

The identification characterization of natural resources is important to planning, because natural resources perform vital ecological functions and are costly to disregard. This inventory of land, water and living resources characterizes opportunities and constraints to development so that future development in the Lower Swatara Township takes place in an environmentally sensitive manner. Map graphics in this section are excerpted from the 2008 Dauphin County Comprehensive Plan.

Geology and Groundwater

Underlying geologic formations shape the Township’s topography and determine its slope, soil and groundwater characteristics. Physical factors such as rock type, porosity (open spaces within the rock) and permeability (ease of fluids moving through the rock) affect groundwater movement and availability. Bedrock chemistry influences groundwater quality and hardness.

Local geology comprises eight distinct formations. See Figure 1-1 for locations and Table 1-1 for features. The formations vary widely in their porosity and permeability. Most formations are difficult to excavate. All

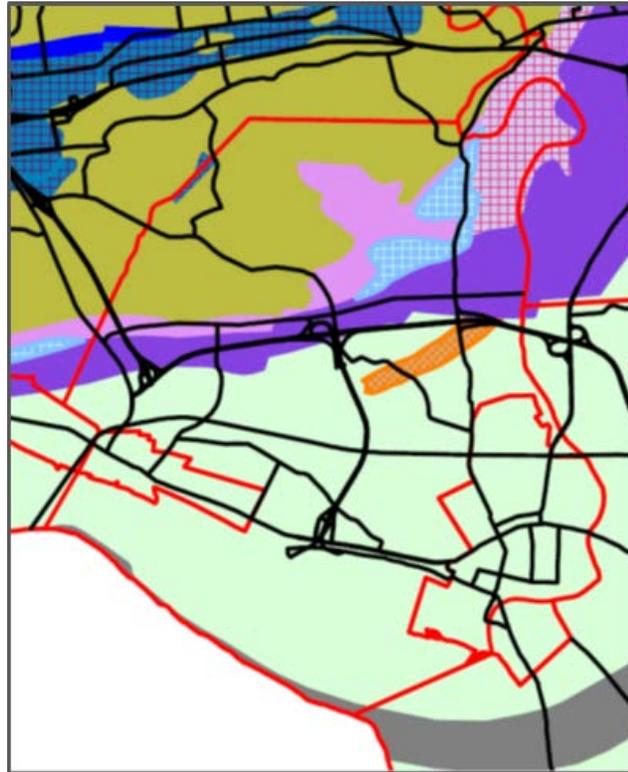


Figure 1-1 Excerpt from Map 3-1 Geology, Dauphin County Comprehensive Plan, 2008

Table 1-1 Engineering Characteristics of Geologic Formations

Formation	Secondary Porosity	Permeability	Ease of Excavation	Foundation Stability	Groundwater
 Annville – limestone	Moderate to high	Low	Difficult	Good	Large to very large
 Diabase	Very low	Low	Difficult	Good	5 gal/min
 Epler – limestone-dolomite	Low to medium	Low	Difficult	Good	15 gal/min
 Gettysburg – sandstone	Moderate	Moderate	Moderately easy to difficult	Good	66 gal/min
 Gettysburg Conglomerate – quartz	Low	Low	Difficult	Good	11 gal/min
 Hamburg Sequence – shale	Moderate	Very high in solution openings	Moderately easy to difficult	Good	10-50 gal/min
 Hershey and Mysertown – limestone-dolomite	Low	Low to moderate	Moderately easy	Good	25 gal/min
 Ontelaunee - dolomite	Moderate to high	High	Difficult	Good	200-500 gal/min

Source: Environmental Geology Report 1: Engineering Characteristics of the Rocks of Pennsylvania, Pennsylvania Department of Environmental Resources, 1982.

