Lower Paxton Township,
Dauphin County, PA

A Comprehensive Plan
for Community Resources

APPENDIX C

Adopted January 20, 2004

ACKNOWLEDGEMENTS

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Appendix C Contents

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Introduction

Comprehensive Plans are developed to plan for the future well being of a community. Therefore, a fundamental understanding of Lower Paxton Township's historic and existing demographic characteristics is required in order to make future planning relevant. This chapter analyzes the Township's demographic characteristics as quantified by the U.S. Census Bureau and measures its trends with neighboring municipalities, Dauphin County, Pennsylvania, and where appropriate, the Harrisburg-Lebanon-Carlisle Metropolitan Statistical Area (MSA).

A. Population Growth Trends

Table 1-1 provides a historic (1950-2000) population trend analysis for Lower Paxton Township, its contiguous municipalities, Dauphin County, the MSA and Pennsylvania. Lower Paxton's largest growth rate (169.1 percent) occurred between 1950 and 1960. During this period, the Township's population increased from 6,546 persons to 17,618 persons. This growth rate far exceeded the growth rates of contiguous municipalities, the county, MSA and Pennsylvania. This growth was based on several factors: the post WWII baby boom, housing opportunities, and population shifts from the city of Harrisburg to the suburbs. Since this period, the Township's population has increased, but at progressively slower rates.

From 1990 to 2000, the Township's population increased from 39,072 to 44,424 persons. Today, according to the 2000 Census of Population and Housing, Lower Paxton Township is Dauphin County's most populated township and second only to the City of Harrisburg (48,950) in municipal population. More significantly, the 2000 Census ranked Lower Paxton Township as the 19th most populated municipality within Pennsylvania. In comparison, the Township was ranked 24th by the 1990 Census. Figure 1-1 further demonstrates Lower Paxton's historic population growth trends in comparison with its neighboring municipalities.

B. Population Density and Distribution by Land Area

Population Density

Population density is defined as the total population of a municipality in relation to its total land area. Such an analysis provides for a more balanced comparison of populations among municipalities of various sizes. Table 1-2 provides a historic comparison of population densities for Lower Paxton Township, neighboring municipalities, Dauphin County, the MSA and Pennsylvania. The Township has a total land area of 28.1 square miles. According to the 2000 Census, Lower Paxton Township has a population density of 1,580.9 persons per square mile.

As illustrated in Figure 1-2, Lower Paxton's population density levels quickly rose after 1970 to match the densities currently experienced by Susquehanna and Swatara Townships. Although Lower Paxton Township has over twice the amount of land area of Susquehanna (13.4 square miles) and Swatara (13.2 square miles) Townships, Lower Paxton Township has developed more multi-family dwelling units than Susquehanna and Swatara Townships; thereby, increasing the number of persons per square mile. For example, the 1990 Census reported that 34.4 percent of Lower Paxton Township's housing units were classified as multi-family, while only 23.8 percent and 23.3 percent of Susquehanna and Swatara Townships' housing units were classified as multi-family.

Table 1-1
Population Growth Trends, 1950-2000

Municipality	Population by Decennial Census						Change									
	1950	1960	1970	1980	1990	2000	1950-1960		1960-1970		1970-1980		1980-1990		1990-2000	
							#	%	#	%	#	%	#	%	#	%
Pennsylvania	10,498,012	11,319,366	11,800,766	11,864,720	11,881,643	12,281,054	821,354	7.8	481,400	4.3	63,954	0.5	16,923	0.1	399,411	3.4
Harrisburg-Carlisle Lebanon MSA	-	462,506	510,170	556,242	587,986	629,401	n/a	n/a	47,664	10.3	46,072	9.0	31,744	5.7	41,415	7.0
Dauphin County	197,784	220,255	223,713	232,317	237,813	251,798	22,471	11.4	3,458	1.6	8,604	3.8	5,496	2.4	13,985	5.9
Lower Paxton Twp.	6,546	17,618	26,517	34,830	39,072	44,424	11,072	169.1	8,899	50.5	8,313	31.3	4,242	12.2	5,352	13.7
Middle Paxton Twp.	2,155	3,124	3,362	4,745	5,129	4,822	969	45.0	238	7.6	1,383	41.1	384	8.1	(307)	-6.0
South Hanover Twp.	1,581	1,841	2,689	4,046	4,626	4,793	260	16.4	848	46.1	1,357	50.5	580	14.3	167	3.6
Susquehanna Twp.	11,081	17,474	17,008	18,034	18,726	21,745	6,393	57.7	(466)	(2.7)	1,026	6.0	692	3.8	3,019	16.1
Swatara Twp.	9,350	14,795	17,178	18,796	19,661	22,655	5,445	58.2	2,383	16.1	1,618	9.4	865	4.6	2,994	15.2
West Hanover Twp.	1,495	2,770	4,407	6,115	6,125	6,505	1,275	85.3	1,637	59.1	1,708	38.8	10	0.2	380	6.2

Source: U.S. Census Bureau

Figure 1-1

Comparative Population Analysis, 1950-2000

Source: U.S. Census Bureau

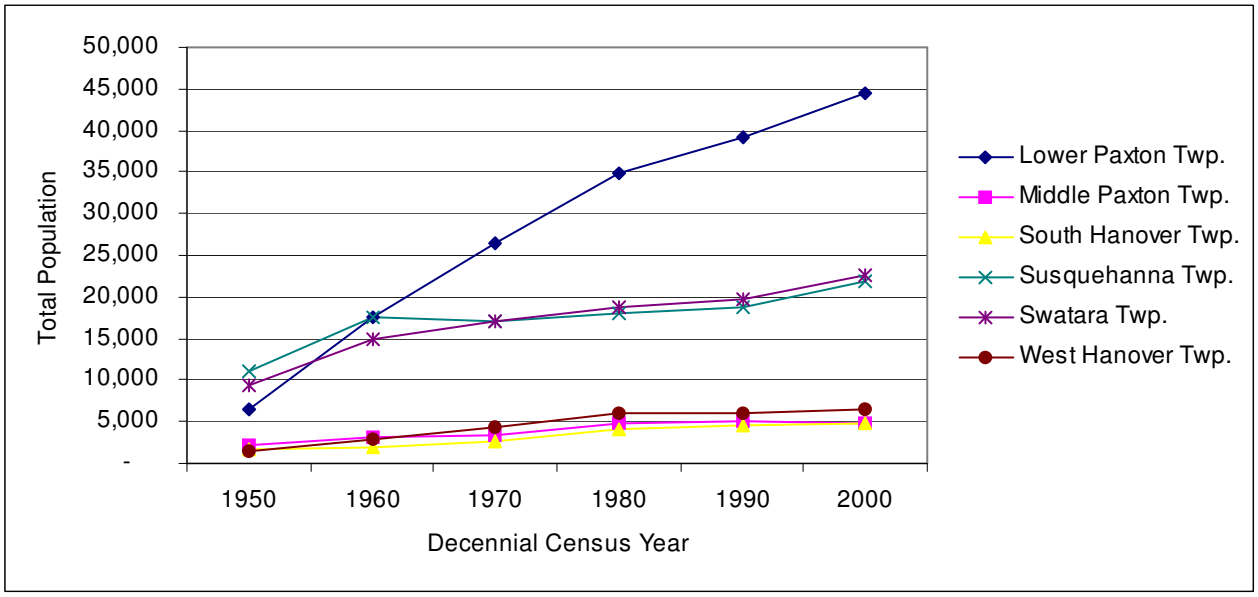


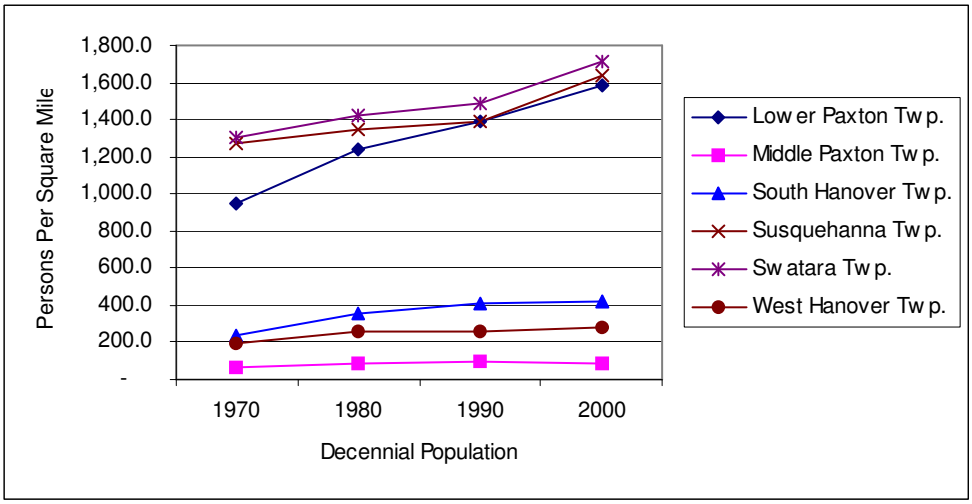
Table 1-2
Population Density, 1970-2000

Municipality	Land Area (Sq. Mi.)	Persons Per Square Mile				Numeric Change		
		1970	1980	1990	2000	1970-1980	1980-1990	1990-2000
Pennsylvania	44,819.6	263.3	264.7	265.1	274.0	1.4	0.4	8.9
Harrisburg-Carlisle Lebanon MSA	1,991.0	256.2	279.4	295.3	316.1	23.1	15.9	20.8
Dauphin County	525.0	426.1	442.5	453.0	479.6	16.4	10.5	26.6
Lower Paxton Twp.	28.1	943.7	1,239.5	1,393.7	1,580.9	295.8	154.2	187.3
Middle Paxton Twp.	54.6	61.6	86.9	93.9	88.3	25.3	7.0	(5.6)
South Hanover Twp.	11.4	235.9	354.9	405.8	420.4	119.0	50.9	14.6
Susquehanna Twp.	13.4	1,269.3	1,345.8	1,390.7	1,622.8	76.6	44.9	232.0
Swatara Twp.	13.2	1,301.4	1,423.9	1,489.5	1,716.3	122.6	65.5	226.8
West Hanover Twp.	23.2	190.0	263.6	264.0	280.4	73.6	0.4	16.4

Source: U.S. Census Bureau

Figure 1-2
Population Density Comparisons, 1970-2000

Source: U.S. Census Bureau



Population Distribution by Land Area

The U.S. Census Bureau classifies municipalities as being either “urban” or “rural.” Urban as defined by the Census Bureau, consists of all territory, population, and housing units located in urbanized areas and in places of 2,500 or more persons outside urbanized areas. Territory, population, and housing units not classified as urban are defined as "rural." As shown in Table 1-3, the majority (97.5 percent) of Lower Paxton Township’s total 2000 population is classified as urban. Only Susquehanna and Swatara Townships have a higher percentage of urban population. These trends demonstrate that these municipalities are highly influenced by the Harrisburg urbanized area. The remaining townships’ populations are classified as being predominantly rural.

Table 1-3
Population Distribution, 2000

Municipality	Total Population (1990 Census)	Urban		Rural	
		#	%	#	%
Pennsylvania	12,281,054	9,461,086	77.0	2,819,968	23.0
Harrisburg-Carlisle Lebanon MSA	629,401	463,583	73.7	165,818	26.3
Dauphin County	254,798	214,708	84.3	37,090	14.6
Lower Paxton Twp.	44,424	43,309	97.5	1,115	2.5
Middle Paxton Twp.	4,822	874	18.1	3,948	81.9
South Hanover Twp.	4,793	4,292	89.5	501	10.5
Susquehanna Twp.	21,745	21,704	99.8	41	0.2
Swatara Twp.	22,655	22,655	100.0	-	0.0
West Hanover Twp.	6,505	3,678	56.5	2,827	43.5

Source: U.S. Census Bureau, 2000

C. Age Cohort Distribution

A key factor that can affect population growth and determine the type of services required is the distribution of the total population according to the age of residents. Different age groups, or cohorts, have different public service needs that should be specifically considered. For example, population shifts within the school age group (i.e. ages 0-19) will directly impact the services and facilities provided by the Central Dauphin School District, as well as any public and private pre-school facilities and programs.

The age group ranging from 20 to 44 years of age is the group most eligible for marriage and most frequently engaged in new household formation. This is also the prime childbearing age group. Therefore, any decline or imbalance in the number of residents within this age category will directly impact the Township's birth rate. Furthermore, this age group represents the basic segment of the population that comprises the local labor force and the group is most frequently engaged in home buying or building activities.

The mature labor force, which is comprised of persons ranging from 45 to 65 years of age, tends to be more settled and at the height of their earning power. Persons over 65 years of age are generally characterized as having limited purchasing power, an increased demand for health and public transit services, and special recreation requirements.

An analysis of Lower Paxton Township's age cohorts is provided in Table 1-4. The young adult age group, according to the 2000 Census, comprised the largest percentage (36.4 percent) of the Township's total population. The mature age group represents the Township's second largest age group (25.1 percent), followed by the school age group (24.5 percent).

The senior age group represents Lower Paxton's smallest population segment, comprising only 14 percent of the Township's 2000 Census population. However, this age group experienced the second largest growth rate (24.5 percent) over the 1990 and 2000 period, which was preceded by the 37.3 percent growth rate of the mature age group. These trends suggest that the Township's population is aging, which is demonstrated in Table 1-5. As shown, the Township's population's median age has increased from 35.4 in 1990, to 38.9 in 2000. Neighboring municipalities, Dauphin County, the MSA and Pennsylvania, are also experiencing similar trends.

Table 1-4
Population Distribution for Lower Paxton Township, 1990-2000

Age Groups	1990	Percent of Cohort Total	2000	Percent of Cohort Total	Change (1980-1990)	
					#	%
School Age Group	**9,330**	**23.9**	**10,893**	**24.5**	**1,563**	**16.8**
Under 5	2,519	6.4	2,436	5.5	(83)	(3.3)
5-14	4,674	12.0	5,826	13.1	1,152	24.6
15-19	2,137	5.5	2,631	5.9	494	23.1
Young Adult Population	**16,642**	**42.6**	**16,181**	**36.4**	**(461)**	**(2.8)**
20-24	2,595	6.6	2,314	5.2	(281)	(10.8)
25-34	7,278	18.6	6,142	13.8	(1,136)	(15.6)
35-44	6,769	17.3	7,725	17.4	956	14.1
Mature Age Group	**8,119**	**20.8**	**11,147**	**25.1**	**3,028**	**37.3**
45-54	4,230	10.8	7,095	16.0	2,865	67.7
55-59	2,056	5.3	2,150	4.8	94	4.6
60-64	1,833	4.7	1,902	4.3	69	3.8
Senior Population	**4,981**	**12.7**	**6,203**	**14.0**	**1,222**	**24.5**
65-74	3,076	7.9	3,403	7.7	327	10.6
75-84	1,415	3.6	2,288	5.2	873	61.7
85 and Over	490	1.3	512	1.2	22	4.5
Gender Total	**39,072**	**100.0**	**44,424**	**100.0**	**5,352**	**13.7**

Source: U.S. Census Bureau

Table 1-5
Median Age Comparisons, 1990-2000

Municipality	Median Age by Decennial Census	
	1990	2000
Pennsylvania	35.0	38.0
Harrisburg-Lebanon-Carlisle MSA	-	38.1
Dauphin County	35.0	37.9
Lower Paxton Twp.	35.4	38.9
Middle Paxton Twp.	35.7	42.3
South Hanover Twp.	34.7	39.7
Susquehanna Twp.	38.8	40.7
Swatara Twp.	36.7	37.9
West Hanover Twp.	36.7	42.0

Source: U.S. Census Bureau

Lower Paxton Township's mature age group experienced the largest growth rate (37.3 percent) during the 1990 to 2000 period, followed by the senior age group (24.5 percent). Again, these trends further demonstrate that the Township's population is growing older, which may produce an increased demand for specialized services and facilities (i.e., housing, recreation, transportation).

From 1990 to 2000, Lower Paxton Township experienced a slight decrease (-2.8 percent) in its young adult population. Within this age group, the greatest percentage loss (-15.6 percent) occurred among the 25 to 34 years olds, which may be attributed to the "brain drain syndrome." According to De Jong, et. al., "Brain drain migration is the loss of highly educated and skilled workers, notably young people, through the exchange of migrants with other states." In the mid-1990s, Pennsylvania had a net migration loss of 20,000, people ages 20 through 29 with college and graduate or professional degrees, and a net migration gain of nearly 16,500 migrants across all age groups with only high school or less educational attainment. Consequently, Pennsylvania is both losing its young, highly educated population and gaining low educational attainment migrants.

Lower Paxton Township's school age group increased by 1,563 persons, or 16.8 percent, which is in contrast to the losses experienced within the young adult population age group. Such an increase produces a direct impact on the Central Dauphin School District.

D. Gender Distribution

The distribution of males and females directly impacts future family formation patterns and subsequent birth rates. Traditionally, a higher proportion of females to males is considered to be more favorable to maintain a stable population. According to the 2000 Census and as shown in Table 1-6, the number of females (23,089) in Lower Paxton Township exceeded the number of males (21,335). This results in a male to female ratio of 0.92, which is calculated by dividing the total number of females into the total number of males. In contrast, the male to female ratio in 1990 equaled .86, which indicates that the number of males increased at a greater rate (i.e., 15.6 percent vs. 12.0 percent) than the number of females during the 1990 to 2000 period. Should this trend continue, the Township could experience a decrease in the number of family formations, and possibly a reduced birth rate.

Table 1-6
Gender Distribution, Lower Paxton Township, 1990-200(

Gender	Decennial Census		Change	
	1990	2000	#	%
Male	18,448	21,335	2,887	15.6
Female	20,624	23,089	2,465	12.0
Total (Male + Female)	39,072	44,424	5,352	13.7
M/F Ratio	0.89	0.92	0.03	5.8

Source: U.S. Census Bureau, 1990 and 2000

E. Racial Composition

The 2000 Census categorized Lower Paxton Township's population into the racial components outlined below. The 2000 Census also determined the Hispanic or Latino composition of the Township's entire population.

1. One Race
   a. White
   b. Black or African American
   c. American Indian and Alaska Native
   d. Asian
   e. Native Hawaiian and Other Pacific Islander
   f. Some Other Race
2. Two or More Races

Table 1-7 shows the 2000 racial composition of Lower Paxton's population. Figure 1-3 illustrates the Township's racial distribution. As shown, the majority (85.5 percent) of the Township's population is white, which, in comparison to the 1990 Census, represented 92.6 percent of the total population. This trend is attributed to higher percentage levels of minority populations. For example, the percentage of Black or African Americans in the Township increased from 5.5 percent in 1990, to 7.7 percent in 2000. Consistent with the 1990 Census, this segment of the population still remains as the Township's second largest racial group and its largest minority population.

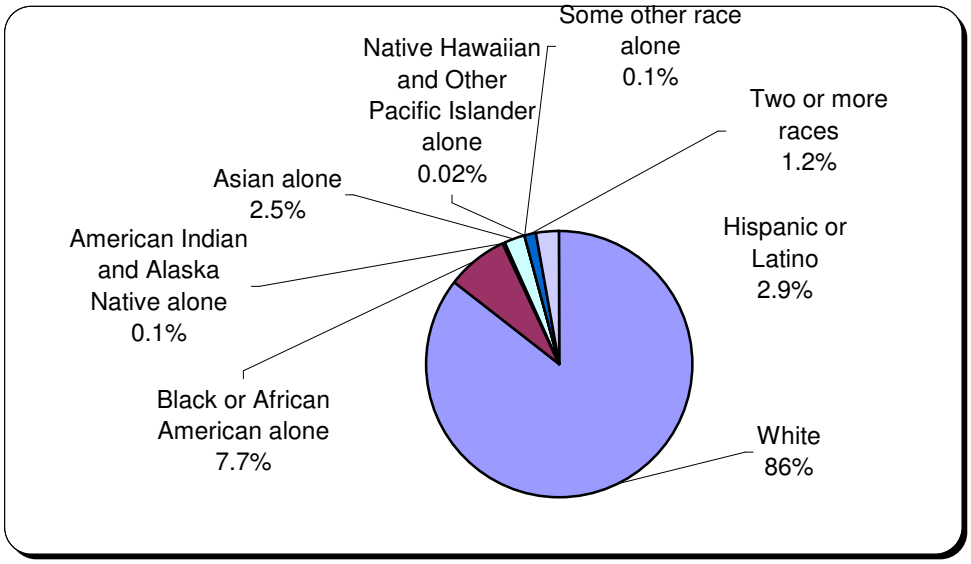
Table 1-7
Lower Paxton Township Racial Composition Analysis, 2000

Category	2000 Census	
	#	%
Total	**44,424**	**100.0**
Not Hispanic or Latino	**43,131**	**97.1**
White	37,982	85.5
Black or African American alone	3,400	7.7
American Indian and Alaska Native alone	63	0.1
Asian alone	1,099	2.5
Native Hawaiian and Other Pacific Islander alone	8	0.02
Some other race alone	35	0.1
Two or more races	544	1.2
Hispanic or Latino	**1,293**	**2.9**

Source: US Census Bureau, 2000

Lower Paxton's Asian population comprises 2.5 percent of the Township's 2000 population. Of the Township's total population, 2.9 percent or 1,293 persons, are categorized as being of the Hispanic or Latino origin, which, when compared to the 1990 Census equivalent, represents an increase of almost 140 percent.

Figure 1-3
LPT Racial Composition Analysis, 2000
Source: U.S. Census Bureau



F. Household Characteristics

The types of households present in Lower Paxton Township are of key interest to this Comprehensive Plan and warrant a careful analysis. A household, according to the Census Bureau, consists of all the people who occupy a housing unit. A house, an apartment or other group of rooms, or a single room, is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live and eat with any other persons in the structure and there is direct access from the outside or through a common hall. A household includes the related family members and all the unrelated people, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated people sharing a housing unit such as partners or roomers, is also counted as a household. The count of households excludes group quarters.

There are two major categories of households, "family" and "non-family". A family is a group of two people or more (one of whom is the householder) related by birth, marriage, or adoption and residing together; all such people (including related subfamily members) are considered as members of one family. A non-family household consists of a householder livi alone (a one-person household) or where the householder shares the home exclusively with people to whom he/she is not related.

Table 1-8 provides an analysis of Lower Paxton Township's household characteristics. As shown, the total number of households within the Township increased by 2,524, or by 15.7 percent over the 1990 to 2000 period. This growth rate was preceded only by Susquehanna Township, which experienced a 19.6 percent increase. During this same period, the total number of households in Dauphin County and Pennsylvania increased by 7.4 percent and 6.3 percent, respectively.

Table 1-8
Total Household Formation Comparisons, 1990-2000

Municipality	Total Households		Change	
	1990	2000	#	%
Pennsylvania	4,495,966	4,777,003	281,037	6.3
Harrisburg-Carlisle-Lebanon MSA	226,353	248,931	22,578	10.0
Dauphin County	95,624	102,670	7,046	7.4
Lower Paxton Twp.	16,060	18,584	2,524	15.7
Middle Paxton Twp.	1,896	1,906	10	0.5
South Hanover Twp.	1,584	1,706	122	7.7
Susquehanna Twp.	7,673	9,178	1,505	19.6
Swatara Twp.	7,625	8,703	1,078	14.1
West Hanover Twp.	2,200	2,502	302	13.7

Source: U.S. Census Bureau, 1990 and 2000

The majority (65.4 percent) of the Township's households, according to the 2000 Census, are considered family households (Table 1-9). The number of family households increased by 1,290 (11.9 percent) units over the 1990 to 2000 period. However, the face of the Township's family and living arrangements is reflective of the changes occurring at the state and national levels. For example, the percentage of married-couple family households in Lower Paxton decreased from 56.7 percent in 1990, to 53.2 percent in 2000. In comparison, the percentage of married-couple families in Pennsylvania and the United States decreased from 55.7 percent in 1990, to 51.7 percent in 2000, and 55.1 percent in 1990, to 51.7 percent in 2000, respectively.

Table 1-9 also shows that the number of non-family households in Lower Paxton Township has increased from 5,189 in 1990, to 6,423 in 2000, or by 23.8 percent. Within the non-family households, the number of householders living alone increased by 27.1 percent, with the share of persons age 65 years and older increasing from 7.6 percent in 1990, to 8.4 percent in 2000. Finally, the Township's household size (i.e., persons per household) has declined from 2.40 in 1990, to 2.35 in 2000, which is reflective of state and national household size trends.

Table 1-9
Lower Paxton Township Household Characteristics, 1990 and 2000

Household Type	Decennial Census				Change	
	1990		2000			
	#	%	#	%	#	%
Total Households (Family + Nonfamily)	**16,060**	**100.0**	**18,584**	**100.0**	**2,524**	**15.7**
Family Households (families)	10,871	67.7	12,161	65.4	1,290	11.9
Married-couple family	9,113	56.7	9,880	53.2	767	8.4
Female householder, no husband	1,344	8.4	1,714	9.2	370	27.5
Nonfamily Households	5,189	32.3	6,423	34.6	1,234	23.8
Householder living alone	4,213	26.2	5,356	28.8	1,143	27.1
Householder 65 years and over	1,216	7.6	1,552	8.4	336	27.6
Median household size (persons per household)	**2.40**		**2.35**		**(0.05)**	

Source: U.S. Census Bureau, 1990 and 2000

G. Educational Attainment

Educational attainment is of primary importance to the general welfare and economic vitality of Lower Paxton Township. Skills and abilities required to compete in the labor market are acquired through the educational process. These skills, in turn, provide a degree of economic security for the individual and improve the overall economic and employment conditions of the Township.

Lower Paxton Township's overall educational attainment levels, historically, have increased, which is similar to those trends experienced at the county, state and national levels. These trends may be attributed, in part, to an increase in (1) the number of non-farm jobs and (2) affluence; both of which afford opportunities to those persons seeking to increase their educational attainment levels.

Table 1-10 compares Lower Paxton Township's 2000 educational attainment levels (i.e., highest grade completed) of persons 25 years and older, with the residents of Dauphin County and Pennsylvania. The majority (32.5 percent) of the Township's residents age 25 years and older have completed high school. Although this number remains below the levels recorded by Dauphin County (37.4 percent) and Pennsylvania (38.1 percent), the percentage of Township residents age 25 years and older who have obtained advanced degrees, i.e., Associates, Bachelors, and Graduate or Professional, (41.2 percent) far exceeded the percentage of persons at the county (29.8 percent) and state (28.3 percent) levels. These trends demonstrate that the Township's overall education levels are high, which may be attributed to the number of Township residents who are employed in professional (white collar) and state government jobs. This is further reinforced by the low percentage of non high school graduates (9.4 percent) in Lower Paxton, in comparison to the county (16.6 percent) and the state (18.1 percent).

Table 1-10
Educational Attainment by Persons 25 Years and Older for
Lower Paxton Township, Dauphin County and Pennsylvania, 2000

Education Level	Lower Paxton Twp.		Dauphin County		Pennsylvania	
	#	%	#	%	#	%
Non High School Graduate	2,945	9.4	28,547	16.6	1,496,105	18.1
High School Graduate (includes equivalency)	10,145	32.5	64,174	37.4	3,150,013	38.1
Some College, No Degree	5,243	16.8	27,902	16.2	1,284,731	15.5
Associates Degree	2,380	7.6	10,780	6.3	487,804	5.9
Bachelor's Degree	6,851	21.9	25,279	14.7	1,153,383	14.0
Graduate of Professional Degree	3,653	11.7	15,101	8.8	694,248	8.4
Total	**31,217**	**100.0**	**171,783**	**100.0**	**8,266,284**	**100.0**

Source: U.S. Census Bureau 2000

Table 1-11
Unadjusted and Adjusted Per Capita Income Comparisons
for Lower Paxton Township, 1990-2000

Municipality	1989 Per Capita Income (Unadjusted)	1989 Per Capita Income in 1999 Dollars	1999 Per Capita Income (Unadjusted)	Percent Change in Per Capita Income
Pennsylvania	$ 14,068	$20,230	$20,880	3.2
Harrisburg-Lebanon-Carlisle MSA	$ 14,659	$21,080	$21,936	4.1
Dauphin County	$ 14,890	$21,412	$22,134	3.4
Lower Paxton Twp.	$ 18,522	$26,635	$26,116	-1.9
Middle Paxton Twp.	$ 17,160	$24,676	$28,146	14.1
South Hanover Twp.	$ 19,203	$27,614	$29,213	5.8
Susquehanna Twp.	$ 18,241	$26,231	$26,572	1.3
Swatara Twp.	$ 14,636	$21,047	$20,224	-3.9
West Hanover Twp.	$ 16,028	$23,048	$21,723	-5.7

Sources: U.S. Census Bureau, 1990 and 2000

Note: U.S. Northeast urban average inflation index from 1989 to 1999 equals 1.438

H. Per Capita Income and Poverty Characteristics

Per Capita Income

A population's per capita income level is closely related to its educational attainment levels. Per capita income also reflects the relative affluence of a population and its ability to support local public facilities and service. Per capita income is calculated by dividing the aggregate income for persons 15 years and over by the total number of persons in the group.

Table 1-11 compares the 1989 adjusted per capita income levels with the 1999 per capita income enumerations for Lower Paxton Township, neighboring municipalities, Dauphin County, the MSA, and Pennsylvania. 1989 per capita income values are adjusted for inflation (i.e., purchasing power) to accurately compare them with the 1999 current dollars. Such adjustments were made using the U.S. Census Bureau Labor Statistic's Consumer Price Index (CPI) for the Northeastern United States urban area.

As demonstrated in Table 1-11, Lower Paxton Township experienced a slight decline (-1.9 percent) in its per capita income levels over the 1989 to 1999 enumeration periods. Only two other municipalities experienced a decline – Swatara Township (-3.9 percent) and West Hanover Township (-5.7 percent). The remaining surveyed jurisdictions experienced growth in their respective real per capita income dollar values, ranging from a low of 1.3 percent in Susquehanna Township, to a high of 14.1 percent in Middle Paxton Township.

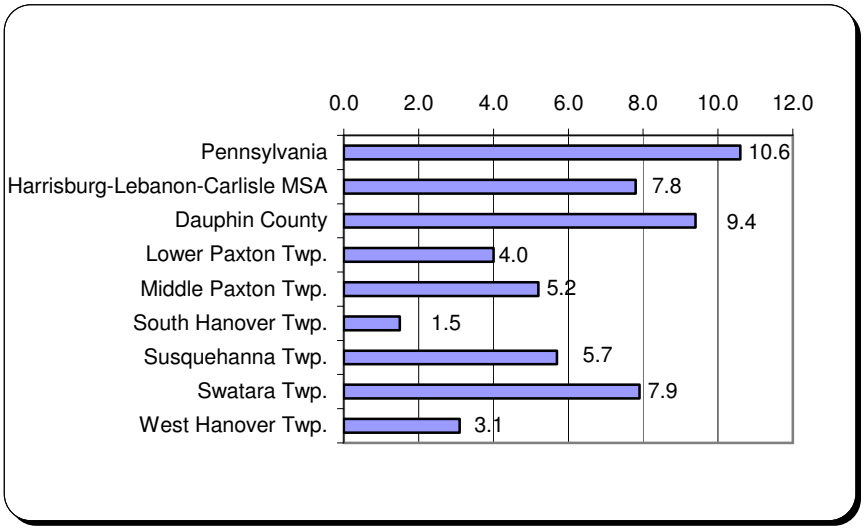
Poverty

Poverty is one of the key statistical tools used to characterize a population. The U.S. Census Bureau uses the Office of Management and Budget's (OMB) Statistical Policy Directive 14 to define and measure poverty in the United States. The Census Bureua uses a set of money income thresholds that vary by family size and composition to determine who is poor. If a family's total income is less than that family's threshold, then that family, and every individual in it, is considered poor. The poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. The official poverty definition counts money income before taxes and does not include capital gains and noncash benefits (such as public housing, Medicaid, and food stamps).

Figure 1-4 provides an illustrative comparison of the 2000 poverty rates enumerated for Lower Paxton Township, neighboring municipalities, Dauphin County, the MSA, and Pennsylvania. As shown, Lower Paxton's poverty level (4.0 percent) is below the levels enumerated for Dauphin County (9.4 percent) and the state (10.6 percent). Moreover, Lower Paxton's poverty level is below the poverty levels enumerated for Middle Paxton (5.2 percent), Susquehanna (5.7 percent), and Swatara (7.9 percent) Townships.

