and improving condition given a poor history. Tributaries are in better condition than main stem, though the mainstem has better forest cover. Snitz Creek has the best conditions, indicated by the highest fish diversity. Killinger Creek has the heaviest sediment loads but still supports a diverse biological community. Fish barriers and habitat enhancement structures have had mixed effects.

The study reports that best management practices that have been installed or implemented are working. Stream bank fencing is working to restrict grazing of riparian buffers and manage livestock access to the stream channel. Natural buffers within fenced areas are regenerating forested vegetation and will likely narrow and deepen channels naturally. Timbering, mining and quarrying operations continue to impact conditions but are making strides to mitigate them.

The preliminary report indicates that stream conditions can be made better through restoration and management strategies. However, it would be unreasonable to expect restoration of pristine (undeveloped) stream conditions given the current development pattern.

Tri-County Conewago Creek Association

The Tri-County Conewago Creek Association (TCCCA) began in November, 2001, as a group of concerned citizens in Dauphin, Lancaster, and Lebanon Counties. In 2002, the group incorporated and gained 501(c)(3) tax exempt status. TCCCA's activities in its first year of existence were many and varied, and focused on achieving the goals set forth in its mission statement. TCCCA developed an assessment and restoration plan in 2003. The plan outlines that TCCCA will seek to continue to work with landowners throughout the watershed to make stream improvements on their property by stabilizing eroded stream banks, fencing and planting trees along the creek, and conducting educational and public outreach initiatives.

In Lebanon County, the watershed includes portions of West Cornwall Township, Mt. Gretna Borough, South Londonderry Township, and South Annville Township; it encompasses a 53.2 square mile area in the rolling farm hills and woodlands. Its headwaters are just northeast of Mt. Gretna, in the western portion of West Cornwall Township, Lebanon County. It empties into the Susquehanna River just north of the village of Falmouth in Lancaster County. The upper portion of the Conewago flows through Lebanon County, while the middle and lower sections form the boundary between Dauphin and Lancaster Counties. The Conewago's main tributaries include the Little Conewago Creek, Hoffer Creek, Brills Run and Lynch Run.

TMDL Statutory and Regulatory Requirements –§ 303(d) Clean Water Act and 40 C.F.R. § 130.7

Clean Water Act Section 303(d) establishes the Total Maximum Daily Load (TMDL) program. The purpose of the TMDL program is to identify sources of pollution and allocate pollutant loads in places where water quality goals are not being achieved.

The Commonwealth manages many different water quality programs that have traditionally regulated well-defined sources of water pollution, such as discharges from sewage treatment plants and industrial facilities. Over the past several years, the Department of Environmental Protection (DEP) has focused on watershed management techniques and processes that take a comprehensive approach to water pollution control to address polluted runoff or nonpoint source pollution, as well as point sources of pollution. Using the watershed approach requires selection or definition of watershed size, and begins with a comprehensive assessment of water quality problems in the watershed. Pennsylvania has already begun this effort with its Unassessed Waters Initiative, which will assess over 83,000 miles of surface waters. After water quality problems are identified, a planning process occurs to develop strategies that can successfully address and correct water pollution problems in the watershed. Pennsylvania is using this process, in conjunction with federal Clean Water Act requirements, for establishing total maximum pollutant loadings, or TMDLs, to clean up polluted streams so that they meet water quality standards. Water quality standards are the combination of water uses, such as water supply, recreation and aquatic life, to be protected and the water quality criteria necessary to protect them. TMDLs can be considered to be a watershed budget for pollutants, representing the total amount of pollutants that can be assimilated by a stream without causing impairment or water standards to be exceeded. The maximum allowable amount of a specific pollutant is allocated to all sources in the watershed, including point source discharges from sewage treatment plants and industrial wastewater facilities (wasteload allocations) and polluted runoff from the land (load allocation). A margin of safety is also provided to account for uncertainty in the loading calculations. The TMDL process allocates the amount of pollutants that can be discharged into a waterway from each category of pollutant source. The TMDL does not specify how discharges must attain particular load reduction.[23]

Within Lebanon County TMDL levels have been identified and a threshold plan has been developed for the following streams: Conewago Creek Watershed, CrossKill Creek, Deep Run Watershed, Deep Run/Beach Run, and Elizabeth Run, Earlakill Run, Owl Creek, Quittapahilla Creek Watershed, and Unnamed Tributary of Swatara Creek. Additionally, Cocalico Creek Watershed, Hammer Creek and Middle Creek have identified the need to develop a threshold plan. At this point, Conewago Creek Watershed is the only TMDL that has begun developing a TMDL implementation plan.

Pennsylvania State Water Plan (Act 220)

The 2002 Pennsylvania Water Resource Planning Act, in its broadest sense, calls for:

- An update of the State Water Plan within 5 years
- Registration and reporting of high volume water withdrawals (averaging over 10,000 gallons per day)
- Identification of critical water planning areas
- Creation of critical area resource plans in watersheds identified as critical water planning areas
- Establishment of a voluntary water conservation program.

These tasks will result in more complete and more integrated water resource management at the state and regional levels and are intended to sustain the quality of our water resources, maintain our natural environment, boost our economy and enhance our recreational opportunities.

The technical tasks required to prepare the 2008 State Water plan have been classified into four tiers that direct the committees. Tier one is data collection and analysis water supplies and water demand; high volume withdrawals reports; discharge monitoring reports; and population projections. Tier two is mapping and description of major basins. Results from tiers one and two will be compiled by region and presented in a regional atlas and series of GIS maps. Tier three is marketing and engaging the public on the importance of water resource issues, and tier four is the creation of a State Water Plan and statewide action agenda for the period 2008-2013. As of 2006, all four tiers are underway, with the State Water Plan due in 2008.

To carry out the planning provisions of the law, a Statewide Water Resources Committee was formed to help guide the development of the State Water Plan through a collaborative process. Representing Pennsylvania's geographic diversity, six

[23] Pennsylvania Department of Environmental Protection Fact Sheet

regional water resources committees were also created to facilitate the development of the regional components of the State Water Plan. The six planning regions include:

- Delaware Regional Water Resource Committee
- Upper/Middle Susquehanna Regional Water Resource Committee
- Lower Susquehanna Regional Water Resource Committee
- Ohio Regional Water Resource Committee
- Great Lakes Regional Water Resource Committee
- Potomac Regional Water Resource Committee

Lebanon County is part of the Lower Susquehanna Regional Water Resource Committee, which is one of the six statewide regional committees for the Water Resource Planning Act. This committee has discussed county and regional issues and identified four priorities for the region:

- An inventory of water resource supply (sources, geologic influences, and quantity and quality issues) and demand (current and projected consumption rates by use, critical water planning areas, impacts of flood and drought conditions on demand); development of a water budget for each watershed
- Promotion of water resource conservation, including wise and efficient use, water re-use practices, and protection of critical water bodies and functions
- Minimize land use impacts, i.e. reduce or eliminate point and non-point sources of water pollution; protect, restore and reclaim floodplains, wetlands, and waterway corridors
- Unification of water resource management initiatives via intergovernmental coordination (communication, data collection and sharing, and regulatory linkages), regional planning and advancement of priorities, and promotion of water resource stewardship.

Lebanon County submitted several county-specific issues for consideration at the regional level. In Lebanon County, the following issues were raised:

- Fredericksburg and Spring Creek near Hershey areas of Lebanon County were identified as “potentially stressed” due to rapidly expanding commercial industrial and residential development.
- Public education about water resources is needed throughout the county.
- There is a lack of forested buffers and agricultural best management practices in use, e.g. lack of conservation tillage, cover crops, livestock and human waste management, proper carcass disposal, etc., as well as lack of funding for education and implementation of best practices
- Lebanon City’s water supply facilities are projected to reach capacity by 2010.
- Need for review of local ordinances for appropriate permitting on commercial water bottling enterprises
- Determination of water uses requiring statewide priority, fee structure for non-priority uses, on-site storage options during drought and flooding crises.
- Viable options for soil improvement, e.g. addition of organic matter
- Evaluation of sediment removal behind dams
- Need for septic system maintenance regulations and possible inspections

Each of the county-specific issues raised by the committee is addressed in whole or in part by these regional priorities.

Other concerns noted by the Lower Susquehanna Regional Water Resource Committee though not thoroughly addressed by the regional priorities include:

- The need for consistency between plans for expansion of water supply service areas and local comprehensive planning
- The lack of funding for mandated water supply planning
- Lack of regulation of private wells; while on-lot septic receives attention, on-lot wells receive little attention
- Lax enforcement of Act 167 Storm water Planning requirements
- The complexity of water quality protection when pollution comes from multiple sources.

The 2008 State water Plan will benchmark water resource planning and management in Pennsylvania. It will compile regional priorities and include a gap analysis for water resources planning in the Commonwealth and present action plans to direct the future planning and management of water resources across the state where change is needed. The State Water plan will be updated every five years with a planning horizon of 2030.

Susquehanna River Basin Commission

The Susquehanna River is the nation's 16th largest river and extends from New York through Pennsylvania into Maryland, where it empties into the Chesapeake Bay. The river basin borders the major population centers of the east coast, and although relatively undeveloped, the river basin has experienced problems of water pollution and overusage. Because the Susquehanna River flows through three states and is classified as a navigable waterway by the federal government, state, regional, and national interests are involved. The need to coordinate the efforts of three states and the agencies of the federal government, as well as to establish a management system to oversee the use of the water and related natural resources of the Susquehanna River, resulted in the drafting of the Susquehanna River Basin Compact. This compact was signed into law on December 24, 1970 and adopted by the Congress of the United States and the state legislatures of New York, Pennsylvania, and Maryland, creating the Susquehanna River Basin Commission (SRBC).[24]

The mission of the Susquehanna River Basin Commission is to enhance public welfare through comprehensive planning, water supply allocation, and management of the water resources of the Susquehanna River Basin. To accomplish this, the SRBC works to reduce damages caused by floods; provide for the reasonable and sustained development and use of surface water and groundwater for municipal, agricultural, recreational, commercial and industrial purposes; protect and restore fisheries, wetlands and aquatic habitat; protect water quality and instream uses; and ensure future availability of flows to the Chesapeake Bay.[25]

The Susquehanna River Basin Commission Compact states that, "the Commission will annually adopt a water resources program, based upon the comprehensive plan, consisting of the projects and facilities which the Commission proposes to be undertaken by the Commission and by other authorized governmental and private agencies, organizations, and persons during the ensuing six years or such other reasonably foreseeable period as the Commission may determine." The 2005 Annual Water Resources Program identifies various programs and projects of the Commission and other water resource management agencies to meet the water resource needs. These include:

- Coordinate the planning and management of the water resources of the basin in accordance with the requirements of the Compact and the Comprehensive Plan; communicate with and listen to the concerns of the water use stakeholders and their elected representatives; educate the public about the water resources of the basin.
- Prevent the loss of life and significantly reduce future damages from floods within the basin through an integrated system of structural and nonstructural flood damage reduction measures.
- Mitigate the adverse impacts of drought conditions on water users and the environment.
- Control water pollution and excess nutrient runoff sufficiently to maintain and establish water quality capable of supporting multiple purpose uses for public water supply, recreation, fish and wildlife, agriculture, industry and other such uses. Protection also will be given to the receiving waters of the Chesapeake Bay.
- Restore native migratory fishes to the Susquehanna River System. Remove obstacles to the movement of migratory and indigenous fishes.
- Insure an adequate supply of water for all users, including instream users and the Chesapeake Bay.
- Inventory and store relevant water resource management data in a readily retrievable and usable form.

In addition to recognizing these needs, the Commission has established a Draft Groundwater Management Plan for the Susquehanna River Basin that is to be completed in 2006 and released for public information prior to final approval and implementation.

Chesapeake Bay Foundation

The Chesapeake Bay Foundation (CBF) is the largest conservation organization dedicated solely to the Chesapeake Bay watershed. The motto, Save the Bay, defines the organization's mission and commitment to reducing pollution, improving fisheries, and protecting and restoring natural resources such as wetlands, forests, and underwater grasses. CBF headquarters are in Annapolis, MD, and it has state offices in Maryland, Virginia and Pennsylvania. CBF operates 15 environmental education programs. In 2000, the Governors of Pennsylvania, Maryland, and Virginia; the Administrator of the United States

[24] Susquehanna River Basin Commission
[25] Ibid.

Environmental Protection Agency; and the Mayor of Washington D.C. signed the Chesapeake 2000 Agreement, pledging to improve water quality to remove the Chesapeake Bay from EPA's list of "impaired waters" by 2010.[26]

The Groundwater Foundation

The Groundwater Foundation was started so that citizens could learn, in ways that were scientifically accurate but also user-friendly, about groundwater impacts on a community. The Groundwater Foundation works to make groundwater science accessible and understandable to citizens everywhere, so that educated citizens can be involved in protecting the environmental and economic vitality of their communities.

The Foundation has always valued its role as an incubator for local groundwater champions. As a result, they began a national program in 1994 entitled Groundwater Guardian, which supports, recognizes, and connects communities taking proactive, voluntary steps to protect groundwater. Today, the Foundation is proud to work with hundreds of communities in over 40 states that concentrate efforts on comprehensive protection of local groundwater supplies.

Since 1996, Lebanon County has been identified as a Groundwater Guardian Community by The Groundwater Foundation. Lebanon County uses the Groundwater Guardian program to educate farmers, landowners, watershed groups, municipalities, water suppliers, and the public about non-point source pollution and groundwater protection. The Lebanon County Groundwater Education Team, a diverse group comprised of representatives from citizen groups, local government, educational institutions, business and agriculture, works to provide information and resources demonstrating best practices and encouraging and assisting in the implementation of groundwater protection programs.

Result Oriented Activities:

- Continued to facilitate the installation of best management practices on dairy and livestock farms in county watersheds.
- Working with state agencies to complete the Lebanon County Comprehensive Plan which will address all aspects of community planning.
- Served as a liaison to various local watershed protection organizations, coordinating efforts for watershed education and outreach.
- Implemented public education and outreach efforts, combined with storm drain marking, as best practices to comply with state storm sewer system requirements. [27]

Pennsylvania Water Resources Education Network (WREN)

The Pennsylvania Water Resources Education Network (WREN) is a nonpartisan informal collaboration among organizations and public officials working for the protection and management of Pennsylvania's water resources, both surface and groundwater, through education and informed policy making.

WREN's goals are:

- To foster and support local stakeholder communities which will educate themselves, other citizens, and local officials about their water resources and the public policies necessary to protect them.
- To make water resources protection a priority at the state and local level in Pennsylvania.
- To facilitate water resources education in schools.
- To exchange information among WREN members about activities and information relating to water resources in Pennsylvania.
- To enhance coordination and cooperation between WREN members.
- To make recommendations about meeting water resources education needs in schools and communities.

[26] Chesapeake Bay Foundation Website
[27] The Groundwater Foundation Web Site

Lebanon County has been recognized as a Groundwater Guardian Community since 1996. The role of the Groundwater Guardian Team is to gather information about local groundwater resources; to raise public awareness of the need for protection, conservation and pollution prevention; and to encourage intergovernmental cooperation and the development of policies for protecting groundwater resources. Within Lebanon County programs on wellhead protection and drinking water protection and non-point source pollution prevention has been organized.[28]

Capital Region Water Board

The Capital Region Water Board is a non-profit corporation under the laws of the Commonwealth of Pennsylvania and is incorporated for the purposes of improving public water management in the Capital Region of Pennsylvania and enhancing regional cooperation.

The Capital Region Water Board of South Central Pennsylvania was formed to study and evaluate the water supply situation of the region. The Board is attempting to address the problem of viability of small systems by searching for regional solutions. It may now expand its scope to do more comprehensive planning for a larger region in order to represent the Region's interests in facing competition for out-of-basin diversions. [29]

Woodlands

Pennsylvania has over 17 million acres of forestland, covering more than 60% of the state. Pennsylvania's forests are primarily hardwoods and include species such as black cherry, northern red oak, white oak, sugar maple, red maple, walnut, poplar and ash. In Lebanon County, these forests are comprised of roughly 70,000 acres of deciduous forest, 2,300 acres of coniferous forest, 5,200 acres of mixed deciduous-coniferous forest, and 1,100 acres of wooded wetlands.[30] This is approximately 34% of the county's total area, and a significant land resource.

Pennsylvania's forests provide multiple benefits to the citizens of the Commonwealth. These include:

- Improving air quality
- Helping improve water quality
- Providing habitat for a variety of plant and animal species
- Providing recreation and scenic opportunities
- Supporting a dynamic forest products industry that supports many rural communities and is an economic driving force in the Commonwealth[31]

Blue Mountain, also known as the Kittatinny Ridge, forms the northern rim of the Great Valley and hosts the largest uninterrupted forest area in central and eastern Pennsylvania. The forests of the ridge are tremendous assets to communities along the Ridge, such as Lebanon County, for timber production, water supply, wildlife habitat and outdoor recreation. The historic Appalachian Trail follows Blue Mountain for 85 miles from the Pennsylvania-Maryland state line to the Delaware Water Gap, traveling through Lebanon County and providing a unique recreation opportunity and greenway asset.

The Kittatinny Ridge Project, led by Audubon Pennsylvania, is a collaborative effort of local, regional, and state organizations and agencies to focus public attention on the importance of forested ridge through Pennsylvania; and to promote conservation activities to protect the ridge from further habitat loss, fragmentation, and inappropriate land use. Lebanon County is an active participant in the project.

South Mountain is the Great Valley's natural southern boundary. While smaller in scale than Blue Mountain, South Mountain has played a larger role in the development of Lebanon County. The mountain's iron and red sandstone formations were heavily mined in the 1800s and 1900s. More recently, growing residential development has impacted the forested South Mountains.

[28] Pennsylvania Water Resources Education Network (WREN) Web Site
[29] Capital Region Water Board Web Site
[30] Pennsylvania Department of Conservation and Natural Resources
[31] Ibid.

USDA Forest Service, as part of the Highlands Study, has begun the Pennsylvania and Connecticut Update study in cooperation with the Pennsylvania Department of Conservation and Natural Resources, and the Connecticut Department of Environmental Protection. The first stage of the study (currently underway) will focus on: public involvement to identify issues, opportunities and concerns; resource data collection; and resource assessment with the aim of identifying land having high conservation value. The study will include a scientific resource assessment; its principle product will be a map showing high conservation values in the highlands, a necessary component of land conservation partnership projects. An analysis of land use change will provide the basis to model future water quality and to examine the implications of change for other resources. The study will explore strategies for conserving forest resources and their ecological services in a region of rapid and extensive land use change.

Public woodland areas in Lebanon County include: Memorial Lake State Park, Swatara State Park, Middle Creek Wildlife Management Area, Stoever's Dam Park, Clarence Schock Memorial Park at Governor Dick and numerous state game land tracts.[32]

The Lebanon County Conservation District (LCCD) employs a forester/naturalist to conduct forestry and educational programs throughout the county. A few specifics include:

- Urban Forestry – Assistance is available to local municipalities in obtaining funding for tree planting, writing tree ordinances, and starting a Shade Tree Commission. Routine inspection and evaluation for disease and insect problems can be provided to local municipalities.

- Gypsy Moth – Inspections for gypsy moth infestations are conducted and reported to the state for possible control. Often confused with "webworms", gypsy moths hatch from small, tan egg cases no bigger than your thumb. The red and blue dots on the back of the caterpillar aid in proper identification. Formal complaints of heavy infestations are reported to the LCCD office in order to include properties in the county spraying program.

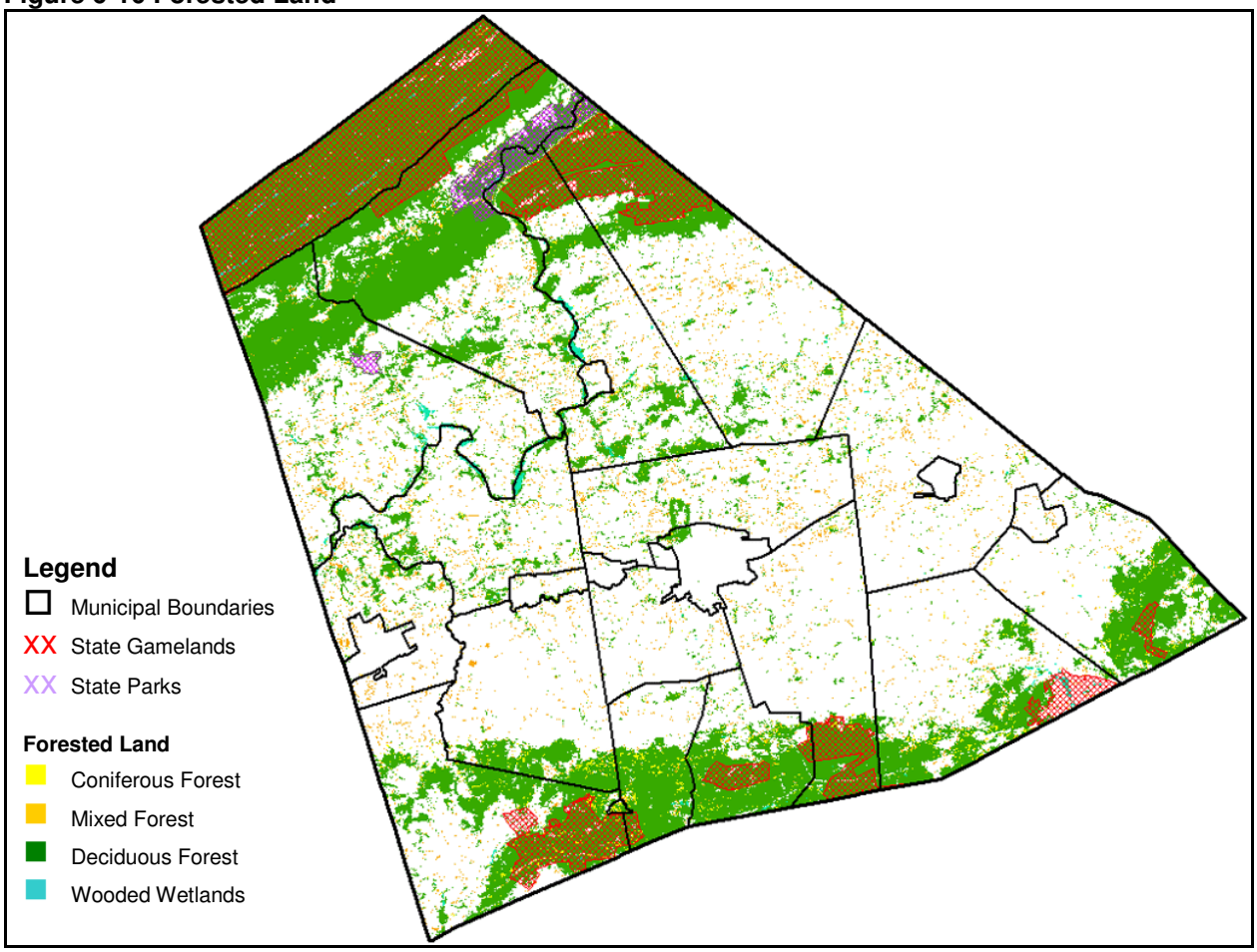
- Hemlock Woolly Adelgid - In Pennsylvania, this non-native insect continues to severely damage our state tree. The LCCD provides information for the public and municipalities on dealing with the pest species.

- Seedling Sale – The LCCD has an annual seedling sale in April offering a variety of evergreens and hardwoods, including Sugar Maple, Red Oak, Black Cherry, Common Lilac, Fruit trees, groundcover and others.

Another forest land preservation program being used in Lebanon County is the Forest Legacy Program (FLP), a federal and state partnership which encourages conservation of important, privately owned forest lands. FLP is a voluntary program that focuses on the permanent acquisition of conservation easements to prevent the conversion of forests to non-forest uses. These easements are purchased from the landowner, based on an appraised market value of the development rights. The state or federal government holds title to the easement, while the landowner retains ownership of the land and continues existing uses provided they meet the terms of the easement. The easement remains in place forever, even if the property is sold.

[32] PennLive.com

Figure 6-10 Forested Land



Source: Office of Remote Sensing of Earth Resources, Penn State University; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Upland Forest Communities

The American Chestnut once dominated many of the Eastern North American Hardwood Forests from Maine to Michigan to Alabama. However, around 1904, blight spread from the Bronx Zoo northward and southward, and by 1960, there were basically no mature chestnuts left standing. Today, young sprouts and shoots still remain, but very few will ever reach maturity due to the blight. Efforts to develop and establish a blight resistant strain of the American Chestnut show promise. This invaluable species provides important mast crops for wildlife and, more importantly, produces commercially valuable hardwood products at roughly 2½ times the growth rate of oaks. The loss of the Chestnut from the canopy left huge breaks all across the eastern United States. These holes have since filled with many of the Chestnut's associate species, including species of oak. These oak species comprise the Appalachian Oak Forest, which is the dominant vegetation type in the uplands of Lebanon County. White Oak, Northern Red Oak, and Chestnut Oak dominate the upland forest communities along with an array of other hardwood species. Hardwood associates such as Scarlet Oak, Black Birch, Red Maple, Black Gum, Hickory, American Beech, and Tulip Poplar are major associates within an Appalachian Oak Forest. The understory of Appalachian Oak Forests typically consists of Mountain Laurel, Early-Low Blueberry, Hillside Blueberry, Black Huckleberry, Witch Hazel, and other species. The best examples of an Appalachian Oak Forest in Lebanon County include State Game Lands #211, Fort Indiantown Gap, and the Governor Dick property in Mount Gretna.[33]

[33] The Nature Conservancy

Wildlife

The Pennsylvania Science Office of the Nature Conservancy compiled a Natural Areas Inventory of Lebanon County in 2003. The natural areas in Lebanon County were evaluated by botanists, wildlife biologists and ecologists and ranked in order of importance for conservation of biodiversity at a statewide level. The size and quality, condition, landscape context, and rarity of the species or natural community were factors used to assign ranks for each site. Generally speaking, sites are dispersed throughout the county with the majority located in those regions that have been untouched by development.

The Natural Areas Inventory recognizes two primary levels of significance for the protection of biodiversity: sites of statewide importance and sites of local significance. Sites of statewide importance support species of special concern, or have exemplary natural communities. Locally significant sites provide locally significant habitat and may be suitable for environmental education, parks or preserves. No species of special concern or exemplary communities have been identified at the locally significant sites, but the absence of species of concern cannot be proven in these potential habitats.

Sites of Statewide Significance

Sites of statewide significance for the protection of biological diversity in Lebanon County are listed in the approximate order of priority from the most important rank (Rank =1) to the least important (Rank =5). The most important sites of statewide significance in Lebanon County are described below.

Fort Indiantown Gap Macrosite (Union Township, East Hanover Township)
This area makes up the majority of the Fort Indiantown Gap Military Reservation (FIGMR) and contains the largest viable population in the United States of Regal Fritillary Butterfly, a Pennsylvania-Endangered butterfly species. Approximately 200 acres of land have been identified as a designated habitat for this species. A biological inventory of this site produced many additional Pennsylvania species of concern. Additionally, this site is in proximity to Second Mountain, an Important Bird Area (IBA) and raptor migration location in Pennsylvania. Despite the military training that occurs on this land, it remains a vital conservation site in Lebanon County.

Indiantown Run Woods (Union Township)
This area is part of the FIGMR and contains important habitat for the Regal Fritillary Butterfly, a Pennsylvania endangered animal species. The Black Dash Butterfly, Black-waved Flannel Moth, and Spiny Oakworm Moth, all animal species of concern, were found at this site along with two plant species of special concern, the American Holly and Netted Chainfern.

Walnut Run Watershed, State Game Lands #156 (South Lebanon Township)
This area consists of mesic hardwoods in the lowlands and additional xeric species in the uplands. A marginal to good-quality population of Puttyroot, a Pennsylvania-rare plant species, and a small population of Bog Bluegrass, a Pennsylvania-Threatened plant species were found at this site at the headwaters of Walnut Run. In addition, a good to excellent quality population of Nodding Trillium, a plant species of concern was found at this site.

Table 6-9 Sites of Statewide Significance

Site Rank	Site Name	Municipality
1	Fort Indiantown Gap Macro site	Union Township, East Hanover Township
1	Indiantown Run Woods	Union Township
1	Walnut Run Watershed, SGL #156	South Lebanon Township and Lancaster County
2	Sharp Mountain	Cold Spring Township and Schuylkill County
2	Chiques Creek Headwaters	West Cornwall Township and South Londonderry Township
2	Middle Creek Wildlife Management Area (SGL # 46)	Heidelberg Township
2	Millbach Wetlands	Millcreek Township
2	Monroe Creek, SGL #80	Bethel Township
2	Penryn Park Seep / Shand Kiwanis Camp	Cornwall Borough
2	Shearers Creek Swamp	Cornwall Borough
2	Stony Creek Valley, part of SGL #211	Cold Spring Township
2	Swatara Hillside Forest	Union Township
2	Swope Valley Run	Bethel Township and Schuylkill County
2	Trout Run Meadow	Union Township
3	Cold Spring / Stony Creek at Dresden Lake	Cold Spring Township
3	Furnace Creek Spring Run	Millcreek Township and Berks County
3	Gold Mine Run Vernal Pool and Seeps	Cold Spring Township
3	Gold Mine Wetlands, part of SGL #211	Cold Spring Township
3	Lebanon Reservoir Seeps	South Lebanon Township, Cornwall Borough, Heidelberg Township
3	Swatara Creek Floodplain	Bethel Township and Schuylkill County
3	Rausch Creek Ridge, part of SGL #211	Cold Spring Township
3	Rausch Gap, Rausch Creek	Cold Spring Township
3	State Game Lands #145 at Mount Gretna	South Londonderry Township
4	East Blue Mountain Spring	East Hanover Township
4	Gold Mine Seeps	Cold Spring Township
4	Route 322 Powerline Site	Cornwall Borough
4	St. Joseph Spring	East Hanover Township
4	Toineeta Farm Meadow	Swatara Township
5	Colebrook Meadow	South Londonderry Township
5	Dinosaur Rock Woods, SGL #145	South Londonderry Township
5	Swatara Gap Fossil Site	Union Township
5	Valley Glenn Floodplain	North Annville Township, North Londonderry Township

Source: The Nature Conservancy

Sites of Local Significance

Sites of local significance for the protection of biological diversity in Lebanon County are listed in the approximate order of priority from high to low. The most important sites of local significance in Lebanon County are described below.

Dogtown Wetlands (Heidelberg Township and Lancaster County)
This site is considered locally significant because it contains a diverse wetland and has potential habitat that exists for a Pennsylvania-Endangered animal species of concern. It is recommended by the Nature Conservancy that this site continue to be surveyed for this animal species of concern and steps taken to manage and protect the habitat. It is also recommended that exotic species be controlled if such species threaten the integrity of the wetland.

Lake Conewago at Mount Gretna (South Londonderry Township)
This locally significant area contains a recreation-altered lake but has a known historical record and potential habitat for a Pennsylvania-Endangered animal species of concern in a creek leading from the lake. This site is considered locally significant due to the potential habitat for a Pennsylvania-Endangered animal species of concern and for the extensiveness of

the creek and the wetland feeding into the lake. It is recommended by the Nature Conservancy that future surveying for this species be conducted to determine the presence / absence on the property.

Swatara Creek at Route 78 (Swatara Township)
This locally significant area contains a very diverse shrub swamp and sedge wetland openings and some surrounding forested wetlands. Despite the exotic plant species documented at this site, this area is significant due to the large wetland that provides habitat for animals and plants and also for the possibility of rare species. The major threat to this area is the spread of exotic plant species in the wetland. With the exception of invasive species control, this wetland should be left as is.

Evening Branch Wetlands (Cold Spring Township)
This section of wetlands in State Gamelands 211 lies parallel to the railroad grade transecting the gamelands, upstream of Evening Branch's confluence with Gold Mine Run in Cold Spring Township. The wetland has significance in its filtration role, upstream of the Lebanon Reservoir, as well as it's accessible for nature watching by the general public. The wetland enjoys a significant degree of protection, particularly from threats of development and subsequent run-off, due to state ownership.

Swatara Floodplain and Union Canal (East Hanover Township)
This locally significant site consists of an extensive deciduous floodplain between the Swatara Creek and Union Canal with a buttonbush-swamp rose thicket and a swamp rose thicket. Due to the extensiveness of the wetland, and the lack of such wetlands in this area, this site is considered locally significant. A recommendation for this site is the control of the spread of Multiflora Rose throughout this property.

Table 6-10 Sites of Local Significance

County Rank	Site Name	Municipality
High	Dogtown Wetlands	Heidelberg Township and Lancaster County
Medium	Lake Conewago at Mount Gretna	South Londonderry Township
Medium	Izaak Walton League Land	Heidelberg Township
Medium	Swatara Creek at Route 78	Swatara Township
Medium	State Game Lands #211, Evening Branch Wetlands	Cold Spring Township
Medium	Swatara Floodplain and Union Canal	East Hanover Township
Low	Lake Duffy, SGL #145	South Londonderry Township
Low	Quittie Creek Nature Park	Annville Township

Source: The Nature Conservancy

Agriculture

Agriculture has been and continues to be a thriving industry in Lebanon County. This is due in large part to the climate, prevalence of high quality soils, strong cultural heritage, and proximity to transportation access to major market areas within the east coast.

The Lebanon County Conservation District (LCCD) works with local farmers, the Lebanon County Commissioners, and the Pennsylvania Department of Agriculture's Bureau of Farmland Preservation to help protect farmland in Lebanon County. The LCCD's services include farmland preservation efforts, erosion and sedimentation pollution control, conservation planning, national pollution discharge elimination system, nutrient management, biosolids, and watershed education, all contributing towards greater support of the agricultural community and the county at large.
These programs support the continued economic viability of the agricultural community, help assure affordable and accessible food supplies to the general public, and help to reduce public services needed and taxes on agribusiness. These efforts also encourage soil and water conservation, improve and/or protect water and air quality, preserve farm culture, and retain open space, aesthetics and quality of life in the county.

Agricultural Security Areas

The Agricultural Security Area (ASA) program began in 1981 as a tool for strengthening and protecting agriculture in Pennsylvania. These ASAs are intended to promote more permanent and viable farming operations over the long term by strengthening the farming community's sense of security in land use and the right to farm. ASAs are created by local

municipalities in cooperation with individual landowners who agree to collectively place at least 250 acres in an ASA. It should be noted, that ASA designation is not a permanent designation but rather a seven year program. The land to be included must have soils conducive to agriculture and be used for the production of crops, livestock, livestock products, horticultural specialties, and/or timber. Specific regulations applying to the eligibility of property are as follows:

- Noncontiguous farm parcels must be at least 10 acres in size. The farm tracts needed to create a new 250 acre or larger agricultural security area do not have to be under the same ownership or even be located in the same municipality. The Agricultural Area Security Law (Act 43 of 1981) allows for the creation of multi-municipal ASAs.
- The property should be viable agricultural land. Cropland, pasture, and woodland can all be included in an ASA.
- At least 50% of the land should be in soil capability classes I-IV, as defined by the county soil survey.
- The property must be zoned to permit agricultural uses.
- Subdivision or development, however, is not prohibited

Setting up an Agricultural Security Area is a simple process with five basic steps.

1. The process of establishing an ASA is initiated by petition of owners of productive farmland totaling at least 250 acres. The land to be included must have soils conducive to agriculture and be used for the production of crops, livestock and livestock products. The petition is submitted to the local government unit with a description and boundaries of the proposed Area. Non-adjacent parcels of at least 10 acres may be included. A proposed ASA located in more than one government unit is submitted for approval to each governing body.
2. The governing body gives public notice of the proposal to create an ASA. Basic information is printed in a newspaper and posted in five locations, with an invitation for objections and modifications to be submitted to the governing body and planning commission within 15 days.
3. After the comment period the proposal, with objections and modifications, is referred to the local planning commission and a specially formed Agricultural Security Area Advisory Committee. The Advisory Committee is made up of three active local farmers, one citizen and a member of the local governing body. Both groups have up to 45 days to review the proposal and make recommendations to the governing body.
4. A public hearing on the proposed area must be held by the governing body. Modifications to the ASA may be made up to 7 days before the public hearing is advertised.
5. Following a public hearing the governing body may decide to adopt or reject the proposal, or any modifications to it. The ASA, if created, has a 7 year lifetime after which it is reviewed. The governing body must act within 180 days from the date the petition was submitted. If the governing body fails to decide in 180 days, the Agricultural Security Area is automatically adopted as originally petitioned. Within 10 days of its creation a description of the Area must be filed with the recorder of deeds and both the local Planning Commission and the Lebanon County Planning Department.

All of the municipalities in Lebanon County have ASAs within their respective jurisdictions with the exceptions being: Cold Spring Township, Union Township, Palmyra Borough, Annville Township, Cleona Borough, Lebanon City, Cornwall Borough, Richland Borough, Myerstown Borough, and Jonestown Borough. Agriculture is not a predominant land use in these communities, except for Union Township.

Preserved Farms

The Pennsylvania Agricultural Conservation Easement Purchase Program was developed in 1988 to help slow the loss of prime farmland to non-agricultural uses. The program enables state, county and local governments to purchase conservation easements from owners of quality farmland. Counties participating in the program, including Lebanon County, have appointed Agricultural Land Preservation Boards. A state board oversees the program, and provides $750 of the $1,500 dollars offered per acre, with the remaining $750 provided by local sources.

By voluntarily selling or donating agricultural conservation easements, the landowner is preventing development of the land for purposes other than agricultural production, while retaining ownership and other property rights. In order to qualify for a conservation easement, the following conditions must be met:

- The farmland tract must be located in an Agricultural Security Area. Parcels located outside of an Agricultural Security Area will be considered on a case-by-case basis with regards to the other conditions listed here and municipal zoning and land development plans.
- The property must contain at least 50% of soils which are available for agricultural production and are of soil capability classes I-IV.
- The property must contain at least 50% harvested crop land, pasture lands or grazing lands.
- The property must be at least 50 contiguous acres in size unless a minimum of 10 acres is of a unique crop or adjoining an attached perpetual agricultural conservation easement.
- The landowner must have a conservation plan meeting Resource Management System (RMS) standards, and approved by the Lebanon County Conservation District, including an "Act 6 level" of nutrient management plan review by the Conservation District by the time of closing.
- The land use must be compatible with municipal land development plans.
- The landowner must be willing to accept $1500 per acre.
- Not more than 50% of the property may be enrolled in a reserve program such as CRP.

Farmers may choose to receive the proceeds from the easement sales in a lump sum payment, installments up to five years, or on a long-term installment basis. Many farmers use the proceeds from easement sales to reduce debt loads, expand operations, and pass farms to the next generation.[34] The county reached a milestone mark of 10,000 acres of preserved farms early in 2006. Lebanon County's preserved farms can be seen in Figure 6-11. While certainly influential on its own, farmland preservation is most effective when combined with other land use controls, such as effective agricultural zoning and strict subdivision and land development ordinances.

Table 6-11 Agricultural Land Areas as of June 2006

Designation	Acres	Percent of Agricultural Land	Percent of County
Preserved Farms	10,996	11.8%	4.7%
Agricultural Security Areas	53,577	41.1%	23.1%
All Agricultural Land	130,496	100.0%	56.2%

Source: Office of Remote Sensing of Earth Resources, Penn State University; Pennsylvania Department of Transportation; Lebanon County Conservation District; RETTEW Associates, Inc.

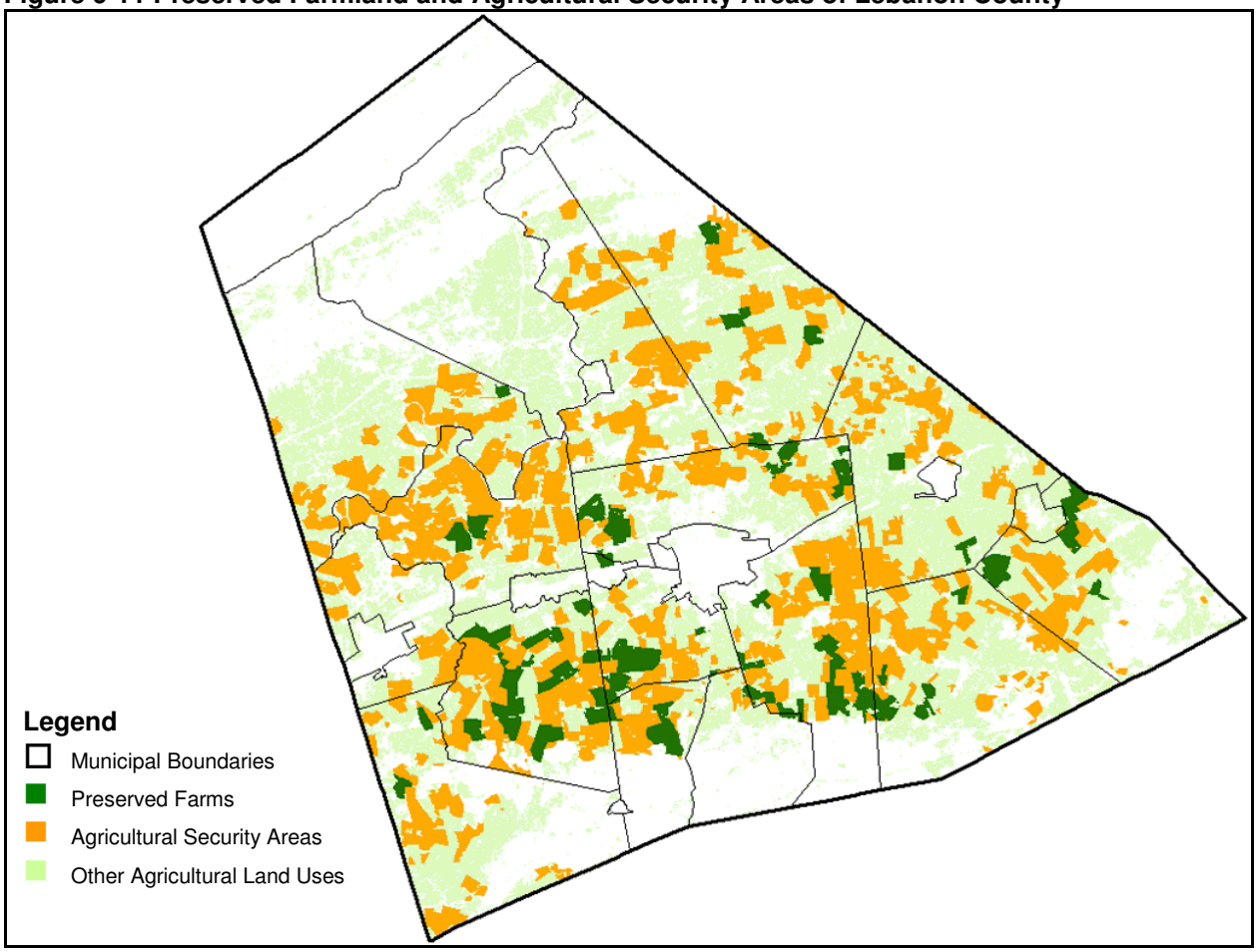
Table 6-12 Preserved Agriculture by Municipality as of June 2006

Municipality	Acres Preserved as of 06-28-06	Municipality	Acres Preserved as of 06-28-06
Cleona	77.27	North Cornwall	868.90
Bethel	711.7	North Lebanon	1,148.85
Cornwall	70.34	Richland	4.0
East Hanover	72.99	South Annville	2,745.55
Heidelberg	684.39	South Lebanon	1,597.56
Jackson	310.42	South Londonderry	199.06
Millcreek	1,052.90	Swatara	100.00
North Annville	787.75	Union	3.0
		West Cornwall	561.44

Sources: Lebanon County Conservation District; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

[34] Pennsylvania Department of Agriculture; Lebanon County Conservation District.

Figure 6-11 Preserved Farmland and Agricultural Security Areas of Lebanon County



Sources: Lebanon County Conservation District; Lebanon County Soil Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Nutrient Management Act

As discussed previously in this profile, agricultural activities can have an adverse impact on the quality of groundwater in an area. This is mostly caused by pesticides and nutrients which pollute local streams or percolate through the soils into the groundwater system. Areas of carbonate bedrock geology, such as much of Lebanon County, are more susceptible to contamination of this sort. In 1993, Pennsylvania adopted Act 6, the Pennsylvania Nutrient Management Act, which addresses water quality protection through Best Management Practices. Regulations went into effect October 1, 1997 and are administered by the State Conservation Commission with the assistance of county conservation districts. The Nutrient Management Act Program is a non-point source pollution prevention program. The goal is to prevent nutrient pollution of water resources by planning the appropriate application and management of manures and other plant nutrients, in conjunction with other water quality protection best management practices. This has become critical with the increase of concentrated animal operations and a decrease in available lands for nutrient application.[35]

For livestock and poultry operations, an approved Pennsylvania Nutrient Management Plan is required based on the operation's ratio of animals to land available for the appropriate application of manure. If there are more than 2,000 pounds of live weight of livestock per acre of land suitable for manure application, a nutrient management plan is required. These farming operations are defined as Concentrated Animal Operations (CAOs) under the law. Operations which are not considered to be CAOs are encouraged to plan on a voluntary basis. Volunteer planning provides eligibility for technical and financial assistance, limited liability protection, as well as other benefits.[36]

[35] Pennsylvania State Conservation Commission
[36] Ibid.

The quality of nutrient management plans written in Pennsylvania is ensured by a nutrient management plan writing and review certification program administered by the Pennsylvania Department of Agriculture. The certification program is designed to train and certify nutrient management planners to assist the farm community in developing plans, and plan reviewers who assure plan completeness and compliance. Planners are also required to attend continuing education training to help them keep informed of emerging issues relating to nutrient management. Each county conservation district maintains a listing of state-certified commercial nutrient management specialists available to write nutrient management plans. Farmers can be certified to write their own plans.

Three financial assistance programs are available to assist livestock operators to adopt sound nutrient management practices. The Plan Development Incentive Program helps to cover the cost of plan development. The Plan Implementation Grant Program helps to cover the cost of installing Best Management Practices included in an approved plan. The Agriculture-Linked Investment Program (AgriLink) provides low interest loans to help cover the cost of installing best management practices included in an approved plan.[37]

ACRE Legislation

Agriculture Communities and Rural Environments (ACRE) legislation is intended to respond to the concerns of both the agricultural and environmental communities. The legislation allows the Office of the Attorney General to review both existing and proposed local ordinances to see that they do not contradict state law or exceed the authority granted to local governments. If infringements are found in existing ordinances, the Office of the Attorney General is to bring any actions to the Commonwealth Court in a timely manner. The Pennsylvania Office of the Governor stated that "the bill also requires that any disputes between farmers and the local community be sent directly to Commonwealth Court to ensure that the precedents established are applicable statewide, preventing a variety of county legal standards."[38] Silvicultural (forestry) operations are also protected from restrictive ordinances by this legislation.

The ACRE legislation establishes a 100 foot buffer from surface waters for the application of manure, compared to the 150 foot buffer that the Department of Environmental Protection has been trying to establish. The bill also requires concentrated animal feeding operations (CAFOs) to develop and implement an odor management plan for new and expanding operations.[39]

Municipal Regulations

Many of the municipalities in Lebanon County have taken actions to conserve and protect important natural resources. The ways in which municipalities have incorporated natural resources such as floodplains, agriculture, erosion and sedimentation, and steep slopes, into their local ordinances are varied.

Cornwall Borough has by far the most extensive environmental regulations of the municipalities in Lebanon County. Article 20 of the zoning ordinance, as amended January 14, 2002, creates an Environmental Protection Overlay District (EP) to supplement the underlying district provisions. The regulations of the Environmental Overlay District are designed to protect environmentally sensitive areas and resources. The regulations address the following features: floodplains; streams, watercourses, wetlands, seeps, springs, lakes and ponds; stormwater, soil erosion and sedimentation; seasonal high water table areas; prime agricultural soils; conservation of woodlands and other vegetation; open space and critical habitat; Natural Diversity Impact Areas; and areas of steep slopes. The ordinance is set up such that any person proposing an activity that disturbs or impacts any of these natural features must submit a Conservation Plan for review to the Borough Engineer, Borough Planning and Zoning Commission, and Borough Council and must obtain approval of this plan by Borough Council. Minor Conservation Plans are associated with Building Permit Applications and Major Conservation Plans are filed with an application for Subdivision and /or Land Development. Additional regulations exist where certain environmental concerns are present.

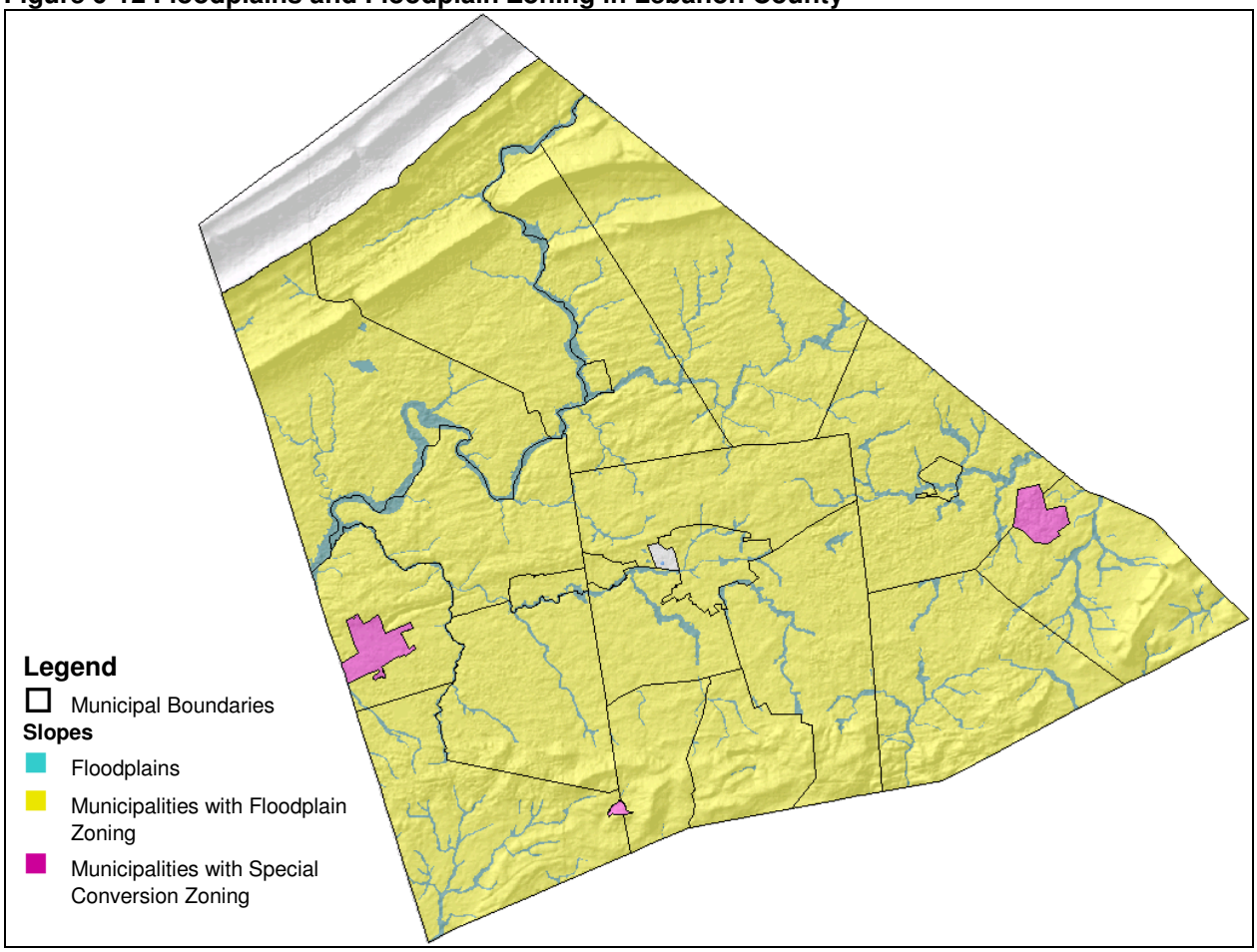
[37] Ibid.
[38] Pennsylvania Office of the Governor,
[39] Sierra Club, Pennsylvania Chapter.

Table 6-13 Municipal Regulations

	Zoning Ordinance	Agriculture	Steep Slopes	Floodplain
Annville-Cleona SD				
Annville	X	N/A		X
Cleona	X	N/A		X
North Annville	X	None		X
South Annville	X	RD		X
Cornwall-Lebanon SD				
Cornwall	X	RD	X	X
Mount Gretna		NA		Sp. Conv.
North Cornwall	X	LL	X	X
North Lebanon	X	RD	X	X
South Lebanon	X	RD	X	X
West Cornwall	X		X	X
ELCO SD				
Heidelberg	X	LL	X	X
Jackson	X	RD	X	X
Millcreek	X	LL	X	X
Myerstown	X	N/A	X	X
Richland	X	N/A		Sp. Conv.
Lebanon SD				
Lebanon City	X	N/A		X
West Lebanon	X	N/A		X
Northern Lebanon SD				
Bethel	X	RD		X
Cold Spring		None		
East Hanover	X	RD	X	X
Jonestown	X	N/A		X
Swatara	X	RD	X	X
Union	X	None	X	X
Palmyra Area SD				
North Londonderry	X	None		X
Palmyra	X	N/A	X	Sp. Conv.
South Londonderry	X	RD	X	X

Source: Municipal Comprehensive Plans, Lebanon County
Agriculture Key: LL- Large Lot agricultural preservation provisions; None - No agricultural protection provisions enacted; N/A - Urbanized area with no agricultural lands; RD - Residential Density agricultural preservation provision (Sliding Scale Zoning)
Floodplain Key: Sp. Conv.- Special Conversion

Figure 6-12 Floodplains and Floodplain Zoning in Lebanon County



Sources: Pennsylvania Department of Environmental Protection; Environmental Resources Research Institute, Water Resources Division; FEMA; US Fish & Wildlife Services; Lebanon County Soil Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Agriculture

Like much of southcentral Pennsylvania, Lebanon County is blessed with large contiguous areas of prime agricultural lands and productive farming communities. Due to the physical ease of construction, these areas are often the most vulnerable to development pressures. Consequently, municipalities that wish to preserve their agricultural lands and farming communities should incorporate agricultural preservation provisions into zoning ordinances. Two agricultural techniques are predominately used within the county: large lot zoning and residential density control zoning (sliding scale zoning). Both of these agricultural techniques permit agriculture to occur by right with other uses described below:

Large lot provisions are defined by residential uses permitted to occur only on lots of 5 acres or more in size. No commercial or industrial uses would be permitted.

Residential density control can be described where residential uses would be permitted in the agricultural zones on a very low density basis; however, dwelling units could be located on a minimum lot size of one to two acres. No commercial or industrial uses would be permitted. This technique is often called "sliding scale zoning." Sliding scale zoning limits the number of times that a parent tract (a parcel existing on the date of ordinance adoption) can be split, based on its size, i.e. the larger the parcel the more splits that may occur, up to a maximum number established. A larger minimum parcel size is also typically established.

Steep Slopes

Several of the municipalities in Lebanon County that have incorporated steep slope protection provisions into their zoning ordinances have done so through a section entitled, "Environmental Improvements and Energy Conservation Requirements,"

with very similar regulations. These municipalities include South Lebanon, East Hanover, Jackson and Swatara Townships, and Cornwall and Palmyra Boroughs. These regulations General Standards include a restriction on the removal of total vegetative cover permissible on slopes greater than a certain percentage. The South Lebanon Township Zoning Ordinance states, "Land areas with slopes in excess of twenty percent (20%) shall be restricted to the removal of not more than twenty-five percent (25%) of the total vegetative cover of the lot." In Palmyra Borough, the restriction applies to areas with slopes greater than 15%.

West Cornwall, North Lebanon, Millcreek, and Union Townships have a variation of restrictions that relate to the percentage of the lot which may be developed where slopes are in excess of a certain percentage than those listed above. The specific restrictions for slopes between 15% and 25% and those in excess of 25% vary West Cornwall and North Lebanon Townships' ordinances also include a provision that requires an increased minimum lot size in certain districts when steep slopes are present. Several ordinances also require the submission of an Erosion and Sedimentation Control Plan to either the Lebanon County Conservation District or the Zoning Officer of the municipality on lots with slopes in excess of a certain percentage.

Floodplains

Twenty-two (22) municipalities in the county have floodplain regulations which meet or exceed those required by the National Flood Insurance Program (NFIP); three (3) have had special conversions (no defined floodplain) by FEMA. Cold Spring Township, which has no governing body and is predominantly State Game Land, is the only municipality in the county which does not participate in the NFIP. The NFIP regulates construction and development in the 100-year flood plain. In municipalities where detailed studies have been done, zoning regulations specify two or three floodplain districts: the Floodway and the Flood Fringe Districts where base flood elevations have been determined, and the Approximate Floodplain District where no base flood elevations exist. Each district has different requirements relating to building and development, with the Approximated Floodplain and Floodway Districts imposing the most exacting regulations and the Flood Fringe District having the least restrictive requirements. In those municipalities where only approximated studies have been done, one floodplain district has been designated (General Floodplain District-GFP). GFP regulations are stringent since the location of the floodway has not been defined within this district.

Municipalities in the county participating in the NFIP have also adopted the Lebanon County Floodproofing Building Code. This code contains flood damage control regulations intended to prevent excessive damage to buildings and structures located in the floodplain. The restrictions apply to all new construction, development and substantial improvement occurring in the 100-year floodplain. Regulations in the code address: basements and first floor elevations; use of fill; placement of buildings and structures; anchoring; special mobile home anchoring and site requirements; construction requirements for floors, walls, and ceilings, electrical systems, plumbing; paints and adhesives; and storage. The code also specifies information which must be provided to the Zoning Officer and others reviewing permit applications for construction and development in the floodplain.

A third part of the county's floodplain management program includes subdivision and land development requirements. These requirements are supplemental to municipal zoning regulations, the Lebanon County Floodproofing Building Code, and other applicable ordinances and codes and deal with site development issues such as excavation, grading and use of fill; drainage facilities; streets; lot layout; and location and floodproofing of public utilities located in the floodplain.

Air Quality

Air pollution comes from many different sources such as factories, power plants, motor vehicles and equipment, and even windblown dust and wildfires. Air pollution can threaten the health of human beings through the more than 3,000 gallons of air adults breathe every day; even more per pound of body weight for children. Especially sensitive groups include: children, the elderly, people with heart and lung diseases such as asthma, emphysema, and chronic bronchitis, and adults who exercise or work outdoors. Air pollution can also threaten our economy and our environment through its effects on crops and native vegetation, water bodies, animals, and visibility as well as its damage to the ozone layer and the built environment.

Six Principal Pollutants

Currently, six principal pollutants are regularly monitored by regulatory, enforcement and research agencies, including the US Environmental Protection Agency (US EPA) and the Pennsylvania Department of Environmental Protection (DEP). Five are monitored for compliance with the Clean Air Act; lead is not a specified pollutant in the Clean Air Act.

1. Carbon monoxide (CO) is a colorless, odorless, poisonous gas that inhibits the delivery of oxygen to the body's tissue, thereby causing asphyxia or shortness of breath. Carbon monoxide is a byproduct of the incomplete burning of fuels. Industrial processes contribute to carbon monoxide pollution levels, but the principal source of carbon monoxide in most large urban areas is vehicle emissions. Peak carbon monoxide concentrations typically occur during the colder months of the year when automotive emissions are greater and nighttime inversion conditions are more frequent.