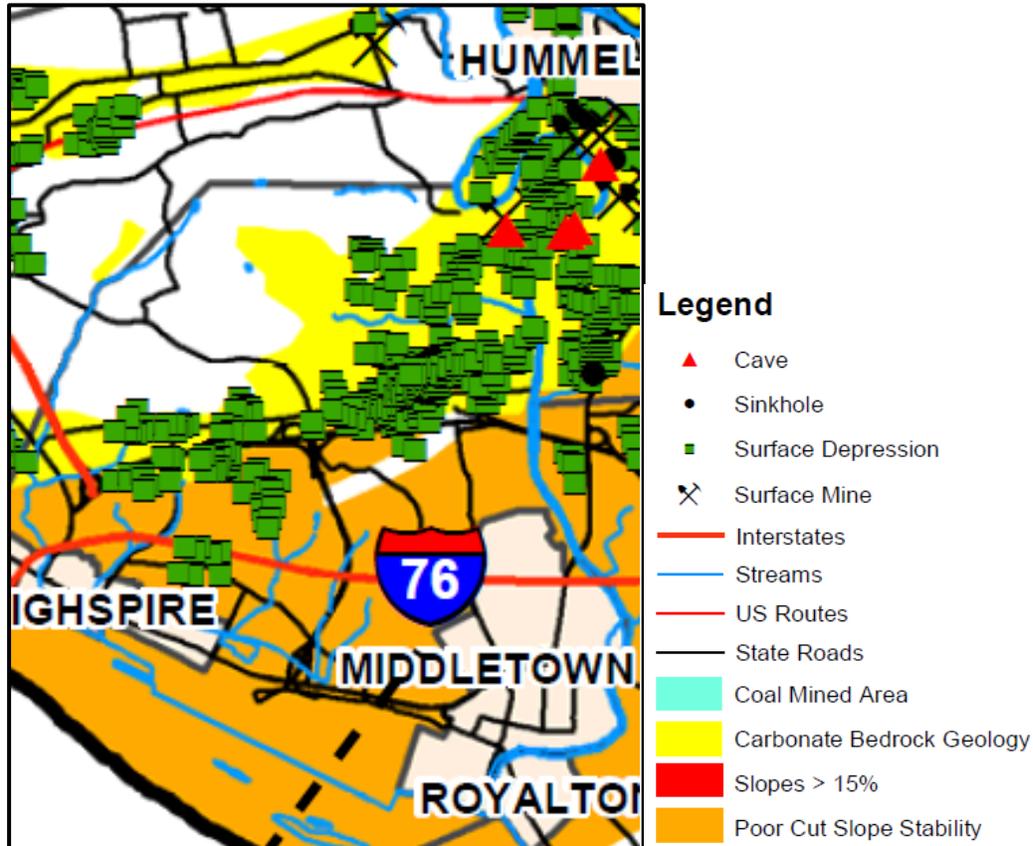


Figure 1-2 Excerpt of Figure 2-9 Geologic Hazards of the Dauphin County Hazard Vulnerability Assessment and Mitigation Plan

provide good foundational stability for structures though the Gettysburg formation (south of PA 283) has poor stability as a cut slope. Diabase has the lowest groundwater yield, but this has little effect on development potential since this formation generally underlines the airport.

The limestone formations can provide stone suitable for quarrying and are also prone to sinkholes, surface depressions and caverns. See Figure 1-2 for known locations. Lands near Fiddlers Elbow are in fact quarried, while others underlain by limestone formations have been developed for residential, commercial and industrial uses. As of 2010, the Dauphin County Hazard Mitigation Plan estimates that 435 existing structures in the Township could be affected by land subsidence.

Implications

- Local geology is a limitation to development primarily in that it may be costly to excavate or to reinforce foundations in areas of carbonate geology, which have the potential to develop sinkholes, surface depressions, and caverns.
- Poor cut slope stability south of PA 283.
- Groundwater yields are not a limitation to development.
- Limestone formations pose some cost and/or risk for development.

Steep Slopes

Slopes with grades of 15 percent or greater are considered steep by most municipal planning standards. Slopes with grades over 25 percent are considered very steep. When disturbed, these slopes are prone to higher erosion rates that can yield greater sediment loads in streams.

Steep slopes in the Township are illustrated in Figure 1-3.

Steep slopes (≥ 15 percent) are found on Chambers Hill, along Swatara Creek and along North Union Street just south of PA 283. These areas total 306 acres (or 3.8 percent) of the Township. Development in these areas has been minimal due to the natural constraint of nearby floodplains and to the high cost of extending infrastructure to these areas.

Implications

- Disturbance of steep slopes should be minimized and managed to protect water quality.