Figure 1-4
Poverty Level Rate Comparison 2000

Source: U.S. Census Bureau



I. Population Projections

Independent Population Projections

In addition to current trends, BonData, an independent statistical analysis firm, has developed projected population trends through the year 2020 for the county and its subdivisions. According to these projections, Dauphin County is expected to see a population increase of approximately 5.6 percent by 2020. However, only 16 of the 39 individual municipalities within the county will account for this increase - four boroughs and twelve townships, including Lower Paxton Township. Highspire, Hummelstown, Pennbrook, and Steelton Boroughs are projected to see increases that range from a high of 25.5 percent (+1,493 people) in Steelton, to a low of 1.7 percent (+75 people) in Highspire. Wayne Township is expected to see the highest percentage increase of all municipalities in the county at 68.6 percent (+812 people) through 2020. It is followed by Susquehanna Township (32.3 percent, +7,068 people) and East Hanover Township (30.5 percent, +1,623 people). Lower Paxton Township ranks seventh among the townships in projected population growth at 25.0 percent (+11,117 people). Table 1-12 summarizes the projected top ten growth areas within Dauphin County for the 2000–2020 timeframe; it is graphically presented in Figure 1-5.

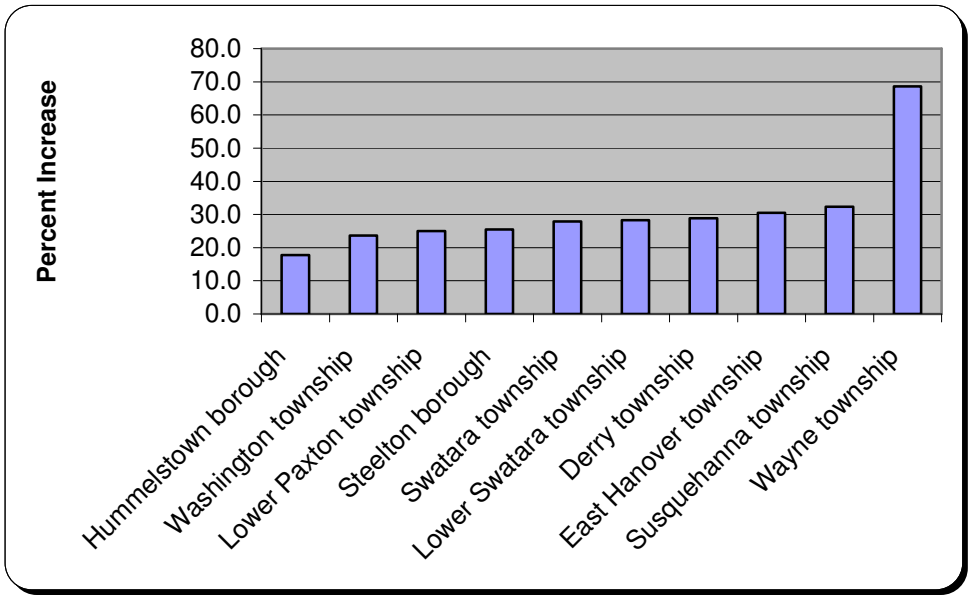
The annual growth rate for Lower Paxton Township was 1.3 percent from 1990 to 2000, and BonData uses a projected annual rate of 1.15 percent for the next twenty years. However, the Township's Act 537 Sewage Facilities Plan uses a lower rate – just under 1 percent – for their 20-year build out projections. This rate assumes that "the long-term historical trend of continued slowing in the population growth rate will resume and continue through the Act 537 planning period…" as opposed to a continued, steady growth rate. All of these figures are speculative, and ultimately, the actual growth rates will depend on economic conditions throughout the area.

Table 1-12
Projected Growth in Dauphin County
2000-2020

Municipality	1990	2000	Projected - 2020	# change 1990-2000	% change 1990-2000	Projected # Change 2000-2020	Projected % Change 2000-2020
Highspire Borough	2,675	2,720	2,795	45	1.7	75	2.8
South Hanover Township	4,638	4,793	5,089	155	3.3	296	6.2
Londonderry Township	4,939	5,224	5,800	285	5.8	576	11.0
West Hanover Township	6,141	6,505	7,243	364	5.9	738	11.3
Upper Paxton Township	3,689	3,930	4,422	241	6.5	492	12.5
Penbrook Borough	2,798	3,044	3,558	246	8.8	514	16.9
Hummelstown Borough	3,992	4,360	5,132	368	9.2	772	17.7
Washington Township	1,821	2,047	2,532	226	12.4	485	23.7
Lower Paxton Township	**39,264**	**44,424**	**55,541**	**5,160**	**13.1**	**11,117**	**25.0**
Steelton Borough	5,166	5,858	7,351	692	13.4	1,493	25.5
Swatara Township	19,711	22,611	28,914	2,900	14.7	6,303	27.9
Lower Swatara Township	7,090	8,149	10,453	1,059	14.9	2,304	28.3
Derry Township	18,456	21,273	27,413	2,817	15.3	6,140	28.9
East Hanover Township	4,581	5,322	6,945	741	16.2	1,623	30.5
Susquehanna Township	18,684	21,895	28,963	3,211	17.2	7,068	32.3
Wayne Township	849	1,184	1,996	335	39.5	812	68.6
Dauphin County	**238,434**	**251,798**	**280,636**	**13,364**	**5.6**	**28,838**	**11.5**

Source: BonData

Figure 1-5
Projected Population Increases - 2000-2020
Source: BonData



State and County Population Projections

In the process of preparing the Regional Growth Management Plan, Tri-County Regional Planning Commission prepared municipal population projections. These were based on county projections from the State Data Center. These projections were more conservative than the independent analysis presetned above, yielding a growth rate of 15 percent for Lower Paxton Township for the 2000-2020 time period. These projections suggest an annual growth rate of 1 percent.

Table 1-13
Population Projections

Municipality	1990	2000	Projected 2010	Projected 2020	Projected # Change 2000-2020	Projected % Change 2000-2020
Lower Paxton Township	39,264	44,424	48,282	51,075	6,651	15.0
Dauphin County	238,434	251,798	264,378	273,483	21,685	8.6

Source: PA State Data Center; Dauphin County Planning Commission

Lower Paxton Township	39,264	44,424	49,842	55,541	11,117	25.0
Dauphin County	238,434	251,798	273,129	280,636	28,838	11.5

Source: Bondata

J. Public Comments

When participants in the Fall 2001 Township Community Planning Unit (CPU) meetings were asked to list the most and least liked features of the Township, they included several demographic characteristics. Participants valued the mix of generations, the honesty of business people, the diversity in the population and their friendly disposition as assets to the community. Some participants listed family roots as a more personal, positive community attribute. Among

the least liked demographic features, participants listed too many people and a lack of ethnic diversity.

Trends and Issues

- Lower Paxton's largest population growth (169.1 percent) occurred between 1950 and 1960, when the Township's population increased from 6,546 persons to 17,618 persons. The current annual growth rate, based on 1990 & 2000 data is 1.3 percent; it is projected that future annual growth will be about 1 percent.

- Lower Paxton Township is increasingly becoming one of Pennsylvania's most populated municipalities; the 2000 Census ranked the Township as the 19th most populated municipality over its 1990 rank as the 24th most populated municipality. Locally, the Township is the second largest municipality in the Tri-County Region.

- Lower Paxton's population density levels quickly rose after 1970 to match the densities currently experienced by Susquehanna and Swatara Townships. This trend is attributable to the fact that, since 1970, Lower Paxton has developed more multi-family dwelling units; thereby, increasing the number of persons per square mile.

- Similar to Susquehanna and Swatara Townships, Lower Paxton Township's demographic and socioeconomic characteristics are highly influenced by the Harrisburg urban area.

- Lower Paxton Township's population is aging. The median age of the Township's population increased by 3.5 years between 1990 and 2000.

- The senior population (65 years and over) grew by 24.5 percent over the past decade. Therefore, careful consideration is needed to ensure the needs of this aging population are being met (e.g., Friendship Community Center).

- Lower Paxton Township's young adult population (20 to 44 years) declined from 1990 to 2000. This may be a result of the "brain drain syndrome" that causes educated and skilled workers to locate in areas of competitive employment.

- Lower Paxton Township's school age group increased by 1,563 persons, or by 16.8 percent over the 1990 to 2000 period, which produces a direct impact on the Central Dauphin School Districts services and facilities. In addition, other local services and facilities serving this age group may also be impacted (e.g., Friendship Community Center).

- The number of males in Lower Paxton Township increased at a greater rate (i.e., 15.6 percent vs. 12 percent) than the number of females during the 1990 to 2000 period. Should this trend continue, the Township might experience a decrease in the number of family formations, and possibly a reduced birth rate.

- Lower Paxton Township is becoming more racially diverse, which is also a trend experienced by many central Pennsylvania communities. The increase in Hispanics, for example, may be attributed, in part, to their immigrating from larger "East Coast cities

for the relatively slower pace of Harrisburg, Lancaster, Lebanon, and York. Greater numbers [of minorities] can mean greater political clout and more money from federal, state and local governments for programs that will help people find a job, start a business, or get a good education."[1]

- While the total number of households in Lower Paxton Township has increased, the median household size has decreased over the past decade. These smaller household sizes may place demands on alternatives housing types.

- The Township's overall education levels are high, which may be attributed to the number of Township residents who are employed in professional (white collar) and state government jobs. This is further reinforced by the low percentage of non high school graduates.

[1] Lewis, Jim. "Minorities Move to Region." Patriot News 10 March 2001, Final Ed., A1

Introduction

Attractive and diverse housing and well maintained residential neighborhoods are one of the most important assets of any community. Good housing creates a sound tax base that will continue to appreciate in value and will assure that residents are living in an environment conducive to healthful and safe living.

The existing and future quality of housing is extremely important to the prosperity of Lower Paxton Township. A study of existing housing conditions and projected population levels and characteristics is necessary when identifying housing needs for the future. Another important feature of the local housing market is the variety of housing types and prices. A variety of styles and prices provide housing opportunities for people interested in entering the housing market.

This chapter describes the existing housing types, conditions, vacancies and other factors that characterize the supply of housing in Lower Paxton Township. Data from the U.S. Census Bureau and the Township served as the primary sources of housing statistics; exceptions to these sources are noted herein.

A. Housing Unit Supply and Density Trends

Table 2-1 presents a housing unit growth trend for Lower Paxton Township, neighboring townships, Dauphin County, and Pennsylvania. As shown, all surveyed jurisdictions experienced significant housing unit growth rates over the 1980 to 2000 survey period. These trends are attributable to a combination of population growth factors, such as increased employment opportunities in the greater Harrisburg area and a high quality of life. Lower Paxton Township experienced the largest housing unit growth rate (37.9 percent) during the survey period, followed by Susquehanna (30 percent), Swatara (30.2 percent), South Hanover (29.5 percent) West Hanover (28.5 percent) and Middle Paxton (14.5 percent) Townships. These growth rates—except for Middle Paxton Township—surpassed the rates experienced by Dauphin

Table 2-1
Total Housing Unit Growth, 1980-2000

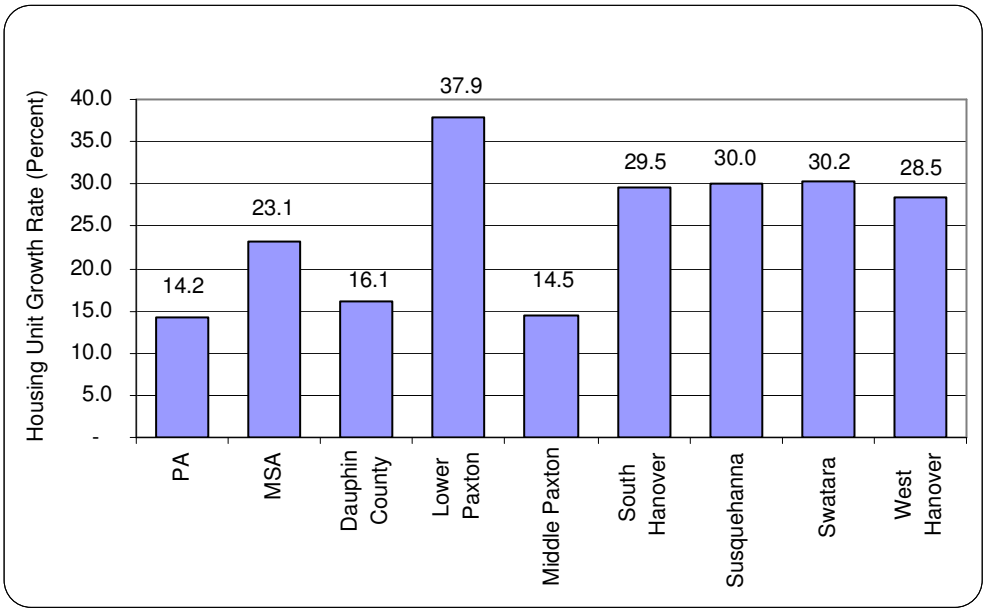
Municipality	Total Housing Units by Decennial Census			Change					
	1980	1990	2000	1980-1990		1990-2000		1980-2000	
				#	%	#	%	#	%
Pennsylvania	4,596,431	4,938,140	5,249,750	341,709	7.4	311,610	6.3	653,319	14.2
Harrisburg-Lebanon-Carlilse MSA	216,301	241,489	266,345	25,188	11.6	24,856	10.3	50,044	23.1
Dauphin County	95,728	102,684	111,133	6,956	7.3	8,449	8.2	15,405	16.1
Lower Paxton Township	14,221	16,902	19,606	2,681	18.9	2,704	16.0	5,385	37.9
Middle Paxton Township	1,737	1,937	1,989	200	11.5	52	2.7	252	14.5
South Hanover Township	1,368	1,630	1,772	262	19.2	142	8.7	404	29.5
Susquehanna Township	7,363	8,083	9,570	720	9.8	1,487	18.4	2,207	30.0
Swatara Township	6,975	7,900	9,082	925	13.3	1,182	15.0	2,107	30.2
West Hanover Township	2,011	2,250	2,584	239	11.9	334	14.8	573	28.5

Source: U.S. Census Bureau, STF3A

County (16.1 percent), the MSA (23.1 percent), and Pennsylvania (14.2 percent); thereby, establishing the Harrisburg East Shore area as one of the fastest residential growth areas in the commonwealth. Figure 2-1 illustrates the housing unit growth rates experienced by Lower Paxton Township and the remaining surveyed areas over the 1980 to 2000 period.

Figure 2-1: Housing Unit Growth Rates, 1980 to 2000

Source: U.S. Census Bureau



Historic comparisons of housing densities are presented in Table 2-2. Housing density measures the number of housing units per square mile of land area. According to the 2000 Census, Susquehanna Township had the highest housing density value (714.2 units per square mile) of the surveyed jurisdictions, closely followed by Lower Paxton (697.7 units per square mile) and Swatara (688 units per square mile) Townships. These values far exceeded the values posted by Dauphin County (210.5 units per square mile), the Harrisburg MSA (133.8 units per square mile), and Pennsylvania (117.1 units per square mile), as well as the rural communities of South Hanover (155.4 units per square mile) West Hanover (111.4 units per square mile) and Middle Paxton (36.4 units per square mile) Townships. The housing unit density trends shown in Table 2-2 clearly demonstrate that Susquehanna, Lower Paxton, and Swatara Townships serve as the predominant residential communities in the Greater Harrisburg Area.

Housing Occupancy and Vacancy Status

Table 2-3 provides a decennial housing occupancy and vacancy rate comparison for Lower Paxton Township. The 2000 Census reported that the majority (94.8 percent) of the Township's housing units are occupied, which is consistent with the tenure data enumerated by the 1990 Census.

Table 2-2
Housing Unit Density, 1980-2000

Municipality	Land Area (Sq. Mi.)	Housing Units Per Square Mile			Numeric Change	
		1980	1990	2000	1980-1990	1990-2000
Pennsylvania	44,819.6	102.6	110.2	117.1	7.6	7.0
Harrisburg-Lebanon-Carlilse MSA	1,991.0	108.6	121.3	133.8	12.7	12.5
Dauphin County	528.0	181.3	194.5	210.5	13.2	16.0
Lower Paxton Township	28.1	506.1	601.5	697.7	95.4	96.2
Middle Paxton Township	54.6	31.8	35.5	36.4	3.7	1.0
South Hanover Township	11.4	120.0	143.0	155.4	23.0	12.5
Susquehanna Township	13.4	549.5	603.2	714.2	53.7	111.0
Swatara Township	13.2	528.4	598.5	688.0	70.1	89.5
West Hanover Township	23.2	86.7	97.0	111.4	10.3	14.4

Source: U.S. Census Bureau

Table 2-3
Lower Paxton Township Housing Occupancy and Tenure Analysis, 1990-2000

Category	Decennial Census				Change	
	1990		2000		1990-2000	
	#	%	#	%	#	%
Total housing units	16,902	100.0	19,606	100.0	2,704	16.0
Occupied housing units	16,054	95.0	18,584	94.8	2,530	15.8
Owner-occupied	9,924	58.7	12,252	62.5	2,328	23.5
Renter-occupied	6,130	36.3	6,332	32.3	202	3.3
Vacant housing units	848	5.0	1,022	5.2	174	20.5
For seasonal, recreational or occasional use	43	0.3	83	0.4	40	93.0
Homeowner vacancy rate (percent)	0.9		1.4		0.5	55.6
Rental vacancy rate (percent)	6.7		8.6		1.9	28.4
Avg. household size of owner-occupied units	2.70		2.58		(0.1)	(4.4)
Avg. household size of renter-occupied units	1.90		1.89		(0.0)	(0.5)

Source: U.S. Census Bureau, 1990 and 2000

Occupied Units

The number of occupied housing units, during the 1990 to 2000 period, increased by 2,530 units, or 15.8 percent. In comparison, the number of occupied housing units in Dauphin County and Pennsylvania increased only by 7.8 percent and 6.3 percent, respectively. Moreover, the number of occupied housing units in the City of Harrisburg *decreased* by 4.5 percent, which coincides with the continued loss of population by the city.

The greatest share (62.5 percent) of Lower Paxton Township's occupied housing units, according to the 2000 Census, is comprised of owner-occupied units. This statistic represents an increase over the 58.7 percent rate enumerated by the 1990 Census. In contrast, the share of renter-occupied housing units in the Township decreased from 36.3 percent in 1990, to 32.3 percent in 2000. This would indicate that much of the housing built during the 1990s was for owner-occupied units rather renter-occupied units. These trends also indicate that the Township's home ownership rates have increased, which, in turn, signifies that a large percentage of the Township residents have increased their purchasing power. The benefits of an increased level in home ownership are then, in part, returned to the Township in the form of a greater sense of commitment (steadfastness) to the community.

Table 2-3 also provides information regarding the average household size trends in Lower Paxton Township. From 1990 to 2000, the average size of owner-occupied housing units decreased from 2.70 to 2.58 persons per household. Similarly, the average size of renter-occupied units decreased from 1.90 to 1.89 persons per household. These statistics reflect the decreasing household size trends experienced at the state and national levels. These trends are attributed, in part, to an aging population and more single-parent households.

B. Vacant Units

The 2000 Census reported that 1,022, or 5.2 percent, of Lower Paxton Township's total housing units are classified as vacant, which represents a 20.5 percent (174 units) increase over 1990 Census. Of the 1,022 vacant units reported in the 2000 Census, 83 units were classified as being used for seasonal, recreational or occasional use. From 1990 to 2000, the number of seasonal units in the Township increased by 40 units, or by 93 percent.

The vacancy rate serves as a measure of the housing market. Frank S. So states in his 1988 edited publication entitled, *The Practice of Local Government Planning*, "Vacancy is an important housing indicator because it indicates the degree of choice available. Too high a vacancy rate can be disastrous for owners trying to sell or rent. Too low a vacancy rate can force up prices. Vacancies between four and five percent are usually considered healthy (p. 377)." As shown in Table 2-3, Lower Paxton Township's homeowner vacancy rate increased from 0.9 percent in 1990, to 1.4 percent in 2000, while the rental vacancy rate increased from 6.7 percent in 1990, to 8.6 percent in 2000. Using the standards contained in So's publication, Lower Paxton Township's homeowner vacancy rates are too low and may contribute to a high priced (i.e., unaffordable) housing market. In addition, the rental vacancy rates are too high, which may cause a decrease in rental rates to fill vacancies.

Housing Unit Characteristics (Size of Dwelling Unit)

The majority (12,063 units or 72.9 percent) of housing units in Lower Paxton Township, contain five or more rooms according to the 2000 Census, and typically include the traditional two-story, single-family residential dwelling (Table 2-4). This segment is followed by housing units that contain four rooms (3,191 units or 16.3 percent), and then by three rooms (1,375 units or 7 percent). These statistics are consistent with the dwelling unit sizes enumerated for Dauphin County.

Table 2-4
Rooms per Housing Unit, 2000

Number of Rooms per Total Housing Unit	2000 Decennial Census			
	Lower Paxton Township		Dauphin County	
	#	% of Total	#	% of Total
1	157	0.8	1,650	1.5
2	568	2.9	3,553	3.2
3	1,375	7.0	9,588	8.6
4	3,191	16.3	15,267	13.7
5	3,401	17.3	19,787	17.8
6	3,808	19.4	23,425	21.1
7	2,654	13.5	15,536	14.0
8	2,200	11.2	12,322	11.1
9 or more	2,252	11.5	10,005	9.0
Total Housing Units	19,606	100.0	111,133	100.0

Source: U.S. Census Bureau, 2000

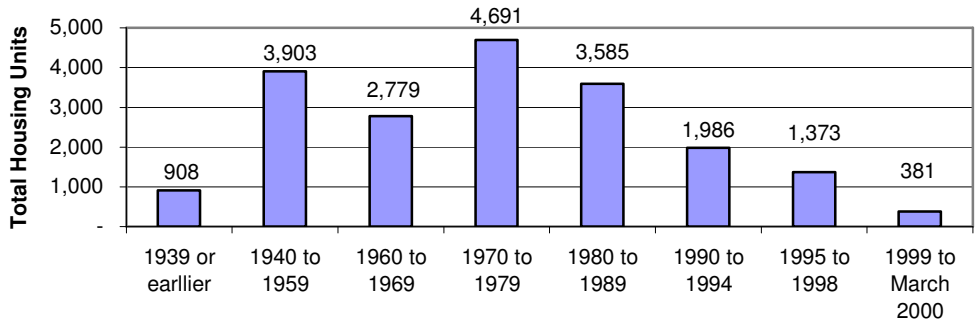
C. Age of Housing Units and Infrastructure

Age

Analyzing the age of Lower Paxton Township's residential structures is useful in evaluating their overall condition; specifically, in terms of identifying possible electrical, heating or plumping system deficiencies (e.g., upgrades), and potential lead-based paint hazards. As illustrated in Figure 2-2, the majority (11,055 units or 56.4 percent) of Lower Paxton Township's housing units were constructed during the 1960 to 1990 period. The Township's housing boom that began during the 1950s resulted from outward growth pressures from the City of Harrisburg. The continued housing growth during the 1960s and 1970s was further fueled, in part, by the Federal-Aid Highway Act of 1956, which led to the development of Interstates 81 and 83. These new highway systems revolutionized the use of the automobile and allowed urban dwellers to further populate outlying rural communities.

Considering that 38.7 percent of Lower Paxton Township's housing units were built prior to 1970, many of these structures may require electrical, heating and plumbing system upgrades. More importantly, it is possible that many of these homes contain lead-based paint, which represents both a substantial health risk for children and a liability concern for property owners. The cost of removing these lead-based paints, however, is often beyond the budget of landlords and lower income homeowners who face problems of limited equity in their properties and a lack of access to financing.

Figure 2-2
Age of Housing Units - Lower Paxton Township
Source: US Census Bureau



D. Infrastructure

Table 2-5 shows the majority (99.7 percent or 19,545 units) of the Township's housing stock has complete plumbing services. Table 2-5 also indicates the various heating fuels used by Lower Paxton Township's occupied housing units. As shown, most of the occupied units utilize natural gas (41.1 percent), electricity (30.8 percent) or fuel oil/kerosene (25.1 percent) as a heating source. Very few of the occupied housing units use coal (0.6 percent) or wood (0.3 percent) for heating purposes; thereby, benefiting the local air quality. Finally, the majority (99.8 percent) of Lower Paxton Township's occupied housing units have complete kitchen facilities.

Table 2-5
Housing Utility Characteristics, 2000

Utility Characteristic	Total Housing Units	
	#	% of Total
Heating Fuel (Occupied Housing Units)		
Utility gas	7,631	41.1
Bottled, tank, or LP gas	299	1.6
Electricity	5,728	30.8
Fuel oil, kerosene, etc.	4,658	25.1
Coal or coke	116	0.6
Wood	61	0.3
Solar energy	-	-
Other fuel	70	0.4
No fuel used	21	0.1
Total Occupied Housing Units	18,584	100.0
Kitchen Facilities		
Complete kitchen facilities	19,568	99.8
Lacking complete kitchen facilities	38	0.2
Total Housing Units	19,606	100.0
Plumbing Facilities		
Complete plumbing facilities	19,545	99.7
Lacking complete plumbing facilities	61	0.3
Total Housing Units	19,606	100.0

Source: U.S. Census Bureau, 2000

E. Housing Unit Design

The predominant residential unit design in Lower Paxton Township is the single-family dwelling, which, according to the 2000 Census, comprised 68.1 percent of the Township's entire housing stock (Table 2-6). Of this total, the single-family detached unit comprised 58.6 percent, or 12,498 units. In Dauphin County, 69.6 percent of housing stock is classified as single-family, with 49.3 percent being single-family detached and 20.3 percent being single-family attached units. Likewise, the majority of Susquehanna (77.7 percent) and Swatara (75.3 percent) Townships' housing units are classified as single-family dwellings.

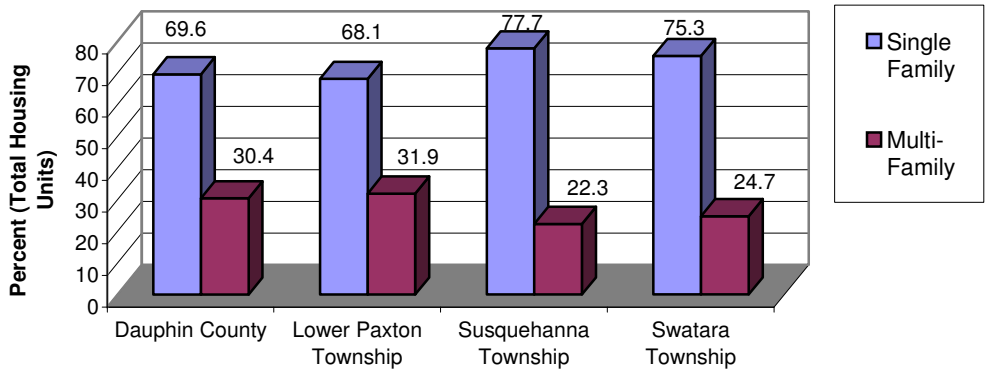
Lower Paxton's smaller share (64.4 percent) of single-family housing units (i.e., compared to Dauphin County's 68.3 percent) is attributed to the fact that it has a larger share (34.4 percent)—in comparison to the county and Susquehanna and Swatara Townships—of its housing stock devoted to multi-family units (Figure 2-3). Of the Township's 5,810 multi-family units, 13.9 percent (2,354 units) are 10 to 19 unit structures, which were built during the 1970s under previously administered land use regulations that allowed for higher density residential development. These statistics, however, demonstrate that Lower Paxton Township provides a wide variety of housing types and designs from which its citizens may choose.

Table 2-6
Housing Unit Types for Lower Paxton Township and Dauphin County, 2000

Units in Structure	Lower Paxton Township		Dauphin County	
	Total Housing Units	Percent of Total	Total Housing Units	Percent of Total
Single Family				
1 unit, detached	11,498	58.6	54,748	49.3
1 unit, attached	1,855	9.5	22,613	20.3
Mulit-Family				
2 units	337	1.7	4,582	4.1
3 to 4 units	859	4.4	6,577	5.9
5 to 9 units	1,953	10.0	6,612	5.9
10 to 19 units	2,012	10.3	5,270	4.7
20 or more	968	4.9	6,772	6.1
Mobile homes, trailer and other	124	0.6	3,959	3.6
Total Units	19,606	100.0	111,133	100.0

Source: U.S. Census Bureau, 2000

Figure 2-3
Comparison of Housing Unit Types
Source: US Census Bureau



F. Average Household Size

The distribution of persons among all occupied housing units is an important index of general household sizes. Nationally, the average household size (i.e., persons per household, including owner-occupied and renter occupied units) is declining, which is also true at the state and local levels. As shown in Table 2-7, Lower Paxton Township's average household size has decreased from 2.55 in 1980, to 2.43 in 1990, to 2.35 in 2000. According to the 2000 Census, Susquehanna Township (2.29) had the lowest average household size, followed by Lower Paxton (2.35) and Swatara (2.37) Townships. Lower average household sizes typify urban municipalities like Lower Paxton, while rural municipalities, such as South Hanover Township (2.81), typically have higher average household sizes.

Table 2-7
Average Household Size, 1980-2000

Municipality	Decennial Census		
	1980	1990	2000
Pennsylvania	2.74	2.57	2.57
Harrisburg-Lebanon-Carlilse MSA	2.72	2.60	2.53
Dauphin County	2.58	2.49	2.39
Lower Paxton Township	2.55	2.43	2.35
Middle Paxton Township	2.91	2.71	2.53
South Hanover Township	3.02	2.92	2.81
Susquehanna Township	2.47	2.44	2.29
Swatara Township	2.68	2.58	2.37
West Hanover Township	3.13	2.78	2.60

Source: U.S. Census Bureau

G. Housing Values

Housing serves as a store of wealth for both owners and landlords. The price of housing in an area at a particular time, relative to the regional and state values, is a relatively good measure of the local economic health and income. Lower Paxton Township's 2000 value ranges for specific owner-occupied housing units and the number of units and the percentage of total units within each interval are presented in Table 2-8. For comparison, the same enumerations for Dauphin County and Pennsylvania are also presented.

Table 2-8
Values of Specified Owner-Occupied and Specified Renter-Occupied Units, 2000

Value	Lower Paxton Township		Dauphin County		Pennsylvania	
	Specified Owner-Occupied Units	Percent of Total	Specified Owner-Occupied Units	Percent of Total	Specified Owner-Occupied Units	Percent of Total
Less than $10,000	-	-	159	0.3	15,398	0.5
$10,000 to $14,999	-	-	211	0.4	20,762	0.7
$15,000 to $19,999	-	-	291	0.5	27,999	1.0
$20,000 to $24,999	-	-	405	0.7	38,118	1.3
$25,000 to $29,999	-	-	335	0.6	46,369	1.6
$30,000 to $34,999	-	-	725	1.3	60,541	2.1
$35,000 to $39,999	17	0.1	898	1.6	73,552	2.5
$40,000 to $49,999	50	0.4	2,765	4.9	152,454	5.3
$50,000 to $59,999	139	1.2	3,265	5.8	177,965	6.2
$60,000 to $69,999	311	2.7	3,683	6.5	205,237	7.1
$70,000 to $79,999	463	4.0	4,449	7.9	216,278	7.5
$80,000 to $89,999	1,043	9.0	6,113	10.9	248,062	8.6
$90,000 to $99,999	1,439	12.5	3,441	6.1	232,156	8.0
$100,000 to $124,999	2,853	24.7	10,874	19.3	392,826	13.6
$125,000 to $149,999	1,841	15.9	6,945	12.3	310,267	10.7
$150,000 to $174,999	1,150	10.0	4,146	7.4	209,382	7.2
$175,000 to $199,999	717	6.2	2,406	4.3	134,790	4.7
$200,000 to $399,999	1,437	12.4	4,695	8.3	276,420	9.6
$400,000 to $499,999	61	0.5	256	0.5	22,817	0.8
$500,000 or more	27	0.2	253	0.4	28,091	1.0
Total Specified Owner-Occupied Units	11,548	100.0	56,315	100.0	2,889,484	100.0
Specified Owner-Occupied Values						
Lower Value Quartile	$96,000		$74,700		$65,300	
Median Value	$120,300		$99,900		$97,000	
Upper Value Quartile	$161,000		$138,900		$145,900	
Specified Renter-Occupied Values						
Lower Contract Rent Quartile	$505		$353		$318	
Median Contract Rent	$570		$473		$438	
Upper Contract Rent Quartile	$651		$587		$593	

Source: U.S. Census Bureau, 2000

Owner-Occupied Housing Unit Values

According to 2000 Census data, 63.1 percent of the Township's specified owner-occupied housing units fall within the $90,000 to $174,999 value range. The 2000 Census also reported that the Township's lower and upper value quartiles were equal to $96,000 and $161,000, respectively, while its median value was $120,300. These values exceeded the corresponding values reported for Dauphin County and Pennsylvania. The Township's higher values may be attributed to its urban-based housing market values, in contrast to the county and state, whose values are predominantly based on a rural housing market. Moreover, the Township's higher housing values may also be attributed, in part, to the low homeowner vacancy rates previously discussed.