2. Lead is a highly toxic metal when ingested or inhaled. It is a suspected carcinogen of the lungs and kidneys and has adverse effects on the cardio, nervous and renal systems. Lead is emitted to the atmosphere by vehicles burning leaded fuel and from certain industrial processes, primarily metal processors, battery manufacturers and lead smelters.

3. Oxides of nitrogen (NOx) are formed when fuel is burned at a very high temperature (above 1200 °F). For air pollution purposes, it is composed primarily of nitric oxide (NO), nitrogen dioxide (NO_2) and other oxides of nitrogen. Nitrogen oxides come from burning fossil fuels at power plants, industrial boilers and motor vehicles. Although there is no air quality standard for NOx, it plays a major role in the formation of ground-level ozone in the atmosphere through a complex series of reactions with volatile organic compounds (VOC's). VOC's are emitted from a variety of sources, including motor vehicles, chemical plants, refineries and natural (biogenic) sources. Nitrogen oxides also contribute to deposition of nitrogen in soil and water through acid rain.

   Nitrogen dioxide (NO_2) is a highly toxic, reddish brown gas that is formed through the oxidation of nitric oxide (NO) emitted primarily from the combustion of fuels in stationary or transportation sources. It can cause an odorous, brown haze that irritates the eyes and nose, shuts out sunlight and reduces visibility. NO_2 acts as a precursor to acidic rain and plays a key role in nitrogen loading of forests and ecosystems. NO_2 has been associated with acute effects in sufferers of respiratory disease.

4. Ground-level ozone, or photochemical smog, is a secondary pollutant. It is not emitted directly to the atmosphere but rather is formed in the atmosphere by the reactions of other pollutants. Ground-level ozone forms during the summer months, when nitrogen oxides (NOx) and volatile organic compounds (VOC) combine and react in the presence of sunlight and warm temperatures. Changing weather patterns contribute to yearly differences in ozone concentrations. Ozone and the precursor pollutants that cause ozone also can be transported into an area from pollution sources located hundreds of miles away. In the short-term, exposure to high levels of ozone irritates the lung's airways and causes inflammation, much like sunburn. Other symptoms include coughing, wheezing, chest pain and headaches. It can aggravate chronic respiratory diseases such as asthma and bronchitis and can lead to increased emergency room visits and hospital admissions. Long-term, prolonged exposure to even low levels of ozone can cause asthma in children and lead to permanent lung damage. Ozone is also a strong irritant to the eyes and upper respiratory system. It hampers breathing and damages crops and man-made materials such as monuments and statues.

5. Particulate matter (PM) is the general term used for a mixture of solid particles and liquid droplets found in the air. These particles, which come in a wide range of sizes, may be emitted directly by a source or formed in the atmosphere. These fine particles are of health concern because they easily reach the deepest recesses of the lungs. Batteries of scientific studies have linked particulate matter, especially fine particles (alone or in combination with other air pollutants), with a series of significant health problems, including:

   - Premature death;
   - Respiratory related hospital admissions and emergency room visits;
   - Aggravated asthma;
   - Acute respiratory symptoms, including aggravated coughing and difficult or painful breathing;
   - Chronic bronchitis;
   - Decreased lung function that can be experienced as shortness of breath; and
   - Work and school absences.

Total suspended particulates (TSP) refers to the aggregate of solid or liquid matter in air. Particles vary in size (up to 45 micrometers in diameter) and may remain suspended in the air a few seconds to several months. Particulate emissions come from coal-burning power plants, industrial processes, mining operations, municipal waste incinerators and fuel combustion. They also are produced by natural sources such as forest fires and volcanoes. The federal ambient air quality standard for particulate matter was revised to reflect the adverse health effects of smaller particulate matter less than 10 microns in size (PM10), which can penetrate the lungs and have significant effects on health. PM10 appears to represent essentially all of the particulate emissions from transportation sources and most of the emissions in the other traditional categories.

Sulfate particulate matter in the atmosphere is composed of two types: primary sulfates from industrial processes and secondary sulfates formed from photochemical processes. Studies have shown significant correlation between high sulfate levels and increased absences from work and school because of illness. Sulfates are also of interest due to their effects of reducing visibility and contributing to acid rain.

Nitrates are particulate compounds that are usually formed in the atmosphere from the oxidation of oxides of nitrogen gases. They are of interest since they represent a significant portion of the finer particulates which can be inhaled into the lungs and which have a great impact on visibility. Nitrates are also being studied to determine their impact on acid precipitation.

Fine particles are those that are less than 2.5 micrometers in diameter (PM2.5). Fine particles can accumulate in the respiratory system and are associated with numerous adverse health effects including decreased lung function and increased respiratory symptoms and disease. Particulate matter also can cause adverse impacts to the environment. PM2.5 is the major cause of reduced sight visibility in parts of the United States. Other environmental impacts occur when particles deposit onto soil, plants, water, or man-made materials such as monuments or statues.

6. Sulfur dioxide is a gaseous pollutant that is emitted primarily by industrial furnaces or power plants burning coal or oil containing sulfur. The major health effects associated with high exposures to sulfur dioxide include effects on breathing and respiratory illness symptoms. The population most sensitive to sulfur dioxide includes asthmatics and individuals with chronic lung disease or cardiovascular disease. Sulfur dioxide damages trees, plants and agricultural crops and acts as a precursor to acid rain. Finally, sulfur dioxide can accelerate the corrosion of natural and man-made materials that are used in buildings and monuments, as well as paper, iron-containing metals, zinc and other protective coatings.

National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) protects human health and the environment through the regulatory process and voluntary programs such as Energy Star and Commuter Choice. Under the Clean Air Act, EPA sets limits on how much of a pollutant is allowed in the air anywhere in the United States.

EPA has established national air quality standards to protect public health. Ground-level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in this country. These standards are shown in Table 6-14.

The Air Quality Index (AQI) is an index for reporting daily air quality. It tells how clean or polluted the air of a given area is, and what associated health effects might be a concern for citizens of that area. The AQI focuses on health effects citizens may experience within a few hours or days after breathing polluted air.

EPA calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide.

The AQI values range from 0 to 500. An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy, at first for certain sensitive groups of people, then for everyone as AQI values get higher.

Table 6-14 National Ambient Air Quality Standards

Pollutant	Primary Stds.	Averaging Times	Secondary Stds.
Carbon Monoxide	9 ppm (10 mg/m3)	8-hour (1)	None
	35 ppm (40 mg/m3)	1-hour (1)	None
Lead	1.5 µg/m3	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m3)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM10)	Revoked (2)	Annual (2) (Arithmetic Mean)	Revoked (2)
	150 µg/m3	24-hour (3)	Same as Primary
Particulate Matter (PM2.5)	15.0 µg/m3	Annual (4) (Arithmetic Mean)	Same as Primary
	35 µg/m3	24-hour (5)	Same as Primary
Ozone	0.075 ppm	8-hour (6)	Same as Primary
	0.12 ppm	1-hour (7) (Applies only in limited areas)	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	-------
	0.14 ppm	24-hour (1)	-------
	-------	3-hour (1)	0.5 ppm (1300 µg/m3)

ppm = parts per million, ug/m3 = micrograms per cubic meter

(1) Not to be exceeded more than once per year.

(2) Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM10 standard in 2006 (effective December 17, 2006).

(3) Not to be exceeded more than once per year on average over 3 years.

(4) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.

(5) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).

(6) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.

(7) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1, as determined by appendix H.
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

Table 6-15 Air Quality Index Values

Air Quality Index (AQI) Value	Level of Health Concern	Color	Meaning
0 to 50	Good	Green	Air quality is considered satisfactory; air pollution poses little or no risk.
51 to 100	Moderate	Yellow	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
101 to 150	Unhealthy for Sensitive Groups	Orange	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
151 to 200	Unhealthy	Red	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
201 to 300	Very Unhealthy	Purple	Health alert: everyone may experience more serious health effects.
301 to 500	Hazardous	Maroon	Health warnings of emergency conditions: everyone is even more likely to be affected.

Regional Ambient Air Quality Trends

DEP monitors air quality in areas having high population density, high levels of expected contaminants, or a combination of both factors. The majority of the monitoring takes place in the 13 designated air basins of the Commonwealth. Air basins are geographic areas, usually valleys, where air tends to stagnate. Harrisburg/Lebanon, Lancaster, and Reading are the nearest designated air basins. For transportation planning and air quality analyses, the Harrisburg and Lebanon urbanized areas share the same air basin or air shed. The Pennsylvania Air Quality Monitoring Annual Reports from 2005 to 2007 indicate improving trends for air quality as it relates to PM2.5; however the 2005-2007 mean (three year average) for ozone is 81 which is above the new standard of 75 parts per billion.

Additional Pennsylvania Ambient Air Quality Standards

The PA DEP has established additional standards for beryllium, fluorides, and hydrogen sulfide, as shown in Table 6-16.

Table 6-16 Other Pennsylvania Ambient Air Quality Standards

Pollutant	Average	Concentration
Beryllium	30-Day	0.01 ug/m3
Fluorides	24-Hour	5 ug/m3
Hydrogen Sulfide	24-Hour	0.005 ppm
	1-Hour	0.1 ppm

In addition to the principal pollutants listed above, DEP monitors acid rain, mercury content in rain and ragweed pollen for their impacts on the environment and public health.

PA DEP Permitting

One of the major initiatives Congress added to the Clean Air Act in 1990 was an operating permit program for larger industrial and commercial sources that release pollutants into the air. Operating permits include information on which pollutants are being released, how much may be released, and what kinds of steps the source's owner or operator is required to take to reduce the pollution. Permits must include plans to measure and report the air pollution emitted. In Pennsylvania, PA DEP issues operating permits. If state and tribal governments do not do a satisfactory job of carrying out the Clean Air Act permitting requirements, EPA can take over issuing permits.

Operating permits are especially useful for businesses covered by more than one part of the Clean Air Act and additional state or local requirements, since information about all of a source's air pollution is in one place. The permit program simplifies and clarifies businesses' obligations for cleaning up air pollution and can reduce paperwork. For instance, an electric power plant may be covered by the acid rain, toxic air pollutant, and smog (ground-level ozone) sections of the Clean Air Act. The detailed information required by those separate sections is consolidated into one place in an operating permit.

Businesses seeking permits have to pay permit fees, much like car owners paying for car registrations. These fees pay for the air pollution control activities related to operating permits. Thousands of operating permits that have been issued across the United States are available to the public. Contact PA DEP for information on access to those documents.

US EPA Enforcement

The Clean Air Act gives EPA important enforcement powers. In the past, it was difficult for EPA to penalize a company for violating the Clean Air Act-the Agency had to go to court for even minor violations. The 1990 Amendments strengthened EPA's power to enforce the Act, increasing the range of civil and criminal sanctions available. In general, when EPA finds that a violation has occurred, the agency can issue an order requiring the violator to comply, issue an administrative penalty order (use EPA administrative authority to force payment of a penalty), or bring a civil judicial action (sue the violator in court).

Air Quality Partnership

The Air Quality Partnership is a public/private coalition of volunteers dedicated to improving air quality in the four most populous areas of Pennsylvania. The Susquehanna Region encompasses Cumberland, Dauphin, Lancaster, Lebanon and York Counties.

The goals of the Air Quality Partnership are to increase the public's understanding of the impact of air pollution, provide alerts for days with high air pollution, provide health effects information and guidelines to prevent or reduce exposure, and finally encourage voluntary actions to reduce air pollution emissions, especially on “Action Days”.

The Partnership forecasts "Action Days," or days when the air is expected to be unhealthy to breathe. Using a color-coded scale, the forecast informs people about the predicted ozone and fine particulate matter (PM2.5) levels and any precautions that need to be taken.

Voluntary Citizen Action

There is plenty citizens can do to help improve air quality year round.

1. Consider transportation options:

    - Transit: take the bus, train, subway or trolley to work.
    - Ridesharing: join a carpool or vanpool.
    - Bicycling or walking: walk or bike to your destination. It's cheap and good for you!
    - Telecommuting: work from home and spend your extra commute hours with your family.

2. When traveling by car:

    - "Trip-link" by doing all errands at one time, avoiding unnecessary cold starts. An engine that's been sitting for an hour or more pollutes five times as much as a warm one.
    - Refuel at the end of the day. Ozone levels are usually at their highest in the mid- to late afternoon, and pumping gas emits roughly five tons a day of pollution into the air. So, save your pumping until evening.
    - Don't "top off" your fuel tank. This is never a good idea, no matter what time of day. Spillage adds about two tons of pollution a day to our air.
    - Turn off your engine when you stop your car for a minute or more.
    - Keep tires properly inflated and aligned.
    - Use an energy-conserving (EC) grade motor oil.
    - Get regular engine tune-ups and car maintenance checks.
    - Choose efficient, low-polluting models of vehicles.

3. When maintaining and operating a business or household,

    - Postpone mowing the lawn until late in the day or use a manual or electric mower instead. (And remember to refuel mowers and other gasoline-powered tools after dusk too).
    - Start your barbecue with an electric probe or use a gas grill. Charcoal lighter fluid vaporizes quickly and adds to air pollution.
    - Refrain from using household sprays and oil-based paints, or wait until early evening. These items contain gases which contribute to ozone pollution.
    - Use wood stoves and fire places wisely and sparingly. A well maintained stove or fireplace is safer and produces less particle pollution. Consider replacing old wood stoves with EPA-certified models.
    - Refrain from burning trash or yard waste. Burning your garbage outdoors can release toxic particles into the air harming the health of your family and neighbors.
    - Conserve energy at home by setting your thermostat lower. If we use less energy, power plants will not need to burn as much coal or oil. Weather stripping, fluorescent lights and programmable thermostats help to conserve energy and save you money.
    - Turn off appliances and lights when you leave the room.

- Choose products that have less packaging and are reusable.
- Recycle paper, plastic, glass bottles, cardboard, and aluminum cans. (This conserves energy and reduces production emissions.)
- Plant deciduous trees in locations around your home to provide shade in the summer, but to allow light in the winter.
- Buy green electricity-produced by low-or even zero-pollution facilities.
- Connect your outdoor lights to a timer or use solar lighting.
- Wash clothes with warm or cold water instead of hot.
- Lower the thermostat on your water heater to 120°F.
- Use low-VOC or water-based paints, stains, finishes, and paint strippers.
- Test your home for radon-a dangerous, radioactive gas that is odorless and tasteless. If the test shows elevated levels of radon, the problem can be fixed cost effectively.
- Choose not to smoke in your home, especially if you have children. If you or your visitors must smoke, then smoke outside.
- Buy ENERGY STAR products, including energy efficient lighting and appliances. They are environmentally friendly products.
- Shop with a canvas bag instead of using paper and plastic bags.
- Buy rechargeable batteries for devices used frequently.

Lebanon Valley Conservancy

The Lebanon Valley Conservancy is a local, non-profit membership organization, having as its mission the promotion of conservation of natural resources, open spaces and agricultural lands through public awareness, education and scientific research. In order to accomplish this mission, the Conservancy's efforts extend to the protection, preservation and proper use of:

- Farms and agricultural lands
- Streams and groundwater
- Open space
- Historic landmarks
- Scenic landscapes
- Bio-diversity of woodlands and wildlife habitat
- Recreational opportunities

The Lebanon Valley Conservancy draws together groups interested in responsible growth management to work in cooperation with neighboring conservancies and trusts and local and state governments to seek the preservation of unique cultural, historical and environmental heritage of Lebanon County for present and future generations. Local groups who work with the Conservancy include:

- Lebanon County Agricultural Land Preservation Board
- Lebanon Valley Rails-to-Trails
- Quittapahilla, Swatara, Little Swatara and other watershed associations
- Friends of the Union Canal
- Quittapahilla Audubon Society
- Lebanon County Historical Society
- Historic Preservation Trust of Lebanon County
- Lebanon Valley Chamber of Commerce
- Lebanon County Builder's Association

Conclusions

Land, water, vegetation and wildlife resources are dispersed throughout Lebanon County. As described and illustrated throughout this profile, the majority of lands in the county possess one or more natural attributes worthy of consideration in future community development and conservation planning. Each resource has its own unique pattern to its distribution, and

could be considered independently. Yet these resources interact with one another and their patterns overlap, creating the unique landscapes and ecology found within Lebanon County. As interrelated systems, they require more careful consideration of the impacts of resource use and management.

Lebanon County Landscapes

The county's mountain landscapes – the Highlands to the south and the Appalachians to the north – contain steep slopes, contiguous forest cover, high quality habitats, and generally the county's best surface water quality. The steep terrain naturally inhibits large scale development. The forests that drape these hills host large caches of flora and fauna unique to the Commonwealth and even the nation. While host to wildlife and recreational activities, they are also the source of valuable commercial timber products, and vital to the local economy.

Public land ownership provides some protection from development for resources on Blue Mountain, and municipal regulations in all but Bethel Township and South Annville Township afford some level of protection to scattered steep slopes throughout the valley. Land ownership is predominantly private in the county's Highlands region, which poses higher potential for development and associated impacts. Productive activities, such as forestry, need not be excluded from these areas, as timber harvesting with best management practices can result in little to no environmental degradation.

The Blue Mountain - Kittatinny Ridge Conservation Project and Highlands Project aim to preserve the natural condition through public and private efforts. These large landscape corridors, or mega-greenways as designated by PA DCNR, are priority projects at the state and, in the case of the Highlands, even federal levels. The Highlands is the more diverse and threatened landscape corridor due to the greater percentage and number of private land owners, as well as greater biological diversity, at least as documented to date. Within Lebanon County, the lands associated with and around the Middle Creek Wildlife Preserve have been identified as a "hot spot" for protection.[40]

The county's upland valley spans east-west between US 422 and Blue Mountain. This landscape is dominated by active agriculture and scattered woodlands, though it also includes the communities of Jonestown and Fredericksburg. Slopes here are not excessively steep but still require caution. Most municipalities in this region have slope regulations; such regulations are still needed in North Annville and North Londonderry Townships. Isolated wetlands are scattered in small depressions throughout this region.

The county's fertile lowland valley comprises lands primarily between US 422 and US 322 and PA 419. A low profile and good drainage make these lands suitable for a wide range of uses with the fewest limitations to development. Most of the county's population centers are located here, as well as a large share of its agricultural industry. Small woodlots are also found here. This region's agricultural soils are also the best in the county for on-lot sewage disposal systems, i.e. lower density development, even though they are still "somewhat limited". The presence and potential for sinkholes, and further potential for groundwater contamination, are limiting factors.

Challenges and Opportunities

These conditions present distinct challenges and opportunities for the future. Specific policy options will be addressed at greater depth in the natural features component of the plan, though generalized conclusions are apparent though the development of the natural features profile.

Many municipalities have recognized the impacts of topography on land use, and have some level of regulatory protection, particularly those with significant areas of steep slopes. However, provisions would be beneficial in Bethel and South Annville Townships, and perhaps in North Annville and North Londonderry Townships for precautionary slopes. Additional provisions such as best management practices for safe, sustainable timber harvesting in steep slope areas could retain the productive capacity of these lands and improve terrain stability throughout the county. These efforts would not completely eliminate threats such as bank erosion, subsidence, and viewshed obstructions but could have a substantial benefit.

Riparian buffers could bring significant benefits to water quality in Lebanon County. Even in areas where only narrow vegetated corridors can be created, the addition of non-invasive, filtering plants can have significant, positive impacts. In addition to streams and other channelized watercourses, these buffers serve to protect isolated wetlands from adjacent land

[40] Highlands of Connecticut, New York, New Jersey, Pennsylvania/ Study Update

uses and activities. Where applicable, they can also be used to expand unique habitats. In such instances where wetland remediation through new wetland construction is needed, consideration should be given to sites with hydric soils.

Agricultural land uses, while valued for their rural character, open vistas and overall contributions to quality of life, are impacting surface water quality across the county, but particularly in the valley. Riparian buffers would help mitigate these impacts, protect wetlands associated with stream corridors, increase wildlife habitat and migration corridors. Such may be designated as passive or natural greenways rather than active greenways for public recreation. Greenways, linear corridors of land that serve as the physical linkages between identified natural or manmade features, can maximize the impacts separate environmental habitats, as well as increase the benefits of separate recreational spaces. Where applicable, they can be created through public rights-of-way that include trails, recreation sites, and other public amenities, though established greenways in private ownership, managed through voluntary stewardship plans, can also accomplish resource goals.

Agricultural Security Areas (ASAs) are large and contiguous in the upland and lowland valley regions. The only municipality with active agriculture lacking ASAs is Union Township. This precludes agricultural preservation in the township, since ASA is a pre-requisite for the county agricultural pres program. All municipalities with significant agricultural soils, except North Annville, North Londonderry, and Union Townships, have municipal regulations managing the impact of development, and should be encouraged. Preserved agricultural lands are few in comparison to active farmland and ASAs and still not very contiguous; a future strategy to attempt to fill these gaps would help. By expanding ASAs, adopting municipal ordinances to protect agricultural areas from development, working towards creating contiguous agricultural spaces, and by increasing inter-municipal cooperation on planning for agriculture, farming in Lebanon County would be more viable. The agricultural industry is stronger and more resilient to development when a farmland is contiguous and development is discouraged or sited on lower quality soils amid the farmland. The county's criteria for agricultural preservation should strive to create larger more contiguous preserved areas, if agriculture is to be sustained as a significant part of the county's economy. Municipal regulations should guide development consistently in this manner, but currently do not.

The county would be well served to develop a comprehensive, countywide wellhead protection program. Water resource and watershed planning exists in various forms and stages of implementation across the county. Some efforts focus on stormwater, others on land use, and some areas have no plans at all. By unifying provisions under a single wellhead protection plan, municipalities could save costs in developing individual ordinances, and criteria could be based on specific geologic, watershed, and aquifer data. Where ventures are taken involving the cultivation or extraction of natural resources, it is essential that best management practices are employed to minimize their impacts, particularly on the county's waterways. Additionally, municipal land planning take into account potential impacts to groundwater, and direct those uses away from critical areas. Where these land uses are permitted, analysis of existing and potential groundwater impacts should be required. For example, mineral resources are suitable for commercial extraction, namely limestone, but extraction requires extensive uses of water and removes buffering soils and subsurface geology that filters waters en route to groundwater aquifers, and deserves consideration. In uses with high potential for negative impacts on water quality, planning should require groundwater impact assessment. With over 70% of the county's population relying on groundwater, these steps are crucial to ensuring a safe and sufficient water supply is available in the future.

The 83,000 acres of forest land in the county are concentrated on Blue and South Mountains. Half of forest lands are held in public ownership including Memorial Lake State Park, Swatara State Park, Middle Creek Wildlife Management Area, Stoever's Dam Park, Clarence Schock Memorial Park at Governor Dick and numerous state game land tracts. While protected from private development, these forest and woodlands may not be purposefully managed. There are no contiguous forest or woodland corridors connecting Blue and South Mountains. A county greenway plan, in coordination with those proposed for riparian areas, could connect these mega-greenways along streams, trails, and other preserved natural lands. Like stream corridor greenways, these could also be held under public or private ownership and management. Where applicable, specific greenways could be designated to mitigate impacts from conflicting adjacent land uses, and protect unique habitats. Strategic greenway designations have the potential to support redevelopment of brownfields or restoration of aquatic habitat in urbanized areas (for example, the greater Lebanon area along the Quittapahilla), or reclaim degraded rural land (such as forming mining areas in the northern portion of the county). In future and existing forested areas, stewardship plans may be needed, possibly in coordination with state agencies, to ensure such land is not just protected from development, but also healthy and lasting. As component of stewardship, the county should also explore programs to limit invasive or pest species (gypsy moth, borer beetle, emerald ash borer, multiflora rose, etc.) to provide additional protection to these resources. Combined, these efforts serve to protect the health and continuity of the native ecosystem so important to quality of life in the county.

Municipalities can and should conserve natural resources. Misuse and mismanagement of the natural environment can lead to unnecessary impacts on or costs to protecting public health, safety and welfare. Therefore regulations that reasonably restrict activities are appropriate. At present, Mount Gretna Borough is the only governed municipality without zoning. While small in size and unique in character, the Borough still contains valuable natural resources. Its location in the Highlands region further supports environmental protection policy, if not broader land use provisions. In contrast, Cornwall Borough has by far the most extensive environmental regulations of the municipalities in Lebanon County and could serve as a model for other communities to amend or replace existing provisions. Other municipalities have required ordinances, but lack key provisions to protect natural resources. For example, West Lebanon is the only governed municipality without floodplain protection in its zoning. In all of these concerns, consistency across ordinances regarding floodplains, groundwater, steep slopes, and riparian buffers would increase the efficacy of efforts to protect natural resources.

While natural features are critical for the ecological functions and economic benefits, it is not practical to preserve them all from development. More employment opportunities are desired and more housing will be needed to accommodate projected population growth. Convenient sites for new construction are often located on or within resources that cannot sustain development and impacts without negative impacts.

Impacts to the various natural features of the county carry multiple consequences that will literally and figuratively trickle down, and ultimately impact the county's land and water resources. This is why resource planning is necessary. Environmental policy is not an either-or proposition. The county's natural assets are of a value that demands consideration. At the same time, the county must view its planning holistically, addressing concerns that extend beyond environmental policy. Economic, social, fiscal, institutional, and legal constraints oblige the county to view natural resources as a key element, but not the only element of successful community planning. This requires a strategic approach to reap the greatest rewards in environmental protection.

If the proper actions are taken, Lebanon County can continue to utilize and benefit from its natural resources. From passive uses, such as recreation, to commercial production, proper management and application of resources will ensure that Lebanon County communities exist in harmony, not conflict, with the natural environment.

Historic Resources Profile

Introduction

Lebanon County and its local municipalities are rich in history and cultural amenities that distinguish the county from others in the region. Beginning with a brief historical sketch of Lebanon County, this profile will inventory sites of local, county, and state significance, via existing cultural resource inventories, surveys, and reports. It will also note additional sites of significance with relevant potential for inclusion in the county's recreation, open space and greenway network. The profile will describe existing protection, management and interpretation practices and programs, including the effectiveness of current historic district regulations.

History and Culture of Lebanon County

The Lebanon Valley was first occupied by Native Americans, namely the Leni Lenapi or Delaware Indians of the Algonquin family. Though they defended their territory rigorously against European immigrants, they were ultimately killed or displaced from the region by the persistence of colonial frontiersmen. Fortunately, they are not forgotten, for the names they gave to the landscape features are still in use today.

Swatara – meaning "where we feed on eels"
Quittapahilla – meaning "spring from the ground among pines"
Conewago – meaning "place of the rapids"
Tulpehocken – meaning "land of the turtles"
Kittatinny – meaning "endless hills"[1]

Early settlements were defended by frontier forts. **Fort Manada** and **Fort Swatara** were established along the Kittatinny Ridge. **Light's Fort** (along present-day PA 72), **Reed's Fort** (along present-day US 22) and **Fort Zeller** (near present-day Newmanstown) were valley-based shelters during Indian raids. These locations are commemorated with historical markers.[2]

The Lebanon Valley was settled from west to east in the early 1700s by Scotch-Irish and German families. The Scotch-Irish families, who fled Quaker oppression in Philadelphia, followed the Susquehanna River banks, settled in then eastern Dauphin County where land was available by payment or squatting. Their heritage prepared them for frontier life with a strong sense of self-reliance and a love of hunting, fishing and adventure. The Scotch-Irish people were also civic minded and established early social organizations. The German families had roots in the Rhine region of southwest Germany and were devoted farmers. After failed attempts to settle in New York, they sought a milder climate in Pennsylvania at the invitation of the governor.[3]

George Steitz is given credit for laying out the present city of **Lebanon** in the 1740s. The town was located in what was then Lebanon Township in Lancaster County and was commonly called Steitz Town or Steiza, after its proprietor. The village was renamed Lebanon in 1758 and became the county seat when Lebanon County was created by an Act of Assembly in 1813 from portions of Dauphin and Lancaster Counties.[4]

The first settlers in the Lebanon Valley were farmers attracted to the valley's fertile land. As farming became more productive, different trades and industries moved into the valley. It was the farmers, though, who were responsible for the first major improvements in the county. The **Berks and Dauphin Turnpike**, formed in 1805 and now U.S. Route 422, was largely a result of the Lebanon Valley farmers' demand for a better means to transport their crops to the markets. The

[1] A Report of the Geological Setting and History of Lebanon County. Part I of a Comprehensive Plan for Lebanon County. 1958.
[2] Ibid.
[3] Ibid.
[4] Lebanon County Historical Society. Annals published in the Souvenir Program for Lebanon's Bicentennial, celebrated June 30-July 5, 1940.

turnpike bisected the county and had stops in Myerstown, Lebanon, Annville, and Palmyra along with numerous smaller communities. It was the turnpike that served as the first growth catalyst in the county.[5]

The state sponsored the construction of the **Lancaster to Sunbury Road**, by way of Lebanon and Jonestown. Built around 1820 and now known as Route 72, it has been and continues to be an important artery of north-south transportation.[6] Completion of the Horse Shoe Pike, now U.S. Route 322, linking Harrisburg to Philadelphia and traversing the southern portion of the county, was completed in 1829.

The development of transportation routes was not the only infrastructure improvement that took place in early Lebanon County. The water works of colonial Schaefferstown constitute the first water conveyance system through underground pipes ever established in a British colony in North America. The first pipes, thought to have been laid prior to 1750, were made of wood sections of oak with holes bored through the center. These wooden pipes served for a century before they were replaced with the metal pipes that still bring water, by gravity, from a spring on Tower Hill to the center of town. The water flowed from the spring to Market Street, and along Market Street to the northwest corner of Market Square. In 1845, the General Assembly of Pennsylvania granted a charter to the **Schaefferstown Water Company** the rights and property to be held in trust forever. This company was a successor to the Fountain Company of Heidelberg. Today, two fountains mark the location of the early system in what is now known as Fountain Park.[7][8][9]

Also contributing heavily to the development patterns in the area were the Cornwall ore hills and furnaces. The discovery of the ore by Peter Grubb was vital to the economy, and the location of the ore hills themselves made the Cornwall area a natural area for the smelting of iron ore. Not only was there a seemingly plentiful, easily accessible source of iron ore, but it was surrounded by forest, which provided wood for coke production, and limestone, a prime smelting ingredient. There was also the availability of streams to furnish power for the furnaces needed to process the ore. Thus, all four ingredients necessary for the process of smelting ore were readily available. The proximity to the anthracite fields to the north became an asset when coal fired furnaces became prominent in the 1840s. The **Cornwall iron ore hills and furnaces** were a catalyst for the growth and development of an industry which would become the backbone of both the economy of Lebanon County and also the Commonwealth. The ore hills also provided the principal source of metal for the railroads involved in the expansion and development of the country to the west.[10]

The operation of the Cornwall iron ore mines and furnaces was acquired by Robert Coleman, who later passed controlling interest to his great grandson, Robert Habersham Coleman. As production increased and the markets expanded, the Coleman family acknowledged the need for rail service. In 1853, R.W. Coleman, William Coleman, and G. Dawson Coleman formed the **North Lebanon Railroad**, later renamed the **Cornwall Railroad Company**, to connect the ore hills to the Union Canal landings in Lebanon.[11] In 1883, as even wider markets were sought, R.H. Coleman built the Cornwall and Lebanon Railroad which ran from Lebanon to Cornwall and through the Conewago Hills to Elizabethtown.[12] The railroad was built to connect holdings to the Pennsylvania Railroad at Conewago, thereby opening Cornwall and Lebanon to markets in Philadelphia, Pittsburgh, and west. Both of these lines provided passenger service throughout the county and to two favorite local picnic and recreation areas, the Mount Gretna Park and Penryn Park.

Another catalyst for growth was the **Union Canal**. Completed in 1827, the 81-mile long Union Canal was designed to connect the Susquehanna River at Middletown with the Schuylkill River in Reading and served as a primary transportation route in the mid 1800s. The canal brought prosperity to many communities including Myerstown. As a junction of the canal and the Berks and Dauphin Turnpike, Myerstown became a bustling trade and transportation center providing services to travelers.[13]

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[5] Lebanon County Interim Plan, prepared by the Lebanon County Planning Department. 1987.
[6] North Lebanon Township Comprehensive Plan, 1994.
[7] Lebanon County Historical Society. Article published in the Souvenir Program for Lebanon's Bicentennial, celebrated June 30-July5, 1940.
[8] "Lebanon County Through the Centuries." An Appreciation, Lebanon Steel Foundry, Lebanon Pennsylvania.
[9] Pennsylvania Department of Labor and Industry.
[10] Cornwall Borough Comprehensive Plan, prepared by the Lebanon County Planning Department, 1990.
[11] Cornwall Borough Comprehensive Plan, prepared by the Lebanon County Planning Department, 1990.
[12] Bitner, Jack. "Mount Gretna, A Coleman Legacy." Prepared for the Mount Gretna Area Historical Society.
[13] Lebanon County Interim Plan, prepared by the Lebanon County Planning Department. 1987.

Mount Gretna was selected by Robert Coleman as a station and recreation area. In 1884, the floor of the park was cleared and picnic facilities installed among springs and varied trees and plants. The following year, he invited the Pennsylvania 3rd Brigade to encamp at Mt. Gretna and had grounds adjacent to the park cleared. This was the **summer home of the Pennsylvania National Guard** for the next half century, until it moved to Fort Indiantown Gap in 1935. In the fall of 1885, Coleman ordered a dam constructed across Conewago Creek, and by the spring of 1886, **Lake Conewago** appeared. By 1890, the park was supplied with electricity and drew crowds in excess of 20,000.[14] In 1909 the magnificent, 100+ room Hotel Conewago opened to visitors. Located on the western shore of the lake, the facility "was equipped with billiard tables and bowling alleys, tennis courts, basement garages and huge sandstone fireplaces in the lobbies." However, with the departure of the troops and the economic consequences of the 1929 Depression, the hotel closed its doors in the late 1930's and was demolished in 1941[15].

The Valley Glen Park was located across the Swatara Creek from the Union Canal and was owned and operated by Daniel Kline. The large shade trees, fresh water, fishing, and the passing of occasional canal boats provided an enticing atmosphere for the park, which was laid out in 1888. Rides and attractions were designed and constructed by Kline. These included the Flying Horse Machine or the Merry-Go-Round; the Shooty-Chute, a 60-foot slide for sleds ending in a pool of water; an in-stream float for sunbathing or a game of King-of-the-Hill; and a paddle boat named Steamboat Annie, which made a half-mile roundtrip ride up and down the Swatara Creek. The park was a destination for residents of Lebanon County and the greater region for leisure and special events such as church picnics, school and social functions. Milton S. Hershey brought factory employees to the park for outings and may have even led to the development of Hershey Park. The dammed stream also provided a source of ice in winter which Kline supplied to summer cottages in the park.

In 1881, dissension over commercial activities arose at the United Brethren camp meeting at Stoverdale and a committee was appointed to seek a new site. Coleman leased 30 acres across the Conewago Creek from the park and gave each cottage owner at Stoverdale $120.00 to erect a seasonal residence at Mount Gretna on the lot of their choice. The lots were 20 feet by 24 feet with the intention that they be occupied by tents. By the first camp meeting in August 1892, 100 cottages had been built. At the same time, meetings had been held in Lebanon and committees were formed to create a Pennsylvania Chautauqua, after that in New York State. As the village grew, Mount Gretna became one of the most charming summer resorts in the nation, and after World War II, began to transition to a year-round residential area.[16]

Although the rail lines that Mr. Coleman built were vitally important to the success of the iron mines and furnaces, the main rail lines ran east to west through the county. In 1857, the **Lebanon Valley Railroad** began east-west service through Palmyra and Lebanon, and two years later it merged with the **Pennsylvania and Reading Company**, which was later known as the **Reading Railroad**. The importance of the Union Canal diminished as rail service allowed for faster and more efficient movement of goods. The intersection of rail lines, in this case the City of Lebanon, benefited from the rail's existence. The rail lines allowed for the expeditious delivery of both coal from the north and ore from the south, thus encouraging the iron and steel industries to become more firmly established in Lebanon. As steel and iron mills arose alongside the railroad, many new jobs were created. After 1840, Lebanon became the center of the budding iron and the steel industry, joining together the diverse activities occurring in the area, namely the iron ore mining of Cornwall, the limestone quarrying at Annville, and the charcoal coldblast furnaces in Cornwall and Colebrook.

The Cornwall Furnace ceased production in 1883. The **Pennsylvania Steel Company**, later acquired by the **Bethlehem Steel Company**, acquired the iron mines which operated into the 1970s. The mines closed largely as a result of flooding from Hurricane Agnes in 1972.

It was during the heyday of the railroad that the **village of Cold Spring** gained popularity as a summer resort. Since as early as 1775, the area was noted for its cold spring water and was named for this when it was created as a township from parts of Union and East Hanover Townships in 1853. The township grew out of the coal and lumber trade which had attracted considerable population by the mid 1800s, especially to areas such as Rausch Gap where the Schuylkill and Susquehanna Railroad had constructed a machine shop. The Schuylkill and Susquehanna and Philadelphia and Reading Railroads were designed primarily to bring coal to market. Around this time, William Lerch, Sr. is thought to have developed the land and constructed several structures near Cold Spring, including a hotel. In 1880, the land was sold to a business partnership that built the second hotel, cottage, bowling alley and a barn that was converted into a dance house. A request was made to the

[14] Ibid.
[15] Mt. Gretna, VOL. XIII NO.8, 1965; by Jack Bitner, read before the Leb. Co. Historical Society 05/18/62. pp. 376-379.
[16] Ibid.

Schuylkill and Susquehanna Railroads and the Lebanon and Tremont Branch of the Philadelphia and Reading Railroad for the provision of a depot for passengers, as the resort at Cold Spring was nearing completion. Advertisements mentioned an "elegant lake for boating and trout fishing," referring to Dresden Lake, which was created by a dam at Cold Spring on Stoney Creek, constructed before 1876. A second dam downstream from Cold Spring created a second lake, thought to be Comey Lake.[17]

The mountain resort became somewhat popular, but never really attracted sufficient customers to keep the business prospering. The property and improvements were posted for sale on October 14, 1899. The resort didn't sell and was completely destroyed by a fire less than a year later, a week after the hotel closed for the season. The hotel was never rebuilt and some speculate that the fire was intentionally set to collect insurance money. As the coal industry slowed, so did the success of the railroad and soon after the people of the area left.[18]

In the 1920s, the YMCA opened Shand Boys Camp on the property and used it as a camp until WWII. Photographs indicate that the campers arrived by train. WWII brought a new purpose to the region. The United States Army purchased the tract of land and named it **Cold Spring Military Reservation**. It served as a special training annex to **Edward Martin Military Reservation**, now **Fort Indiantown Gap**. After the war, military training at this site was abandoned, but the military remained in possession of the land. Adjoining tracts were sold in August 1945 by the Grandview Development Company to the Pennsylvania Game Commission, becoming **State Game Lands #211**. The dam on Stoney Creek at Cold Spring failed at its spillway during the 1972 floods, but the lake bed of Dresden Lake is still visible. The lake created by the second dam downstream has filled with silt and debris and now resembles a swamp. The Cold Spring Road is still used today to access the State Game Lands.[19]

The end of the 19th century also marks the time when pioneer Daniel Weaver started the first commercial Lebanon Bologna Company. Mr. Weaver went on to establish a plant in California in 1918, which his son operated. In addition to the manufacturing of bologna, Mr. Weaver provided the community with many resources including a water company for distribution to the local community which eventually became part of the municipal system, an ice plant to supply means of preservation for perishables during the hot summer months, and an electrical company which served many of the county villages and hamlets.[20] Weaver's Famous Lebanon Bologna is still manufactured today, although the plant was sold in 2005 to Godshall's Quality Meats and now operates under the name of Kutztown/Weaver Bologna Company. The bologna is manufactured at its plant at 15th Avenue and Weavertown Road in North Lebanon Township.[21]

Other bologna companies were established in Lebanon Valley in the late 19th and early 20th centuries after the success of Daniel Weaver's company. Harvey Seltzer began commercial production of his unique blend of beef and spices in 1902 and named the bologna after his hometown of Palmyra. The recipe has been handed down through generations and today, the company distributes Lebanon Bologna nationwide.[22] Seltzer's also makes Bomberger's Bologna, one of the other bologna pioneers in the county. Seltzer's bought Bomberger's in South Lebanon Township in 1961 and closed the operation in 1987 when it moved production to Palmyra.[23]

During the late 19th and early 20th centuries another growth catalyst emerged—the first large-scale public utility systems. The use of public water removed the risk of consuming polluted well water. The establishment of public sewer systems, the first in the City of Lebanon in 1940, reduced pollution of waterways and allowed for much denser housing and ultimately led to more efficient and effective delivery of services.[24]

As public utilities and infrastructure improved, so did methods of transportation. In 1899, the **Lebanon Valley Street Railway Company** was formed to provide trolley service to the towns to the east and west of Lebanon. By 1904, this service reached Palmyra, Myerstown and Schaefferstown.[25] The **Hummelstown and Campbelltown Street Railway** started

[17] J.W. Via, *St. Anthony's Wilderness*. References and sources located at: http://mywebpages.comcast.net/StAnthonyWilderness/reference.htm
[18] Ibid.
[19] Ibid.
[20] Weaver's 2005.
[21] NBC 10. August 8, 2005
[22] Seltzer's Smokehouse Meats.
[23] NBC 10. August 8, 2005
[24] Lebanon County Interim Plan, prepared by the Lebanon County Planning Department. 1987.
[25] "We Love PALMYRA 225th Anniversary"

providing service in 1904 and changed its name to the Hershey Transit Company in 1914. This trolley system provided transportation between Hershey and Lebanon, Elizabethtown, Fontana, Campbelltown, and Hummelstown.[26] The Lebanon Valley Street Railway Company operated until 1933 and the Hershey line made its last run on December 21, 1946.

Table 7-1: Incorporation Dates of Lebanon County Municipalities

Lebanon County – A Sixth Class County			
Formed February 16, 1813 from parts of Dauphin and Lancaster Counties			
Name	**Incorporated**	**Settled**	**Incorporated From / Prior Status**
Third Class City			
City of Lebanon	1885*	1750s	Laid out as a town in 1756 and originally called Steitztown. Incorporated as a Boro. on February 20, 1821; Consolidated Lebanon and N. Lebanon Boroughs in 1869; 30 annexations since incorporation including the Lebanon Independent Borough in 1950
Boroughs			
Cleona Boro.	March 25, 1929		North Cornwall and North Lebanon Twps.
Cornwall Boro.	October 11, 1926		Cornwall and South Lebanon Twps.
Jonestown Boro.	August 20, 1870	1761	Swatara Twp.
Mount Gretna Boro.	1926		South Londonderry and West Cornwall Twps.
Myerstown Boro.	1910	1768	Jackson Twp.
Palmyra Boro.	November 10, 1913		Londonderry Twp.
Richland Boro.	October 17, 1906		Millcreek Twp.
First Class Townships			
Annville Twp.	1912	1762	Incorporated as a Twp. September, 1799
West Lebanon Twp.	1902 or 1906**		Incorporated as a Twp. March 13, 1888; Incorporated from North Lebanon Twp.
Second Class Townships			
Bethel Twp.	May 1793	About 1737	Lebanon Twp.
Cold Spring Twp.	November 3, 1853	About 1775	Union and East Hanover Twps.
East Hanover Twp.	February 1785		Hanover Twp.
Heidelberg Twp.	February 1757	About 1720	Incorporated while part of Lancaster County
Jackson Twp.	1813	1700	Bethel and Heidelberg Twps.
Millcreek Twp.	February 26, 1844	1720	Jackson and Heidelberg Twps.
North Annville Twp.	July 30, 1845		Annville Twp.
North Cornwall Twp.	1929[27]	1737	Cornwall Twp.
North Lebanon Twp.	March 18, 1840		Lebanon Twp.
North Londonderry Twp.	March 16, 1894		Londonderry Twp.
South Annville Twp.	July 30, 1845		Annville Twp.
South Lebanon Twp.	1840		Lebanon Twp.
South Londonderry Twp.	March 16, 1894		Londonderry Twp.
Swatara Twp.	1813	About 1737	Bethel and Hanover Twps.
Union Twp.	September 26, 1842	About 1738	East Hanover Twp.
West Cornwall Twp.	March 13, 1893		Cornwall Twp.

Sources: Pennsylvania Historical and Museum Commission, 2006; Pennsylvania Department of Internal Affairs, 1965
*Source indicates both dates
**1965 publication states, "Township Commissioners indicate both dates"

The early 20th century was a settling period of sorts. The transportation routes were in place and the population, commerce, and industry centers were firmly established. A list of dates of incorporation for the county and its municipalities is shown in Table 7-1. From this point on, the majority of the growth in the county radiated from established towns and villages. **Bethlehem Steel Corporation** had a large presence in Lebanon County. In 1916, Bethlehem Steel acquired American Iron and Steel Manufacturing Company and the Cornwall Iron Mines. It was also during this time that George Herman "Babe" Ruth made his home on Locust Street in Lebanon. In 1918, a number of ballplayers were drafted into the armed forces to support the Country in WWI; some left their teams to work in war production facilities to escape the draft. Ruth played

[26] Derry Township Historical Society.
[27] North Cornwall Township website. http://www.geocities.com/northcornwalltownship/About.html

baseball for the Bethlehem Steel League and worked in the steel mill in Lebanon following the 1918 Red Sox World Series victory. Ruth only remained in town for approximately eight weeks and left shortly after the Armistice.

Fort Indiantown Gap was first established by the state in 1931 as the primary training base for the Pennsylvania National Guard. Beginning in 1940, most of its 19,000 plus acres were leased to the federal government for military training purposes. During WWII, seven army divisions trained at the Gap enroute to overseas service.

The development of the interstate highway system and a nationwide move to the suburbs characterized the 1950s and 1960s. Lebanon County residents were greeted by presidential candidate John F. Kennedy in 1960 when he visited the county. The Greater Lebanon Refuse Authority was created in 1957 and the area saw its first shopping mall, The Plaza, erected in 1966. Also in 1966, land was purchased for the Alcoa plant, representing the first outside large scale employer to come into the county. The following year, Lebanon County and City administrations moved four blocks to the south to their current location in the City-County Municipal Building. It was also during the early 1960s that many of the school districts in the county consolidated. The Eastern Lebanon County School District (ELCO), the Cornwall-Lebanon School District, and the Northern Lebanon School District were all formed during this period.

Lebanon County saw its first interstate highway interchange, that of **Interstate 81** and **Interstate 78**, in 1971. The following year, flooding from Hurricane Agnes lead to the abandonment of the north-south railroads in the county and demanded that a greater emphasis be placed on stormwater management. The dedication of the **Hazel Dyke Flood Protection Program** in Lebanon in 2002 represented the last section of the Flood Protection Project constructed by the City of Lebanon following the 1972 floods.[28] The 1970s also marked the period when many Cuban and Vietnamese Refugees were housed at Fort Indiantown Gap. The decade concluded with the incident at Three Mile Island (TMI) in March of 1979. Many evacuees from the immediate vicinity of TMI sought shelter in Lebanon County during the emergency situation.

The Bethlehem Steel Corporation began facing pressure from world-wide competitors in the 1980s as cheaper, foreign steel began to be imported. Lighter and lower construction styles that did not require the heavier construction grades produced in the main plant at Bethlehem negatively impacted the entire company. In 1982, the company reported a loss of $1.5 billion dollars and was forced to shut down many of its operations, including the Lebanon Mill, in the coming years.

Employment at the Alcoa plant peaked at 366 in 1992, but the corporation announced the closing of the Lebanon County plant on October 24, 2001, citing the need for cut-back in a sluggish market. The plant closed the following year.

Between 1962 and 1994, several major improvements were made to the water supply system for the City of Lebanon, including the construction of a 10 million gallon per day water treatment plant at Rockwood, and several multi-million gallon storage tanks. All of the water that is delivered to more than 50,000 residential, commercial, and industrial customers in and around the City of Lebanon is filtered and treated to meet or exceed regulatory agency standards. In 1993, the City replaced the High Bridge Dam with the Christian E. Siegrist Dam and Reservoir, which is just downstream from the High Bridge Dam and retains 1.2 billion gallons of water.[29]

The Haak Brother's Department Store, known to many as simply Haak's, closed its doors for the last time in 1981. The store had been located in downtown Lebanon since 1893. The building was purchased by **Harrisburg Area Community College** in 1989 and was destroyed by fire in November of 1990. The college rebuilt the facility on the site and is an active partner in the downtown area today.

The acquisition of land for **Swatara State Park** was completed in 1987, sixteen years after the effort by the Commonwealth began. The development of the State Park is ongoing; however, the 2003 Master Plan recommends "minimal intrusion" and "conservation design", thus eliminating the construction of a dam and reservoir and only developing a small portion of the park (6.5% or 228 acres).

Pennsylvania's Agricultural Conservation Easement Purchase Program was developed in 1988 to slow the loss of farmland to development, to retain our agricultural heritage, and to ensure land for food production for generations to come. By March 31, 2006, there were 10,000 acres of preserved farmland in Lebanon County.[30]

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[28] Pennsylvania Department of Environmental Protection
[29] City of Lebanon Department of Public Works.
[30] Pennsylvania Department of Agriculture

The county's proud history and assets are symbols of community building as well as inspiration for future progress for the decades and generations ahead. As the 21st century moves forward, individuals, business and industry, government and non-profit organizations will continue to shape Lebanon County. Their ideas, aspirations, and actions will comprise the yet-to-be-written history of the county and create new landmarks in the county.

Cultural Values

As noted above, the Scotch-Irish and the Germans were Lebanon Valley's original settlers. These two cultures established the original developed landscape of Lebanon County, though many of the Scotch-Irish later departed due to language and civic differences with the Germans. The Germans, or Pennsylvania Dutch, were and are a strong-willed people. Their history in the mid-Atlantic region has ranged from poor servants indentured by the Quakers to good farmers and industrious workers. They are also known for their stalwart religious beliefs, anti-regulatory/anti-government stance, and resistance to change. The Amish and Mennonite communities throughout south central Pennsylvania are present-day examples of such stringent beliefs.

The end of the 19th and early 20th centuries brought about an influx of Eastern European immigrants to America. Many of these immigrants that settled in the City of Lebanon located close to the steel employment in the northeast portion of the city. For example, settlers from various regions of Serbia arrived in the Lebanon area in 1902, and in 1915, a meeting was held to discuss plans for building a church and adjacent church hall to serve this segment of the community. The church was finished the following year and still stands today at 120 East Weidman Street. During this time, the Serbian culture was very prominent in this area of the city; however, after the steel industry started to fade and employment sources left this portion of the city, this group of people started to disperse.

When Bethlehem Steel Company discovered a second subsurface iron ore body and subsequently sank two underground shafts to extract the ore, a new breed of worker was introduced to the region. Underground miners had a much different attitude toward life since they fully expected to be injured or killed in the mines at any point in time. Records indicate that from 1923-1973, 33 miners were killed and 873 seriously injured, with most of the fatalities occurring between 1920 and 1940, before safety standards were implemented.[31]

Much of the county today is supported by an economy centered on agriculture, thus lifestyle tends to be of a more rural nature. The county is a leader in livestock and dairy products (sixth in the state) and an important grain producer. It is one of only four counties in the state in which half or more of the area is farmed.[32] Agriculture's legacy is reflected in the 12 century farms, farms owned by the same family for more than 100 years.

Ever increasing diversity can be found in the City of Lebanon. As the Hispanic and Latino population continues to grow, so do the cultural offerings that this group brings with it. The community at large offers resources for its Spanish speaking residents including a Spanish section in the Lebanon Community Library, Radio Omega, several Spanish grocery stores and restaurants and a bakery.[33]

An increasing Asian presence is also evident in Lebanon County. In the county, the number of Asian individuals increased from 917 in 1990 to 1,067 in 2000, an increase of 16.4%. Until 2002, Lebanon County was considered to be part of the Harrisburg – Lebanon – Carlisle Metropolitan Statistical Area. Between 1990 and 2000, the MSA had a 56.51% increase in the number of Asian residents. The total population of Asian Americans living in the MSA rose from 6,160 to 9,641. The estimated number of Asian Americans living in the MSA in 2004 was 12,520, an estimated increase of 29.86% since 2000.[34]

[31] Cornwall Borough Comprehensive Plan, prepared by the Lebanon County Planning Department, 1990.
[32] Pennsylvania Historical and Museum Commission.
[33] The Patriot News. "Latino group opens information hub." Published July 14, 2005.
[34] U.S. Census Bureau

Inventory of Historic and Cultural Resources

The Bureau for Historic Preservation manages the National Register of Historic Places for Pennsylvania. The program was established by the National Historic Preservation Act of 1966. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. National Register properties are distinguished by having been documented and evaluated according to uniform standards. These criteria recognize the accomplishments of those who have contributed to the history and heritage of the United States and are designed to help state and local governments, federal agencies, and others identify significant historic and archeological properties worthy of preservation and of consideration in planning and development decisions. Such designation often changes the way communities perceive their historic resources and gives credibility to efforts to preserve these resources as irreplaceable parts of our communities. Listing in the National Register, however, does not interfere with a private property owner's right to alter, manage, or dispose of property.[35]

Properties and historic districts in Lebanon County that are listed in the National Register of Historic Places are shown in Table 7-2. A brief description, largely adapted from the National Register of Historic Places Inventory Nomination form for each property, follows. There are several other properties which are eligible for listing in the National Register of Historic Places. These properties are listed in Table 7-3.

Annville Historic District (Annville Township)

The town of Annville is located on the north bank of the Quittapahilla Creek. The Quittapahilla meanders through the Lebanon Valley and in the Annville area, was easily dammed as a source of water power. The original impetus to settlement was the location of several grist mills, which served the surrounding agricultural community.

The Annville Historic District is an excellent example of a linear community which developed along early roads and waterways. It contains a wide variety of architectural styles and building practices that were prevalent in central Pennsylvania in the 18th and 19th centuries. Many of the buildings merit individual recognition and collectively, the buildings present an outstanding picture of the settlement and growth of the small town from the primitive log cabins to the Georgian stone houses and taverns, to the standard frame workers' houses to the imposing Victorian mansions of the 19th century industrialists.

Annville was formally laid out in 1763-64 by Andrew Miller, Adam Ulrich, and Abraham Raiguel. Prior to that date, the settlement was erratic, with houses clustered near the mills along the creek. The oldest remaining building is the small, 1½ story stone house (1753) known as the Mary Gass house at Cumberland and King Streets. The earliest name for the settlement was Millerstown, which was replaced by the name Annville. Legend has it that the town was either named after Miller's wife, or after Queen Anne, patroness of the Palatine Germans, who made up many of the original inhabitants.

The town originally functioned as an agricultural service community for the rich farmland to the south. Small manufacturing establishments developed in the 19th century and for a short time, Annville was an important center for the manufacture of silk and felt hats.

Today, Annville Township has an Historic District Ordinance in place that controls development and redevelopment of properties in the District. The township operates with an advisory Historic Architectural Review Board that advises the Annville Township Commissioners of the appropriateness of requested alterations to properties in the District.

Biever House (Annville Township)

The Biever House is located at 49 South White Oak Street in Annville Township. The Biever family arrived in Annville circa 1800 and quickly became a leading family in the community. John D. Biever (1812-1880) held several political offices and operated a large tanning establishment south of his residence.

The Biever House is an excellent example of the rural Georgian style house. It displays some excellent craftsmanship in the wood work of the main doorway. The house is also one of three stone houses in the community that displays an extensive use of pick work in the decoration of doorways, cornice and window frames. The interior of the house has been divided into three apartments, but some of the interior wood work still survives.

[35] Pennsylvania Historical and Museum Commission

Table 7-2: National Register of Historic Places Listed Properties in Lebanon County

Municipality	Property Name	Address	Date Listed
Annville-Cleona SD			
Annville Township	Annville Historic District	Quittapahilla Creek, Lebanon, Saylor, Marshall Sts.	4/30/1979
Annville Township	Biever House	49 S. White Oak St.	2/14/1978
Cornwall-Lebanon SD			
Cornwall Borough	Cornwall Iron Furnace*	Rexmont Rd. & Boyd St.	11/3/1966
North Cornwall Township	Gloninger Estate	2511 W. Oak St.	12/10/1980
North Lebanon Township	Union Canal Tunnel*	West of Lebanon off of Pa 72	4/19/1994
ELCO SD			
Heidelberg Township	Bomberger's (Michter's) Distillery*	Off 501 Southwest of Schaefferstown	1/16/1980
Heidelberg Township	Brendle Farms	Junction of Routes 501&897, Schaefferstown	7/24/1972
Heidelberg Township	Erpff, Philip, House	S. Market St. Schaefferstown	11/20/1979
Heidelberg Township	Rex House	North Market St. Schaefferstown	8/11/1980
Jackson Township	Immel, John, House	Flanagan Rd.	4/17/1980
Jackson Township	Tulpehocken Manor Plantation	Rte. 422, 2 mi. west of Myerstown	5/12/1975
Millcreek Township	House of Miller at Millbach	Newmanstown,Kleinfeltersville & Stricklerstown Rds.	4/23/1973
Millcreek Township	Zeller, Heinrich, House	Off Route 419, west of Newmanstown	5/12/1975
Myerstown Borough	Meier, Isaac, Homestead	520 S. College St.	4/2/1973
Lebanon SD			
Lebanon City	Chestnut Street Log House	1110 Chestnut St.	11/20/1978
Lebanon City	Cornwall and Lebanon Railroad Station	161 N. 8th St.	12/4/1974
Lebanon City	Funck, Josiah, Mansion	450 Cumberland St.	1/31/1980
Lebanon City	Reading Railroad Station	N. 8th St.	7/17/1975
Lebanon City	Saint Luke's Episcopal Church	6th St. & Chestnut St.	9/4/1974
Lebanon City	Tabor Reformed Church	10th St. & Walnut St.	6/27/1980
Northern Lebanon SD			
Swatara/Union Townships	Waterville Bridge	Appalachian Trail, Swatara Gap	11/14/1988
Palmyra Area SD			
North Londonderry Township	Bindnagles Evangelical Lutheran Church	Junction Gravel Hill & Pine Rds.	7/7/1975
Palmyra Borough	Landis Shoe Company Building	Northwest Corner N. Chestnut & E. Broad St.	8/29/1980
South Londonderry Township	Stauffer, Dr. B. House	192 W. Main St., Campbelltown	6/22/1979

Source: Pennsylvania Historical and Museum Commission
* National Historic Landmark

Cornwall Iron Furnace National Historic Landmark (Cornwall Borough)

The Cornwall Iron Furnace National Historic Landmark District exemplifies the type of iron-making complex that manufactured most of America's iron from the Revolution through the Civil War era. The furnace itself, which operated from 1742 to 1883, was one of the country's major producers of cast iron in the colonial period. It is probably the best preserved charcoal furnace in the United States. The Cornwall Ore Banks, mined continuously from 1742 to 1974, constituted the largest known deposit of iron ore in the country until the discovery of the Mesabi Range in 1887. The well designed and well constructed surviving buildings, including the furnace and ancillary buildings, the iron master's mansion and a miner's village, reflect the financial success and pride of America's early iron making dynasties.

Cornwall Iron Furnace National Historic Landmark District is located in Cornwall Borough in the southern section of Lebanon County and contains three interrelated major elements. The first is the "plantation," which includes the furnace and its associated buildings and the ironmaster's mansion. The second is the adjacent open pit mine, which provided the ore that the furnace was built to exploit. The third is a village consisting mainly of stone double residences that were built to house workers.

The furnace lies to the northern end of the site and has been very well preserved. It is a hill furnace and consists of two large sandstone buildings, linked by an open wooden gallery. The steam engine and other machinery installed in the mid-nineteenth century are still in place, as are many of the implements used by the furnace workers. Northwest of the furnace, across Rexmont Road, is the entrance to the Cornwall Mansion, the ironmaster's house, now part of a retirement complex.