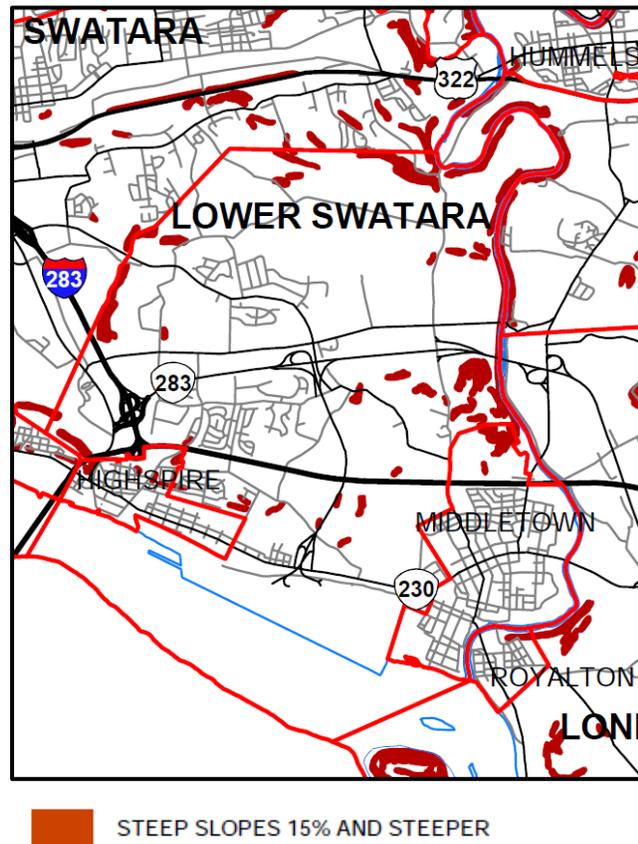


Figure 1-3 Excerpt from Map 3-4 Steep Slopes, Dauphin County Comprehensive Plan, 2008

Soils

The *Soil Survey of Dauphin County, Pennsylvania* (1986) describes the soil classifications found across the county. Soil types are unique in its origin, structure, texture, and composition. Soil associations are soil types that are commonly found together across a given land area and describe how soil depth, slope, and drainage affect potential land use. The soils associations found in the Township are mapped in Figure 1-4 and characterized in Table 1-2.

According to the Soil Survey, four soil associations are found in Lower Swatara Township. All are characterized by deep and well-drained soils over nearly level to moderate slopes. Flooding occurs primarily in the southern portion of the Township and along the creek, though this has not precluded development. A shallow depth to bedrock beneath the Berks-Bedington-Weikert soils in the northwest portion of the Township may limit or add cost to excavation.