Renter-Occupied Housing Unit Values

According to 2000 Census data, Lower Paxton Township's median contract rent value ($570) exceeded the values enumerated for Dauphin County ($473) and Pennsylvania ($438). Again, the Township's higher rent values may be attributed to its urban-based housing market. In addition, the Township's rental vacancy rates, as previously discussed, are considered too high, and therefore, may produce a decrease in the contract rent values in order to fill the vacancies.

Assessed Valuation

Residential development in Lower Paxton Township is very important in terms of generating revenues for the Central Dauphin School District. As shown in Table 2-9, the Township contributed 58.1 percent and 58.4 percent of the school district's 1999 and 2000 total residential market values, respectively. This, by far, exceeded the values generated by the remaining school district municipalities.

Table 2-9
Assessed Residential Market Values, Central Dauphin School District, 1999-2000

School District Municipality	Assessment Year				Change	
	1999		2000		1990-2000	
	$	%	$	%	$	%
Dauphin County	$ 3,880,875,460	100.0	$ 3,957,781,260	100.0	$ 76,905,800	2.0
Central Dauphin School District	$ 1,562,085,680	40.3	$ 1,591,736,880	40.2	$ 29,651,200	1.9
Dauphin Borough	$ 10,931,700	0.7	$ 11,240,500	0.7	$ 308,800	2.8
Lower Paxton Township	$ 907,787,100	58.1	$ 929,484,400	58.4	$ 21,697,300	2.4
Middle Paxton Township	$ 103,820,400	6.6	$ 105,531,400	6.6	$ 1,711,000	1.6
Paxtang Borough	$ 20,742,400	1.3	$ 20,748,000	1.3	$ 5,600	0.0
Penbrook Borough	$ 27,255,200	1.7	$ 27,243,100	1.7	$ (12,100)	(0.04)
Swatara Township	$ 350,590,980	22.4	$ 354,147,080	22.2	$ 3,556,100	1.0
West Hanover Township	$ 140,957,900	9.0	$ 143,342,400	9.0	$ 2,384,500	1.7

Source: PA State Tax Equalization Board

H. Housing Affordability

"Affordable Housing" is commonly defined both publicly and by the banking industry as housing that costs no more than 30 percent of a household's gross annual income. According to the 2000 Census, Lower Paxton Township's 1999 median household income was $49,566. Such a household, therefore, could afford a monthly mortgage payment of $1,240.00, enough to purchase a home between $100,000 and $175,000. The majority of Lower Paxton Township's 2000 housing stock (i.e., $90,000 to $174,999 value range) falls within this affordability price range. As a result, Lower Paxton Township provides an ample supply of affordable housing units.

Table 2-10
Housing Affordability, 2000

	Lower Paxton Township Households	Dauphin County Households
	%	%
Owner-households		
Cost burdened	18	19
Extremely cost burdened	6	7
Renter-households		
Cost burdened	27	32
Extremely cost burdened	9	13

Source: Tri-County Regional Planning Commission

I. Residential Development Trends

As demonstrated in Table 2-1, Lower Paxton Township remains as one of the area's fastest growing residential communities. During the 1970s, the Township experienced a significant growth trend in multi-family housing units. Since this time, however, the Township's residential development has been predominantly geared towards meeting the demands of the single-family housing market. As shown in Table 2-11, the total number of new residential building permits issued over the 1990 to 2000 period for single-family residential (2,072) construction far exceeded the number of permits issued for multi-family units (167). Combined, these building permits generated 928 dwelling units; 28 percent (260 units) of which were constructed in 1997 alone.

Table 2-11
New Residential Building Permit Trends, 1990-2000

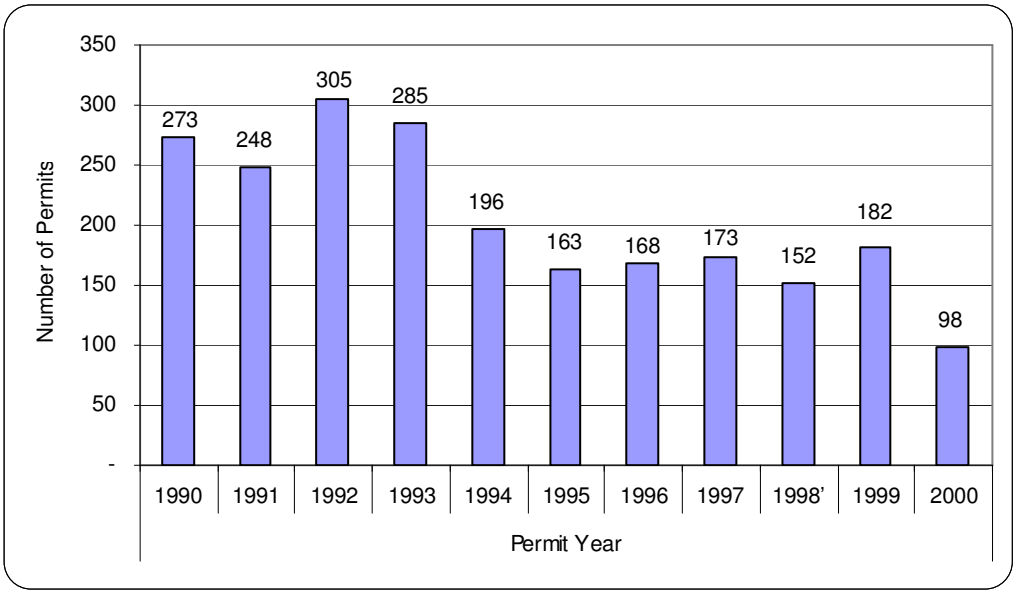
Building Permit Type	Permit Year											Period Total
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
New Residential Buildings	273	248	305	285	196	163	168	173	152	182	98	2,243
Single Family Construction	255	238	302	271	177	156	158	139	137	150	89	2,072
Multi-Family Construction	18	9	3	14	19	7	9	34	13	32	9	167
Units	78	49	13	67	121	39	49	260	55	155	42	928
Mobile Homes	-	1	-	-	-	-	1	-	2	-	-	4

Source: Lower Paxton Township 2000 Annual Report

Figure 2-4 illustrates an 11-year trend of the number of (total) new residential building permits issued by the Township. After reaching a peak of 305 permits issued in 1992, the number of permits issued has declined, which is the result of a sewer moratorium placed on the Township by the Pennsylvania Department of Environmental Protection (PADEP).

Figure 2-4: New Residential Building Permit Trends, 1990-2000

Source: Lower Paxton Township 2000 Annual Report



J. Future Housing Need

Referring to both independent and state/county population projections, as presented in Chapter 1, household projections and future housing needs can be determined. The independent (and more liberal) projections suggest that an additional 5,050 households will result from population growth by 2020. The state/county (and more conservative) projections suggest that an additional 3,150 households will be created in the Township by 2020. These projected households indicate a portion of the potential need for future housing units.

If the Township's vacancy rate remains stable at 5.2 percent, additional units would develop during this growth period. The two projections suggest a range of 164 to 263 additional housing units. In total, the future housing need would range from 3,313 to 5,313 units by 2020.

Table 2-12
Household Projections

Lower Paxton Township	Census 2000	Persons per household	Projected 2010	Projected 2020	Projected # Change 2000-2020
Population	44,424	2.35	48,282	51,075	6,651
Households	18,584		20,546	21,734	3,150

Source: PA State Data Center; Dauphin County Planning Commission

Population	44,424	2.35	49,842	55,541	11,117
Households	18,584		21,209	23,634	5,050

Source: Bondata

K. Public Comments

Planning Advisory Committee meeting participants expressed both positive and negative perceptions of housing conditions and opportunities in Lower Paxton Township. CPU meeting participants specifically listed affordable housing among the most liked features of the Township. Responses indicating too many multi-family housing developments and too many single-family housing developments were given under the listing of least liked features of the Township.

Trends and Issues

- From 1980 to 2000, Lower Paxton Township housing unit growth rate of 37.9 percent exceeded the growth rates experienced by Susquehanna (30 percent) and Swatara (30.2 percent) Townships.

- Lower Paxton Township has the second highest housing density of suburban municipalities in Dauphin County.

- The Township has the highest percentage of multi-family housing in Dauphin County.

- The Township's home ownership rates have increased, which, in turn, signifies that a large percentage of the Township's residents are increasing their affluence.

- Lower Paxton Township's homeowner vacancy rates (5.2 percent in 2000) are healthy; rental vacancy rates are high, which may force landlords to reduce their rental rates in order to fill the vacancies.

- Lower Paxton Township continues to provide a wide variety of affordable housing types and designs from which its citizens may choose.

Introduction

As a result of finite resources, most communities must eventually confront limits to their growth. Such is the case for Lower Paxton Township, which is geographically land-locked, either by other municipalities or by topographical barriers. The Township is bounded to the north by Blue Mountain and Middle Paxton Township, to the west by Susquehanna Township, to the east by Beaver Creek and West Hanover Township, and to the south by Swatara Township.

Despite these limitations to the Township's expansion, there is an ample supply of developable land within its borders—certainly enough to meet the Township's needs for the next twenty years. Nevertheless, it is crucial to understand these long-term limits to growth in order to manage developable land prudently, thus ensuring the long-term viability and sustainability of the Township.

This chapter examines Lower Paxton Township by assessing its existing land uses, development patterns, and current zoning. These assessments encompass all of Lower Paxton Township and include quantifications at the Community Planning Unit (CPU) level.

A. Methodology and Presentation

Lower Paxton Township's existing land use inventory was prepared using a variety of digital and hard copy information sources. The initial inventory was prepared in ESRI's ArcGIS software using the Township's 2002 planimetric datasets (tax parcels, roadway edges, and building footprints), 2001 zoning classes, and recent orthophotography and satellite imagery. The existing land uses were then grouped into the following categories for presentation purposes:

- Residential (Low/Medium Density)
- Residential (High)
- Commercial (Retail and Services)
- Commercial (Office)
- Industrial
- Institutional
- Transportation, Communication, & Utilities
- Parks
- Agricultural
- Grassland/Open Space
- Woodland

These land use categories were based on the U.S. Geological Survey's classification system outlined in its Professional Paper 964 entitled, "Land Use and Land Cover Classification System for Use with Remote Sensor Data (James R. Anderson, et. al.)." This system offers four levels of precision in land use classification—Level I as the most general and Level IV as the most detailed. This study uses a combination of Level I and Level II precision.

B. Land Use/Cover Analysis

Table 3-1 summarizes Lower Paxton Township's land uses by acreage and proportion of total land area. Table 3-2 provides a similar breakdown of these land uses for each CPU. The Existing Land Use Map, Map 2 of Appendix A, illustrates the current distribution of land uses and provides a basis for guiding future development by type and location consistent with the goals and objectives of the Township. Additionally, the Existing Land Use Map provides a pictorial view of the Township at a given point in time, thus becoming a historical reference of land use development in Lower Paxton Township.

As shown in Table 3-1, the majority (11,478.3 acres or 64.1 percent) of the Township's total land area is developed.

Table 3-1
Existing Land Use in Lower Paxton Township, 2002

Land Use Classification	Land Area (Acres)	Percent of Total
Developed	**11,487.3**	**64.1**
Residential (Low /Medium Density)	6114.01	34.1
Residential (High Density)	978.95	5.5
Commercial (Retail and Services)	859.55	4.8
Commercial (Office)	315.78	1.8
Mixed Use	57.32	0.3
Industrial	319.70	1.8
Institutional	814.72	4.5
Transportation, Communication, & Utilities	1212.44	6.8
Parks	270.29	1.5
Recreation - private	544.53	3.0
Undeveloped	**6,426.7**	**35.9**
Agricultural	2605.21	14.5
Grassland/Open Space	442.61	2.5
Woodland	3378.92	18.9
Total (Developed+Undeveloped)	**17,914.0**	**100.0**

Source: Low er Paxton Tow nship, 2002

Table 3-2
Existing Land Use by CPU in Lower Paxton Township, 2002

Land Use Classification by CPU	Land Area (Acres)	Distribution	
		Percent of CPU	Percent of Township
Colonial Park North			
Residential (Low/Medium Density)	1,151.13	43.1	6.4
Residential (High Density)	104.11	3.9	0.6
Commercial (Retail and Services)	119.30	4.5	0.7
Commercial (Office)	29.03	1.1	0.2
Mixed Use		-	-
Industrial		-	-
Institutional	60.89	2.3	0.3
Transportation, Communication, & Utilities	202.08	7.6	1.1
Parks (public and private recreation)	193.53	7.2	1.1
Agricultural	358.20	13.4	2.0
Grassland/Open Space	66.00	2.5	0.4
Forest	385.62	2.5	0.4
Subtotal	*2,669.89*	*88.0*	*13.1*
Colonial Park South			
Residential (Low/Medium Density)	923.18	39.8	5.2
Residential (High Density)	174.88	7.5	1.0
Commercial (Retail and Services)	199.82	8.6	1.1
Commercial (Office)	78.56	3.4	0.4
Mixed Use	20.03	0.9	0.1
Industrial	36.33	1.6	0.2
Institutional	165.47	7.1	0.9
Transportation, Communication, & Utilities	312.49	13.5	1.7
Parks (public and private recreation)	7.30	0.3	0.0
Agricultural	69.16	3.0	0.4
Grassland/Open Space	4.07	0.2	0.0
Forest	326.15	14.1	1.8
Subtotal	*2,317.44*	*100.0*	*12.9*
Linglestown			
Residential (Low/Medium Density)	1,362.23	31.2	7.6
Residential (High Density)	157.06	3.6	0.9
Commercial (Retail and Services)	176.59	4.0	1.0
Commercial (Office)	73.19	1.7	0.4
Mixed Use	31.91	0.7	0.2
Industrial	103.65	2.4	0.6
Institutional	165.64	3.8	0.9
Transportation, Communication, & Utilities	290.91	6.7	1.6
Parks (public and private recreation)	122.90	2.8	0.7
Agricultural	660.57	15.1	3.7
Grassland/Open Space	123.84	2.8	0.7
Forest	1,103.90	25.2	6.16
Subtotal	*4,372.39*	*100.0*	*24.4*

Table 3-2 (cont'd)
Existing Land Use by CPU in Lower Paxton Township, 2002

Land Use Classification by CPU	Land Area (Acres)	Distribution	
		Percent of CPU	Percent of Township
Northwest			
Residential (Low/Medium Density)	645.53	28.9	3.6
Residential (High Density)	47.93	2.1	0.3
Commercial (Retail and Services)	53.68	2.4	0.3
Commercial (Office)	49.33	2.2	0.3
Mixed Use		-	-
Industrial		-	-
Institutional	34.67	1.6	0.2
Transportation, Communication, & Utilities	75.94	3.4	0.4
Parks (public and private recreation)	328.22	14.7	1.8
Agricultural	147.13	6.6	0.8
Grassland/Open Space		-	-
Forest	851.14	38.1	4.8
Subtotal	*2,233.57*	*100.0*	*12.5*
Paxtonia			
Residential (Low/Medium Density)	498.70	35.4	2.8
Residential (High Density)	104.11	7.4	0.6
Commercial (Retail and Services)	200.15	14.2	1.1
Commercial (Office)	8.59	0.6	0.0
Mixed Use	5.39	0.4	0.0
Industrial	107.39	7.6	0.6
Institutional	70.77	5.0	0.4
Transportation, Communication, & Utilities	90.68	6.4	0.5
Parks (public and private recreation)	51.46	3.7	0.3
Agricultural	104.45	7.4	0.6
Grassland/Open Space		-	-
Forest	166.43	11.8	0.9
Subtotal	*1,408.12*	*100.0*	*7.9*
Southeast			
Residential (Low/Medium Density)	917.13	34.3	5.1
Residential (High Density)	181.15	6.8	1.0
Commercial (Retail and Services)		-	-
Commercial (Office)		-	-
Mixed Use		-	-
Industrial		-	-
Institutional	27.25	1.0	0.2
Transportation, Communication, & Utilities	97.32	3.6	0.5
Parks (public and private recreation)	70.18	2.6	0.4
Agricultural	857.01	32.0	4.8
Grassland/Open Space	207.14	7.7	1.2
Forest	317.02	11.9	1.8
Subtotal	*2,674.19*	*100.0*	*14.9*

Table 3-2 (cont'd)
Existing Land Use by CPU in Lower Paxton Township, 2002

Union Deposit			
Residential (Low/Medium Density)	558.21	24.9	3.1
Residential (High Density)	221.62	9.9	1.2
Commercial (Retail and Services)	110.02	4.9	0.6
Commercial (Office)	77.00	3.4	0.4
Mixed Use		-	-
Industrial	72.34	3.2	0.4
Institutional	290.03	13.0	1.6
Transportation, Communication, & Utilities	143.01	6.4	0.8
Parks (public and private recreation)	45.11	2.0	0.3
Agricultural	408.69	18.3	2.3
Grassland/Open Space	41.57	1.9	0.2
Forest	270.78	12.1	1.5
Subtotal	*2,238.36*	*100.0*	*12.5*
Lower Paxton Township Total	**17,913.96**	**688.0**	**98.2**

Developed Lands

Residential

Residential uses comprise the majority (7,093.0 acres or 39.6 percent) of The Township's total land area. The location and intensity of the Township's existing residential development pattern is largely determined by its zoning ordinance; however, market forces, to a certain degree, dictate the type and style of dwelling units actually constructed.

Residential land uses are further classified by the density and detachment of the dwelling units, as well as the overall function and design of the development. The following six sub-classifications are used to describe the residential land uses of Lower Paxton Township.

- *Residential (low/medium density)* – These areas are characterized by single-family detached and duplex housing units sited on lots of at least 20,000 square feet.
- *Residential (high density)* – These sites are characterized by duplex, patio house, multiplex, weak-link townhouse, townhouse, and garden apartment housing units.

Single-family homes are found throughout the Township, comprising 34.1 percent of the Township's total land area. Multi-family housing comprises the remaining residential area, 5.5 percent, in the Township. Large multi-family complexes are commonly found adjacent to single-family and commercial areas. Smaller multi-family developments can be found within single-family neighborhoods in several Township locations.

Commercial

According to Anderson, commercial lands are "used predominantly for the sale of products and services." Commercial uses in the Township comprise 1,175.3 acres or 6.6 percent of the Township's total land area. These include suburban shopping malls, commercial strip developments, and professional offices. Commercial lands may also include pockets of

noncommercial uses that are dominated by the surrounding commercial character. Commercial areas are typically located along transportation routes that provide easy access for customers and for deliveries, as is the case in Lower Paxton Township.

Commercial uses in Lower Paxton Township can be further categorized into the following uses:

- *Commercial (retail and services)* – General commercial uses are those that provide for the sale of products and services.
- *Commercial (office)* – These areas provide space for businesses that pursue research or that offer consultation or other office services.

Mixed Use

Land that are classified as mixed use contain some combination of various land uses that are so closely located that they function as an integrated unit. Lower Paxton Township has only a 57.3 acres or 0.3 percent classified as mixed use, namely the Village of Linglestown.

Industrial

Industrial lands in Lower Paxton Township are lands dedicated to light manufacturing. Light manufacturing typically involves the design, assembly, finishing and packaging of products. The Lower Paxton Township Zoning Ordinance provides a complete list of industrial uses (i.e., permitted by right or conditional use) by their respective Standard Industrial Classification Code (SIC). Industrial lands comprise only a small portion (1.8 percent) of the Township's land area. Like commercial lands, industrial areas are often located adjacent to transportation facilities.

Institutional

The institutional land use category defines the developed parcels within Lower Paxton Township that host various educational, religious, governmental, and health related facilities. All buildings, grounds, and parking areas that comprise a particular institutional facility are included in this category. Institutional lands total 814.7 acres or 4.5 percent of the Township's total land area.

Transportation, Communication, and Utilities

This category includes land areas within the Township that provide a right-of-way for the infrastructure of the respective network. Because these functions are integral to all developed uses, an inventory of these lands is generally limited to large-scale features. The majority, if not all features inventoried for this category represent the various transportation features in the Township and include highway right-of-way, interchanges, and service facilities. Transportation lands make up a significant portion of the Township's land use as the Township contains two interstates, one principal arterial, and six minor arterials. Additional lands are utilized for transportation but are smaller in size and dominated by adjacent land uses.

Transportation, communication, and utilities rights-of-way total 1212.4 acres or 6.8 percent of the Township's total land area.

Parks

Park lands include those that host a wide range of public and private recreational facilities, such as resource conservation areas, nature trails, ballfields, ball courts, picnic pavilions, play equipment and associated parking spaces. A total of 270.3 acres or 1.5 percent of the Township's land area is represented by publicly owned park and recreational land. An additional 544.5 acres, or 3.0 percent of the Township, is owned and managed for private recreation. Therefore, a total of 814.8 acres is in use for parks and recreation activities in Lower Paxton Township.

Note: *This land use analysis used a 5-acre minimum polygon for classification, therefore parks less than 5 acres in size were not independently classified from adjacent uses, therefore the land acreage for parks does not include all parkland owned by the Township. This land use category does include land area under agreement for future acquisition by the Township for parks and recreation.*

Undeveloped Lands

Agricultural

Agricultural lands are those that are dedicated to the production of crops and livestock and to the support of these operations. These lands are easily identified by the building density, road patterns, and geometric field boundaries. While Lower Paxton Township was once supported by agriculture, today this land use occupies a significantly smaller portion (14.5 percent) of the Township's total land area.

Grassland/Open Space

Grassland/open space lands are characterized by uncultivated fields and emerging woodlands. Many of these areas were previously under cultivation but now provide temporary or permanent open space uses for the Township. Secondary uses, such as recreation, are easily supported in these areas. The grassland/open space values were assigned to 2.5 percent of the Township's total land area.

Woodlands

Woodlands are those land areas that have a significant tree-crown areal coverage and are stocked with trees capable of producing timber or other woods products. The woodland classification can be subdivided into deciduous, evergreen, and mixed forest types. Remote sensing cannot detect activities that occur beneath the canopy, such as grazing, wilderness conservation, and water conservation, however such activities are assumed to be dependent on the woodland condition. While the wooded slopes of Blue Mountain comprise the largest contiguous woodland area, this area along with numerous smaller pocket woodlands collectively comprise 18.9 percent of the Township's total land area.

C. The Built Environment – Opportunities and Constraints

Lower Paxton Township

Practically no other force in nature can compare to man's ability to manipulate the landscape. Like many of its neighboring south-central Pennsylvania communities, Lower Paxton Township has evolved from an agrarian-based society to a highly developed, residential and commercial suburb to the City of Harrisburg. President Eisenhower's Interstate Highway System movement fueled much of this development and according to the 2000 Census; the Township is now the state's 19th largest township.

Despite its historic growth, the Township still boasts some of the region's most scenic and natural landscapes, from the forested hillsides of Blue Mountain to the stream corridors of Paxton, Spring, and Beaver Creeks.

The Township's built environment consists of the buildings, transportation system, community facilities and connecting service lines, and other structures or manmade alterations to the natural landscape. The type, placement, and appearance of these structures can profoundly influence urban form and present opportunities for, or significant constraints to, growth.

The largest type of construction in Lower Paxton Township over the past 10 years has been residential, with the greater portion of this development coming as single-family detached housing. However, the sewage permit moratorium has increasingly slowed the pace of this development. In addition to residential development, the Township has also experienced a number of commercial and industrial developments over the last 10 years; most of which have been sited along U.S. Route 22 and Interstate 83 corridors. Developments like the Paxton Towne Centre and the I-83 Industrial Park represent these non-residential developments.

D. Regional Influences

Municipal Planning and Development Trends

An evaluation of the built environment should not consider Lower Paxton Township in isolation, but should look beyond its municipal boundaries to the built environment of adjacent communities, since what is happening in these areas also influences development within Lower Paxton.

Section 301(5) of the Pennsylvania Municipalities Planning Code (MPC) mandates that comprehensive plans shall discuss the relationship of the existing and proposed development of a municipality to the existing and proposed plan in contiguous municipalities and the county. Fulfilling this requirement is critical to identifying potential planning policy conflicts, as well as potential opportunities to cooperate with neighboring jurisdictions.

Planning policies and initiatives such as the municipal comprehensive plans and zoning ordinances, as well the Dauphin County Comprehensive Plan, were reviewed in the development

of this section. In addition, telephone interviews were conducted to provide additional insights on existing and future development trends throughout the West Shore Region of Harrisburg.

The Township is participating in the PA Routes 39/743 transportation study, which aims to evaluate transportation facilities and recommend improvements for these corridors. While this is primarily a transportation study, land use and growth are integral parts of the future of these corridors. Development, particularly commercial or industrial, in any one municipality will have impacts to other municipalities along these routes.

Middle Paxton Township, Dauphin County

Middle Paxton Township adopted its most recent comprehensive plan update in 1998. The plan characterizes the Township as a bedroom community for those who work in the Greater Harrisburg Area and outlines goals to maintain its rural quality and atmosphere through limited development. The Township provides no public sewer or water, which in addition to natural factors limitations (soils, slopes, geology, etc.) curtails high-density development. State Game Lands 211 provide a forested backdrop to this dispersed community.

Land uses in Middle Paxton Township that lie adjacent to Lower Paxton Township are rural in nature. A low density, limited growth district is designated through the lower portion of the valley along Fishing Creek Valley Road. Development in this district is expected to reach an average density of one dwelling unit per acre, though higher density development that reserves land as open space may be permitted. The upper portion of Fishing Creek valley is designated as Agriculture/Rural Residential and may be developed to an average density of one dwelling unit per three acres. Both of these land uses and their respective densities are compatible with the adjoining zoning in Lower Paxton Township.

The greatest impact that limited growth in Middle Paxton Township may have on Lower Paxton Township will likely be in the use of retail services and transportation routes to those services. Should the eastern portion of Fishing Creek valley become developed, traffic volumes on Parkway East, Parkway West and Blue Mountain Parkway may increase, requiring future improvements. In addition, the Middle Paxton Township Comprehensive Plan proposes the development of bike and walking trails in the vicinity of Fishing Creek Valley Road and the Blue Mountain Ridge, which may support a recreational network should similar trails develop in Lower Paxton Township.

South Hanover Township, Dauphin County

South Hanover Township lies adjacent to Lower Paxton to the southeast. The township adopted its current comprehensive plan in 1991 and is presently updating this policy guide. Growth in the Lower Dauphin area, as well as on-going development in the Greater Harrisburg area, is a concern for South Hanover Township. The Township is also participating in the PA Routes 39/743 Transportation Study, conducted by PENNDOT.

A portion of South Hanover Township has already been developed as a result of suburban growth from the town of Hershey. Current development is primarily residential. The Meadows of Hanover has been proposed to provide a variety of housing types within an 854-unit

development. Other residential developments in the Township are expected to total approximately 100 units over the next few years. Two golf courses have also been proposed.

These developments will have an impact on transportation routes as they increase the population. Residents will utilize the transportation network to travel to and from work as well as to shopping and entertainment venues in the Harrisburg and Hershey areas. As an alternate to Route 322, residents may use Union Deposit Road to reach the Harrisburg Area. Likewise, Lower Paxton residents may travel Union Deposit Road to reach the Hershey area, particularly if the roadway is improved in the future. South Hanover and Lower Paxton will need to cooperatively address these impacts to the transportation system.

Regarding intermunicipal efforts, South Hanover and Lower Paxton currently have a joint contract for roadway line painting.

South Hanover Township enacted a Park and Open Space Plan in 1995 to network its individual park sites and the Swatara Creek Greenway. Lower Paxton Township may utilize this plan as a model for networking its own park system and in aligning open spaces for maximum benefit for all residents.

Susquehanna Township, Dauphin County

Susquehanna Township adopted its most recent comprehensive plan in 2000. While the southern portion of the Township has reached a build-out condition, development continues between Interstate 81 and the Blue Mountain ridge. The 2000 plan identified a quality and diversified housing stock, centralized activity nodes, and integrated residential and office developments as assets in the Township community. The plan intended to address those features of the Township that were viewed by the public as weaknesses, including sprawl, corridor management, encroachment on the Blue Mountain, lack of bicycle and pedestrian access and lack of mixed use development.

The plan outlines ideas for creating gateways to the community at its major access points, including those shared with Lower Paxton Township on Linglestown Road, Paxton Church Road, Elmerton Avenue, Walnut Street and Union Deposit Road. Open space corridors are identified and suggest conservation areas for greenways, historic preservation, bicycle and pedestrian networks. Interconnecting streets are recommended to reduce traffic congestion, specifically in Regional Commercial Areas in the vicinity of Union Deposit Road. These ideas for development and re-development along the shared border of Lower Paxton and Susquehanna Townships are relevant to cooperative planning and implementation between the municipalities.

Several residential and commercial developments in the vicinity of the townships' shared boundary are in review or construction stages. Waverly Woods, a 600-unit townhouse community, is currently under construction and Margaret's Grove, a 400-unit townhouse community, has been approved. Once complete, the Sturbridge Corporate Center will offer 12 commercial sites and an adjacent 40-acre parcel could potentially accommodate 50-60 single-family homes. All of these developments will likely contribute increased traffic volumes to Linglestown Road (PA 39), though primarily west of Lower Paxton Township. In addition, the Susquehanna Town Center, a current proposal, would offer 22 store sites just west of the I-81/I-

83 interchange south of Valley Road and would deliver eastbound traffic to Valley Road and Lower Paxton Township.

The Boyd Big Tree Conservation Area is found in both Susquehanna and Lower Paxton Townships. Under management by PA DCNR, residents from across the state have access to this 914-acre tract of forest and field habitats. The area is open to the public for hunting and recreation. Over ten miles of trails are used by hikers, hunters, and cross-county skiers. An additional 79.6 acres within Lower Paxton Township may soon be added to the Conservation Area upon its acquisition by the Central Pennsylvania Conservancy.

Swatara Township, Dauphin County

Swatara Township adopted its most recent official comprehensive plan in 1976. A revised plan was drafted in 1996 and a final draft is now being prepared. While much of the Township has been developed, the final revised plan is expected to identify remaining areas of potential development based upon existing infrastructure and services. Low-density residential development is anticipated in most available areas. Where commercial land use is designated, "urban village" is implied, such that these areas provide pedestrian friendly, human scale environments.

Primarily low-density residential districts of Swatara Township adjoin Lower Paxton Township's southern border. A commercial district lies between East Park Drive and Interstate 83 but compliments similar commercial and light industrial districts in Lower Paxton Township. A few agricultural districts remain in this area surrounding Rutherford Heights but will likely be developed at a similar density in the coming years. Such an increase in the number of residences will, in all probability, increase traffic volumes between the Union Deposit Road corridor and the Derry Street corridor. In light of current traffic volumes, signalization design for the intersection of 61st Street (Page Road in Lower Paxton Township) and Derry Street is under way.

Though the two townships are physically separated by Spring Creek, there are potential opportunities for them to work cooperatively, particularly in regards to circulation. As development continues in the area surrounding Rutherford Heights, additional transportation improvements may be needed to facilitate traffic flows. The townships would benefit from a cooperative effort to address these problems.

Swatara Township also recognizes pedestrian and bike traffic as relevant concerns for resident recreation and circulation. Pedestrian and bike activity areas and corridors are proposed as part of Swatara Township's revised comprehensive plan. Coordinated planning between Lower Paxton and Swatara Townships could result in a pedestrian/bicycle network for the residents of this area.