Beyond the furnace's ancillary buildings, Boyd Street swings southeast toward Minersvillage, skirting the eastern border of the open pit mine. The road itself has been moved considerably to the east since 1955 to allow for expansion of the mine. In the 230 years it was worked, its appearance was altered considerably. The mine is over 400 feet deep and is rimmed with trees. Since mining operations ceased in 1974, the pit has filled with water to approximately half its depth. Flooding as a result of Hurricane Agnes in 1972 largely contributed to the cessation of mining operations at this site.

Boyd Street runs through Minersvillage, in a general east-west direction, terminating east of the village at Route 322. Development of the village appears to have proceeded from west to east. Two frame houses at the west end appear to date from the first half of the nineteenth century. In contrast, the frame houses at the east end were constructed some 20 to 30 years later than most of the buildings in the village.

Brendle Farms (Heidelberg Township)

Brendle Farms, also referred to as the Alexander Schaeffer Farm and the Sheetz Farm, are located at the intersection of State Routes 501 and 897 in Heidelberg Township. The Schaeffer and Sheetz Homesteads possess several features worthy of note. First, the two farms are set in an environment worthy of preservation for open space and ecological conservation. Second, they are excellent examples of the 18th century cultural pattern in this area. Third, the Lower Farm (Sheetz Farm) is the birthplace of the Reverend Thomas R. Brendle, whose collection of Pennsylvania German folklore, now in the possession of Historic Schaefferstown, Inc., is unsurpassed in its scope and completeness. The Lower Farm was also the site of the Sheetz murder, an incident which has occupied an important position in the folklore of the area.

There is considerable evidence of an alcoholic beverage industry in Schaefferstown in the 18th century. The Alexander Schaeffer farmstead is the only Pennsylvania house located (as of 1972) to retain evidence of the pot still.

Bomberger's (Michter's) Distillery (Heidelberg Township)

Bomberger's Distillery, also known as Michter's Distillery, is located 7 miles southwest of Newmanstown along PA Route 501. The distillation of spirituous liquors is a major American industry, and the Bomberger Distillery, whose origins can be traced back to 1753, is both the nation's oldest distillery and a primary extant example of a small-scale commercial distilling operation. Although whiskey had been produced and consumed in limited quantities in the colonies since late in the 17th century, it did not begin to displace rum as the favorite hard liquor until around the time of the Revolution.

Bomberger's also represents the transformation of whiskey distilling from an agricultural enterprise, carried on in conjunction with other farming activities, to the status of a full scale industry in its own right. When John and Michael Shenk constructed the first distillery on the site in 1753, it was only an adjunct to their gristmill and other farming operations, and most of its output probably was consumed in the neighboring vicinity. During the 1780's however, Michael Shenk's son-in-law, Rudolph Meyer, took over the operation, added two new stills, and began to concentrate on distilling in response to the demand of neighboring farmers that their grain be converted to alcohol so that it could be profitably marketed. By the time the property passed to other Shenk relatives, John Kratzer who operated the distillery from 1827 to 1860, and Abe Bomberger, whose family ran it from 1861 to 1919, distilling had become a full time operation almost entirely divorced from farming. Prohibition forced the distillery's closure in 1919. The repeal of Prohibition (1933) brought new owners to the property. While they erected several larger-scale buildings at the distillery, they retained the original buildings and distillation process. In 1978 the property was sold to Michter's who operated it until 1989 when Chapter 11 bankruptcy protection was sought. In 1991 this landmark and tourist attraction was abandoned by its owners and foreclosure took place. Title to the property has changed several times since then; however, it currently remains vacant. The Bomberger Distillery commemorated the whiskey making techniques of the Swiss Mennonites and was the last surviving link to the period of 1780 to 1840 when Pennsylvania led the nation in whiskey distilling. In 1810 the state had 3,594 distilleries which produced over 6.5 million gallons of whiskey. As of its designation as a National Historic Landmark by the Department of Interior in June 1980, it was the oldest distillery site still operating in the United States.

Philip Erpff House (Heidelberg Township)

The Erpff house is a 2½ story limestone structure with a gable roof, located on South Market Street in Schaefferstown. The house is typical of the building styles, techniques and materials of rural, Germanic tradition of Lebanon County. The house was built about 1750-1780 by Philip Erpff (Erb). He and his wife came to this country as redemptioners and gradually became very prosperous. They were prominent members of the community and of the Lutheran Church.

The house was bought in 1843 by Abraham Rex, also a prominent member of the community. He was married to Elizabeth Schaeffer, granddaughter of Henry Schaeffer, founder of the town. The house remained in possession of the descendants of Abraham Rex until at least 1970, but ownership has since passed out of the family. The house, outbuildings and grounds are in excellent condition and have changed very little over the years.

Rex House (Heidelberg Township)

The Rex House, located on North Market Street in Schaefferstown, is a unique survival of a half-timbered structure which was once common in Lebanon County and usually is associated with the Pennsylvania German Culture. The unusual and fine hardware, stenciling and cabinet work made this structure interesting. Alexander Schaeffer, the founder of Schaefferstown, owned this house and sold it in 1758 to Paul Gemberling. The house was apparently built before Schaeffer's time, and local legend claims that it may have been built by Jewish fur traders who settled in the area. Samuel Rex bought the house in 1799. The Rex family was very prominent, prosperous merchants for many generations.

John Immel House (Jackson Township)

The John Immel House, located on Flanagan Road in Myerstown is a 2 ½ story L-shaped dwelling that is made of limestone. The house was built in 1814 and bears a decorative date-stone that reads, "Build by John and Elizabeth Immel 1814." It is set into an arch on interspersed brick and limestone and above the inscription, a heart sprouts three flowers composed of intertwined circles bearing 'quaint stamens and ball shaped petals.'[36] John Immel was the direct descendant of one of the original Palatinate immigrants and John and Elizabeth Immel were very influential members of the community, holding various governmental and religious positions. The structure was accepted onto the National Register of Historic Places for its agricultural significance. The John Immel House was a good example of the early houses in this area, but was destroyed by fire circa 1980-1981.[37]

Tulpehocken Manor Plantation (Jackson Township)

The Tulpehocken Manor Plantation is located on Route 422, about 2 miles west of Myerstown. The tract of land was purchased by Christopher Ley and Jacob Lower in 1738 and consisted on 240 acres, compared to the 150 acres that comprises it today. Between 1740 and 1745, they built two bank houses (spring houses), an excellent example of the European influence on early American architecture. The bank houses were constructed of limestone. Small springs, sheltered by 7 foot central arches, flowed through the spring houses and provided the food storage area and kitchen with water. Michael Ley, Christopher's son, built the Georgian mansion house with an eight room floor plan and central hall in 1769 of limestone and large red sandstone quoins. Michael Ley was an important merchant and colonel during the Revolutionary War. He was a friend of George Washington, who visited the mansion many times between 1777 and 1794. The property is privately owned and maintained..
In 1883, the mansion was remodeled and enlarged by Samuel Ulrich including the addition of the long part of the house, the two story porches and balconies, and much Victorian detail. The mansion has not been altered much since this remodeling. In addition to a large stone quarry, other features of the property include two barns, several sheds, two corn cribs, a sheep cote, a greenhouse, cider house, cob house, granary, smokehouse, washhouse and outhouse.

Chestnut Street Log House (Lebanon City)

George Steitz received two warrants for land, one in 1737 and another in 1741, on which he laid out lots for a village. He began to sell these lots around 1750. The community was first known as Steitztown, and later as Lebanon, and by 1772, there were 200 dwellings in the village. The Chestnut Street Log House is the only known house remaining that dates to circa

[36] Mohn, Viola Kohl. *Shadows of the Rhine Along the Tulpehocken..* 1970
[37] Historic Preservation Trust of Lebanon County.

1772. The house is a 1½ story central fireplace log structure on a limestone foundation. From architectural investigation, it appears that the log superstructure was raised 1½ feet circa 1850 to conform to the level of the surrounding houses. It is owned by the City of Lebanon and administered by the Historic Preservation Trust of Lebanon County.

Cornwall and Lebanon Railroad Station (Lebanon City)

The Cornwall and Lebanon Railroad Station, located at 161 North 8th Street (west side), was built by the iron ore millionaire, Robert Coleman. The station was designed by architect George Watson Hewitt, in partnership with his brother William. William was for many years Dean of Architects in Philadelphia, having designed such structures as the Bellevue-Stratford Hotel, Academy of Fine Arts, and Hahnemann Hospital.

Architecturally, this structure represents an outstanding example of late nineteenth century eclectic Victorian architecture. The combination of Flemish, Romanesque and Chateauesque architecture offers an interesting blend of Victorian styles. The wealth of the builder, Robert Coleman allowed an architectural quality unique among small town railroad stations. It is also unusual that a grand structure such as the Cornwall and Lebanon Station was built for a railroad with only 22 miles of track.

Josiah Funck Mansion (Lebanon City)

The Josiah Funck Mansion, 450 Cumberland Street, is one of the best preserved buildings of its period and style in Lebanon. It is a fine example of the Second Empire Style, built by one of the wealthier and more important residents of the city during the 19th century. The well preserved structure is a three story brick building. The second floor is topped by a heavy brochette cornice and a mansard roof containing the third floor. The mansion is currently home to the Lebanon Women's Club.

Josiah Funck, a native of Lebanon County, was one of the top lawyers in eastern Pennsylvania during the latter half of the 19th century. He held various public offices including District Attorney of Lebanon County in 1854. At the time of his death, he was Dean of the Lebanon County Bar.

Gloninger Estate (North Cornwall Township)

The Gloninger Estate, located at 2511 West Oak Street in the City of Lebanon, is an example of the typical Swiss-German architecture of the mid to late 1700s. The house is one of the oldest limestone homes in Lebanon County. It was constructed in a bank of limestone rock. A limestone cave lies out the back door; the entrance to it is across the street.

The house was built and inhabited for many years by the Gloninger family. The builder of the house was a colonel in the Revolutionary Militia. Descendants were prominent doctors in the area and Philadelphia. Dr. Andrew Gloninger was the founder of one of Lebanon's major hospitals, the Lebanon Sanitorium, now the Hyman Caplan Pavilion of the Good Samaritan Hospital.

Reading Railroad Station (Lebanon City)

The Reading Railroad Station, located on the east side of North 8th Street in Lebanon City, was designed by Wilson Brothers and Company, Architects and Engineers, of Philadelphia. The station is one of the finest works of Joseph M. Wilson, the principal architect in the firm. He was also responsible for Machinery Hall at the Exposition of 1876, the Drexel Institute, and the Reading Terminal itself. The firm was quite prominent in the railroad engineering and architecture with stations and shops on the Philadelphia and Reading, the Lehigh Valley, and the Central Railroad of New Jersey lines.

By 1858, the Lebanon Valley Railroad, which ran from Reading through Lebanon to Harrisburg, a distance of 54 miles, had come under the control of the Philadelphia and Reading Railroad. The Philadelphia and Reading line was incorporated by the Reading Company in 1896, and the Reading Railroad Station in Lebanon was built by the company in 1900.

Saint Luke's Episcopal Church (Lebanon City)

Saint Luke's Episcopal Church, constructed in 1880, is an unusually sophisticated Gothic Revival building, particularly for the area in which it is located. The structure is located at 6th and Chestnut Streets and was funded by the Coleman family, who acquired their fortune in the Cornwall iron ore mines. Both the exterior and interior of the church display the finest in construction and craftsmanship. The Church is constructed in the form of a Latin cross and is 116 feet long and 75 feet wide. The foot of the cross faces west. The predominant wall fabric is native bluestone, quarried only a few yards from the site.

Tabor Reformed Church (Lebanon City)

The Tabor Reformed Church, located at 10th and Walnut Streets in Lebanon City, is a 2½ story native limestone building, erected in 1792 to replace its log predecessor which was constructed in 1760 and destroyed by lightning on June 6, 1792. The Tabor Reformed Church, named after a mountain in Galilee, is a good example of a colonial Central Pennsylvanian Church constructed of local materials. Tabor is the oldest standing church in the City of Lebanon and although a large chapel was attached in 1914, the original 18th century form has not been obscured.

Miller House at Millbach (Millcreek Township)

The Miller House, also known as the Mueller House and Illig's Mill is located in Newmanstown. The structure, which bears a date stone of 1752, is of Germanic influence. It is 2½ stories high with a double attic. It is made of cut limestone with red sandstone used in the quoins and radiating arches over the first floor windows and doors. The mill is an excellent representation of the coordination of small industry with the family. The mill is directly attached to the house and both form an 'L' shape. Parts of the mill are still on the property.

Heinrich Zeller House (Millcreek Township)

The Heinrich Zeller House, also known as Fort Zeller, is located west of Newmanstown, off of Route 419. The Zeller, or Sellaire, family fled the Alsatian region of France shortly after the Revocation of the Edict of Nantes. The Sellaire family castle still stands on a wooded crag north of Strasbourg. As with many other French Huguenots, the Zellers fled to Holland, and then to England, before arriving in New York in 1710. In 1723 they moved to the present Mount Gretna area of Lebanon County. The date on the present structure is 1745, although existing nearby foundations of a log structure indicate earlier activity on the property.

The house has not been seriously altered and still preserves most of its original appearance. Its Alsatian / Swiss appearance gives ample evidence of the persistence of European tradition. The property is well maintained and presently operates as a small museum.

Isaac Meier Homestead (Myerstown Borough)

The Isaac Meier Homestead is a 2½ story limestone structure built circa 1750, and located at 520 South College Street in Myerstown Borough. It was also known as The Old Fort. Isaac Meier was the founder of Myerstown and his home was one of the first in the town. The land that is now Myerstown was purchased by Casper Wistar, the brass button maker of Philadelphia, from Thomas Penn, Esq. in 1735. Valentine Herglerode bought 249 acres from Wistar and built a house which served as an Indian fort and as the home of Isaac Meier. Herglerode's house was probably the small, 20 feet square east wing of the present Meier home. Parts of the original Herglerode house were incorporated into the existing building. The present kitchen and west fireplace in the kitchen are believed to have been enlarged later. Isaac Meier bought the 249 acres from Herglerode and an additional 250 acres in 1757-58 and began selling lots and laying out a town. By 1768, Tulpehockentown became Myerstown. Isaac Meier was also magistrate of the area and Overseer of the Poor. He gave the land for the first school house in Myerstown. The property is owned by Myerstown Borough and leased to the Historic Preservation Trust of Lebanon County. Restoration of the property began in 1970 and is a work in progress. Tours are available during special events and by appointment.[38]

Union Canal Tunnel National Historic Landmark (North Lebanon Township)

The oldest existing tunnel in the United States is a local tourist attraction of national significance. It was tunneled out of solid rock under Pansy Hill on the northwest fringe of the City of Lebanon for the Union Canal which connected the Susquehanna River at Middletown with the Schuylkill River at Reading. The canal was planned to carry passengers and freight between Philadelphia and Harrisburg, facilitating commerce between Pennsylvania's major urban center and the resource rich interior. Furthermore, the canal was regarded as a necessary first step in recapturing some of the commerce lost to New York State's more ambitious Erie Canal. The tunnel, located on the summit of the canal, was originally 729 feet long when it was first completed in 1827. It was shortened to 600 feet when the tunnel was adapted to accommodate barges of 50 tons circa 1853.

[38] Historic Preservation Trust of Lebanon County website, http://www.pioneerfamily.com/LebanonTrust/.

With the completion of the Pennsylvania Main Line Canal in the mid 1830s, the Union Canal became a link in an even longer canal system leading all the way to Pittsburgh. Shortly thereafter, newer canals capable of carrying even larger barges began to take much of Pennsylvania's barge commerce away from the Union Canal. After going bankrupt during the 1860s, the canal was purchased at auction by one of its most formidable competitors, the Philadelphia and Reading Railroad, who finally abandoned the canal in 1885. Beginning in 1950, the Lebanon County Historical Society began acquiring parcels of land which include the tunnel and the adjacent canal, which actually mark the summit of the canal between Middletown and the Schuylkill River. The Historical Society preserves and maintains the tunnel, a short section of watered canal and the 100+ acre park surrounding the site for the education and enjoyment of the community. Efforts continue to acquire and preserve at least adjacent segments of the canal north of the park. These segments would include a series of three canal locks, which could be restored and add to the historic significance of the park.

Bindnagles Evangelical Lutheran Church (North Londonderry Township)

Bindnagles Church is a manifestation of the religious character of early German settlers in the Lebanon Valley of Pennsylvania. When a significant number of these immigrants were established in a location, they organized a church congregation. Standing today, three miles north of Palmyra as a monument to one of those early groups, is Bindnagles Evangelical Lutheran Church, erected in 1803.

In 1753, John Bindnagle donated five acres of land to the congregation along the Swatara. Soon after, a log church was built. In 1803, the present church was built and shared by two congregations who used it on alternate Sundays. A flatboat was even built for members living to the north and west of the Swatara Creek.

Bindnagles Church is a remarkably well preserved example of architecture in the late 18th century Country Georgian style. The interior, painted to resemble marble, is particularly interesting and represents elements of the Baroque Revival.

Landis Shoe Company Building (Palmyra Borough)

For about 70 years, the manufacture of shoes was the most important industry in Palmyra. This first company was established in 1886, with Jacob Landis (1842-1917) as one of the original stockholders. The site for the factory building at Broad and Chestnut Streets was purchased by the Palmyra Boot and Shoe Factory from William L. and Catherine Kreider on November 30, 1888. This company failed, and on April 18, 1895, William H. Erb sold the business and its frame factory structure to Jacob Landis and his sons, David and Morris. The new business was organized as the J. Landis Sons Shoe Company; by 1904 the four story frame factory employed 90 and produced 500 pairs of shoes daily. At 3 a.m. on the morning of November 28, 1905, this building burned at a loss estimated at $100,000. On December 21, 1905, rebuilding plans were announced and all debris was cleared; by June, 1906, the southern part of the present structure was completed and the plant reopened.

At the time of the reopening in 1906, the company reorganized as the J. Landis Shoe Company. Soon production increased to about 2,000 pairs of shoes per day. In 1911, the northern section was added; employment rose to about 300 and production reached 3,000 pairs of shoes daily. In 1920, the company merged with the G.R. Kinney Company, Inc., and output increased to 4,000 pairs daily. The economic stature of the company remained secure into the 1930s, but both production and employment declined during the 1940s and 1950s. By 1955, the plant was no longer listed as an important industry in this part of Lebanon County. In August, 1963, the properties passed from the name of the J. Landis Shoe Company. The building has served no commercial or industrial functions since the late 1960s. Today, the building has been refurbished into high end apartments.

Dr. B. Stauffer House (South Londonderry Township)

Dr. B. Stauffer House, located at 192 West Main Street in Campbelltown, is a 2½ story brick structure with a hipped roof. The house is an excellent example of a mid 19th century brick townhouse with significance in the local community as the home of the town doctor. Dr. Stauffer was born in Mastersonville, Lancaster County in 1825. He attended the school of medicine at the University of Pennsylvania. At age 20, he settled in Campbelltown and began his practice. In 1848, he purchased 20 acres on which he erected a 9 room colonial brick house and small apothecary shop, where he made his own pills and mixed his own medicine. He served many people in nearby communities as a druggist. The apothecary shop is now gone, but local residents recall it as a source of interest because of the variety of bottles.

Waterville Bridge (Swatara/Union Townships)

The Waterville Bridge is an example of an unusual truss type. Constructed by the Berlin Iron Bridge Company of East Berlin, Connecticut in 1890, this single span bridge has a lenticular truss which derives its name from the lens-like shape of its curved upper and lower chords. The 221 foot long pin-connected truss is made of typical members composed of channels, angles, eyebars and lacing bars. It features an unusually ornamental portal design. This lenticular truss bridge was originally located in Waterville, an unincorporated rural village in Cummings Township, Lycoming County. It carried State Route 44 over Little Pine Creek. The bridge was carefully disassembled after a girder structure was erected to support the bridge during this process. The truss members were numbered for identification, cleaned (by sandblasting), reinforced where necessary, and a primer coat was applied. In the summer of 1985, the truss members were transported to the new location and reassembled on new abutments for use as a pedestrian bridge on the Appalachian National Scenic Trail as it crosses the Swatara Creek north of Innwood. A new wooden deck was put on the bridge as it would have had originally and the bridge was repainted. Relocating the bridge saved it from being demolished by the Pennsylvania Department of Transportation in a bridge replacement project.

Table 7-3: National Register of Historic Places Eligible Properties in Lebanon County

Municipality	Property Name	Address	Date
Annville-Cleona SD			
Annville Township	Carnegie Library	Lebanon Valley College Campus in Annville	4/18/2003
Cleona Borough	Kreider Farm & Cemetery	Center St. (S.R. 4002) at Conrail Railroad	9/6/1995
Cleona Borough	Lebanon Valley Railroad		9/6/1995
North Annville Township	Heilman, S., Property	Russel Rd.	9/26/1990
North Annville Township	Hill Evangelical Lutheran Church	998 North Mill St.	12/3/1982
North Annville Township	Miller, H., Property	Heilmandale Rd.	10/2/1990
Cornwall-Lebanon SD			
Cornwall Borough	Buckingham Mansion, Cornwall Manor	Rte. 419 in Cornwall	5/5/1980
Cornwall Borough	Cornwall School	Rte. 419, Freeman Dr.	6/23/2005
Cornwall Borough	Methodist Episcopal Church in Cornwall	Rte. 419 (Cornwall Pike & Alden St.)	6/22/1982
Cornwall Borough	Millwood – Alden Villa	S.R. 419 east of S.R. 72	5/15/2003
Mount Gretna Borough	Stengle's	117-119 Pennsylvania Ave.	6/14/1994
North Cornwall Township	Kreider, M., Farm	Oak St. Off	8/30/1990
North Cornwall Township	Shank, C.H., House	Dairy Rd. South of 422 on East side of - First	9/26/1990
North Cornwall Township	Sprecher, Fredrich, Homestead	S Garfield St. Cleona	7/8/1991
North Lebanon Township	Eckert, Mary & Perter, House	15th Ave.	2/29/2000
North Lebanon Township	Heilman, Samuel Phillip, Property	Emma Rd.	9/26/1990
North Lebanon Township	Kreider Farm & Cemetery	Center St. (S.R. 4002) at Conrail Railroad	9/6/1995
North Lebanon Township	Krieder, John, Farm	3181-3189 Tunnel Hill Rd. 3181 & 3189 (at O	12/23/1987
South Lebanon Township	Weiss House & Summer Kitchen	Veterans Administration Medical Center	6/25/1981
South Lebanon Township	Building 103 (Wengler House: V.A. Medical Center)	Lebanon Veterans Administration Medical Center	6/25/1981
South Lebanon Township	Horst Mill Complex	611 Rexmont Rd.	10/17/2000
South Lebanon Township	Lebanon Veterans Administration Medical Center	Off Lincoln Avenue and west side of State Drive.	6/25/1981
South Lebanon Township	South Mountain Gravity Water Supply, Rexmont Dams[39]	Rexmont	10/17/2000
West Cornwall Township	Farmers Hope Inn, The	3180 Lebanon Rd. (Rte. 72)	5/30/2003
West Cornwall Township	Quentin Riding Club	Corner of Rte. 72 & Rte. 419	4/10/1995

[39] The Rexmont Dams were removed and the South Mountain Gravity Water Supply reservoirs were drained in the early 21st century however the historical significance of this site is unchanged. Rexmont Dam #1 (Lower Dam) was drained and breached in September of 2001.

Municipality	Property Name	Address	Date
ELCO SD			
Heidelberg Township	Bobb Property	Private Drive off T -357 at T -359	12/20/1978
Heidelberg Township	Franklin Inn	N Market St. In Schaefferstown	7/6/1984
Heidelberg Township	Iba, W./Lapp, Moses, Farmstead	321 Route 501 North	5/9/2002
Heidelberg Township	Old Mill Rd. Historic District	Old Mill Rd.	05/26/1992
Heidelberg Township	Reistville Historic District	Pa Rte.501	6/15/1988
Heidelberg Township	Schaefferstown Historic District	Main & Market Sts.	1/30/1984
Heidelberg Township	Schaefferstown Water Company	Southeast Corner Sheephill Rd. & S. Market St.	2/12/1987
Jackson Township	Bickle, Tobias, Homestead	Rte. 645, 1 mile North of Rte. 422 Intersection	8/7/1973
Jackson Township	Breitenbach, John, House	E Main St. East of Noacker South side	11/5/1986
Jackson Township	Immel, Johannes, Homestead	Ramona Rd. (T -560) Just South of Rte. 422	2/12/1987
Millcreek Township	Saint Paul's United Church of Christ	Millbach	6/19/1991
Lebanon SD			
Lebanon City	Bethlehem Steel Historic District	5th Ave., Railroad Line, Quittapahilla Creek	8/2/2000
Lebanon City	Cumberland Street Historic District	Cumberland, Chestnut, 6th, 7th, 8th, 9th Sts.	6/28/1990
Lebanon City	East Chestnut/Hathaway Park Historic District	East Chestnut St., Cumberland St., Roughly from 11th St. to 2nd St.	6/28/1990
Lebanon City	Fisher Opera House (Academy Theater)[40]	701 Cumberland St.	11/23/1987
Lebanon City	Heilman Homestead	3056 Chestnut St.	8/7/1973
Lebanon City	Herrmann, Aukam & Company[41]	7th St. & Mifflin St.	9/2/1986
Lebanon City	Lebanon Central Business Historic District	Quittapahilla Creek, 11th St., Federal St., 5th St.	8/2/2000
Lebanon City	Lebanon Steel Foundry[42]	19 E Lehman St.	12/9/1996
Lebanon City	North Lebanon Historic District	Bounded by Railroad, Creek, 14th St., 2d St., Guilford St.	2/14/2001
Lebanon City	Saint Mary's Parish School and Convent	736-740 Willow St.	4/2/2004
Lebanon City	Washington & 11th St./Oak & Elm St. District	S 11th St. & 12th St., Washington St., Oak St	6/28/1990
Northern Lebanon SD			
Cold Spring Township	Schuylkill & Susquehanna Railroad Station[43]	Cold Springs Rd.	10/18/1991
East Hanover Township	East Hanover Roller Mill	Mill Rd. & Rte.934	12/11/1984
East Hanover Township	Fort Indiantown Gap Historic District	Fort Indiantown Gap Military Res.	8/6/1999
East Hanover Township	Quarters 10	Fort Indiantown Gap Military Res.	9/11/1992
Jonestown Borough	Heilman, Lo, House	25-27 E Market St.	11/14/1997
Union Township	Bamberger, E.J., House	Fort Indiantown Gap	9/13/1995
Union Township	Bordnersville Historic District	S.R. 443 & Bordnersville Rd.	11/2/1995
Union Township	Fort Indiantown Gap Historic District		8/6/1999
Union Township	Range House[44]	Range Rd. Fort Indiantown Gap	8/29/1994
Union Township	Sattazahn Evangelical Lutheran Church	Green Point School Rd. (T-617) , 1 mile West of Rte. 443	6/24/1999
Union Township	Stevedore (Landing Ship) Training Site	Fort Indiantown Gap (Quartermaster Rd. & Fisher Ave.)	12/19/1994
Union Township	The State House-Lt. Gov. Residence	Fort Indiantown Gap Military Res.	7/18/2005

[40] This structure was razed.
[41] This structure was razed in 2005.
[42] This structure was razed. Several outbuildings still exist.
[43] The Schuylkill and Susquehanna Railroad Station was removed from its original location and placed in the Stoy Museum
[44] The Range House was relocated next to the Pennsylvania National Guard Museum.

Municipality	Property Name	Address	Date
Palmyra Area SD			
North Londonderry Township	Starner (formerly Shirk) Farm	393 Palmyra Bellgrove Rd.	12/19/1986
South Londonderry Township	Bowman, S.	W Rte. 322	10/30/2003
South Londonderry Township	Brightbill, Abraham & Mary, Farmstead	660 S Lingle Ave.	10/30/2003
South Londonderry Township	Brunner Farm	Rte. 322, Campbelltown	9/18/1990
South Londonderry Township	Campbelltown Historic District	U.S. 322, School House Ln., Palmyra Rd., Lawn Rd. & Forge Rd.	10/30/2003
South Londonderry Township	Coleman, Robert, Mansion	Intersection of Rte. 241 & Rte. 117 in Colebrook	8/17/1982
South Londonderry Township	Logan Farm	S.R. 3011	2/12/1987
South Londonderry Township	South Londonderry Township Building	20 W. Market St., Campbelltown	11/5/1986
South Londonderry Township	Witmer, John & Hannah, Farm	640 S Lingle Ave.	10/30/2003

Source: Pennsylvania Historical and Museum Commission

From 1914 to 1933, the Pennsylvania Historical Commission, predecessor to the Pennsylvania Historical and Museum Commission (PHMC), installed bronze plaques to commemorate significant individuals, events, and landmarks throughout the state. However, during the 1920s and 1930s, with accelerated automobile speeds, these plaques became impossible to read from a moving vehicle. For this reason, the PHMC, created by state legislature in 1945, developed the modern style state historical marker.

Since its inception, the PHMC has adopted more stringent criteria for approval of state historical markers. The guidelines formulated in the late 1970s require "that the person, event or site to be commemorated have had a meaningful impact on its times and be of statewide or national significance rather than only local significance." In December 1987, with the most recent revision of the program's guidelines, the agency adopted a standard urging "that the significant subjects that have hitherto been given less attention by the Historical Marker Program receive more favorable consideration (other factors being equal) than subjects which have already had fuller coverage." The program is striving to interpret ever more fully and fairly the great spectrum of Pennsylvania's history, while monitoring technological changes and evolving concepts of safety, accessibility, and readability.[45]

There are thirty two historical markers located throughout Lebanon County. Most of these markers are roadside markers, but the list includes city markers and a plaque as well. The historical markers in Lebanon County are listed, along with their text, in Table 7-4.

Table 7-4: Historical Markers in Lebanon County

Marker Name	Date Dedicated	Marker Type	Location	Category	Marker Text
Blue Mountain Forts	December 1949	Roadside	Jonestown Rd. (old U.S. 22), near intersection with Pa. 934, at Harpers Tavern	Military, Native American, French & Indian War	In 1763-64, from a line of six loghouse stations to the north, settlers were defended by the Paxton Rangers – volunteers paid by Pennsylvania's Provincial government. Fort Hunter was on the Susquehanna just north of Blue Mountain, and the other five stations were just south of the mountain – located at regular intervals over the 23 miles between the river and the Swatara Creek. A similar line of stations had existed, 1756-57.
Cornwall Banks	March 1947	Roadside	Boyd St., Cornwall, at now abandoned mine	Business & Industry, Iron	One of the world's greatest iron mines, the oldest operated continuously in the New World. It has been mined for more than two centuries, and is still the greatest iron ore deposit east of Lake Superior.

[45] Pennsylvania Historical and Museum Commission

Marker Name	Date Dedicated	Marker Type	Location	Category	Marker Text
Cornwall Furnace	August 1948	Roadside	Rexmont Rd. at site	Business & Industry, Iron	Built by Peter Grubb. Operated from 1742 to 1883.
Cornwall Furnace	1948	Roadside	Boyd St. (old U.S. 322) in Cornwall	Business & Industry, Iron	Charcoal iron furnace built by Peter Grubb, operated 1742-1883. Best surviving example of the early Pennsylvania ironworks. Now a State historical shrine, gift of Mrs. Margaret Coleman Buckingham, heir of its famous owner, Robert Coleman.
Cornwall Furnace		Roadside	US 322 near Pa 419 turnoff to Quentin	Business & Industry, Iron	Built in 1742 by Peter Grubb near an immensely rich ore deposit and acres of forest for making charcoal fuel. A self-sufficient community included the ironmaster's mansion and workers' houses. The furnace produced pig iron and cast goods, and cannons for the Revolutionary War. Sold in 1798 to entrepreneur Robert Coleman; operated until 1883. It survives fully intact a few miles east at Cornwall.
Fort Swatara	July 1999	Roadside	Pa. 72 near Lickdale	Military, Native American, Forts, French & Indian War	Originally built by Peter Hedrick, 1755. The stockaded blockhouse was improved in early 1756 by Capt. Frederick Smith to guard Swatara Gap and protect the frontier settlements. The site is on Bohn Lane about a half mile from the intersection.
Fort Zeller	March 1947	Roadside	Pa. 419 (Main St.) at Mill Creek AveNW corner of intersection of Fort Zeller Road and Route 419*., Newmanstown	Military, Native American, Forts, French & Indian War	The State's oldest existing fort is half a mile to the north. Pioneers who came to the Tulpehocken from the Schoharie valley built it in 1723, rebuilt it in 1745. It was used as a place of refuge during Indian wars.
Grubb's First Forge	June 1967	Roadside	Boyd St. & Gold Rd., Miners' Village, Cornwall	Business & Industry, Iron	Peter Grubb (c.1700-54) carried on his initial efforts at iron-making in 1735 just slightly to the north. He used the Catalan-type forge which had originated in Spain sometime during the tenth century.
Indiantown	March, 1947	Roadside	Intersection Pa. 934 & old U.S. 22, Harper Tavern	Early Settlement, Native American	The native village from which, in turn, the Creek, Gap, and great Military Reservation derived their names, formerly stood near here. The Delaware Indians took this route to Shamokin, upon their removal from the Schuylkill region.
Indiantown Gap	1947	Roadside	U.S. 22, 25 miles NE of Harrisburg	Cities & Towns, Native American	The Military Reservation is named for Indiantown Gap in the Blue Mountains, visible to the north of this point. An Indian town once stood at the mouth of Indiantown Creek, which flows through the Gap.
Indiantown Gap Military Reservation	March 1947	Roadside	Asher-Miner Rd., 1.3 miles N of U.S. 22 approaching Fort Indiantown Gap, Harper Tavern	Military, Military Post-Civil War	Authorized in 1929, first land bought in 1931, and first used by the National Guard in 1932. In 1940 it was leased to the Federal government as an Army cantonment. The total area is now more than 16,000 acres.
Indiantown Gap Military Reservation	March 1947	Roadside	U.S. 22 S of Fort Indiantown Gap, junction Pa. 934, Harper Tavern	Military, Military Post-Civil War	Authorized in 1929, first land bought in 1931, and first used by the National Guard in 1932. In 1940 it was leased to the Federal government as an Army cantonment. Total area now more than 16,000 acres.
Jacob Albright	June 1967	City	Pa. 897 near Main & Shad Sts., Kleinfeltersville	Religion, Ethnic & Immigration	The son of German immigrants, Jacob Albright (1759-1808) founded the Evangelical Association, preached to poor farmers, and rose to become Bishop in the Methodist Church. His grave is nearby at Albright Memorial Church.
James Lick	March 1947	Roadside	U.S. 22 near junction Pa. 343 just S of Fredericksburg	Professions & Vocations	The California financier and philanthropist, donor of the Lick Observatory, was born in Fredericksburg, Aug. 21, 1796. The Lick family monuments may be seen in the local cemetery.

Marker Name	Date Dedicated	Marker Type	Location	Category	Marker Text
John Walter	March 1947	Roadside	Old U.S. 22 W of Ono at cemetery	Religion, Music & Theater, Publishing	Co-laborer of Jacob Albright in founding of Evangelical Church, born 1791, died 1818, is buried in this cemetery. An effective preacher and hymn writer, he published the first songbook for his church.
Lebanon County	October 1982	City	City-County Municipal Bldg., 400 S. 8th St., Lebanon	Government & Politics, Government & Politics 19th Century	Formed on February 16, 1813 from Dauphin and Lancaster counties. Named for old Lebanon Township, originally created 1729. Lebanon, county seat, is dated from 1740. Early settlers began the building of a rich agricultural and religious heritage.
Lindley Murray	March 1947	Roadside	U.S. 22, 18 miles NE of Harrisburg, E of junction Pa. 934 just N of Harpers Tavern	Professions & Vocations, Education, Writers	Famous grammarian, author of the English Grammar, was born June 7, 1745, in a house near this point. Robert Murray, his father, owned a mill here from 1745 to 1746.
Lindley Murray	March 1947	Roadside	Intersection Pa. 934 & old U.S. 22, Harper Tavern	Professions & Vocations, Education, Writers	Famous grammarian, author of the English Grammar, was born June 7, 1745, in a house near this point. Robert Murray, his father, owned a mill here from 1745 to 1746.
Lindley Murray	March 1947	Roadside	Pa. 934, .2 mile N of U.S. 22, Harper Tavern	Professions & Vocations, Education, Writers	Famous grammarian, author of the English Grammar, was born June 7, 1745, in a house near this point. Robert Murray, his father, owned a mill here from 1745 to 1746.
One Red Rose - PLAQUE	1930	Plaque	Old US 422 between Millardsville Rd. & Berks County line, Myerstown	Religion	One red rose is annually paid by Trinity Reformed Church to the heirs of Casper Wistar, of Philadelphia, who in 1738 gave one hundred acres of land for church purposes. The congregation was formed by Reformed families among the Tulpehocken settlers...
The Pennsylvania Chatauqua	August 2002	Roadside	Pa. Route 117 and Carnegie Ave., Mt. Gretna	Religion, Education, Artists, Medicine & Science	One of over 200 Chautauquas created as part of a late 19th, early 20th C. movement that began in 1874 at Lake Chatauqua, NY. It grew to include many programs in the arts, sciences and religion and sought to educate people of all social standings. The PA Chautauqua opened here in 1892 on land that was later purchased from industrialist Robert Coleman; over time a number of public buildings were constructed to further its mission.
Reed's Fort	December 1949	Roadside	U.S. 22, 19.2 miles NE of Harrisburg, Ono	Military, Native American, French & Indian War	Just south of this point stood the house of Adam Reed, Esq. In 1755 it was turned into a fort. Here, with Rangers from Hanover Township, Reed protected the people of the countryside against Indian raids.
Sattazahn Lutheran Church	December 1980	Roadside	At church on Green Point School Rd., N of Pa. 443 near Murray	Religion, Ethnic & Immigration	Founded by German immigrants who settled as early as 1729. Initially served by traveling missionaries including John Caspar Stoever, Jr., first Lutheran pastor to visit regularly. A log structure was built about 1756; this church erected 1872. Named in honor of Peter Sattazahn, Revolutionary soldier buried here.
Schaefferstown Water Company	April 1995	Roadside	Fountain Park at S. Market St., Schaefferstown	Business & Industry, Environment	One of North America's oldest documented public water systems. Alexander Schaeffer built a hotel on the square in 1744, and construction of the water system began shortly after. On July 16, 1763, he and his wife Anna Engle deeded this land--today Fountain Park--for the use of the inhabitants of Market Street. The present company was chartered in 1845 as successor to The Fountain Company of Heidelberg.
Swatara Gap	March 1947	Roadside	Pa. 72, 2 miles N of Lickdale	Native American, Military, French & Indian War	This gap in the Blue Mountain, named for Swatara Creek, was a gateway through which enemy Indians came to raid frontier settlements during the French and Indian War. Fort Swatara was built nearby to guard it.

Marker Name	Date Dedicated	Marker Type	Location	Category	Marker Text
Tulpehocken Evangelical and Reformed Church	August 1954	Roadside	U.S. 422, 3 miles E of Myerstown	Religion	Organized in 1727 by Tulpehocken settlers. Since 1745, one red rose has been paid annually by the Church to the heirs of Caspar Wistar as rental for the land granted by him for erection of the second place of worship. Since 1902, a white rose, a token of appreciation, has been given to Wistar's descendants.
Union Canal	January 1950	Roadside	U.S. 422, 1 mile W of Myerstown	Transportation, Canals, Navigation	This canal was in use from 1828-1884. About .3 mile south at the Tulpehocken, are remains of one of the locks by which boats descended from the summit level north of Lebanon to the Schuylkill at Reading.
Union Canal	September 1950	Roadside	Pa. 72, 4 miles NW of Lickdale, just S of junction Pa. 443	Transportation, Canals, Navigation	Following the Swatara Creek from Pine Grove to main line of the Canal at Water Works was a Feeder Branch. It was in use from 1832-1862. A portion of the Big Dam, a guard lock, and several lift locks remain on the other side of the Swatara.
Union Canal	April 1950	Roadside	Pa. 72, 5 miles NW of Lebanon	Transportation, Canals, Navigation	After entering the reservoir at the Big Dam in Swatara Gap, water from Swatara Creek came down the branch canal to the Water Works, 3.7 miles southwest of here. At that point it was raised by water wheels and steam pumps and carried by a feeder tube to the summit level near Lebanon. From there the canal descended eastward to Reading and westward to Middletown.
Union Canal Tunnel	March 1947	Roadside	At site on Tunnel Hill Rd. just W of Rte. 72 north Lebanon	Transportation, Canals, Navigation	Monument to first canal tunnel in America stands not far up this road. Built in 1823 under this ridge, the tunnel may be reached by a short walk down the hill on either side. The Union Canal was opened in 1827, and operated until 1884.
Union Forge	1947	Roadside	Lickdale Rd. just E of Pa. 72, Lickdale	Business & Industry, Iron, Coal	Site of a charcoal iron forge begun about 1782 by Curtis Grubb, owner of Cornwall Iron Furnace; a major user of Cornwall iron. Such forges transformed brittle pig iron into workable wrought iron. Union Forge included 1,000 acres of land, blacksmith and carpenter shops, a grist mill, and several houses. Under different owners, the forge was in regular operation until 1868. By then, rolling mills were displacing forges as refiners of iron.

Source: Pennsylvania Historical and Museum Commission
*Address provided by Lebanon County Planning Department

Sites of Local Significance

In addition to the sites of national and state significance listed above, there are also several sites of local significance that exist throughout Lebanon County. One of those is Moonshine Church, located on Route 443 in Union Township, just north of Fort Indiantown Gap. Henry Moonshine (1760-1836) once owned a farm where Moonshine Church is now located. He donated one acre of land for a free burial ground when his son, John, died in 1822 at the young age of 14. Early in 1836, Moonshine began to build a foundation for a church but passed away in March of that year, leaving the foundation unfinished. The Moonshine community constructed the church, a log-style structure with clapboard covering, after his death. That original church was completely consumed by an early morning fire in 1961 and has been rebuilt since that time. Joseph Raber, victim of the infamous group of local murderers named the Blue-Eyed Six, is buried in the Moonshine Cemetery. Five of the Blue Eyed Six were hung in Lebanon, one was acquitted. Ghost stories have developed around the Blue Eyed Six. It is said that as one approaches Moonshine Cemetery, six pairs of blue eyes are visible in the distance.

Another northern Lebanon County church of historic significance is the Monroe Valley Chapel. This post-Revolutionary War era church and cemetery is situated adjacent to the Monroe Valley Golf Course. In 1993 a group of citizens concerned about the deteriorating condition of the landmark organized restoration efforts. A group of students, under the diligent leadership of their Northern Lebanon High School history teacher, tackled the task of not only clearing the property of

underbrush and litter but also restoring the church itself. Community support and the cooperation of the Historic Preservation Trust continue to provide the financial means and manpower to completely restore the chapel.[46]
Governor Dick, located near Mount Gretna is another landmark of local historical significance. The Park at Governor Dick has been named for the late Clarence Schock, a well-known petroleum baron and philanthropist. The park is comprised of 1,105 acres of woodland and is presently managed by a trusteeship of representatives from the Clarence Schock Foundation and the County of Lebanon. The six-member board is charged with the responsibility of managing the park consistent with the Deed of Trust and a Support Committee was established by the Board to assist with this. Governor Dick is a favorite recreation site for hiking, horseback riding and bicycling. Located in the park is a sixty-six foot circular observation tower which has proven to be a very popular attraction by the general public. On a clear day parts of Lebanon, Dauphin, York, Lancaster and Berks counties can be seen.[47] In 2003 construction of a 2,200 square foot environmental center was begun and was completed in May 2004. The center contains a multi-purpose room which is used for meetings and educational activities. In addition, there is an office and a ranger workstation area. Restrooms are available.

Light's Fort, an 18th century (circa 1742) house constructed by immigrant Johannes Licht and later used for protection against local Indians, is located at 11th and Maple Streets in Lebanon City. The old fort is constructed of local gray limestone and is in the traditional early Pennsylvania German style. Interesting features of the structure are a vaulted, arched ceiling in the cellar, a fresh water spring running through the cellar and a hip roof. Johannes Licht, now known as John Light, was one of the earliest settlers of Lebanon, and his descendants have made the Light name common throughout Lebanon County. The Preservation Trust of Lebanon County has acquired the building and placed on new roof on the fort and closed off the basement to prevent moisture damage. They next plan to have an Historic Structures Report prepared in order to determine subsequent steps in the restoration process.[48]

Coleman Memorial Park was created through a 1936 donation by Mr. and Mrs. G. Dawson Coleman and Mr. and Mrs. Leland Harrison of a 100-acre tract for the development of park and recreation facilities in the City of Lebanon. G. Dawson Coleman, an 19th Century industrialist and philanthropist, was appointed U.S. Commissioner to the 1862 exhibition of the Industry of All Nations in London by Abraham Lincoln, and was a state senator during the Civil War. The Coleman family also financed the 93rd regiment of the Pennsylvania Volunteers during the War, and the regiment headquarters is now the site of Monument Park, also in the city.

The Lebanon Valley Rail Trail represents a greenway through a rapidly developing part of the county. Created from the former Cornwall-Lebanon Railroad built by Robert H. Coleman in the 1880s, the Lebanon Valley Rail Trail follows a route rich with social and economic history. During the 1800s and early 1900s, the railroad carried passenger trains to the summer resort at Mount Gretna and also provided transport to the Pennsylvania National Guard training encampment near Mt. Gretna. Eventually passenger service ceased, and the Pennsylvania Railroad acquired the line. Freight service to the main line in Lancaster County continued until Hurricane Agnes washed out sections of the track in 1972. In 1999, Lebanon Valley Rails to Trails acquired the corridor to develop a multi-use trail. The trail has the potential to link with other greenway projects such as the Union Canal Greenway and Swatara State Park.

Located on east Walnut Street in Lebanon City, Brasenhill (Worrilow Mansion) was built circa 1928-1930 for William Worrilow, co-owner of the Lebanon Steel Foundry. The architect for the site was E. Donald Robb, a boyhood friend of Worrilow and architect for the National Cathedral in Washington, DC. It is the only house that Robb designed and is considered to be the finest example of 16th century Jacobean architecture in the United States.[49]

The Stone House (Quinn Mansion) was built in 1923 by Thomas Quinn, co-founder of the Lebanon Steel Foundry. The house is a replica of an English Manor House. Of special interest is a stone carved bench imported from England and dating to the 1100s.[50] It is located adjacent to Brasenhill.

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[46] Historic Preservation Trust of Lebanon County website, http://www.pioneerfamily.com/LebanonTrust
[47] Information taken from Lebanon County website.
[48] Historic Preservation Trust of Lebanon County website, http://www.pioneerfamily.com/LebanonTrust

[49] Historic Preservation Trust of Lebanon County
[50] Ibid.

Lebanon County Municipal Official's Survey

In order to understand the perspective concerns of municipal leaders, a survey was mailed to elected officials, planning commission members, and the manager/administrator of every municipality in Lebanon County. Questions on the survey ranged from Quality of Life to Planning and Community Development. Survey returns totaled 89 out of 270 mailed for a return rate of 32.96%. During this outreach opportunity, municipal officials were asked to identify potentially historic properties or structures within their municipality. 68% of municipal officials that responded to the survey indicated that historic properties or structures existed in their municipality. They were then asked to identify those structures. As can be seen in Table 7-5, local officials are keenly aware of historic and potentially historic resources within their municipality and county. Some of these resources have been identified earlier in this profile and are protected from development impacts; however, for those structures that are not protected or are located in municipalities that do not have historic preservation regulations it serves as a beginning point for historic preservation action.

In addition to survey, the Historic Preservation Trust of Lebanon County was asked to identify what they felt to be additional sites of historical significance. These sites are also included in Table 7-5.

Table 7-5: Historic Properties and Structures as Identified by Municipal Officials and the Historic Preservation Trust of Lebanon County

Municipality	Property or Structure Identified
Annville-Cleona SD	
Annville Township	All the historic properties and structures are located in the Historic District on Main Street
Cleona Borough	An old farm house at the end of S. Garfield Street, and a farm on N. Center Street
South Annville Township	Two Large Homes Built by Peter Grubb in the late 1700's
Cornwall-Lebanon SD	
Cornwall Borough	Miner's Village, Cornwall Furnace, Old School House on SR 419
Mount Gretna Borough	Various Chatauqua Buildings including the Playhouse, Whole Borough
North Cornwall Township	Most Stone Farm Houses or Barns in the Township
North Lebanon Township	Union Canal Tunnel, Old School Houses
South Lebanon Township	Moravian Cemetery
West Cornwall Township	Mt. Gretna Area, Tabernacle, Quentin – History
ELCO SD	
Heidelberg Township	Schaeffer Farm, Square Bank, Home and Museum
Jackson Township	Isaac Meier Homestead (Myerstown Borough, Tulpehocken Manor Plantation, Former Weavers Hotel on Millardsville Road
Millcreek Township	Fort Zeller
Myerstown Borough	Myerstown Elementary School, Isaac Meier Homestead, Union Canal Locks, Goodwill Fire Company, Ell School, Ell Home, Mill on Tulp Creek, Old Homes on Main and Cherry Streets (Limestone and Log)
Lebanon SD	
Lebanon City	Bethlehem Steel Office (current IU-13 building) located at Lincoln Avenue and Cumberland Street
Lebanon City	Salem Lutheran Church located at 8th and Willow Streets and Tabor UCC (Reformed) Church at 10th and Walnut Streets.
Lebanon City	The Downtown Business District
Lebanon City	Mansions on East Walnut Street are of significance with respect to the iron industry and the economy of Lebanon City and Lebanon County.
West Lebanon Township	Coleman Chapel, Municipal Building, Community Building , High School, Community Center
Northern Lebanon SD	
Bethel Township	Armar Bordner cabin. The cabin was constructed by a teacher and his students in 1939 from hand-hewn logs and stone found on the site and is sited next to the only waterfall in Lebanon County. The cabin is the last of 3 structures standing since Project 70 acquired other homes in Swatara State Park through eminent

Municipality	Property or Structure Identified
	domain and is three years from National Register eligibility. Furthermore, Colonel Benjamin Acrigg, Union Canal engineer, once owned the land where the cabin sits.
Bethel Township	Hamlin Country Store – Only continually operating country store left in the county
East Hanover Township	Union Canal, One Room School Houses, Harpers Tavern, Swatara Creek Inn, Several Very Old Cemeteries
East Hanover Township	Harper's Tavern (circa 1730), located at Route 934 and Jonestown Road.
Jonestown Borough	Many Log Homes that have been covered with vinyl siding, Some Log Homes
Swatara Township	Monroe Valley Chapel, "Bethel" Moravian Cemetery used 1752-1833
Union Township	Union Canal Locks, Walmer's Church (home of 250+ yr. old congregation), Joseph Johns home(Virginia born slave buried at Moonshine Cemetery)
Palmyra Area SD	
North Londonderry Township	Bindnagles Lutheran Church
South Londonderry Township	Stauffer House, Londonderry Inn, Horseshoe Place – All pre-1900 Buildings in Rural Villages, Rising Sun Bar and Grill, Residences in Colebrook across from Colebrook Tavern

Source: Municipal Officials Survey – Lebanon County Comprehensive Plan

Critical Areas

Significant historic resources throughout Lebanon County are facing increased pressures related to economic decline, growth and urban sprawl. It is important that these threats are recognized and that critical areas are identified so that an effort can be made to address such threats.

As populations move from the older established towns, boroughs and the City of Lebanon, into the more rural landscapes of the outer townships, historical resources become threatened. As many industries and office parks are locating in the suburbs, and the big box retailers are ever increasing their presence, the economies of the downtowns and older communities begin to suffer. Declining economies can lead to decreased property values, which in turn can encourage abandonment and blight. It is vital that the historic value of these older places and properties be recognized and that steps are taken to preserve these structures which provide a link to the past in Lebanon County.

Increased mobility has remained a driving force of the urban emigration that noticeably began in the 1950s. The automobile has catered to the individual and provided people with a sense of entitlement about where they may go and how quickly they ought to be there. As the demand for mobility increases, so does the demand for transportation improvements specifically, new roads, bridges and highways. Historically, transportation planning has often neglected to incorporate land use planning or planning for the preservation of historic properties. As transportation improvements are suggested, it is important to recognize what effects they may have on historic resources of the area. The effect may be direct, such as a new highway project proposed through the homestead of a prominent individual in the community; or indirect, such as a highway project designed to bypass a downtown which could lead to economic decline. Better linkages between land use and transportation have developed in recent years, resulting in more sensitivity to the historic resources of communities.

Legal Foundation for Historic Preservation

Many historic preservation techniques and programs are available to facilitate historic resource protection. Most techniques and programs evolved from federal or state laws. An understanding of the legal foundation for historic preservation is helpful to determine what techniques and programs a Historic Resources Protection Plan should include.

Federal Level

The National Historic Preservation Act of 1966 (NHPA) earmarked the beginning of federal historic preservation policy. The NHPA was intended to stop the severe loss of historic resources in large cities and boroughs due to urban renewal. The legislation was intended to create a comprehensive framework for preserving historic resources through a system of reviews, regulations and incentives. The NHPA encouraged cooperation among federal, state and local governments to address historic resources protection. In Pennsylvania, the Bureau for Historic Preservation (BHP), an agency of the Pennsylvania Historical and Museum Commission (PHMC), is the state agency responsible for overseeing this coordination.

The NHPA formalized the National Register of Historic Places, in which a number of Lebanon County resources are either listed or eligible for listing. The NHPA also instituted the review process, discussed below, for any project that receives federal funds. The act also authorizes the Certified Local Government Program, which enables municipalities to participate directly in federal preservation programs and to access through the state certain funds earmarked for historic preservation activities.

The National Register's standards for evaluating the significance of properties were developed to recognize the accomplishments of all peoples who have made a significant contribution to our country's history and heritage. The criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the National Register. Criteria for listing in the National Register include the following:

1. property demonstrates significance in American history, architecture, archeology, engineering, or culture
2. property possesses integrity of location, design, setting, materials, workmanship, feeling, and association,
3. property's significance was attained 50 years ago or more, and
4. property
    a. is associated with events that have made a significant contribution to the broad patterns of our history; or
    b. is associated with the lives of persons significant in our past; or
    c. embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
    d. has yielded or may be likely to yield, information important in prehistory or history.

Additional information on National Register criteria can be found on the National Park Service website, www.cr.nps.gov/nr/, as well as that of the Pennsylvania Historical and Museum Commission (PHMC), www.phmc.state.pa.us/bhp/nr/.

Section 106 Review Process

The Section 106 review process requires that any project using federal funds, which includes most PennDOT projects, be reviewed for its impact on historic resources either listed in, or determined to be eligible for, the National Register of Historic Places. Section 106 does not directly prohibit alteration or destruction of these resources, but it does require a thorough investigation of alternatives and the consideration of mitigation measures.

State Level

The NHPA authorizes the appointment of a State Historic Preservation Office (SHPO) to administer provisions of the act at the state level. In Pennsylvania, the agency assigned to this responsibility is the Pennsylvania Historical and Museum Commission (PHMC). This entity is responsible for making initial determinations of eligibility for the National Register, managing state historic archives and administering a wide variety of historic preservation programs. PHMC is located at 300 North Street, Harrisburg, PA 17120. Programs and services of the PHMC are listed on its website, www.phmc.state.pa.us.

The Pennsylvania History Code pertains to conservation, preservation, protection, and management of historical and museum resources and identifies PHMC as the agency responsible for conducting these activities. It outlines Pennsylvania's legal framework for historic preservation and mandates cooperation among other state entities in identifying and protecting historical and archaeological resources.

Two Pennsylvania laws provide the legal foundation for municipalities to adopt historic preservation ordinances. These laws include Act 167 (the Historic District Act of 1961), which authorizes municipalities to create local historic districts and protect the historic and architectural character of the district through the regulation of new building, reconstruction, alteration, restoration, demolition, or razing of buildings within a certified local historic district. Local districts established under this act must be certified by PHMC. This act also requires the appointment of a Historical Architectural Review Board (HARB).

The second law is Act 247 (the Pennsylvania Municipalities Planning Code or MPC) which authorizes the use of municipal land use controls such as use regulations, and area and bulk regulations, to protect historic resources. The MPC specifically regulates places having unique historical, architectural, or patriotic interest or value through the creation of a specific zoning classification. The MPC further stipulates that a municipal plan for historic preservation shall be consistent with and may not exceed those requirements imposed under the following:

1. Clean Streams Law
2. Surface Mining Conservation and Reclamation Act
3. The Bituminous Mine Subsidence and Land Conservation Act
4. The Coal Refuse Disposal Control Act
5. Oil and Gas Act
6. Noncoal Surface Mining Conservation and Reclamation Act
7. Agricultural Security Act
8. An Act Protecting Agricultural Operations from Nuisance Suits and Ordinances Under Certain Circumstances
9. Nutrient Management Act

County and Local Levels

At the county level, the county planning commission or department can support and provide necessary technical guidance to those municipalities that desire to adopt historic preservation ordinances, and integrate the county's historic resources with other community initiatives. At the local level, municipalities can adopt single purpose historic preservation ordinances and establish architectural and historic review boards. Generally, historic preservation regulations are integrated within a zoning ordinance; they also can stand alone as a single purpose historic preservation ordinance, providing the same level of protection. In Lebanon County, Cornwall Borough and Heidelberg Township have adopted an Historic Overlay District in their Zoning Ordinances; Annville Township has created an Historic and Architectural Review Board (HARB).

The purpose of the Cornwall Borough Historic Overlay District is to "promote the cultural and economic general welfare through the preservation and protection of historic places and areas of unique and historic interest in the Borough of Cornwall. Structures or areas of with special historic, cultural, architectural or educational significance enhance the quality of life for all residents of Cornwall Borough. Accordingly, the specific purposes of the Historic Overlay District are:

- To safeguard the historic and cultural heritage embodied in historically significant areas of the Borough;
- To preserve property values, attract tourists and strengthen the economy of the Borough;
- To foster public education and civic pride in the beauty and noble accomplishments of the past; and
- To establish special development requirements and procedures to assure that new construction, reconstruction, alteration or demolition of buildings within these districts enhances the character of the district."[51]

The ordinance defines what is considered to be an historic structure and describes the overlay district to comprise any individual historic structures and any historic structures located in the villages of Burd Coleman, Minersville village, North Cornwall and Anthracite. Where there are historic properties, the ordinance prohibits all new construction and the construction of driveways between the front face of the structure and the front property line. It also regulates new subdivisions and land developments that include an historic structure or are located within 500 feet of the boundary of the Historic Overlay District. Demolitions of any historic or cultural site deemed having historical value in the Cornwall Borough Comprehensive Plan require permission of the Cornwall Borough Council.

In order to encourage the preservation of the identified historic resources in the Borough, the ordinance identifies certain conditional uses that may be established in an historic structure that may not be typically allowed in the underlying district. Any conditional use requires the approval of the Cornwall Borough Council.

The Historic Overlay District in Heidelberg Township is applied in the historic villages of Schaefferstown and Kleinfeltersville. It also applies to individual structures, groups of structures, land or land and structures in combination designated by the ordinance as historic structures. The purpose of the overlay and the regulations included within are similar to those contained in the Cornwall Borough Historic Overlay District, as outlined above. The overlay also permits select conditional uses not permitted in the underlying zoning district, if certain requirements are met; any conditional use requires the approval of the Heidelberg Township Board of Supervisors.