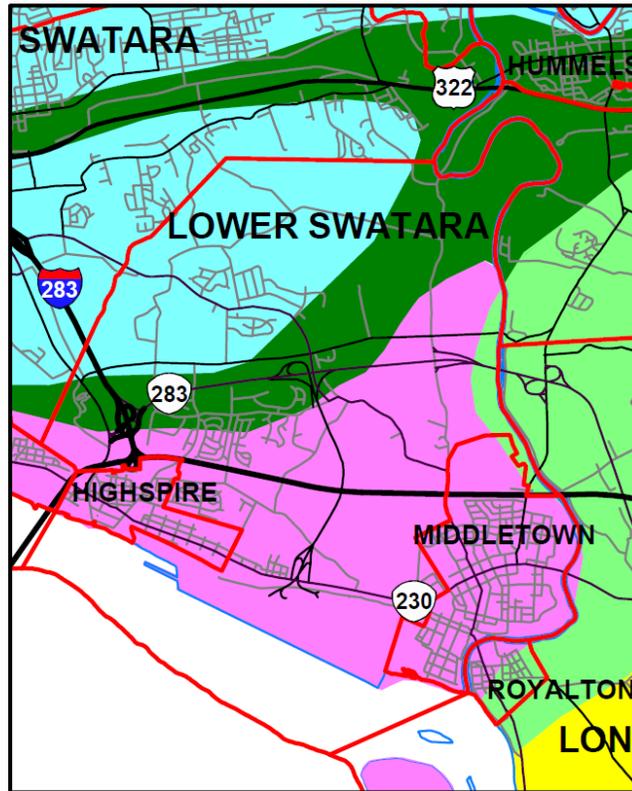


Figure 1-4 Excerpt from Map 3-5 Soils, Dauphin County Comprehensive Plan, 2008

Table 1-2 Soil Associations in Lower Swatara Township

Soil Association	Description	Depth to bedrock, material	Limitations to development
 Berks-Bedington-Weikert	Deep to shallow, well drained, nearly level to steep	10" to 20" to shale and 3.5' to 8' to sandstone	Depth to bedrock
 Hagerstown-Duffield	Deep, well drained, nearly level to gently sloping	4' to 12' to limestone	None
 Lewisberry Neshaming	Deep and moderately deep, well drained, gently sloping and sloping	42" to 48" to shale and sandstone	None
 Duncannon-Chavies-Tioga	Deep, well drained, nearly level to gently sloping	3' to 8' to alluvial deposits	Flooding

Source: Soil Survey of Dauphin County, 1972

Agricultural Soils

Prime farmland, as defined by the U.S. Department of Agriculture (USDA), is the land that is best suited for crop production. It has the soil quality, growing season, and water supply needed to economically produce a sustained high yield of crops when it is managed using acceptable farming methods. According to the USDA, prime farmland soils are usually classified as capability Class I or II of the eight classifications.

In many cases, agricultural soils are designated without consideration for existing development. While there are over 4,100 acres (50.8 percent) of agricultural soils in the Township, more than half of this land is covered by development, not farmed. The percentage of agricultural soils in open space areas is 1,792 acres (22.2 percent). Important agricultural soils are shown in Figure 1-5.

Other Environmentally Sensitive Soils

Highly erodible soils are typically found on steep slopes. These soils are unstable under conditions of disturbance and pressure and easily contribute sediment to surface waters. Vegetative cover can provide a first line of defense against erosion. Most steep slopes in the Township are currently wooded.

Hydric soils are soils that retain water during a portion of the year. They provide water storage and infiltration to groundwater below the surface. These soils are susceptible to compaction and uneven settling when disturbed. The Township contains 170.8 acres (or 2.1 percent of the Township's land area) as hydric soils. Most hydric soils are encompassed by wetlands, which are federally regulated.

Implications

- Soils in the northern portion of the Township are well-suited to crop production and presently are farmed. Yet, these soils lie close to the developed and developing areas and local farmers have not sought to preserve these farmlands.
- Steep slopes should not be disturbed; if disturbance or development is permitted, impacts should be minimized and managed until the new slopes are stabilized.

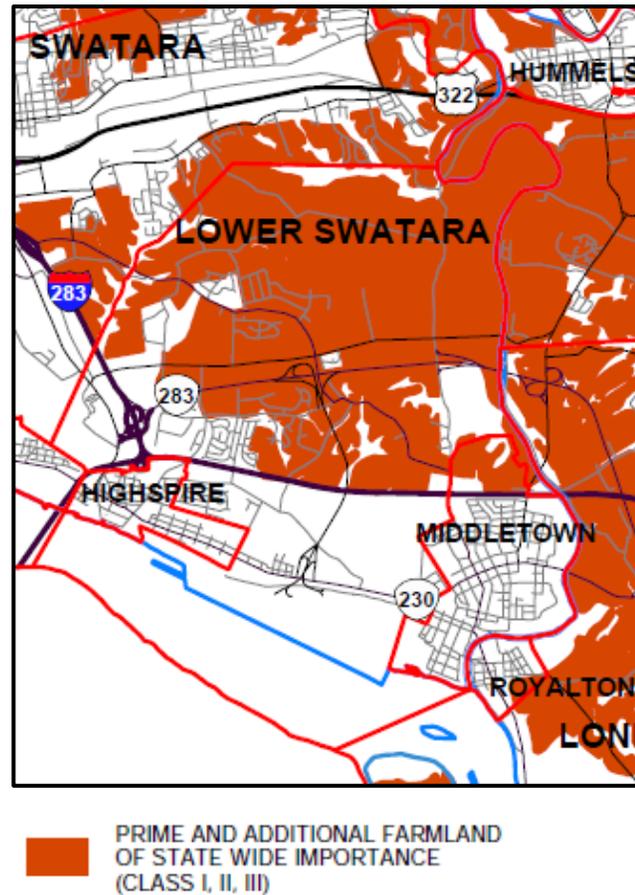


Figure 1-5 Excerpt from Map 3-6 Important Farmlands, Dauphin County Comprehensive Plan, 2008

Surface Waters

Local topography drains surface waters toward either the Susquehanna River or Swatara Creek, a river tributary. These watersheds are illustrated in See Figure 1-6.