West Hanover Township, Dauphin County

West Hanover adjoins Lower Paxton Township on the eastern bank of Beaver Creek. The Township adopted its most recent comprehensive plan in 1992. Due to several land use/zoning

changes made in the late 1990s, the plan's goals were reviewed in 2000 and its objectives and methods for guiding development will be reviewed by the end of 2002.

Though Beaver Creek offers a physical boundary between the two townships, existing intermunicipal agreements and contracts, continued development, and a common school district draw West Hanover and Lower Paxton Townships together. An intermunicipal agreement currently permits West Hanover to deliver sewer service from Country Manor and Westford Crossing to The Township's sewer system. Similar agreements may be sought as the development of Winding Creek and The Meadows of Fort Stewart move toward township approval. Additional residential development proposals have been submitted, totaling approximately 1200 new homes. The addition of these residences are expected to have a targeted impact on existing roadways that bridge or circumvent Beaver Creek (Routes 22 and 39), since PA DEP has declined recent bridge proposals in light of sensitive wetlands along the stream. In addition to these agreements, the townships have also worked together on municipal contracts for solid waste disposal and line painting.

The Central Dauphin School District serves both Lower Paxton and West Hanover Townships, as well as other surrounding municipalities. Due to projected enrollments and current programming, the school district is renovating existing facilities and constructing a new high school. The new high school will be located in West Hanover Township near the intersection of Linglestown and Piketown Roads.

West Hanover Township is pursuing open space conservation and a recreational network to connect open spaces with pedestrian and bike paths. The Township previously utilized a sidewalk overlay district but found that it fell short of achieving adequate pedestrian circulation. A Pedestrian Path System Plan is currently in development. Though stream crossings may be limited, there may be opportunities to connect conservation and recreation networks for greater regional gain.

As shown above, cooperative efforts between the two townships have proven beneficial. Future initiatives may result from continued development pressure and the resultant need to expand municipal services (police, fire protection, utilities) to developing areas.

Dauphin County

Dauphin County is home to all of the aforementioned municipalities as well as the state capital. As the center of state government, it is the third largest county by population in the Commonwealth. The County Comprehensive Plan is currently being updated from its 1992 predecessor with adoption anticipated by 2004.

Lower Paxton Township's Comprehensive Plans have generally been consistent with County plans. Historically, County plans have been developed from existing municipal plans, thereby generating consistency with little municipal initiative. The current re-writing of the comprehensive plan attempts to take a regional perspective and its recommendations will entail greater municipal involvement if planning goals are to be achieved. The Regional Growth Management Strategy developed by the Tri-County Planning Commission (Cumberland,

Dauphin, and Perry Counties) will guide key components of the new County Comprehensive Plan in regards to focusing development and redevelopment in targeted districts.

Lower Paxton Township has strong ties to the surrounding region through various types of infrastructure. The Township has participated in the PA Routes 39/743 Transportation Study, which aims to evaluate transportation facilities and recommend improvements for these corridors. While this is primarily a transportation study, land use and growth are integral parts of the future of these corridors. Development, particularly commercial or industrial, in any one municipality will have impacts to other municipalities along these routes. Therefore, the Township will need to consider internal land use as it relates to the region.

Similarly, the relationship between land use and transportation is found within the Township along U.S. Route 22. Expansion of commercial zoning districts has drawn businesses and their customers further east along the U.S. Route 22 corridor, increasing traffic volumes and requiring improvements while passing by existing commercial areas and infrastructure. Future planning for this corridor would benefit from a long-term vision of what it could and should become.

The Township is also connected to adjacent municipalities through its sewage system. It currently delivers sewage to both the Harrisburg and the Swatara Wastewater Treatment Plants, however inflow and infiltrations during rain events causes unacceptable overflows. Due to this problem, the collection system in Lower Paxton Township is under a growth moratorium while a sewage plan is being developed. Once the moratorium is lifted, the system may experience a growth surge. Should this occur, Lower Paxton Township may need to consider the development of an additional wastewater treatment facility to accommodate increased wastewater flows.

The County recognizes that for many years the Township welcomed residential and commercial development but also acknowledges that the Township is home to some distinguishing cultural and natural features. While many of its farms have been developed, others remain and contribute a rural, historic flavor to the area as fields and pastures express the rolling topography. Winding country roads persist in the eastern portion of the Township and follow the dynamic landscape of the stream corridor. Unfortunately, acknowledgement, conservation, and/or preservation of these and other distinguishing features have not been a priority to date.

The County has attempted to outline alternative transportation routes and offer countywide recreation through its pedestrian and bike path plan. Each township within the County is encouraged to implement local segments of the network and funding is available for such projects. Growing awareness of pedestrian access may support implementation, even expansion, of the plan in Lower Paxton Township.

Broader Regional Influences

Transportation improvements, initiatives for a regional light rail system (i.e., Corridor One), the proximity to major employment centers, educational centers, and Harrisburg International Airport (HIA) each have, or will have, profound effects on the Township's growth and development.

Development "Magnets"

Lower Paxton Township is very fortunate to be located at the heart of the Greater Harrisburg Region, with an economy highly interconnected with the Harrisburg-Lebanon-Carlisle Metropolitan Statistical Area (MSA). The Township is located within five miles of the City of Harrisburg—the state capital and a major employment generator for state government and supporting private service businesses. The Township's proximity to the city also places its residents in a favorable position to obtain a unique offering of quality services, including higher educational institutions, such as Penn State Harrisburg, HACC, and the Widener School of Law; performing art centers, including the Forum and Whitaker Center; museums, such as the state museum and The National Civil War Museum; transportation services, including Amtrak and HIA; entertainment and recreational attractions, such as Hershey Park and City Island; and a variety of passive and active recreational opportunities.

D. The Land Use Regulatory Environment

The Pennsylvania Municipalities Planning Code (MPC) provides the legal framework for local governments to enact, administer, and enforce both zoning and subdivision and land development regulations. Zoning is one method a community may use to regulate the use of land and structures and is designed to protect public health, safety, and welfare, and to guide growth. In contrast, subdivision and land development regulations control neither which uses are established within the municipality nor where a use or activity can or cannot locate; rather, they control how a use or activity relates to the land upon which it is located.

Lower Paxton Township has adopted a zoning ordinance and subdivision and land development regulations; both of which are included in the Township's Codified Ordinances. These regulations, in part, implement the Township's Comprehensive Plan. To this extent, the Comprehensive Plan establishes the framework by which these and other ordinances are developed and maintained.

E. Agricultural Land Preservation

Agricultural Security Areas (ASA), as authorized pursuant to the Agricultural Area Security Law, PA Act 1981-43 (Act 43), allows a landowner or group of landowners, whose parcels collectively comprise at least 250 acres, to apply to their local government(s) for the designation of an ASA. Such parcels must be viable agricultural land and may be comprised of non-contiguous tracts at least 10 acres in size. A summary of ASA benefits follows:

- The ASA designation encourages agricultural land preservation.
- The ASA designation affords the landowner(s) protection from local ordinances that restrict farm practices, unless those ordinances have a direct relationship to public health or safety.
- The ASA designation protects an area from nuisance ordinances.
- The ASA designation limits land condemnation procedures—eminent domain by the Commonwealth and local agencies—unless approval is gained from the Agricultural Lands Condemnation Approval Board.
- The ASA designation qualifies a land area consisting of 500 acres or more for purchase of development rights under the statewide Agricultural Conservation Easement Program

(Agricultural Conservation Easement Program—Act 149—was developed in 1988 under an amendment to the Agricultural Area Security Law).

- The ASA designation is not a permanent designation and designated parcels are reviewed every seven years.

The Lower Paxton Township Board of Supervisors created the Township's ASA by adopting Resolution No. 00-19. This ASA consists of six parcels collectively comprising 306 acres. Various maps in Appendix A of the Comprehensive Plan document illustrate the location of these parcels.

Trends and Issues

- The majority Lower Paxton Township has been developed, predominantly as residential uses. However, a significant portion (35.9 percent) remains undeveloped.

- The largest type of construction in Lower Paxton Township over the past 10 years has been residential, with the greater portion of this development coming as single-family detached housing. However, the sewage permit moratorium has increasingly slowed the pace of this development. In addition to residential development, the Township has also experienced a number of commercial and industrial developments over the last 10 years; most of which have been sited along U.S. Route 22 and Interstate 83 corridors.

- Lower Paxton Township has strong ties to the surrounding region through various types of infrastructure.

- The Township will likely experience transportation impacts as adjacent municipalities approve residential subdivisions for construction.

- Lower Paxton Township has existing intermunicipal agreements with adjacent townships regarding various municipal services. Further expansion of such agreements could offer the Township savings and greater regional connectivity.

- Agricultural preservation tools have been applied in the Township.

Introduction

This chapter of the Comprehensive Plan is intended to provide an overview of the Township's existing transportation system, review recent improvements, and identify areas that require additional transportation improvements.

The transportation network of a community is the backbone for its development and its prosperity. It can help to attract a thriving society of merchants and residents and is the overall foundation for community growth. A carefully planned roadway network, designed to properly fit the structure of the community and suit its needs, will ultimately mold the framework for its future population. Its transportation network often influences the advancement and success of a community, and if poorly planned or maintained, it can sometimes deter progress and overshadow the community's positive attributes.

In 1998, Lower Paxton Township completed an unofficial update to the Transportation Plan of the 1992 Comprehensive Plan. As residential and commercial growth occurred, traffic volumes and patterns necessitated a reevaluation of the 1992 plan in regard to public safety and convenience. The plan includes both an updated inventory and analysis of traffic volume and level of service for state and Township roadways, accident occurrence, deficiencies, and improvements, as well as recommendations for transportation improvements to be addressed by the state and by the Township. This plan was prepared for review and approval by the Township Board of Supervisors and serves as a strong reference for the development of this chapter.

A. Existing Roadway Network

The existing roadway network of Lower Paxton Township consists of two interstate highways, a US route, and various arterial roadways, collectors and local roads. There are approximately 235 miles of roadway in the Township, consisting of 53 state miles and 188 local miles. The Township also owns and maintains seven bridges and 34 traffic signals. Maps 3 and 4 of the Comprehensive Plan document illustrate the Township's roadway network.

Local roadways were originally established to provide circulation between the farms, villages, and markets of the Township and the surrounding region. U.S. 22 was constructed predominantly in the 1940s to reach Allentown business markets and other points east of Harrisburg. Interstate 83 south of Colonial Park was built in the 1950s and extended in the 1970s when the portion of Interstate 81 that lies within the Township was completed.

The major roadways servicing the Township are listed below.

- *Interstate 81*: provides overland access northeast to Scranton and cities in upstate New York and southwest to the West Shore, Carlisle and cities in Maryland, West Virginia, Virginia, and Tennessee. It traverses the Township parallel to Blue Mountain, approximately three miles south of the Township's northern boundary.
- *Interstate 83*: parallels the western boundary of the Township from the south to its interchange with Interstate 81. It lies approximately ¼ mile east of the Township border.
- *US 22*: travels east-northeast through the approximate center of the Township.

- *SR 39*: also known as Linglestown Road, provides an east-west corridor through the northern portion of the Township.
- *Colonial Road* and *Mountain Road* provide north-south linkages between PA 39 and U.S. 22.
- *Locust Lane* and *Union Deposit Road* provide east-west routes in the southern portion of the Township.

B. Access Points to Major Roadways

Interstate 81 provides two interchanges in the Township: York/I-83 (No. 70) just north of Colonial Park and Paxtonia North/South (No. 72A/B, formerly No. 26A/26B) at Mountain Road.

Interstate 83 provides three grade-separated interchanges along its three-mile route through the Township: Union Deposit (No. 48, formerly No. 29), Colonial Park/Progress (No. 50A/50B, formerly No. 30E/30W), and York/Hazelton (No. 51A/51B) at its juncture with Interstate 81.

US 22 provides both grade-separated and at-grade intersections along its length within the Township. A grade-separated interchange is provided at Interstate 81. At-grade signalized intersections on U.S. 22 in the Township are located at the following intersections (west to east):

- Colonial Road
- Miller Road
- Houcks Road/Prince Street
- Byron Avenue
- Devonshire Road
- Parkchester Road
- Paxton Towne Centre (Commons Drive)
- Carolyn Street
- Lockillow Avenue
- Johnson Street
- Mountain Road
- Blue Ribbon Avenue
- Shannon Drive.

C. Functional Roadway Classification

The efficient movement of vehicles within a community is dependent on a balance between all types of street facilities: limited access highways, arterials, collectors, and local streets. Streets, or roadways, are classified according to the mobility and land access that they provide. For example, roads that provide for greater mobility, such as Interstates and arterials, result in reduced land access; traffic moving at higher speeds limits the ability of traffic to enter or exit the traffic flow safely. Conversely, local roads that provide greater land access, meaning safe entry and exit, result in reduced mobility, or slower traffic speeds. As a result of land use demands for mobility and access, a relationship between transportation and land use arises.

The roadway classification system and its implementation may influence how adjacent land will be used. This does not necessarily imply that the land adjacent to major arterials, which provide high mobility and permit high traffic volumes, must be used for non-residential uses. The dominance of this rationale has created strip development along many arterials and collectors. Rather, the classification system permits a general focus on the needs for mobility and access.

In planning for highway improvements it is important for planners to be cognizant of a functional classification scheme in guiding transportation planning efforts. Functional classifications are also important in determining and applying design standards (cartway widths, rights-of-way acquisition, curbing, etc.) to roadway design or improvement and should be as consistent as possible at local and regional levels.

The functional roadway classifications illustrated in the Functional Road Classification Map, Map 3 of Appendix A, reflect the system currently used by the Harrisburg Area Transportation Study (HATS) and PENNDOT and approved by the Federal Highway Administration (FHWA).

Roadways in Lower Paxton Township represent five of the six functional classifications, defined as follows:

Interstate
Limited access highways designed for traffic between major regional areas or larger urban communities of 50,000 or more. These highways extend beyond state boundaries, with access limited to interchanges located by the U.S. Department of Transportation.

Freeway
Limited access highways designed for large traffic volumes between communities of 50,000 or more to regional traffic generators (such as central business districts, suburban shopping centers, and industrial areas). Freeways should be tied directly to arterial roads, with accessibility limited to specific interchanges to avoid the impediment of thru traffic.

Principal Arterial
Roads that provide land access while retaining a high degree of thru traffic mobility and serve major centers of urban activity and traffic generation. These roadways provide a high speed, high volume network for travel between major destinations in both rural and urban areas.

Minor Arterial
Roads that provide land access with a lower level of thru traffic mobility than principal arterials and serve larger schools, industries, institutions, and small commercial areas not incidentally served by principal arterials.

Collector
Roads that collect traffic between local roads and arterial streets and that provide access to abutting properties. Collectors serve minor traffic generators, such as local elementary schools,

small individual industrial plants, offices, commercial facilities, and warehouses not served by principal and minor arterials.

Local
Roads that are local in character and serve farms, residences, businesses, neighborhoods, and abutting properties.

Table 4-1 summarizes roadway classification information for state roads in the Township.

Table 4-1
Road Classifications for State Roads in Lower Paxton Township

Interstate	Principal Arterial	Minor Arterial	Collector
Interstate 81	US 22	Colonial Road (SR 3017)	Blue Ridge Avenue (SR 2029)
Interstate 83		Linglestown Road (SR 39)	Nyes Road (SR 2019)
		Locust Lane (SR 3024)	
		North Mountain Road (SR 3019)	
		Rutherford Road (SR 3017)	
		Union Deposit Road (SR 3020)	

Source: PENNDOT and Lower Paxton Township.

Roadway classification of Township roads is currently limited to urban collectors/rural urban collectors and local roads. The following Township roads are classified as urban collectors/rural urban collectors:

Balthaser Street
Blue Mountain Parkway
Blue Ribbon Avenue
Crums Mill Road
Dartmouth Street
Devonshire Heights Road
Devonshire Road
Earl Drive
East Park Drive
Fairmont Drive
Goose Valley Road
Grove Road
Londonderry Road
Lyters Lane
McIntosh Road
North Lockwillow Avenue
Jonestown Road
Parkway East
Parkway West
Prince Street
South Arlington Avenue
South Houcks Road
Valley Road
Wenrich Street

All remaining Township roads are classified as local roads.

D. Roadway Management and Improvements

Roadway management in the Township is divided between PENNDOT and the Township Public Works Department (PWD). The PWD maintains the local transportation network within Lower Paxton Township, while the state maintains state and federal facilities. Township roadway

maintenance services include resurfacing of Township roads, winter maintenance of both local and state roads, and maintenance of seven municipal bridges.

PENNDOT Improvement Projects

PENNDOT's Twelve Year Transportation Improvement Program (TIP) is a requirement of the planning process prescribed in the Transportation Equity Act for the 21st Century (TEA-21), P.L. 105-178, Title I, Subtitle B, Section 1204. The U.S. Department of Transportation defines the TIP as "a staged, multi-year, intermodal program of transportation projects, which is consistent with the metropolitan transportation plan." Table 4-2 shows projects that are listed on PENNDOT's 2003 TIP and located within or in proximity to the Township.

At the time of the 1998 Transportation Plan, the Township had already submitted 13 projects for inclusion in the flowing update of PENNDOT's Twelve Year Plan. Improvement projects ranged from intersection improvements and roadway redesign to bridge replacement, pavement restoration and interstate widening.

TABLE 4-2
2003 Transportation Improvement Program Projects for the Harrisburg Area Transportation Study (HATS) and PENNDOT in Lower Paxton Township and vicinity, Dauphin County

					Costs (in thousands of dollars)					
Project	Route	Title/Sponsor	Improvement	Period	PE	FD	UTL	ROW	CON	Total
MODE: HIGHWAY										
64412	I-83	IMPROVEMENTS	HIGHWAY RECONSTRUCTION	3	3754					3754
19023	22	US 22 SFTY CORRIDOR	Safety	1	150					150
19023	22		Safety	2		500				500
19023	22		Safety	3			50	300		350
19023	22		Safety	4					5,800	5800
47517	39	LINGLESTOWN SQUARE	HIGHWAY RECONSTRUCTION	1		225				225
47517	39		HIGHWAY RECONSTRUCTION	2			25	25	800	850
19155	3020	UNION DEPOSIT R, EAST	HIGHWAY RESTORATION	1					1,746	1746
MODE: BRIDGE										
19116	2010	UNION DEPOSIT RD BRG	BRIDGE REPLACEMENT			122	10	50		182
18939	3020	UNION DEPOSIT ROAD BRIDGE	BRIDGE REPLACEMENT	1					2,820	2820
MODE: TRANSIT										
Multiple		Capitol Area Transit	Various Improvements to regional network	1						n/a

Notes:
Period = The scheduled phase of completion within the Twelve Year Improvement Program
PE = The cost of the Preliminary Engineering of the project development in thousands of dollars.
FD = The cost of the Final Design of the project development in thousands of dollars.
UTL = The cost of the utility changes (electric, telecommunications, mechanical) in thousands of dollars.
ROW = The cost of the right-of-way phase of the project in thousands of dollars.
CON = The cost of the construction phase of the project in thousands of dollars.
PRA = The costs of planning and research or administrative projects in thousands of dollars.
TOTAL = The total project cost in thousands of dollars.
Source: PENNDOT (Adopted 8/14/2003)

In addition to scheduled improvements, PENNDOT District 8-0 is leading a master planning effort for Interstate 83. The purpose of the master planning effort is to make a comprehensive planning and preliminary engineering assessment of the Corridor that extends from I-83/TR 581 in Cumberland County to the I-83/I-81 interchange in Lower Paxton Township. It is expected that the master plan will result in:

- Transportation improvement options for the Corridor
- Preliminary impact assessments of each alternative

- Major visioning and public involvement of each community and businesses within the corridor

This major effort will consider all major local planning and development activity as part of the assessment. As such, coordination with the Township's planning activity is important.

The Transportation Enhancements Program is also available to help to make improvements for "non-traditional" forms of transportation (i.e. bicycling/pedestrian) within the Township. The program originated in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and continues under TEA-21. The program establishes a cooperative arrangement between the Federal Highway Administration, PENNDOT and the sponsor to implement projects that have a direct relationship with transportation use, needs and benefits. This cost reimbursement program provides 80 percent of the implementation/construction costs. As a reimbursement program, sponsors must demonstrate the ability to advance their portion of projects costs prior to approval.

Projects must meet eligibility requirements and all federal and state regulations for transportation projects. There are twelve project categories defined by the Act:

1. Provision of Facilities for Pedestrian and Bicycles
2. Provision of Safety and Educational Activities for Pedestrians and Bicyclists
3. Acquisition of Scenic Easements and Scenic or Historic Sites
4. Scenic or Historic Highway Programs (Including the Provision of Tourist and Welcome Center Facilities)
5. Landscaping or Other Scenic Beautification
6. Historic Preservation
7. Rehabilitation and Operation of Historic Transportation Buildings, Structures or Facilities (Including Historic Railroad Facilities and Canals)
8. Preservation of Abandoned Railway Corridors (Including the Conversion and Use, Thereof for Pedestrian or Bicycle Trails)
9. Control and Removal of Outdoor Advertising
10. Archeological Planning and Research
11. Mitigation of Water Pollution Due to Highway Runoff or to Reduce Vehicle-Caused Wildlife Mortality While Maintaining Habitat Connectivity
12. Establishment of Transportation Museums.

Unlike the TIP, Enhancement projects are not updated on a regular (i.e. biennial) basis. Lower Paxton Township, along with other municipalities from throughout the Tri-County Region, submits project suggestions to HATS and a statewide Transportation Enhancement Advisory Committee (TEAC) for prioritizing. While Lower Paxton Township has not completed any such projects to date, the Transportation Enhancements Program offers future funding opportunities.

E. Traffic Volumes

The most fundamental and visible description of a roadway's functional classification is the volume of traffic using that roadway over a given time period. To standardize this analysis,

traffic volume is usually expressed over a 24-hour period, factored by both day of the week and month of the year, to produce an Annual Average Daily Traffic (AADT) value.

There are caveats to the use of AADT data. The values given are based on spot counts taken over a period of time to assist in the preparation of a statewide transportation network estimates. These spot counts may not be representative of an entire road segment and the extrapolation of these values over longer distances dilutes their validity. Despite these limitations, AADT is still the best standard method of evaluation.

Traffic volumes were recorded by PENNDOT as Annual Average Daily Traffic (AADT) in 1991 and included in the 1998 Transportation Plan. More recent AADT values (2001) were gathered from PENNDOT's Roadway Management System (RMS) database. AADT data is presented here in Table 4-3 and in Map 4 of the Comprehensive Plan document.

Table 4-3

PENNDOT Surveyed Traffic Volumes in Lower Paxton Township

	1991	2001
I-81	30,000-47,000	38,000-39,000
I-83	52,000-89,000	36,500-55,500
U.S. 22	23,150-29,450	5,000-30,000
PA 39	14,400-16,700	2,000-30,000
Mountain Road	9,000-23,300	2,000-15,000
Colonial Road	9,450-14,850	5,000-15,000
Nyes Road	6,650	7,000-8,000
Elmerton Avenue	3,350	5,000
Blue Ridge Avenue	1,300	2,000
Locust Lane	5,650-9,250	6,000-16,000
Union Deposit Road (I-83 to Rutherford Road)	14,650-27,700	17,000-20,000
Union Deposit Road (Rutherford Road to Nyes Road)	2,600	2,500-3,500
Union Deposit Road (east of Nyes Road)	1,150	
Rutherford Road	12,000	13,500
Newside Road	4,800	—
Page Road	4,800	—

Source: Lower Paxton Township and PENNDOT RMS (2001).

Traffic volumes have indeed increased, particularly on the minor arterials and collectors in the Township. According to this data, highways traffic volumes have declined, though this could be an effect of regional transportation improvements.

Other traffic data is available via a 1997 study conducted by TCRPC, which included 24-hour machine traffic counts at six locations in the U.S. 22 corridor study area. Manual turning movement count information was also collected at 15 of the corridor's signalized intersections. The study recommended three strategies to the Township in reduce traffic volumes along the corridor via bicycle/pedestrian improvements, as well as more intensive management of roadway access from adjacent parcels.

F. Intersection Operation/Signal Timing

The 1998 Transportation Plan reports that level of service (LOS) was analyzed for signalized and unsignalized intersections. Level of service is a quantitative measure of how much time delay is experienced at specific intersections and how much traffic is using a given road's lane or lanes over a given distance. The LOS for particular locations is given a letter designation from A to F, with A representing free movement of vehicles and F representing heavy congestion and excessive delay. Definitions for the various levels of service are given in Table 4-4.

The analysis included in the 1998 Transportation Plan revealed that five of ten *unsignalized* intersections (see italics) provided less than a C level of service in all directions of traffic flow, causing primarily long delays. The analysis of *signalized* intersections showed that five of 17 intersections (see italics) provided less than a C overall level of service, causing long delays, stacking, and oversaturation. (Oversaturation occurs when the volume to capacity ratio exceeds 1.2, causing the LOS to be distorted and lose relevant meaning.) The following lists summarize the intersections reviewed in the Plan and express their improvement status.

Unsignalized Intersections Reviewed in the 1998 Transportation Plan (Italics denote <C LOS.)

- Linglestown Road – Parkway East
- *Linglestown Road – Mountain Road* — planned improvement
- Linglestown Road – Colonial Club Road
- Nyes Road – Union Deposit Road — planned improvements
- Nyes Road – Locust Lane — planned improvement
- Nyes Road – Devonshire Heights Road — planned improvement
- *Nyes Road –Jonestown Road* — improvement completed
- *Old Union Deposit Road – Scenery Drive*
- *Colonial Road – Earl Drive*
- *Mountain Road – Blue Ridge Avenue*

Signalized Intersections Reviewed in the 1998 Transportation Plan (Italics denote <C LOS.)

- *Rt. 22 – Colonial Road*
- Rt. 22 – Miller Road
- *Rt. 22 – Prince Street/Houcks Road*
- *Rt. 22 – Mountain Road*
- Rt. 22 – Blue Ribbon Avenue
- Rt. 22 – Johnson Street
- Colonial Road – Valley Road
- Colonial Road – Crums Mill Road — planned improvement
- Colonial Road – Linglestown Road
- *Union Deposit Road – I-83 (southbound ramps)*
- Union Deposit Road – I-83 (northbound ramps)
- *Union Deposit Road – East Park Drive*
- Union Deposit Road – Rutherford Road – improvement completed
- Locust Lane – Houcks Road/Dartmouth Street
- Locust Lane – Prince Street

- Jonestown Road – Mountain Road

Traffic volumes should be monitored periodically to evaluate needed changes in timing and phasing or lane assignments.

Table 4-4
Level of Service Definitions

Level of Service	Roadway Segment	Signalized Intersection	Unsignalized Intersection
A	Primarily free-flow operations. Vehicles are almost completely unimpeded.	Very low delay (<5.0 sec/veh). Most vehicles do not stop at all.	Delay is less than 5.0 sec/veh. Little to no delay to minor street traffic.
B	Reasonable free=flow. Ability to maneuver is only slightly restricted.	Delay lies in the range of 5.1 to 15.0 sec/veh. More Vehicles stop than for LOS A.	Delay lies in the range of 5.1 to 10.0 sec/veh. Short delays to minor street traffic.
C	Speeds still at or near free-flow speed. Freedom to maneuver is noticeably restricted.	Delay lies in the rang of 15.1 to 25.0 sec/veh. Individual cycle failures may begin to appear. The number of vehicles stopping is significant.	Delay lies in the range of 10.1 to 20.0 sec/veh. Average delays to minor street traffic.
D	Speeds begin to decline slightly. Minor incidents can be expected to create queuing.	Delay lies in the range of 25.1 to 40.0 sec/veh. Influence of congestion becomes more noticeable. Individual cycle failures are noticeable.	Delay lies in the range of 20.1 to 30.0 sec/veh. Long delays to minor traffic.
E	At capacity. There are virtually no useable gaps in the traffic stream.	Delay lies in the range of 40.1 to 60.0 sec/veh. Considered to be the limit of acceptable delay. Individual cycle failures are frequent.	Delay lies in the range of 30.1 to 45.0 sec/veh. Very long delays to minor traffic.
F	Breakdown in vehicular flow. Condition exists in queues behind breakdown points.	Delay lies in excess of 60.0 sec/veh . Arrival flow rates exceed capacity. Considered to be unacceptable.	Delay exceeds 45.0 sec/veh/ Demand volume exceeds capacity. Extreme delays in queuing.

Source: Lower Paxton Township.

G. Roadway Conditions and Geometric Deficiencies

Roadway conditions refer to the physical properties and structural integrity of the roadway. Several of the Township roads are in need of improvements to facilitate increased safety, promote growth and accommodate the growing needs of the community. Improvements to existing, established roadways generally consist of pavement overlays, pavement widening, shoulder construction and/or widening, and drainage improvements.

Geometric deficiencies refer to the horizontal and vertical alignment or design of the roadway. Poor alignment is a safety hazard and can deter development in surrounding areas. Roadways not in conformance with design and/or construction standards can cause the need for

excessive maintenance or repair of rutted roadway and off-road repair for accidents or instances of vehicles leaving the road corridor.

The 1998 Transportation Plan included a detailed analysis of deficiencies in the Township. Existing roadway network deficiencies were typically intersection or geometric inadequacies, while projected future deficiencies had primarily intersection or LOS problems. Deficiencies of both state and Township roads that met the qualifications for improvements were outlined in the Transportation Plan with their respective funding sources and are summarized and updated in Table 4-7. Proposed improvements included eleven state, ten township, and nine township/private projects. Completed projects from the plan are listed separately in Table 4-6.

Table 4-6
Completed Transportation Planning Projects

Completed Project	Funding	Year	Comments
Widen Union Deposit Road btw I-83 and Rutherford Road, including signal improvements at the Rutherford Road intersection	State/Federal	2000-2001	
Construct a connector road from Devonshire Road to North Highlands Drive	Private	2001	in conjuction with Amber Fields (previously Christian Fields) development
Install a traffic signal at Nyes Road and Jonestown Road	Local	2001	
Realign portions of Fairmont Drive, Devonshire Road, and Patton Road	Local	2001 (?)	Portion of Devonshire Road realigned during construction of the Paxton Towne Centre
Signalized the intersections of Linglestown Road with Forest Hills Drive and Dover Road	Local	2001	

Source: Lower Paxton Township.

Table 4-7			
Transportation Plan Summary*			
Project	**Funding**	**1991 Cost (estimate)**	**Status**
Corridor study for Nyes Road	State/Federal	n/a	
Realign Union Deposit at Nyes Road	State/Federal	n/a	Let for bid; anticipate completion in 2004
Realign Union Deposit btw Fairmont Drive and Conway Road	State/Federal	n/a	Let for bid; anticipate completion in 2004
Realign Linglestown Road btw Balthaser Street and Sarah Street	State/Federal	n/a	
Realign mountain Road btw Linglestown Road and I-81, including correction of over-vertical alignments	State/Federal	n/a	
Continue Continental Drive from Susquehanna Township to Blue Mountain Parkway	Local	2,500,000	Portion completed with Estates of Forest Hills Development
Construct an east-west collector from Lancer Street to Devonshire Road	Local	1,300,000	
Construct a north-south collector from Apsen Drive, north through the proposed Lancer Street extension, through Devonshire Road to Route 22 at Commons Drive	Local	1,250,000	
Extend Deaven Road north through Jonestown Road to Route 22 at Shannon Drive	Local	400,000	
Realign portions of Fairmont Drive, Devonshire Road, and Patton Road	Local	600,000	Portion of Devonshire Road realigned during construction of the Paxton Towne Centre
Reconstruct Crums Mill Road from McIntosh Road to Laroby Road	Local	450,000	
Extend Heatherfield Way east to Deaven Road at Joyce Road	Private	310,000	
Realign Nyes Road and South Blue Ribbon Avenue to create one intersection with Jonestown Road	Private	400,000	
Extend Deaven Road south from Hunters Run to Red Top Road a the Copperstone Road intersection	Private	280,000	Eliminated by approval of Iron Estates.
Reconstruct and extend Rutherford Road from Union Deposit Road south to Spring Creek Road	Private	550,000	
Extend Woodley Drive north through the proposed Lancer Street to Wilshire Road	Private	600,000	

Table 4-7 (continued)			
Transportation Plan Summary*			
Project	**Funding**	**1991 Cost (estimate)**	**Status**
Extend Pheasant Ridge Drive south to Valley View Road	Private	675,000	
Extend Nantucket Road west to Crums Mills Road at Commerce Drive	Private	470,000	
Construct a north-south road to connect the proposed Nantucket Road extension with Crums Mill Road	Private	1,300,000	
Install a traffic signal at Linglestown Road and Mountain Road	State/Federal	n/a	Township, Linglestown Committee and PENNDOT have begun preliminary engineering studies
Install a traffic signal at Nyes Road and Locust Lane	State/Federal	n/a	Target project for 2005
Concurrent with realignment of Union Deposit Road at Nyes Road, signalize the intersection	State/Federal	n/a	Let for bid; anticipate completion in 2004
Signalize the intersection of Colonial Road and Earl Drive	Local	250,000	
Signalize the intersections of Linglestown Road with Crums Mill Road, Forest Hills Drive, and Patton Road	Local	165,000	Signal installed at the intersection of Linglestown Road and Forest Hills Drive, 2001
Signalize the intersections of Nyes Road with Devonshire Heights and Red Top Roads	Local	95,000	
Source: Lower Paxton Township			

** This summary was revised to reflect the current status of remaining projects included in the 1998 Transportation Plan Update. Completed projects from the 1998 Transportation Update are listed in Table 4-6.*
n/a = not available

The following is a list of deficiencies that fell short of qualifications for capacity and safety improvements but were nonetheless included in the 1998 Transportation Plan. This list is included here as it supports various concerns expressed by Township residents in the CPU meetings held in the fall of 2001.