Annville Township has a designated historic district, described as the part of the township "between the Quittapahilla Creek on the west, and Saylor Street on the East, all properties adjoining Route 422 to the north and to the south," [52] in other words, along Main Street. The district includes notable residential, commercials and institutional structures in Italianate, Queen

[51] Cornwall Borough Zoning Ordinance (Amended 1/14/02)
[52] Ibid.

Anne, Classical Revival, and Georgian and styles now features historic lighting at the square—the intersection of US 422 and PA 934.

Annville Township has a separate ordinance "creating a Historic District, setting forth the purposes, defining terms, creating the Historical Architectural Review Board and setting forth its powers and duties, defining design guidelines, setting forth an application review procedure, including where unreasonable economic hardship is involved, and providing for enforcement."[53] The ordinance states that the District is created for the following purposes:

- To protect that portion of Annville Township which reflects the cultural, economical, social, political, archaeological and architectural history of Annville Township, the State and the Nation.
- To awaken in our people an interest in the historic past.
- To promote the use and reuse of the historic buildings of Annville Township for the culture, education, pleasure and the general welfare of the people of Annville Township, the State and the Nation.
- To strengthen the economy of Annville Township by stabilizing and improving property values within the historic district through the continued use, preservation, and restoration of its resources.
- To encourage new buildings and developments that will be harmonious with the existing historic and architecturally important buildings.
- To establish a clear process by which proposed changes affecting historic resources are reviewed.
- To encourage the preservation of historic settings and landscapes."[54]

The HARB is defined as "The agency that advises the Township governing body on any requests for authorization to construct, alter, move, reconstruct, repair, restore or demolish all or a part of any building within the historic district." The HARB is composed of five members appointed by the Township Commissioners for a term of four years. One member must be a registered architect, one a licensed real estate broker, one a building inspector, one a member of the Annville Township Planning Commission, and one a resident of the Township.

Among other things, the HARB is responsible for:

- Providing recommendations to the Annville Township Commissioners regarding the advisability of issuing any Certificate of Appropriateness
- Conducting a survey of buildings for the purpose of determining the historical and/or architectural significance and pertinent facts about them
- Proposing, as deemed appropriate, the establishment of additional historic districts and revisions to existing historic districts
- Formulating recommendations concerning the preparation and publication of maps, brochures, and descriptive material about Annville's historic district and/or architectural sites and buildings
- Cooperating with and advising the Annville Township Commissioners, the Annville Township Planning Commission and other Annville Township agencies in matters involving historically and/or architecturally significant sites and buildings
- Advising owners of historic buildings on problems of preservation
- Cooperating with and advising the Annville Township Commissioners about and developing and promulgating regularly scheduled public education involving historic preservation.

In determining the recommendations to be made to the Annville Township Commissioners concerning the issuance of a Certificate of Appropriateness, the HARB only considers matters that are pertinent to the preservation of the site, area or district, certified to have historical significance including various design guidelines, the effect of the proposed change upon the general historic and architectural nature of the District, and various signage regulations.

The application review procedure is designed such that upon receipt of an application for a building permit, the Building Permit Officer determines if the proposed work is to be done in the historic district. If the work is to be done with in the boundaries of the historic district, the permit officer shall not issue a building permit until the applicant has complied with the Annville Township Historic District Ordinance. The applicant is referred to the Annville Township Historic District Permit Officer, who then forwards a copy of the building permit to the HARB, along with copies of any plot plan and building plans and specifications filed by the applicant. The HARB will consider the application, review it at a HARB meeting, and make its recommendation to the Annville Township Board of Commissioners. The Historic District Officer shall not issue a permit for

[53] Annville Township Ordinance No. 484
[54] Ibid.

any construction, alteration, reconstruction, repair, restoration, or demolition of all or a part of any building in the District until the Annville Township Board of Commissioners has issued a Certificate of Appropriateness.

The Annville Township Board of Commissioners has also adopted a separate ordinance which lists pre-approved improvements allowed for purposes of making temporary emergency repairs to buildings within the Annville Township Historic District damaged by fire, explosion, or similar causes.

Establishing an Historic Overlay Zoning District, or a HARB, helps to increase public awareness of cultural and historical resources of a community and impose effective regulations that assist in the preservation of these resources and the character of the surrounding area.

Benefits and Opportunities for Historic Resource Preservation

Historic resources preservation is most successful when it is integrated into the other aspects of planning that affect the municipality. For example, preservation of historic places can be directly linked to the preservation of open space, scenic roadways, and the provision of trails and bikeways. By incorporating historic resources into these other planning components, awareness of the number, type, and significance of the resources is raised within the county. The resources become part of people's everyday lives as they work, play, and enjoy the presence of the sites and structures. In essence, the resources remain a living part of the community, and not just some "old building" where they are expended as a frill or for purely nostalgic reasons. Consequently, there is an increase in the desire to protect such resources.

Lebanon County has shown a commitment to preserving its historic and cultural heritage. A primary focus of this plan is to harness community support to increase community participation in its preservation efforts. The work completed and on-going by the different historic preservation organizations in the county must be continued, and verifies the need to continue identifying historic resources and promoting the county's existing resources. This will ensure that these resources are protected for future generations to enjoy.

Preservation of the county's historical resources is important to the residents of the county. Historically significant properties and structures are located throughout the county, some of which are located in the rapidly developing areas and require special attention, for example, in order to be conserved as a central feature in a subdivision or land development. However, identifying the location of these sites does not protect them from demolition or inappropriate alterations. The core belief behind protecting and preserving these resources is that the past plays an important role in residents' lives today.

Programs and Services

Lebanon County Historical Society

The Lebanon County Historical Society was founded in 1898. The society offices, Stoy Museum, museum gift shop and Hauck Memorial Library are located at 924 Cumberland Street in Lebanon. The building contains 3 floors and is half a city block long. The original front portion of the building was built in 1773 as a home for Dr. William Henry Stoy, a local minister and prominent Revolutionary War doctor. The upstairs rooms were used as Lebanon County's first courthouse when the county was established in 1813. James Buchanan, fifteenth President of the United States practiced law there as a young attorney. John Andrew Shulze served there as the new county's first prothonotary and later became Governor of Pennsylvania.

Throughout the museum, visitors find fine examples of Pennsylvania German craftsmanship in such items as furniture, quilting and weaving, fraktur, and redware. A guided tour of the museum begins with a stroll through several early shops and offices. Young and old enjoy browsing in the one-room schoolhouse and the toy shop before experiencing a turn-of-the century general store, stocked with everything from cookie cutters to kerosene lamps. Community industries such as blacksmithing, farming and milling, carpentry, weaving, printing, shoemaking, and mining are exhibited as they were found throughout the area many years ago. Each exhibit provides insight into the lives of the men and women who built our strong nation. From war memorabilia to railroading to 18th Century firefighting equipment, a tour of the Stoy Museum offers a delightful and informative experience for everyone.

The society also owns and maintains the Union Canal Tunnel and Union Canal Tunnel Park, which provides walking trails, picnic tables and birding opportunities. No admission fee is charged. Additionally, the Historical Society is investigating the possibility of relocating its facilities to the park. More information can be found at www.lebanonhistory.org.[55]

Historic Preservation Trust of Lebanon County

The Historic Preservation Trust of Lebanon County was founded and incorporated in 1967 and operates as an organization under section 501(c) (3) of the Internal Revenue Code. The Trust's mission is to:

- Raise the consciousness of the historic preservation cause within the boundaries of Lebanon County, Pennsylvania
- Identify sites which are of exceptional historic and/or architectural merit to Lebanon County and beyond
- Encourage individuals, organizations and governmental bodies to restore and preserve historic sites and structures
- Organize, whenever feasible, umbrella groups within the Trust for the sole purpose of restoring singular projects

The Trust is currently undertaking four projects in Lebanon County: The Isaac Meier Homestead; Light's Fort; the Chestnut Street Log House; and the Monroe Valley Chapel. Each project is entitled to grants from the Trust but operates under its own membership, officers, and treasury. The Trust grants are generally funded by the profits of an annual Garden Tours, which concentrates on a particular part of Lebanon County each year. In pursuance of its mission, the Trust holds semi-annual dinner meetings of the general membership and is governed between these meeting by a fifteen member Board of Directors at the call of the Trust president.

The Isaac Meier Homestead and the Chestnut Street Log House are listed on the National Register of Historic Places. The Isaac Meier Homestead is the largest project the Trust has undertaken; $300,000. have been spent on preserving and restoring the structure since it started in 1970. The Trust leases the Isaac Meier Homestead from Myerstown Borough and has received grants and bequests to assist in funding the restoration effort.

The Chestnut Street Log House dates from pre-Revolutionary times, circa 1760. The Log House is managed by the Friends of the Chestnut Street Log House and has been a Trust project since 1976.

The Monroe Valley Chapel is located at 135 Golf Course Road. It is a post-Revolutionary War structure, circa 1840, situated between two ridges of the Appalachian Mountains in the area known as Monroe Valley in northern Lebanon County. The fieldstone structure has been reconstructed through the efforts of the students and staff of Northern Lebanon High School. The Trust is named as the trustee of the chapel.

Light's Fort is the oldest structure in the City of Lebanon and is owned by the Trust. The house was constructed circa 1742 by immigrant Johannes Licht and later used for protection against the Indians. It is located at 11th and Maple Streets and built from indigenous limestone in a traditional style of the early Germans. The Friends of Light's Fort work closely with the Trust and are dedicated to the restoration of the house.

In addition to the four projects the Trust is undertaking, a primary concern of the organization is the razing of local barns that are unique to the locale.

Pennsylvania Historical and Museum Commission

The Pennsylvania Historical and Museum Commission (PHMC) preserves the Commonwealth's memory as a teacher and champion of its heritage for citizens of Pennsylvania and the nation. The PHMC was created by Act No. 446, approved June 6, 1945, amending the Administrative Code to consolidate the functions of the Pennsylvania Historical Commission, the State Museum, and the State Archives. The Bureau for Historic Preservation is part of the PHMC and serves as the State Historic Preservation Office (SHPO). The Commission is the Commonwealth's official history agency, and the Executive Director is designated as the State Historic Preservation Officer. The PHMC is located at 300 North Street, Harrisburg, PA 17120 and can be contacted at 717-787-3362 or www.phmc.stat.pa.us.

The role of the bureau is to identify and protect the architectural and archaeological resources of Pennsylvania with a responsibility to work with individuals, communities, local governments, and state and federal agencies to educate Pennsylvanians about their heritage and its value, to build better communities through preservation, to provide strong

[55] Lebanon County Historical Society

leadership, both individually and through partnerships, and to insure the preservation of Pennsylvania's heritage. The bureau offers several programs to assist individuals and governments in managing historic preservation.

The National Historic Preservation Act, passed by Congress in 1966 and amended in 1980, created the Certified Local Government (CLG) program to insure that local governments will be eligible to receive technical and financial assistance to strengthen their local historic preservation efforts and expand their historic preservation activities. The Bureau for Historic Preservation (BHP) helps local governments apply for and achieve the National Park Service's (NPS) Certified Local Government program. In turn, local governments agree to expand their responsibilities through the enactment and enforcement of historic preservation ordinances, by the appointment of Boards of Historical Architectural Review (BHAR) or historical commissions, and by commenting on National Register nominations within their jurisdiction. In addition, they agree to provide a brief annual report of their preservation activities, have their BHARs participate in training opportunities, and undertake or update historic resource surveys. To help achieve these goals, BHP provides valuable technical assistance and matching grants to Certified Local Governments.

The bureau administers the Federal Rehabilitation Investment Tax Credit (RITC) program in partnership with the National Park Service (NPS) and the Internal Revenue Service (IRS).The tax credit program is one of the most successful and cost-effective programs that encourages private investment in rehabilitating income producing, historic properties such as office buildings, rental housing, hotels, bed and breakfasts, and retail stores. Since the inception of RITCs in 1976, Pennsylvania has been a national leader in certified tax credit projects, completing over 2,055 projects and generating over $3.3 billion in private reinvestment back into Pennsylvania communities.[56]

Preservation Pennsylvania

Preservation Pennsylvania (PPA) is the Commonwealth's only statewide, private non-profit, membership organization dedicated to the protection of historically and architecturally significant properties. Preservation Pennsylvania, through creative partnerships, targeted educational and advocacy programs, advisory assistance, and special projects, assists Pennsylvania communities to protect and utilize the historic resources they want to preserve for the future. PPA offers technical assistance, financial assistance, publications, conferences and workshops and annual awards to encourage historic preservation.[57]

Pennsylvania Archaeological Council

The Pennsylvania Archaeological Council (PAC) is a statewide organization of professional archaeologists dedicated to promoting Pennsylvania archaeology. The specific goals of the organization are:

- To actively promote legislation in the best interests of archaeology in the Commonwealth of Pennsylvania,
- To assist and advise state and federal agencies within the Commonwealth in matters pertaining to historic and archaeological preservation and to encourage the highest standards of professionalism in such matters,
- To promote informed and creative archaeological research and to provide a vehicle for its dissemination,
- To promote the education of both the public and private sectors in all archaeological matters,
- To establish ethical and research standards for the conduct of archaeology in the Commonwealth, and
- To provide both scientific and moral leadership in all archaeological matters in the Commonwealth.[58]

Pennsylvania Downtown Center

The Pennsylvania Downtown Center (PDC) is the only statewide nonprofit organization dedicated solely to the revitalization of the Commonwealth's core or traditional communities. The PDC provides outreach, technical assistance and educational services primarily utilizing the National Main Street's Four Point Approach to communities interested in the revitalization of their central business districts and surrounding residential neighborhoods. The PDC is also a strong advocate for downtown and neighborhood initiatives in the Commonwealth and is active in many strategic partnerships which promote revitalization and reinvestment in the Commonwealth's "core communities."[59]

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[56] Pennsylvania Historical and Museum Commission
[57] Preservation Pennsylvania
[58] Pennsylvania Archaeological Council
[59] Pennsylvania Downtown Center

Pennsylvania Heritage Society

The Pennsylvania Heritage Society is the co-publisher of the award-winning quarterly Pennsylvania Heritage, and serves a critical role as the non-profit organization supporting the Pennsylvania Historical and Museum Commission (PHMC), the state's official history agency. With the support of over 5,800 members from every corner of the state and beyond, the Heritage Society works with the PHMC on a variety of projects to preserve and interpret Pennsylvania's history, art and culture.[60]

Local Preservation Organizations

Other organizations that are working on the preservation and conservation of historic resources throughout Lebanon County include:

- Historic Schaefferstown – organized in 1966 to protect the Schaeffer Farm and Rex House
- Friends of Old Annville – organized in 1979 to recognize individual homeowners for their efforts to preserve the historic character of Annville
- Cornwall Iron Furnace Associates – organized in 1984 to assist with fundraisers for the site
- Lebanon Valley Conservancy – organized in 2000 with a mission of preserving the natural heritage
- Mount Gretna Area Historical Society – organized in 2004 to recognize and raise awareness of the history of Mount Gretna and the surrounding areas
- Cornwall Historical Alliance – organized in 2006 to preserve the old Cornwall High School
- Swatara Creek Watershed Association—the Armar Bordner cabin.

National Register of Historic Places

Listing in the National Register contributes to preserving historic properties in a number of ways:

- Recognition that a property is of significance to the nation, the state, or the community.
- Consideration in the planning for federal or federally assisted projects.
- Eligibility for federal tax benefits.
- Qualification for federal assistance for historic preservation, when funds are available.

Detailed information about the National Register of Historic Places is included in the section of this profile which notes places in Lebanon County that have been listed or are eligible to be included in the National Register of Historic Places.

As is evident in this profile, Lebanon County is rich with cultural and historic resources. It has been through the public and private efforts of the residents and communities of Lebanon County that these resources have been preserved; however, much work still needs to be done.

[60] Pennsylvania Heritage Society

Transportation System Profile

Transportation planning in Lebanon County has historically been conducted as one of the functional elements of the county comprehensive plan and this relationship to the comprehensive plan continues. However, as a result of the county's continued growth and new status as an urbanized area, additional transportation planning objectives require a more formalized planning process specifically focused on transportation. These new requirements are administered by the Federal Highway Administration (FHWA), Federal Transit Administration (FTA) and the Pennsylvania Department of Transportation (PennDOT).

The development of a Long Range Transportation Plan is an important opportunity to establish the direction of transportation system services for the benefit of all county residents and users of the network.

The Lebanon County Long Range Transportation Plan is a long range plan developed to provide and maintain an efficient transportation system amid the challenges of ongoing community development and growth over a 25-year time frame. The plan is a compilation of short term projects and mid to long range strategies to advance steady progress toward long range system goals.

The Long Range Transportation Planning process comprises three main steps:

- **A transportation system profile** – an inventory of transportation facilities and an assessment of its capacity to serve its users; this includes historic and forecasted user demand of the transportation facilities and a discussion of the need and opportunities for transportation planning to sustain Lebanon County's quality of life.
- **Goals and policy statements** – a description of the transportation system that Lebanon County strives to provide and policy statements to aid in local decision-making.
- **A transportation plan** – a prioritized list of projects to be funded and programmed through local, state, and federal agencies.

The Lebanon County Metropolitan Planning Organization (LEBCO MPO) was established in 2003 as the local agency responsible for transportation planning and programming and includes representatives from county and local government (elected officials, planning department, emergency management), the local transit authority, aviation, rail or trail organizations, business and industry (including agriculture and tourism), as well as state and federal transportation agencies. The MPO is comprised of an MPO Policy Board and an MPO Technical Planning Committee, which meet bimonthly at advertised meetings. Both groups utilize Lebanon County Planning Department staff for administrative activities.

The MPO territory includes the City of Lebanon and all but three municipalities of Lebanon County. Regional transportation planning for all of Palmyra Borough and portions of North Londonderry Township and South Londonderry Township is conducted by the Harrisburg Area Transportation Study, the MPO for the Harrisburg area. It is the intention of the LEBCO MPO to eventually conduct federally-funded long range transportation planning activities for these communities and bring them into the LEBCO MPO.

OBJECTIVES

This document, the transportation profile, has been developed to achieve three primary objectives:

1. Establish an inventory of the countywide transportation system.
2. Identify trends that impact, or will impact, the system.
3. Identify emerging issues and opportunities for further study in the Long Range Transportation Plan.

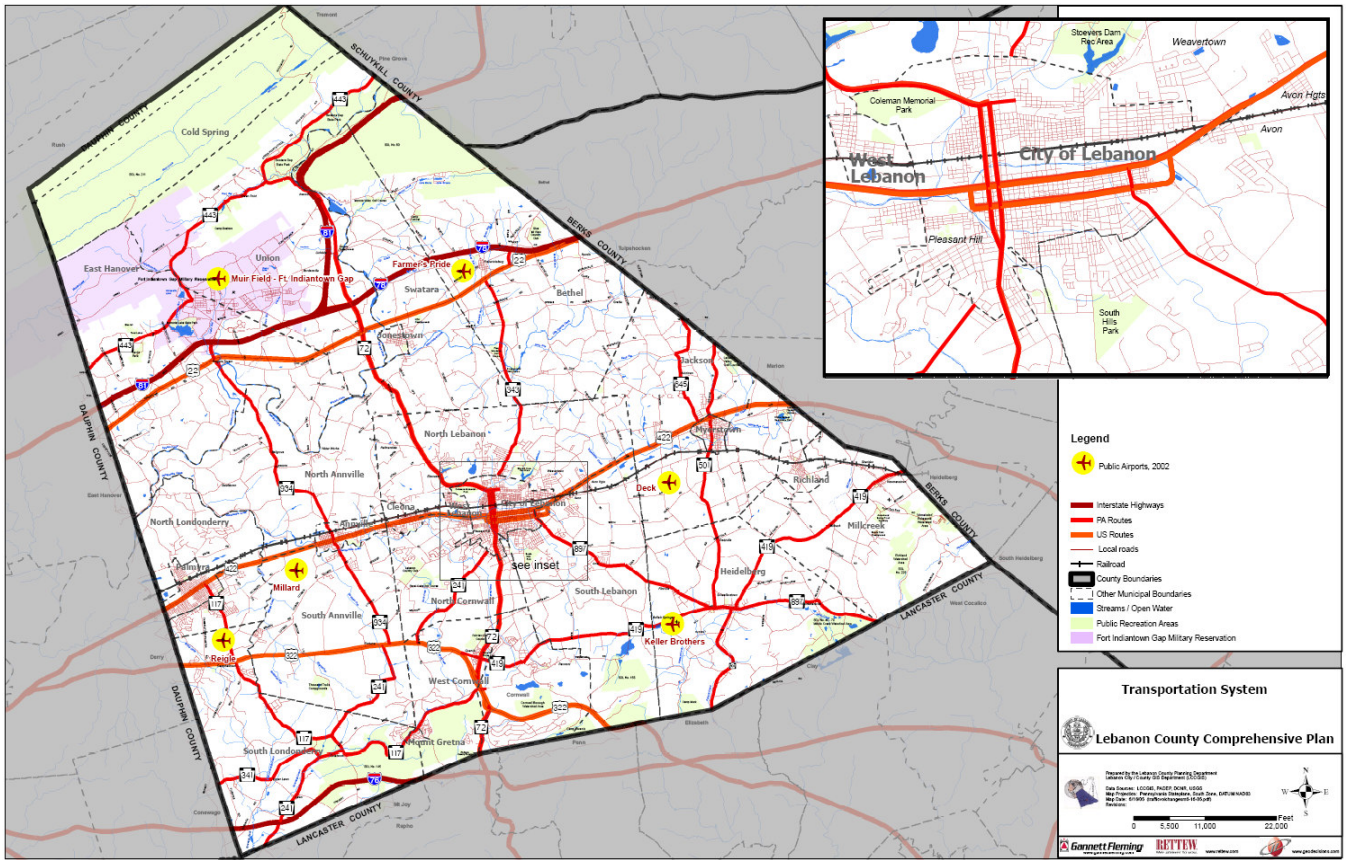
Overview

The profile is organized in the three sections:

1. **System Characteristics and Operations** describe the countywide transportation facilities, how they are being used, and how they are performing.
2. **Trends and Forecasts** describe observable trends in the use of the countywide facilities, and projected future use, from demands both internal and external to the County.
3. **Issues** identify any current or projected system deficiencies and contain some preliminary recommendations to be advanced to the long range transportation plan for further consideration.

Lebanon County's transportation system is highlighted in Figure 8-1. The system map shows the interstates, roadways, airports and freight rail line that comprise the transportation system.

FIGURE 8-1 LEBANON COUNTY TRANSPORTATION FACILITIES



SYSTEM CHARACTERISTICS AND OPERATIONS

The Lebanon County transportation system consists of roads, bridges, public transit, rail freight line, airports and bicycle and pedestrian facilities.

Roadways, Highways and Local Roads

The Pennsylvania Department of Transportation (PennDOT) has traditionally classified highways according to their function and the character of traffic that they serve. This functional classification system serves as a guide for both planning and funding purposes and is summarized below.

Interstates are limited access highways designed for traffic between major regional areas or larger urban communities of 50,000 or more. Three interstates serve Lebanon County: I-81, I-78 and I-76 (PA Turnpike).

Principal Arterials are roads that provide land access while retaining a high degree of through traffic mobility as well as serving major centers of urban activity and traffic generation. PA 72, US 322, US 422 are all principal arterials.

Minor Arterials are roads that provide land access with a lower level of through traffic mobility than principal arterials and serve larger schools, industries, institutions, and small commercial areas not incidentally served by principal arterials. US 22 and PA 501 are minor arterials.

Major and Minor Collectors are roads that collect traffic between local roads and arterial streets and that provide access to abutting properties. Examples of roadways in Lebanon County that meet these criteria include PA 241, PA 343 and PA 934.

Local roads and bridges are those that serve the immediate local area, providing access to farms, residences, businesses and neighborhoods. Some roads classified "Local" by PennDOT are actually owned by the Commonwealth but are functionally classified Local due to the nature of the traffic they serve.

Table 8-1 Transportation System Overview

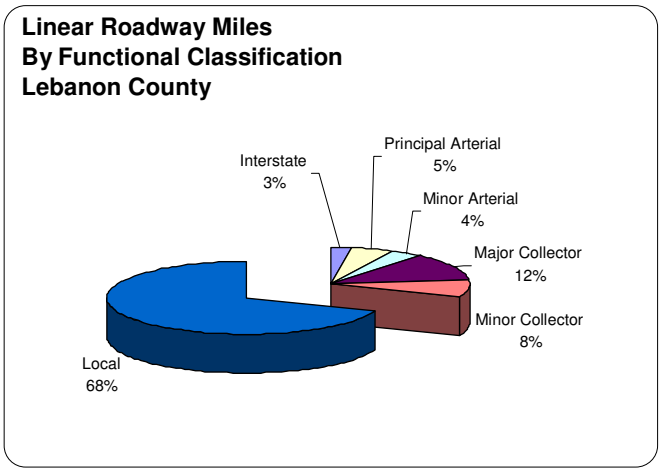
Mode	Highlights
Highways	• 3 US Interstates (I-81, I-78, I-76 PA Turnpike) • 3 US Highways (US 22, US 322, US 422) • 422 miles of state-owned roads • 743 miles of locally-owned roads
Bridges	• 225 state-owned bridges greater than eight feet in length • 81 municipal bridges greater than 20 feet in length
Transit	• County of Lebanon Transit (COLT) operates local fixed route and demand-responsive service • Capitol Trailways operates fixed route intercity service
Freight Rail	• Norfolk Southern's Harrisburg Line parallel to US 422
Aviation	• 5 privately-owned public use airports (Deck, Farmer's Pride, Keller Brothers, Millard and Reigle) • Muir Field at Fort Indiantown Gap
Non-Motorized	• Bicycle-Pedestrian Rail Trail from Lebanon-Lancaster border to Cornwall to South Lebanon • Sidewalk systems within existing downtown and residential neighborhoods

Source: Lebanon County Planning Department & PennDOT

Roadway Miles and Use by Classification

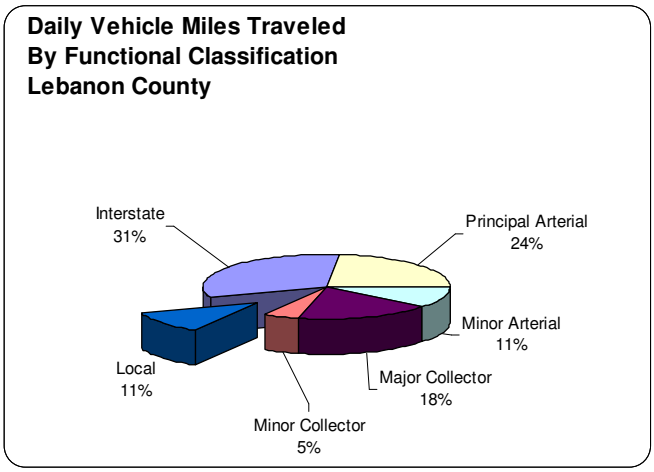
- The vast majority of the roadway miles in Lebanon County are local roads (802 miles or 68%); they carry 11% of the county's daily traffic.[1]
- Minor collectors total 8% of the roadway miles and carry 5% of total traffic.
- Major collectors comprise the second highest percentage of county roadway miles (12%), but their share of overall county use stands at 18%.
- Minor arterials total 4% of county roadway miles and carry 11% of total traffic.
- Principal arterials total only 5% of total roadway miles but carry 24% of daily vehicles.
- Interstates (I-81, I-78, and I-76) comprise only 3% of the roadway miles within the county; they carry the largest percentage of the traffic in the county (31%).
- Generally, roadway mileage and use by classification are inversely proportional; many miles of local roads carry a small portion of total traffic, while few miles of interstates and arterials carry the majority of vehicles.

Figure 8-2 Linear Roadway Miles by Functional Classification



Source: PennDOT, 2003

Figure 8-3 Daily Vehicle Miles Traveled by Functional Classification



Source: PennDOT, 2003

[1] PennDOT, Bureau of Planning and Research, 2003

Significant Highways and Roadways

Table 8-2 below contains an inventory of the significant interstates, US highways and eleven two- and three-digit PA state routes that serve the county. Functional classification and notable operating and usage characteristics are identified. All data has been provided by the PennDOT Bureau of Planning and Research except where noted.

Table 8-2 HIGHWAY AND ROADWAY INVENTORY AND OPERATIONAL HIGHLIGHTS

Highway or Roadway	Limits/Location	Functional Classification(s)	Key Features
	Schuylkill County line to Dauphin County Line via Bethel Township, Swatara Township, Union Township, East Hanover Township	Interstate Highway	• 4 lanes; 24 ft. wide pavement in each direction • I-81 has two operating segments in Lebanon County, defined by the juncture with I-78. The southern segment is more heavily used than the northern segment. • Traffic has increased by over 40% since 1993 along the entire roadway within Lebanon County. • Trucks comprise a 40% vehicle share. • Daily traffic volume exceeded 63,000 vehicles per day in the southern section in 2003 and is projected to grow by 54% by 2020. [2] • Daily traffic volume exceeded 27,000 vehicles per day (VPD) in the northern section in 2003 and is also projected to grow almost 100% by 2030. • PennDOT recently reconstructed nine miles of I-81 from the junction with I-78 north to the Schuylkill County border.
	Berks County line to merge with I-81 via Bethel Township, Swatara Township, Union Township	Interstate Highway	• 4 lanes; 24 ft. wide pavement in each direction • Daily traffic volume on I-78 in Lebanon County exceeds 35,000 vehicles per day. • Traffic has increased over 100 % since 1993. • Trucks comprise a 45% vehicle share.[3] • PennDOT is currently performing $2.85 million for necessary overhead bridge preservation work along the Lebanon County portion of I-78.[4]
	Lancaster County line to Dauphin County line via South Londonderry Township	Interstate Highway	• 4 lanes; 24 ft. wide pavement in each direction • Daily traffic on I-76 (PA Turnpike) exceeded 28,000 vehicles per day in 2003. • Traffic volume on the PA Turnpike in Lebanon increased by 57% from 1993 to 2003. • The number of vehicles entering and exiting the PA Turnpike at the Lebanon-Lancaster Interchange (Exit 266) increased by 57.7% from 1994 to 2004.[5] • Trucks comprise a 24% vehicle share. • The PA Turnpike Commission has authorized $15.3 million for the rehabilitation and expansion of the Lebanon-Lancaster toll plaza. Construction began in 2006. The number of toll booths will be increased from five to seven. Work should be completed in 2009.

[2] PennDOT, 2005. I-81 Widening Study.
[3] PennDOT, 2003, I-81/PA 72 Transportation and Land Use Study.
[4] PennDOT, Twelve Year Transportation Program, May 2007.
[5] Pennsylvania Turnpike Commission, 2005

Highway or Roadway	Limits/Location	Functional Classification(s)	Key Features
422	Berks County line to Dauphin County line via Jackson Township, Myerstown Borough, North Lebanon Township, South Lebanon Township, City of Lebanon, West Lebanon Township, North Cornwall Township, Cleona Borough, Annville Township, North Annville Township, South Annville Township, North Londonderry Township, Palmyra Borough	Principal Arterial	• Predominantly 2 lanes with sections of 3-lane and 4-lane; pavement width ranges from 34 ft. to 44 ft. • Daily traffic volume along US 422 has been stable during the last ten years on the portion of the roadway west of the City of Lebanon. • Recent increases in daily traffic are observed east in Jackson Township and Myerstown. • In 1970, US 422 was overwhelmingly the roadway in the County with the heaviest usage. Today, it ranks fourth behind the interstates by a wide margin. • The heaviest use of US 422 occurs in Palmyra, approximately 21,000 vehicles per day; in Myerstown daily use exceeds 14,000 VPD. • US 422 was frequently cited in stakeholder interviews, along with US 322 and PA 72, as the roadways within the County most in need of improvement. • A congested corridor improvement program (CCIP) study was completed in 2006. Environmental and engineering work is underway. A project to improve numerous intersections between Cleona and Palmyra should proceed to a bid letting in 2008.
322	Lancaster County line to Dauphin County line via South Lebanon Township, Cornwall Borough, West Cornwall Township, South Annville Township, South Londonderry Township	Principal Arterial	• Predominantly 2 lanes with sections of 4-lane; pavement width ranges from 22 ft. to 48 ft. • Traffic is heaviest along US 322 in Campbelltown, which serves over 16,000 vehicles per day. • The eastern portion of the roadway, from Quentin to the Lancaster County line, has experienced the greatest percentage traffic increase recently with traffic volumes tripling since 1993. • The Campbelltown Connector project would divert some traffic away from Campbelltown and add additional through capacity for US Route 322. • The Harrisburg MPO has set aside the needed construction funds for the Campbelltown Connector. The project is proceeding toward a bid letting in early 2008.
72	Lancaster County line to Union Township via Cornwall, West Cornwall Township, North Cornwall Township, City of Lebanon, North Lebanon Township, Swatara Township, and Union Township	Principal Arterial	• 2 lanes with a paved width of 22 ft. to 24 ft. • PA 72 is the county's major north-south roadway and is the most significant county roadway facility affected by the at-grade freight rail Norfolk Southern right-of-way on 9th and 10th Streets in the City of Lebanon. • The stretch of PA 72 with the heaviest use, outside of the City of Lebanon, is in North Cornwall Township, from the PA Turnpike interchange north to the intersection with US 322. (approx. 16,000 vehicles per day). • The heaviest traffic on PA 72 in the county is observed in the City of Lebanon, which serves over 20,000 vehicles per day. • Traffic has increased over 30% from 1993 to 2003 between Rocherty Road and the City of Lebanon in the vicinity of the Quentin Circle Shopping Center and Cedar Crest Shopping Center. • Bypasses have been proposed for key sections of the road over the years but to date there have been few changes to the right-of-way. • The City of Lebanon and PennDOT are now acquiring ROW for the 9th and 10th Streets Bridges project which will construct twin bridges on PA 72 over the Norfolk Southern's Harrisburg line. Construction on the project is expected to begin in 2009, with the first span open to traffic in 2011 and the second span open in 2012.

Highway or Roadway	Limits/Location	Functional Classification(s)	Key Features
22	Berks County line to Dauphin County line via Bethel Township, Swatara Township, Union Township, and East Hanover Township	Minor Arterial	• 4 lanes; 24 ft. wide pavement in each direction • US 22 carries approximately 7,000 vehicles per day, an increase of 20% since 1993. • The heaviest use of US 22 in Lebanon County occurs in Bethel Township near Exit 8 of I-78, serving approximately 10,000 vehicles per day. • Because of its proximity to I-78 and I-81, US 22 primarily serves local traffic except when extreme congestion or an accident results in a diversion of interstate traffic. • In its 2007-2018 Twelve Year Transportation Program, PennDOT identified $6.8 million to restore US 22 from its intersection with PA 934 to the Dauphin County line. Several bridges will be modified along with roadway and safety improvements. Funds are currently being secured to improve the eastern section of US 22 from PA Route 72 to the Lebanon/Berks County line.
343	City of Lebanon to Fredericksburg via North Lebanon Township, Bethel Township, and Swatara Township	Minor Arterial and Major Collector	• 2 lanes with pavement width ranging from 20 ft. to 24 ft. • PA 343 operates as a parallel facility to PA 72, between the City of Lebanon and I-78 in Fredericksburg. • PA 343 is one of the heaviest used PA highways in the County. • The segment of the roadway with the greatest daily traffic is located between the City of Lebanon and North Lebanon (8,200 vehicles per day); traffic growth is greatest in the Fredericksburg vicinity (33% increase since 1993). • Growth in truck traffic serving the poultry industry has been observed. • PennDOT included $1,125,000 for the reconstruction of the PA 343 roadway in North Lebanon Township in its 2005-2016 Twelve Year Program. Construction was completed in 2006.
501	Lancaster County line to Berks County line via Heidelberg Township, Jackson Township, and Myerstown Borough	Minor Arterial	• 2 lanes with a 22 ft. pavement width • As the main street of both Myerstown and Schaefferstown, PA 501 is the primary north-south PA highway in the eastern portion of the County. • Most of the heaviest observed traffic along the corridor is in the centers of Myerstown and Schaefferstown with daily traffic exceeding 7,400 vehicles per day (in 2003 trucks comprised 11% of the daily vehicles). • The Schaefferstown Bypass is proposed to relocate PA 501 west of town to eliminate two 90-degree turns for through traffic, eliminating two turning movements difficult for trucks. • PennDOT and local officials are currently acquiring the needed ROW for the project, which is anticipated to go to construction in the summer of 2009.
117	Cornwall Borough to Palmyra via West Cornwall Township, Mt. Gretna Borough, South Londonderry Township, South Annville Township, and North Londonderry Township	Major Collector	• 2 lanes with a 22 ft. pavement width • PA 117 runs north-south from Palmyra to the village of Colebrook then east-west to Cornwall, and serves as the main street of Mount Gretna. • Intersecting with US 422 at its north end and US 322 at its south end, the highway experiences its heaviest use (in vehicles per day) between US 422 in Palmyra and US 322 in Campbelltown. • Daily traffic in Palmyra exceeds 6,800 vehicles per day, a 24% increase from 1993.
419	Berks County line to West Cornwall via Millcreek Township, Heidelberg Township, South Lebanon Township, Cornwall Borough, and West Cornwall Township	Major Collector	• 2 lanes with a 20 ft. pavement width • PA 419 operates in an east-west direction from downtown Newmanstown through Schaefferstown and Cornwall where it intersects with PA 72 and US 322 in Quentin. • It shares a trunk with PA 897 and PA 501 in the center of Schaefferstown. • PA 419 carries its heaviest volume of daily traffic (approximately 11,500 vehicles per day) in the Schaefferstown area. • The right-of-way will be impacted by construction of the Schaefferstown Bypass project.

Highway or Roadway	Limits/Location	Functional Classification(s)	Key Features
443	Schuylkill County line to Dauphin County line via Fort Indiantown Gap, Union Township, East Hanover Township, Bethel Township, and Swatara Township	Minor Collector and Major Collector	• 2 lanes with pavement width ranging from 22 ft. to 33 ft. • PA 443 is an east-west roadway in the northern section of the county. • The road operates in two distinct segments within the county; the western portion serves the Gap and the eastern portion shares a trunk with PA 72 and then heads east to the Swatara State Park. • Traffic is heaviest in the western portion of the corridor (Mountain Road, 2,112 vehicles per day).
897	Lancaster County line to the City of Lebanon via Heidelberg Township, and South Lebanon Township	Minor Arterial and Major Collector	• 2 lanes with a 20 ft. pavement width • PA 897 operates between the City of Lebanon (5th Avenue south of Cumberland Street/US 422) and the Lancaster County border via Iona and Schaefferstown. It shares a trunk with PA 419 and PA 501 through the center of Schaefferstown. • PA 897 is most heavily used in the area immediately to the South of the City of Lebanon. Daily traffic in this area approaches 7,000 vehicles per day. • Funding for the pre-construction phases of the rehabilitation of the bridge over Middle Creek in Heidelberg Township has been secured.
241	Lancaster County line to the City of Lebanon via South Londonderry Township, South Annville Township, West Cornwall Township and North Cornwall Township	Minor Collector and Major Collector	• 2 lanes with a 24 ft. pavement width • PA 241 operates in three distinct segments in the southwestern portion of Lebanon County. • The most heavily used segment connects the City of Lebanon at PA 72, to US 322 through North Cornwall. • The second segment connects US 322 with the village of Colebrook in South Londonderry. • The third segment operates between Colebrook and the Lancaster County border.
934	South Annville Township to Fort Indiantown Gap via Annville Township, North Annville Township, and East Hanover Township	Major Collector and Minor Arterial	• 2 lanes with pavement width ranging from 20 ft. to 22 ft. • PA 934 is a north-south roadway that extends from US 322 in South Annville to I-81 in East Hanover. It is the main north-south route through North and South Annville and it crosses US 422 in the center of Annville. • The largest volume of daily traffic occurs just north of the PA 934 intersection with US 422 in Annville, where the number of daily vehicle trips exceeds 9,000.
341	Dauphin County line to South Londonderry	Minor Collector	• 2 lanes with a 22 ft. pavement width • PA 341 is located in the southwestern corner of the county and operates from its intersection with PA 241 in South Londonderry to the county border with Dauphin County via Upper Lawn. • The roadway sees its heaviest use near the county line with daily traffic exceeding 1,500 vehicles per day.
645	Berks County line to Myerstown Borough via Jackson Township	Minor Collector	• 2 lanes with a 20 ft. pavement width • PA 645 is located in the eastern portion of the county and operates between US 422/Lincoln Avenue in Myerstown and the county border with Berks County. • PA 645 experiences its heaviest use just north of Myerstown, where daily traffic exceeds 6,000 vehicles per day.

Bridges

Because bridges can aid any mode of travel in crossing waterways, railroad tracks, other travel routes, or other hazards, they are classified independently from other transportation facilities. Bridges are owned either by the Commonwealth or locally, either by the county at large or by municipalities.

- There are 225 state-owned, 13 county-owned and 68 municipally-owned bridges in Lebanon County.[6]
- Federal law requires that all bridges on public roads be inspected at least once every two years in accordance with the National Bridge Inspection Standards (NBIS). Lebanon County inspects each county- and municipally-owned bridge twice per year.
- PennDOT uses the Bridge Management System (BMS) to track bridge conditions and prioritize bridge projects in the Twelve Year Program. The BMS typically assigns higher priorities to bridges on the interstate and arterial roads than to those on collector or local roads.
- Approximately 69% of the state-owned bridges and 68% of the municipally-owned bridges are fully operational and compliant and should not need any capital improvements for at least the next ten years.
- 17.8% of state-owned bridges are functionally obsolete.
- There are 18 weight- or height- restricted bridges in the county; 14 are locally-owned and 4 are owned by the state. The county has one bridge that is closed to traffic.
- Bridges in need of repair are programmed on the Lebanon County MPO Transportation Improvement Program (TIP). The FFY 2007 TIP is included in the Reference Tables at the end of the profile.

PennDOT employs three primary bridge management classifications for the purpose of tracking bridge conditions to help identify the facilities most in need of improvement.

Compliant – *Inspected bridges that are not expected to need significant capital modifications for at least 10 years. These facilities are regularly inspected to ensure continued compliance.*

Functionally Obsolete – *Bridges that cannot adequately handle current traffic due to too few or narrow lanes, poor alignment with the roadway, insufficient vertical clearance or inadequate load carrying*

Structurally Deficient – *Bridges with some level of deterioration or structural weaknesses or inadequate waterway clearance or capacity.*

Table 8-3 Bridge Conditions in Lebanon County

	State owned > 8 feet	Percentage of state owned	County or Municipally Owned > 20 feet	Percentage of County or Municipally owned
Number of bridges	225		81	
Compliant	155	68.9%	55	67.9%
Functionally Obsolete	40	17.8%	9	11.1%
Structurally Deficient	30	13.3%	12	14.8%
Posted/Weight Restricted	4	1.8%	14	17.3%
Closed	0	0.0%	1	1.2%

Source: PennDOT District 8-0, 2007

[6] PennDOT, District 8-0, 2007

Public Transportation

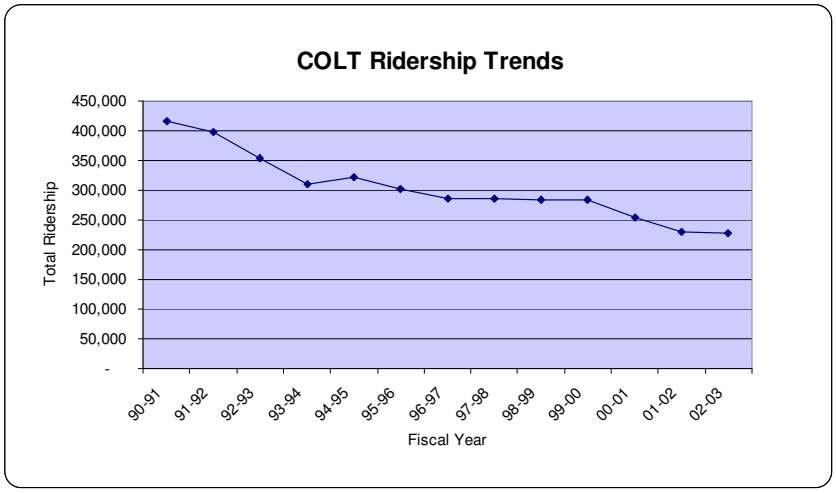
Lebanon County is served by two transit providers: the County of Lebanon Transit Authority (COLT) bus system and Capitol Trailways. COLT (www.coltbus.org) provides local services and offers connections to other comparable service providers in the region. Capitol Trailways (www.capitoltrailways.com) is a provider of intercity services to destinations such as Reading, Washington, DC and New York City.

- COLT operates sixteen fixed route bus routes that serve nineteen of the twenty-six Lebanon County municipalities. COLT's fleet comprises 10 vehicles for its fixed-route service and 16 vehicles for its demand response services. COLT's primary transfer facility is located at 7th and Willow Streets in downtown Lebanon. Opened in 2002, it provides a waiting area for passengers. COLT plans to open a manned ticket window in late 2005.

- COLT is managed by a 10-member Board of Directors and served by 44 full-time and 4 part-time staff.

- Overall ridership on the COLT route system has decreased over the past decade. From 1990 to 2003, COLT experienced a 45% decrease in total passenger travel, a loss of over 187,000 passengers.[7]

Figure 8-4 COLT Ridership

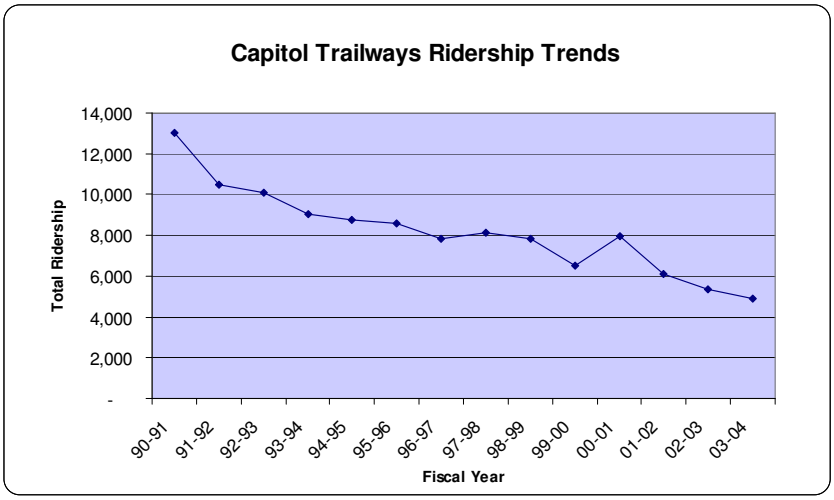


Source: COLT

- COLT also provides demand responsive service. Approximately 72,000 shared ride trips were provided by COLT in 2004.[8] This represents a 17 % increase since 1996. Gains are attributed to rider shifts from the fixed route system to the shared ride system as a result of effective outreach to the county's seniors by COLT staff.

- Capitol Trailways is a private bus company that operates fixed route service between Harrisburg and Reading along the Route 422 corridor. Connections to COLT are available along US 422 though there are no signed transfer locations. From 1990-2003, Capitol Trailways experienced a 61% decrease in passenger travel.

Figure 8-5 Capitol Trailways Ridership



Source: Capitol Trailways

- As a whole, fixed-route transit in Lebanon County has decreased 36.9 % between 1993 and 2003.

- A COLT Business Plan is currently being developed. When completed in June of 2008, data and key recommendations from that study will be included in this profile and in the long range transportation plan.

[7] PennDOT Bureau of Public Transportation, 1990-2004
[8] County of Lebanon Transit, 2005

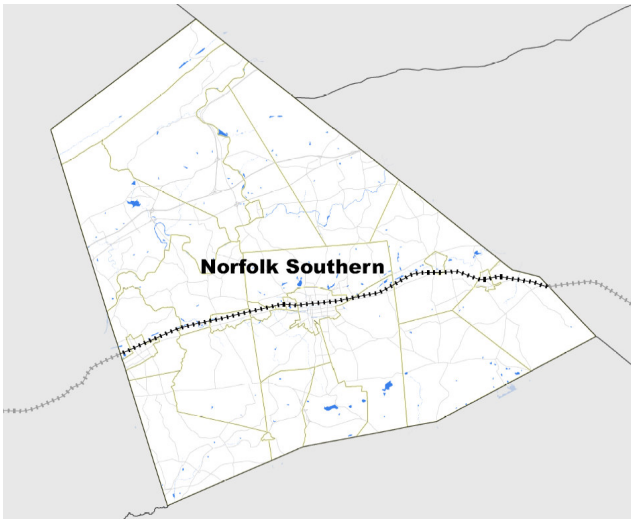
- The CORRIDORtwo regional rail concept would bring commuter rail transit between the City of Lebanon and Harrisburg along Norfolk Southern's Harrisburg Line. There is no approved timetable for the project.

- The Susquehanna Regional Transportation Partnership is a joint effort of the metropolitan and rural transportation organizations, transit agencies, and regional chambers of commerce in its six-county region to increase the awareness of transit and ridesharing in South Central Pennsylvania. Lebanon County is a member of this non-profit corporation devoted to developing and promoting transportation options beyond the single occupancy vehicle.

Freight Rail

The Norfolk Southern Harrisburg line runs east-west between Harrisburg and Reading parallel to US 422 through the center of Lebanon County. The railroad operates daily freight service and passes through the City of Lebanon at grade approximately every 13 minutes during the peak period.

Figure 8-6 Norfolk Southern Harrisburg Line



- In 2003, 71.6 million gross tons traveled along the rail line through Lebanon County.[9]

- Traffic is increasing along the line as a result of its ability to handle large and heavy loads. Norfolk Southern operates "double-stacked" service along the Harrisburg Line, meaning that two intermodal containers are stacked to roughly double the cargo-carrying capacity.

- All of the bridges along the line have a vertical clearance of at least 20 feet, 6 inches to accommodate double-stacked freight cars.

- Rail access is a significant benefit for business and industrial development.

- The Harrisburg MPO recently completed the South Central Goods Movement Study which is providing very useful information about how goods are transported throughout their eight-county region. Data from that study will be included in the next update of the profile/plan.

- The Federal Railroad Administration finalized rulemaking that permits communities, in conjunction with railroads and state agencies, to enact measures to establish quiet zones at railroad grade crossings to minimize the impact of train horns.

- The presence of an active, at-grade railroad line creates a safety hazard and a general inconvenience for the County at large and specifically for the City of Lebanon. Rail traffic on the right-of-way creates vehicular traffic back-ups and delays emergency service vehicles.

- The Bridges over Norfolk Southern Project, initiated in 1999, is an ongoing project led by the City of Lebanon and PennDOT that has selected the construction of two bridges over the Norfolk Southern right-of-way as the preferred alternative.[10] The two bridges, on 9th Street and 10th Street in the City of Lebanon, will overpass the rail line. These bridges will decrease delay caused by train traffic. The first bridge is scheduled to open in 2011 and the second is scheduled for 2012. Construction costs are estimated at $35.4 million.

Aviation

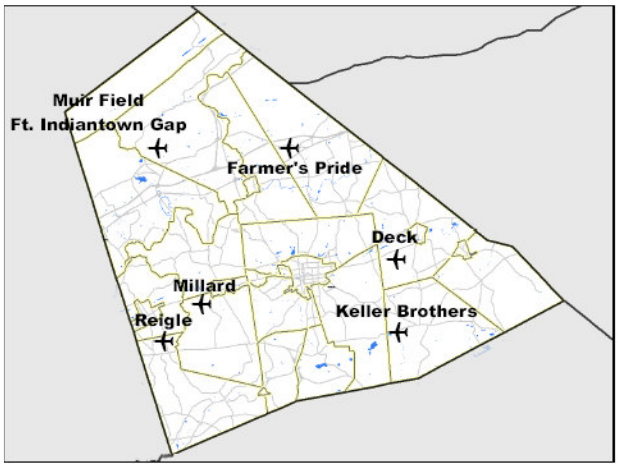
- Lebanon County is served by five privately-owned public-use airports and one military-use airport at Fort Indiantown Gap. The five private public-use airports principally serve recreational and business travel for small capacity aircraft.

[9] PennDOT, Pennsylvania State Transportation Advisory Committee, 2004
[10] PennDOT, Center for Program Development and Management, September 11, 2007

Muir Field at Fort Indiantown Gap serves the Pennsylvania Air National Guard and is dedicated primarily to military helicopter and fixed-wing operations.[11]

- The Federal Aviation Administration (FAA) compiles the National Plan of Integrated Airport System (NPIAS), a listing of airports considered significant to the national air transportation system. None of the five Lebanon County privately-owned public-use airports appear on the NPIAS. The closest NPIAS airports are located in Lancaster, Reading and Harrisburg.

Figure 8-7 Airport Locations in Lebanon County



- Deck Airport in Jackson Township received a grant for $80,000 in 2005 to expand its runway and remove wires that potentially serve as a hazard to aircraft. In 2007, Deck Airport received $195,000 to improve its runways/approach areas and to install aircraft guidance equipment. And in 2007, Farmers Pride Airport in Bethel Township received $86,625 for pavement work near its hangars.

- In 1990, the FAA financed a feasibility study to identify whether there was sufficient demand for a publicly-owned, general use airport in Lebanon County. General use airports are facilities that serve primarily unscheduled recreational and business flights, as opposed to commercial airports that primarily serve scheduled flights.[12] The study concluded that projected demand could potentially justify the development of such a facility.

Table 8-4 Airport Facilities in Lebanon County

Airport	Location	2006 Operations	Runway Length (ft.)	Runway Surface
Deck	Jackson Township	12,850	3,800	Asphalt
Farmer's Pride	Fredericksburg/Bethel Township	7,325	3,410	Turf
Keller Brothers	Schaefferstown/Heidelberg Township	4,990	2,700	Turf
Millard	South Annville Township	N/A	2,870	Asphalt
Reigle	South Londonderry Township	30,000	1,950	Asphalt
Muir Field	Ft. Indiantown Gap/Union Township	N/A	3,967	Asphalt

Source: PennDOT BOA, 2006; Lebanon County Airport Feasibility Study, January 2002.

- In 2001, the Lebanon County Airport Feasibility Study and Master Plan was initiated to select a site for the general use airport identified in the 1990 study discussed above. The 2001 study revealed that 79 % of local airport users drive less than 30 minutes to the airport, 52 % live in the county and the majority of flights originating at the five general use airports is for personal or pleasure travel.[13] However, the data also suggested that the existing airports currently served the demand for service and that the development of a new general use airport was not critical to either the county's economy or its aviation community. Muir Field was identified by the study as the best potential location for a general use airport pending a variety of airport modifications.[14]

[11] PennDOT Bureau of Aviation, 2006
[12] Federal Aviation Administration, 2007
[13] Lebanon County Airport Feasibility Study and Master Plan, 2002
[14] Ibid.

- In 1989, PennDOT developed a model Airport Hazard Zoning Ordinance to help municipalities limit development adjacent to airports to prevent obstructions. PennDOT is currently studying the effectiveness of this and other airport hazard ordinances. Only Palmyra, North Londonderry, South Annville, S. Londonderry and Heidelberg Township have adopted airport hazard zoning.

- The three closest major commercial use airports to Lebanon County are Harrisburg International Airport (33 miles), Philadelphia International Airport (92 miles) and Baltimore-Washington Airport (118 miles). There is no direct highway or transit connection between Lebanon County and any of these three facilities.

- The Lancaster Airport in Lititz, PA (20 miles) resumed limited passenger service in September 2004. US Airways operates six flights each weekday between Lancaster and Pittsburgh.

Non-Motorized Facilities

Safe, well-marked transportation facilities contribute to the mobility and quality of life throughout the county. They provide linkages between neighborhoods, schools, parks and shopping centers to those who walk or bike. They provide opportunities for fitness and healthy living. And they integrate people with their communities.

A number of Lebanon County communities easily accommodate walking and cycling trips. Their sidewalks, crosswalks, trails, bicycle and pedestrian facilities, signs and signals and traffic calming techniques make bike/ped travel safer and more appealing. These facilities provide functional and recreational mobility and fitness options for residents of all ages. The communities include:

- City of Lebanon
- Annville
- Cleona
- Mt. Gretna
- Myerstown
- Jonestown
- Schaefferstown
- Richland
- Fredericksburg
- Palmyra

Lebanon County contains many off-road walking, hiking and biking trails to provide recreational opportunities to residents and visitors.

- The Appalachian Trail passes through Lebanon County in the State Game Lands and in Swatara State Park
- The Horseshoe Trail – along the southern edge of Lebanon County
- Quittapahilla Creek Park Nature Trail in Annville
- The Hazel Dyke/Quittapahilla Trail in the City of Lebanon

- The Stoever's Dam Loop in the City of Lebanon
- The Lebanon Valley Rail-Trail follows the old Cornwall-Lebanon Railroad from Lancaster County line to North Cornwall with spur to Mount Gretna
- Numerous trails in Swatara State Park
- The Memorial Lake Park Trail in Fort Indiantown Gap
- Levitz Park in East Hanover Township
- Lions Lake in Northern Lebanon Township
- South Hills Park in South Lebanon Township
- The Swatara Water Trail in East Hanover Township, Union Township, Bethel Township, Swatara Township, Jonestown Borough, North Annville Township and North Londonderry Township
- The Union Canal Tunnel Park in the City of Lebanon and North Lebanon Township

Several bicycle and pedestrian facility improvements are currently underway:

- The proposed South Lebanon Trail Project would connect the Lebanon Valley Rail-Trail in South Lebanon to the Cedar Crest High School, Lebanon High School and South Lebanon Elementary School. This trail would not only serve recreational purposes but also provide an alternative route to school for students. This project and Phase 4 of the Lebanon Valley Rail-Trail are expected to go to a combined bid letting in the spring of 2008.

- County of Lebanon Transit (COLT) has installed bicycle racks on its fixed routes bus fleet to help accommodate users who wish to use a bicycle to help complete their trip. The installation was completed in 2006.

- Lebanon County Planning Department is presently undertaking a feasibility study to extend the Rail Trail system northward through the county.

Trends and Forecasts

Demographic conditions and trends for Lebanon County are presented in Background Study #1, the Demographic Profile. The following highlights are repeated and interpreted here for their direct implications to the demands on the transportation system.

Population

The population of Lebanon County has steadily grown since 1960. This trend is expected to continue through 2020. A review of US Census data, as well as population projections developed for the Lebanon County Comprehensive Plan and the PennDOT Statewide Long Range Plan (Mobility Plan), identify county growth and declining areas.

- Over the last twenty years, the population growth has primarily occurred in the municipalities that surround the City of Lebanon (North Cornwall, North Lebanon, South Lebanon) and those along the US 322 and US 422 corridors (North Londonderry, South Londonderry, West Cornwall, Jackson, and South Annville).

- Townships such as Jackson, North Cornwall, North Lebanon, South Annville and North Londonderry have seen their populations double, or in the case of North Londonderry quadruple, since 1960. Growth in Jackson Township has been fueled by new development serving retirees and commuters to Berks County. Growth in North Lebanon and North Cornwall Townships has occurred as employees of City-based businesses sought nearby residential neighborhoods in suburban and rural settings. North Londonderry Township has grown as a result of in-migration of new residents seeking proximity to employment and amenities in the Hershey and Harrisburg areas.

- The municipalities of Bethel, Cornwall, Heidelberg, North Cornwall, North Londonderry, South Annville and Swatara are projected to experience significant population gains by 2020, based on recent and anticipated subdivision and land development activity that will create new homes for new residents.

- The City of Lebanon has seen its population steadily decline from 1960 to 2000. However, the number of City residents is projected to stabilize, and slightly increase, between 2005 and 2020. This projected increase is partially attributable to anticipated developer interest in reuse of existing buildings and redevelopment of property.