Surface waters include rivers, creeks and streams, and ponds. They provide aquatic habitat, carry or hold runoff from storms, provide sources of drinking water, carry treated wastewater, and provide recreation and scenic opportunities.

The Swatara Creek watershed begins near Tremont in Schuylkill County and enters the Susquehanna River nearly 72 miles downstream at Middletown. The drainage area includes 571 square miles spanning four counties. Four small tributaries to Swatara Creek drain the eastern portions of the Township.

Three tributaries to the Susquehanna River drain the western half of the Township. Laurel Run originates in the vicinity of Strites Farm on Chambers Hill and flows southwest through Highspire. Agriculture and residential development comprise the majority of land use by area, however some commercial, industrial, and transportation uses are present. Surd Run flows along Lumber Street, draining the Williams Farm, approximately half of the Shapes Gardens development, the Turnpike interchange area, and the southern region of the Rosedale subdivision. Post Run drains the south central portion of the Township and is piped under PA 230 to reach the river. Historically, heavy rainfall events have resulted in flooding in the Post Run watershed.

Surface Water Quality

The Pennsylvania Chapter 93 Water Quality Standards classify surface waters according to their water quality criteria and protected water uses. Swatara Creek and Laurel Run are classified as warm water fisheries in Lower Swatara Township.

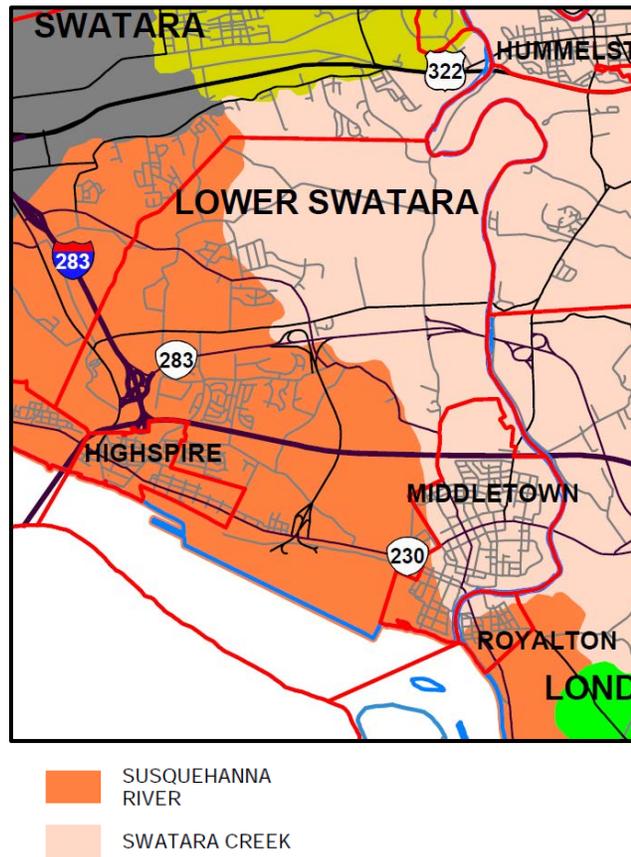


Figure 1-6 Excerpt from Map 3-2 Watersheds, Dauphin County Comprehensive Plan, 2008

Floodplains

Floodplain areas perform critical ecologic functions. They absorb, store, and release large amounts of water to the surrounding soils and groundwater systems. Their natural vegetation helps to filter excess nutrients from runoff, stabilize stream banks, and reduce soil erosion. Floodplains also provide habitat for terrestrial wildlife and influence stream conditions for aquatic life. Restricting new development from the floodplain helps to preserve these functions and reduces the threat to human life and property caused by periodic flooding.

For regulatory purposes, a floodplain is defined by the base flood, which has a predicted one percent chance of being equaled or exceeded in a given year; the often cited “100-year flood” is a misnomer. The floodplain boundaries for Lower Swatara Township are shown in Figure 1-7.