- The Township lacks a centrally located, north-south connector road (in addition to North Mountain Road and Colonial Road).
- Four-way stop conditions, such as the intersection of North Houcks and Devonshire Roads, are operationally difficult for the public.
- Locations with inadequate sight distances and poor geometry are:
    - Locust Lane, between Arlington Avenue and Franklin Street
    - Intersection of Copperstone Road and Red Top Road
    - Intersection of Devonshire Road and Hampton Court Road
    - Fairmont Drive (multiple 90 degree turns)
    - Colonial Road and side roads from Earl Drive to Linglestown Road
- Crums Mill Road, because of its proximity to new areas of development, could become a critical corridor in the future.
- Many shoulders on secondary roads are deficient and are not conducive to pedestrians or bicycles.
- Defined pedestrian/bicycle access routes throughout the Township are needed.

H. Crash/Safety Analysis

The Lower Paxton police department maintains statistics on the rate of occurrence and location of crashes in the Township. A summary of crash statistics for the past three years is shown in Table 4-8. Reportable incidents are defined as those that involve injury or death of any person, and/or damage to any vehicle to the extent that it cannot be driven under its own power in its customary manner without further damage or hazard to the vehicle, other traffic elements, or the roadway, and therefore requires towing. Non-reportable crash incidents are defined as any other crash, usually fender benders, that occur on a highway and do not involve injury or towing.

Overall, the history shows a decline in the total number of crash incidents in the Township, however this reflects a significant decline in the number of non-reportable crashes. Reportable incidents have steadily declined at nearly 4 percent of the past three years. Similarly, injury incidents have also decreased.

Table 4-8
Lower Paxton Township Crash History/Summary

Crash Type	1999	2000	2001
Reportable	449	432	417
Non-reportable	778	785	461
Injuries	299	265	257
Fatalities	0	2	1
Total Crashed	1227	1217	878

Source: Lower Paxton Township

A summary of the ten most crash prone intersections for each of the past three years is shown in Table 4-9. Generally, incidents are declining for the intersections shown. The intersection of Union Deposit Road and I-83 has consistently been problematic for drivers over the past three years, though the incident rate for this intersection in fact reflects two intersections, northbound I-83 and southbound I-83. Three intersections, namely Jonestown Road/Miller Road,

Mountain Road/Jonestown Road, and Union Deposit Road/East Park Drive, have not experienced consistent incident decline.

Table 4-9
Lower Paxton Township High Crash Intersections, Summary

Intersection	1999	2000	2001
Colonial Road & Elmerton Avenue	20		13
Fairmont Drive & Barley Corn Square		14	
Jonestown Road & Colonial Road	22	15	13
Jonestown Road & Commons Drive		14	
Jonestown Road & Franklin Street	18	15	12
Jonestown Road & Houcks Road		17	16
Jonestown Road & Miller Road	19	14	23
Jonestown Road & Parkchester Road	16		
Linglestown Road & Colonial Road	16		12
Mountain Road & Jonestown Road	30	32	22
Union Deposit Road & Briarsdale Road		14	14
Union Deposit Road & East Park Drive	27	34	20
Union Deposit Road & I-83	52	47	30
Union Deposit Road & Scenery	16		

Source: Lower Paxton Township

I. Traffic Calming Initiatives

As a result of traffic speeds and volumes in residential neighborhoods, residents of Lower Paxton Township have pursued traffic calming initiatives. The Township has installed speed tables at four locations: Wimbledon Drive, Catherine Street, Abbey Lane and Forest Lane. The speed tables on Wimbledon Drive and Catherine Street were installed in 2000. The tables on Wimbledon were installed as part of the land development agreement for the Estates of Forest Hills. The Catherine Street tables were installed by the Township in response to concerns from residents for speed and volume and concerns associated with the student drop off location along Catherine Street. Speed studies were completed for the Wimbledon Drive and Catherine Street sites before and after installation and revealed an average speed reduction of 3 to 4 mph. The speed tables located at Abbey Lane and Forest Lane were installed in 2001.

Other traffic calming devices have been installed as part of the Estates of Forest Hills development: a traffic circle at the intersection of Abbey Lane and Copperfield Drive and curb extensions on Forest Lane.

With the potential connection of Continental Drive between Forest Hills and Centennial Acres, local residents have expressed concerned for traffic safety on this segment. The developers have agreed to provide $28,000 towards the installation of calming along Continental Drive during its construction. Boulevard design and raised intersections are the primary devices under consideration.

Additionally, curb extensions have been installed along Dartmouth Street just south of Locust Lane. This was completed as part of a curb and sidewalk project along the west side of the roadway. The curb extensions delineate parking areas for residents. Though a post-completion study has not yet been performed, there have been no speeding complaints since the project was completed.

The Township has initiated a traffic calming policy for existing township roadways. A draft policy has been prepared, which exceeds existing PENNDOT guidelines for traffic calming by warranting the installation of devices where the PENNDOT guidelines only prioritize installations.

J. Walking and Biking Trails

As indicated in Section E, traffic volumes are projected to increase throughout Lower Paxton Township, resulting in increased fuel consumption, vehicle emissions, and driver delays. While roadway infrastructure improvements can facilitate mobility to a certain extent, walking and biking trails, when properly designed and maintained, can provide a transportation alternative. Transportation alternatives can play a daily role in the lives of parents with children who need transportation to educational and recreational facilities within and beyond their neighborhood, as well as to the general public in regards to recreational activities. Improvements to the overall transportation system, including pedestrian and bicycle facilities, will reduce noise pollution and improve air quality, traffic flow, and overall quality of life.

Lower Paxton Township has limited pedestrian and bicycle facilities. While the Township's Subdivision and Land Development Ordinance prescribes sidewalks based on roadway classification and development density, the requirement of the ordinance has been waived for many residential developments, resulting in a community of many neighborhoods that are inaccessible to pedestrians. The ordinance offers no guidelines in regards to the development of bike paths and therefore few, if any, bike paths have been constructed.

Residents who attended the community planning unit meetings consistently expressed that one of the things they liked least about the Township was the lack of pedestrian and/or bicycle paths. They noted this both within neighborhoods as well as along common routes of travel within the community.

HATS' 1997 Bicycle/Pedestrian Transportation Plan recognized that a majority of travel by bicyclists occurs on existing roadways. The following Township roadways were identified for inclusion as part of an overall, regional bicycle/pedestrian network:

- PA 39/Linglestown Road
- Mountain Road
- Blue Ridge Avenue
- Nyes Road
- Union Deposit Road
- Newside Road
- Page Road
- Spring Creek Road
- Rutherford Road
- Houcks Road

Portions of U.S. 22/Jonestown Road were also included as part of the regional bicycle/pedestrian network although HATS' Bicycle/Pedestrian Advisory Committee conceded that improvements to make this principal arterial more bicycle/pedestrian friendly would be difficult.

The inclusion of these roadways was not intended to serve as an MPO-recommended bicycle-pedestrian route guide, but as guidance to the Dauphin County Maintenance Manager and PENNDOT District 8-0 in general as it moves forward with its highway betterment and maintenance programs. These links in the highway network should be targeted for improved accommodation of bicyclist and pedestrian needs as projects arise.

K. Public Transportation

Public transportation reduces congestion, provides a mode of transportation for those without automobiles, relieves stress on roadways, bridges, and intersections, reduces the demand for expensive infrastructure upgrades, increases air quality, and reduces health risks. Commonly known as Capital Area Transit (CAT), the Cumberland-Dauphin-Harrisburg Transit Authority provides mass transit services for residents of the capital region. A seven-member board of directors representing the counties of Cumberland and Dauphin and the City of Harrisburg governs CAT.

CAT operates six bus routes and manages four park and ride sites in Lower Paxton Township. These are shown in Figure 4-3. The bus routes, listed below, typically follow east-west corridors. Ridership for these routes is listed in Table 4-10.

- No. 12 Colonial Park/Colonial Commons
- No. 12 Gateway/Linglestown
- No. 12 Springford
- No. 15 Union Deposit
- No. 16 Union Deposit/Pennswood
- No. 17 Union Deposit/Four Seasons

Park and ride sites are found at the following locations:

- North Mountain Road and Blue Grass Avenue
- K-mart/Dick's
- The Point Mall
- Colonial Park Mall

Table 4-10
CAT's Bus Ridership Trends in Lower Paxton Township

Route #	Name	FY00 Passengers	FY99 Passengers	% Change FY00 vs. FY99
12	State & Walnut Streets	311,300	307,704	(1.2)
12A*	Wildwood/Linglestown	3,036	3,113	(2.5)
15/16/17	Union Deposit Road	101,919	101,205	(0.7)
CAT Total	All regional routes	2,173,168	2,154,075	(0.9)

*Route 12A was pulled in March 2001 due to low ridership

In 1996, CAT began implementing the recommendations of its Transit Alternatives Study, which included some restructuring of existing routes, as well as the addition of new commuter routes (16 and 17) to the Union Deposit area, including the Point Mall and Twin Lakes. CAT has made a few other adjustments to its service to the Township, including the extension of Route 15, which now serves Community General Osteopathic Hospital and The Point Mall.

In November 2001, CAT bolstered its service to these areas by extending Route 15's service into the evening hours (as late as 9:20). This extension of service accommodates service sector employees and shoppers who frequent these areas. With evening transit service to commercial areas and links to downtown Harrisburg, the Township comparatively has the best evening service in CAT's system. The authority does not anticipate any near-term changes to its service to the Township.

CAT services also provide connections to Harrisburg International Airport, Amtrak, and Trailways/Greyhound terminals at the Harrisburg Transportation Center.

L. Rail Transportation

Neither freight nor passenger rail service is physically located in Lower Paxton Township, however services are available within the Greater Harrisburg Area. Norfolk Southern envisioned the Harrisburg region as a major freight center, particularly for intermodal traffic, which transports truck trailers on rail cars for distribution to various markets. The Harrisburg area in general is the epicenter of all of Norfolk Southern's Northeast operations, with its confluence of train operations, huge distribution market and available land. Of the $340 million that Norfolk Southern has invested in its facilities in the Commonwealth, $47 million has been allocated to the Harrisburg region. Norfolk Southern operates two yards, facilitating freight traffic in both east-west and north-south routes through the state. The Enola Yard is located in East Pennsboro Township on the West Shore and the Rutherford Yard is located just south of Lower Paxton Township adjacent to Derry Street in Swatara Township.

Amtrak provides rail passenger service to Harrisburg area residents through its Pennsylvanian, Three Rivers, and Keystone services. Residents have access to the Amtrak station (Harrisburg Transportation Center) located at 4th and Chestnut Streets in downtown Harrisburg via personal automobiles and CAT buses. From this station, passengers can travel to destinations throughout the continental United States.

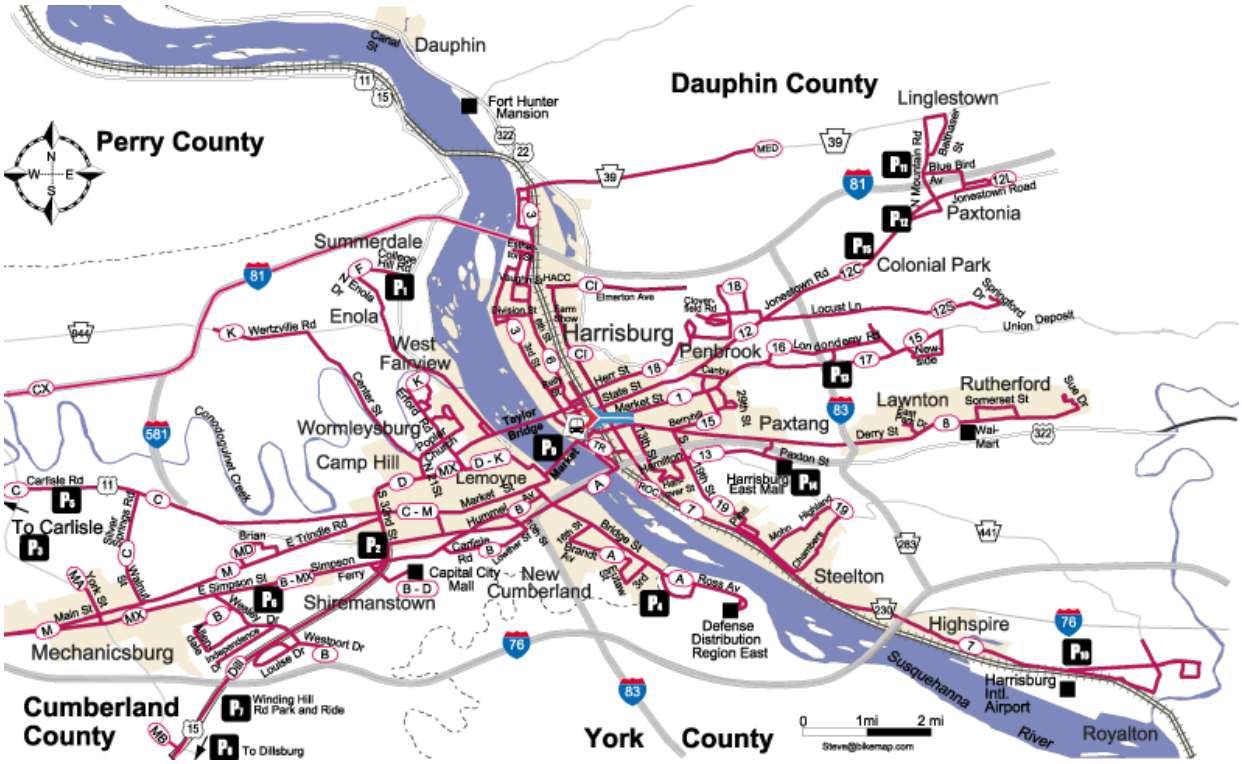


Figure 4-3.
Source: http://www.cattransit.com

M. Aviation Facilities

While there are no aviation facilities in Lower Paxton Township, residents and employees of businesses within the Township have ready access to two regional airports. The Harrisburg International Airport (HIA) is located south of the Township in Middletown and accessible via I-83 and PA 283. HIA is classified as a commercial airport, providing scheduled air passenger service for the Greater Harrisburg region.

The Capital City Airport is located on Harrisburg's West Shore in New Cumberland. The Capital City Airport is classified as a general aviation airport and is accessible via I-83 and Bridge Street. Private companies operate additional charter flights for business executives and leisure from these two regional airport facilities. These airports are crucial to business and industry, as well as future pilots, pleasure flyers and other groups that rely on airport facilities.

N. Public Comments

While traffic volumes are strictly quantitative, residents of Lower Paxton Township perceive traffic volumes as problematic. Those who attended the fall 2001 CPU meetings valued traffic, as a general condition and in specific locations, as the least liked feature of the Township. Traffic along major roadways, such as the Interstates, U.S 22, and Union Deposit Road, was mentioned by participants from all but one (the Northwest Quadrant) CPU; several intersections were also identified as difficult to negotiate. Future changes in traffic volumes, as well as improvements designed to improve traffic flow, will continue to influence these perceptions.

Trends and Issues

Lower Paxton Township has a large and complex transportation network. This chapter reviews the existing network, recent and planned improvements, and problem areas as identified in the Township 1998 Transportation Plan. Based upon this information, the following trends and issues have been identified.

- Increased residential and commercial development have increased traffic volumes and amplified traffic problems.

- A reliably efficient transportation network would typically be comprised of an increasing number of roadways or improvements in each of the roadway classifications, from interstate to local roads respectively.

- Improvements to the transportation network are implemented by state/federal, local and private sources. State sources are available through such mechanisms as the Twelve Year Program and funding programs such as the Transportation Enhancements Program (TEA-21).

- Lower Paxton Township has developed a list of improvements to address problem areas. While this list is neither prioritized nor programmed for the long-term, projects from the list have been completed since 1998.

- Increased development will likely increase traffic volumes in the Township, particularly along major roadways.

- The intersection analysis completed for the 1998 Transportation Plan resulted in six planned improvements and one completed improvement project. One additional project is underway.

- A number of improvement projects, as well as deficiencies that fall short of the qualifications for improvements, were outlined in the 1998 Transportation Plan. It is anticipated that transportation funding sources from all levels of government will continue to fall short of meeting project maintenance/improvement needs.

- Safe pedestrian and bicycle paths are lacking throughout the Township. While sidewalk requirement for new developments facilitate pedestrian traffic within a neighborhood, a more comprehensive local plan for non-motorized traffic is needed.

- While CAT offers multiple east-west bus routes through Lower Paxton Township, no north-south bus service within the Township is provided.

- Park and ride locations are found in the northern and western portions of the Township, however no such facilities are operated in the rapidly developing central and southeast regions.

- CAT ridership in general has declined for years, yet the Authority's most successful routes (e.g. Union Deposit, Colonial Park, etc.) are in Lower Paxton Township.

- As a primary retail center for the Harrisburg region, the Township hosts a number of major traffic generators. The Colonial Park Mall, Colonial Commons and the recent opening of Paxton Towne Centre provide over 1.75 million square feet combined of retail space and are significant traffic generators.

- A greater reliance on single occupant vehicle travel will result in corresponding increases in congestion. (Screen lines from CAT's Transit Alternatives analysis reveal that traffic volumes should increase by 19 percent between 1990 and the year 2020 on the U.S. 22 Corridor.)

- There has been major growth in the development of warehousing and logistical-type operations in the greater Harrisburg region. This is being driven by just in time delivery practices, containerization, smaller shipments of goods and a greater reliance on motor carriers in general.

Introduction

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and other physical evidence of human activities considered important to a society. A wealth of cultural resources may be found throughout Lower Paxton Township, though few are well understood by the community. Knowledge of these resources increases our understanding and appreciation of the local heritage and improves the Township's overall quality of life. This chapter will provide an inventory of the various cultural resources located within the Township and will give particular attention to local historic preservation efforts.

A. Federal and State Regulations

Federal and state historic preservation laws require federal and state agencies to consider the effects of their actions on all historic and prehistoric sites, districts, buildings, and structures eligible for inclusion in the National Register of Historic Places. According to the National Park Service, "The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources." Federal legal mandates include Section 106 of the National Historic Preservation Act of 1966, Executive Order 11593, and the regulations of the Advisory Council on Historic Preservation. Pennsylvania's legal mandates include the Environmental Right Amendment, Article 1, Section 27 of the Pennsylvania Constitution, and the Pennsylvania Historic Preservation Act of 1978.

The Pennsylvania Historical and Museum Commission's (PHMC) Bureau for Historic Preservation develops, coordinates and administers the program to identify, protect and enhance buildings, structures, districts and neighborhoods of historic and architectural significance in public and private ownership throughout the commonwealth. The Bureau provides federally mandated professional staff to support the activities of the State Historic Preservation Officer to receive federal historic preservation funds and implement the National Historic Preservation Program. The Bureau also administers PHMC grants for museums and local history projects.

According to the PHMC, there are no properties within Lower Paxton Township that are listed on the National Register of Historic Places. However, three sites are eligible for nomination to the National Register (Table 5-1).

Table 5-1
National Register: Eligible Properties in Lower Paxton Township, PA

Historic Site Name	Address	Eligible	Key
(unnamed)	Conway Rd. T-371	3/8/1996	104827
Saint Thomas Historic District	Linglestown Rd. Between Raspberry & Blackberry Sts.	6/16/1993	79140
School House	Southside Of Union Deposit Rd.	11/16/1993	101957

Source: PHMC, Bureau of Historic Preservation, October 2001.

B. Local Historic Preservation Efforts

The Historical Society of Dauphin County (HSDC) located at 219 South Front Street in Harrisburg, Pennsylvania, acts as a records depository for both public and private records related to those who live and work in Dauphin County. The staff assists in records and genealogical research and also maintains the John Harris/Simon Cameron Mansion on Front Street. The

Historical Society has numerous resources for the history of the region as a whole, however only a single volume, *Lower Paxton Township Pennsylvania: 1767-1967*, published by the Township, summarizes the known attributes of the Township.

During the late 1970s, the Township established a historic architectural review board for the Village of Linglestown in order to preserve the architectural character of the village through regulation and review. The board evaluated improvements and renovation projects proposed by village residents. In the early 1980s, residents requested that the Township abolish the historic review board, claiming that the regulations were too restrictive. The Township complied and the board was abolished.

With renewed energy and a more focused approach, the Village of Linglestown has recently taken steps to preserve its resources within a larger community improvement effort. Out of concern for the health, safety, and character of this small community, residents developed *The Village of Linglestown Action Plan (2000)* to prioritize desired capital improvements and development characteristics. The Plan recommends exploration of the village as a historic district, which has specific requirements for designation, and of agricultural preservation of the surrounding landscape. In addition, it refers to "village character," which though not defined in the report, reveals a concern for the social network and aesthetics in future development of the community and specifically recognizes local architecture as a contributor.

A municipal–level historical society was recently organized. The Lower Paxton Historical Society was formed in 2003 by citizens interested in preserving the Township's historic resources.

C. Historical Markers

The PHMC's historical marker program, which was established in 1946, represents one of the Commonwealth's oldest and most popular historic preservation programs. The easily identifiable blue and gold markers highlight significant people, places, and events in the state and nation's history. According to the PHMC, there are approximately 1,800 markers placed throughout the state and of this total, over 73 markers are located within Dauphin County. Several of these are located within Lower Paxton Township and identify the Township's historical past. These are listed in Table 5-2.

In addition to these commemorative sites recognized by the state, Lower Paxton Township, in collaboration with East and West Hanover Townships, remembers 39 local residents who gave their lives in the Civil War through a monument at the Willow Grove Cemetery. The monument is currently undergoing a two-phase rehabilitation and preservation project. The monument remains an important part of the community as noted by members of the planning advisory committee in the visual preference survey.

Table 5-2				
Historical Markers in Lower Paxton Township				
Marker Name	**Date Dedicated**	**Location**	**Category**	**Marker Text**
Barnett's Fort	12/22/47	PA 39, 1.3 miles E of Linglestown	Military, Native American	North at the head of Beaver Creek, Joseph Barnett's log house was a frontier refuge in 1756-63 against Indians raiding the frontier. His son William was stolen by Indians in 1756 and not recovered until 1763 by Col. Henry Bouquet.
Blue Mountain Forts	12/3/47	US 22, NE of Harrisburg	Native American	(same as above)
Harrisburg	9/23/46	US 22 E of Harrisburg		(same as above)
Patton's Fort	12/22/47	PA 39, 1.4 miles W of Linglestown	Military, Native American	Nearby stood Patton's Fort, a station of the Paxton Rangers, who defended the gaps and farmsteads along the Blue Mountains from the Susquehanna River to Swatara Creek near Indiantown against Indian raids in 1756 to 1763.
Paxton Riflemen	12/24/47	US 22, 5.7 miles NE of Harrisburg	Military	Under Capt. Matthew Smith and Lt. Michael Simpson, a company of riflemen from Paxton Township marched to Quebec, Canada, to serve with Montgomery in the attack on that city on December 31, 1775.

** All Historical Markers are located in Dauphin County and are roadside markers.*

D. Additional Historical Sites

While only two sites in Lower Paxton Township meet the requirements for federal and state designation, additional sites throughout the Township have significant historical and cultural value. The Village of Linglestown hosts a number of structures that represent its development over the past two hundred years. Several churches built prior to the 20th century still stand within the rural landscape. Residential districts, such as old Colonial Park and Paxtonia, mark architectural styles prevalent at the time of their construction. Even where structures no longer stand, or have been considerably modified from their period of significance, local residents are still familiar with the meaning of these sites to their local community.

This information about the historical significance of local sites and structures is currently known only anecdotally. No architectural survey or database exists that records the known details of these resources. Some information likely exists as part of the tax records, though property owners, particularly those who maintain homes of family heritage, are also an important resource.

E. Cultural Landscape Resources

While we can look at resources from an ecological perspective, we can also see them as part of our culture. In Lower Paxton Township, the backdrop of the forested mountain, the winding two lane roads through agricultural fields and along stream corridors, the rolling topography all contribute to the atmosphere of a suburbanizing community on the rural fringe. If this atmosphere is to continue, these assets will need to be protected. Development can place pressure and produce swift change to rural communities without policy to protect desirable features and characteristics. Local preservation support for the John Goodway sycamore tree is one example of community awareness of the cultural landscape.

In addition to the natural resources mentioned above, constructed resources, such as local architecture and early development patterns contribute to the character of the local landscape. Porch designs, window placement, and rooflines, particularly those prior to WWII, can be unique to a region or locale. With some analysis, the historic patterns that have created and influenced the development of the community can be revealed, and if so desired, written into guidelines for future development for continuation of these unique local aesthetic features.

Finally, there are resources or at least reasons that Lower Paxton residents value the place they live. A number of these were expressed throughout the planning process as it involved numerous public meetings and opportunities for expression.

Residents described Lower Paxton, or at least parts of it, as a rural community and cited its proximity to Harrisburg and cultural events as reasons to like the Township. While living in a country setting where farming is still active, wooded areas provide habitat and indication of seasonal changes, and a quietness persists, residents can still enjoy the benefits of the city.

Diversity of retail services was also noted among the likable characteristics of the Township. Residents appreciate the many shopping opportunities and the small town feel that places such as specialty shops contribute.

In the more suburban areas of the Township, there are established neighborhoods that residents value. These provide social networks and a sense of belonging. They also have mature landscapes, including mature trees. In addition, many of the older places of worship that offer community programs and services are found within these neighborhoods.

While parks and recreation constitute an individual planning component of the comprehensive plan, neighborhood parks and open spaces were among the characteristics listed under “things I like most about Lower Paxton Township.” These provide play spaces, fields and courts for organized and pick-up athletics, places to observe nature and wildlife, and walking areas for residents of all ages. The fact that there are numerous parks distributed throughout the Township means that these opportunities can be found frequently and not far from home. The Township’s parks and recreational resources are further discussed in Chapter 6, Community Facilities and Services Profile.

F. Public Comments

Few responses given during the Fall 2001 CPU meetings related directly to cultural resources. Respondents did list the quaintness of Linglestown and the rural agricultural landscape as community assets, indirectly expressing value for local heritage. More significantly, participants listed the Township's proximity to culture and cultural activities (outside the Township) among its most-liked features and an absence of cultural activities and places among its least-liked features. Additionally, respondents listed the lack of a Township center.

Trends and Issues

- In addition to the Township's development history that has transformed many agricultural lands into residential, commercial, and industrial sites, its cultural history has transformed the Township from a community of farmers to a diverse network of residents, community and social organizations, businesses, and service providers. This transformation has not been analyzed, nor has a recent detailed community development analysis been completed.

- None of Lower Paxton Township's historic properties are listed on the National Register of Historic Places. Three sites are currently eligible for nomination.

- The Lower Paxton Historical Society was formed in 2003 by citizens interested in preserving the Township's historic resources.

- There are five historic markers located in Lower Paxton Township.

- While there are strict criteria for National Register eligibility, additional sites and structures of local significance exist within Lower Paxton Township. These are currently uncataloged.

- Many characteristics of Lower Paxton Township contribute to its unique quality of life. If this quality of life is to continue, these features must be identified and conserved as the Township continues to develop its services and resources.

Introduction

This chapter provides a review of existing conditions and issues associated with community facilities and services within Lower Paxton Township. This review is necessary to identify current inadequacies and identify future needs. As one of the most liked features of the Township, parks and recreational facilities will be highlighted in a subsection at the end of this chapter.

Many of Lower Paxton Township's community facilities and services are managed on a daily basis by Township staff. The Township staff works with a number of boards and commissions to meet the needs of Township residents. Due to the size and complexity of the Township, some community facilities and services (e.g. schools and telecommunications) are managed by other public or private entities.

A. Public Safety

Police

Police protection is a service required for Township residents, businesses, and visitors. The traditional role of the police involves three primary 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, while community service is the function most likely to occupy a significant portion of an officer's time. Community service functions are activities not necessarily related to criminal acts, but rather include such tasks as traffic control, education, and other public services.

The Lower Paxton Township Police Department provides 24-hour, Township-wide police services to its residents and businesses. The Lower Paxton Township Police Department is housed entirely within the Township's Francis R. Mummert Municipal Building located at 75 South Houcks Road.

The Police Chief is the department's commanding officer and the Township's Public Safety Director. The department currently includes 46 sworn officers and five civilian employees, including lieutenants, sergeants, corporals, officers, and detectives. Civilian employees provide administrative support to the police units. Of the 49 sworn officers, 40 are uniformed and nine are plain clothed detectives. Assignments range from patrol, traffic safety, and criminal investigation, juvenile investigation to crime prevention. The Community Policing Unit provides a number of preventative safety programs to the community.

In addition to these local service units, the police force participates in two specialized county police efforts, the Dauphin County Drug Task Force and the Dauphin County Crisis Response Team. Township police detectives serve as representatives to the Drug Task Force. The Task Force works cooperatively with the U.S. Drug Enforcement Agency (DEA), the Federal Bureau of Investigations (FBI), and the Attorney General's Office and the Harrisburg Police. Township officers are also members of the County Crisis Response Team and have

completed several specialized training sessions that prepare them for high-risk arrest situations and hostage situations.

Crime and incident activity trends as reported by the Lower Paxton Township Police Department show that the Township's criminal incidents have been decreasing in recent years and appear to be stabilizing. An increase in the number of retail and commercial areas has coincided with increased calls for service and traffic related incidents.

The Lower Paxton Township Police Department currently operates nineteen vehicles, including one Crisis Response van, one crime scene van, one motorcycle, and fifteen cars and sport-utility vehicle (SUV). Emergency dispatching is handled through the Dauphin County Enhanced 911 (E-911) Communications Center.

The department's highest crime incident rates are for property crimes (e.g. automobile break-ins) and retail thefts. Both types of crime, while typically not considered serious or violent, are time-consuming for the department to investigate. Traffic related service calls are also increasing and a key concern of the department. Changes in Township demographics, i.e., increasing youth populations, may influence future juvenile crime rates.

Fire

Fire protection services in Lower Paxton Township are provided by three primary response agencies that include the Colonial Park Fire Company (Station 33), Paxtonia Fire Company (Station 34), and Linglestown Fire Company (Station 35). While each company has a primary response area, all three companies supply mutual aid throughout the Township and to surrounding communities. Emergency dispatching is handled through the Dauphin County Enhanced 911 (E-911) Communications Center.

The delivery of fire protection services in Lower Paxton Township is highly dependent upon manpower. Each fire company is staffed entirely by volunteer personnel. Fortunately, volunteerism is steady or increasing in all three companies, a marked contrast to statewide trends of decreased volunteer participation. A real estate tax levy, paid by residents to the Township, for fire and emergency services provides the companies with funding for administrative and facility expenses.

The Colonial Park Fire Company is currently housed on Fire House Lane adjacent to the Central Dauphin Junior High School and provides primary response service to the southwest portion of the Township. Since the sale of its former Jonestown Road site, the Colonial Park Fire Company has planned construction of a new facility on South Houcks Road. Construction is currently underway with anticipated completion in 2004. Upon completion and relocation of the company, the Fire House Lane facility will be sold.