Potential transportation impacts resulting from population growth are:

- **Additional traffic on roads not designed to accommodate the projected volumes.** More people mean more travelers moving throughout the county. When certain facilities, namely US 422, begin approaching maximum capacity, drivers seek alternative routes to avoid congestion and delays. The analysis shows that drivers are increasingly using secondary or "back" roads for at least some portion of their trips.

- **Compromised intersection functioning and pavement conditions.** When roads are used more frequently, they degrade quicker and need more regular maintenance and repair. With more vehicles traveling the roadways, there is also more traffic traveling through and turning at intersections. As a result of the slowing, stopping and turning movements of vehicles, there is increased opportunity for crashes. Evaluations of traffic signal functioning and pavement quality is an ongoing task of PennDOT District 8-0, local municipalities and the Lebanon County MPO. These tasks increase in importance when traffic volumes expand.

- **Increased conflicts between automobiles and bicycle and pedestrian users.** Increased vehicular traffic causes greater hazards for non-motorized travelers. Gaps in traffic that enable safe crossing of streets become shorter and less frequent. Bicycle and pedestrian facilities can help separate and protect non-motorized travelers from vehicles.

- **Degradation of transit service efficiency resulting from longer routes.** Mass transit loses service efficiencies when destinations and passengers are spread out.

- **Degradation in air quality resulting from more cars being driven more miles.** Population growth has brought with it increases in energy consumption and automobile use, both of which negatively impact air quality.

Table 8-5 identifies Lebanon County's population trends and projections to 2020.

Table 8-5 Countywide and Municipal Population Counts and Projections, 1960-2020

Location	1960	1970	1980	1990	2000	Percent Change 1960-2000	Percent Change 1990-2000	2010	Percent Change 2000-2010	2020	Percent Change 2000-2020
Lebanon County	**90,853**	**99,665**	**108,582**	**113,811**	**120,327**	**32.4%**	**5.8%**	**130,682**	**8.61%**	**140,075**	**7.19%**
Annville	4,264	4,704	4,493	4,294	4,518	**6.0%**	**5.2%**	4,638	**2.66%**	4,723	**1.83%**
Bethel	2,433	2,804	4,042	4,343	4,526	**86.0%**	**4.2%**	4,971	**9.83%**	5,399	**8.61%**
Cleona	1,988	2,040	2,003	2,322	2,148	**8.0%**	**-7.5%**	2,093	**-2.56%**	2,098	**0.24%**
Cold Spring	71	117	89	80	49	**-63.0%**	**-31.0%**	47	**-4.08%**	49	**4.26%**
Cornwall	1,934	2,111	2,653	3,231	3,486	**80.2%**	**7.9%**	4,122	**18.24%**	4,619	**12.06%**
East Hanover	2,140	2,127	2,952	3,058	2,858	**33.6%**	**-6.5%**	2,946	**3.08%**	3,057	**3.77%**
Heidelberg	2,597	2,833	3,583	3,797	3,832	**47.6%**	**0.9%**	3,911	**2.06%**	4,066	**3.96%**
Jackson	2,778	3,388	5,028	5,732	6,338	**128.1%**	**10.6%**	7,888	**24.46%**	8,974	**13.77%**
Jonestown	813	954	814	931	1,028	**26.4%**	**10.4%**	1,363	**32.59%**	1,405	**3.08%**
Lebanon	30,045	28,572	25,711	24,800	24,461	**-18.6%**	**-1.4%**	24,333	**-0.52%**	24,308	**-0.10%**
Millcreek	2,406	2,544	2,564	2,687	2,921	**21.4%**	**8.7%**	3,553	**21.64%**	4,074	**14.66%**
Mount Gretna	93	153	280	303	242	**160.2%**	**-20.1%**	234	**-3.31%**	234	**0.00%**
Myerstown	3,268	3,645	3,131	3,236	3,171	**-3.0%**	**-2.0%**	3,116	**-1.73%**	3,120	**0.13%**
North Annville	1,813	2,180	2,421	2,441	2,279	**25.7%**	**-6.6%**	2,311	**1.40%**	2,358	**2.03%**
North Cornwall	2,624	3,343	4,401	4,886	6,403	**144.0%**	**31.0%**	7,328	**14.45%**	8,023	**9.48%**
North Lebanon	4,713	6,146	8,343	9,741	10,629	**125.5%**	**9.1%**	11,537	**8.54%**	12,098	**4.86%**
North. Londonderry	1,684	2,752	4,749	5,630	6,771	**302.1%**	**20.3%**	8,063	**19.08%**	9,588	**18.91%**
Palmyra	6,999	7,615	7,228	6,910	7,096	**1.4%**	**2.7%**	7,141	**0.63%**	7,186	**0.63%**
Richland	1,276	1,444	1,470	1,457	1,508	**18.2%**	**3.5%**	1,534	**1.72%**	1,579	**2.93%**
South Annville	1,214	1,403	2,792	3,008	2,946	**142.7%**	**-2.1%**	3,021	**2.55%**	3,646	**20.69%**
South Lebanon	6,584	7,706	7,431	7,491	8,383	**27.3%**	**11.9%**	9,355	**11.59%**	10,230	**9.35%**
South. Londonderry	2,911	3,754	3,777	4,502	5,458	**87.5%**	**21.2%**	6,968	**27.67%**	8,089	**16.09%**
Swatara	2,164	2,407	3,443	3,318	3,941	**82.1%**	**18.8%**	4,556	**15.61%**	5,110	**12.16%**
Union	1,967	2,661	2,700	2,745	2,590	**31.7%**	**-6.0%**	2,845	**9.85%**	3,132	**10.09%**
West Cornwall	1,020	1,276	1,597	1,996	1,909	**87.2%**	**-4.4%**	1,939	**1.57%**	1,961	**1.13%**
West Lebanon	1,054	986	887	872	836	**-20.7%**	**-4.1%**	869	**3.95%**	949	**9.21%**

Source: US Census Bureau, Census 2000 Redistricting Data; Lebanon County Planning Department, 2007

Trends in Minority and Low Income Population

Individuals from minority or ethnic groups or low-income households often have greater difficulty getting to jobs, schools, recreation, and shopping than the population at large. Federal regulations require metropolitan planning organizations to "seek out and consider the needs of those traditionally underserved by existing transportation systems, including but not limited to low-income and minority households."[15] Awareness of the transportation needs of these groups can help the transportation planning process better serve members of these populations. Additional information about the County's demographic trends is available in Background Study #1, the Demographic Profile.

- According to the Census Bureau, minorities represented 5.5% of Lebanon County's population in 2000. This is more than double the percentage reported in 1990, when only 2.5% of population belonged to an ethnic or minority group.

- More than half of Lebanon County's minority population (53.2%) lived in the City of Lebanon, according to 2000 Census Bureau data. This is slightly more than in 1990, when almost 51% lived in the City.

- Table 8-6 shows that the highest concentrations of minorities outside of the City of Lebanon are located in North Cornwall, North Lebanon and South Lebanon Townships.

Table 8-6 Minority Percentage of Total Population for Lebanon County and Select Municipalities, 1990-2000

Lebanon County		City of Lebanon		North Cornwall Twp		North Lebanon Twp		South Lebanon Twp	
1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
2.5	5.5	5.8	14.5	4.3	7.9	2.2	5.5	2.6	4.3

Source: US Census Bureau

According to the Housing Alliance of Pennsylvania, households that earn 80% of an area's median income are considered to be low income. Statewide, the median household income is $40,000; households earning less than $32,000 are considered low income.[16]

- Only two municipalities in Lebanon County had median household incomes that would classify the municipality as low income in 2000: Cold Spring Township ($26,563) and the City of Lebanon ($27,259).

- At a closer level, there are several communities in the county that have approximately one third of households that earned less than $30,000 in 2000: Jonestown Borough (33%), West Lebanon Township (29%), Heidelberg Township (29%) and Myerstown Borough (31%).

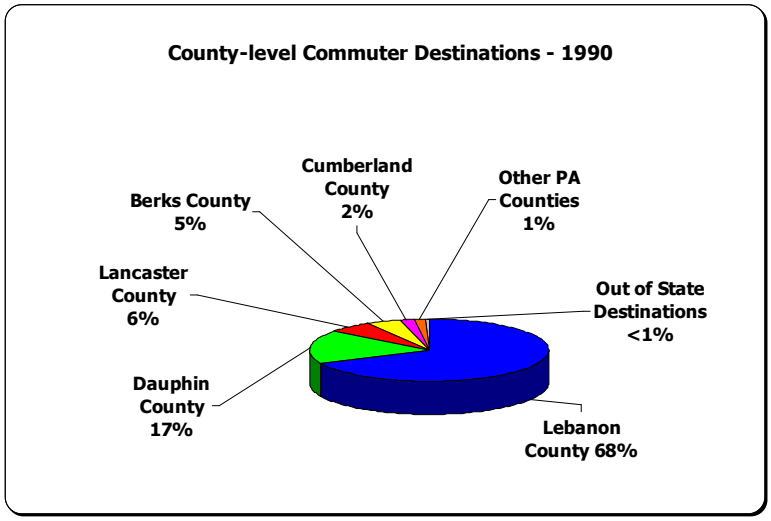
- Additional pockets of low income populations are located in Pleasant Hill, Avon, and Avon Heights.

[15] Federal Highway Administration, 2001
[16] Housing Alliance of Pennsylvania, 2003

Employment and Commutation

Countywide job growth is expected to continue. Coupled with the anticipated population growth, more residents will be traveling to more jobs on the county roadways and via mass transit. Commutation data shows that during the past decade, the percentage of Lebanon workers employed at job locations within the county decreased from 68% to 63%. While virtually all employed Lebanon County residents remained in south central Pennsylvania, the percentage traveling to Dauphin County increased.

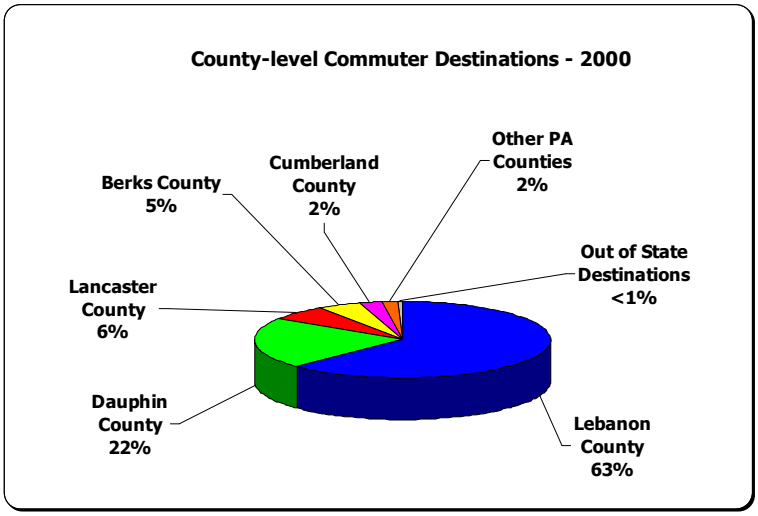
Figure 8-8 County-Level Commuter Destinations for the Lebanon County Workforce, 1990



Source: US Census Bureau

- Employment projections developed for the PennDOT Mobility Plan estimate that Lebanon County will experience a 25% growth in the number of jobs by 2030. Gains are projected to be highest in the City of Lebanon and its immediate vicinity.[17]
- An examination of 1990 and 2000 employment and commuter trend data shows that while Lebanon County residents primarily work within the county, the percentage of residents who live and work in the county is decreasing. The number of Lebanon County residents traveling outside the county for employment increased between 1990 and 2000 by 24.2%.[18] The decreasing share of available jobs within the County as opposed to outside the county results in Lebanon County residents traveling to jobs outside the county at a higher percentage today than in 1990.
- The graphics to the right compare the top county-level destinations for Lebanon County's resident workforce in 1990 and 2000. As shown, Lebanon County had a lower percentage of residents working within their borders in 2000 than in 1990, with 63% traveling to destinations within the county in 2000 versus 68% in 1990. The percentage of residents traveling to Dauphin County increased from 17% in 1990 to 22% in 2000. There was no change in the percentage of residents traveling to Berks, Cumberland, and Lancaster Counties.

Figure 8-9 County-Level Commuter Destinations for the Lebanon County Workforce, 2000



Source: US Census Bureau

[17] PennDOT Mobility Plan, 2005
[18] US Census Bureau, 2001

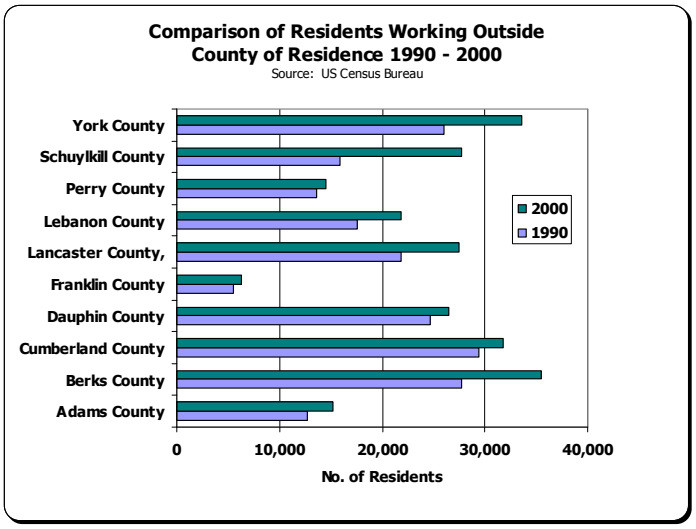
Travel Time to Work

Travel time to work can indicate distance to work and may be an indicator of congestion. The data primarily shows that while a significant percentage of Lebanon County workers travel less than thirty minutes to work, the trend is for longer commutes overall. Employed Lebanon County residents traveled longer and farther to jobs in 2000 than they did in 1990.[19]

The following illustrates the trends in travel time for Lebanon County residents from 1990 to 2000.

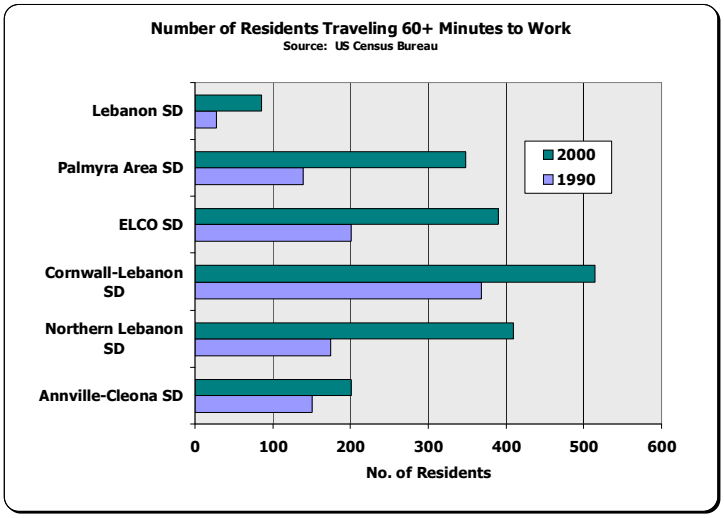
- Over 72% of Lebanon County's workforce traveled less than thirty minutes to their place of employment in 2000; approximately 5% less than in 1990.
- This is comparable to other counties in the region where between 65% and 76% of the resident workforce traveled less than 30 minutes. These regional figures also represent a decrease relative to 1990 figures.
- The number of residents traveling more than 60 minutes to work has increased in Lebanon County and surrounding counties. This is consistent with the commuter destination data which shows that between 1990 and 2000 more residents were willing to live farther from their places of work.
- The increase in long distance commuting is observed throughout the county. All of the school districts have seen the number of employed residents with commute times in excess of 60 minutes increase from 1990 to 2000.
- Employed residents in all school districts are commuting longer to work in 2000 than they were in 1990.
- The combination of increased commute times and greater work-related travel outside of Lebanon County is a situation that warrants additional evaluation in the long range transportation plan.

Figure 8-10 Residents Traveling 60+ Minutes to Work by County, 1990-2000



Source: US Census Bureau

Figure 8-11 Residents Traveling 60+ Minutes to Work by School District, 1990-2000



Source: US Census Bureau

[19] US Census Bureau, 2001

Table 8-7 Changes in Travel Time to Work By School District, 1990-2000

School District	Less than 15 minutes					15 to 29 minutes				
	1990		2000		1990-2000	1990		2000		1990-2000
	#	% of total	#	% of total	% change	#	% of total	#	% of total	% change
Lebanon County	**21,525**	**39.7**	**19,864**	**33.8**	**-7.7**	**20,689**	**36.8**	**20,857**	**35.5**	**0.8**
Annville-Cleona SD	2,144	34.7	2,123	34.3	-1.0	2,512	40.7	2,335	37.7	-7.0
Cornwall-Lebanon SD	5,344	40.5	5,021	33.7	-6.0	4,593	34.8	5,237	35.2	14.0
ELCO SD	3,269	39.3	2,795	32.7	-14.5	2,744	33	2,835	33.1	3.3
Lebanon SD	5,440	45.4	4,822	42.9	-11.4	3,778	31.5	3,556	31.7	-5.9
Northern Lebanon SD	2,192	28.9	1,953	24.5	-10.9	3,196	42.2	3,140	39.4	-1.8
Palmyra Area SD	3,136	34.7	3,150	31.6	0.4	3,866	42.8	3,754	37.7	-2.9

School District	30 to 59 minutes					60 to 89 minutes				
	1990		2000		1990-2000	1990		2000		1990-2000
	#	% of total	#	% of total	% change	#	% of total	#	% of total	% change
Lebanon County	**10,558**	**19.5**	**13,465**	**22.9**	**27.5**	**1,209**	**2.2**	**1,446**	**2.5**	**19.6**
Annville-Cleona SD	1,146	18.6	1,243	20.1	8.5	101	1.6	133	2.1	31.7
Cornwall-Lebanon SD	2,518	19.1	3,607	24.2	43.2	315	2.4	294	2.0	-6.7
ELCO SD	1,493	18	1,839	21.5	23.2	187	2.3	267	3.1	42.8
Lebanon SD	2,149	17.9	2,228	19.8	3.7	336	2.8	299	2.7	-11.0
Northern Lebanon SD	1,609	21.2	2,112	26.5	31.3	156	2.1	242	3.0	55.1
Palmyra Area SD	1,643	18.2	2,436	24.4	48.3	114	1.3	211	2.1	85.1

School District	90 or more minutes				
	1990		2000		1990-2000
	#	% of total	#	% of total	% change
Lebanon County	**207**	**0.4**	**813**	**1.4**	**292.8**
Annville-Cleona SD	49	0.8	68	1.1	38.8
Cornwall-Lebanon SD	53	0.4	220	1.5	315.1
ELCO SD	14	0.2	123	1.4	778.6
Lebanon SD	48	0.4	97	0.9	102.1
Northern Lebanon SD	18	0.2	168	2.1	833.3
Palmyra Area SD	25	0.3	137	1.4	448

Note: 1990 Total = 54,188
2000 Total = 58,810

Source: U.S. Census Bureau, 2001

SYSTEM LOCATIONS FOR FURTHER EVALUATION

Many county roadway segments have experienced significant traffic volume increases over the past decade. Locations where traffic has increased and where accidents occur with regularity are candidates for further evaluation in the Long Range Transportation Plan and elsewhere. Table 8-8 summarizes these locations that warrant additional evaluation. The purpose of Table 8-8 is not to assert a correlation between traffic increases and high occurrence crash locations but rather to identify segments where one or both have been identified for further evaluation. This list is preliminary and is likely to change over time as conditions warrant. HOCL stands for High Occurrence Crash Location. Figure 8-12 shows segments where the average daily traffic has increased by 25% or more from 1993 to 2003, and, where feasible, notes potential correlations between traffic increase and high accident locations. Figure 8-13 shows high occurrence crash locations identified by PennDOT.

Table 8-8 Roadway Segments, Intersections and Bridge Locations of Note

Roadway	Municipality or Community	Location/Intersection	HOCL	Increased Traffic	Bridge Condition	Supporting Information/Data
US 22	Bethel Twp	Between PA 343 and Hamlin Rd.	X	X		43% traffic increase since 1993
US 422	Jackson Twp	Between Martin Rd. & Millardsville Rd.	X	X		HOCL, 115% traffic increase since 1993
US 422	North Lebanon Twp.	15th Ave.	X			HOCL
US 422	Annville Twp/Cleona Borough	Between Mt. Pleasant Rd. & Chestnut St.	X	X		HOCL, 67% traffic increase since 1993
US 422	Palmyra Borough	Between Congress Ave. & Lingle Ave.	X			HOCL
US 322	West Cornwall Twp	Butler Rd./PA 241	X	X		HOCL, 32% traffic increase since 1993
US 322	South Londonderry Twp	Between Locust St. & Gentry Dr./PA 117	X			HOCL
PA 72	North Cornwall Twp	Between Rocherty Rd. & PA 241	X			HOCL
PA 72	North Lebanon Twp	Horst Dr.	X			HOCL
PA 343	North Lebanon Twp	Kochenderfer Rd.	X			HOCL
PA 343	Bethel Twp	Shirksville Rd.	X			HOCL
PA 501	Heidelberg Twp	Between Spruce St. & Prospect Hill Dr.	X	X		HOCL, 37% traffic increase since 1993
PA 117	S. Londonderry Twp	Patrick Rd. & Beech St.	X	X		HOCL, 78% traffic increase since 1993
PA 117	South Annville Twp	Leon Ave.	X	X		HOCL, 78% traffic increase since 1993
PA 419	Village of Quentin/West Cornwall Township	PA 72	X	X		HOCL, 40% traffic increase since 1993
PA 443	East Hanover Twp	Between Pleasant View Rd. & Harrison School Rd.		X		106% traffic increase since 1993
PA 241	South Annville Twp	Lake Dr.	X			HOCL
PA 241	North Cornwall Twp	Between Meadow Lane & Royal Rd.	X			HOCL
PA 241	S. Londonderry Twp	Between Lawn Rd. & Lancaster County		X		67% traffic increase since 1993
PA 897	Heidelberg Twp	Millbach Rd. & Lancaster County		X		45% traffic increase since 1993

Table continued

Table 8-8 Roadway Segments, Intersections and Bridge Locations of Note (continued)

Roadway	Municipality or Community	Location/Intersection	HOCL	Increased Traffic	Bridge Condition	Supporting Information/Data
PA 897	South Lebanon Twp	Between Iona Rd. & Flintville Rd.		X		55% traffic increase since 1993
PA 897	South Lebanon Twp	Fonderwhite Rd.	X	X		HOCL, 36% traffic increase since 1993
PA 897	South Lebanon Twp	Klein Ave. and Walnut St.	X	X		HOCL, 59% traffic increase since 1993
PA 934	North Annville Twp	Old Hill Church Rd.	X	X		HOCL, 46% traffic increase since 1993
PA 934	North Annville Twp	Hostetter Rd.	X	X		HOCL, 46% traffic increase since 1993
PA 934	East Hanover Twp	Jonestown Rd.	X			HOCL
Mt. Zion Rd.	Bethel Twp	Union Rd.	X			HOCL
Bunker Hill Rd.	Swatara Twp	Between Grace Ave. & Quarry Rd.	X			HOCL
Hill Church Rd.	North Annville Twp/Cleona Boro	Between Weaber St. & Tunnel Hill Rd.	X			HOCL
Hill Church Rd.	North Annville Twp	Thompson Ave.	X			HOCL
Old Forge Rd.	N. Londonderry Twp	Between Ridge Rd. & Valley Dr.	X			HOCL
Legion Rd.	S. Londonderry Twp	Between Campbelltown Rd. & Yorkshire Rd.	X			HOCL
Butler Rd.	W. Cornwall Twp	Between Mine Rd. & Starner Rd.	X			HOCL
East Evergreen Rd.	South Lebanon Twp	Lincoln Ave.	X			HOCL
Weavertown Rd.	North Lebanon Twp	Between 15th Ave. & 8th Ave.	X			HOCL
Weavertown Rd.	Jackson Twp	Elco Rd.	X			HOCL
Reilly Rd.	Jackson Twp	Over the Tulpehocken Creek			X	39' stone arch bridge recommended for rehabilitation, over 100 years old
Yordy's Bridge Rd.	Swatara Twp	Between 934 and Jonestown Rd. over the Swatara Creek			X	220' girder bridge recommended for replacement, built 1924
Golf Rd.	Bethel Twp	Over the Little Swatara Creek in Freeport Mills			X	235' girder bridge recommended for replacement, built 1933
Greenpoint School Rd.	Union Twp	Over Trout Run north of Swatara State Park			X	'38 steel stringer bridge recommended for replacement, weight restricted
Shirksville Rd.	Bethel Twp	Over Earlakill Run			X	34' steel stringer bridge recommended for replacement, weight restricted
Clear Spring Rd.	North Annville Twp	Over the Quittapahilla Creek			X	64' box bridge recommended for replacement; beams need updating, alignment is poor, & bridge is narrow.
Coon Creek Rd.	East Hanover Twp	Over the Raccoon Creek			X	31' steel stringer bridge recommended for replacement; narrow, poor alignment
North Lincoln Ave.	City of Lebanon	Over the Quittapahilla Creek			X	23' Reinforced concrete slab bridge recommended for replacement; bridge is >75 years old

Source: PennDOT; Lebanon County Planning Department

Figure 8-12 Highway and Roadway Segments with Daily Traffic Increases Over 25 Percent (1993-2003)

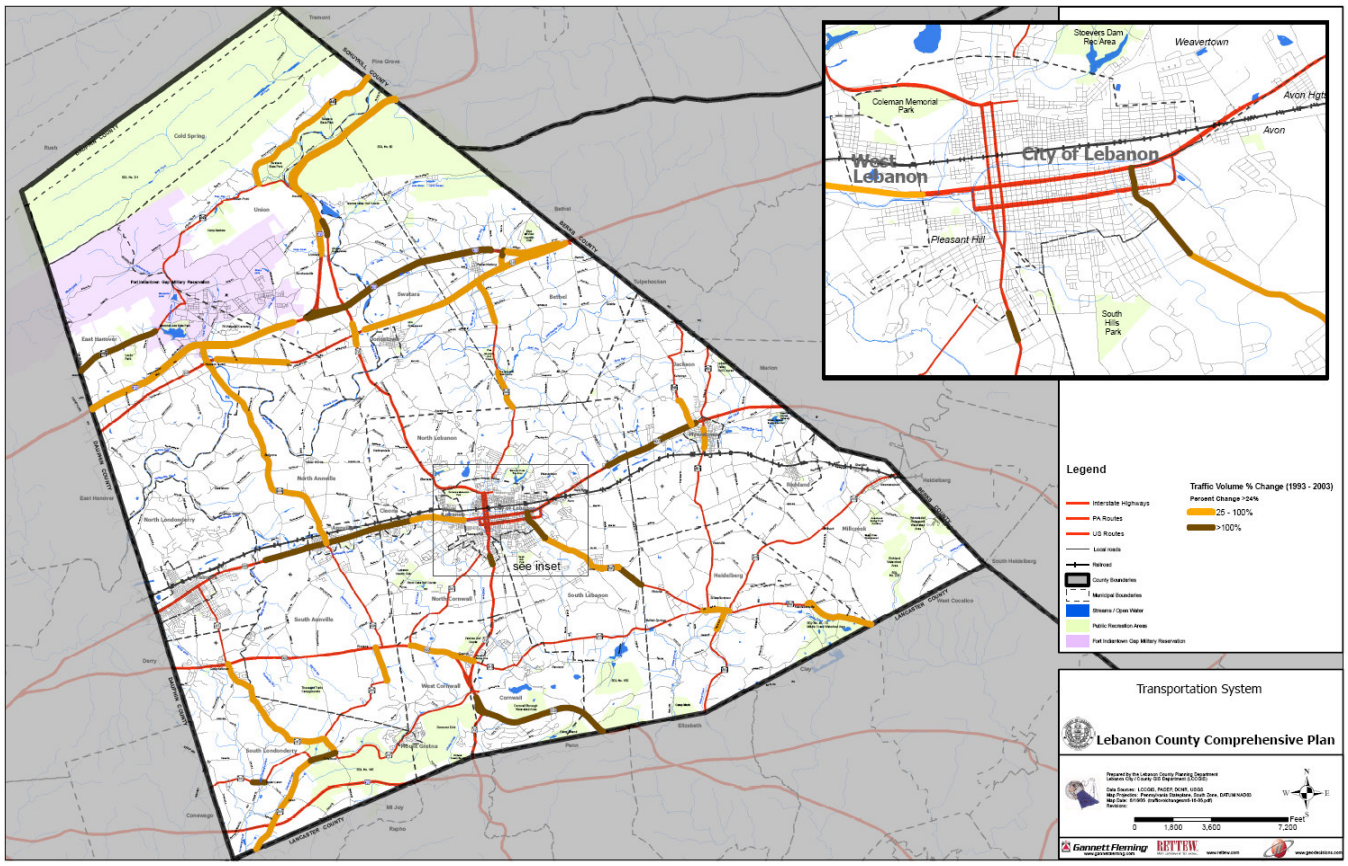
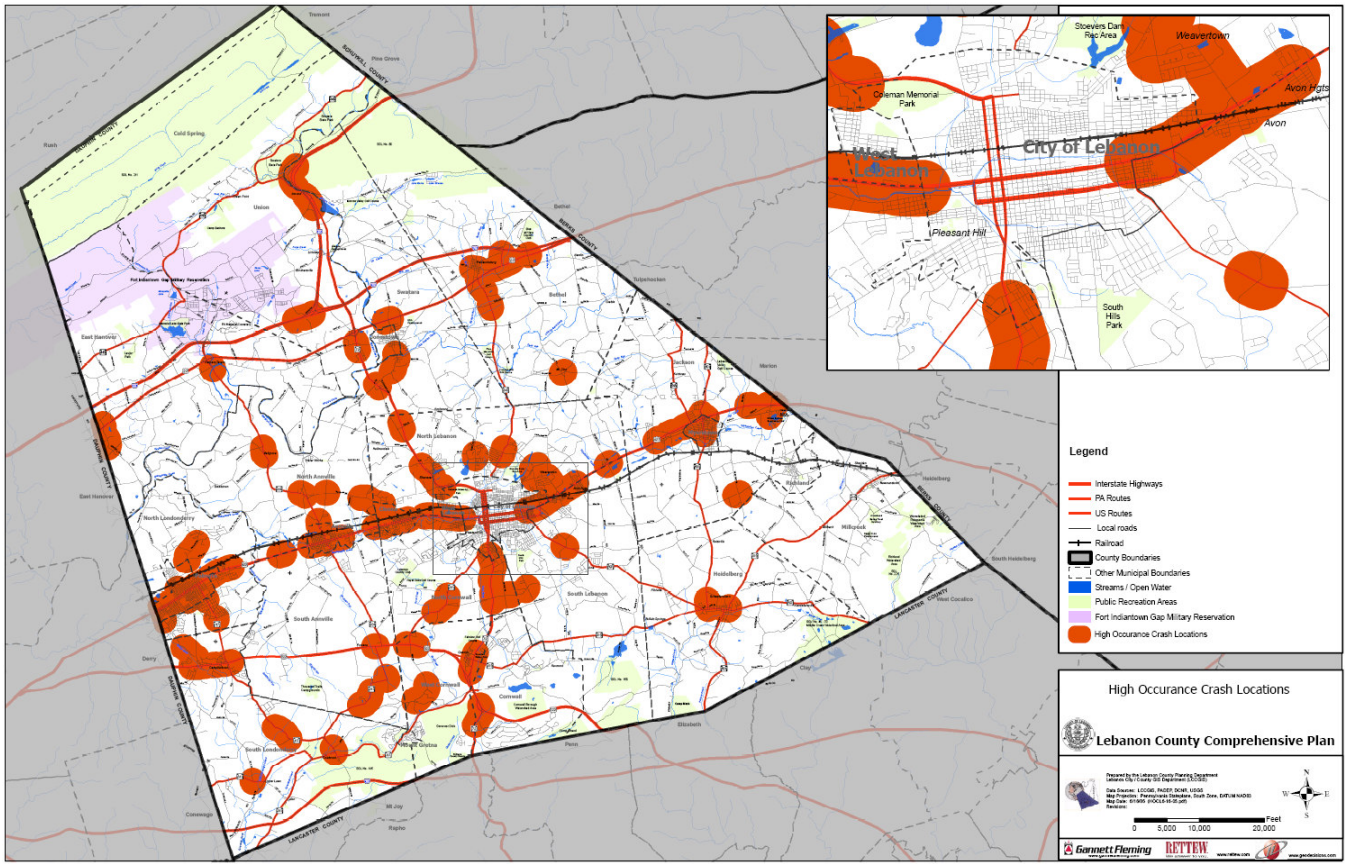


Figure 8-13 High Occurrence Crash Locations



TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

The TIP is a prioritized listing of projects that the Metropolitan Planning Organization (MPO) expects will be advanced over a four-year time frame. The adoption of the TIP is required by the Federal Highway Administration and the Federal Transit Administration for all MPOs, and it is a subset of the Long Range Transportation Plan (LRTP). The TIP is financially constrained, meaning that all identified sources of funding must be available, and covers the most immediate implementation priorities for transportation projects and strategies. It is the MPO's way of allocating its limited transportation resources among the various capital, operating and maintenance needs of the area.

For Lebanon County, the TIP was developed and approved before the Long Range Transportation Plan (LRTP) due to the short term nature of the TIP document. The initial Long Range Transportation Plan will include existing TIP projects. Once the Long Range Transportation Plan is completed, the TIP and the LRTP will be managed by the MPO as companion documents, and the TIP will need to be consistent with the LRTP.

The latest version of the FFY 2007-2010 TIP is included in the Reference Tables at the end of the profile of this document.

ISSUES

The profile has identified the county's key transportation facilities, roadway and transit usage trends, and specific locations where problems may exist. In addition, it has revealed how the transportation system currently operates, what trends are changing the way that the system is being used, and how future demand will require enhancements to address new residential and employment growth.

An examination of current trends for this profile shows:

- The number of residents and jobs within Lebanon County are expected to grow until at least 2020.
- Residents are currently traveling longer and farther to work than they did ten years ago.
- Traffic pressure from increasing demand for residential and business development will continue to impact the county's roadway infrastructure.
- Traffic on the county's main roads is expected to continue to increase, creating additional delay and the potential for trip diversions onto secondary roads.

Over time, the challenge of the Long Range Transportation Plan will be to dig deeper into these trends and identify specific strategies to improve the overall functioning of the transportation network.

- Regularly evaluate traffic signal performance and pavement conditions for safety and efficiency.
- Repair or replace bridges in poor condition.
- Examine the county's high occurrence crash locations to identify unsafe conditions and potential solutions/improvements.
- Identify ways to decrease conflicts between automobiles, pedestrians and cyclists resulting from development.
- Address transit's decreasing market share as employment and residential locations scatter.
- Work with municipalities to better share information and develop project priorities.
- Make system maintenance and low-cost operational improvements a priority.
- Deliver projects and improvements in a timely manner.
- Anticipate system deficiencies and be proactive rather than reactive.
- Influence land use trends for the benefit of transportation system components.

Table 8-9 Key Trends by Mode

Mode or Facility	Key Trends and Indicators to Advance to Long Range Transportation Plan for Additional Evaluation
Highway, Roadway and Bridges	• Traffic growth on the interstates could bring additional goods movement-related and residential development to areas near interchanges, specifically along I-81 and I-78. • Traffic growth on critical PA state roads, specifically US 322 in Cornwall, US 422 in Myerstown and PA 241 in South Londonderry reveal significant increases. These locations, and others throughout the county, need to be examined to determine whether capacity enhancements or other traffic control measures are necessary. • Congestion management will dictate evaluation of highway corridors instead of individual highway segment projects. • Countywide population and employment growth will increase traffic throughout the system. Capacity, traffic congestion, pavement and bridge conditions and traffic signal operations will need to be examined to both ensure safety, efficiency and consistency with community character. • High Occurrence Crash Locations must be evaluated to identify the reason for the high number of traffic incidents as well as any trends or conditions that will continue to compromise system safety. • Bridge conditions in the county must continue to improve.
Transit	• Both local and intercity transit is losing market share. Information is needed to clarify why this is occurring and what steps can reverse this trend. • The majority of minority and low-income residents are located in and around the City of Lebanon, where transit opportunities currently exist and may be more effectively enhanced. • The CORRIDORtwo Regional Rail would provide commuter rail transit service connecting the City of Lebanon and Harrisburg via the Norfolk Southern Harrisburg Line. There is no approved schedule for design and construction of the project. • Work with the Susquehanna Regional Transportation Partnership to help develop and promote transportation options beyond the single occupancy vehicle.
Freight Rail	• Traffic on Norfolk Southern's Harrisburg Line is expected to continue to grow. • The 9th & 10th Street Bridges over Norfolk Southern project will remove two at-grade crossings within the City of Lebanon. These bridges will improve traffic flow and access for emergency vehicles. • The safety of grade crossings countywide would be enhanced by the installation of gates. • Automated horns and other options should be investigated to address noise complaints while preserving safety at rail crossings.
Aviation	• Lebanon County has five privately-owned public use airports. The 2002 Lebanon County Airport Feasibility Study and Master Plan concluded that while there is local interest in a public general use airport, airport users are generally satisfied that the county's current capacity meets their needs. • The closest major commercial airport is in Harrisburg (33 miles way). Further examinations are necessary to determine whether improved airport access should be a priority.
Non-Motorized	• Annville, Cleona, Lebanon, Palmyra, Myerstown and Jonestown are good examples of communities that have walkable and bikeable downtowns. Continued maintenance and expansion of these bike/ped networks should be pursued to ensure mobility options for all travelers.

Source: Lebanon County Planning Department

REFERENCE TABLES

LEBCO MPO FFY Transportation Improvement Plan (Highways and Bridges)

LEBCO MPO FFY 2007 Transportation Improvement Plan (Interstate Maintenance)

LEBCO MPO FFY 2007 Transportation Improvement Plan (Transit)

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LEBCO MPO FFY 2007 Transportation Improvement Plan (Highways and Bridges)

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FFY 2007 Lebanon TIP

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							FFY 2007 Costs						FFY 2008 Costs						FFY 2009 Costs						FFY 2010 Costs						
County	S.R.	Sec.	Project	Project Title	Ph	Area	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St	Federal	State	Local	Total	^Milestones
Lebanon			79719	2007-10 Bridge Reserve	C	BRDG	BOO	185	213,080	18,408		231,488																			
Lebanon			79720	2007-10 Highway Reserve	C	HCON	STP		1			1																			
Lebanon			80090	Hybrid Bus Purchase	C	PT							CAQ		440,680		110,170	550,850													
Lebanon		BR	20328	Inwood Iron Bridge	F	BRDG							BOF	183	168,000	31,500	10,500	210,000													11/08/2001 E
Lebanon		BR	20328	Inwood Iron Bridge	U	BRDG							BOF	183	16,000	3,000	1,000	20,000													10/25/2001 E
Lebanon		BR	20328	Inwood Iron Bridge	R	BRDG							BOF	183	8,000	1,500	500	10,000													
Lebanon		BR	20328	Inwood Iron Bridge	C	BRDG													BOF	183	800,000	150,000	50,000	1,000,000							02/01/2010 E
Lebanon		BR	20328	Inwood Iron Bridge	C	BRDG																			BOF	183	740,000	138,750	46,250	925,000	02/01/2010 E
Lebanon		BRG	20327	Chestnut St. Bridge T-427	P	BRDG	BOF	183	140,800	26,400	8,800	176,000																			10/03/2002 E
Lebanon		BRG	20327	Chestnut St. Bridge T-427	F	BRDG							BOF	183	160,000	30,000	10,000	200,000													
Lebanon		BRG	20327	Chestnut St. Bridge T-427	U	BRDG							BOF	183	4,000	750	250	5,000													
Lebanon		BRG	20327	Chestnut St. Bridge T-427	R	BRDG							BOF	183	20,000	3,750	1,250	25,000													
Lebanon		BRG	20327	Chestnut St. Bridge T-427	C	BRDG													BOF	183	481,600	90,300	30,100	602,000							06/05/2009 E
Lebanon		BRG	20327	Chestnut St. Bridge T-427	C	BRDG																			BOF	183	481,600	90,300	30,100	602,000	06/05/2009 E
Lebanon		BRG	20400	9th/10thSt.Brdg, Leb.City	R	BRDG	BOO*		604,660			604,660																			
Lebanon		BRG	20400	9th/10thSt.Brdg, Leb.City	C	BRDG													SXF	183	6,400,000	1,200,000	400,000	8,000,000							01/14/2011 E
Lebanon		BRG	20400	9th/10thSt.Brdg, Leb.City	C	BRDG																			NHS	183	5,611,210	1,052,101	350,700	7,014,011	01/14/2011 E
Lebanon		CMQ	75398	2007-2010 CMAQ Line Item	C	SAMI	CAQ		304,919			304,919																			
Lebanon		CMQ	75398	2007-2010 CMAQ Line Item	C	SAMI							CAQ		862,849			862,849													
Lebanon		CMQ	75398	2007-2010 CMAQ Line Item	C	SAMI													CAQ		1,143,000			1,143,000							
Lebanon		CMQ	75398	2007-2010 CMAQ Line Item	C	SAMI																			CAQ		1,143,000			1,143,000	
Lebanon		ENH	65929	QCNP Ped/Bike Bridge	C	TENH	STE		136,884			136,884																			03/30/2007 A
Lebanon		ENH	75399	2007-2010 ENH Line Item	C	TENH	STE		105,116			105,116																			
Lebanon		ENH	75399	2007-2010 ENH Line Item	C	TENH							STE		250,000			250,000													
Lebanon		ENH	75399	2007-2010 ENH Line Item	C	TENH													STE		259,000			259,000							
Lebanon		ENH	75399	2007-2010 ENH Line Item	C	TENH																			STE		259,000			259,000	
Lebanon		HSP	75401	2007-2010 Safety Reserve	C	SAMI							HSIP		608,000			608,000													
Lebanon		HSP	75401	2007-2010 Safety Reserve	C	SAMI													HSIP		622,000			622,000							
Lebanon		HSP	75401	2007-2010 Safety Reserve	C	SAMI																			HSIP		622,000			622,000	
Lebanon		PDA	75861	Project Delivery Assist.	P	PRA		581		150,000		150,000																			
Lebanon		RRX	75402	2007-2010 RRX Line Item	C	SAMI							RRX		51,000			51,000													
Lebanon		RRX	75402	2007-2010 RRX Line Item	C	SAMI													RRX		133,000			133,000							
Lebanon		RRX	75402	2007-2010 RRX Line Item	C	SAMI																			RRX		132,000			132,000	
Lebanon		RRX	76946	Ramona Rd Crossing	C	SAMI	RRX		133,000			133,000																			
Lebanon		RRX	76946	Ramona Rd Crossing	C	SAMI							RRX		82,000			82,000													
Lebanon	22	029	70361	Allentown Blvd-1	C	HRST														581		2,320,703		2,320,703							05/10/2007 A
Lebanon	22	029	70361	Allentown Blvd-1	C	HRST								581		4,910,500		4,910,500													05/10/2007 A
Lebanon	22	029	70361	Allentown Blvd-1	C	HRST	HSIP	581	601,000	2,426,797		3,027,797																			05/10/2007 A
Lebanon	22	029	70361	Allentown Blvd-1	C	HRST		583		67,000		67,000																			05/10/2007 A
Lebanon	72	028	69680	Tremont Bridge over RR	P	BRDG	BOO	185	178,156	44,539		222,695																			06/30/2008 E
Lebanon	72	028	69680	Tremont Bridge over RR	F	BRDG													BOO	185	190,152	47,538		237,690							
Lebanon	72	028	69680	Tremont Bridge over RR	U	BRDG														185		10,000		10,000							
Lebanon	72	028	69680	Tremont Bridge over RR	R	BRDG																			BOO	185	160,000	40,000		200,000	

* Includes Conversion Amount + Indicates phase qualifies for TOLL funds On Obligation Plan Obligations have occurred ^ PE - NEPA, FD - PSE CO, UTL - Fnl UTL Clr., ROW - Cond ROW, CON - Let

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							FFY 2007 Costs						FFY 2008 Costs						FFY 2009 Costs						FFY 2010 Costs						
County	S.R.	Sec.	Project	Project Title	Ph	Area	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St	Federal	State	Local	Total	^Milestones
Lebanon	72	029	76932	West Crestview DR/72 Inte	P	SAMI					10,000	10,000																			02/01/2008 E
Lebanon	72	029	76932	West Crestview DR/72 Inte	F	SAMI					20,000	20,000																			
Lebanon	72	029	76932	West Crestview DR/72 Inte	U	SAMI					8,000	8,000																			
Lebanon	72	029	76932	West Crestview DR/72 Inte	+C	SAMI							CAQ		190,750		139,250	330,000													04/02/2009 E
Lebanon	72	030	79708	Lickdale South	P	HRST		582		25,000		25,000																			08/01/2008 E
Lebanon	72	030	79708	Lickdale South	F	HRST		582		40,000		40,000																			
Lebanon	72	030	79708	Lickdale South	U	HRST		582		25,000		25,000																			
Lebanon	72	030	79708	Lickdale South	+C	HRST							STP	582	1,831,801	1		1,831,802													01/22/2009 E
Lebanon	117	004	74111	Iron Master Road Resurf	C	HRST	STP		2,371,801			2,371,801																			10/25/2007 E
Lebanon	117	004	74111	Iron Master Road Resurf	C	HRST							STP		168,199			168,199													10/25/2007 E
Lebanon	322	024	70017	US-322 Horseshoe Pike	C	HRST	STP		116,000			116,000																			01/12/2006 A
Lebanon	422	017	74078	Main St. Culvert-Annville	P	HRST		582		121,000		121,000																			12/30/2007 E
Lebanon	422	017	74078	Main St. Culvert-Annville	F	HRST		582		80,000		80,000																			02/20/2008 E
Lebanon	422	017	74078	Main St. Culvert-Annville	U	HRST		582		30,000		30,000																			02/15/2008 E
Lebanon	422	017	74078	Main St. Culvert-Annville	R	HRST		582		20,000		20,000																			03/30/2008 E
Lebanon	422	017	74078	Main St. Culvert-Annville	C	HRST		582		400,000		400,000																			04/17/2008 E
Lebanon	422	020	75790	CCIP Palmyra to Cleona	P	SAMI	CAQ		250,000			250,000																			
Lebanon	422	020	75790	CCIP Palmyra to Cleona	F	SAMI	CAQ		50,000			50,000																			
Lebanon	443	007	79703	Mountain Road-SR 443	P	HRST		582		175,000		175,000																			06/01/2008 E
Lebanon	443	007	79703	Mountain Road-SR 443	U	HRST		582		20,000		20,000																			
Lebanon	443	007	79703	Mountain Road-SR 443	R	HRST		582		10,000		10,000																			
Lebanon	443	007	79703	Mountain Road-SR 443	C	HRST														582		2,720,000		2,720,000							02/26/2009 E
Lebanon	501	006	20215	Schaefferstown Bypass	F	HCON	SXF	581	800,000	200,000		1,000,000																			
Lebanon	501	006	20215	Schaefferstown Bypass	U	HCON		581		50,000		50,000																			02/01/2009 E
Lebanon	501	006	20215	Schaefferstown Bypass	R	HCON	STP	581	440,680	150,170		590,850																			
Lebanon	501	006	20215	Schaefferstown Bypass	R	HCON	SXF		160,000			160,000																			
Lebanon	501	006	20215	Schaefferstown Bypass	R	HCON							STP	581	74,520	18,630		93,150													
Lebanon	501	006	20215	Schaefferstown Bypass	R	HCON													STP	581	1,904,800	476,200		2,381,000							
Lebanon	501	006	20215	Schaefferstown Bypass	C	HCON													STP	581	3,543,201	1,060,800		4,604,001							04/30/2009 E
Lebanon	501	006	20215	Schaefferstown Bypass	C	HCON													SXF		640,000			640,000							04/30/2009 E
Lebanon	501	006	20215	Schaefferstown Bypass	C	HCON																			STP	581	1,416,799	339,200		1,755,999	04/30/2009 E
Lebanon	897	014	66426	Middle Creek Trib. Br	P	HRST		582		75,000		75,000																			08/24/2007 A
Lebanon	897	014	66426	Middle Creek Trib. Br	F	HRST		582		75,000		75,000																			
Lebanon	897	014	66426	Middle Creek Trib. Br	U	HRST		582		10,000		10,000																			06/08/2007 A
Lebanon	897	014	66426	Middle Creek Trib. Br	R	HRST		582		10,000		10,000																			
Lebanon	897	014	66426	Middle Creek Trib. Br	C	HRST	STP		410,000			410,000																			12/20/2007 E
Lebanon	1009	007	68861	Union Road Bridge	F	BRDG													BOF	185	74,578	18,644		93,222							
Lebanon	1009	007	68861	Union Road Bridge	F	BRDG																			BOF	185	50,286	12,572		62,858	
Lebanon	1009	007	68861	Union Road Bridge	U	BRDG																				185		4,000		4,000	
Lebanon	1009	007	68861	Union Road Bridge	R	BRDG																				185		4,000		4,000	
Lebanon	1011	008	20413	Mount Zion Road Bridge	F	BRDG													BOF	185	127,486	31,871		159,357							
Lebanon	1011	008	20413	Mount Zion Road Bridge	F	BRDG																			BOF	185	127,486	31,872		159,358	
Lebanon	1011	008	20413	Mount Zion Road Bridge	U	BRDG																				185		25,000		25,000	

* Includes Conversion Amount + Indicates phase qualifies for TOLL funds ■ On Obligation Plan □ Obligations have occurred ^ PE - NEPA, FD - PSE CO, UTL - Fnl UTL Clr., ROW - Cond ROW, CON - Let

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							FFY 2007 Costs						FFY 2008 Costs						FFY 2009 Costs						FFY 2010 Costs						
County	S.R.	Sec.	Project	Project Title	Ph	Area	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St	Federal	State	Local	Total	^Milestones
Lebanon	1011	008	20413	Mount Zion Road Bridge	R	BRDG																				185		8,000		8,000	
Lebanon	2014	012	63246	Furnace Road Bridge Repla	P	BRDG	BOO	185	209,802	68,000		277,802																			09/30/2008 E
Lebanon	2014	012	63246	Furnace Road Bridge Repla	P	BRDG	STP		62,198			62,198																			09/30/2008 E
Lebanon	2014	012	63246	Furnace Road Bridge Repla	F	BRDG													BOO	185	127,516	31,879		159,395							
Lebanon	2014	012	63246	Furnace Road Bridge Repla	U	BRDG														185		2,000		2,000							
Lebanon	2014	012	63246	Furnace Road Bridge Repla	R	BRDG														185		6,000		6,000							
Lebanon	2014	012	63246	Furnace Road Bridge Repla	C	BRDG																			BOO	185	652,936	163,234		816,170	02/01/2011 E
Lebanon	2014	013	68867	Furnace Road Bridges	P	BRDG	BOF	185	281,075	70,269		351,344																			09/30/2009 E
Lebanon	2014	013	68867	Furnace Road Bridges	F	BRDG													BOF	185	203,022	50,755		253,777							
Lebanon	2014	013	68867	Furnace Road Bridges	U	BRDG														185		2,000		2,000							
Lebanon	2014	013	68867	Furnace Road Bridges	R	BRDG														185		4,000		4,000							
Lebanon	2014	013	68867	Furnace Road Bridges	C	BRDG																			BOF	185	355,346	88,837		444,183	02/01/2012 E
Lebanon	3023	004	20310	Mill Street Bridges (2)	P	BRDG	BOO	185	256,000	64,000		320,000																			05/01/2009 E
Lebanon	3023	004	20310	Mill Street Bridges (2)	F	BRDG													BOO	185	131,691	32,923		164,614							
Lebanon	3023	004	20310	Mill Street Bridges (2)	F	BRDG																			BOO	185	131,692	32,923		164,615	
Lebanon	3023	004	20310	Mill Street Bridges (2)	U	BRDG																				185		8,000		8,000	
Lebanon	3023	004	20310	Mill Street Bridges (2)	R	BRDG																				185		14,000		14,000	
Lebanon	4011	012	79714	Gravel Hill o/trb Swatara	F	HRST		582		175,000		175,000																			
Lebanon	4011	012	79714	Gravel Hill o/trb Swatara	U	HRST		582		20,000		20,000																			08/30/2007 A
Lebanon	4011	012	79714	Gravel Hill o/trb Swatara	R	HRST		582		10,000		10,000																			
Lebanon	4011	012	79714	Gravel Hill o/trb Swatara	C	HRST								582		600,000		600,000													05/01/2008 E
Lebanon	4013	005	20283	Lindley Murray Rd Bridge	P	BRDG	BOF	185	227,413	56,853		284,266																			10/31/2008 E
Lebanon	4013	005	20283	Lindley Murray Rd Bridge	F	BRDG													BOF	185	137,484	34,371		171,855							
Lebanon	4013	005	20283	Lindley Murray Rd Bridge	F	BRDG																			BOF	185	137,485	34,371		171,856	
Lebanon	4013	005	20283	Lindley Murray Rd Bridge	U	BRDG																				185		25,000		25,000	
Lebanon	4013	005	20283	Lindley Murray Rd Bridge	R	BRDG																				185		8,000		8,000	
Lebanon	4014	006	20367	Blacks Bridge Road Bridge	F	BRDG													BOF	185	251,590	62,897		314,487							
Lebanon	4014	006	20367	Blacks Bridge Road Bridge	U	BRDG														185		8,000		8,000							
Lebanon	4014	006	20367	Blacks Bridge Road Bridge	R	BRDG														185		12,000		12,000							
Lebanon	7207	0	72231	Clear Springs Rd Bridge	+C	BRDG														183		1,344,000	336,000	1,680,000							12/04/2008 E
Totals for: Lebanon									8,052,585	4,713,436	46,800	12,812,821			4,935,799	5,599,631	272,920	10,808,350			17,170,118	9,716,883	816,100	27,703,101			12,020,841	2,120,159	427,050	14,568,050	65,892,322
									8,052,585	4,713,436	46,800	12,812,821			4,935,799	5,599,631	272,920	10,808,350			17,170,118	9,716,883	816,100	27,703,101			12,020,841	2,120,159	427,050	14,568,050	65,892,322

Summary information is now found on the TIP200e report.

* Includes Conversion Amount + Indicates phase qualifies for TOLL funds On Obligation Plan Obligations have occurred ^ PE - NEPA, FD - PSE CO, UTL - Fnl UTL Clr., ROW - Cond ROW, CON - Let

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FFY 2007 Interstate TIP

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							FFY 2007 Costs						FFY 2008 Costs						FFY 2009 Costs						FFY 2010 Costs						
County	S.R.	Sec.	Project	Project Title	Ph	Area	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St	Federal	State	Local	Total	^Milestones
Lebanon	72	006	69136	I-78 Overhead Bridges	C	BRDG	BOO		2,436,904			2,436,904																			12/21/2006 E
Lebanon	72	006	69136	I-78 Overhead Bridges	C	IMAN		185		609,226		609,226																			12/21/2006 E
Lebanon	78	007	20228	I-78 Mainline Bridges	C	BRDG							BOO		2,974,347			2,974,347													12/21/2006 A
Lebanon	78	007	20228	I-78 Mainline Bridges	C	IMAN								185		330,483		330,483													12/21/2006 A
Lebanon	4013	006	69138	I-81 Overhead Bridge Grp	F	BRDG	BOO		453,334			453,334																			
Lebanon	4013	006	69138	I-81 Overhead Bridge Grp	F	IMAN		185		50,370		50,370																			
Lebanon	4013	006	69138	I-81 Overhead Bridge Grp	U	IMAN		185		25,000		25,000																			
Lebanon	4013	006	69138	I-81 Overhead Bridge Grp	C	BRDG							BOO		1,930,314			1,930,314													05/01/2008 E
Lebanon	4013	006	69138	I-81 Overhead Bridge Grp	C	IMAN								185		214,479		214,479													05/01/2008 E
				Totals for: Lebanon					2,890,238	684,596		3,574,834			4,904,661	544,962		5,449,623													9,024,457
									2,890,238	684,596		3,574,834			4,904,661	544,962		5,449,623													9,024,457

Summary information is now found on the TIP200e report.

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FFY 2007 Lebanon TIP
Public Transit

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			FFY 2007 Costs						FFY 2008 Costs						FFY 2009 Costs						FFY 2010 Costs						Total
Project	Project Title	Sponsor	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St.	Federal	State	Local	Total	Fed.	St	Federal	State	Local	Total	
76235	2007 Vehicles	COLT		ACT3		290,010	9,990	300,000																			300,000
76236	2008 Vehicles	COLT								ACT3		580,020	19,980	600,000													600,000
76244	2007 Operating Assistance	COLT	5307	ACT3	766,000	714,000	50,279	1,530,279																			1,530,279
76246	2007 Paratransit Vehicles	COLT		164		220,000		220,000																			220,000
76247	2009 Vehicles	COLT														ACT3		580,020	19,980	600,000							600,000
76248	2008 Operating Assistance	COLT							5307	ACT3	831,000	714,000	50,279	1,595,279													1,595,279
76254	2009 Operating Assistance	COLT													5307	ACT3	884,000	714,000	50,279	1,648,279							1,648,279
76255	2010 Operating Assistance	COLT																			5307	ACT3	884,000	714,000	50,279	1,648,279	1,648,279
76257	2010 Vehicles	COLT																				ACT3		580,020	19,980	600,000	600,000
76260	Auto Stop Announce Sys	COLT	5309	ACT3	300,000	75,000		375,000																			375,000
					1,066,000	1,299,010	60,269	2,425,279			831,000	1,294,020	70,259	2,195,279			884,000	1,294,020	70,259	2,248,279			884,000	1,294,020	70,259	2,248,279	9,117,116

For Summary, re-run and select the "Summary" radio button.

Land Use Profile

Introduction

Land use is the modification of natural environments into man-made or built environments. The delineation of land use typically references the human activity, (e.g. shopping), or function, (e.g. commercial sales and services), of a region or parcel. It may also include delineation of relatively undisturbed areas by their vegetative cover, (e.g. crops or forest).

Land use data is only one aspect of the inventory phase of planning; however it is an extremely important one. Trends in the amount, location, timing, and intensity of community development, indicate how a community has changed or is changing the landscape in which its lives. The analysis enables planners to evaluate current policies and adjust them, as needed, to strengthen guidance and regulation of future development, plan for additional public service needs, and manage environmental impacts. In Pennsylvania, planned land use policies and patterns ultimately provide the basis for zoning and land development regulations.

Existing Land Use Patterns

Land Use Delineation Methodology

The method used to designate land uses for this study was based on data from the Lebanon County Assessment Office. The Assessment Office maintains an extensive database of information related to each property or parcel located in Lebanon County for the purposes of property-based taxation. A detailed description of the land use designation method was prepared in the Land Use Delineation Development and Maintenance Manual (2006). This methodology was developed and documented in the manual to instruct the county in maintaining the land use database for future analysis and reporting.

Land uses have traditionally been categorized as either “developed” or “undeveloped”. Developed uses referred to the built environment – residential, commercial, industrial, and similar uses, while undeveloped referred to agricultural, forest and natural areas. In recent years, the term “developed” has been applied to agricultural, forest and natural areas in recognition of the function and value these lands have for the economy as well as for environmental quality. The terms “working lands” and “open space” have been applied to these uses. The term ”undeveloped” remains applicable to parcels or portions of parcels planned for intensively built areas of communities and is used in this way for the remainder of the land use profile.