The Linglestown Fire Company is located at 5901 Linglestown Road in Linglestown and is responsible for providing primary response services to the northern portion of the Township. The Linglestown Fire Company specializes in performing water tanker operations and provides

aerial support, a mask service unit, a Rapid Intervention Team (RIT) team and fire police services for the entire community.

Located at 125 South Johnson Street in the Paxtonia area of the Township, the Paxtonia Fire Company serves as the primary response agency for the southeast portion of the Township.

Each of the three fire companies is supervised by a fire chief, who directs the day-to-day administrative, training, and planning activities of the company. In addition to the fire chiefs, the Lower Paxton Township Fire Marshal is responsible for fire scene investigations and data compilation of fire and emergency response services across the Township.

Fire Company response trends as indicated by the Lower Paxton Fire Marshal's Report show that the Township's fire incidents have been steadily increasing, particularly for the Linglestown and Colonial Park Companies. This may be attributable to the growth in development that has occurred in these areas over the past fifteen years.

Equipment

The service condition of fire fighting apparatus is relevant to the assessment of services in that the service life of fire-fighting equipment is advised by the National Fire Protection Association (NFPA). As shown in Table 6-1, the Township's fire companies own and operate a variety of fire fighting apparatus. The NFPA Standard 1201, entitled *Standard on Developing Fire Protection Services for the Public* (1994), includes several sections in "Chapter 17: Equipment and Buildings" that addresses the procurement and maintenance of fire apparatus. These sections require (a) appropriate inventory control of all fire apparatus and equipment owned and operated by a fire department; (b) implementation of appropriate forecasting methods to project apparatus service-life expectancies and replacement needs; (c) development of written fire apparatus bid specifications in accordance with all applicable NFPA standards; (d) implementation of routine inspection and preventative maintenance programs for fire apparatus; and (e) implementation of service testing for fire pumpers and aerial devices in accordance with NFPA 1901, 1911 an 1914.

With foresight to the replacement and addition of fire fighting apparatus, the Township has implemented a Fire Equipment Capital Plan. This plan allocates $250,000 annually toward the replacement costs of fire apparatus. Additional funds are raised through the sale of older equipment.

Emergency Medical Services

Emergency medical services can be divided into two general types. The first, emergency ambulance service, involves the pickup of patients at the scene of a medical emergency, who are then expediently transported to a local medical care facility for treatment. The second, routine transports, is for the transport of patients from one medical care facility to another.

Table 6-1

Fire Apparatus Owned by Fire Companies in Lower Paxton Township

Year	Manufacturer, Model	Type
Colonial Park Fire Company		
2000	Spartan/KME	E33-1 - Pumper/Rescue
1998	Spartan/LTI	T33 - Pumper/Aerial
1986	Hahn/Saulsbury	R33-Pumper/Rescue
1994	Ford/Grumman	U33 - Utility Truck
2001	Ford/F350	S33 - Squad
1997	Ford Expedition	C33 - Chief's Vehicle
1991	Chevrolet Caprice	OIC33 - Duty Officer's Vehicle
1924	Chevrolet Chemical Wagon	Antique, currently on display at the Fire Museum of Greater Harrisburg
Paxtonia Fire Company		
1982-(Township Reserve)	Pierce Arrow	Engine 82 / 1250 GPM / 1000 Gal Tank
1998	Seagrave fixed-J cab	2000gpm Engine/Rescue
1998	Seagrave fixed-J cab	100' Tractor-drawn Aerial
2001	Ford 350	Utility 34
Linglestown Fire Company		
2001	KME / International	Engine 35-1 / 750 GPM Pump / 500 Gal. Tank / 25 Gal Class A Foam
2001	Chevrolet	Special Unit 35 / Fire Police
2000	KME	Truck 35 / 95 Ft. Aerial Platform / 2000 GPM / 200 Gal Tank
2000	KME	Engine 35 / 2000 GPM Pump / 1000 Gal Tank / 2-50 Gal Cells For Class: A&B Foam
1998	Freightliner	Air 35 / 33 CFM Compresser
1996	Ford	Chief Vehicle / Command
1990	Mack	Tanker 35 / 450 GPM / 1800 Gal Tank
1979	Mack CF	Squad 35 / R.I.T.
1941	Ford / Darley	Engine 35-2 / 500 GPM / 200 Gal Tank

Source: The Fire and EMS Information Network. http://www.fire-ems.net

Dauphin County's South Central Emergency Medical Services (EMS) provides ambulatory services to the residents of Lower Paxton, East Hanover, and West Hanover Townships and to some residents of South Hanover Townships. South Central EMS headquarters are located at 8065 Allentown Boulevard in West Hanover Township. It also maintains one EMS Unit at its Poplar Street facility in Lower Paxton Township. South Central EMS owns and operates four ambulances and three paratransit vehicles. A minimum of two ambulances are staffed 24 hours a day.

The Township's real estate tax levy also provides funding to South Central EMS.

In addition to the existing NFPA standards for fire protection, NFPA 1200 may soon provide additional guidance and recommendations for emergency medical services. NFPA 1200: Standard for Organization, Operation, Deployment, and Evaluation of Public Fire Protection and Emergency Medical service is a proposed standard that will establish broad requirements which affect organizational design, operations, vehicle deployment, and response times for fire and emergency medical services. While the specifics are still under review, the standards may be considered guidelines for the evaluation of current or development of new policy in the Township's emergency services departments.

The various aspects of public safety, i.e. emergency services, received numerous responses for most-liked features of Lower Paxton Township during the Fall 2001 CPU meetings. The terms "responsive," "professional," "quality," and "highly visible" were used by participants to describe the quality of the Township's police, fire, and emergency medical services. Police responsiveness was noted specifically in the Northwest and Southeast Quadrants of the Township.

B. Educational Facilities

Public Facilities

The Central Dauphin School District provides public education services for residents of Lower Paxton, Middle Paxton, Swatara and West Hanover Townships and the Boroughs of Dauphin, Paxtang and Penbrook. The district serves a resident population of 75,586, with a current student population of 11,015. The district, which operates independent of the local municipalities, owns and operates a total of nineteen schools. Six elementary and four secondary facilities are located within Lower Paxton Township. The Dauphin County Technical School, located on Locust Lane, supplements the Central Dauphin School District. The district's current facilities are listed in Table 6-3.

In addition to standard elementary instruction, Central Dauphin elementary schools provide special instruction in art, reading, physical education, computer skills, and music. The district maintains library and music resources at each location and a planetarium at the Central Dauphin High School. Adult educational programs are also available. Evening courses are offered seasonally in the areas of languages, computers and GED completion.

Historically, the school district has enjoyed steady growth in its enrollment. This trend presently continues. Enrollment projections through the year 2005-2006 are included in Table 6-2. Secondary enrollment in particular has been projected to increase until the 2005-06 school year, as determined by the Pennsylvania Economic League's recent analysis of the district's enrollment pattern (2001). In light of these projections and existing facility capacity and condition, the new high school was deemed a necessary investment by the district.

Table 6-2
Central Dauphin School School District
Total Projected Enrollment by Grade Set

Year	K-6	7-8	9-12	K-12
2000-2001 (actual)	6,002	1,884	3,118	11,004
2001-02	5,908	1,856	3,199	10,963
2002-03	5,700	1,925	3,232	10,857
2003-04	5,478	2,034	3,294	10,806
2004-05	5,441	1,909	3,376	10,726
2005-06	5,284	1,856	3,449	10,589
Pupil change				
2000-01 to 2005-06	-718.0	-28.0	331.0	-451.0
Percent change				
2000-01 to 2005-06	-12.0	-1.5	10.6	-3.8

Source: An Update of an Analysis of Demographic and Community Growth Patterns and Projections of Public School Enrollments in the Central Dauphin School District, 2000-2001, Pennsylvania Economy League, Inc., 2001.

It is important to note several points as enrollment projections are used in decision-making. First, trends in public school enrollments may not necessarily parallel the trends in population. Population in the district will likely continue to grow, however, public school enrollments over the next ten years are expected to be dependent more on future births and the age composition of the population than the overall growth in population. Second, enrollment projections are only estimates of future conditions, not exact predictions. And third, district facilities not only house students but also the educational programs they pursue; therefore, a greater number and diversity in program offerings require more facilities to house them, regardless of student population.

In light of current and projected enrollment, the district's building efforts entail construction of a new high school and additions and renovations of existing facilities. The new high school will be located at the intersection of Piketown and Linglestown Roads in West Hanover Township. Construction began in 2002 with completion anticipated for the 2004-2005 school year. Major additions to the Central Dauphin East High School also began in 2002. Opening of this expanded facility is also scheduled for the fall of 2004. Once the Central Dauphin High School is vacated, it will be renovated to serve as an additional Middle School. As a Middle School, this facility will house grades six, seven, and eight, alleviating sixth grade classroom space in the district's elementary schools. This facility is tentatively scheduled to be open for the 2005-06 school year.

Table 6-3
Educational Facilities in Lower Paxton Township

Name	Type	Location	Year Built	Years of renovation
Public Schools				
Central Dauphin East Junior High School	Regular Secondary	628 RutherfoRoad Road	1961	
Central Dauphin East Senior High School	Regular Secondary	626 Rutherford Road	1963	
Central Dauphin Senior High School	Regular Secondary	4600 Locust Lane	1955	
Linglestown Elementary School	Regular Elementary	1044 N. Mountain Road	1954	1956
Linglestown Junior High School	Regular Secondary	1044 N. Mountain Road	1921	1952, 1956
Mountain View Elementary School	Regular Elementary	400 Gibbel Road	1963	
North Side Elementary School	Regular Elementary	4520 N. Devonshire Road	1958	1966
Paxtonia Elementary School	Regular Elementary	6135 Jonestown Road	1956	1963
Phillips Elementary School	Regular Elementary	100 Oakmont Road	1955	1957
South Side Elementary School	Regular Elementary	4525 Union Deposit Road	1958	1966
Dauphin County Technical School	Technical	Locust Lane	1970	
Private Schools				
Christian School of Harrisburg	Nonpublic, Non-Licensed School	2000 Blue Mtn Pkwy	1964	
Holy Name of Jesus School	Nonpublic, Non-Licensed School	6190 Allentown Blvd	1960	
Londonderry School	Licensed, Private Academic School, K-8	6003 Jonestown Road		
Other Educational Facilities				
Charlton Play School	Licensed, Private Academic School	5920 Jonestown Road		
Covenant Christian Academy	Nonpublic, Non-Licensed School	6098 Locust Lane		
East Shore Montessori School	Licensed, Private Academic School	6130 Jonestown Road		
Hansel & Gretel Learning Center	Licensed, Private Academic School	4820 Londonderry Road		
Kinder-Care Learning Center 1282	Licensed, Private Academic School	6006 Jonestown Road		
Londonderry School	Nonpublic, Non-Licensed School	6003 Jonestown Road		
Magic Years CC & Learning Center	Licensed, Private Academic School	4075 Londonderry Road		
Mulberry Child Care Center	Licensed, Private Academic School	4900 Constitution Ave		

Source: PA Department of Education

Dauphin County Technical School (DCTech) is a full-time, comprehensive public vocational-technical high school serving Central Dauphin, Derry Township, Halifax Area, Lower Dauphin, Middletown Area, and Susquehanna Township School Districts. Students from other school districts may attend for the cost of tuition.

Vocational programs at DCTech are organized into clusters, which allows for both "vertical" and "horizontal" integration of the curriculum. Academic instruction is incorporated into the vocational training through the cluster organization, allowing teachers to apply academic learning to the specific skills needed in each cluster and relating different academic courses to each other. The cluster organization also relates different vocational programs to each other through various collective projects. The following vocational programs are offered at DCTech:

COMMUNICATIONS & TRANSPORTATION CLUSTER

Automotive/Diesel Technology
Collision Repair Technology
Advertising & Art Design
Graphic Arts
Outdoor Power Equipment
Precision Metalworking

SERVICE CLUSTER

Child Care
Cosmetology
Culinary Arts
Marketing
Ornamental Horticulture

CONSTRUCTION CLUSTER

Heating, Air Conditioning and Ventilation
Building Construction and Maintenance
Carpentry
Electrical Construction and Maintenance
Masonry

TECHNICAL CLUSTER

Drafting & Design Technology
Electronics Technology
Health Assistant
Information Systems Technology
Law Enforcement

Private Facilities

Four private schools are located within Lower Paxton Township: (1) the Harrisburg Christian School, (2) the Holy Name of Jesus School, (3) the Londonderry School, and (4) Covenant Christian Academy. The Harrisburg Christian and Holy Name of Jesus Schools have been part of the Township for over 30 years. Harrisburg Christian offers educational curricula for grades K-12. The Holy Name of Jesus School and the Londonderry School provide kindergarten through eighth grade programs. These schools are included in the inventory of educational facilities in Table 6-3. Covenant Christian Academy was established in 1997 and provides a classical education program for grades K-12. Home-schooling is a private educational alternative that is also utilized by Lower Paxton Township families.

Other Educational Facilities

In a society where there are more two-income and single parent families, daycare and preschool services have become a common and necessary part of the educational services. While these facilities originally provided simple childcare, increasing focus on school preparation has led to the integration of formalized educational objectives and programs with childcare services.

Several of these facilities also provide after school care for elementary-aged children. An inventory of these facilities can be found in Table 6-3.

Educational facilities were another of the community services recognized as an asset of the Township. Participants in the CPU meetings identified both public and private institutions as contributing positively to the Township quality of life.

C. Library Facilities

Public library facilities and services are provided to the residents of Lower Paxton Township through the Dauphin County Library System (DCLS). The original county library opened in 1889 on Locust Street in downtown Harrisburg and moved to its Front and Walnut Streets building in 1914. This facility now houses the Downtown Branch and administrative offices. The current library system evolved between 1967 and 1981 as branch libraries were established and independent community libraries were integrated. DCLS is a private, non-profit corporation with 501(c)(3) status and governed by a 17-member Board of Trustees—five appointed annually by the Dauphin County Commissioners, and twelve elected for three-year terms.

The East Shore Area Library, a DCLS branch library, opened a store front facility in 1967 in the Colonial Park Mall. In 1976, the Library System acquired its current site at 4501 Ethel Street behind the Colonial Park Mall. An expansion project in 1985 added additional space for collections and library programs. An adjacent property was acquired in 1998 for future additional parking needs. This facility is now considered the “flagship” of the County Library System.

The East Shore Library has a "resident collection" of 90,000 volumes and can deliver a book from anywhere in the County Library System by the next day. This library serves 325,000 users per day, and loans 400,000 items per year.

There are currently no plans for expansion of the East Shore Area facility. DCLS is in the midst of a capitol improvements project that aims to improve and strengthen the branch libraries through upgrading branch facilities from leased to DCLS-owned sites and expanding collections, programs, and community use services.

DCLS offers online publication services to its members through a state initiative known as “The POWER Library”. The POWER Library is offered as a service of Pennsylvania's public libraries, school libraries and the State library system and allows members to access thousands of full text periodical articles, newspapers, a major encyclopedia, plus photographs, pictures, charts, maps, and other reference materials through the Internet.

As citizens of the Commonwealth, residents of Lower Paxton Township also have access to the following State Regional Resources Centers: Free Library of Philadelphia, Penn State University Libraries in State College, Carnegie Library of Pittsburgh, and State Library of Pennsylvania. While three of these facilities are found outside the county, the State Library is a local resource for those performing research tasks.

CPU meeting participants from the Colonial Park North and Southeast Quadrants identified the East Shore Library as an asset to the Township and specifically to their CPUs. Participants from Colonial Park North also recognized the library as a community meeting place in their CPU neighborhood.

D. Postal Service Facilities

The United State Post Office in Lower Paxton Township can be found at 5901 Jonestown Road. Residents of the Linglestown and Paxtonia CPUs listed the centrally located post office as one of the most liked features of the Township.

E. Health Care Facilities

The citizens of Lower Paxton Township are serviced by a wealth of medical facilities and expertise. The Community General Osteopathic Hospital, located at 4300 Londonderry Road, is a private, non-profit hospital that serves as the primary medical facility for East Shore residents. The Community General is part of the PinnacleHealth System and has 147 licensed beds, consisting of 121 medical/surgical beds (includes 4 observation beds), 14 rehabilitation beds, and 12 critical care beds. The PinnacleHealth system includes four hospitals: Community General Osteopathic, Harrisburg, Polyclinic and Seidle), a network of family practice and urgent care centers, managed care entities, home healthcare, hospice, and an array of healthcare services. Its medical staff is comprised of over 700 primary care physicians and specialists.

In addition to the hospital, PinnacleHealth also operates the Family Medicine Center of Linglestown, located at 6085 Linglestown Road, and the WomanCare Resource Center East, found at 989D East Park Drive.

Residents of Lower Paxton Township and the East Shore are also serviced by two Pennsylvania Department of Health licensed and regulated nursing home facilities. These include Manor Care Health Services and the Jewish Home of Greater Harrisburg. Located at 800 King Russ Road, Manor Care provides skilled nursing, rehabilitative therapies, and specialized Alzheimer's care. The Jewish Home provides skilled nursing care to up to 140 residents in a setting that honors Jewish tradition and welcomes those of any race, religion, or nationality to enjoy its environment. The Jewish Home is currently expanding its services to include resident-assisted, respite (intermittent), and memory impaired living environments.

Two other nursing care facilities are located in the Township. Villa Teresa, a skilled nursing home, has served the community at its Avila Road location since September 1973. Owned and operated by the Congregation of the Carmelite Sisters for the Aged and Infirm, Villa Teresa is a non-profit facility, providing physical, spiritual and emotional care and treatment for 184 residents. Colonial Pines Golden Age Home, located at 120 Willow Road, also provides nursing care to the community.

In further recognition of community services, participants of the Fall 2001 CPU meetings listed the Township's health care facilities as community assets. Residents of the Colonial Park

South CPU specifically noted Community General Osteopathic Hospital. In a broader perspective, residents of the Union Deposit CPU noted the availability and variety of medical services and facilities in their local area. Members of the Planning Advisory Committee added to local nursing and residential care for seniors to the list of most liked features of Lower Paxton Township.

F. Municipal Services and Facilities

Lower Paxton Township owns and operates various facilities located throughout the Township. These facilities include the Lower Paxton Township Municipal Building, Municipal Public Works Building, and the Lower Paxton Township Compost Facility. Solid waste collection and disposal is contracted to Waste Management of Central Pennsylvania.

The Francis R. Mummert Municipal Building, which is located at 75 South Houcks Road, houses office space for Township staff and officials, public meeting rooms, and serves as the headquarters for the Lower Paxton Township Police Department. This facility has housed these Township offices and services since its opening in 1975. As a result of growth in population and services, the Township has purchased the former AMP, Inc. research facility on Prince Street. The Township is currently renovating the facility for use as the new Township municipal building and, once moved to the new location, will sell the existing Township building.

The Township's Public Works Department (PWD) is located in the Jack F. Hurley Transportation and Maintenance Center at 5975 Locust Lane. This 25,000 square foot facility opened in 1988.

The PWD provides for the maintenance of public facilities and the development of municipal properties and related services. The following list summarizes the services provided by the PWD:

- Roadway resurfacing
- Snow plowing and application of anti-skid materials
- Pothole patching and pavement repair
- Maintenance of traffic signals
- Maintenance of bridges
- Traffic line painting and installation of traffic signs
- Grading of roadway berms and shoulder areas
- Installation and maintenance of storm sewer systems
- Tree trimming and grass cutting along public rights-of-way
- Collection of leaves during the fall season
- Street sweeping
- Park maintenance, including athletic fields and courts
- Municipal vehicle and equipment maintenance

The PWD maintains the local transportation network within Lower Paxton Township, which includes 186.28 miles of local roadways. As new development is proposed in the Township, the Board of Supervisors reviews the network for its ability to support the impacts of additional traffic volume. Long-term planning of the transportation network is completed and updated as part of the comprehensive planning process, with interims reviews, as needed.

The roadway maintenance services provided by the PWD include resurfacing of Township roads, winter maintenance of both local and state roads, and maintenance of seven township bridges. Currently, the PWD resurfaces 7.5 miles of roads each year. With heavy traffic volume and active development throughout the Township, the PWD recognizes that in order to maintain the transportation network, the annual resurfacing rate will likely increase in the coming years.

Winter maintenance operations are provided for nearly 400 lane miles of local and state roads. As this entails a massive effort of manpower and equipment, the Township, PENNDOT, and private services jointly clear snow and ice and apply anti-skid and anti-icing materials to the local road network. The PWD has two storage facilities for these materials—one at the Public Works building (south) and one at Koons Park (north).

In addition to road surface maintenance, bridge maintenance includes bi-annual inspection to assess maintenance efforts and identify necessary rehabilitation and replacement activities. These inspections are coordinated with the PENNDOT Twelve Year Transportation Improvement Program (TIP), which assists municipalities in planning, design, funding, and implementation of transportation improvements.

The PWD is also responsible for the installation and maintenance of over 4100 traffic control and warning signs, numerous street identification signs, as well as 34 traffic signals.

Finally, the PWD is responsible for the maintenance, repair and refueling of all Township automobiles and equipment. The Township owns more than 75 general and specialized vehicles, as well as specialized equipment, that are operated by the police department (18), the PWD (48), and the parks and recreation department and the administrative staff (9). A vehicle replacement schedule has been implemented and is included as Table 6-4.

Table 6-4
PWD Vehicle Replacement Schedule,
Lower Paxton Township

YEAR	TYPE VEHICLE	REPLACE	YEAR	TYPE VEHICLE	REPLACE
1988	10 WHEEL DUMP	2002	1989	BOB CAT	2010
1994	CHEVY 2500	2002	2001	INTERNTL DUMP	2011
1993	CHEVY 2500	2002	2001	INTERNTL DUMP	2011
1982	CHEVY C-30	2002	1992	ODB LEAFER	2011
1995	FORD 1 TON	2003	1992	ODB LEAFER	2011
1990	FORD DUMP	2003		BOMAG ROLLER	2012
1991	INTERNTL DUMP	2004	1998	BOB CAT	2013
1994	ELGIN SWEEPER	2004	1999	PAVER	2019
1993	INTERNTL DUMP	2005	1999	GALION GRADER	2024
1994	ELGIN SWEEPER	2005	1993	BRUSH BANDIT	n/a
1990	BACKHOE	2005	1993	WILDCAT	n/a
1996	FORD 250	2006		INTL TRACTOR	n/a
1996	FORD 250	2006	1994	HAYBUSTER	n/a
1996	FORD 250	2006		NEW HOLLAND	n/a
1995	FORD DUMP	2007	1998	ARROW BOARD	n/a
1989	CASE LOADER	2008	1984	TRAIL KING TRAILER	n/a
1989	CASE LOADER	2009	1989	CRONKHITE TRAILER	n/a
1988	TIGER MOWER	2009	1995	CROSS COUNTRY	n/a
1999	TIGER MOWER	2009	1991	LAMCO TRAILER	n/a
1999	GMC PICK UP	2010	1998	CONTRAIL INTL	n/a
1998	CHEVY 3500	2010	1971	GENERAL TRAILER	n/a
1998	CHEVY 3500	2010	1985	KUBOTA TRACTOR	n/a
2000	GMC EXT CAB	2010	1986	KUBOTA TRACTOR	n/a
2000	GMC 1 TON	2010	1997	KUBOTA TRACTOR	n/a

Source: Lower Paxton Township.

G. Public Comments

CPU meeting participants mentioned the Township's municipal services repeatedly among the most liked features of the Township. Road conditions, snow removal, and contracted services (trash removal) were specifically noted in several different CPUs. Photographs of "most liked features" taken by the Planning Advisory Committee also included the Public Works Department and the Township Compost facility.

Trends and Issues

- Analysis of the Fall 2001 CPU meeting results indicated that more than one-third of the responses given for most liked features of Lower Paxton Township related to community services.

- Crime and incident activity trends as reported by the Lower Paxton Township Police Department show that the Township's criminal incidents have been decreasing. Overall, the total number of incident calls has been increasing over the years due to the Township's increase in population and commercial services.

- Continued growth of the East Shore Region, coupled with the existing traffic deficiencies, may reduce the level of service (e.g. response times) currently provided by the Lower Paxton Township Police Department.

- The department's top concerns are increasing numbers of unsolvable crimes, retail thefts, and traffic related service calls.

- Changes in Township demographics, i.e., increasing youth populations, may influence future juvenile crime rates.

- The police department is actively involved in the community through outreach and prevention programs, as well as direct solicitation of public opinion regarding programs and services provided.

- The fire stations of Lower Paxton Township are currently located in the most populated areas of the Township.

- Currently, the Township's fire apparatus meet NFPA safety standards.

- The Central Dauphin School District is currently constructing additional secondary facilities in anticipation of an enrollment peak and to alleviate spatial constraints in the elementary school facilities.

- The East Shore Branch of the Dauphin County Library System is centrally located and easily accessible to Township residents.

- As the Township grows, it should support continued review of the ability of the East Shore Branch to service Lower Paxton Township and outlying municipalities of Dauphin County.

- The branch office of the United States Postal Service is centrally located and easily accessible to Township residents.

- A variety of health care facilities are available to residents of Lower Paxton Township.

- Hospital services are located within the Township at Community General Osteopathic Hospital.

- Growth in the Township will likely require the expansion of staff, equipment and programs to maintain the current quality of municipal services.

H. Recreation and Open Space

Lower Paxton Township residents live in proximity to a variety of recreational amenities from publicly owned lands to private facilities. An inventory of public park and recreation facilities located in Lower Paxton Township is provided in Table 6-5. Combined, these facilities constitute more than 280 acres of public recreational and open space land and provide the citizens of Lower Paxton Township and surrounding communities with an abundance of both active and passive recreational opportunities. Four full-time and 81 part-time employees, constituting the Township's Parks and Recreation Department, staff these facilities and their respective programs. The two private parks located in the Township, Mateer Fields and Penn Garden Park, contribute recreational amenities to a portion of the Township population.

As shown in Table 6-5, each facility is further characterized using the National Recreation and Park Association's (NRPA) orientation and classification standards. Using the NRPA's standards, Lower Paxton Township's facilities may be classified as one of the three following park types:

> Neighborhood Park: Neighborhood parks remain the basic unit of the park system and serve as the recreational and social focus of the neighborhood. A neighborhood park should be centrally located within its service area, which encompasses a 1/4 to 1/2 mile distance uninterrupted by non-residential roads and other physical barriers. Demographic profiles and population density within the park's service area are the primary determinants of a neighborhood park's size. Generally, five acres is accepted as the minimum size, while 7 to 10 acres is considered optimal.
>
> Community Park: A community park serves to meet a community's recreational needs, as well as preserving unique landscapes and open spaces. They are generally larger in size and serve a broader purpose than neighborhood parks. A community park should serve two or more neighborhoods and has an optimal size between 20 and 50 acres, which is based on the land area needed to meet a community's recreational needs.
>
> Natural Resource Areas: These park types serve to protect significant natural resources, unique landscapes, and open space, and scenic viewsheds. Size and location criterion standards are dependent on resource availability and opportunity.

The Township park facilities support a high level of activity. The Parks and Recreation Department has estimated its visitor use at over 500,000 park visitors per year. In addition, over 5,000 individuals participate in sports programs at these facilities each year. The Department has also recorded over 200 pavilion reservations annually, representing over 12,000 individuals, in parks throughout the Township.

In addition to these outdoor facilities, Lower Paxton Township opened the Friendship Community Center (FCC) on January 23, 2000. The FCC is guided by a seven member

Operating Board, which was established by the Board of Supervisors to provide guidance and recommendations to the Board of Supervisors and Township staff in regard to the day-to-day operation and management of the Friendship Community Center, as well as planning and development of its future capital needs. The Board is comprised of one representative from the Township's Parks and Recreation Board and six at-large representatives from Lower Paxton Township.

The Friendship Community Center (FCC) is a 59,000 square foot facility that offers a variety of fitness, recreation, and social resources for members of all ages. Its features include a variety of weight and fitness equipment, a natatorium with a 17 foot water slide, an aerobics and dance studio, a gymnasium with walking track, men's, women's, and family locker rooms, a babysitting room, a senior citizens center, social and activity rooms, and administrative offices. FCC services to supplement these resources include babysitting, personal fitness training, and sports equipment use. Programs are offered on a seasonal basis for preschool, youth, singles, adults, families, and seniors in the areas of aquatics, aerobics, fitness, and dance, arts and crafts, athletics, and languages. Since its opening, the FCC has tracked various aspects of its usage. As many as 4,700 member visits per month have been documented. Weight and fitness equipment use, room rentals, and program attendance are also recorded.

The Parks and Recreation Department sponsors a number of programs beyond those held at the Friendship Community Center. A summer playground program provides supervised play activities at parks throughout the Township. A children's day camp is also available and provides enrichment activities for children of elementary school age at school sites during the summer months.

The Department also sponsors seasonal special events, sports leagues, bus trips and discount tickets to area amusement and resorts throughout the year. Special events include breakfasts with Santa and the Easter Bunny, hayrides and pumpkin carving, Easter Egg-stravaganza. Bus trips feature transportation to athletic, entertainment, and recreational events in New York, Delaware, New England, Philadelphia, and Atlantic City.

In the past, the common measure of a park, recreation, and open space system's spatial and service requirements was the application of acres per 1,000 population standard. In NPRA's new publication, Park, Recreation, Open Space and Greenway Guidelines (1996), describes how recreation has changed in recent years and states that good planning is not as simple as tallying residents to calculate recreational land needs. NRPA has revised their recreation, park and open space standards and guidelines to include various planning factors such as a community's participation rates and patterns, needs and preferences, quality of a recreation experience, economic benefits, and desire or demand for certain types resources and facilities. These revised standards allow communities to address their park and recreation needs in terms of its unique social, economic, and institutional structure. Therefore, a standard for parks and recreation cannot be universal, nor can one community be compared with another, regardless of their similarities (NRPA 1996).

Applying the old standard to offer a preliminary assessment of recreational resources results in a recommended 442 acres of recreational land for the 44,242 residents of the

Township. The Township currently has 246 acres of developed park and natural resources land for this use. With the additional acreage from the undeveloped Thomas B. George, Jr. Park and Wolfersberger Tract, the total planned recreational land acreage rises to 376 acres. This leaves a 66-acre shortfall, when the old standard is applied. In light of the fact that the Township lacks community parks in the Northwest and Southeast CPUs, these are potential areas to pursue additional recreational land acquisition.

Considering the new guidelines provided by NRPA, a complete assessment of the Township's recreational resources would need to take into account the Friendship Community Center (FCC) and its available facilities and programs, as well as the private recreational sites and businesses located throughout the Township, e.g. the swim clubs, country clubs, bowling alley, and private ballfields. The FCC does offer a wide variety of recreational facilities – indoor pool, fitness equipment, indoor basketball courts – as well as recreational programs, however membership is required and pass fees are charged. Such fees may make the FCC an unaffordable facility for some Township residents. Private recreational businesses cater to specific activities and fees are charged for their services and/or facilities.

With the intent to develop George Park and the Wolfersberger Tract, the Township will need to consider recreational demand in the planning of park and site improvements as well as in future land acquisitions for recreational resources.

Parks and Recreation Planning

Lower Paxton Township currently has no parks, recreation, and open space plan to address park planning and development activities, though policies for acquisition of park land have been established. The procurement of park land and open space areas is accomplished in a number of ways. First, the Township may negotiate a purchase price with a land owner for a particular parcel. Second, a land owner may give donate land in the form of a property gift. Third, the Township may force the sale of a property at an appraised price through the power of imminent domain. Finally, through the Township's Mandatory Recreation and Dedication Ordinance, residential real estate developers are required to provide land, or money in lieu of land, in consideration of public welfare. The ordinance requires a developer to dedicate a minimum of 1,500 square feet per dwelling unit or 20% of the total tract acres, depending on zoning regulations. In lieu of such a dedication, the developer may pay a fee of $1,250 (as of 1998) per dwelling unit to the Township. These monies may then be used for developing capital improvements in new or existing recreation areas in the Township. As a result of this ordinance, the Township has received approximately 55 acres of parkland.