In brief, the land use field of the county’s computer-assisted mass appraisal (CAMA) database provided the baseline inventory of land use or land cover status. This database was joined to the spatial data of the county’s parcels provided by the Lebanon City/County Geographic Information System Department. The land use field for each parcel was correlated with the numeric functional schema of the American Planning Association’s land-based classification system to generate land use designations appropriate for planning. Land use was given precedence over land cover. For example, a wooded residential parcel was classified as residential. Spatial data, indicating the location of public and quasi-public institutions, was overlaid to specify “institutional” parcels from CAMA’s “exempt” classification. Additional analysis of parcels with building densities of four units per acre or more resulted in reclassification of parcels from low density to high density residential parcels. In order to more accurately delineate undeveloped portions of relatively large urban and rural parcels for use in the build-out analysis, U.S. Census Bureau-designated urbanized areas were used to define urban areas from rural areas. Parcels larger than one acre within the urban areas were reviewed to delineate undeveloped portions of one-half acre or more from otherwise developed parcels. Parcels larger than six acres in rural areas were reviewed to delineate undeveloped portions of parcels three acres or more from otherwise developed parcels. As a result of this methodology, land use categories, their total acreages and the total county acreage vary from figures reported in previous county planning documents. The 2006 Land Use/Cover Map illustrates the land use pattern in Lebanon County as of March 1, 2006.

Countywide Land Use Pattern

Lebanon County's land use pattern reflects an open space landscape interspersed with concentrated, intensively developed communities and low density development. The county is dominated by agriculture and forests, which together account for 169,537 acres or approximately 72.4% of the county's total land area. The high density development is mostly found along Route 422. The areas north and south of Route 422 are largely agricultural and low-density residential areas. Areas north of I-81 contain most of the county's forested lands, with the remaining large forest blocks being concentrated on the southern mountains along the Lancaster County border.

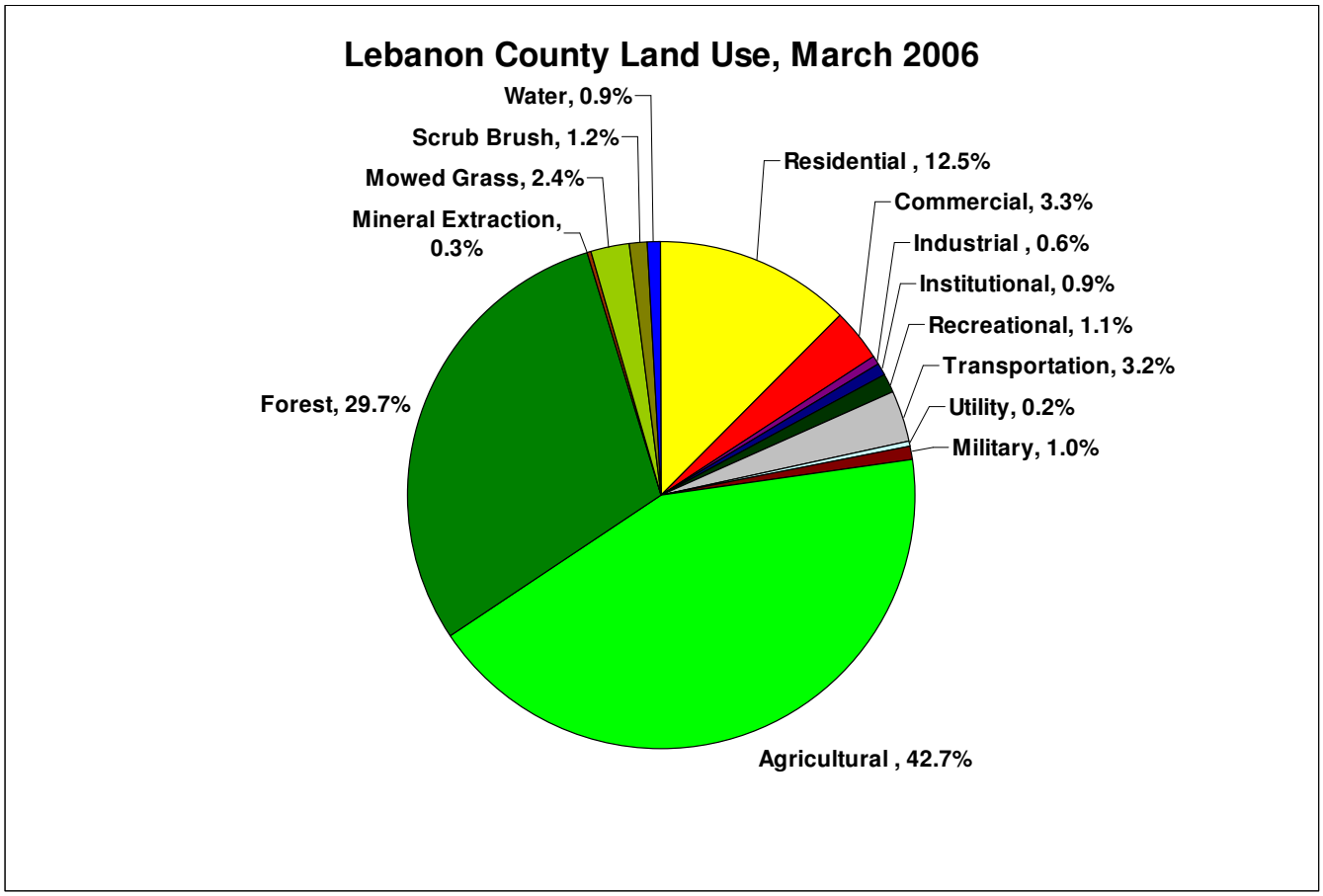
Total acreages for each major land use type are shown in Table 9-1 and Figure 9-1 and discussed below. Developed uses are discussed first, followed by working and open space lands and water.

Table 9-1 2006 Land Use/Cover Distribution

Land Use/Cover	Acres	Percent of County
Residential	29,353	12.5%
Commercial	7,738	3.3%
Industrial	1,321	0.6%
Institutional	2,164	0.9%
Recreational	2,669	1.1%
Transportation	7,395	3.2%
Utility	531	0.2%
Military	2,427	1.0%
Agricultural	99,996	42.7%
Forest	69,541	29.7%
Mineral Extraction	598	0.3%
Mowed Grass	5,665	2.4%
Scrub Brush	2,713	1.2%
Water	2,109	0.9%
Total	234,222	100.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Figure 9-1 Land Use/Cover Distribution, March 2006



Residential Lands

Residential lands are the third largest land use group yet comprise only 29,353 acres or 12.6% of the county's total land area, far behind agriculture at 42.8% and forested lands at 29.7%. Of that total, approximately 5,935 acres are high density residential, 22,720 acres are low-density residential, 264 acres are a residential/commercial mix, and 464 are seasonal residential lands.

Reflecting its sheer size at nearly 40% of the county, the Northern Lebanon School District contains the highest number of residential acres (8,080 acres), which is still the smallest percentage of school district lands (8.6%). The Cornwall-Lebanon School District contains the second highest number of residential acres (6,967 acres).

Percentages of residential lands within a municipality range from 8.9% in Union Township to 42.1% in Palmyra Borough; Cold Spring Township is excepted at 0.3%. The Lebanon School District contains less than one percent of the county's residential lands but a significant 29.3% of school district lands. The Palmyra Area contains the second highest percentage of residential lands within its school district borders (17.5%).

Table 9-2 presents the distribution of total residential land uses in Lebanon County. The acreage and relative percentages of high density, low density, residential / commercial mix, and seasonal residential properties are shown in Tables 9-3 through 9-6. This information was drawn from the land use geodatabase and, in some instances, varies from data published by the U.S. Census Bureau, which is based on housing units, not acreage.

High Density Residential Lands

- Only 2.5% of the total land in the county is used for residential uses at a density of 4 units per acre or more, termed high density in the remainder of the profile. Acreages are shown in Table 9-3 and shown on the March 2006 Land Use Map. High density residential development is predominantly concentrated along the Route 422 corridor and in its associated urban areas: Palmyra Borough, Annville Township, Cleona Borough, West Lebanon Township, Lebanon City, and Myerstown Borough; 75% or more of their

Table 9-2 Distribution of Residential Land

	Residential Acreage	% of Municipal or SD Area	% of County Residential	% of County
Lebanon County	**29,353**	**n/a**	**100.0%**	**12.5%**
Annville-Cleona SD	**3,312**	**13.2%**	**11.3%**	**1.4%**
Annville	279	26.8%	1.0%	0.1%
Cleona	162	30.0%	0.6%	0.1%
North Annville	1,179	10.7%	4.0%	0.5%
South Annville	1,691	13.6%	5.8%	0.7%
Cornwall-Lebanon SD	**6,967**	**16.4%**	**23.7%**	**3.0%**
Cornwall	1,383	22.2%	4.7%	0.6%
Mount Gretna	30	24.4%	0.1%	0.0%
North Cornwall	1,136	18.7%	3.9%	0.5%
North Lebanon	2,256	21.1%	7.7%	1.0%
South Lebanon	1,494	10.9%	5.1%	0.6%
West Cornwall	668	12.1%	2.3%	0.3%
ELCO SD	**6,002**	**13.2%**	**20.4%**	**2.6%**
Heidelberg	2,152	13.9%	7.3%	0.9%
Jackson	2,247	14.6%	7.7%	1.0%
Millcreek	1,212	9.3%	4.1%	0.5%
Myerstown	196	35.8%	0.7%	0.1%
Richland	195	21.9%	0.7%	0.1%
Lebanon SD	**855**	**29.3%**	**2.9%**	**0.4%**
Lebanon City	813	30.5%	2.8%	0.3%
West Lebanon	42	16.5%	0.1%	0.0%
Northern Lebanon SD	**8,080**	**8.6%**	**27.5%**	**3.5%**
Bethel	2,325	10.4%	7.9%	1.0%
Cold Spring	50	0.3%	0.2%	0.0%
East Hanover	2,131	10.2%	7.3%	0.9%
Jonestown	127	31.7%	0.4%	0.1%
Swatara	1,760	13.2%	6.0%	0.8%
Union	1,687	8.9%	5.7%	0.7%
Palmyra Area SD	**4,137**	**17.5%**	**14.1%**	**1.8%**
North Londonderry	1,561	22.7%	5.3%	0.7%
Palmyra	520	42.1%	1.8%	0.2%
South Londonderry	2,056	13.2%	7.0%	0.9%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

residential lands are high density residential. Palmyra Borough has the highest percentage of high density residential land in its school district region (33.1%), followed by Myerstown Borough (28.9%) and the City of Lebanon (28.1%). The City of Lebanon has the greatest number of acres (749) used for high density residential development, followed by North Lebanon Township (488) and Palmyra Borough (409). There are also pockets of high density residential development in the boroughs including Jonestown Borough, Mount Gretna Borough, and Richland Borough, as well as in the villages of Newmanstown, Campbelltown, Schaefferstown, and Quentin, and in portions of the townships that abut the City of Lebanon.

Table 9-3 High Density Residential Land Use Analysis

			High Density Residential (HDR)				
	Total Acreage	Total Residential Acreage	HDR Acreage	% of Municipal or SD Residential	% of Municipal or SD Total	% of County Residential	% of County Total
Lebanon County	**234,222**	**29,353**	**5,935**	**n/a**	**n/a**	**20.2%**	**2.53%**
Annville-Cleona SD	**25,093**	**3,312**	**790**	**23.9%**	**3.1%**	**2.7%**	**0.34%**
Annville	1,043	279	211	75.4%	20.2%	0.7%	0.09%
Cleona	540	162	122	75.5%	22.7%	0.4%	0.05%
North Annville	11,056	1,179	196	16.6%	1.8%	0.7%	0.08%
South Annville	12,454	1,691	262	15.5%	2.1%	0.9%	0.11%
Cornwall-Lebanon SD	**42,522**	**6,967**	**1,473**	**21.1%**	**3.5%**	**5.0%**	**0.63%**
Cornwall	6,237	1,383	103	7.4%	1.6%	0.3%	0.04%
Mount Gretna	92	30	9	31.1%	10.1%	0.0%	0.00%
North Cornwall	6,077	1,136	257	22.6%	4.2%	0.9%	0.11%
North Lebanon	10,704	2,256	488	21.6%	4.6%	1.7%	0.21%
South Lebanon	13,902	1,494	391	26.2%	2.8%	1.3%	0.17%
West Cornwall	5,510	668	226	33.8%	4.1%	0.8%	0.10%
ELCO SD	**45,366**	**6,002**	**1,086**	**18.1%**	**2.4%**	**3.7%**	**0.46%**
Heidelberg	15,439	2,152	265	12.3%	1.7%	0.9%	0.11%
Jackson	15,422	2,247	368	16.4%	2.4%	1.3%	0.16%
Millcreek	13,069	1,212	193	15.9%	1.5%	0.7%	0.08%
Myerstown	548	196	159	80.8%	28.9%	0.5%	0.07%
Richland	887	195	102	52.4%	11.5%	0.3%	0.04%
Lebanon SD	**2,920**	**855**	**788**	**92.1%**	**27.0%**	**2.7%**	**0.34%**
Lebanon City	2,667	813	749	92.0%	28.1%	2.6%	0.32%
West Lebanon	253	42	39	93.3%	15.4%	0.1%	0.02%
Northern Lebanon SD	**94,674**	**8,080**	**814**	**10.1%**	**0.9%**	**2.8%**	**0.35%**
Bethel	22,269	2,325	77	3.3%	0.3%	0.3%	0.03%
Cold Spring	18,161	50	4	7.8%	0.0%	0.0%	0.00%
East Hanover	20,883	2,131	219	10.3%	1.0%	0.7%	0.09%
Jonestown	401	127	45	35.6%	11.3%	0.2%	0.02%
Swatara	13,937	1,760	230	13.1%	1.7%	0.8%	0.10%
Union	19,023	1,687	239	14.1%	1.3%	0.8%	0.10%
Palmyra Area SD	**23,647**	**4,137**	**984**	**23.8%**	**4.2%**	**3.4%**	**0.42%**
North Londonderry	6,876	1,561	265	17.0%	3.8%	0.9%	0.11%
Palmyra	1,235	520	409	78.6%	33.1%	1.4%	0.17%
South Londonderry	15,536	2,056	310	15.1%	2.0%	1.1%	0.13%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

- The Cornwall-Lebanon School District region has the highest percentage of high density residential lands (5.0%) of the county's total high density residential lands, followed by the ELCO (3.7%) and Palmyra Area School Districts (3.4%). High density residential housing accounts for 92.1% of all of the residential land in the Lebanon School District, compared to 23.9% in the Annville-Cleona School District and 23.8% in the Palmyra Area School District.

Low Density Residential Lands

- Nearly 10% of the total land in the county is being used for low density residential land (less than 4 units per acre), compared to the 2.5% that is being used for high density residential uses. Acreages are shown in Table 9-4 and shown on the March 2006 Land Use Map.
- Locally, low density residential lands dominate residential land use types; low density residential lands comprise more than 75% of residential lands in 15 of the 26 municipalities. Furthermore, low density residential development accounts for the largest percentage of total municipal land in Mount Gretna (22.3%) and Cornwall (20.3%), followed by Jonestown (20.2%), North Londonderry Township (18.5%), and North Lebanon Township (16.3%). Bethel Township has the greatest number of acres (2,163) considered to be low density residential development.
- Low density residential uses are dispersed throughout the county in planned subdivisions and in strip patterns along roadways. This pattern is most noticeable in North and South Londonderry Townships, in Heidelberg and Jackson Townships, in Bethel and East Hanover Townships and North Lebanon Township. With the exception of North Londonderry, these municipalities each have more than 2,000 acres and 20% of total lands in their respective school district regions.
- The Cornwall-Lebanon and ELCO School Districts have the highest percentages of low density residential development. In the Cornwall-Lebanon School District, low density residential land uses account for 77.8% of all residential land in the district and 12.78% of all land in the district. In the ELCO School District, low density residential land accounts for 79.38% of the residential uses in the district and 10.5% of all of the land in the district.

Residential/Commercial

- Residential/Commercial lands contain both uses and total 264 acres or 0.9% of the county lands. Acreages are shown in Table 9-5 and shown on the March 2006 Land Use Map.
- Jackson Township has the greatest number of acres (34) considered to be used for Residential/Commercial mix, followed by Bethel Township (30). Myerstown Borough has the highest relative percentage of Residential/Commercial land (1.0%) followed by Annville Township (0.9%).

Seasonal Residential Lands

- Seasonal residential lands comprise 434 acres or 0.25% of Lebanon County. Acreages are shown in Table 9-6 and shown on the March 2006 Land Use Map.
- Seasonal residential lands total 16.7% of all residential lands in the county's most rural municipality, Cold Spring Township. With this exception noted, Union Township has the greatest number of acres considered seasonal residential lands (130), and the greatest relative percentage of seasonal housing among all residential types (7.7%).
- The Northern Lebanon and ELCO School Districts have the highest percentages of seasonal residential among their residential lands, which is not surprising considering their more rural environments and the acreages noted above for Cold Spring and Union Townships. Seasonal housing is also present in Mt. Gretna, South Lebanon, and West Cornwall in the Cornwall-Lebanon School District along South Mountain, though it occupies a much smaller number of acres.
- Comparison of land use data (in acres) with seasonal housing unit data (in units) from the U.S. Census Bureau indicates that seasonal residential properties includes small parcels as well as larger tracts. For example, in North Annville, there are 11 seasonal units and 3 total acres of seasonal property, while in Millcreek Township; there are six units on 48 acres. In some instances, seasonal properties of such small size in close proximity to one another have been classified as high density residential. This explains why the seasonal residential acreage in Lebanon City, Mt. Gretna, Palmyra, and West Cornwall is reported as '0", when seasonal units are known to exist in these municipalities. It may seem exaggerated to classify these units as high density; however, since their occupancy is not regulated, these units could easily be used year-round and require year-round public services.

Table 9-4 Low Density Residential Land Use Analysis

	Total Acreage	Total Residential Acreage	Low Density Residential				
			LDR Acreage	% of Municipal or SD Residential	% of Municipal or SD Total	% of County Residential	% of County Total
Lebanon County	**234,222**	**29,353**	**22,720**	**n/a**	**n/a**	**77.4%**	**9.7%**
Annville-Cleona SD	**25,093**	**3,312**	**2,472**	**74.6%**	**9.8%**	**8.4%**	**1.1%**
Annville	1,043	279	59	21.3%	5.7%	0.2%	0.0%
Cleona	540	162	39	24.0%	7.2%	0.1%	0.0%
North Annville	11,056	1,179	972	82.4%	8.8%	3.3%	0.4%
South Annville	12,454	1,691	1,402	82.9%	11.3%	4.8%	0.6%
Cornwall-Lebanon SD	**42,522**	**6,967**	**5,420**	**77.8%**	**12.7%**	**18.5%**	**2.3%**
Cornwall	6,237	1,383	1,268	91.6%	20.3%	4.3%	0.5%
Mount Gretna	92	30	20	68.9%	22.3%	0.1%	0.0%
North Cornwall	6,077	1,136	874	76.9%	14.4%	3.0%	0.4%
North Lebanon	10,704	2,256	1,750	77.5%	16.3%	6.0%	0.7%
South Lebanon	13,902	1,494	1,071	71.7%	7.7%	3.6%	0.5%
West Cornwall	5,510	668	438	65.5%	7.9%	1.5%	0.2%
ELCO SD	**45,366**	**6,002**	**4,764**	**79.4%**	**10.5%**	**16.2%**	**2.0%**
Heidelberg	15,439	2,152	1,848	85.8%	12.0%	6.3%	0.8%
Jackson	15,422	2,247	1,845	82.1%	12.0%	6.3%	0.8%
Millcreek	13,069	1,212	951	78.5%	7.3%	3.2%	0.4%
Myerstown	548	196	32	16.4%	5.9%	0.1%	0.0%
Richland	887	195	89	45.6%	10.0%	0.3%	0.0%
Lebanon SD	**2,920**	**855**	**56**	**6.6%**	**1.9%**	**0.2%**	**0.0%**
Lebanon City	2,667	813	54	6.6%	2.0%	0.2%	0.0%
West Lebanon	253	42	3	6.5%	1.1%	0.0%	0.0%
Northern Lebanon SD	**94,674**	**8,080**	**6,923**	**85.7%**	**7.3%**	**23.6%**	**3.0%**
Bethel	22,269	2,325	2,163	93.0%	9.7%	7.4%	0.9%
Cold Spring	18,161	50	38	75.5%	0.2%	0.1%	0.0%
East Hanover	20,883	2,131	1,863	87.4%	8.9%	6.3%	0.8%
Jonestown	401	127	81	63.7%	20.2%	0.3%	0.0%
Swatara	13,937	1,760	1,477	83.9%	10.6%	5.0%	0.6%
Union	19,023	1,687	1,301	77.1%	6.8%	4.4%	0.6%
Palmyra Area SD	**23,647**	**4,137**	**3,085**	**74.6%**	**13.0%**	**10.5%**	**1.3%**
North Londonderry	6,876	1,561	1,275	81.7%	18.5%	4.3%	0.5%
Palmyra	1,235	520	104	19.9%	8.4%	0.4%	0.0%
South Londonderry	15,536	2,056	1,706	83.0%	11.0%	5.8%	0.7%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Table 9-5 Residential/Commercial Mix Land Use Analysis

	Total Acreage	Total Residential Acreage	Residential/Commercial Mix				
			R/C Acreage	% of Municipal or SD Residential	% of Municipal or SD Total	% of County Residential	% of County Total
Lebanon County	**234,222**	**29,353**	**264**	**n/a**	**n/a**	**0.9%**	**0.1%**
Annville-Cleona SD	**25,093**	**3,312**	**27**	**0.8%**	**0.1%**	**0.1%**	**0.0%**
Annville	1,043	279	9	3.3%	0.9%	0.0%	0.0%
Cleona	540	162	1	0.4%	0.1%	0.0%	0.0%
North Annville	11,056	1,179	8	0.7%	0.1%	0.0%	0.0%
South Annville	12,454	1,691	9	0.5%	0.1%	0.0%	0.0%
Cornwall-Lebanon SD	**42,522**	**6,967**	**50**	**0.7%**	**0.1%**	**0.2%**	**0.0%**
Cornwall	6,237	1,383	8	0.6%	0.1%	0.0%	0.0%
Mount Gretna	92	30	0	0.0%	0.0%	0.0%	0.0%
North Cornwall	6,077	1,136	6	0.5%	0.1%	0.0%	0.0%
North Lebanon	10,704	2,256	18	0.8%	0.2%	0.1%	0.0%
South Lebanon	13,902	1,494	13	0.9%	0.1%	0.0%	0.0%
West Cornwall	5,510	668	5	0.7%	0.1%	0.0%	0.0%
ELCO SD	**45,366**	**6,002**	**78**	**1.3%**	**0.2%**	**0.3%**	**0.0%**
Heidelberg	15,439	2,152	14	0.7%	0.1%	0.0%	0.0%
Jackson	15,422	2,247	34	1.5%	0.2%	0.1%	0.0%
Millcreek	13,069	1,212	20	1.6%	0.2%	0.1%	0.0%
Myerstown	548	196	6	2.8%	1.0%	0.0%	0.0%
Richland	887	195	4	2.1%	0.5%	0.0%	0.0%
Lebanon SD	**2,920**	**855**	**11**	**1.3%**	**0.4%**	**0.0%**	**0.0%**
Lebanon City	2,667	813	11	1.4%	0.4%	0.0%	0.0%
West Lebanon	253	42	0	0.3%	0.0%	0.0%	0.0%
Northern Lebanon SD	**94,674**	**8,080**	**62**	**0.8%**	**0.1%**	**0.2%**	**0.0%**
Bethel	22,269	2,325	30	1.3%	0.1%	0.1%	0.0%
Cold Spring	18,161	50	0	0.0%	0.0%	0.0%	0.0%
East Hanover	20,883	2,131	8	0.4%	0.0%	0.0%	0.0%
Jonestown	401	127	1	0.8%	0.2%	0.0%	0.0%
Swatara	13,937	1,760	5	0.3%	0.0%	0.0%	0.0%
Union	19,023	1,687	18	1.1%	0.1%	0.1%	0.0%
Palmyra Area SD	**23,647**	**4,137**	**36**	**0.9%**	**0.2%**	**0.1%**	**0.0%**
North Londonderry	6,876	1,561	17	1.1%	0.2%	0.1%	0.0%
Palmyra	1,235	520	8	1.4%	0.6%	0.0%	0.0%
South Londonderry	15,536	2,056	12	0.6%	0.1%	0.0%	0.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Table 9-6 Seasonal Residential Land Use Analysis

	Total Acreage	Total Residential Acreage	Seasonal Residential					Seasonal, Recreational, or Occasional Housing Units	Seasonal Residential parcels classified as High Density Residential
			SR Acreage	% of Municipal or SD Residential	% of Municipal or SD Total	% of County Residential	% of County Total		
Lebanon County	**234,222**	**29,353**	**434**	**n/a**	**n/a**	**1.5%**	**0.2%**	**458**	**300**
Annville-Cleona SD	**25,093**	**3,312**	**23**	**0.7%**	**0.1%**	**0.1%**	**0.0%**	**34**	**14**
Annville	1,043	279	0	0.0%	0.0%	0.0%	0.0%	9	9
Cleona	540	162	0	0.0%	0.0%	0.0%	0.0%	0	0
North Annville	11,056	1,179	3	0.3%	0.0%	0.0%	0.0%	11	1
South Annville	12,454	1,691	20	1.2%	0.2%	0.1%	0.0%	14	4
Cornwall-Lebanon SD	**42,522**	**6,967**	**24**	**0.3%**	**0.1%**	**0.1%**	**0.0%**	**232**	**223**
Cornwall	6,237	1,383	5	0.3%	0.1%	0.0%	0.0%	4	2
Mount Gretna	92	30	0	0.0%	0.0%	0.0%	0.0%	81	81
North Cornwall	6,077	1,136	0	0.0%	0.0%	0.0%	0.0%	17	17
North Lebanon	10,704	2,256	1	0.0%	0.0%	0.0%	0.0%	5	5
South Lebanon	13,902	1,494	19	1.3%	0.1%	0.1%	0.0%	6	0
West Cornwall	5,510	668	0	0.0%	0.0%	0.0%	0.0%	119	119
ELCO SD	**45,366**	**6,002**	**74**	**1.2%**	**0.2%**	**0.3%**	**0.0%**	**20**	**0**
Heidelberg	15,439	2,152	26	1.2%	0.2%	0.1%	0.0%	8	0
Jackson	15,422	2,247	0	0.0%	0.0%	0.0%	0.0%	6	6
Millcreek	13,069	1,212	48	4.0%	0.4%	0.2%	0.0%	6	0
Myerstown	548	196	0	0.0%	0.0%	0.0%	0.0%	0	0
Richland	887	195	0	0.0%	0.0%	0.0%	0.0%	0	0
Lebanon SD	**2,920**	**855**	**0**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**22**	**22**
Lebanon City	2,667	813	0	0.0%	0.0%	0.0%	0.0%	22	22
West Lebanon	253	42	0	0.0%	0.0%	0.0%	0.0%	0	0
Northern Lebanon SD	**94,674**	**8,080**	**282**	**3.5%**	**0.3%**	**1.0%**	**0.1%**	**112**	**32**
Bethel	22,269	2,325	54	2.3%	0.2%	0.2%	0.0%	35	0
Cold Spring	18,161	50	8	16.7%	0.0%	0.0%	0.0%	4	1
East Hanover	20,883	2,131	42	2.0%	0.2%	0.1%	0.0%	25	9
Jonestown	401	127	0	0.0%	0.0%	0.0%	0.0%	0	0
Swatara	13,937	1,760	48	2.7%	0.3%	0.2%	0.0%	6	0
Union	19,023	1,687	130	7.7%	0.7%	0.4%	0.1%	42	6
Palmyra Area SD	**23,647**	**4,137**	**31**	**0.8%**	**0.1%**	**0.1%**	**0.0%**	**38**	**25**
North Londonderry	6,876	1,561	4	0.3%	0.1%	0.0%	0.0%	13	9
Palmyra	1,235	520	0	0.0%	0.0%	0.0%	0.0%	11	11
South Londonderry	15,536	2,056	27	1.3%	0.2%	0.1%	0.0%	14	5

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Commercial Lands

Commercial uses are predominantly located near the edges of concentrated development. Northern Lebanon and Cornwall-Lebanon School Districts contain 62.1% of commercial lands in the county, including several private golf courses.

Countywide Statistics and Trends

Commercial land uses occupy 7,738 acres (3.3%) of the county's land area, as shown in Table 9-7. The March 2006 Land Use Map illustrates the location of commercial land uses. These uses are distributed throughout the county, generally adjacent to residential areas and in downtown centers. The eight golf courses represent several of the largest commercial properties.

School District Statistics and Trends

The Northern Lebanon School District has the largest number of acres in commercial uses (2,579), which represents one third of the county's commercial acreage. These lands include the Swift Trucking facility, the MSC facility, the Blue Mountain View Country Club, the Monroe Valley Golf Course, as well as smaller business parcels along Routes 22 and 443.

The Cornwall-Lebanon School District contains the second largest commercial acreage at 2,231 acres, 28.8% of the county's commercial lands. These lands include the shopping centers along Routes 72 and 422, the Tuck Business Park, the Lebanon Country Club, Fairview, Iron Valley, Royal Oaks Golf Courses, and the Quentin Riding Club.

The Lebanon School District contains the highest percentage of commercial lands within its school district region. (18.0%). Most of these are relatively small parcels interspersed throughout the downtown Lebanon area.

Municipal Statistics and Trends

Bethel Township has the largest number of commercial acres (1,013), comprising 13.1% of the county's commercial area. The Route 22 corridor in the township is mostly commercial. Two golf courses and lands owned by the Lebanon Beagle Club exaggerate the total commercial acreage beyond traditional office and retail service categories.

Table 9-7 Distribution of Commercial Lands

	Commercial			
	Commercial Acreage	% of Municipality or SD	% of County Commercial	% of County
Lebanon County	**7,738**	**n/a**	**100.0%**	**3.3%**
Annville-Cleona SD	**631**	**2.5%**	**8.2%**	**0.3%**
Annville	301	28.8%	3.9%	0.1%
Cleona	34	6.3%	0.4%	0.0%
North Annville	174	1.6%	2.3%	0.1%
South Annville	122	1.0%	1.6%	0.1%
Cornwall-Lebanon SD	**2,231**	**5.3%**	**28.8%**	**1.0%**
Cornwall	492	7.9%	6.4%	0.2%
Mount Gretna	5	4.2%	0.1%	0.0%
North Cornwall	597	9.8%	7.7%	0.3%
North Lebanon	524	4.9%	6.8%	0.2%
South Lebanon	310	2.3%	4.0%	0.1%
West Cornwall	303	5.5%	3.9%	0.1%
ELCO SD	**969**	**2.1%**	**12.5%**	**0.4%**
Heidelberg	246	1.6%	3.2%	0.1%
Jackson	533	3.5%	6.9%	0.2%
Millcreek	73	0.6%	0.9%	0.0%
Myerstown	66	12.1%	0.9%	0.0%
Richland	50	5.6%	0.6%	0.0%
Lebanon SD	**525**	**18.0%**	**6.8%**	**0.2%**
Lebanon City	460	17.3%	5.9%	0.2%
West Lebanon	65	25.6%	0.8%	0.0%
Northern Lebanon SD	**2,579**	**2.7%**	**33.3%**	**1.1%**
Bethel	1,013	4.5%	13.1%	0.4%
Cold Spring	224	1.2%	2.9%	0.1%
East Hanover	333	1.6%	4.3%	0.1%
Jonestown	22	5.5%	0.3%	0.0%
Swatara	437	3.1%	5.6%	0.2%
Union	549	2.9%	7.1%	0.2%
Palmyra Area SD	**803**	**3.4%**	**10.4%**	**0.3%**
North Londonderry	323	4.7%	4.2%	0.1%
Palmyra	169	13.7%	2.2%	0.1%
South Londonderry	311	2.0%	4.0%	0.1%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

North Cornwall, North Lebanon, Jackson, and Union Townships all have more than 500 acres of commercial land. North Cornwall's commercial acreage includes three golf courses and the Route 72 retail strip. North Lebanon's commercial lands include the Lebanon Valley Mall and businesses along Route 72, as well as the majority of the county landfill).Jackson Township's commercial acreage is also inflated by golf course acreage, namely the Lebanon Valley Golf Course. Union Township's commercial acreage includes those listed above for the Northern Lebanon School District as well as smaller parcels in and around Jonestown.

Industrial Lands

The county contains approximately 1,321 acres of industrial land, or 0.6% of the total area, as shown in Table 9-8. Most of the county's industrial lands—1,111 of the 1,321 acres through four school districts—are located along or near Route 422 and the Norfolk Southern rail corridor. The ELCO and Cornwall-Lebanon regions contain the majority of industrial lands (59.6%). The Palmyra Area School District, while located along Route 422, has comparatively little industrial land use, due in part to the fact that its industrial area spans its municipal border with Derry Township, Dauphin County. Additional industrial land uses are located along Route 22 and Interstate 81 in the Northern Lebanon School District.

The ELCO School District region contains the highest number of industrial acres (432) and the highest percentage of the county's total industrial lands (31.9%). These include lands along the Norfolk-Southern rail corridor in Myerstown and Richland and in Jackson and Millcreek Townships; additional industrial lands are found in Heidelberg Township.

Cornwall-Lebanon ranks second with 344 acres and 27.7% of the county's industrial lands.

South Lebanon has the highest number of industrial acres (215) largely attributable to the Lebanon Valley Business Park. Weaber, Inc. in South Annville, Dutchwood Manufacturing in Jackson, Trol Systems in Millcreek and former Bethlehem Steel facilities , which now house several businesses in Lebanon, help bring total industrial lands in these municipalities over 100 acres.

Table 9-8 Distribution of Industrial Lands

	Industrial			
	Industrial Acreage	% of Municipality or SD	% of County Industrial	% of County
Lebanon County	**1,321**	**n/a**	**100.0%**	**0.6%**
Annville-Cleona SD	**177**	**0.7%**	**13.4%**	**0.1%**
Annville	17	1.6%	1.3%	0.0%
Cleona	15	2.7%	1.1%	0.0%
North Annville	30	0.3%	2.2%	0.0%
South Annville	116	0.9%	8.6%	0.0%
Cornwall-Lebanon SD	**344**	**0.9%**	**27.7%**	**0.0%**
Cornwall	15	0.2%	1.2%	0.0%
Mount Gretna	0	0.0%	0.0%	0.0%
North Cornwall	23	0.4%	1.2%	0.0%
North Lebanon	65	0.6%	8.4%	0.0%
South Lebanon	215	1.6%	18.6%	0.1%
West Cornwall	26	0.5%	2.6%	0.0%
ELCO SD	**432**	**1.0%**	**31.9%**	**0.2%**
Heidelberg	63	0.4%	4.8%	0.0%
Jackson	169	1.1%	12.8%	0.1%
Millcreek	108	0.8%	8.8%	0.0%
Myerstown	51	9.4%	3.9%	0.0%
Richland	40	4.5%	3.0%	0.0%
Lebanon SD	**158**	**5.4%**	**11.7%**	**0.1%**
Lebanon City	125	4.7%	9.4%	0.1%
West Lebanon	33	13.1%	2.5%	0.0%
Northern Lebanon SD	**157**	**0.2%**	**11.6%**	**0.1%**
Bethel	59	0.3%	4.4%	0.0%
Cold Spring	0	0.0%	0.0%	0.0%
East Hanover	6	0.0%	0.4%	0.0%
Jonestown	0	0.0%	0.0%	0.0%
Swatara	11	0.1%	0.8%	0.0%
Union	82	0.4%	6.2%	0.0%
Palmyra Area SD	**54**	**0.2%**	**4.0%**	**0.0%**
North Londonderry	0	0.0%	0.0%	0.0%
Palmyra	35	2.8%	2.6%	0.0%
South Londonderry	19	0.1%	1.4%	0.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Institutional Lands

For the purpose of this analysis, institutional land uses are lands used by: ambulance companies, cemeteries; community centers, fire companies, hospitals, libraries, municipal locations, police, religious facilities, and schools. Together, these facilities occupy 2,164 acres, or 0.9% of the county's land area. As shown in Table 9-9, the Cornwall-Lebanon region contains approximately one-third of the county's institutional lands, due in large part to Cedar Haven and the County Prison located in South Lebanon Township. Otherwise, these uses are relatively evenly distributed throughout the county, comprising less than two percent of municipal and school district areas except in Annville, Cleona, South Lebanon, Myerstown, Lebanon, Jonestown and Palmyra, where such public facilities are concentrated.

Table 9-9 Distribution of Institutional Lands

	Institutional			
	Institutional Acreage	% of Municipality or SD	% of County Institutional Land	% of County
Lebanon County	**2,164**	**n/a**	**100.0%**	**0.9%**
Annville-Cleona SD	**257**	**1.0%**	**11.9%**	**0.1%**
Annville	53	5.1%	2.5%	0.0%
Cleona	18	3.3%	0.8%	0.0%
North Annville	105	1.0%	4.9%	0.0%
South Annville	80	0.6%	3.7%	0.0%
Cornwall-Lebanon SD	**693**	**1.6%**	**32.0%**	**0.3%**
Cornwall	26	0.4%	1.2%	0.0%
Mount Gretna	0	0.0%	0.0%	0.0%
North Cornwall	26	0.4%	1.2%	0.0%
North Lebanon	181	1.7%	8.4%	0.1%
South Lebanon	403	2.9%	18.6%	0.2%
West Cornwall	57	1.0%	2.6%	0.0%
ELCO SD	**322**	**0.7%**	**14.9%**	**0.1%**
Heidelberg	50	0.3%	2.3%	0.0%
Jackson	169	1.1%	7.8%	0.1%
Millcreek	63	0.5%	2.9%	0.0%
Myerstown	33	6.1%	1.5%	0.0%
Richland	7	0.8%	0.3%	0.0%
Lebanon SD	**137**	**4.7%**	**6.3%**	**0.1%**
Lebanon City	135	5.0%	6.2%	0.1%
West Lebanon	2	0.8%	0.1%	0.0%
Northern Lebanon SD	**415**	**0.4%**	**19.2%**	**0.2%**
Bethel	107	0.5%	4.9%	0.0%
Cold Spring	0	0.0%	0.0%	0.0%
East Hanover	162	0.8%	7.5%	0.1%
Jonestown	15	3.7%	0.7%	0.0%
Swatara	40	0.3%	1.9%	0.0%
Union	91	0.5%	4.2%	0.0%
Palmyra Area SD	**341**	**1.4%**	**15.8%**	**0.1%**
North Londonderry	83	1.2%	3.8%	0.0%
Palmyra	83	6.7%	3.8%	0.0%
South Londonderry	176	1.1%	8.1%	0.1%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Recreation Lands

Just over one percent of the county is primarily dedicated to and devleoped for recreation. Other lands are used for recreation but remain in a natural condition, e.g, sportmen's clubs, and are therefore classifed as forest, scrub brush, etc.

The Cornwall-Lebanon School District has the greatest amount of recreation land, accounting for more than half of the county's total, such lands include Governor Dick, South Hills Park, and Stoevers Dam Recreation Area. Recreational lands in the Northern Lebanon School District region comprise nearly one–quarter of the county's total recreational lands.

Table 9-10 Distribution of Recreation Lands

	Recreational Lands			
	Recreational	% of Municipality or SD	% of County Recreational Land	% of County
Lebanon County	**2,669**	**n/a**	**100.0%**	**1.1%**
Annville-Cleona SD	**41**	**0.2%**	**1.6%**	**0.0%**
Annville	23	2.2%	0.9%	0.0%
Cleona	15	2.8%	0.6%	0.0%
North Annville	0	0.0%	0.0%	0.0%
South Annville	3	0.0%	0.1%	0.0%
Cornwall-Lebanon SD	**1,605**	**3.8%**	**60.1%**	**0.7%**
Cornwall	51	0.8%	1.9%	0.0%
Mount Gretna	0	0.0%	0.0%	0.0%
North Cornwall	36	0.6%	1.3%	0.0%
North Lebanon	288	2.7%	10.8%	0.1%
South Lebanon	126	0.9%	4.7%	0.1%
West Cornwall	1,104	20.0%	41.4%	0.5%
ELCO SD	**107**	**0.2%**	**4.0%**	**0.0%**
Heidelberg	9	0.1%	0.3%	0.0%
Jackson	59	0.4%	2.2%	0.0%
Millcreek	10	0.1%	0.4%	0.0%
Myerstown	27	4.9%	1.0%	0.0%
Richland	3	0.3%	0.1%	0.0%
Lebanon SD	**204**	**7.0%**	**7.7%**	**0.1%**
Lebanon City	189	7.1%	7.1%	0.1%
West Lebanon	15	6.0%	0.6%	0.0%
Northern Lebanon SD	**612**	**0.7%**	**22.9%**	**0.3%**
Bethel	10	0.0%	0.4%	0.0%
Cold Spring	0	0.0%	0.0%	0.0%
East Hanover	105	0.5%	3.9%	0.0%
Jonestown	17	4.1%	0.6%	0.0%
Swatara	21	0.2%	0.8%	0.0%
Union	459	2.4%	17.2%	0.2%
Palmyra Area SD	**99**	**0.4%**	**3.7%**	**0.0%**
North Londonderry	0	0.0%	0.0%	0.0%
Palmyra	15	1.2%	0.6%	0.0%
South Londonderry	84	0.5%	3.2%	0.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Transportation Lands

Transportation facilities occupy 7,395 acres or 3.2% of the county's land area. The Northern Lebanon School District has the most transportation land area due to the extensive right-of-ways for state-owned highways, e.g. Interstates 81 and 78, and their interchanges. In Lebanon County, transportation lands typically comprise less than one percent of the municipal and school district area; only in Cornwall Borough does this figure reach 1.2% of municipal land area, due to the rights-of-way and interchange for US Route 322 and PA Route 72. Transportation lands do not include warehousing facilities, which are classified as commercial, or recreation trail rights-of-way, which are classified as recreational lands.

Table 9-11 Distribution of Transportation Lands

	Transportation			
	Transportation Acreage	% of Municipality or SD	% of County Trans. Land	% of County
Lebanon County	**7,395**	**n/a**	**100.0%**	**3.2%**
Annville-Cleona SD	**639**	**0.1%**	**8.6%**	**0.3%**
Annville	136	0.4%	1.8%	0.1%
Cleona	110	0.0%	1.5%	0.0%
North Annville	197	0.1%	2.7%	0.1%
South Annville	196	0.1%	2.6%	0.1%
Cornwall-Lebanon SD	**1,573**	**0.5%**	**21.3%**	**0.7%**
Cornwall	240	1.2%	3.2%	0.1%
Mount Gretna	30	0.0%	0.4%	0.0%
North Cornwall	280	0.0%	3.8%	0.1%
North Lebanon	442	0.2%	6.0%	0.2%
South Lebanon	441	0.7%	6.0%	0.2%
West Cornwall	141	0.6%	1.9%	0.1%
ELCO SD	**1,116**	**0.3%**	**15.1%**	**0.5%**
Heidelberg	261	0.5%	3.5%	0.1%
Jackson	442	0.0%	6.0%	0.2%
Millcreek	258	0.2%	3.5%	0.1%
Myerstown	91	0.7%	1.2%	0.0%
Richland	64	0.0%	0.9%	0.0%
Lebanon SD	**639**	**0.2%**	**8.6%**	**0.3%**
Lebanon City	592	0.2%	8.0%	0.3%
West Lebanon	47	0.0%	0.6%	0.0%
Northern Lebanon SD	**2,466**	**0.0%**	**33.3%**	**1.1%**
Bethel	660	0.0%	.8.9%	0.3%
Cold Spring	20	0.0%	0.3%	0.0%
East Hanover	516	0.0%	7.0%	0.2%
Jonestown	49	0.2%	0.7%	0.0%
Swatara	505	0.0%	6.8%	0.2%
Union	715	0.1%	9.7%	0.3%
Palmyra Area SD	**962**	**0.5%**	**13.0%**	**0.4%**
North Londonderry	317	0.1%	4.3%	0.1%
Palmyra	216	0.1%	2.9%	0.1%
South Londonderry	429	0.6%	5.8%	0.2%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Utility Lands

Land dedicated to utilities occupies 531 acres, or 0.2% of the county's total land area, as shown in Table 9-12. These lands are used for public utility facilities, such as treatment plants, storage tanks, and pump stations; they do not include rights-of-ways, which are typically lands under easement for use by the utility authority, not under their ownership. As shown in Table 9-12, Cornwall-Lebanon (225 acres), ELCO (120 acres), and Palmyra Area (108 acres) School Districts have substantially more utility lands than the other three districts. Together, utilities land in these three regions account for 453.5 of the 530.8 total acres used for utilities. The Northern Lebanon and Annville-Cleona School Districts have 36.6 acres and 35.8 acres respectively. The Lebanon School District has just 4.9 acres dedicated to utilities.

Table 9-12 Distribution of Utility Lands

	Utility Acreage	% of Municipality or SD	% of County Utility Land	% of County
Lebanon County	**531**	**n/a**	**100.0%**	**0.2%**
Annville-Cleona SD	**36**	**2.5%**	**6.7%**	**0.0%**
Annville	4	13.0%	0.7%	0.0%
Cleona	0	20.4%	0.0%	0.0%
North Annville	16	1.8%	3.1%	0.0%
South Annville	16	1.6%	3.0%	0.0%
Cornwall-Lebanon SD	**225**	**3.7%**	**42.4%**	**0.1%**
Cornwall	76	3.9%	14.4%	0.0%
Mount Gretna	0	24.6%	0.0%	0.0%
North Cornwall	1	4.6%	0.1%	0.0%
North Lebanon	20	4.1%	3.8%	0.0%
South Lebanon	96	3.2%	18.0%	0.0%
West Cornwall	32	2.6%	6.1%	0.0%
ELCO SD	**120**	**2.5%**	**22.6%**	**0.1%**
Heidelberg	83	1.7%	15.6%	0.0%
Jackson	5	2.9%	0.9%	0.0%
Millcreek	28	2.0%	5.3%	0.0%
Myerstown	4	16.5%	0.8%	0.0%
Richland	0	7.2%	0.0%	0.0%
Lebanon SD	**5**	**21.9%**	**0.9%**	**0.0%**
Lebanon City	5	22.2%	0.9%	0.0%
West Lebanon	0	18.6%	0.0%	0.0%
Northern Lebanon SD	**37**	**2.1%**	**6.9%**	**0.0%**
Bethel	4	3.0%	0.8%	0.0%
Cold Spring	0	0.1%	0.0%	0.0%
East Hanover	0	2.5%	0.0%	0.0%
Jonestown	1	12.2%	0.1%	0.0%
Swatara	6	0.4%	1.2%	0.0%
Union	25	3.8%	4.8%	0.0%
Palmyra Area SD	**108**	**4.1%**	**20.4%**	**0.0%**
North Londonderry	10	4.6%	1.9%	0.0%
Palmyra	1	17.5%	0.1%	0.0%
South Londonderry	97	2.8%	18.3%	0.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Military Lands

The Fort Indiantown Gap Military Reservation occupies 17,000 acres in Dauphin and northern Lebanon Counties. Of the 12,336 acres of the reservation in Lebanon County, approximately 2,427 acres were considered developed or built military land use. The remainder of the reservation consists of public-semi-public land uses, mowed grass, forest, and scrub brush lands that were delineated as separate land uses/covers.

Table 9-13 Distribution Military Lands

	Military Acreage	% of Municipality or SD	% of County Military Land	% of County
Lebanon County	**2,427**	**n/a**	**100.0%**	**1.0%**
Northern Lebanon SD	**2,427**	**2.6%**	**100.0%**	**1.0%**
Bethel	0	0.0%	0.0%	0.0%
Cold Spring	0	0.0%	0.0%	0.0%
East Hanover	764	3.7%	31.5%	0.3%
Jonestown	0	0.0%	0.0%	0.0%
Swatara	0	0.0%	0.0%	0.0%
Union	1,663	8.7%	68.5%	0.7%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Working Open Space Lands: Agricultural, Forest, and Mineral Extraction

Working open space uses including agriculture, forestry and mineral extraction comprise 72.6% of the county's total land area.

Agricultural Lands

Agriculture is the predominant land use in Lebanon County, occupying 99,996 acres and 42.7% of the total county land area. By virtue of size, topography and soils capabilities, the Northern Lebanon School District has the most agricultural land with 29,879 acres occupying 12.8% of the total county land area, as shown in Table 9-14. The ELCO School District has nearly as much agricultural land (27,269 acres or 11.6% of the total county land area), despite being geographically smaller than the Northern Lebanon School District. Additional significant agricultural areas are in the Annville-Cleona and Cornwall-Lebanon School Districts.

Table 9-14 Distribution of Agricultural Lands

	Agricultural Acreage	% of Municipality or SD	% of County Agricultural Lands	% of County
Lebanon County	**99,996**	**n/a**	**100.0%**	**42.7%**
Annville-Cleona SD	**15,333**	**61.1%**	**15.3%**	**6.5%**
Annville	70	6.7%	0.1%	0.0%
Cleona	157	29.0%	0.2%	0.1%
North Annville	6,901	62.4%	6.9%	2.9%
South Annville	8,206	65.9%	8.2%	3.5%
Cornwall-Lebanon SD	**18,957**	**44.6%**	**19.0%**	**8.1%**
Cornwall	932	14.9%	0.9%	0.4%
Mount Gretna	0	0.0%	0.0%	0.0%
North Cornwall	3,354	55.2%	3.4%	1.4%
North Lebanon	5,329	49.8%	5.3%	2.3%
South Lebanon	7,630	54.9%	7.6%	3.3%
West Cornwall	1,712	31.1%	1.7%	0.7%
ELCO SD	**27,269**	**60.1%**	**27.3%**	**11.6%**
Heidelberg	9,136	59.2%	9.1%	3.9%
Jackson	10,644	69.0%	10.6%	4.5%
Millcreek	6,998	53.5%	7.0%	3.0%
Myerstown	19	3.5%	0.0%	0.0%
Richland	471	53.1%	0.5%	0.2%
Lebanon SD	**44**	**1.5%**	**0.0%**	**0.0%**
Lebanon City	44	1.6%	0.0%	0.0%
West Lebanon	0	0.0%	0.0%	0.0%
Northern Lebanon SD	**29,879**	**31.6%**	**29.9%**	**12.8%**
Bethel	11,124	50.0%	11.1%	4.7%
Cold Spring	29	0.2%	0.0%	0.0%
East Hanover	8,626	41.3%	8.6%	3.7%
Jonestown	56	14.0%	0.1%	0.0%
Swatara	6,269	45.0%	6.3%	2.7%
Union	3,775	19.8%	3.8%	1.6%
Palmyra Area SD	**8,515**	**36.0%**	**8.5%**	**3.6%**
North Londonderry	2,418	35.2%	2.4%	1.0%
Palmyra	87	7.1%	0.1%	0.0%
South Londonderry	6,010	38.7%	6.0%	2.6%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Forest Lands

Forest lands are the second largest land use in Lebanon County, and nearly two-thirds of forest lands are concentrated in the Northern Lebanon School District, north and west of Interstate 81. This area on the northern mountains is occupied by state game and forest lands, Memorial and Swatara State Parks, and Fort Indiantown Gap Military Reservation, much of which are forested. Additional forests are located along the southern border of the county, in the Palmyra Area, Annville-Cleona, Cornwall-Lebanon, and ELCO School Districts. These areas include state game lands, part of the Middle Creek Wildlife Management Area, and extensive private forest land.

Table 9-15 Distribution of Forest Lands

	Forest Acreage	% of Municipality or SD	% of County Forest Land	% of County
Lebanon County	**69,541**	**n/a**	**100.0%**	**29.7%**
Annville-Cleona SD	**3,827**	**15.2%**	**5.5%**	**1.6%**
Annville	71	6.8%	0.1%	0.0%
Cleona	6	1.1%	0.0%	0.0%
North Annville	2,055	18.6%	3.0%	0.9%
South Annville	1,695	13.6%	2.4%	0.7%
Cornwall-Lebanon SD	**7,908**	**18.6%**	**11.4%**	**3.4%**
Cornwall	2,734	43.8%	3.9%	1.2%
Mount Gretna	26	28.8%	0.0%	0.0%
North Cornwall	123	2.0%	0.2%	0.1%
North Lebanon	968	9.0%	1.4%	0.4%
South Lebanon	2,736	19.7%	3.9%	1.2%
West Cornwall	1,320	24.0%	1.9%	0.6%
ELCO SD	**7,925**	**17.5%**	**11.4%**	**3.4%**
Heidelberg	3,213	20.8%	4.6%	1.4%
Jackson	644	4.2%	0.9%	0.3%
Millcreek	4,055	31.0%	5.8%	1.7%
Myerstown	9	1.7%	0.0%	0.0%
Richland	3	0.4%	0.0%	0.0%
Lebanon SD	**140**	**4.8%**	**0.2%**	**0.1%**
Lebanon City	114	4.3%	0.2%	0.0%
West Lebanon	26	10.2%	0.0%	0.0%
Northern Lebanon SD	**42,819**	**45.2%**	**61.6%**	**18.3%**
Bethel	6,415	28.8%	9.2%	2.7%
Cold Spring	17,721	97.6%	25.5%	7.6%
East Hanover	5,739	27.5%	8.3%	2.5%
Jonestown	46	11.4%	0.1%	0.0%
Swatara	4,484	32.2%	6.4%	1.9%
Union	8,414	44.2%	12.1%	3.6%
Palmyra Area SD	**6,923**	**29.3%**	**10.0%**	**3.0%**
North Londonderry	1,106	16.1%	1.6%	0.5%
Palmyra	4	0.3%	0.0%	0.0%
South Londonderry	5,813	37.4%	8.4%	2.5%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Lands used for Mineral Extraction

Mineral extraction of limestone occurs in the Annville-Cleona, Cornwall-Lebanon and Palmyra School Districts along Route 422. The total land area used for mineral extraction in North Annville, South Annville, South Lebanon and North Londonderry Townships is 599 acres. The Pennsy Supply operation in South Lebanon owns additional land in Jackson Township (ELCO School District); however mining or quarrying activities were not active at the time of land use/cover classification. Similarly, the Haines and Kibblehouse operation in Cornwall Borough was not yet in operation in March 2006.

Table 9-16 Distribution of Lands used for Mineral Extraction

	Mineral Extraction Acreage	% of Municipality or SD	% of County Mineral Extraction Lands	% of County
Lebanon County	**599**	n/a	100.0%	0.3%
Annville-Cleona SD	**114**	**0.5%**	**19.0%**	**0.0%**
Annville	0	0.0%	0.0%	0.0%
Cleona	0	0.0%	0.0%	0.0%
North Annville	96	0.9%	16.0%	0.0%
South Annville	18	0.1%	3.0%	0.0%
Cornwall-Lebanon SD	**158**	**0.4%**	**26.3%**	**0.1%**
Cornwall	0	0.0%	0.0%	0.0%
Mount Gretna	0	0.0%	0.0%	0.0%
North Cornwall	0	0.0%	0.0%	0.0%
North Lebanon	0	0.0%	0.0%	0.0%
South Lebanon	158	1.1%	26.3%	0.1%
West Cornwall	0	0.0%	0.0%	0.0%
ELCO SD	**0**	**0.0%**	**0.0%**	**0.0%**
Heidelberg	0	0.0%	0.0%	0.0%
Jackson	0	0.0%	0.0%	0.0%
Millcreek	0	0.0%	0.0%	0.0%
Myerstown	0	0.0%	0.0%	0.0%
Richland	0	0.0%	0.0%	0.0%
Lebanon SD	**0**	**0.0%**	**0.0%**	**0.0%**
Lebanon City	0	0.0%	0.0%	0.0%
West Lebanon	0	0.0%	0.0%	0.0%
Northern Lebanon SD	**0**	**0.0%**	**0.0%**	**0.0%**
Bethel	0	0.0%	0.0%	0.0%
Cold Spring	0	0.0%	0.0%	0.0%
East Hanover	0	0.0%	0.0%	0.0%
Jonestown	0	0.0%	0.0%	0.0%
Swatara	0	0.0%	0.0%	0.0%
Union	0	0.0%	0.0%	0.0%
Palmyra Area SD	**327**	**1.4%**	**54.7%**	**0.1%**
North Londonderry	327	4.8%	54.7%	0.1%
Palmyra	0	0.0%	0.0%	0.0%
South Londonderry	0	0.0%	0.0%	0.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Other Open Space Uses

Other open space uses consist of mowed grass, scrub brush land, and open water. Mowed grass lands are often undeveloped parcels or portions of parcels found in urban and subruban neighrbohoods, along the edges of streams and woodlots, or as uncultivated fields. Scrub brush lands are often fields or pastures that are in the process of regenerating native forest cover. As shown in Table 9-17, mowed grass and scrub/brush lands make up 3.6% of county lands. The Northern Lebanon School District has the greatest amount of mowed grass and scrub brush in the county, due to their abundance in East Hanover Township.

Table 9-17 Distribution of Mowed Grass and Scrub/Brush Lands

	Mowed Grass				Scrub/ Brush			
	Mowed Grass	% of Municipality or SD	% of County Mowed Grass	% of County	Scrub/ Brush	% of Municipality or SD	% of County Scrub/ Brush	% of County
Lebanon County	**5,665**	**n/a**	**100.0%**	**2.4%**	**2,713**	**n/a**	**100.0%**	**1.2%**
Annville-Cleona SD	**295**	**1.2%**	**5.2%**	**0.1%**	**177**	**0.7%**	**6.5%**	**0.1%**
Annville	69	6.7%	1.2%	0.0%	0	0.0%	0.0%	0.0%
Cleona	22	4.2%	0.4%	0.0%	0	0.0%	0.0%	0.0%
North Annville	44	0.4%	0.8%	0.0%	69	0.6%	2.5%	0.0%
South Annville	159	1.3%	2.8%	0.1%	108	0.9%	4.0%	0.0%
Cornwall-Lebanon SD	**1,301**	**3.1%**	**23.0%**	**0.6%**	**213**	**0.5%**	**7.8%**	**0.1%**
Cornwall	99	1.6%	1.7%	0.0%	77	1.2%	2.9%	0.0%
Mount Gretna	0	0.4%	0.0%	0.0%	0	0.0%	0.0%	0.0%
North Cornwall	445	7.3%	7.9%	0.2%	19	0.3%	0.7%	0.0%
North Lebanon	411	3.8%	7.3%	0.2%	81	0.8%	3.0%	0.0%
South Lebanon	231	1.7%	4.1%	0.1%	23	0.2%	0.9%	0.0%
West Cornwall	114	2.1%	2.0%	0.0%	12	0.2%	0.4%	0.0%
ELCO SD	**761**	**1.7%**	**13.4%**	**0.3%**	**56**	**0.1%**	**2.1%**	**0.0%**
Heidelberg	71	0.5%	1.3%	0.0%	42	0.3%	1.5%	0.0%
Jackson	365	2.4%	6.4%	0.2%	10	0.1%	0.4%	0.0%
Millcreek	222	1.7%	3.9%	0.1%	5	0.0%	0.2%	0.0%
Myerstown	48	8.8%	0.9%	0.0%	0	0.0%	0.0%	0.0%
Richland	54	6.1%	1.0%	0.0%	0	0.0%	0.0%	0.0%
Lebanon SD	**177**	**6.1%**	**3.1%**	**0.1%**	**19**	**0.6%**	**0.7%**	**0.0%**
Lebanon City	170	6.4%	3.0%	0.1%	7	0.3%	0.2%	0.0%
West Lebanon	6	2.5%	0.1%	0.0%	12	4.7%	0.4%	0.0%
Northern Lebanon SD	**2,323**	**2.5%**	**41.0%**	**1.0%**	**1,827**	**1.9%**	**67.3%**	**0.8%**
Bethel	296	1.3%	5.2%	0.1%	78	0.3%	2.9%	0.0%
Cold Spring	41	0.2%	0.7%	0.0%	0	0.0%	0.0%	0.0%
East Hanover	1,001	4.8%	17.7%	0.4%	1,108	5.3%	40.8%	0.5%
Jonestown	48	12.1%	0.9%	0.0%	9	2.2%	0.3%	0.0%
Swatara	180	1.3%	3.2%	0.1%	21	0.2%	0.8%	0.0%
Union	756	4.0%	13.3%	0.3%	612	3.2%	22.6%	0.3%
Palmyra Area SD	**810**	**3.4%**	**14.3%**	**0.3%**	**421**	**1.8%**	**15.5%**	**0.2%**
North Londonderry	465	6.8%	8.2%	0.2%	188	2.7%	6.9%	0.1%
Palmyra	93	7.5%	1.6%	0.0%	9	0.7%	0.3%	0.0%
South Londonderry	252	1.6%	4.4%	0.1%	224	1.4%	8.3%	0.1%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Open water includes lands covered by water and is quantified in Table 9-18. The Northern Lebanon scontains almost half of the county's surface waters at 1,053 acres; however, water bodies are found thorughout the county in nearly every municipality.

Table 9-18 Distribution of Lands covered by Water

	Lands covered by Water			
	Acreage	% of Municipality or SD	% of County Water	% of County
Lebanon County	**2,109**	**n/a**	**100.0%**	**0.9%**
Annville-Cleona SD	**255**	**1.0%**	**12.1%**	**0.1%**
Annville	20	1.9%	1.0%	0.0%
Cleona	1	0.2%	0.1%	0.0%
North Annville	189	1.7%	9.0%	0.1%
South Annville	45	0.4%	2.1%	0.0%
Cornwall-Lebanon SD	**349**	**0.8%**	**16.5%**	**0.1%**
Cornwall	112	1.8%	5.3%	0.0%
Mount Gretna	0	0.0%	0.0%	0.0%
North Cornwall	37	0.6%	1.7%	0.0%
North Lebanon	139	1.3%	6.6%	0.1%
South Lebanon	40	0.3%	1.9%	0.0%
West Cornwall	22	0.4%	1.0%	0.0%
ELCO SD	**288**	**0.6%**	**13.6%**	**0.1%**
Heidelberg	113	0.7%	5.3%	0.0%
Jackson	135	0.9%	6.4%	0.1%
Millcreek	37	0.3%	1.8%	0.0%
Myerstown	2	0.4%	0.1%	0.0%
Richland	0	0.0%	0.0%	0.0%
Lebanon SD	**18**	**0.6%**	**0.9%**	**0.0%**
Lebanon City	13	0.5%	0.6%	0.0%
West Lebanon	5	1.8%	0.2%	0.0%
Northern Lebanon SD	**1,053**	**1.1%**	**50.0%**	**0.5%**
Bethel	178	0.8%	8.4%	0.1%
Cold Spring	76	0.4%	3.6%	0.0%
East Hanover	391	1.9%	18.6%	0.2%
Jonestown	12	2.9%	0.5%	0.0%
Swatara	203	1.5%	9.6%	0.1%
Union	193	1.0%	9.2%	0.1%
Palmyra Area SD	**146**	**0.6%**	**6.9%**	**0.1%**
North Londonderry	78	1.1%	3.7%	0.0%
Palmyra	2	0.2%	0.1%	0.0%
South Londonderry	65	0.4%	3.1%	0.0%

Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

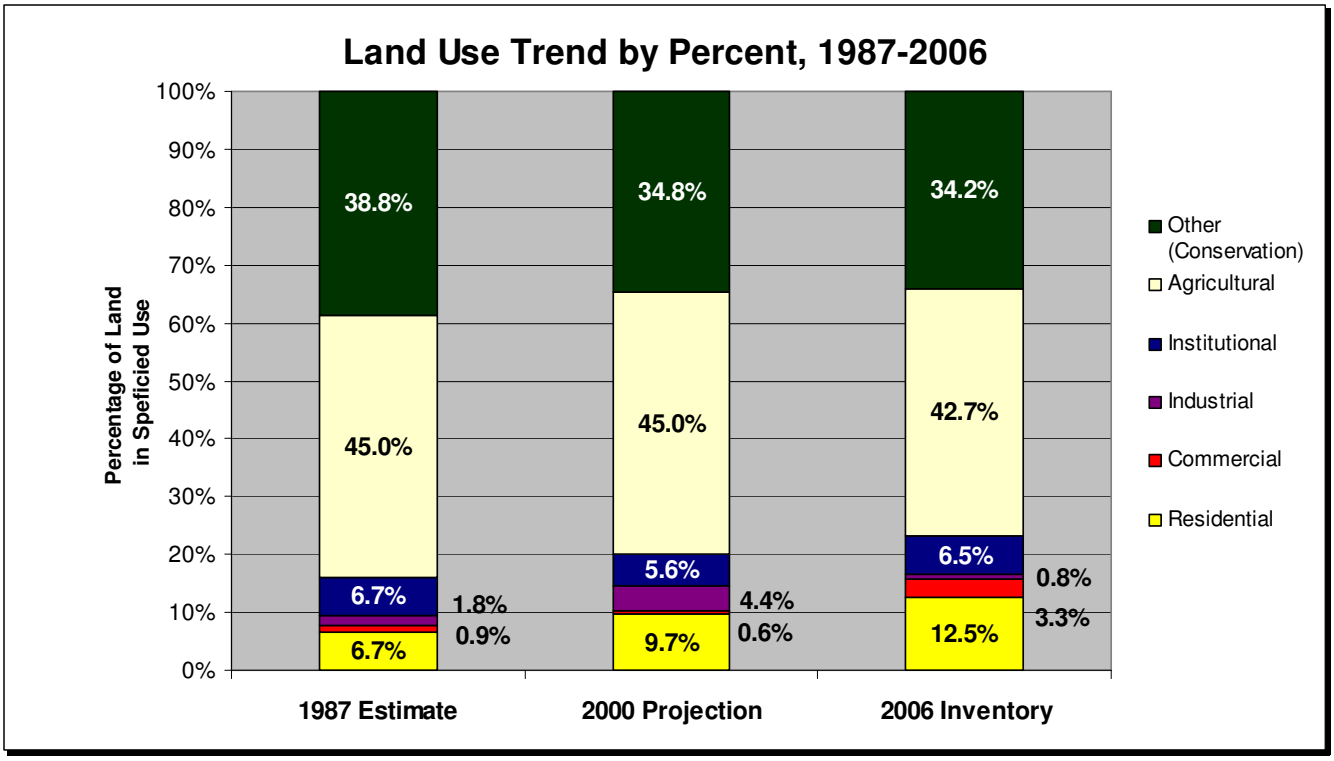
Historic Trends in Land Use and Land Development

Historic land use trend analysis is most accurate when the methodology and level of detail are consistent. Data from Lebanon County's 1987 Interim Comprehensive Plan was reviewed for potential trend analysis. The interim plan estimated land use and projected land use quantities for the year 2000. These figures and the 2006 land use inventory were prepared with a unique methodology and to a unique level of detail; therefore, only a very general analysis is possible. Statistics from the 2006 land use inventory were retabulated to better match the previous land use categories as follows:

Table 9-19 Comparison of Land Use Classifications

1987 Land Use Estimate and 2000 Land Use Projection	2006 Land Use Inventory
Residential	Residential
Commercial	Commercial
Industrial	Industrial and Mineral Extraction
Institutional	Institutional, Military, Recreation, Transportation, Utility
Agricultural	Agricultural
Conservation	Forest, Mowed Grass, Scrub brush, Water

Figure 9-2 Historic Trends in Land Use and Land Development



Sources: Lebanon County Planning Department; Lebanon City/County GIS Department; Gannett Fleming, Inc.

Percentages for residential, commercial, industrial, institutional, agricultural and conservation land uses from the 1987 estimate, 2000 projection and 2006 inventory are shown in Figure 9-2. This most general of comparisons suggests that:

- Agricultural uses have remained viable since 1987 as projected, though some farmland has been converted to other uses.
- Residential lands have nearly doubled since 1987 and exceeded the 2000 projection.
- Together commercial and industrial lands have increased to 4%-5% as projected.
- Institutional lands have declined (most likely due to differences in defining "institutional" lands).
- Conservation lands have declined but only slightly less than projected.

Recent Trends in Land Use and Land Development

New Residential Construction

From a county-wide perspective, the general land use trend has been steady development of single family homes, especially in municipalities on the western and eastern borders of the county and surrounding Lebanon City. Residential land use acres have nearly doubled from those estimated in 1987.

The housing profile offers details on recent changes in residential land use. In brief, new residential construction has averaged approximately 900 units per year since 2002. The majority of these units were single family detached dwellings.

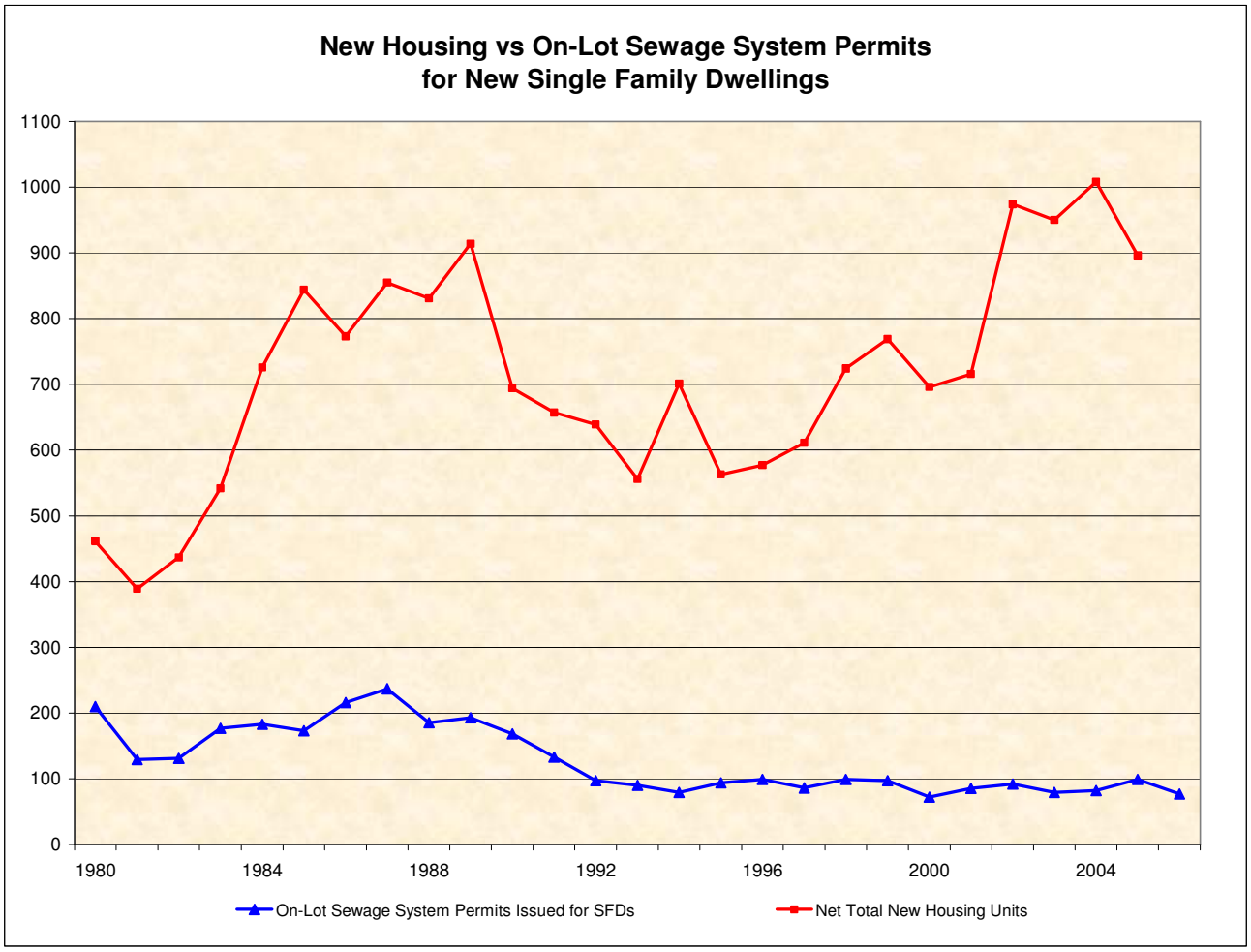
Further analysis by the Lebanon County Planning Department revealed that the number of new homes built in areas without public utilities has been decreasing by number and decreasing more substantially as a percentage of the total homes built. Overall, this confirms the increasing success of directing development to public utility areas. Figure 9-3 illustrates new housing units (red) and new housing units with on-lot septic systems (blue). A decade by decade summary is shown in Table 9-20.

Table 9-20 Summary of New Housing with On-Lot Sewage Systems

Decade	Annual Average of New Homes	Annual Average of New Homes w/Septic Systems	% New Homes w/Septic Systems
1980's	494	183	37%
1990's	545	104	19%
2000's	778	84	11%

Source: Lebanon County Planning Department

Figure 9-3 New Housing vs. On-Lot Sewage System Permits for New Single Family Dwellings



Source: Lebanon County Planning Department

Major Commercial, Industrial, and Agricultural-related Projects

Major construction projects include new construction over $500,000 that is not a single family dwelling. It does not include non-residential renovation or construction projects under $500,000. From 2002 to 2006, there have been 90 major construction projects, totaling nearly $250 million in construction costs in Lebanon County.

The projects break down by land use as follows:

- 10 agricultural/agricultural-industrial projects totaling $15,347,400
- 36 commercial projects totaling $35,563,768
- 7 industrial projects totaling $36,500,000
- 30 institutional projects totaling $135,978,553
- 7 residential projects totaling $24,753,967

From a county-wide perspective, institutional projects, which include projects at Good Samaritan Hospital, several schools, and a number of churches, received more than half of the major project investments from 2002 to 2006.

The total investment in major construction projects by land use and school district is shown in Table 9-21.

Overall, the Palmyra Area School District, while having only 13 projects, had the highest major construction investment at more than $73 million. The Lebanon School District had the second highest amount of investment at $65.7 million. Both the Annville-Cleona and Cornwall-Lebanon School Districts had similar total construction costs at approximately $37 million and $40 million, respectively. The Northern Lebanon School District had about half as much total construction investment at $21 million. The ELCO School District had the fewest dollars invested in major construction at just over $11 million. Most major commercial projects, both by number and value, were in the Cornwall-Lebanon School District. The most institutional construction investment was in the Lebanon School District, with construction on Good Samaritan Hospital accounting for $43.8 million of the $65.7 million total for all major projects in the district.

The high number of major projects (31) and high total construction investment (more than $110 million) in the Palmyra Area and Annville-Cleona School Districts suggest that these regions are in the path of development. Conversely, major construction investments are about a tenth as large in the ELCO School District, indicating that the primary development pressures there are for new housing.

Table 9-21 Summary of Major Construction Projects, 2002 – 2006

Land Use	Number of Projects	Total Construction Cost
Annville-Cleona SD		
Agricultural/agricultural-industrial	2	$4,367,400
Commercial	5	$2,755,801
Industrial	1	$900,000
Institutional	7	$25,262,063
Residential	3	$3,711,000
Total	18	$36,996,264
Cornwall-Lebanon SD		
Agricultural/agricultural-industrial	2	$1,500,000
Commercial	17	$13,955,150
Industrial	3	$18,700,000
Institutional	4	$5,932,298
Total	26	$40,087,448
ELCO SD		
Agricultural/agricultural-industrial	4	$2,665,000
Commercial	5	$5,483,000
Institutional	4	$2,982,000
Total	13	$11,130,000
Lebanon SD		
Commercial	3	$5,485,000
Institutional	7	$54,931,915
Residential	1	$5,300,000
Total	11	$65,716,915
Northern Lebanon SD		
Agricultural/agricultural-industrial	2	$6,815,000
Industrial	1	$900,000
Institutional	6	$13,469,640
Total	9	$21,184,640
Palmyra Area SD		
Commercial	6	$7,884,817
Industrial	2	$16,000,000
Institutional	2	$33,400,637
Residential	3	$15,742,967
Total	13	$73,028,421
Lebanon County		
Agricultural/agricultural-industrial	10	$15,347,400
Commercial	36	$35,563,768
Industrial	7	$36,500,000
Institutional	30	$135,978,553
Residential	7	$24,753,967
Total	90	$248,143,688

Sources: Lebanon County Planning Department; Gannett Fleming, Inc.

Reuse and Redevelopment

Another way to assess land use development is to examine how many major projects reuse or redevelop a site that was previously developed. For this analysis, the 90 major construction projects from 2002 to 2006 were categorized based on whether they were:

- Addition projects — adding to an existing structure
- Expansion projects — expanding an existing use (e.g., adding a building to an existing farm or building more units at LV Brethren Home)
- Conversion/reuse/renovation — construction on an existing site that goes beyond additions or expansions (e.g., building a new restaurant on the site of an existing one)
- New development — construction on previously unbuilt land

This analysis is shown in Table 9-22. Countywide, reuse and redevelopment of existing sites account for 61 of the 90 major construction projects, and approximately $181.4 million or 73% of the total construction costs of $248 million.. These results indicate that additions, expansions, and other kinds of reuse of existing properties generally outnumber new construction projects by 2 to 1 for major projects. At a school district level, the ratio of new additions, expansions, and other types of reuse to new construction vary more greatly. However, only in the Palmyra School District is new construction the predominant type of major project.

New construction occupied only a small portion of the major projects in the Annville-Cleona School District with 3 projects totaling $1.48 million. New construction accounted for approximately half of the number of projects and construction investments in the Cornwall-Lebanon and ELCO School Districts with 10 projects at $23.2 million and 6 projects at $6.3 million, respectively. The Lebanon School District had no new major construct projects, and the Northern Lebanon School District had only one at $1.5 million.

The Palmyra Area school district had the highest value for major new construction projects totaling $34.3 million. The demand for new construction in the Palmyra Area school district again emphasizes the path of development pressures from the Harrisburg and Hershey areas.

One of the largest redevelopment projects in the City of Lebanon is the renovation of Lebanon's Central Market House on 8th Street and several Cumberland Street properties by local entrepreneur Bill Kolovani.

Table 9-22 Summary of Improvement and Redevelopment Projects, 2002-2006

Type of Project	Number of Projects	Total Construction Cost
Annville-Cleona SD		
Addition	6	$20,893,651
Conversion/Reuse/Renovation	4	$6,010,000
Expansion	5	$8,611,113
New Construction	3	$1,481,500
Total	18	$36,996,264
Cornwall-Lebanon SD		
Addition	9	$9,467,298
Conversion/Reuse/Renovation	5	$5,964,150
Expansion	2	$1,500,000
New Construction	10	$23,156,000
Total	26	$40,087,448
ELCO SD		
Addition	2	$1,682,000
Conversion/Reuse/Renovation	1	$700,000
Expansion	4	$2,429,000
New Construction	6	$6,319,000
Total	13	$11,130,000
Lebanon SD		
Addition	2	$40,414,000
Conversion/Reuse/Renovation	8	$24,644,608
Expansion	1	$658,307
New Construction	0	0
Total	11	$65,716,915
Northern Lebanon SD		
Addition	5	$17,113,673
Conversion/Reuse/Renovation	1	$790,000
Expansion	2	$1,780,967
New Construction	1	$1,500,000
Total	9	$21,184,640
Palmyra Area SD		
Addition	2	7427000
Conversion/Reuse/Renovation	0	$0
Expansion	2	$31,298,637
New Construction	9	$34,302,784
Total	13	$73,028,421
Lebanon County		
Addition	26	$96,997,622
Conversion/Reuse/Renovation	19	$38,108,758
Expansion	16	$46,278,024
New Construction	29	$66,759,284
Total	90	$248,143,688

Sources: Lebanon County Planning Department; Gannett Fleming, Inc.

The extent of redevelopment for non-major projects is more difficult to assess. Housing and residential-related construction far exceeds the number of commercial, industrial, and agricultural construction projects. Between 1990 and 2004, 2.5% of new homes were replacement homes indicating that the vast majority of new homes were built on previously unbuiilt lots.

A review of 2004 to 2006 zoning permit data for 17 of the 26 municipalities, all of which are handled by the Lebanon County Planning Department, shows that additions to residential properties are almost as significant, in terms of numbers of projects, as new home construction.

Table 9-23 Zoning Permits by Use, 2004-2006

Type of Construction	Total Number of Projects*		
	2004	2005	2006
Single Family Dwellings	384	442	367
Additions (residential)	369	166	311
Accessory Construction	536	618	457
Multi-Family Units	2 buildings/ 33 units total	1 building/ 14 units total	0
Commercial/Industrial	34	35	41
Institutional	21	18	10
Agricultural	42	44	41

Sources: Lebanon County Planning Department; Gannett Fleming, Inc.
*Note: Data is for municipalities under the zoning jurisdiction of the Lebanon County Planning Department.

The data varies from year to year and from municipality to municipality. Residential additions outpaced new home construction in the municipalities of Annville, Cleona, Myerstown, Palmyra, Richland and West Cornwall Township for all three years. Additionally, North and South Annville Townships had more additions than new home construction projects. Interestingly, Jonestown, a well established community with a recent history of less than 50 new homes per decade, had far more new single family dwellings built, 132 units, namely in the Twin Creeks development, than additions during the three year period (23).

Cornwall, Millcreek, North Lebanon, and South Lebanon all saw heavy construction of new single family homes with fewer residential additions, indicating that less redevelopment is occurring in those municipalities.

The above data does not indicate how many of the commercial/industrial, institutional, and agricultural projects are on greenfields or feature some form of redevelopment. However, it is interesting to note that the number of commercial/industrial and agricultural projects has stayed steady for the three year period while institutional projects have declined by half.

Brownfields

Brownfields are former industrial properties where the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. There is no easily-obtained list of brownfield sites in Lebanon County, though the Superfund sites identified below are brownfield sites, as are some sites in the Keystone Opportunity Zones in the county.

Superfund Sites

As listed in Table 9-24, there are five Superfund sites in Lebanon County, of which one site is on the National Priorities List (NPL) — the Whitmoyer Laboratories site. Congress established the Superfund Program in 1980 to locate, investigate, and clean up the worst sites nationwide. The EPA administers the Superfund program in cooperation with individual states and tribal governments. The worst hazardous waste sites that have been identified by Superfund are on the NPL. Sites are only put on the list after they have been scored using the Hazard Ranking System (HRS), and have been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money. The NPL is primarily an information resource that identifies sites that may warrant cleanup.

Table 9-24 Superfund Sites

EPA ID	Site Name	Location*	National Priorities List
PAN000306100	I Auman Machine Company, Inc.	Lebanon	No
PAN000305920	Kimmerling Road Well Water Site	Lebanon	No
PA8210020444	USA Indiantown Gap Landfill	Annville	No
PAN000306036	Waste Recovery Chemical Fire	Myerstown	No
PAD003005014	Whitmoyer Laboratories	Jackson Township	Yes

Source: US EPA Comprehensive Environmental Response, Compensation, and Liability Information System online, http://www.epa.gov/enviro/html/cerclis/index.html,
*Mailing Address only

The Jackson Township Recreation Authority took possession of the once arsenic-contaminated site of Whitmoyer Laboratories Superfund site near Myerstown. The superfund recovery plan took nearly 20 years to write and involved cleaning up 24 acres of contaminated soil on the former site of the veterinary-pharmaceuticals maker at a cost of about $80 million. The EPA condemned the area because of extensive contamination on the site, in groundwater and on nearby properties. EPA determined that the contamination was a result of the production, storage, and disposal of arsenic and compounds used in the manufacturing of veterinary medicine and animal feed. Incineration was planned but later canceled when controversy arose regarding the fear that toxic fumes and ash could settle into the community and surrounding areas and create a health hazard. Instead, the waste was hauled away by truck and railroad car to a toxic-disposal site in a western state. The site was redeveloped as the Jackson Recreation Park and now includes three soccer fields and a baseball field. Plans are in the works to expand park facilities on the site.

Vacant and Underutilized Sites

The City of Lebanon is the only municipality actively quantifying and addressing vacant and underutilized sites. The city has established a Vacant Property Review Board that reviews those properties that are determined to be a blighted property. Properties that are presented to this board are ones that, because of their physical condition or use, are regarded as a public nuisance. A blighted property is an attractive nuisance to juveniles and other persons, is unfit for human habitation, is a fire hazard, or is an unoccupied property which is tax delinquent for a period of two years. Tax delinquent properties must be rehabilitated within one year of notice to rehabilitate.

As of mid to late 2006, the board had identified six commercial buildings, 19 commercial sites (totaling 67.3 acres), 19 industrial buildings, and 25 industrial sites (totaling 902.3 acres) as available. Depending on their conditions and locations, these sites could present valuable opportunities for reuse and redevelopment.

Trends in Real Estate

Examining the value of real estate transactions gives another indicator of general land use trends within the county. Trends in real estate sales reinforce the general trend of high development pressure, particularly on the Palmyra Area School District.

- The average value of real estate sales in Lebanon County has risen since 1995 for residential, multi-family, farms, and lots. Commercial sales values were unusually high for the 1995-2004 period.
- In 2004, homes in the Palmyra Area School District sold for the highest average value in the county, $190,513. The average sales value of residential properties in the Palmyra Area School District increased 46.1% between 1995 and 2004. The high average sale value of residential units in the Palmyra Area School District reflects the purchasing power of residents, particularly those earning higher wages in the Hershey and Harrisburg areas.
- In 2004, the average home value for Lebanon County was the lowest in the Lebanon School District at $75,489.
- An average of 5.6 farms were sold each year from 1995 and 2004. The average annual value of farm sales in this time was $302,000.

Further details are discussed in the Housing Profile, Background Study #2.

Growth, Land Use and Housing: The Path of Development

Based on the land use and housing analyses, Lebanon County is experiencing strong development pressure from eastern and western fronts, the I-81 corridor, and surrounding its urban core.

The Harrisburg-Hershey Influence on the Palmyra Area School District Region

Municipalities in the Palmyra Area School District are experiencing development pressures from the west. Since 1990, the Palmyra Area School District has experienced the largest increase in population. This growth has occurred, in large part, as a result of service and employment expansions at the Penn State Hershey Medical Center (HMC) and throughout the Harrisburg-Hershey area. As employers such as HMC continue to expand, more jobs are created and more employees are drawn to the region to live.

When cost-conscious prospective residents consider housing options, they find that the cost of homes and property taxes are both substantially higher in Derry Township, Dauphin County than in western Lebanon County. Until recently, houses in western Lebanon County were more modest in size than those in Derry Township. However, recently constructed homes in North and South Londonderry Townships are beginning to resemble those typical of Derry Township, with similar sale prices.

In recent years, commercial and residential development has occurred along PA 39 and US 22 in West Hanover and East Hanover Townships, Dauphin County. As regional growth continues and new gaming services are introduced at the Penn National Racetrack, East Hanover Township, Lebanon County can expect additional development pressures. Since infrastructure is not widely available in East Hanover Township, such pressure will likely be less intensive than that in North and South Londonderry Townships. Additionally, land use changes within this area pose a potential conflict for the mission at Fort Indiantown Gap.

Pressure from Reading/Berks and Philadelphia on the ELCO School District Region

The eastern portion of the county, predominantly Jackson Township, is facing development pressure as rural-minded residents from suburban Reading and suburban Philadelphia relocate to the quiet countryside of Lebanon County. Much of this immigration has included retired and senior adults. Eastern Lebanon County provides a lower cost of living and a slower, less congested way of life than many locations in southeastern Pennsylvania.

Strong Out-Migration from the City of Lebanon to the Cornwall-Lebanon School District Region

Although the largest movements to the suburbs occurred in the 1950s and 1960s, many residents still are relocating from Lebanon City to the Cornwall-Lebanon School District. Population projections indicate that South Lebanon Township, North Lebanon Township, North Cornwall Township and Cornwall Borough are expected to grow their population through 2020. This predicted influx of residents will necessitate an increase in housing units in the Cornwall-Lebanon School District.

Interstate Access in the Northern Lebanon School District region

The Northern Lebanon School District is projected to grow by more than 3,160 residents by 2020. Nearly half of this population growth is projected to occur in Swatara Township – an increase of more than 1,100 residents from 2000 to 2020. The region's anticipated growth is a direct result of its location along Interstates 78 and 81, as well as Routes 22 and 72, enabling residents to travel in any direction via a major highway.

Established Land Use and Land Development Regulations

Land use and land development regulations help to guide where new development occurs and how it is developed. The three most utilized types of regulations in Pennsylvania are (from "Local Land Use Controls in Pennsylvania," Planning series #1) described below.

- Zoning — Zoning is a tool to regulate the use of land and the location and intensity of development. Its use is initiated by the adoption of a zoning ordinance based in the protection of public health, safety and welfare. In basic terms, a zoning ordinance assigns all land within a municipality into zones or districts, and creates regulations that apply generally to the municipality as a whole as well as specific individual districts.
- Subdivision and land development ordinances — "Subdivision" refers to the creation of new lots or changes in property lines, while "land development" involves construction of public or private improvements to land. Subdivision and land development regulations offer municipalities a degree of protection against unwise, poorly planned growth. Through these regulations, a community ensures proper placement of public improvements such as new roads, water and sewer lines and drainage systems. Regulations also provide that improvements are installed and paid for by the developer and

not the taxpayers. By requiring review and inspection reports from the municipal engineer, local officials guarantee that public improvements are properly designed and constructed.

- Codes — The adoption of the statewide Uniform Construction Code (UCC) and property maintenance and fire prevention codes is critical for quality construction and safety reasons and, therefore, is increasingly recognized as an indispensable tool to promote the public health, safety and welfare. Sewage enforcement programs regulate on-lot sewage systems, which are particularly important to development in areas without public sewer facilities.

Additionally, comprehensive plans are important to land use and land development because they establish the foundation for consistent regulations for the municipalities that have them. Fourteen of the 26 municipalities have no municipal comprehensive plan or have plans that are more than 20 years old.

Table 9-25 Status of Municipal Land Use and Development Planning Policy and Regulations

	Comprehensive Plan (adopted/update)	Subdivision and Land Development Ordinance (adopted/update)	Zoning Ordinance (adopted/update)	International Residential Code (IRC) or other Building Code
Lebanon County	**1987**	**1989**	**None**	
Annville-Cleona SD				
Annville	None	?	1983/2001	IRC
Cleona	None	County	1977/1994	IRC
North Annville	1972/2004	County	1973/2004	IRC
South Annville	1972	1978/2006		IRC
Cornwall-Lebanon SD				
Cornwall	2000	2002	2001/2005	IRC
Mount Gretna	1982	County		Other
North Cornwall	1999	2000/2006	1993/2002	Other
North Lebanon	1994	County	1984/2005	IRC
South Lebanon	2000	1990	2004/2004	IRC
West Cornwall	None	County	1997/2005	IRC
ELCO SD				
Heidelberg	2000	?	1976/2000	Other
Jackson	1969	1975/2000	1972/2001	Other
Millcreek	1976	County	1977/2001	IRC
Myerstown	1968	County	1979/2000	IRC
Richland	None	County	1971/1993	IRC
Lebanon SD				
Lebanon City	2004	1985	1986/1998	Other
West Lebanon	None	County	1976/2002	IRC
Northern Lebanon SD				
Bethel	2002	2000	1973/2000	?
Cold Spring	2002	County (SLDO)	None	IRC
East Hanover	2002	County	2004	IRC
Jonestown	1971	County	1991/2005	IRC
Swatara	2004	County	1982/2003	IRC
Union	2004	2001	19676/2000	Other
Palmyra Area SD				
North Londonderry	1992	County	1989/2005	IRC
Palmyra	2002	County	2000/2005	IRC
South Londonderry	2001	?	1988/2001	Other

Source: Lebanon County Planning Department, PA DCED E-Library

All of the 26 municipalities in Lebanon County utilize some form of land use and land development regulation. The majority receive some assistance from the Lebanon County Planning Department (LCPD), namely, the enforcement of their own municipal regulations. The decision-making process used by the staff of the LCPD is limited to authority granted by the municipality through its respective ordinances.

As a review and/or enforcement agency for local municipalities, the LCPD either monitors activities or develops and administers regulations dealing with zoning, land use and environmental issues within Lebanon County. Additionally, the LCPD enforces the Lebanon County Subdivision and Land Development Ordinance, which contains stormwater standards and is applicable to 16 of the 26 municipalities in Lebanon County.

The LCPD enforces the Pennsylvania Sewage Facilities Act of 1965 for most municipalities in Lebanon County. This includes permitting and inspection of on-lot sewage disposal systems. The LCPD also acts as the zoning enforcement agent for many municipalities, which includes permit issuance for all new construction. Finally, certified building code officials from the LCPD enforce minimum construction standards for one and two family dwellings in many municipalities in the county.

The LCPD's jurisdiction by program is:

- 17 of the 26 municipalities use the services of the LCPD for the administration and enforcement of their zoning ordinances. The following municipalities enforce their own zoning: Bethel, Heidelberg, Jackson, Lebanon City, Mt. Gretna, North Cornwall South Londonderry, and Union. Cold Spring Township has no zoning ordinance in place.
- The Lebanon County Subdivision and Land Development Ordinance provide regulatory guidance for 16 of the 26 municipalities. The following municipalities have their own subdivision and land development ordinances: Annville, Bethel, Cornwall, Heidelberg, Jackson, Lebanon City, North Cornwall, South Lebanon, South Londonderry, and Union.
- Twenty-three of 26 municipalities utilize the planning department's sewage enforcement program for planning modules and sewage administration; Mt. Gretna has all public sewer facilities, and Bethel and Union handle their own sewage enforcement.
- The Planning Department enforces the 2003 International Residential Code in 17 of 26 municipalities. Building codes are enforced at the municipal level in Heidelberg, Jackson, Lebanon City, Mt. Gretna, North Cornwall, South Londonderry and Union.

From a county-wide perspective, the current zoning regulations very closely reflect existing land uses (see Zoning and Preserved Lands map). Of particular note is that the more rural municipalities have agricultural zoning districts that help to protect agricultural operations and limit residential development on agricultural lands. Typically the ordinances specify that residential development on agricultural lands be subdivided based on a sliding scale so that only a limited number of tracts can be removed from the parent tract, thus ensuring the preservation of larger tracts better suited to remain in agriculture.

Pennsylvania Development Incentives

The Pennsylvania's Economic Stimulus Package is aimed at revitalizing jobs, bolstering business growth, and sustaining communities. The Stimulus Package makes 19 grant and technical assistance programs available to Pennsylvania communities to generate new capital through public/private investments, create more jobs, and improve infrastructure and housing. The following programs are applicable for Lebanon County and its municipalities. Information on these programs is available on the Pennsylvania Department of Community and Economic Development website, www.newpa.com.

Business in our Sites

The "Business in Our Sites" program is a $300 million statewide loan and grant pool, created by the issuance of bonds. The money is made available to communities statewide to help them develop shovel-ready sites to accommodate expanding businesses, thus building the local and regional economy and ultimately creating jobs.

In Lebanon County, the Lebanon Valley Economic Development Corporation received a $3.48 million financial package for the development of the Lebanon Valley Business Park in South Lebanon Township. The funds will be used for the construction of Phase III of the business park that includes acquisition, street construction, storm and sanitary sewers, public water and other utilities, storm water management facilities and erosion and sedimentation control. The business park, located on 120 acres formerly owned by Alcoa, is expected to create approximately 650 new jobs and attract $153 million in private investment when fully occupied.

First Industries Fund

The First Industries Fund is a grant and loan program aimed at strengthening Pennsylvania's agriculture and tourism industries. The First Industries Fund is part of PA Grows, the Pennsylvania Department of Agriculture's new initiative designed to assist agricultural producers in gaining access to the capital they need to begin, continue, or expand their businesses.

Main Street and Elm Street Programs

The well-established Main Street Program offers grants to municipalities to help a community's downtown economic development effort through the establishment of a local organization dedicated to downtown revitalization and the management of downtown revitalization efforts by hiring a full-time professional downtown coordinator. It's sister program, Elm Street, offers grant funds for planning, technical assistance and physical improvements to residential and mixed use areas in proximity to central business districts.

Key Opportunity Zones

Keystone Opportunity Zones (KOZs) are defined, parcel-specific areas with greatly reduced or no tax burden for property owners, residents and businesses. KOZs are designated by local communities and approved by the state.

Lebanon County has seven Keystone Opportunity Zone (KOZ) sites. The Aspens Business Park, East Lehman Street Site, Lincoln Fifth Corporation Sites, and Fourth Street Complex have each applied for the tax benefits of the Keystone Opportunity Zone program. The former Colonial Theater Property, the 841 Jonestown Road Site, and Seventh and Mifflin Street Site have only received the KOZ designation. One example of a business taking advantage of a KOZ site and its benefits is NuPro Technologies, which leases a factory on North Fourth Street just outside of the Lebanon City limits for steel wire production. The business occupies a 48,000-square-foot, 1940s-era building at the complex. The Market House in downtown Lebanon is also a KOZ project.

Keystone Innovation Zone (KIZ)

The Keystone Innovation Zone program provides grant funds to community/university partnerships to generate job growth through tech transfer and entrepreneurship. KIZ designations are typically focused around college and university campuses.

Pennsylvania Base Development Committee

The Pennsylvania Base Development Committee initiative is designed to assist local defense organizations to promote and enhance the military value of over 70,000 active, reserve, National Guard and Department of Defense positions located on 11 major installations across the Commonwealth.

Water Supply and Wastewater Infrastructure Program (PennWorks)

The PennWorks program ensures safe water supply and proper wastewater infrastructure for non-residential needs. Program funds can be applied toward land and building acquisition, demolition, water/sewer project construction costs, and engineering and other fees associated with infrastructure development project.

Section 108 Program

Section 108 enables states and local governments participating in the Community Development Block Grant (CDBG) program to obtain federally guaranteed loans to fund large economic development projects and undertake revitalization activities, including acquisition, rehabilitation, relocation, clearance, site preparation, special economic development activities, certain public facilities and housing construction. Under Pennsylvania's initiative, the loans are guaranteed by the Commonwealth, committing the use of future CDBG funds to pay off the loan in case of default.

County Land Preservation Program

Agricultural Security Areas

Agricultural Security Areas are intended to promote more permanent and viable farming operations over the long term by strengthening the farming community's sense of security in land use and the right to farm. Agricultural Security Areas are created by local municipalities in cooperation with individual landowners who agree to collectively place at least 250 acres in an agricultural security area for a period of seven years.

Agricultural Security Areas provide three main benefits to landowners:

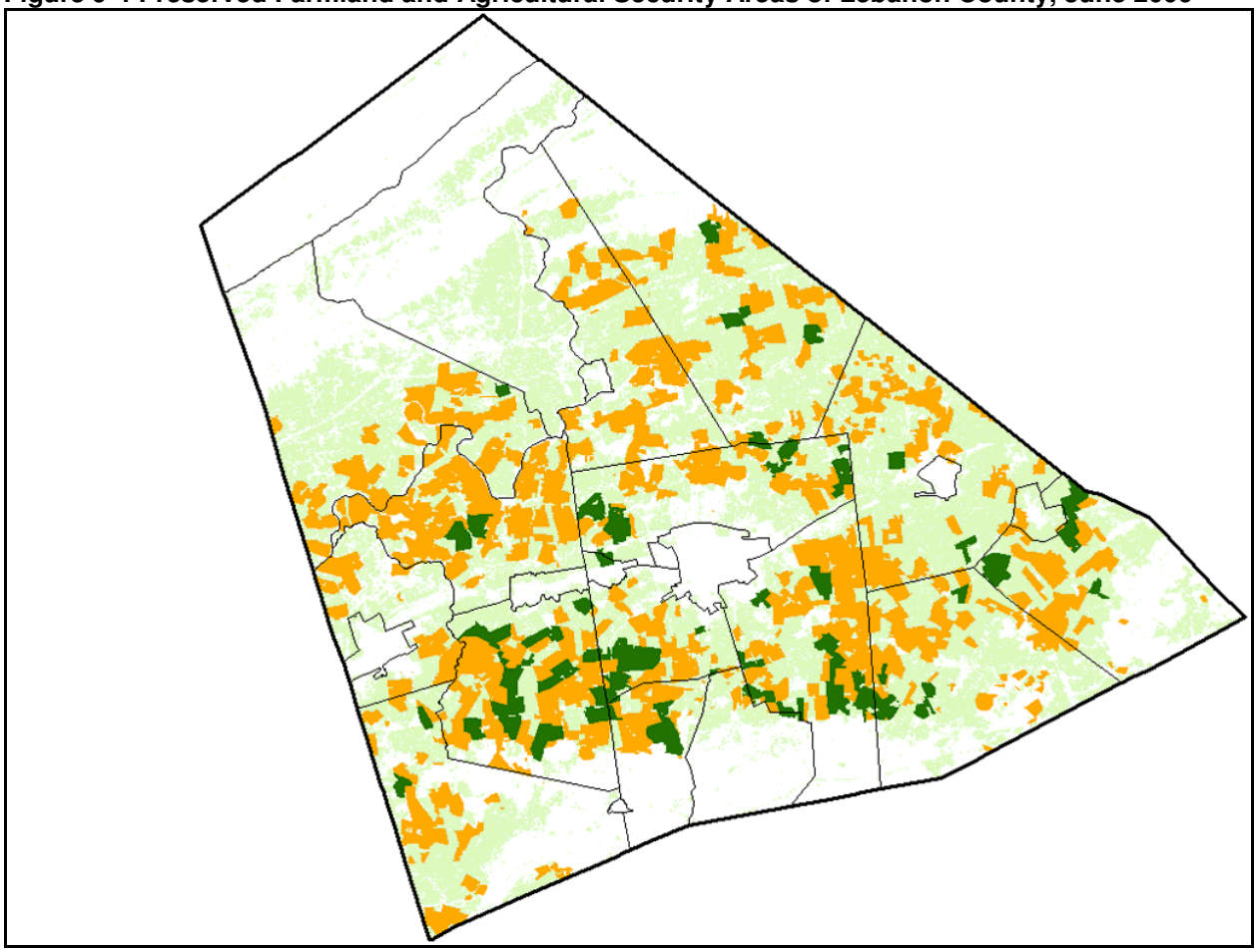
1. Municipalities agree to support agriculture by not passing nuisance ordinances which would restrict normal farming operations.

2. Limitations are placed on the ability of government to condemn farmland located in an Agricultural Security Area for new schools, highways, parks, or other governmental projects.
3. Landowners who are part of a 500 acre or larger agricultural security area may be eligible to apply to sell a perpetual agricultural conservation easement (or their development rights) through their local Agricultural Land Preservation Program.

Having land enrolled in an Agricultural Security Area does not restrict a landowner's ability to use his or her property for non-agricultural development purposes. However, enrollment is required for application to the Agricultural Land Preservation Program.

Sixteen of the 26 municipalities in Lebanon County have Agricultural Security Areas within their respective jurisdictions. The distribution of Agricultural Security Areas is shown in Figure 9-4, as well as in the Natural Resources Profile as Figure 6-11.

Figure 9-4 Preserved Farmland and Agricultural Security Areas of Lebanon County, June 2006



Sources: Lebanon County Conservation District; Lebanon County Soil Survey; United States Department of Agriculture, Natural Resource Conservation Service; Pennsylvania Department of Transportation; RETTEW Associates, Inc.

Agricultural Land Preservation Program

The county passed a milestone mark of 10,000 acres of preserved farmland in June 2006. Seventeen of 26 municipalities contain land preserved for agriculture. South Annville, South Lebanon, North Lebanon and Millcreek townships each have more than 1,000 acres preserved.

While certainly influential on its own, farmland preservation is most effective when combined with other land use controls, such as effective agricultural zoning and strict subdivision and land development ordinances.

Clean and Green Program

The Clean and Green Program, as it is commonly known, was established by Act 319. The Clean and Green Program was designed to preserve agricultural and forest land by taxing that land on the basis of its use value rather that its market value, thus reducing the tax burden on the land owner. This act provides preferential assessment to any individuals who agree to maintain their land solely devoted to agricultural use, agricultural reserve, or forest reserve use. The market value of agricultural land can increase drastically when the demand for new housing developments drastically increases in a rural area.

The Clean and Green Program is not used in Lebanon County due to the relative value of current (1968) assessments to current use and market values.

2020 Land Use Projection and Build-out Analysis

Purpose

The 2020 land use projection and build-out analysis for the Lebanon County Comprehensive Plan estimate how much development could be accommodated under the current municipal zoning regulations. This development potential compares the projected need for uses to the development capacity under current land use and development policy. This analysis will be used, in part, to develop the future land use map and plan recommendations. Once adopted, the future land use map does not change the current zoning policy; rather it recommends that changes be considered as one of many components of implementing the comprehensive plan.

Methodology

The projection and build-out analysis were developed with a two-phase process. The first phase identified lands available for potential development. The second phase applied the respective municipal zoning provisions to each parcel to yield a maximum number of potential units or structures.

Identification of Undeveloped, Developable Lands

The March 2006 Land Use / Cover map illustrates an inventory of land use/cover conditions. The map and associated data indicate what lands have already been intensively developed (not available for new development) and which are reasonably protected from intensive development by local, state and federal ownership (also not available for new development; i.e. undevelopable). The natural resources, or environmental features, data established land areas that are further restricted (regulated) by local, state and federal law, (i.e. floodplains, steep slopes and wetlands), and those that have sensitive natural or cultural features that could be protected through regulations, easements, and other tools. The remaining undeveloped, developable lands are the focus of the build-out analysis.

Application of Zoning Provisions

Zoning data provided the geometry (lot width, setbacks, units per acre, maximum impervious cover, etc.) and permitted density of allowable future development as well as the applicability of these regulations to certain lands areas, i.e. districts for the analysis. Zoning districts were generalized by type to enable summary and reporting at the county and school district level. Each generalized zoning type includes the districts listed below. Institutional uses are generally permitted within various districts, as specified by zoning ordinances; therefore, “Institutional” is listed under “Other” zoning types.

Generalized Zoning Types

Residential
- Low Density
- High Density
- Mobile Home
- Residential Community / Institutional

Commercial
- Neighborhood
- Downtown
- Highway
- Office/Institutional

Industrial
- Light/Limited
- Heavy/Manufacturing

Mineral Extraction

Recreation

Conservation

Agriculture
- Agriculture
- Intensive Agriculture

Other
- Institutional
- Airport (mostly function as commercial operations

To each undeveloped, developable parcel or divisible portion thereof, the potential placement of new residential, commercial, or industrial, structures was calculated based on the following zoning factors:

- Minimum separation/minimum lot width
- Minimum lot size
- Maximum dwelling units per acre
- Maximum dwelling units per building
- Floor-area ratio
- Maximum floor
- Maximum impervious coverage
- Maximum building coverage
- Minimum lot depth
- Minimum side setback
- Open space requirement
- Maximum open space in environmentally sensitive areas
- Building separation on single tract

Water and sewer data was another input to the analysis, as the availability of water and sewer service can result in higher development density according to the ordinance provisions.

The analysis yielded both tabular and spatial data. The spatial data illustrates the potential for one unit with a dot and places it randomly within the parcel; the calculation reflects layout requirements, e.g. setbacks, but the map does not. This helps the viewer see the dots, especially when the density is high.

Both the projection and the build-out analysis should be considered estimates. This analysis can overemphasize residential development, as it seeks to maximize the development permitted in each district. It can also underestimate commercial and industrial development that could occur if multiple parcels are assembled.

Build-out Analysis as Mathematical Process

The build-out analysis is essentially a geometric or mathematical process applied to each of the 48,586 parcels in Lebanon County as of March 2006, utilizing the following process:

1. Begin with Lebanon County (total land area)
2. Subtract Developed Lands and Protected Lands (public and preserved lands)
3. Factor Primary Conservation/Restricted Lands (as regulated by municipality)
4. Factor Secondary Conservation Areas/Lands with Natural Inclusions (as regulated by municipality)
5. Add existing water/sewer services areas (as applicable to density)
6. Apply zoning density provisions (as regulated by municipality) to the remaining land area; where no zoning exists, use subdivision and land development provisions
7. Pro-rate development rate for 20 year population projections
8. Calculate highest building potential by use
9. Sum the number of building units by zoning district per municipality (illustrated randomly within district)
10. Total by generalized zoning type for the county.

2020 Land Use Projection and Implications

The 2020 land use projection was based on a pro-rated portion of the development potential per current zoning, existing and planned water and sewer service areas, and land use trends from 1987 to 2006. The projection continues the trend of growth in intensive, built uses. The availability of commercial and industrial lands in 2006 suggests that there is capacity for development within designated areas; however, some growth may occur in greenfield areas, particularly as commercial services strive to locate near consumers. Intensive residential, commercial, industrial, and supporting lands will naturally require additional or expanded community services, recreation, transportation and utilities. Due to the increasing privatization of these services, an appropriate estimate of this increase is difficult to make; land area for institutional uses was assumed to double from 2020 in correlation with residential growth.

Of the major uses, residential development will likely have the most significant impact on land use/cover by 2020. Portions of existing agricultural and forest lands are, in fact, zoned for residential development, while other areas allow limited residential development in agricultural and other conservation-oriented districts. The location of residential development may further exacerbate conversion of addition farmland or forest land, as farmers and foresters strive to produce a quality harvest in the midst of land use conflicts, field and forest fragmentation, invasive ornamental species, etc.

The density of new residential development and the use of infill and redevelopment may reduce the amount of farmland and forest land conversion.

The projected acreage of these six major land use categories are shown in Table 9-26. Figure 9-5 illustrates the distribution of projected land use totals for 2020. By 2020, Lebanon County could approach one-third intensive uses, one-third agriculture, and one-third forest and conservation lands.

Figure 9-5 Comparative Land Use Distribution, 2006 Inventory and 2020 Projection

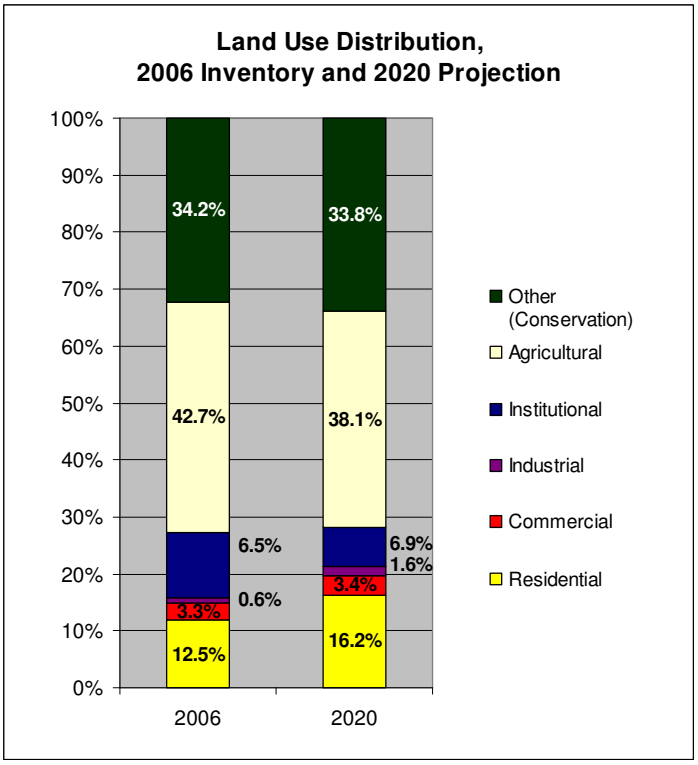


Table 9-26 Projected Changes in Land Use, 2020

Land Use/Cover Projection	2006 Inventory (acres)	2020 Projection (acres)	% of County, 2020 Projection	Change in Acres, 2006-2020
Residential	29,353	37,954	16.2%	8,601
Commercial	7,738	7,964	3.4%	225
Industrial - also includes Mineral Extraction	1,920	3,748	1.6%	1,828
Institutional - also includes Transportation, Utilities, Recreation, and Military	15,186	16,161	6.9%	975
Agricultural	99,996	95,158	38.1%	-4,838
Other (Conservation) - includes Forest, Mowed Grass, Scrub Brush,	80,028	79,167	33.8%	-861
Total	**234,222**	**234,222**	**100.0%**	**0**

Source: Gannett Fleming, Inc.

Build-out Analysis and Implications

Like the 2020 land use projection, the build-out analysis focuses on residential, commercial and industrial development potential to estimate the amount of land programmed for various uses. Municipal zoning establishes the uses, densities, and geometry of parcel level development. Similarly, its results are only an estimate of the development potential. Planning for water and sewer service extensions beyond 2020 is very limited and offers little additional value for this analysis. Trends in the proportional growth of institutional, transportation and utility lands to residential growth were used to project increases in these intensive, built uses. Changes in the economy and real estate market, as well as in environmental law or municipal land use regulations, could affect the development potential of lands in Lebanon County.

Table 9-27 presents the estimated acreages of the six major land use categories at build-out. Table 9-28 shows the municipal and school district level data behind the county figures. Figure 9-6 illustrates the distribution of the projected acreages in comparison to the 2006 land use inventory.

Based on land use and development trends, 1987-2006, and development potential specified by current development ordinances, estimated maximum build-out further suggests conversion of open space lands to intensive development. The build-out potential shows development of all developable land for the use indicated and, in essence, full occupancy of available lands. Residential lands could increase substantially—nearly four-fold. Table 9-28 shows the distribution of total residential acreage by municipality. Table 9-29 identifies the type of zoning district from which the projected residential acreages at build-out originate.

Figure 9-6 Comparative Land Use Distribution, 2006 Inventory and Build-out

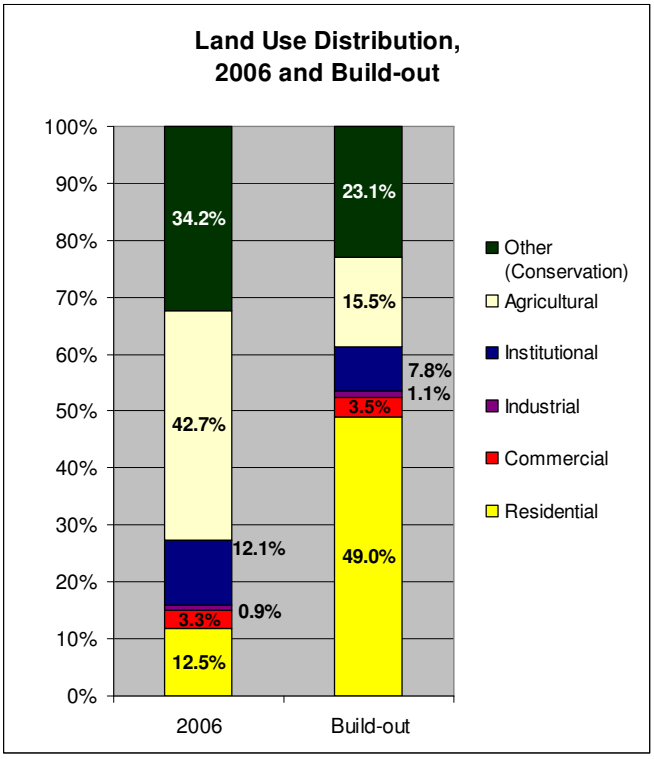


Table 9-27 Changes in Land Use by Maximum Build-out

Land Use/Cover Projection	2006 Inventory (acres)	At Build-out (acres)	% of County at Build-out	Change in Acres, 2006-Build-out
Residential	29,353	114,732	49.0%	85,379
Commercial	7,738	8,081	3.5%	343
Industrial - also includes Mineral Extraction	1,920	2,518	1.1%	598
Institutional - also includes Transportation, Utilities, Recreation, and Military	15,186	18,315	7.8%	3,129
Agricultural	99,996	36,377	15.5%	-63,619
Other (Conservation) - includes Forest, Mowed Grass, Scrub Brush,	80,028	54,199	23.1%	-25,829
Total	**234,222**	**234,222**	**100.0%**	**0**

Source: Gannett Fleming, Inc.

Commercial and industrial lands could increase by only 300 to 600 acres each. Institutional uses, including community, recreation, transportation and utility facilities, could increase by roughly 3,000 acres to serve residents' needs. Institutional, transportation and utility lands were projected in proportion to residential increases. Dedicated recreation land, however, was projected based on the current mandatory dedication requirements of the ten municipalities that have such provisions, and an assumption that suitable lands could be dedicated rather than opting for fee-in-lieu of parkland dedication. When totaled, the projected increase in lands in intensive uses at build-out would be 85,449 acres or 36.8% of the county.

These increases would convert a large percentage of the 2006 open space to development. Preserved farmland would gradually increase and lands in public ownership as well as lands excluded from development or severely limited by the presence of floodplain, steep slopes, or other natural hazards would remain as open space.

The implications for this growth would include significant changes in landscape character, the economy and environmental quality. Residential development of this scale would undoubtedly lead to higher rates of commercial development either through rezoning or updated planning. At build-out, mining and quarrying operations would have fully extracted the commercially viable minerals and reclaimed these lands for development or conserved it as open space. The agricultural economy would be vastly different with less than half of today's farmland still in production at build-out. Finally, the increased pavement and other impervious cover associated with intensive, built uses would dramatically increase storm water and likely reduce infiltration and negatively impact surface and groundwater quality.

Table 9-28 Changes in Land Use by Maximum Build-out

	Estimated Acres of Developed and Dedicated Recreation Land at Build-out								
	Residential	Commercial	Industrial	Institutional	Transportation	Utility	Dedicated Recreation	Total Additional Developed/ Dedicated Land at Build-out	% Change in Developed/ Dedicated Land at Build-out
Lebanon County	**85,379**	**343**	**598**	**305**	**892**	**87**	**1,846**	**89,449**	**36.8%**
Annville-Cleona SD	**13,478**	**47**	**20**	**30**	**69**	**5**	**0**	**13,507**	**53.8%**
Annville	36	38	12	7	17	0	0	48	4.6%
Cleona	60	1	0	0	0	0	0	61	11.3%
N. Annville	6,692	2	1	9	18	1	0	6,695	60.5%
S. Annville	6,690	6	7	14	34	3	0	6,703	53.8%
Cornwall-Lebanon SD	**13,008**	**83**	**241**	**159**	**340**	**53**	**234**	**13,326**	**31.3%**
Cornwall	376	1	2	6	59	19	9	379	6.1%
Mount Gretna	5	1	0	0	5	0	0	5	5.0%
N. Cornwall	1,406	24	5	5	59	0	61	1,430	23.5%
N. Lebanon	3,392	26	102	33	79	4	0	3,520	32.9%
S. Lebanon	6,460	16	124	106	115	25	165	6,600	47.5%
W. Cornwall	1,369	15	8	9	23	5	0	1,392	25.3%
ELCO SD	**17,294**	**68**	**187**	**31**	**104**	**8**	**314**	**17,547**	**38.7%**
Heidelberg	3,713	10	18	2	11	3	0	3,739	24.2%
Jackson	8,375	38	118	18	47	1	314	8,531	55.3%
Millcreek	5,042	3	38	9	39	4	0	5,084	38.9%
Myerstown	8	2	2	2	4	0	0	11	2.1%
Richland	156	15	11	0	3	0	0	182	20.5%
Lebanon SD	**41**	**4**	**20**	**7**	**30**	**0**	**0**	**64**	**2.2%**
Lebanon City	41	4	12	7	30	0	0	56	2.1%
W. Lebanon	0	0	8	0	0	0	0	8	3.3%
Northern Lebanon SD	**33,040**	**82**	**44**	**28**	**208**	**3**	**1,137**	**33,151**	**35.1%**
Bethel	8,225	9	23	8	47	0	493	8,257	37.1%
Cold Spring	713	13	0	0	1	0	0	713	3.9%
E. Hanover	12,108	12	4	6	21	0	0	12,124	58.1%
Jonestown	39	1	2	1	4	0	0	42	10.4%
Swatara	7,477	1	2	7	89	1	405	7,478	54.2%
Union	4,478	46	13	6	46	2	238	4,537	23.8%
Palmyra Area SD	**8,517**	**59**	**87**	**49**	**141**	**17**	**161**	**8,619**	**36.4%**
N. Londonderry	954	8	56	15	58	2	0	1,018	14.8%
Palmyra	78	1	12	5	14	0	0	91	7.3%
S. Londonderry	7,486	50	19	28	69	16	161	7,511	48.3%

Source: Gannett Fleming, Inc.