With foresight to future parks and recreation needs, the Township has signed a purchase agreement for the Wolfersberger Tract on Wenrich Street south of Linglestown. This 93-acre parcel consists of approximately 50 acres of relatively flat, formerly agricultural fields and approximately 40 acres of woodlands and shallow ravines. Due to the large size of the tract and its natural condition (topography and vegetation), the Township will likely develop the site for both active and passive recreational uses. Final purchase of the tract is scheduled for 2010.

Parks and recreation facilities and programs were listed by CPU meeting participants as the single most liked features of Lower Paxton Township. In addition, these facilities and programs were recognized as assets to each CPU as well. The Friendship Community Center was also noted, indicating the community's appreciation for this particular facility. While there were negative responses regarding park maintenance and lack of equipment at specific locations, the parks and recreation services in the Township are perceived as a community asset.

Among the features that residents like least about Lower Paxton Township was the lack of pedestrian and bike trails in the Township, noted here as they can comprise an integral part of a parks and recreation network. The Township's Subdivision and Land Development Ordinance requires the provision of sidewalks in development communities of greater than 1.0 dwelling unit per acre, however it does not specifically require the provision of other pedestrian and bike pathways. Through community planning meetings, residents have expressed that these are desirable features for their community.

Through a visual preference survey, members of the Planning Advisory Committee contributed additional "most liked" and "least liked" features. The Committee photographed several open space sites throughout the Township, noting their aesthetic and recreational aspects. Images of Hunters' and Anglers" Association, Blue Ridge Memorial Gardens, and various undeveloped fields were contributed to the survey as most liked features.

In addition to Township parks and recreational facilities, residents of the Township also have access to the Boyd Big Tree Conservation Area, managed by PA DCNR. This 914-acre tract of forest and field habitats lies adjacent to Hocker Park and is open to the public for hunting and recreation. Over ten miles of trails are used by hikers, hunters and cross-county skiers. An additional 79.6 acres may soon be added to the Conservation Area upon its acquisition by the Central Pennsylvania Conservancy.

Worthy of additional note is the Capital Area Greenbelt. This 20-mile corridor encircles the city of Harrisburg and connects a number of environmental and cultural resources via a ribbon of parks and open spaces. Conceptualized in the early 1900s, the greenbelt fell to neglect until citizens took an interest in its rehabilitation in 1990. A new master plan outlines over $4 million in improvements for the renovation of this community asset. Though it does not traverse the Township, the greenbelt is nonetheless an asset for residents of Lower Paxton Township and the Greater Harrisburg Area.

Table 6-5

Park and Recreational Facilities in Lower Paxton

Name	Size (acres)	Picnic Tables	Pavilions	Tennis Courts	Handball Courts	Basketball Courts	Volleyball	Soccer Fields	Baseball Fields	All-purpose/ Football Fields	Horseshoe Pits	Play Equipment	Restrooms	Water and Electric	Walking/Biking Trails	Orientation* (Passive/Active)
Community Parks																
Brightbill Park - Colonial Commons/Rt 22	41	Y	Y	Y		Y			Y	Y		Y	Y	Y	Y	A
Kohl Memorial Park - Dowhower Road	17	Y	Y	Y	Y	Y		Y	Y			Y	Y	Y	Y	A
Koons Park -Linglestown	33	Y	Y	Y		Y	Y		Y	Y	Y	Y	Y	Y		A
Lingle Park - Pleasant Road	20	Y	Y				Y	Y	Y			Y	Y	Y		A
Neighborhood Parks																
Centennial Acres Park - Continental Drive	4	Y	Y	Y		Y	Y			Y		Y	Y			A
Forest Hills Park - Forest Hills Drive	5	Y		Y		Y				Y		Y				A
Hocker Park - Blue Mountain Parkway	2	Y														P
Hodges Heights Park - Conway Road	2	Y	Y	Y		Y			Y			Y		Y		A
Hurley Fields - Locust Lane	5								Y				Y			A
Kings Crossing Park - Kings Crossing	5	Y	Y				Y	Y	Y			Y	Y	Y		A
Lamplight Park - Mayfair Drive	5	Y	Y			Y				Y		Y	Y	Y		A
Meadow Brook Park - Oak Avenue	2	Y				half				Y		Y				A
Ranger Fields	9							Y				Y				A
Natural Resource Parks																
Buchannan Tract - Blue Mountain Parkway East	40															P
Club Estates	2	Y														P
Forest Hills Park - Forest Hills Drive	25															P
George Memorial Park - Blue Mountain Parkway	12														Y	P
Hocker Park - Blue Mountain Parkway	10															P
Leisure Tract	5															P
Rockford Heights	2															P
Total park acreage	**246**															
Future Park Development																
Wolfsberger Tract (under agreement) - Wenrich Stree	93															TBD
Thomas B. George, Jr. Park (George Park)	37															TBD
Total park acreage available	**376**															

Source: Lower Paxton Township

Y= Yes (present at site) A=Active; P=Passive; B = Both Active and Passive; TBD =To be determined

Trends and Issues

- Across the Township, parks and recreation facilities and programs were listed by CPU meeting participants as the single most liked features of Lower Paxton Township. In addition, these facilities and programs were recognized as assets to each of the seven individual CPUs.

- The Friendship Community Center was specifically noted, indicating the community's appreciation for this particular facility.

- Lower Paxton Township does not have a Parks, Recreation, and Open Space Plan.

- Lower Paxton Township lacks sufficient pedestrian trails and bike pathways. This was noted by CPU participants as one of the least-liked of Lower Paxton Township.

- Lower Paxton Township's zoning and subdivision and land development ordinances provide minimal guidance in provision for recreation areas and the preservation of open space areas; therefore, ordinances should be reviewed in order to provide additional recreational lands and open spaces.

- There are no community parks in the northwest and southeast sections of the Township.

- Currently the Township owns 283 acres of land designated for parks and recreation. Acquisition of the Wolfersberger Tract will add another 93 acres to this total.

- With the exception of the Friendship Community Center, the existing park and recreation facilities within the Township may not adequately serve the recreational needs of senior residents.

- Transit services are not readily available to the park and recreation facilities located within the Township.

Introduction

The purpose of this chapter is to provide an inventory of existing public and quasi-public utilities and services in Lower Paxton Township. Information on service areas, capacities, current inadequacies, and future needs are discussed. The significance of public utilities and services is critical in identifying the location, type, and intensity of future development.

A. Public Water and Sewer Facilities

Water Supply and Distribution System

United Water of Pennsylvania, based in Harrisburg, provides public water supply services to Lower Paxton Township residents and businesses. Water supply sources are the Susquehanna River and the Swatara Creek, with treatment plants near 6th Street in Susquehanna Township and North Duke Street in Hummelstown, respectively. Water is conveyed to the Township via transmission and distribution mains. System pressures provide service up to an approximate elevation of 520 feet above sea level, with the higher limits of the service area located in Blue Meadows and sections of Continental Drive in Forrest Hills. Private wells serve developments above that elevation and in scattered areas of the rest of the Township, but essentially all new major development of Lower Paxton Township is served by United Water's public water system.

In 2002, United Water served approximately 10,955 customers in Lower Paxton Townships, of which approximately 9,200 are single-family residential, 351 are multi-family residential, 734 are commercial and 3 are industrial (Tyco offices) accounts.

The main treatment facility, drawing water from the Susquehanna River, is located near 6th Street and Linglestown Road in Susquehanna Township and has a permitted capacity of 12 mgd. A second treatment plant, located on North Duke Street in Hummelstown draws water from the Swatara Creek and is permitted for 2.8 mgd. With a total treatment capacity of 14.8 mgd, the United Water system serves not only most of Lower Paxton Township, but also portions of Rye Township and Marysville in Perry County, and the Boroughs of Hummelstown, Penbrook and Paxtang and most of Swatara and Susquehanna Townships in Dauphin County.

Current average daily water demand is approximately 10.5 mgd, with a maximum day demand of 12.9 mgd in 2001. Assuming 180 gpd average day water consumption for a single-family residence, or equivalent dwelling unit (EDU), and the current maximum day to average day peaking factor of approximately 1.23, the current system has treatment capacity for approximately 8,600 additional EDUs. At the rate of development and increase in demand over the past ten (10) years, this is enough capacity for 20 years, or more. United Water is continuing to prepare for future demand, however, as the company has already purchased property and is planning to bring an additional treatment facility on line by 2004. For this reason, public water supply is considered adequate to accommodate projected future growth in Lower Paxton Township.

While much of the Township is served by public water systems, a significant portion of the Township is served by private wells. Since most of the Township is underlain by the Martinsburg geologic formation, wells are typically low yielding, many only a few gallons per minute. Recharge of the groundwater aquifer is by local precipitation. For this reason, control of potential pollution sources from surface activities is very important to maintaining quality of groundwater supplies in the Township.

Wastewater Treatment System

The Lower Paxton Township Authority is the owner of the Township Sewer System. The Township, however, provides administrative, operations and maintenance services related to the sewer system through a Management Agreement with the Authority. The Authority grew out of the Lower Paxton Township School Authority in the mid 1950s. The Authority recently extended its term of existence from 2019 to May 1, 2023 to meet the obligations for the issuance of bonds and subsidy agreements with the Township. In addition, the Authority recently increased the number of members of the Board from five to seven members.

Nearly the entire Township, as well as a small section of West Hanover Township, is served by public sewerage provided by the Authority. As of the end of 2001, the customer base includes approximately 12,820 single-family residences, 6,180 multi-family living units, 3,780 commercial EDUs, 100 residential-commercial EDUs, and 550 EDUs from schools and other public/institutional facilities.

The Township Sewer Department currently maintains a staff of four administrative employees, including the Director, and seventeen operations personnel. The administrative staff provides billing and collection services, promoting electronic payment under the 2000 Direct Payment Campaign of the Federal Reserve Bank of Philadelphia. Currently, approximately 1200 of the Authority's customers utilize this payment option.

The Authority owns essentially all the collection lines, pumping stations and metering stations that comprise the sewer system of Lower Paxton Township. There are, however, small sections of privately owned collection sewer and two small private pumping stations that connect to the Authority's system. The Authority system, which dates from 1957 to the present, includes:

- Approximately 1,300,000 feet, or over 250 miles of pipe, ranging in size from 8" to 30" and made from various materials (vitrified clay, ductile/cast iron, asbestos-cement, RCP, Truss and PVC),
- 6 pumping stations, (listed in Table 7-1 along with their respective rated capacities and latest flows)
- 3 permanent wastewater flow meter chambers.

Additional equipment and facilities include:

- 75 portable flow meters
- CUES TV and and grouting truck
- 1 flusher truck
- 2 lateral cameras
- manhole coating unit

- various items of safety equipment
- pick-up trucks
- 1 4-bay garage (16,600 sf Sewer Department maintenance office and garage facility)
- Computer equipment
- Various equipment for the replacement of private sewers.

Routine operations including flushing and televising of sewers, root cutting, inspection of new sewers and laterals, and raising of existing manhole frames and covers during street improvements. In addition, because the sewers are subject to hydraulic overloading caused by excessive infiltration and inflow (I/I) during wet weather, the Township is engaged in an on-going mini-basin rehabilitation program to reduce and/or eliminate excessive I/I. This involves an extensive metering program conducted by the Township to develop data for prioritization of mini-basin rehabilitation and to assess the impact of sewer system rehabilitation projects. In addition, Township personnel inspect on-going contracted rehabilitation projects. From 1999 through 2001, the Township has completed rehabilitation in mini-basins in the Colonial Crest, Clermont, Smithfield and Old Pond areas of the Township. This includes repairs of all mainline sewers and manholes, as well as private service lateral and building sewers. Currently, the Township's plan for addressing wastewater needs includes continuing sewer system rehabilitation by mini-basin to reduce I/I well into future 10 to 20 years. In order to reduce the contracted expenses, the Township began coating manholes with Township forces in 2001 and began the replacement of private sewers in 2003, utilizing a four-man I/I rehabilitation crew.

The Authority does not own or operate a wastewater treatment plant. Instead, wastewater is conveyed to either the Harrisburg or Swatara Township Authority facilities for treatment and disposal. The Authority has negotiated intermunicipal agreements with downstream communities for the transmission and treatment of its wastewater.

Wastewater is collected in Lower Paxton Township in four discrete basins that approximate the watershed boundaries of Beaver Creek, Paxton Creek, Spring Creek, and Asylum Run. The Beaver Creek Basin collects wastewater from the eastern half of the Township and discharges to the Joint Use Interceptor for conveyance and treatment at the Swatara Wastewater Treatment Plant (WWTP). The Paxton Creek Basin collects wastewater from the northwestern portion of the Township and discharges to Susquehanna Township's Paxton Creek Interceptor, ultimately reaching the Harrisburg Advanced Wastewater Treatment Facility (AWTF). The Spring Creek Basin located in the southwestern portion of the Township, is subdivided into two sub-basins. SC-1 and is tributary to the West Branch of the Spring Creek Interceptor in Susquehanna Township, while SC-2 is tributary to the East Branch of the Spring Creek Interceptor in Lower Paxton Township All wastewater from both branches is conveyed via the Spring Creek Interceptor through Swatara Township and Paxtang Borough to the Harrisburg AWTF. Wastewater collected from the Asylum Run drainage basin, a relatively small area in Colonial Park section of the Township, is conveyed through Susquehanna Township and the City of Harrisburg to the Harrisburg AWTF. Average annual wastewater flows from each of the basins are as follows:

Basin	Average Annual Flow (mgd) Flow (mgd)	EDUs	gpd/EDU
Beaver Creek	2.14	8,193	261
Paxton Creek	2.77	7,824	354
Asylum Run	0.20	1,369	146
Spring Creek	1.53	6,149	249

Source: 2002 Chapter 94 Report.

At present, Lower Paxton is limited to contribute 3.695 mgd maximum monthly average flow to the 6.3 mgd capacity of the Swatara WWTP. While normally average daily flow is substantially less, this limit has been exceeded during wet weather resulting in a limitation to connections until the wet weather flows are sufficiently reduced and/or treatment facilities are constructed to accommodate them. There is currently no limit for monthly average wastewater contributions to the Harrisburg facility. There are, however, peak flow limitations for the Paxton Creek, Asylum Run and Spring Creek West and Spring Creek East Interceptors, of 8.3 mgd, 1.5 mgd, 4.5 mgd and 3.3 mgd, respectively. These peak flows have been exceeded and overflows experienced during wet weather, resulting in a restriction on connections in the Paxton Creek and Spring Creek Basins until wet weather peak flows are sufficiently reduced or conveyance and/or treatment facilities are constructed to accommodate them.

Both Harrisburg and Swatara Wastewater Treatment Plants provide advanced wastewater treatment, including preliminary treatment, primary treatment and advanced biological treatment using the activated sludge process. Treated effluent from each of the plants is disinfected with chlorine prior to discharge to their respective receiving waters, the Swatara Creek and the Susquehanna River. Both facilities are well operated and maintained, consistently meeting effluent requirements and protecting water quality.

While nearly the entire Township is served by public sewerage, there are areas, particularly the northeastern section, that are served by on-lot disposal systems. Although, soils in most of the Township are unsuitable for conventional on-lot systems, they are generally suitable for alternative type systems, such as sand mounds. On-lot systems will continue to be used in less densely developed areas of the Township. Only the northeastern section is designated as an on-lot area in the future. Other than an occasional individual system malfunction, there are no areas of the Township known to have malfunctioning on-lot systems. The Mt Lou San Bible Camp, located in the northeast section of the Township, has experienced malfunctions. Plans are being made to either connect to the public systems or provide a wastewater treatment system with stream discharge to serve the camp.

Sewage Facilities Planning

The Pennsylvania Sewage Facilities Act of 1966 (as amended), more commonly known as "Act 537," is the primary regulation that controls individual and community sewage disposal

systems. Act 537 requires local municipalities to submit official sewage facility plans to the Pennsylvania Department of Environmental Protection (PADEP) for approval. These plans show the current and future needs of the municipality and assess wastewater facility choices to solve these needs.

Essentially, the purpose of the Act 537 sewage facilities planning is to:

- Assess wastewater needs of the existing and proposed development.
- Assess the capacity of the various elements of the sewer systems for serving near-term, twenty-year and ultimate wastewater needs of the Township.
- Develop and evaluate alternatives for meeting the wastewater needs of the sewered areas of the Township.

Lower Paxton Township submitted an Act 537 Plan Update to DEP in November 1999. This Update included a plan to eliminate the overflows and reduce the hydraulic overloads in the Beaver Creek, Paxton Creek, and Spring Creek Basin, West Branch. In July 2000, DEP disapproved the proposed 1999 Update and the Township appealed this decision to the Environmental Hearing Board. In November 2000, the Township submitted a revised Act 537 Plan Update, which was denied in June 2001 and appealed by the Township in July 2001. In September 2001, the Township began negotiations with DEP, the Swatara Township Authority and certain developers in order to pursue a global settlement of matters pending before the Environmental Hearing Board and the Commonwealth Court. A Second Consent Decree and agreement (SCD&A) was entered into by the parties in May 2002 and approved by the Court in June 2002. This agreement incorporates a revised Act 537 Plan Update and corrective action plans to eliminate the overflows and reduce the hydraulic overloads in the Beaver Creek, Paxton Creek, and Spring Creek Basin, West Branch. The final Act 537 Plan Update incorporated in the Second Consent Decree was approved by DEP in March 2003.

The approved Act 537 Plan and the Second Consent Decree and Agreement (SCD&A) provide for elimination of these overflows and exceeded capacity at Swatara with the construction of a wet weather treatment facility in Beaver Creek and a mini-basin I/I rehabilitation program in the Paxton and Spring Creek basins. In Beaver Creek, the plan provides for the engineering and permitting of the wet weather treatment facility and conveyance facilities to occur in 2003 and 2004 with construction to begin in 2004 and conclude in 2005. The expansion of the conveyance facilities includes the Beaver Creek interceptor, pump station, force main, and the Nye's Road interceptor.

In the Paxton and Spring Creek basins, the plan includes the continuation of the mini-basin I/I rehabilitation program for a five-year period in an effort to eliminate overflows and basement back-ups. At the end of the five-year period (June 2007), it was agreed that the Township will propose whether to continue the mini-basin I/I rehabilitation program or propose another method, subject to DEP's approval in the Paxton Creek basin. If the mini-basin I/I rehabilitation program continues, the overflows must be eliminated by 2012 and the reduction of the hydraulic overload by 2017. The overload in the Spring Creek Basin is scheduled to be eliminated at the end of 2006 with the completion of two (2) mini-basin replacement projects.

Table 7-1
Lower Paxton Township Wastewater Treatment System Pumping Stations, 2001

Station Location	Gallons Per Minute (GPM)	Installed	Type	Annual Average Daily Flow (MGD)	Capacity (MGD)
Beaver Creek	2050	1970s	W/D Centrifugal	0.69	2.95
Colonial Road	405		SL Centrifugal	0.071	
Gale Drive	374	1970s*	W/D Centrifugal	0.14	0.54
Gateway Center	80		W/D Centrifugal	0.02	0.12
Linglestown Road	138	1970s	W/D Centrifugal		0.20
Parkchester Road	130	2000	W/D Centrifugal	.025	0.18

Notes: S = Submersible, W/D = Wet Well/Dry Well, SL = Suction Lift
* Upgraded in 2000
Source: Annual Report (Year Ending 2001), Lower Paxton Township, Dauphin County.

B. Stormwater Management Systems

Stormwater management involves the control of water runoff from the pervious or impervious surfaces from rain or melting ice or snow. Runoff volumes have a tendency to increase substantially as land development occurs.

Federal regulations issued in 1999 establish a new permit requirement for discharges to surface waters from "municipal separate storm sewer systems" (MS4s). The permit requirement applies to "small MS4s" which are designated by either EPA or DEP. The permit term will be for five years, followed by subsequent permits for similar timeframes. The MS4 permittee must, within the permit term, implement and enforce a stormwater management program approved by DEP which is designed to reduce the discharge of pollutants from its MS4 to the maximum extent practicable, with the goal of protecting water quality and satisfying the appropriate water quality requirements of the federal Clean Water Act and the Pennsylvania Clean Streams Law.

The program must contain a schedule, best management practices (BMPs) and measurable goals for the six Minimum Control Measures described below, and be approved by DEP. MS4s must apply for permit coverage by March 10, 2003.

The federal regulations establish six categories of BMPs that must be met by permittees (these are "narrative" permit effluent limitations). The six BMP categories, also called "minimum control measures" in the federal regulations, are:

- Public Education and Outreach,
- Public Participation and Involvement,
- Illicit Discharge Detection and Elimination,
- Construction Site Runoff Control,
- Post-Construction Stormwater Management in New Development and Redevelopment, and

• Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance

Lower Paxton Township is one of over 1,000 municipalities in Pennsylvania affected by this new requirement and must implement a stormwater management program in their jurisdictions, that contains each one of these elements. The Township must do this by the end of their 5-year permit term—March, 2008.

To put these new requirements in context, EPA has promulgated two phases of stormwater permit regulations in the past 10 years—"Phase 1" covers *large* and *medium* municipalities (as well as industrial activities, including construction over five acres). This was implemented in Pennsylvania beginning in 1992. "Phase II" of the federal storm water regulations expanded the universe of municipalities to smaller ones in "urbanized areas."

Each municipal stormwater program must be approved by DEP. The federal regulations allow DEP and permittees to use existing qualifying state (and local) programs to satisfy any of the NPDES permit requirements of MS4s (*see* 40 CFR §122.34(c)). Pennsylvania has several existing programs that can be used by municipalities to meet many of their permit requirements.

- The Pennsylvania Stormwater Management Act ("Act 167"), 32 P.S. §§ 680.1 *et seq*., already requires counties and municipalities to develop and implement stormwater management programs, on a watershed-by-watershed basis.

  Portions of three watersheds lie within Lower Paxton Township's boundaries. The Beaver Creek Branch of Swatara Creek drains the eastern half of the Township; Paxton Creek drains the northwestern portion; and Spring Creek and its tributary, Asylum Run, drain the south western corner. Watercourses within the township and their respective watersheds are shown on the Water Resources Map, Map 8 of Appendix A. The Dauphin County Conservation District in collaborating with private firms had prepared stormwater management plans for each of these watersheds. All three plans have been approved by PA DEP.

- DEP implements an erosion and sediment pollution control program for any earth disturbance activities statewide. Frequently this is done in concert with the County Conservation Districts (CCDs). Under that statewide regulatory program, persons proposing or conducting earth disturbance activities are required to develop an Erosion and Sediment Control Plan ("E&S Plan") containing BMPs which minimize the potential for accelerated erosion and sedimentation during construction.

- DEP implements an NPDES Construction Permit program that addresses post-construction stormwater impacts statewide. Persons proposing or conducting earth disturbance activities are required to develop a Post-Construction Stormwater Management Plan (PCSM Plan) containing BMPs which protect, maintain, reclaim and restore water quality and the existing and designated uses of surface waters of the Commonwealth.

To effectively use these existing regulatory programs to meet MS4 requirements, municipalities should have a municipal ordinance and a mechanism that requires review and approval of construction and post construction BMPs for earth disturbance activities equal to or greater than one acre. An agreement with the CCD is one good approach to meeting this requirement for the construction requirements.

C. Solid Waste Management System

As required by Pennsylvania Act 101 of 1988, The Municipal Waste Planning, Recycling and Waste Reduction Act, Lower Paxton Township plans for the disposal of trash and the recycling of certain materials. The Township manages solid waste through recycling, yard waste compost, and controlled landfilling programs. Act 101 set a 25% recycling goal for household and office waste by 1997 and a 35% goal by 2003. Lower Paxton met the 1997 goal and expects to achieve the 2003 goal as well.

The Recycling Committee was established by the Board of Supervisors as an advisory body on matters relating to solid waste collection and recycling and composting within the township. This five-member committee prepares ordinances and regulations governing solid waste collection and recycling and composting. Members of the committee are appointed for a staggered two-year term.

The Township collects residential waste generated within the Township. Residential waste is collected under the township's curbside program, which began in September 1991. Under this program, waste is collected on a weekly basis and includes both recyclable and non-recyclable products. Recyclables include glass (i.e., brown, green, and clear), aluminum, steel, and bi-metallic cans, plastics (seven types), and corrugated cardboard. For non-recyclable waste, the residents may choose from two options: a standard fixed rate system or a "pay-per-container" system. The standard rate system allows customers to place up to four 33-gallon containers per week at the curbside for collection. The pay-per-container program is a bag or container tagging option offered to residents. Residents purchase tags prior to pick-up.

The Township supplements weekly solid waste collection with a weekly large, bulky item pick-up (one per household). The service provides residents with the opportunity to dispose of large, non-hazardous materials in a safe manner. Acceptable items include appliances, furniture, television sets, mattresses, water heaters and carpets, provided two men can lift them into a truck.

The Township also offers bi-weekly curbside leaf waste collection and disposal from April 1 to December 15, as well as two weeks in January. This program provides residents of the township the opportunity to dispose of their leaf waste, including leaves, tree prunings, garden waste, and holiday trees and loose greens. An alternative allows residents to deliver leaf waste to the Township Compost Facility in pre-purchased kraft bags, available at local stores. The Compost Facility is located on Conway Road, south of Union Deposit Road next to Hodges Heights Park. This service is offered to residents at no cost. Bundled brush may also be disposed of at the compost facility. Residents may choose not to participate in the yard waste program.

D. Natural Gas

Gas service is provided to Lower Paxton Township by UGI Corporation.

E. Electricity

Electric service is provided to Lower Paxton Township residents and businesses by PPL Electric Utilities Corporation.

The four PPL substations in the Township are located as follows:

- Linglestown on Linglestown Road - 250' east of Greenwood Road
- Colonial Park on Colonial Road - 1 mile north of U.S. 22
- Paxton on Copperstone Road - one-half mile north of Union Deposit Road
- Rutherford on Spring Creek Road - 700' west of Page Road

Trends and Issues

- Future land development pressures within Lower Paxton Township and from adjacent municipalities may necessitate increased water and wastewater service needs.
- There is currently no limit for wastewater contributions to the Harrisburg facility. There are, however, peak flow limitations for the Paxton Creek, Asylum Run and Spring Creek West and Spring Creek East Interceptors.
- On-lot systems will continue to be used in less densely developed areas of the Township, particularly in the northeastern section, which is designated as an on-lot disposal area.
- The Township completed, and submitted to DEP for review, an Act 537 Sewage Facilities Plan Update, which was approved by PA DEP in March 2003.
- Recharge of the groundwater aquifer occurs by local precipitation, therefore, control of potential pollution sources from surface activities is very important to maintaining the quality of groundwater supplies in the Township. Additional measures may need to be taken to protect groundwater supply.
- All three watershed plans for the watersheds in the Township have been approved by PADEP.

Introduction

The natural environment is an important part of the community. Its characteristics have influenced local development patterns; fertile soils for agriculture, for example. Its features are scenic and seasonal, such as the forested ridge and slopes of Blue Mountain. Its systems—vegetation, water, and wildlife—are dynamic, providing a stimulating and interactive environment in which to live. These natural features are specific to this landscape, connected to the surrounding region, and rooted in the greater scheme of nature.

The identification and characterization of Lower Paxton Township's environmental resources is an important part of the planning process. Delineation of these resources serves as a guide for future planning decisions, as natural features are costly, both financially and ecologically, to disregard. The following sections of the plan identify and describe these areas so they can be incorporated into the planning recommendations. This will help ensure that future development in Lower Paxton Township takes place in an environmentally sensitive manner.

A. Floodplains

Floodplain areas perform a number of critical ecologic functions. They absorb, store, and release large amounts of water to the surrounding soils and groundwater systems. Natural vegetation supported by floodplains helps to trap sediment and absorb excess nutrients from upland surface runoff, stabilize stream banks, and reduce soil erosion. Floodplains also provide habitat for terrestrial wildlife and influence stream conditions for aquatic life. In addition to their ecologic value, many people value the scenic qualities of floodplains areas, particularly for their wildlife and waters.

Regulation of floodplains helps to reduce the threat to human life and property caused by periodic flooding. For regulatory purposes, a floodplain is defined by the 100-year or base flood, which has a predicted one percent chance of being equaled or exceeded in a given year. Lower Paxton's 100-year floodplain boundaries are shown specifically on Maps 8 and 9 of the Comprehensive Plan document. These boundaries encompass 1,326.1 acres (7.4 percent) of Township land.

The Pennsylvania Floodplain Management Act (Act 166 of 1978) requires municipalities that have been identified as flood-prone to enact floodplain regulations that, at a minimum, meet the requirements of the National Flood Insurance Program (NFIP). The NFIP is a federal program that allows property owners in participating communities to purchase insurance protection against losses from flooding. According to the Federal Emergency Management Agency (FEMA), Lower Paxton Township participates in the NFIP.

The NFIP Community Rating System (CRS) was implemented in 1990 to recognize and encourage community floodplain management activities that exceed the minimum NFIP standards. The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: (1) reduce flood losses, (2) facilitate accurate insurance rating, and (3) promote the awareness of flood insurance.

There are ten CRS classes – Class 1 requires the most credit points and gives the largest premium reduction, where Class 10 receives no premium reduction. The CRS recognizes 18 creditable activities, organized under four categories numbered 300 through 600 – Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness.

Although Lower Paxton Township *does* participate in the NFIP program, it does not currently participate in the CRS program. Participation in the CRS is voluntary. Any community in full compliance with the rules and regulations of the NFIP, such as Lower Paxton Township, may apply for a CRS classification better than Class 10. The applicant community submits the CRS Application along with documentation that shows that it is implementing the activities for which credit is requested to its Insurance Services Office, Inc. (ISO) CRS Specialist, who processes applications on behalf of FEMA. The community's activities and performance are reviewed during a verification visit. FEMA sets the credit to be granted and notifies the community, the state, insurance companies, and other appropriate parties. The classification is effective on either April 1 or October 1, whichever first follows the verification.

Each year the community must recertify or reverify that it is continuing to perform the activities that are being credited by the CRS. Recertification is an annual activity that includes progress reports for certain activities. The reverification takes place every few years and is conducted in the form of another verification visit to the community.

If a community is not properly or fully implementing the credited activities, its credit points, and possibly its CRS classification, will be revised. A community may add credited activities each year in order to improve its CRS classification.

Communities are encouraged to call on their ISO/CRS Specialist for assistance at any time. A weeklong CRS course for local officials is offered free at FEMA's Emergency Management Institute. The ISO/CRS Specialist, State NFIP Coordinator, and FEMA Regional Office have more information on this course, state workshops, and other CRS training opportunities.

No fee is charged for a community to apply for participation in the CRS. The only costs the community incurs are those of implementing creditable floodplain management activities and the staff time needed to prepare the CRS Application. The benefits to participating in the CRS program, beyond insurance premium reduction, include the following:

1) The CRS floodplain management activities provide enhanced public safety, a reduction in damage to property and public infrastructure, avoidance of economic disruption and losses, reduction of human suffering, and protection of the environment.

2) A community can evaluate the effectiveness of its flood program against a nationally recognized benchmark.

3) Technical assistance in designing and implementing some activities is available at no charge.

4) A CRS community's flood program benefits from having an added incentive to maintain its flood programs over the years. The fact that the community's CRS status could be affected by the elimination of a flood-related activity or a weakening of the

regulatory requirements for new development, should be taken into account by the governing board when considering such actions.

5) Implementing some CRS activities, such as floodplain management planning, can help projects covered under this plan qualify for certain other federal assistance programs such as the Flood Mitigation Assistance Program (FMA), the Hazard Mitigation Grant Program (HMGP), and the U.S. Army Corps of Engineers.

B. Wetlands

Wetlands are unique environments that are transitional areas between terrestrial and hydrologic systems. As a component of both systems, they perform a variety of important functions and are in a state of constant change. Wetlands help to maintain surface stream flow and groundwater recharge. They moderate stormwater runoff and downstream flood crests because they are natural water storage areas. Wetlands provide important habitat for many species of plant and animal life.

There are multiple problems associated with developing on wetland soils. Wetlands located in floodplains are often flooded. Draining or filling in of upland wetlands removes natural water storage, which yields increased waterflows downstream. Wetland soils are sensitive in two ways. First, they are easily compacted, resulting in uneven settling of structures. Second, wetland soils with low permeability and high groundwater tables are not suitable for the installation of on-lot septic systems due to the risk of surface and groundwater contamination.

Laws, such as the Federal Clean Water Act and similar state and local laws have led to the enforcement of wetland protection. In Pennsylvania, the U.S. Army Corps of Engineers and the Pennsylvania Department of Environmental Protection strictly regulate development in wetland areas. Therefore, any development of these areas is subject to both federal and state permitting processes.

According to the National Wetland Inventory (NWI), 58.5 acres (less than one percent) of the Township is classified as wetland. Wetlands are scattered throughout the Township but are commonly found along streams. It is important to note that the National Wetland Inventory (NWI) has limited accuracy and therefore, does not fully represent the extent and location of all wetlands in the Township. Further analysis of requisite wetland conditions (e.g., hydric soils) and field investigation is needed to identify and protect local wetland resources.

C. Steep Slopes

William M. Marsh states in his 1991 publication entitled *Landscape Planning: Environmental Applications*, "The need to consider topography in planning is an outgrowth of the widespread realization not only that land uses have slope limitations but also that slopes have been misused in modern land development. The misuse of slopes arises from two types of practices: (1) the placement of structures and facilities on slopes that are already unstable or potentially unstable; and (2) the disturbance of stable slopes resulting in failure, accelerated erosion, and/or ecological deterioration of the slope environment (p.52)."

Slopes with grades of 15 percent or greater are considered steep and prone to higher erosion rates than lesser grades. If disturbed, these areas can yield greater sediment loads on streams. Very steep slopes, with grades over 25 percent, produce heavy soil erosion and sediment loading. The majority of Lower Paxton Township's steep slopes are located along Blue Mountain, a geologic formation of the Ridge and Valley Province, and the stream channels, as shown on Map 9 of the Comprehensive Plan document. Approximately 5.0 percent of the Township has slopes of greater than 25 percent. The Township has taken measures to protect its steep slopes by amending its zoning ordinance to include a steep slope overlay district.

Though erosion and runoff in steep slope areas are natural processes, development activities located in these areas can alter the gradients and upset the natural balance. However, by redirecting water runoff from buildings and impervious surfaces away from the face of steeper slopes, severe soil erosion and drainage problems can be avoided.

The four factors influencing soil erosion are vegetation, soil type, slope size and inclination, and the frequency and intensity of rainfall. On most surfaces, vegetative cover is the single most important erosion control factor. The higher cover densities yield lower the soil loss to runoff as vegetation absorbs the impact of rainfall to the soil surface.

Septic systems for on-lot sewage disposal are impractical to construct and maintain on very steep slopes because the downhill flow of the effluent is too rapid. Improperly treated effluent is likely to surface at the base of the slope, causing wet, contaminated seepage spots. If there is a layer of impervious material such as dense clay or rock under shallow soils, the effluent may surface on the slope and run downhill unfiltered, potentially contaminating surface waters.

D. Soils

The *Soil Survey of Dauphin County, Pennsylvania* (1986) describes the soils found across the county and utilizes soil associations to describe how soil depth, slope, and drainage affect potential land use. Soil associations are multiple soil types that are found repeatedly across a given land area. The associations are helpful in attaining a general idea of soil quality, comparing different sections of the Township, and delineating large areas suited to particular uses, e.g., agriculture. Three soils associations have been identified in Lower Paxton Township and are detailed in Table 8-1.

Each soil type is unique in its origin, structure, texture, and composition. Its capacity to support a given land use, such as agriculture, is determined by these features. Since agriculture has the most specific requirements of our common land uses, these soils are more thoroughly classified according to their productivity. Prime soils are often reserved from developable areas.

Table 8-1

Soils in Lower Paxton Township

Association	Description	Topographic location	Bedrock material and depth	Surface condition	Suitability	Limitations to community development	Limitations to recreational development
Dekalb-Lehew	moderately deep, well-drained, gently sloping to very steep soils that have a channery sandy loam to channery loam subsoil	found along ridge of Blue Mountain	sandstone and sandstone-imbedded shale, 24-40 inches	*Dekalb*: very stony or channery surface, channery sandy loam subsoil; *Lehew*: very stony sandy loam, channery sandy loam or channery loam	Natural Resource Area: fairly well suited to moderately well suited as woodland	*Dekalb-Lehew*: moderate to severe due to depth to bedrock and slope	moderate due to channery conditions
Berks-Bedington-Weikert	deep to shallow, well-drained, nearly level to steep soils that have a shaly silt loam to shaly silt clay loam subsoil	found throughout valley and valley uplands	gray shale and sandstone, 18-50 inches	*Berks*: shaly silt loam surface, shaly and very shaly silt loam subsurface; *Bedington*: shaly silt loam surface, shaly silty clay loam subsurface; *Weikert*: shaly silt loam surface and subsurface	Agriculture: suitable for cultivated crops and livestock; Natural Resource Area: well suited for grassland, meadow, and woodland	*Berks*: moderate to severe due to depth to bedrock and slope; *Bedington*: slight to severe due to slope; *Weikert*: severe due to depth to bedrock and slope	*Berks*: moderate due to channery and shaly conditions; *Bedington*: moderate due to slope and shaly conditions; *Weikert*: moderate to sever due to slope, shaly conditions and depth to bedrock
Laidig-Buchanon-Andover	deep, well-drained to poorly drained, gently sloping and sloping soils that have a fragipan at a depth of 14 to 30 inches	found on the forested slopes of Blue Mountain	acid shale and sandstone, 46-60 inches	*Laidig*: leaf litter and gravelly loam surface, gravelly sandy and gravelly sandy clay loam subsurface; *Andover*: very stony and channery loam surface, channery clay loam and channery sandy clay loam subsurface; *Buchanon*: leaf litter and very stony loam surface, channery loam and channery clay loam subsurface	Natural Resource Area: *Laidig* and *Buchanon* well-suited as meadow or woodland; *Andover* suited as woodland	*Laidig*: moderate to severe due to slope, moderately slow permeability and stoniness; *Buchanon*: moderate to severe due to seasonal high water table, slope, slope permeability and stoniness; *Andover*: severe due to high water table	*Laidig*: moderate due to slope and gravelly conditions

Agricultural Soils

Prime farmland, as defined by the U.S. Department of Agriculture (USDA), is the land that is best suited to producing food, feed, forage, fiber and oilseed crops. It has the soil quality, growing season, and water supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. According to the USDA, prime farmland soils are usually classified as capability Class I or II. Approximately 7.9 percent of the Township's soils are classified as prime farmland, as shown on Map 9.

Farmland soils of statewide importance are soils that are predominantly used for agricultural purposes within a given state, but have some limitations that reduce their productivity or increase the amount of energy and economic resources necessary to obtain productivity levels similar to prime farmland soils. These soils are usually classified as capability Class II or III.

E. Other Environmentally Sensitive Soils

A number of soils are particularly sensitive to disturbance and development due to their characteristics. Highly erodible soils are typically found on steep slopes. These soils are unstable under conditions of disturbance and pressure and contribute sediment to surface waters. Many of these soils are already protected from development by the steep slope overlay district. Once again, vegetative cover can provide a first line of defense against soils sensitive to erosion. Highly and moderately erodible soils are shown on Map 8 of the Comprehensive Plan document.

Hydric soils are soils that retain water during a portion of the year. As a natural resource, hydric soils provide water storage and infiltration that naturally regulates water sources and flows. These soils are susceptible to compaction and uneven settling when developed. These factors impact land use decisions. These are shown on Maps 8 and 9.

E. Waters Resources

Surface Waters and Drainage

Surface waters include rivers, streams and ponds, which provide aquatic habitat, carry or hold runoff from storms, and provide recreation and scenic opportunities. Surface water resources are a dynamic and important component of the natural environment, but ever-present threats such as construction, clear-cutting, mining, overuse, and pollution have required the regulated protection of these valuable resources.

Lower Paxton Township is located in the Lower Susquehanna Subbasin (Subbasin Number 7) and is drained by Paxton, Spring and Swatara Creeks. Paxton Creek drains the northwestern portion, approximately 7,326.01 acres (41 percent) of the Township. It originates near Linglestown at an elevation of 1,220 feet and flows 12.8 miles southwest and south to its mouth at Steelton, falling to 292 feet above sea level. Its main channel is characterized by rolling hills, a broad valley and gentle slopes.

Spring Creek lies in the southwestern portion of the Township. Its source lies south of Union Deposit Road near the Central Dauphin East school properties. It flows southwest and is soon joined by Asylum Run, its first tributary, just beyond the Township border. Spring Creek drains 1,995.4 acres (11 percent) of the Township.

Swatara Creek originates in the Appalachian Mountain Section of the Ridge and Valley Province in Schulykill County and flows 71 miles southwest entering the Susquehanna River in the Triassic Lowland Section of the Piedmont at Middletown. It falls from 1,720 feet above sea level at its source to 268 feet at its mouth. Approximately 13.43 square miles of the 571 square mile watershed lie in Lower Paxton Township. The portion of the main channel that flows through Lower Paxton Township is characterized by hills, a broad valley and moderate slopes. The portion of Swatara Creek that flows from and through Lower Paxton Township is known as Beaver Creek. It originates northeast of Linglestown and flows south, draining 8,593.55 acres (48 percent) of the eastern portion of the Township.

Water Quality

The Pennsylvania Chapter 93 Water Quality Standards classify surface waters according to their water quality criteria and protected water uses. Selected bodies of water that exhibit exceptional water quality and other environmental features are referred to as "Special Protection Waters." Certain activities in those watersheds that could adversely affect surface water are more stringently regulated to prevent degradation. Land development, sewage treatment and disposal, industrial and municipal waste, mining and quarrying, timber harvesting, stormwater management, and confined feeding operations must follow guidelines found in PA DEP's Special Protection Waters Implementation Handbook, or other regulations relative to Special Protection Waters. In Lower Paxton Township, Paxton, Spring, and Swatara Creeks are all classified as Warm Water Fisheries.

Various public agencies, organizations, and concerned citizens located within Lower Paxton Township have expressed concern for the protection and restoration the watersheds. The following sections provide a brief discussion of these entities.

Watershed Associations

Out of concern for water resource resources, a watershed association has developed in each of the three watersheds in Lower Paxton Township. While the associations face several common issues, namely land use compatibility, sediment control, streambank erosion, and floodplain and stormwater management, each watershed has its own challenges, programs, and processes for community-based stewardship.

Paxton Creek Watershed Association

The Paxton Creek Watershed and Education Association (PCWEA) was organized by citizens in the City of Harrisburg, Lower Paxton Township and Susquehanna Township who were concerned with changes to the environment within their community. PCWEA aims to address erosion and flooding, to protect and enhance watershed resources and to facilitate hands-on education, particularly through secondary schools, Harrisburg Area Community College

(HACC), and the Oleview Nature Center. The organization approaches their conservation effort through grassroots public meetings as well as through planning workshops for local officials.

Through public visioning meetings in early 2001, PCWEA has identified environmental issues that residents perceive as threats to the Paxton Creek watershed: flooding and stormwater; changes to the landscape character such as sprawl, loss of open space and habitat, and farmland preservation; and the health of local water resources, such as surface and ground water quality. These issues comprised 77 percent of the concerns voiced in the public meetings. The organization has applied for funding to develop a Rivers Conservation Plan to address these and other watershed issues through improvement projects and education.

In order to address surface water quality, PCWEA has begun collecting water quality data via its Paxton Creek Rangers, an intergenerational volunteer monitoring group. This effort has been assisted by the PA Senior Environmental Corps (SEC) and coordinated with the watershed assessment, sponsored by the City of Harrisburg. The data will provide a baseline for future comparison after policy and/or physical improvements are made.

In addition, PCWEA plans to utilize remote sensing to analyze impervious surface coverage in the watershed. The association intends to acquire conservation easements in the Paxton Creek headwaters in order to protect the stream from adjacent developmental impacts. Finally, portions of the watershed will be assessed for their biological diversity and abundance, as an inventory of local flora and fauna and as a baseline for future comparison.

Through workshops and presentations to local officials, PCWEA intends to improve environmental protection of its watershed through public policy. Once the Rivers Conservation Plan for the Paxton Creek Watershed is complete, Lower Paxton Township and other watershed municipalities may be asked to make changes to land development regulations and to contribute to other forms of environmental protection through their authority. The Township may also be asked to support future watershed improvement projects through letters of support for funding applications, cooperation, or in kind contributions.

Spring Creek Watershed Association

The Spring Creek Watershed Association has been actively involved in watershed conservation activities for 30 years. The watershed is currently challenged with stormwater management at various sites, due to increased commercial development. Both water quantity and water quality are concerns as impervious surfaces reduces recharge and increases runoff, and as runoff absorbs pollutants and heat energy from these surfaces. Some specific sites have been identified and documented by local citizens. The association is awaiting the completion of a watershed assessment to direct flood mitigation and stream remediation projects.

Swatara Creek Watershed Association, Inc.

The Swatara Creek Watershed Association was founded during the 1970s. The Association has managed a state monitoring site (WQN #211) near Middletown since 1997 and completed a Watershed Conservation Plan in September 2000. The plan offers watershed-wide recommendations for its resources and recommends additional inventory and monitoring of major basins within the watershed, e.g., the Beaver Creek basin. The following management

options and projects are directly relevant to Township planning and suggest opportunities for cooperative community and watershed improvement:

Management Options

- Support implementation of land conservation techniques in subdivision design.
- Explore establishing growth areas and rural areas within the municipalities of the watershed.
- Actively enforce land use controls along waterways, especially keeping development out of floodplains.
- Support expanded recycling programs within the watershed as an alternative to landfill development.
- Inventory existing riparian buffers in the watershed. Identify areas that need to have riparian buffers established.
- Promote the development of conservation landscaping and management practices to reduce sediment load.
- Expand sewage capacity in the areas with the highest projected growth rates.
- Increase recreational opportunities within the watershed including park, recreational fields, stream access, etc.
- Increase passive recreational opportunities in the watershed.
- Develop a plan for the preservation of historic resources in the watershed.
- Develop a watershed wide parks and recreation plan for the watershed.
- Develop a trail and greenway master plan for the entire watershed.
- Create an overlay zone for stream buffers in the watershed.

Projects

- Identify areas for urban forest/woodlands
- Inventory brownfields in urban area
- Revise weed laws to allow for riparian buffers.
- Update and implement Act 537 plans.
- Protect important birding areas within the watershed.

The Swatara Creek Watershed (Rivers) Conservation Plan is available through the Association's website.

Other Organizations

Susquehanna River Basin Commission (SRBC)

The 1970 Susquehanna River Basin Compact, adopted by Congress and the Pennsylvania, Maryland, and New York legislatures, established the Susquehanna River Basin Commission (SRBC). The mission of the SRBC is to enhance public welfare through comprehensive planning, water supply allocation, and management of the water resources of the Susquehanna River Basin. Moreover, the compact established comprehensive planning as one of the primary duties of the SRBC. Sections 3.3 and 4.1 of the compact require the formulation of a

comprehensive plan for the immediate and long-range use, management, and development of the water and related land resources of the basin. SRBC's Comprehensive Plan, originally adopted on December 13, 1973, provides a basin wide strategy to serve SRBC and others in regard to the management of the water resources of the basin whereby the goals set forth in the compact, and such goals and objectives as may be determined by SRBC, may be effectively and efficiently achieved. The Commission also conducts specialized water resource planning projects as part of its responsibilities. An example of this is the development of a regional ground-water management plan.

SRBC has partnered with the US Army Corps of Engineers, PA DEP, and the Capital Region Water Board to complete two water management plans that may affect Lower Paxton Township in the long term. The Lower Susquehanna Water Comprehensive Management Plan will result in a framework for the execution of water resource related projects, likely implemented at a regional or county level.

These same partners have begun a water management plan for the Swatara Watershed to identify and prioritize alternatives for water resource management projected through the year 2030. Local citizens and government organizations (local, county, and state) have identified water use conflicts in the watershed. Particular concerns include water demand, environmental impacts, recreational use, and concentrated animal feeding operations. This planning effort will inventory existing data and data gaps, identify legislative policy and regulations that are relevant to watershed decision-making, involve stakeholders in information exchange through workshops, complete technical analysis, and summarize and prioritize recommended and feasible alternatives to potential water resources problems. The project aims to develop a water budget for the watershed that can be sustained through the year 2030.

Alliance for Aquatic Resource Monitoring (ALLARM)

The Alliance for Aquatic Resource Monitoring (ALLARM), a project of the Environmental Studies Department at Dickinson College, partners with Pennsylvania communities and individuals who are working to protect and restore watersheds. Founded in 1986, ALLARM's original mission was to study the effect of acid deposition on Pennsylvania's waterways. To that end, volunteer monitors have gathered data on a weekly basis at over 550 sites in 96 percent of Pennsylvania counties. This information, widely recognized as the most comprehensive database on pH and alkalinity of Pennsylvania streams, is used by conservation organizations as well as local and state government for policy development. In 1996, ALLARM expanded its focus and began to work with locally based groups to develop watershed-based water quality monitoring programs. Data from three sampling sites along Beaver Creek was collected in the late 1980s and early 1990s and is available from the Dauphin County summary page of the database at the ALLARM website (http://omega.dickinson.edu/storg/allarm/). ALLARM's Technical Support Center works cooperatively with volunteer stream monitoring groups (see Citizens Volunteer Monitoring Program below) across Pennsylvania to identify the watershed issues specific to that community.

Citizens Volunteer Monitoring Program (CVMP)

Pennsylvania's watersheds are monitored by a variety of organizations, schools and agencies that are included in the state's Citizens' Volunteer Monitoring Program (CVMP). The goals of the CVMP are twofold: (1) to foster stewardship by giving communities the tools they need to meet their own goals related to water resources; and (2) to give PADEP a better understanding of water resources by receiving quality-assured data form volunteers.

Most CVMP groups use their data for education, problem identification, watershed planning, nonpoint assessment, restoration evaluation, research and waters classification / standards. In addition to monitoring groups, there are a number of organizations that provide technical and organizational support services to the groups, such as ALLARM.

The CVMP has worked closely with the national Environmental Alliance for Senior Involvement (EASI) in establishing a statewide database for the volunteer monitoring groups to use. There are two components of the database. One is for the use of the Pennsylvania Senior Environmental Corps (PASEC) members or any other group that wishes to use the standardized protocols used by the PASEC. The other component is open to any group regardless of the protocols they are using.

The PASEC program is the nation's first statewide-organized senior environment corps and is the result of a multi-agency and national non-profit group partnership. In May 1997, the PADEP, PA Department of Aging, and the EASI signed a letter of intent, starting the PASEC program. By November of 1997, the PASEC was fully operational, with ten pilot sites established. The Capitol Region PASEC serves as the local chapter that includes Lower Paxton Township.

Stormwater Management Planning

The Pennsylvania Stormwater Management Act, Act 167 of 1978, requires counties to prepare stormwater management plans on a watershed basis. These plans must be prepared in consultation with the affected municipalities. The Pennsylvania Department of Environmental Protection's (PADEP) stormwater management program administers a grant program under Act 167 for counties to prepare watershed plans that provide standards for controlling runoff from new development. A key objective of a stormwater management plan is to coordinate decisions of the watershed municipalities. Once the plans have been approved by the PADEP, they may then be implemented through mandatory municipal adoption of ordinance provisions consistent with the plan. Dauphin County has prepared a Stormwater Management Plan for each of the drainage basins found within Lower Paxton Township. The plan for the Paxton Creek Watershed was completed in 1991; a plan for Spring Creek followed in 1993; and a plan for the Beaver Basin of Swatara Creek was completed in 1997, as part of a Multi-Basin Plan for portions of the Swatara Creek Watershed.

The three Stormwater Management Plans were comparable in content, analysis, and language. Each described development to date and forecast anticipated build out according to municipal regulations. Within Lower Paxton, the Spring Creek Watershed has the least amount of undeveloped land and therefore development in this area will have only moderate impacts to

the watershed. The Paxton and Beaver Creek drainages both have a much greater amount of undeveloped land that could lead to significant impacts on water quantity and water quality in streams and groundwater resources. Each plan compared the existing stormwater and floodplain regulations of each municipality in its drainage area for current policy. The plans cited that Lower Paxton has a maximum impervious area limit for most of its zoned uses, storm drainage facilities standards and drainage easement requirements within its Subdivision and Land Development and Zoning Ordinances, as well as a floodplain overlay district. Based on future development potential, each plan proposed release rates (standard, specified or provisional) for subdivided units of the drainage area. Finally, each applied the Penn State Runoff Model (PSRM) for the estimation of stormwater quantities. The Multi-Basin Plan included an economic analysis that showed that the proposed change in release rate from 70 percent to 60 percent imposed a minimal expense of 3 to 6 percent in construction and acquisition costs. (In some cases, the cost was less due to unaffected acquisition costs. The Paxton Creek plan offered a model ordinance for the four municipalities to amend and adopt.

A summary and update of localized flooding problem areas that were included in the three Act167 plans is listed in Table 8-2.

Rivers Conservation

The Pennsylvania Rivers Conservation Program (RCP) has been developed by PA DCNR to conserve and enhance river resources (including creeks and streams) through preparation and accomplishment of locally initiated plans. The program provides technical and financial assistance to municipalities and river support groups to carry out planning, implementation, acquisition and development activities. Rivers conservation planning has additional benefits in that completed rivers conservation plans help qualify conservation organizations and local governments for future funding. According to PA DCNR, only the Swatara watershed has completed a Rivers Conservation Plan. Details of the plan, titled a Watershed Conservation Plan, are available at the Swatara Watershed Association website, http://www.mbcomp.com/swatara/contents.htm.

Table 8-2
Localized flooding problem areas in Lower Paxton Township

Watershed	Site #	Cause	Location	Solution	Comments
Beaver Creek		none given	Linglestown Area	Install or upgrade drainage areas	
		none given	Along Beaver Creek	No solution proposed	
Paxton Creek	1,4	No existing SW Facilities	Blue Mountain Parkway	Install properly designed SW facilities	Replacement of existing pipes completed with resurfacing of roadway
	2,3,5	Undersized pipe	Patton Road	Replace with properly sized pipe	Work proposed
	6	No existing SW Facilities	Linglestown Road	Install properly designed SW facilities	Work may involve coordination with PENNDOT
	7	Undersized pipe	Vesta Drive	Replace with properly sized pipe	
	8,25	No existing SW Facilities	Colonial Club Drive	Install properly designed SW facilities	
	9	No existing SW Facilities	Ranger Road	Install properly designed SW facilities	
	10	Pipe too short	Gale Drive	Replace with properly sized pipe	
	11	Undersized pipe	Carol Drive	Replace with properly sized pipe	Pipe replaced and enlarged in 1986
	12	Undersized pipe	Crums Mill Road	Replace with properly sized pipe	
	13	No existing SW Facilities	Dover Road at Kimberly Drive	Install properly designed SW facilities	
	14	No existing SW Facilities	Patton Road	Install properly designed SW facilities	
	15	Undersized pipe	Ranger Road	Replace with properly sized pipe	
	16	No existing SW Facilities	Catherine Street	Install properly designed SW facilities	Installed 1999
	17,42	No existing SW Facilities	Crums Mill Road	Install properly designed SW facilities	Replacement of one deteriorated pipe since 1991; developer has made improvements since 1991
	18	No existing SW Facilities	Valley View Road	Install properly designed SW facilities	
	21,22	Undersized pipe	Goose Valley Road	Replace with properly sized pipe	One pipe replaced and enlarged (east of Fairway Lane)
	23	No existing SW Facilities	Lake Drive	Install properly designed SW facilities	
	24	Low area; poor drainage	Near Bainbridge Drive	Install or upgrade drainage areas	
	26	Undersized pipe	McIntosh Road	Replace with properly sized pipe	Maintenance prior to 1991
	27	No existing SW Facilities	McIntosh Road	Install properly designed SW facilities	
	28	Undersized pipe	Near Goose Valley Road	Replace with properly sized pipe	
	29	No existing SW Facilities	Loop Drive	Install properly designed SW facilities	
	30,33	No existing SW Facilities	Earl Drive	Install properly designed SW facilities	
	31,32,34	No existing SW Facilities	Irene Drive	Install properly designed SW facilities	
	35	No existing SW Facilities	Sunset Drive	Install properly designed SW facilities	

Table 8-2 (continued)
Localized flooding problem areas in Lower Paxton Township

	36	Undersized pipe	Ridgeview Drive	Replace with properly sized pipe	
	37	Undersized pipe	Lockwillow Avenue	Replace with properly sized pipe	Pipe installed since 1991
	38	No existing SW Facilities	Johnson Street	Install properly designed SW facilities	
	39	No existing SW Facilities	Ridgeview Drive	Install properly designed SW facilities	
	40	No existing SW Facilities	Stratford Drive	Install properly designed SW facilities	
	41	Pavement improperly draining	Umberger Street	Install or upgrade drainage areas	
	43	No existing SW Facilities	Drexel Road	Install properly designed SW facilities	
	44	No existing SW Facilities	Berwyn Drive	Install properly designed SW facilities	
	44,45,47	No existing SW Facilities	Carolyn Street	Install properly designed SW facilities	
	46	No existing SW Facilities	Thornwood Road	Install properly designed SW facilities	
	48	No existing SW Facilities	Beaver Road, Lockwillow Avenue, and Sunset Avenue	Install properly designed SW facilities	
	49	No existing SW Facilities	Walnut Street	Install properly designed SW facilities	
	50	No existing SW Facilities	Ethel Street	Install properly designed SW facilities	
	51	Undersized pipe	Devonshire Road	Replace with properly sized pipe	
	52	No existing SW Facilities	Cove Road	Install properly designed SW facilities	Pipe replaced in 1994
	53	No existing SW Facilities	North Houcks Road	Install properly designed SW facilities	Pipe installed in 1994; drainage problems remain
	54	No existing SW Facilities	Devonshire Road and N Houcks Road	Install properly designed SW facilities	
	55	No existing SW Facilities	Chestnut Street	Install properly designed SW facilities	
	56	No existing SW Facilities	Madison Street	Install properly designed SW facilities	
	57	No existing SW Facilities	Linden, Ash, Spruce, Madison and Chestnut Streets	Install properly designed SW facilities	
	58	No existing SW Facilities	Madison, Walnut and Rauch Streets	Install properly designed SW facilities	
	59	No existing SW Facilities	Care Street	Install properly designed SW facilities	
	60	No existing SW Facilities	Manor Drive	Install properly designed SW facilities	Pipe installed since 1991
Spring Creek	1	Inadequate storm sewers	East Park Drive	Upgrade sewer system	
	2	No storm sewers	Victoria Avenue	Install sewer system	
	3	Inadequate storm sewers	Fairfield Street	Upgrade sewer system	
	4	No storm sewers	Madison/Willow Street	1993 planned improvement	
	5	Inadequate storm sewers	Berryhill Road	Upgrade sewer system	Inlets maintained in 1996
	6	No storm sewers	Marblehead Street/Elba Lane	Install sewer system	
	7	No storm sewers	Chelsea Drive	Install sewer system	

SW = Stormwater
Source: Lower Paxton Township

Groundwater Quality and Supply

Groundwater quality and supply is ultimately controlled by bedrock geology. Geologic factors such as rock type, intergranular porosity, rock strata inclination, faults, joints, folds, bedding planes, and solution channels affect groundwater movement and availability. Groundwater quality is dependent on the interaction between the groundwater and the bedrock. The more soluble bedrock, such as limestone, allows more compounds to be dissolved in the groundwater, thus resulting in increased hardness values.

Lower Paxton Township is underlain by a wide variety of sedimentary rocks, which are folded into moderately open to closed plunging folds. These rocks were formed during the Silurian (405 to 430 million years ago) and Ordovician (430 to 500 million years ago) periods. The Silurian rocks consist of dark gray fossiliferous and argillaceous limestone, siltstone, and red, gray, or white quartzitic sandstone. Rocks of the Ordovician age consist of dark gray fossiliferous and greenish gray fossiliferous shale, siltstone, and red, gray or white quartzitic sandstone. Table 8-3 further characterizes the rock types underlying the Township.

As stated in the public water narrative in the Community Utilities chapter, recent drought conditions have severely impacted the regional groundwater supply. Since groundwater recharge is limited to the infiltration of local precipitation, water resource planning and conservation activities is essential to preserving water supply for the Township and the region.

Table 8-3
Engineering Characteristics of Lower Paxton Township's Geologic Formations

Formation	Description	Porosity	Permeability	Ease of Excavation	Foundation Stability	Quantity of Groundwater (Median Yield)
Clinton Group (Sc)	fossiliferous sandstone; hermatitic sandstone and shale	Low	Low	Moderate	Good	12gpm
Hamburg Sequence - Graywacke (Ohg) - Shale and Limestone (Ohl)	shale, impure sandstone, finely crystalline and/or shaly limestone	Moderate to high	High	Moderate to difficult	Good	10-50 gpm
Martinsburg Formation (Om)	shale w/ siltstone, metabentonite, sandstone and limestone	Low	Low	Moderate to difficult	Good	32gpm
Tuscarora Formation (St)	sandstone and quartzite	Low to moderate	Low	Difficult	Good	23gpm

Sources: Pennsylvania State University, Earth Resources Research Institute, 1994.
Alan R. Geyer and J. Peter Wilshusen, Engineering Characteristics of the Rocks of Pennsylvania. 1992. (Pennsylvania Geological Survey, Harrisburg, PA).

G. Vegetation

As Pennsylvania was once a forested landscape, its vegetative resources are a vital part of its history and its character. The greatest contiguous area of woodland lies on the slopes and ridge of Blue Mountain. Forested areas can also be found scattered along the stream corridors of Paxton, Spring and Beaver Creeks.

Vegetation, particularly forests, performs several vital functions for the local ecology. It provides habitat, both food and shelter, for local wildlife. They circulate nutrients between the soil and the atmosphere. They stabilize soils prone to erosion and filter nutrients, pollutants, and sediment from runoff, particularly along streambanks. Finally, forests are productive sources of timber.

H. Public Comments

Natural resources, i.e. the environment, are indeed valued by Township residents. Nearly 10 percent of the responses given by CPU meeting participants related to the environment. Residents of the Colonial Park South and Southeast Quadrant CPUs specifically valued local wildlife. Those from Colonial Park North and Linglestown listed view and access to Blue Mountain as an asset to their CPUs. Residents from the Union Deposit CPU listed the green rolling landscape and open space among its most liked features, also relating some comments to Blue Mountain. Additionally, participants valued the variety of the landscape terrain as contributing to community assets.

Reponses of least liked features regarding natural resources related to impacts from development. Participants listed the loss of environmentally sensitive areas to construction among least liked features. The loss of habitat was also noted.

Trends and Issues

- As an upland area, Lower Paxton Township is minimally susceptible to flood hazards.
- Approximately 1,326.1 acres (7.4 percent) of the Township's land lies in the 100-year floodplain.
- Lower Paxton Township participates in the National Flood Insurance Program, however it does not participate in NFIP's Community Rating System, which promotes floodplain conservation and flood protection.
- According to the National Wetland Inventory (NWI), 58.5 acres (less than one percent) of the Township is classified as wetland. Due to the limited accuracy of the NWI, additional wetlands may be located in these and other areas of the Township.
- The majority of the Township's steep slopes are found on Blue Mountain and along the stream channels.

- Overall. The soils of Lower Paxton Township are well-drained and moderately limited in development potential by depth to bedrock, seasonal high water table, slope, slow permeability, and stoniness.

- As the source of streams in three separate watersheds, future environmental impacts will result within the township but also in downstream communities.

- The land area of Lower Paxton Township is divided among three watersheds and their respective streams: Beaver Creek, Paxton Creek, and Spring Creek.

- Each watershed has an active watershed association. Each association has identified issues and concerns regarding water resources in their watershed. While a Rivers/Watershed Conservation Plan has been developed for the Swatara Creek Watershed (including Beaver Creek), no general or specific conservation plans or recommendations have been developed for the watersheds in the Township.

- In addition to concerned local citizens, a number of public and private agencies and organizations are working in Pennsylvania to protect water resources. These agencies and organizations can be a significant source of technical and financial assistance to those involved in water and other resource protection activities.

- Water Management Plans are currently in development for the Lower Susquehanna River Basin and the Swatara Creek watershed. These long-range planning studies may recommend general or specific water management policies or programs to the municipalities within their watersheds. As a municipality in each of these watersheds, Lower Paxton Township may receive water management recommendations from these plans.

- Act 167 Stormwater Management Plans have been completed and approved by DEP for each of the three watersheds in the Township.