Table 9-29 Potential Residential Acreage by Zoning District Type

	Potential Residential Acreage			
	from Residential Zones	from Agricultural zones	from Rural/Forest/ Conservation Zones	Total Potential Residential Acreage
Lebanon County	**11,307**	**63,619**	**10,451**	**85,378**
Percent of Total Potential Residential Acreage	*13.2%*	*74.5%*	*12.2%*	*100.0%*
Annville-Cleona SD	**653**	**11,561**	**1,263**	**13,477**
Annville	27	9	0	36
Cleona	5	54	0	59
N. Annville	190	6,502	0	6,692
S. Annville	431	4,996	1263	6,690
Cornwall-Lebanon SD	**1,394**	**10,587**	**1,026**	**13,008**
Cornwall	25	99	251.6667	376
Mount Gretna	5	0	0	5
N. Cornwall	605	801	0	1,406
N. Lebanon	415	2,516	460.832	3,392
S. Lebanon	207	6,253	0	6,460
W. Cornwall	137	918	314	1,369
ELCO SD	**3,381**	**13,913**	**0**	**17,294**
Heidelberg	818	2,895	0	3,713
Jackson	1,746	6,629	0	8,375
Millcreek	653	4,389	0	5,042
Myerstown	8	0	0	8
Richland	156	0	0	156
Lebanon SD	**41**	**0**	**0**	**41**
Lebanon City	41	0	0	41
W. Lebanon	0	0	0	0
Northern Lebanon SD	**3,079**	**27,557**	**2,404**	**33,040**
Bethel	995	7,230	0	8,225
Cold Spring	713	0	0	713
E. Hanover	334	10,651	1123	12,108
Jonestown	39	0	0	39
Swatara	781	6,516	180	7,477
Union	217	3,160	1101	4,478
Palmyra Area SD	**2,759**	**0**	**5,758**	**8,517**
N. Londonderry	954	0	0	954
Palmyra	78	0	0	78
S. Londonderry	1,728	0	5758	7,486

Source: Gannett Fleming, Inc.

Table 9-30 presents the number of structures or units permitted by current municipal zoning. This data can be helpful in projecting the resident population as well as water and sewer demand, if ultimate utility service areas are known.

The number of residential units is an estimate of the maximum development potential for all undeveloped, developable parcels. To assume maximum density is not a probable scenario. Nonetheless, some portion of this residential development is likely to occur. Decisions about development location and density, whether made through municipal zoning or private developers, will impact the need for expanded facilities for community, recreation, transportation, and utility services.

Table 9-30 Summary of Capacity for Residential Units by Residential Zoning Districts

	Additional Units at Build-out		
	Residential	Commercial	Industrial
Lebanon County	**98,992**	**295**	**305**
Annville-Cleona SD	**10,178**	**9**	**14**
Annville	185	0	6
Cleona	351	5	0
N. Annville	3,443	2	1
S. Annville	6,199	2	7
Cornwall-Lebanon SD	**13,599**	**83**	**63**
Cornwall	298	1	1
Mount Gretna	20	0	0
N. Cornwall	2,096	25	7
N. Lebanon	3,708	26	51
S. Lebanon	6,599	16	0
W. Cornwall	878	15	4
ELCO SD	**28,097**	**71**	**118**
Heidelberg	9,599	8	9
Jackson	10,843	38	59
Millcreek	6,193	5	38
Myerstown	64	5	1
Richland	1,398	15	11
Lebanon SD	**484**	**27**	**23**
Lebanon City	477	19	23
W. Lebanon	7	8	0
Northern Lebanon SD	**33,210**	**88**	**34**
Bethel	8,220	9	17
Cold Spring	713	13	0
E. Hanover	11,796	18	2
Jonestown	308	1	2
Swatara	7,497	1	0
Union	4,676	46	13
Palmyra Area SD	**13,424**	**17**	**53**
N. Londonderry	4,953	8	28
Palmyra	443	3	6
S. Londonderry	8,028	6	19

Source: Gannett Fleming, Inc.

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Energy Conservation Profile

The availability and use of energy resources is an important consideration for residents, businesses, developers, institutions, and all levels of government. Energy heats and cools our indoor environments, fuels our vehicles, and powers our computers, appliances, and equipment. Energy is critical to our modern lifestyle. As the technology in our modern lifestyle increases, so does our reliance on energy resources.

Ever-changing energy usage, costs and availability highlights the need to understand and manage energy consumption patterns. The energy crisis of the 1970s sparked interest in energy conservation measures, such as carpooling and alternative energy sources. Community development plans and policies developed in subsequent years often highlighted energy conservation through energy efficient residential site design practices. Unfortunately, as energy supplies increased and costs fell, conservation measures became less popular. Facing similar instability in the Middle East at the outset of the 21st century, awareness for energy consumption and opportunities for conservation has risen. In conjunction with increasing concern for the limits of non-renewable resources, their impacts on the environment, and the impacts of sprawl on local government, public interest in transit, construction standards, (e.g. road and parking design minimums), and alternative energy sources has been renewed.

This profile will analyze the impact of community development patterns, the transportation network, and public infrastructure among other plan components on the present use of energy in Lebanon County. It will identify current measures and additional opportunities to reduce energy consumption and trends in renewable energy sources.

Energy Uses

Energy is integrated in the operation of most of our modern built-facilities. Homes, offices, factories, schools, hospitals, and infrastructure systems rely on electricity and other energy sources for lighting and indoor climate control—heating, ventilation, and air conditioning. In addition, the operation of these facilities increasingly relies on electronic systems, in addition to advanced appliances and equipment, for their respective functions.

In modern society, the vast majority of transportation is aided by vehicles—vehicles that are powered by gasoline or other fuels. Automobiles, trucks, busses, trains and airplanes carry people, goods and services within and between communities. They transport supplies between business and industry, students to schools and recreationists to leisure, sports and entertainment destinations. In urban areas where residences, work places, and leisure destinations are close to one another, people can walk or bicycle, take public transportation, or hire taxi service to their destinations. While these options may be available in rural areas, they may not be efficient or realistic for destinations that are far-removed from one another.

Lebanon County is a county in transition from rural to urban status. Its city, boroughs and even portions of surrounding townships along the Route 422 corridor are clearly urban yet the remainder of the county is still strongly characterized by agricultural and forested landscapes. This duality makes is difficult to determine countywide policy that will fit each community. Energy choices, particularly for travel, are more limited in rural areas, as is the sense of need for providing and managing such choices. Nonetheless, in a time of increased awareness for energy costs, it is prudent to consider where and how municipal policy and regulations can impact energy use by residents and the public sector.

Energy Sources

Utility Gas

Utility gas, or natural gas[1], is comprised mainly of methane. As a household fuel, natural gas is used in fuel stoves, furnaces, water heaters, clothes dryers and other household appliances. The availability of natural gas is also important for economic development, as major industry generally requires natural gas as an available resource for production of steel, glass, paper, clothing, brick, and electricity as well as heating purposes.

[1] Energy Information Administration, www.eia.doe.gov.

Natural gas burns more cleanly than other fossil fuels. It has fewer emissions of sulfur, carbon, and nitrogen than coal or oil, and it has almost no ash particles left after burning. As with other fossil fuels, burning natural gas produces carbon dioxide, a greenhouse gas. However, its relatively clean-burning properties, when compared to other carbonaceous fuels, are one reason that the use of natural gas, especially for electricity generation, has grown so much and is expected to grow even more in the future. Additionally, compressed natural gas can be used as a clean alternative to other vehicle fuels, with an energy efficiency comparable to gasoline engines but lower than most modern diesel engines.

Bottled Gas (Propane)[2]

Propane is a non-renewable fossil fuel, like the natural gas and oil from which it is produced. When commonly sold as fuel, it is also known as liquefied petroleum gas (LPG or LP-gas). Like natural gas (methane), propane is colorless and odorless, therefore foul-smelling mercaptan is added to make gas leaks easy to detect. Because of its clean burning properties and portability, propane is often chosen to fuel indoor equipment such as fork lifts and as an alternative transportation fuel. Propane-fueled engines produce much fewer emissions of carbon monoxide and hydrocarbons compared to gasoline engines. Like all fossil fuels, propane emits water vapor and carbon dioxide, a greenhouse gas.

Although propane accounts for 3 percent or less of home heating fuels in Pennsylvania and Lebanon County, it has some very important uses. Propane is the most common source of energy in rural areas that do not have natural gas service. It is used for heating homes, heating water, cooking and refrigerating food, drying clothes, and fueling gas fireplaces and barbecue grills. On farms, it is used to dry corn and power farm equipment and irrigation pumps. Businesses and industry use propane to run their fork lifts and other equipment. About 40 percent of propane is used by the chemical industry as a raw material for making plastics, nylon, and other materials. While only a small fraction of propane is used for transportation, it is the largest alternative transportation fuel in use today. Instead of gasoline, propane is often used to fuel fleets of vehicles used by school districts, government agencies, and taxicab companies. In recreational pursuits, hot air balloons use propane to heat the air that makes them rise.

Petroleum

Petroleum is the most commonly used energy source, supplying about 40% of the planet's energy. Petroleum is used to produce fuels, such as gasoline (petrol), diesel, and numerous fuels for heating. This rich energy source is obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.[3]

Diesel Fuel

Diesel is a specific fractional distillate of fuel oil (mostly petroleum) that is used as fuel in diesel engines. Diesel is not as dense as lube oil, but is about 15% denser than gasoline and releases about 15% more megajoules per liter than gasoline. Diesel is generally simpler to refine than gasoline and often costs less, but contains higher quantities of sulfur. European emission standards have forced oil refineries to dramatically reduce the level of sulfur in diesel fuels. The United States has lagged behind in this initiative, although more stringent emission standards have been adopted with the transition to ultra-low sulfur diesel (ULSD) starting in 2006 and becoming mandatory in 2010. Although high levels of sulfur in diesel are harmful for the environment, lowering sulfur also reduces the lubricity of the fuel, meaning that additives are required to lubricate engines. Diesel fuel in the United States typically also has a lower measure of ignition quality, resulting in worse cold weather performance and some increase in emissions. The benefit of diesel is that it contains approximately 18% more energy per unit of volume than gasoline, which, along with the greater efficiency of diesel engines, contributes to fuel economy (distance traveled per volume of fuel consumed). [4]

Fuel Oil

Fuel oil provides high efficiency and low emissions. New oil heating systems boast energy efficiency ratings ranging from 83 to 94 percent. The emissions from home heating oil are about the same as those from a similar-size gas burner. The latest oil-fueled home heating systems are nearing zero emissions for smoke and combustion discharge, resulting in cleaner air. Fuel oil is the most common form of primary home heating fuel in Lebanon County and is sold by several local suppliers.

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[2] Energy Information Administration, www.eia.doe.gov.
[3] Oracle ThinkQuest Education Foundation. library.thinkquest.org/21794/energysources.html
[4] Wikipedia. http://en.wikipedia.org/wiki/Diesel

Electricity

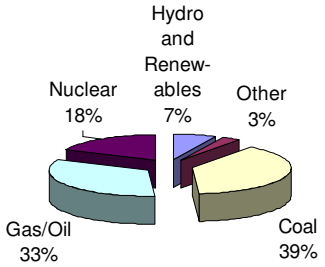
Electricity is a second generation energy source, as it is generated through the burning of natural gas, oil or coal, by nuclear generators, or by wind turbines or hydroelectric dams. These primary sources have a variety of costs and environmental impacts.

Pennsylvania was one of the first states to deregulate its retail electric power markets, signed into legislation in December 1996 by Governor Tom Ridge. Under the restructuring plan, which started January 1999, customers of Pennsylvania's 8 largest investor-owned utilities were allowed to shop for alternative sources of power.[5] As a result, buyers have greater choice in the source (and impacts) of their electricity generation.

According to the Federal Energy Information Administration, in 2004, over half of electric power generation in Pennsylvania was fueled by coal (54.6%) as can be seen in Table 10-1. The next highest generation category was nuclear at 36.1%, reflected in the dramatic shift in energy production from electric utilities to independent power providers seen in Table 10-1.

Electricity ranks third among home heating sources in Lebanon County. The two primary residential and commercial electric providers in the county are PPL Electric and Metropolitan Edison (Met Ed). Both generate electricity from a variety of fuel sources. PPL's fuel source composition is shown in Figure 10-2.

Figure 10-1
PPL Power Supply by Fuel Source
(generating capacity)



General Public Utilities (GPU) generates electricity at the AES Ironwood plant in South Lebanon Township however it does not provide local service. The AES Ironwood plant is a combined cycle gas turbine (CCGT) plant. The $330 million plant started commercial operation on December 31, 2001, and has a 730 MW output. The plant's main fuel is natural gas. It also has dual fuel capacity to burn distillate oil, though it has never been used. The plant is connected to the existing North Lebanon–South Lebanon 230 KV line in the GPU Energy system, which is then sold and distributed to the Pennsylvania – Maryland – New Jersey markets.[6]

The AES Ironwood power plant requires Zero Liquid Discharge (ZLD) technology using an integrated total water management system. ZLD systems eliminate liquid waste steam from the plant and recycle high purity water for reuse. In many cases, plant water consumption can be reduced up to 90% with the addition of a ZLD system. This can minimize the potential risk associated with plant waste in streams and help to improve unfavorable public perceptions of new facilities.[7]

In addition to the AES Ironwood power plant, PPL Corporation has entered into an agreement with the Greater Lebanon Refuse Authority to purchase methane gas produced at the county landfill. The methane gas will be used to generate electricity for the equivalent of 4,000 homes. The deal will replace the authority's contract with Lebanon Methane Recovery which is set to expire May 31, 2007. Site work for the plant is to begin in January 2007, with construction to be finished by May and the plant in operation by June. The electricity generated will be sold to the Metropolitan Edison Company, subsidiary of First Energy Corporation, and used throughout the power grid that covers Pennsylvania, New Jersey, and Maryland.

Coal

Coal[8] is used to generate more than half of all electricity produced in the United States. In addition to electric utility companies, industries and businesses with their own power plants use coal to generate electricity. When coal is burned as fuel, it gives off carbon dioxide, the main greenhouse gas that is linked with global warming. Burning coal also produces emissions, such as sulfur, nitrogen oxide (NOx), and mercury, that can pollute the air and water. The Clean Air Act and the Clean Water Act require industries to reduce pollutants released into the air and the water.

[5] Energy Information Administration, www.eia.doe.gov/cneaf/electricity/page/fact_sheets/pennsylvania.html
[6] Power Technology. www.power-technology.com
[7] GE Infrastructure, Water and Process Technologies. Formerly Ionics, Inc., www.ionics.com/applications/zld/index.htm
[8] Energy Information Administration, www.eia.doe.gov.

Table 10-1 Electric Power Industry Generation by Primary Energy Source, 1990 Through 2004

Energy Source	Percentage Share								
	1990	1995	1998	1999	2000	2001	2002	2003	2004
Electric Utilities	**94.3**	**91.1**	**91.0**	**83.1**	**48.1**	**14.1**	**14.9**	**14.6**	**15.8**
Coal	58.1	52.2	55.7	44.0	18.2	7.1	7.8	7.7	8.6
Petroleum	2.3	1.7	2.1	1.6	0.8	0.0	0.0	0.0	0.0
Natural Gas	0.1	1.2	0.3	0.5	0.1	0.0	0.0	0.0	0.0
Nuclear	32.9	35.8	32.0	36.4	28.4	6.7	6.7	6.1	6.5
Hydroelectric	1.5	0.9	1.1	0.8	0.8	0.4	0.6	0.8	0.8
Pumped Storage	-0.5	-0.7	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1
Independent Power Producers and Combined Heat and Power	**5.7**	**8.9**	**9.0**	**16.9**	**51.9**	**85.9**	**85.1**	**85.4**	**84.2**
Coal	2.7	5.1	5.2	13.2	39.4	49.9	47.9	48.5	46.0
Petroleum	0.4	0.3	0.2	0.2	1.0	1.8	1.3	2.2	1.9
Natural Gas	1.5	1.5	1.7	1.5	1.2	1.5	3.3	2.7	4.6
Other Gases	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3
Nuclear	0.0	0.0	0.0	0.1	8.2	30.8	30.6	29.9	29.6
Hydroelectric	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.8	0.7
Other Renewables	0.5	1.3	1.4	1.4	1.4	1.4	1.3	1.4	1.4
Pumped Storage	0.0	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	-0.2
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Electric Industry	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Coal	60.7	57.3	60.9	57.2	57.6	56.9	55.7	56.2	54.6
Petroleum	2.7	2.0	2.4	1.8	1.9	1.8	1.3	2.2	1.9
Natural Gas	1.6	2.7	2.0	2.0	1.3	1.5	3.3	2.7	4.6
Other Gases	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3
Nuclear	32.9	35.8	32.0	36.6	36.6	37.5	37.2	36.0	36.1
Hydroelectric	1.6	1.1	1.2	1.0	1.1	0.8	1.1	1.6	1.5
Other Renewables	0.5	1.3	1.4	1.4	1.4	1.4	1.3	1.4	1.4
Pumped Storage	-0.5	-0.7	-0.2	-0.2	-0.2	-0.3	-0.3	-0.4	-0.3
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Energy Information Administration, www.eia.doe.gov.

The coal industry has found several ways to reduce sulfur, nitrogen oxides, and other impurities from coal. They mine and burn low-sulfur coal and clean the coal more completely before it leaves the mine. Power plants use "scrubbers" to clean sulfur from the smoke before it leaves their smokestacks. In addition, industry and government have cooperated to develop "clean coal technologies" that either remove sulfur and nitrogen oxides from coal, or convert coal to a gas or liquid fuel. The scrubbers and NOx removal equipment are also able to reduce mercury emissions from some types of coal. Scientists are working on new ways to reduce mercury emissions from coal-burning power plants, since the Environmental Protection Agency (EPA) has set tighter mercury limits for the future.

Wood[9] and Wood Pellets

Wood burning stoves and fireplaces have been a common alternative to fossil fuels and the instability of fuel cost and supply. In the mid-1970s, purchases of wood stoves soared as people sought to hedge their energy bills against high oil prices and threats of shortages. In 1999, sales increased again as residents prepared for a potential Y2K electrical supply failure. The terrorist attacks of September 11, 2001 and political instability in the Middle East have created yet another surge in wood stove sales.

[9] Wood Heat Organization

Wood as an energy source offers several benefits:

- It's renewable. Woodlands can be cut for firewood and managed for natural or planted regeneration.
- It recycles carbon dioxide and reduces global warming.
- It is not reliant on electricity for distribution.
- It's inexpensive, particularly in rural areas where woodlands are abundant.

Many wood stoves can burn wood pellets as well as logs. Wood pellets are essentially sawdust that has been compressed into uniformly shaped pellets. Wood pellet production is an example of recycling in that the raw materials (sawdust and other wood waste products) of the pellets are typically a waste product of other wood processing industries that can be made into useable products.

Solar Energy[10]

Energy from the sun can be categorized in two ways: (1) in the form of heat (or thermal energy), and (2) in the form of light energy. Solar thermal technologies use the sun's heat energy to heat substances (such as water or air) for applications such as space heating, pool heating and water heating for homes and businesses. There are a variety of products on the market that utilize thermal energy. Often the products used for this application are called solar thermal collectors and can be mounted on the roof of a building or in some other sunny location. The sun's heat can also be used to produce electricity on a large utility-scale by converting the sun's heat energy into mechanical energy.

Photovoltaic (PV) is a technology often confused with solar thermal and is in fact what many people mean when they refer to "solar energy". Photovoltaics (photo=light, voltaics=electricity) is a semiconductor-based technology (similar to the microchip) which converts light energy directly into an electric current that can either be used immediately or stored, like in a battery, for later use. PV panels/modules are very versatile and can be mounted in a variety of sizes and applications; e.g. on the roof or awning of a building, on roadside emergency phones or as very large arrays consisting of multiple panels/modules. Currently they are being integrated into building materials (such as PV shingles, which replace conventional roofing shingles).

Solar energy is not widely used as an energy source in the county; however, as the technology improves and systems become more manageable and architecturally pleasing, this energy source will become more attractive to residents and businesses.

Geothermal Energy

Geothermal energy is a form of renewable energy derived from heat deep in the earth's crust. This heat is brought to the near-surface by thermal conduction of heat from groundwater. The heated groundwater can be used for direct heating of homes and businesses, and also to produce electricity. Geothermal energy is used today where good geothermal resources exist, including many locations in the western United States.

Geothermal energy can also be utilized in other areas of the country by different means. In most areas of the country, the temperature of the earth, several feet below the surface, remains constant (rather than outside air which is generally colder in winter and warmer in summer). Because of this, geothermal heat energy can be extracted from the earth in cold months of the year and displaced into the earth in warmer months. The geothermal energy is harnessed using a geothermal heat pump (GHP). These ground-source heat pumps use the natural heat storage capacity of the earth or ground water to provide energy efficient heating and cooling. In addition, geothermal heat pumps can provide domestic hot water. GHPs should not be confused with air-source heat pumps that rely on heated air. Geothermal heat pumps are appropriate for retrofit or new homes, where both heating and cooling are desired. They can be used for virtually any size home in any region of the U.S.

Wind Energy

As a renewable resource, wind is classified according to wind power classes, which are based on typical wind speeds. These classes range from class 1 (the lowest) to class 7 (the highest). In general, wind power class 4 or higher can be useful for generating wind power with large turbines. Class 4 and above are considered good resources.

[10] www.solarenergy.com

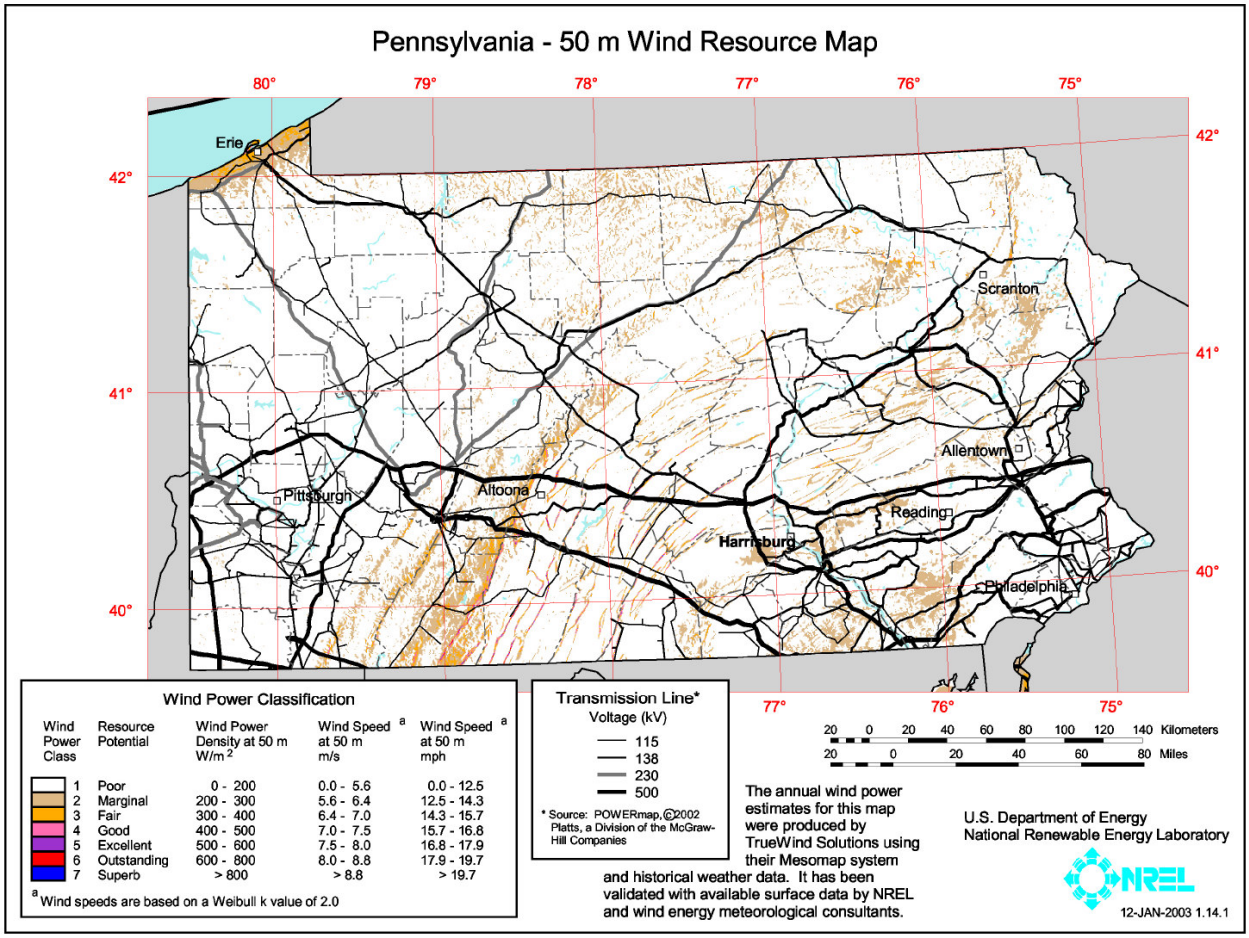
The US Department of Energy's Wind Program and the National Renewable Energy Laboratory (NREL) recently published a new wind resource map (Figure 10-2) for the state of Pennsylvania. This resource map shows wind speed estimates at 50 meters above the ground and depicts the resource that could be used for utility-scale wind development. Future plans are to provide wind speed estimates at 30 meters, which are useful for identifying small wind turbine opportunities.

This map indicates that Pennsylvania has wind resources consistent with utility-scale production. These are most concentrated on ridge crests in the southwestern part of Pennsylvania, located southwest of Altoona and southeast of Pittsburgh. Commercial wild turbines have been developed in Somerset County and more have been proposed in Bedford County.

Lebanon County has wind resources of marginal quality for utility-scale wind generation through the Lebanon Valley and along the northern ridges. A few areas of these northern ridges have higher wind speeds and qualify for a "fair" classification. These resources are sufficient for the numerous small-scale wind turbines used on farms throughout the valley.

According to DCNR, wind power might be appropriate for consideration on a few (1 – 3%) state lands based on the wind map of Pennsylvania. However, DCNR will not engage the environmental community, wind developers and local governments in discussion of wind generation on state lands until the wind industry and local governments begin to cooperate in Pennsylvania. As DCNR owns land along the northern ridges, this position may be a point of future discussion.

Figure 10-2 Pennsylvania – 50 m Wind Resource Map



As a renewable resource, wind is classified according to wind power classes, which are based on typical wind speeds. These classes range from class 1 (the lowest) to class 7 (the highest). In general, wind power class 4 or higher can be useful for generating wind power with large turbines. Class 4 and above are considered good resources.
Source: US Department of Energy

Biodiesel

Biodiesel can be thought of as any liquid biofuel suitable as a diesel fuel substitute, additive, or extender. Biodiesel fuels are typically made from oils such as soybeans, rapeseed, or sunflowers, or from animal tallow. Biodiesel can also be made from hydrocarbons derived from agricultural products or rice hulls.[11]

Biodiesel is a clean burning alternative fuel, produced from domestic, renewable resources. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics.[12] It can be used in diesel engines with little or no modifications; however, some manufacturers are concerned about cold weather performance and its impact on engine durability.[13]

Biodiesel use has increased more than 50 times in the last five years, and is easier and cheaper to produce than ethanol. A Cumberland County biodiesel production plant, Keystone Biofuels, reports that most of their soybeans are purchased from Pennsylvania farms.[14]

13. Ethanol and Ethanol 85

Ethanol is an alcohol-based fuel produced by fermenting and distilling starch crops that have been converted into simple sugars. Feedstocks for this fuel include corn, barley, and wheat. Ethanol can also be produced from "cellulosic biomass," such as trees and grasses, and is called bioethanol. Ethanol is most commonly used to increase octane and improve the emissions quality of gasoline.

Ethanol can be blended with gasoline to create E85, a blend of 85% ethanol and 15% gasoline. E85 and blends with higher concentrations of ethanol qualify as alternative fuels under the Energy Policy Act of 1992. Vehicles that run on E85 are called flexible fuel vehicles (FFVs) and are offered by several vehicle manufacturers. Driven by environmental, economic, and energy security concerns, the availability and use of E85 is growing nationally.[15]

There is not nearly enough corn production in the U.S. to sustain fuel consumption needs, though demand for agricultural production is expected to increase. There are over 100 ethanol plants in the United States, but none in Pennsylvania. An ethanol plant was proposed in Conoy Township, Lancaster County, and is now proposed in Greene Township, Franklin County, but the plant has been met with resistance by local residents in both locations[16].

Energy Use Factors

Climate

The energy that is required to heat and cool buildings is determined in part by how buildings and their sites are designed with respect to climate. Sun, cold winds, warm breezes, landscaping, and topography affect a building's heating and cooling needs. The orientation and arrangement of buildings with respect to the sun and seasonal winds and the use of landscaping are examples of actions that can be taken to moderate climate extremes, save energy, and make a living environment more comfortable through natural means.

Building Size, Design, Materials, Condition and Function

Energy demand for facility operations, particularly heating and cooling of buildings, is determined in large part by the structure itself. The building's size, design, construction materials, condition, and function may all influence the energy usage.

[11] Energy Information Administration, www.eia.doe.gov.
[12] www.biodiesel.org
[13] U.S. Department of Energy – Energy Efficiency and Renewable Energy, Alternative Fuels Data Center. www.eere.energy.gov.
[14] WGAL Channel 8, 8 On Your Side, www.wgal.com.
[15] Ibid.
[16] Ibid.

Building size and design is a big determinant of energy usage. Large single story buildings with extensive external walls require more energy for heating and cooling than multi-story buildings of similar internal size.
Buildings with many or large windows will typically require more energy to heat because of their low efficiency.
Wide overhangs can block the sun's thermal energy, saving on cooling costs. Building that are oriented to the south will absorb more thermal energy and be warmer in winter because of the angle of the sun. Protecting a building from the predominant winter winds through site placement and landscaping will also save energy on heating costs. Buildings with light-colored exterior walls and roofs will reflect the suns energy and be cooler, where as buildings with darker featured roofs will be warmer. Certain external building materials provide better heat absorption or heat loss protection than others; masonry products, for example, absorb and retain heat better than wood or plaster.

Energy efficiency can be quickly diminished if a building has not been properly maintained. Broken or cracked door and window seals that allow air to penetrate the building from the outside will decrease energy efficiency. Cracks that occur from building settlement and long term exposure to the elements will decrease energy efficiency. Buildings that are under-insulated or improperly insulated will also not be energy efficient.

The overall function of a building can help to determine how much energy will be consumed within its walls. For example, commercial and industrial uses tend to consume much more energy for their operations than residential properties, due in large part to the amount, type and size of equipment. The number of hours of active operation influences energy use, as well. Businesses that operate for 8 hours a day and those that operate around the clock will use significantly different energy amounts. In residential circumstances, the energy that is used will be determined by the number of people in the home, the hours they are home, and their technological lifestyle (how many and the types of appliances and electronic equipment).

Transportation

Transportation-related energy conservation efforts are typically aimed at changing the fuel type used to one that more efficient or cleaner-burning, or at reducing energy consumption by changing the overall way in which people travel.

Recently, record-high gasoline prices and concerns over environmental and security issues surrounding fossil fuels have turned increased attention to alternative fuel and energy sources. Those alternatives with the most likely impacts on Lebanon County and the surrounding region are ethanol, biodiesel, natural gas, and hydrogen.

Some automobile manufacturers are releasing vehicles that use a mix of ethanol and gasoline called flex-fuel. This is expected to increase demand for ethanol, E85 and other ethanol blends.

Biodiesel use is increasingly rapidly and is most often used with larger vehicles, such as farming equipment.

Natural gas is already being used with success in Pennsylvania. The Centre Area Transit Authority (CATA) was one of the country's first to run its fleet using natural gas, an energy source that is 90% domestically produced. Starting in 1996, CATA began using buses that run on natural gas, and all 52 CATA buses have done so since 2004. Indiana County, Pennsylvania also has buses running on natural gas[17].

Hydrogen fuel has perhaps the most appealing long-term potential but currently lags behind other alternative fuel sources in availability. While hydrogen fuel cells would have higher fuel efficiency, cleaner emissions, and be based on the world's most abundant element (hydrogen), the cost in harnessing the energy is still very high. Despite the costs, automobile manufacturers are aiming to produce hydrogen-powered vehicles early in the next decade. In the more immediate future, CATA is nearing the release of buses that use a blend of 30% hydrogen and 70% natural gas fuel[18].

Reducing energy consumption often implies more significant changes in operations or lifestyle than just switching fuel types. For business and industry, such changes can mean new ways of shipping, e.g. by rail rather than by truck. For residents, those changes can mean carpooling or using mass transit. Municipalities may need to consider adopting regulations to create developments better connected by sidewalks or to increase densities which make mass transit use attractive and affordable.

There are several initiatives to reduce energy consumption, some of which can be implemented in the short term. The Lebanon County Long Range Transportation Plan recommends several non-motorized transportation projects, including

[17] WGAL Channel 8, 8 On Your Side, www.wgal.com; Centre Area Transit Authority, www.catabus.com/accngprog.htm.
[18] Ibid.

short-term and long-term Lebanon Valley Rail Trail extensions, the South Lebanon Township Trail Project, and Safe Routes to School projects in North Lebanon School District and Jonestown Borough. Once completed, these projects will offer real alternatives for school- and recreation-related travel.

Additionally, the plan recommends continued partnership with the Susquehanna Regional Transportation Partnership to reduce single-occupancy vehicle (SOV) dependence in the region. Land use strategies that support alternative transportation methods such as walking, car-pooling and public transportation will further the efficacy of these programs, and will play a long term role in transportation-based energy conservation.

Cost/Affordability

Cost is perhaps the most readily measured factor of energy demand. While taxes and subsidies adjust the price paid by the consumer, the cost of the energy or fuel itself often influences how much a consumer will purchase, if at all.

Energy Use and Rate Reports

Electricity - Statewide

The price of electricity in Pennsylvania over the past 45 years has grown steadily with dramatic increases during the seventies and early eighties, as shown in Table 10-2.

Table 10-2 Average Retail Price of Electricity 1960-2005 (per kilowatt-hour; includes taxes)

Year	Residential	% Increase	Commercial	% Increase	Industrial	% Increase
1960	2.60		2.40		1.10	
1965	2.40	-7.69	2.20	-8.33	1.00	-9.09
1970	2.20	-8.33	2.10	-4.55	1.00	0.00
1975	3.50	59.09	3.50	66.67	2.10	110.00
1980	5.40	54.29	5.50	57.14	3.70	76.19
1985	7.39	36.85	7.27	32.18	4.97	34.32
1990	7.83	5.95	7.34	0.96	4.74	-4.63
1995	8.40	7.28	7.69	4.77	4.66	-1.69
2000	8.24	-1.90	7.43	-3.38	4.64	-0.43
2005	9.42	14.32	8.68	16.82	5.57	20.04

Source: Energy Information Administration, www.eia.doe.gov.

Pennsylvania's restructuring of its retail electric power markets in 1999 provided for price caps for retail customers, plus the residential and commercial customers received an additional 8 percent rate reduction. These changes have affected trends in Pennsylvania's retail electricity rates in the following ways: [19]

- Through the 1990s, Pennsylvania's nominal retail electricity prices—prices unadjusted for the effects of inflation—have been relatively stable at approximately 8.0 cents per kilowatt-hour (kWh). Lower coal prices used in coal-fired power plants and improved operating efficiencies in nuclear plants, which together accounted for almost 90 percent of Pennsylvania's power generation, have contributed to Pennsylvania's price stability over the 1990s.

- Because nominal electricity prices have been stable, real electricity prices—prices from which the effects of inflation are eliminated—in Pennsylvania have been decreasing throughout the 1990s, reaching a low of 7.67 cents per kWh in 1999.

- In 1999, industrial customers in Pennsylvania paid an average 5.22 cents per kWh while residential customers paid 9.19 cents per kWh in 1999 (see map). Compared to many other States, and compared to national averages, these prices were relatively high. In 1999, national average retail electricity prices were 4.43 cents per kWh for industrial customers and 8.16 cents per kWh for residential customers.

[19] Energy Information Administration, www.eia.doe.gov/cneaf/electricity/page/fact_sheets/pennsylvania.html

- Three factors were implemented to help lower Pennsylvania's retail electricity rates over the past few years. First, electricity prices were capped at 1997 levels for utilities for nine years and distribution rates, the charges to deliver electricity over the lines, were capped for 4.5 years. Second, Pennsylvania's utilities agreed to rate reductions; the level of reduction varies by utility. Third, coal-fired and nuclear power were used to help to keep retail prices down.

Nonetheless, Pennsylvania prices have started to increase again. Since most electricity in Pennsylvania is generated from coal and nuclear power, electricity costs have been buffered from the turbulent prices of petroleum and natural gas.

Other Fuels - Statewide

Pennsylvania consumes many different fuels in the course of a year. Three fuels were examined from 1995-2004 to see if their use has increased or decreased over this ten year period. The three fuels chosen were fuel oil, propane and natural gas. These fuels were chosen because they are used to heat buildings, make electricity and power the equipment of homes, business and industry. Over the past four years there has been a decrease in fuel oil sales to Pennsylvania. Over the past three years, there has been an increase in the sales of propane and natural gas to Pennsylvania.

Table 10-3 Fuel Delivered to Consumers in Pennsylvania 1995-2004

Year	Fuel Oil	% Increase	Propane	% Increase	Natural Gas	% Increase
	1000 Gal/Day		1000 Gal/Day		MMcf	
1995	2940.1		912.5			
1996	3238.1	10.1	871.0	-4.5		
1997	3164.0	-2.3	840.2	-3.5	664782	
1998	3202.1	1.2	818.2	-2.6	609779	-8.3
1999	3228.4	0.8	879.6	7.5	648194	6.3
2000	3308.3	2.5	858.7	-2.4	659042	1.7
2001	3251.1	-1.7	765.9	-10.8	595625	-9.6
2002	3143.9	-3.3	822.8	7.4	632035	6.1
2003	3017.4	-4.0	957.2	16.3	651567	3.1
2004	2801.1	-7.2	970.6	1.4	661928	1.6

Source: Energy Information Administration, www.eia.doe.gov.

Ever since powered transportation has been created and mass produced, man's lifestyle has become increasingly dependent on this technology. Given that gasoline and diesel fuel power the vehicles of modern society, their usage in Pennsylvania was examined to see if increases or decreases have occurred in both consumption and pricing over the last decade. Prices in both gasoline and diesel fuel have increased dramatically in the past couple of years. Consumption of gasoline has decreased over the last couple of years while the consumption of diesel fuel has increased.

Table10-4 Gasoline and Diesel Fuel Sales and Price Increases in Pennsylvania 1995-2004

Year	Gasoline	% Increase	Price	% Increase	Diesel	% Increase	Price	% Increase
	1000 Gal/Day		Dollars		1000 Gal/Day		Dollars	
1995	13988.2		1.23		97145.6			
1996	13986.0	0.0	1.31	6.4	102756.6	5.8		
1997	13977.2	-0.1	1.30	-0.8	105457.9	2.6	1.24	
1998	13778.0	-1.4	1.10	-14.9	111178.3	5.4	1.13	-9.1
1999	14017.3	1.7	1.19	8.1	117448.9	5.6	1.19	5.1
2000	14001.2	-0.1	1.56	30.9	119326.3	1.6	1.60	35.2
2001	14238.6	1.7	1.49	-4.6	123612.9	3.6	1.48	-8.0
2002	13921.2	-2.2	1.41	-5.2	120944.5	-2.2	1.40	-4.9
2003	13201.4	-5.2	1.64	16.1	125026.3	3.4	1.63	16.4
2004	13111.8	-0.7	1.93	17.9	129277.6	3.4	1.90	16.6
2005			2.35	21.7			2.50	31.2

Source: Energy Information Administration, www.eia.doe.gov.

Home Heating Fuels

Lebanon County's population is dispersed among the City of Lebanon, seven boroughs of varying sizes, and eighteen townships of urban, suburban and rural character. As such, energy sources and demands are different for each municipality. The U.S. Census Bureau collects information on the source of home heating fuel for residents through the long form of the decennial census. Table 10-5 presents a summary of housing heating fuel sources for Lebanon County and each municipality from the 2000 Census.

Table 10-5 Housing Heating Fuel Sources by Percent

	Utility Gas	Fuel Oil	Electric	Bottled Gas	Coal	Wood	Solar	Other
Pennsylvania	**51.4**	**25.5**	**16.5**	**3.0**	**1.4**	**1.6**	**-**	**.4**
Lebanon County	**21.0**	**55.7**	**16.5**	**2.7**	**1.9**	**1.6**	**-**	**.3**
Annville–Cleona SD								
Annville	26.9	53.9	15.7	1.7	1.0	.4	-	.5
Cleona	13.1	55.6	27.9	1.5	.3	.7	-	.5
N. Annville	1.6	66.7	13.5	6.5	6.3	5.0	-	.5
S. Annville	1.6	75.7	14.9	2.5	1.3	3.0	-	.7
Cornwall–Lebanon SD								
Cornwall	1.4	62.1	24.1	9.5	.7	2.2	-	-
Mount Gretna	-	78.6	6.8	12.8	-	-	-	1.7
N. Cornwall	49.3	33.3	15.3	2.0	-	-	-	-
N. Lebanon	18.7	58.7	17.6	1.4	1.0	2.3	-	-
S. Lebanon	23.7	53.0	17.6	2.1	2.1	1.3	-	.2
W. Cornwall	4.8	69.6	14.3	7.2	1.9	1.0	.5	.6
ELCO SD								
Heidelberg	1.0	67.6	19.2	3.2	3.6	4.6	-	.8
Jackson	13.1	56.9	19.0	4.3	2.8	3.1	-	.7
Millcreek	10.6	58.7	17.6	3.4	6.8	2.8	-	.3
Myerstown	25.8	56.4	10.6	3.4	3.5	-	-	.4
Richland	11.3	67.0	18.2	.7	1.7	.7	-	-
Lebanon SD								
Lebanon City	35.3	49.1	12.9	1.2	.7	.1	-	.5
W. Lebanon	16.8	70.9	7.8	2.7	.9	.9	-	-
Northern Lebanon SD								
Bethel	.7	73.0	13.4	5.0	4.2	3.7	-	-
Cold Spring	-	75.0	-	25.0	-	-	-	-
E. Hanover	1.7	66.3	17.8	7.4	1.1	4.6	-	1.2
Jonestown	-	67.7	22.2	3.5	3.5	1.0	-	1.0
Swatara	.7	64.9	17.3	3.5	8.1	5.5	-	-
Union	-	70.3	15.5	5.1	5.5	3.3	-	.4
Palmyra Area SD								
N. Londonderry	31.5	40.9	22.6	1.3	3.1	.3	-	.3
Palmyra	22.5	58.2	17.5	.8	.2	.2	-	.3
S. Londonderry	19.6	52.0	18.3	5.6	1.1	2.9	-	-

Source: U.S. Census Bureau

Countywide Statistics and Trends

- Lebanon County residents have a high dependency on fuel oil as a heating fuel; 55.7% of all housing units in the county rely on fuel oil as a heating fuel compared to 25.5% for Pennsylvania.
- Utility gas or natural gas is the second highest heating fuel source in demand. 21% of all housing units in the county rely upon utility gas as heating fuel.
- Electricity as a source of heating fuel falls third gas in the county as a heating fuel.
- Bottled gas or liquid propane is a popular heating source in Mount Gretna Borough and Cold Spring Township. Bottled gas is becoming more popular as a heating fuel as more homes and businesses are being developed outside natural gas service areas.
- Nontraditional heating fuel sources, such as coal, wood, geothermal and solar are not as popular as the traditional sources; however, as heating fuel costs continues to rise, the need to explore and implement non-traditional sources will increase.

Land Use and Community Development

The Relationship between Energy Use and Community Development

The energy used to move people and goods in a community is determined in part by patterns of development. The spatial relationships of individual buildings, neighborhoods, communities and regions, particularly their density and the degree to which different kinds of uses are integrated, determine how far and by what means people will travel.
The distance between home and work is perhaps the most common example of the relationship between energy use and land development patterns. Where it is not feasible for people to live near to their work place, they have to commute. There may not be housing available that is affordable, or workers may have strong preferences for schools, other community amenities or landscape character. The commute between home and work can be as little as a few minutes or as long as a couple of hours, resulting in the consumption of energy. In urban areas, commuting options can include mass transit, carpooling, bicycling, or even walking. In rural areas, personal vehicles and carpooling may be the only viable travel means. Those who operate home-based businesses have fewer commuter demands, saving themselves time and energy, but suppliers may still have to deliver to the home.

But commuting to work is not the only reason for traveling. People travel to stores, personal service offices, recreational facilities, schools, religious centers, and entertainment venues regularly. Traditionally, these places were integrated within communities. However, late 20th century zoning practices increasingly separated residential neighborhoods from these destinations, resulting in increased travel that required vehicular assistance as well as expansive public infrastructure (roads, water and sewer systems) to support them.
Compact development, where goods, services, jobs, residences, and recreation are closer together, reduces dependency on vehicles for travel and increases opportunities for walking, bicycling, and public transportation. In addition, compact development more efficiently serves development with public infrastructure.

Community Development Patterns in Lebanon County

Energy conserving principles are evident in Lebanon County. Annville, Cleona, Lebanon, Palmyra, Myerstown and Jonestown are good examples of compact communities that have walkable and bikeable downtowns and neighborhoods. These communities were mainly developed prior to the mid-late 20th century when development patterns became increasingly single use and more dispersed. These communities are now generally built-out and adjacent areas in the townships are generally not zoned to extend these development patterns, i.e. development density or road infrastructure. While these communities are energy efficient, other economic factors have caused their downtowns to become less vibrant.

Development throughout the rest of the county is highly dependent on the use of personal and business vehicles for personal, business/industrial and recreational travel. Rail freight services exist in a narrow corridor of the county. Long term plans for Corridor Two Regional Rail may offer passenger rail service to Harrisburg via the Norfolk Southern Harrisburg Line and throughout south central Pennsylvania in the future. Local and intercity bus services have been losing ridership, reducing the efficiency and raising costs of their services.

Population projections for boroughs and townships countywide suggest that additional development should be expected; regional employment projections suggest additional growth as well. As a result, traffic volumes are expected to increase, unless substantial portions of new residential, commercial and industrial development are located within or adjacent to

existing development and its associated destinations and/or steps are taken to encourage use of existing public transportation and more affordable and efficient public transportation options are developed.

Managing Energy Demand through Municipal Regulations

Energy supply policy is established by the federal and state government. However, energy demand or use is influenced by local government policies on land use and other factors, as discussed above. By considering the impact of local policies on energy demand, local government can encourage energy conservation. Such consideration could take shape in one of three ways: removing barriers to voluntary private energy conservation practices; incentivizing conservation practices in the private sector, or creating development settings in which they are easier to use and more cost effective; and developing regulations that require energy efficiency in new development.

Removing Barriers to Energy Conservation

Unfortunately, some development regulations and design standards currently in use, especially in older ordinances, discourage or impede energy conservation. For example, some communities and homeowners associations prohibit the installation of solar collectors due to their "unattractive" appearance. Height regulations in some communities prevent the installation of solar panels on the roofs of homes. Wind energy systems (commercial windmills) are prohibited in prime areas or are subject to public opposition. Lot layout specifications in subdivision regulations and zoning can limit the most effective passive siting or positioning of buildings. In some cases, design standards are excessive, such as street width requirements and parking capacity. Such standards can actually promote energy consumption. Removing or reducing these regulatory barriers allows developers and property owners to initiate energy conserving design practices at their discretion.

Encouraging Energy Conservation

Planners and public officials are also in a position to actively encourage the use of energy conserving development practices by providing regulatory incentives. Local and county governments have offered developers incentives to provide public amenities in their development proposal, thereby reducing travel distances. Other incentives include increasing densities through zoning district provisions or conditional bonuses and fast-tracking review of development proposals. The 5-Star home rating and reduced application fees are additional examples of incentives offered to developers to make their projects more energy efficient. The 5-Star rating is the top rating from the Home Energy Rating System (HERS), developed jointly by the U.S. Dept of Energy and Energy Rated Homes of America as a system for evaluating the overall energy efficiency of a residential dwelling. Homes are rated on scales of 0-100 points and 1-5 stars. A home that rates at 86.0 points or higher is considered a 5-Star home.

Requiring Energy Conservation in New Development

The final approach to increasing energy conservation incorporates energy conservation techniques into new construction by establishing building type, building orientation, setbacks, landscaping, building height, and other development provisions that reduce energy demand as the preferred or minimum standard rather than the optional exception. Building codes also have an important influence on new construction and remodeling through the quality of materials and techniques used in construction. The ability of the county and local municipalities to develop and enforce energy conserving regulations offers an excellent opportunity to reduce energy demand and its associated costs and impacts.

Municipal Regulations in Lebanon County

Energy Conservation requirements can be addressed in a municipal zoning ordinance and are often coupled with environmental improvement regulations. In Lebanon County, eight municipalities have incorporated requirements for energy conservation into their zoning ordinance, as shown in Table 10-6.

The "standard" requirements that appear in these municipal zoning ordinances are designed, "to allow the installation of renewable energy devices and provide the opportunity for individuals to reduce energy dependence by encouraging the

productive use of solar and wind energy components." [20] Through the ordinance, environmental and energy conserving improvements are required for new subdivisions and developments, new buildings, and for the expansion of buildings or uses except single and two family dwellings, among other development situations. The use of solar, wind, and alternate energy systems is encouraged within the regulations and permitted within any zoning district. There are established regulations guiding the use and placement of such systems.

Table 10-6 Municipalities with Energy Conservation Regulations or Provisions

Municipality	Standard Regulations	Alternative Regulations	No Regulations
Annville-Cleona SD			
Annville		X	
Cleona			X
N. Annville			X
S. Annville			X
Cornwall-Lebanon SD			
Cornwall	X		
Mount Gretna			X
N. Cornwall		X	
N. Lebanon	X		
S. Lebanon	X		
W. Cornwall	X		
ELCO SD			
Heidelberg		X	
Jackson	X		
Millcreek			X
Myerstown			X
Richland			X
Lebanon SD			
Lebanon City		X	
W. Lebanon			X
Northern Lebanon SD			
Bethel			X
Cold Spring			X
E. Hanover	X		
Jonestown			X
Swatara	X		
Union			X
Palmyra Area SD			
N. Londonderry		X	
Palmyra	X		
S. Londonderry		X*	

Source: Lebanon County Planning Department
*Wind farms permitted by conditional use in certain districts; no other energy regulations in place

[20] Lebanon County Planning Department. "Environmental Improvements and Energy Conservation Requirements" excerpt from a municipal zoning ordinance.

Six other municipalities have adopted energy conservation requirements that differ from the "standard", but are similarly intended to promote energy conservation and alternative energy systems. The remaining twelve municipalities have no regulations specifically promoting energy conservation.

Energy Conservation Techniques

Energy efficient development techniques are wide ranging in scope, cost, and effectiveness. Some options are small and easy to use, requiring only minor changes in current development practices. Passive solar orientation is a relatively simple low cost way to reduce the heating and cooling needs of a new building. Other options are more complex to design and implement, such as using mixed-use development to reduce the number and length of automobile trips; thereby, saving energy. As an overview of these techniques, the following describes the range of options that fall into the three categories discussed at the beginning of this profile.

Reducing heating and cooling needs

Passive Solar Heating and Cooling

- Developments can be designed so that buildings are oriented to the sun. This means designing streets to run from east to west, and long axes of buildings to run from east to west.
- It is beneficial to develop south facing slopes first since they are warmer in winter than other slopes.

Deciduous vegetation can be used to shade buildings, parking lots, streets, and other paved areas. This prevents overheating of buildings in the summer and lowers summer air temperatures near the pavement. It also helps control thermal changes in small creeks and streams from superheated runoff from parking areas, as well as absorbing pollutants from the air.

- Developments can be designed to take advantage of cooling breezes. The placement of vegetation and the arrangement of buildings can be used to channel breezes through buildings. Developments, especially in hot climates, can be located in places that receive the strongest breezes, often near hilltops and bodies of water.

Wind Protection

- Windbreaks can be used to protect buildings from winter winds. Windbreaks reduce the infiltration of cold air into buildings. It is best to avoid developing low areas of topography where cold air drains and collects, and avoid developing in locations where the winds are the strongest. Another helpful technique is to arrange buildings so that they protect each other from wind.

Housing Type and Design

Housing that is built with a lower proportion of outside surface area to interior space (e.g. more common wall multi-family housing, more compact development) has less outside surface exposed to the elements. Other techniques could include reducing the size of dwelling units and encouraging housing design innovations that save energy.

- Home heating expenses vary with seasonal temperatures. Property owners can mitigate energy costs with proper weatherization and temperature management practices, e.g. a programmable thermostat and reduced settings when the building is unoccupied.

Energy Audits

- A home energy audit can be the first step to assess how much energy a home consumes, and to evaluate what measures can be taken to make the home more energy efficient. An audit will show problems that may, when corrected, save significant amounts of money over time. The audit can pinpoint where a house is losing energy and determine the efficiency of a home's heating and cooling systems. An audit may also show ways to conserve hot water and electricity. Simple home energy audits can be performed by the homeowner, and more thorough audits can be conducted by professionals. The U.S. Department of Energy offers a do-it-yourself home energy audit on the consumer's guide page of

its website, www.eere.energy.gove/consumer, as well as guidance for preparing and hiring a professional energy auditor.[21]

Options for Reducing Transportation Needs

Development Density

- Increased density development makes more efficient use of the land, and may be best suited near activity centers, mass transportation stops, and in areas with existing sewer, water, and street capacity to handle it. By clustering buildings together, it reduces the length of streets and utilities which means more people can be serviced with less infrastructures; thereby, reducing energy needs. Open space and clustering design principles can be used to shorten distances within developments and make mass transit more cost effective and accessible.

Redevelopment and Infill Development

By encouraging in-fill development and redevelopment, especially within the urban centers of the county, land that was once productive, can be functional again. Plus, it may be more cost-effective to redevelop or in-fill land because it may already be served by streets and utilities.

Integrating Uses

- Land uses can be integrated by combining different kinds of functions within development projects and neighborhoods. Integration can be encouraged by allowing development of multiple use buildings and large urban development complexes with residential, hotel, entertainment, office, and commercial uses under one roof. This can also be accomplished on a small scale, for example, by allowing an apartment building to house a few shops. Also, allowing convenience food stores in residential areas provides an alternative to driving long distances for minor purchases.

Bicycling, Walking, and Mass Transit

By providing facilities for bicycling and walking, more people may be encouraged to participate in these activities. Pathways and parking facilities, landscaping, and other amenities in projects can encourage biking and walking. Mass transit use could be encouraged by locating highest density development near mass transit lines and providing amenities and facilities to encourage use. Development should include pathways or sidewalks to connect the development to transit, and shelters should be provided at all timed transit stops.

Efficient Traffic Flow

Street systems should be designed to reduce overall lengths and to facilitate traffic flow. Traffic flow can also be improved by reducing the number of intersections and making efficient connections with the existing street system. Refer to Background Study #8, the Transportation Profile, and the Transportation Plan for additional discussion of the county's transportation network.

Implementing Alternative Energy Sources and Systems

This strategy includes alternative energy sources such as solar, wind, geothermal, and encouraging and promoting the more efficient generation, conversion, and distribution of the resources. The ease with which many of these systems can be used depends in part on how land is developed. The practicality of using solar energy is affected by the amount and location of shadows that are cast by buildings and landscaping. Wind powered energy sources require a steady wind velocity to achieve its production expectations. Initial construction of an individual geothermal system requires a large upfront cost that, theoretically, should be recouped over the life of the system. Integrating alternative energy sources into the mainstream of development and our daily lives requires education about the associated benefits.

[21] U.S. Department of Energy, Consumer's Guide to Energy Efficiency and Renewable Energy, www.eere.energy.gov/consumer/.

Energy Conservation Programs and Initiatives

Commuter Services of South Central Pennsylvania

Commuter Services of South Central Pennsylvania helps commuters and employers in Adams, Cumberland, Dauphin, Lancaster, Lebanon, Perry, and York counties find a better way to get to and from work through free services. The organization offers commuter service options to commuters and to employers, as well as programs to improve community. Commuter Services has recently begun collecting commuter travel data from regional transit agencies. The data will be available in the future, perhaps as early as 2007. Anecdotally, Lancaster County's Red Rose Transit reported a 4%-5% increase in ridership per-month, since early 2006, as reported by WITF in June 2006.[22]

Lebanon County Housing and Redevelopment Authority

The Housing Rehab Program provides up to $25,000 to repair single family owner occupied housing in Lebanon City or County. In addition, up to $10,000 may be available to reduce lead paint hazards. Assistance to homeowners is in the form of grants, deferred payment loans and low interest loans. Applicant's household income may not exceed 80% of median income. Commonly repaired items include roofs, windows, doors, siding, plumbing, heating and electrical systems. The repair of these items directly ties back to energy conservation. Leaky doors and windows which are replaced have a direct impact on heating and cooling costs.

The Pennsylvania Energy Development Authority

The Pennsylvania Energy Development Authority (PEDA) is an independent public financing authority that was created in 1982 by the Pennsylvania Energy Development Authority and Emergency Powers Act and was revitalized by Governor Rendell through an April 8, 2004 Executive Order. The Authority's mission is to finance clean, advanced energy projects in Pennsylvania. Pennsylvania projects that could potentially qualify for funding from the Authority include solar energy, wind, low-impact hydropower, geothermal, biomass, landfill gas, fuel cells, IGCC, waste coal, coal-mine methane and demand management measures. The Authority presently can award grants, loans and loan guarantees and can develop a variety of other types of funding programs. Tax-exempt and taxable bond financing for energy projects also are available through PEDA's partnership with the Pennsylvania Economic Development Financing Authority (PEDFA).

Long Range Transportation Plan

The Long Range Transportation Plan (LRTP) focuses on safety, maintenance, preservation and operational improvements. Many of these improvements have energy conservation components. The Plan recommends several non-motorized transportation projects, including short-term and long-term trail projects, Safe Routes to School projects, and partnership with the Susquehanna Regional Transportation Partnership to reduce single-occupancy vehicle (SOV) dependence in the region. Additionally, the LRTP recommended several transportation policies in conjunction with the Lebanon County Comprehensive plan, such as providing a variety of transportation choices over time, promoting walkable communities, and coordinating land use and transportation decisions in planning and plan review processes.

[22] Midstate transit agencies to observe Dump the Pump Day, 06/07/2006.

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