Approximately 496.5 acres (6.1 percent) of the Township lie in the floodplain. Flooding is the most frequent and widespread natural hazard for the Township.

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. Lower Swatara has participated in the NFIP since 1977.

The [NFIP Community Rating System](#) (CRS) encourage community floodplain management activities that exceed the minimum NFIP standards. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that: (1) reduce flood losses, (2) facilitate accurate insurance rating, and (3) promote the awareness of flood insurance. The Township currently does not participate in the CRS.

The Code of Ordinances of Lower Swatara Township restricts new development in the floodplain areas. However, much of the floodplain was developed before these regulations were in place; 140 structures are at risk. Dam failure, also results in flooding, would likely affect 71 existing structures in the Township. The Dauphin County Hazard Mitigation Plan reports 53 flood loss claims and total claims payments of \$489,970 to date. Five repetitive loss properties (for which 2 or more flood insurance claims have been paid for more than \$1,000 in a 10-year period) have reported 12 losses.

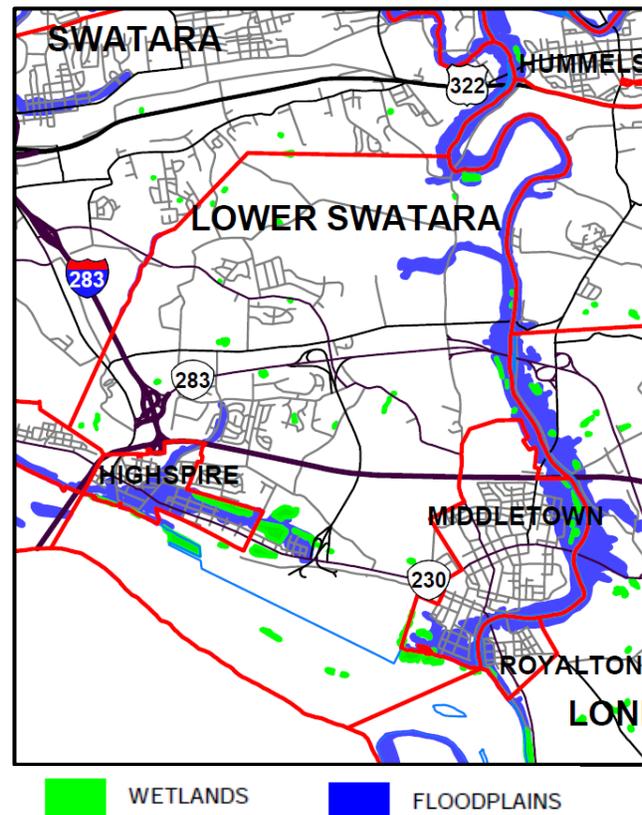


Figure 1-7 Excerpt from Map 3-3 Floodplains and Wetlands, Dauphin County Comprehensive Plan, 2008

Wetlands

Wetlands are transitional areas between land and water systems along rivers and lakeshores and in upland depressions. Wetlands help to maintain surface stream flow and groundwater recharge. They moderate stormwater runoff and downstream flood crests. They also provide important habitat for many species of plant and animal life. Most wetlands are naturally occurring, while others have resulted from grading and land management techniques.

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; no local regulations are required.

The National Wetlands Inventory (NWI) analyzes datasets to estimate the locations of wetlands, which can then be field verified and delineated. The NWI results are shown in Map 3-3 Floodplains and Wetlands of the 2008 Dauphin County Comprehensive Plan. See Figure 1-7. The NWI estimates 142.6 acres of wetlands in the Township, or 1.8 percent of the total area.

Implications

- Floodplains and wetlands are not suitable areas for development as both perform integral functions in drainage and groundwater recharge.

Vegetation and Wildlife

The Natural Areas Inventory of Dauphin County (2005) presents the County's known outstanding natural plant, animal and geologic features. The inventory provides locations of the most significant known areas of habitat for animal and plant species of special concern: endangered, threatened, or rare in the County, and makes recommendations for their conservation. Three sites of local significance are found in the Township. See Figure 1-8 or locations and Table 1-3 for features.

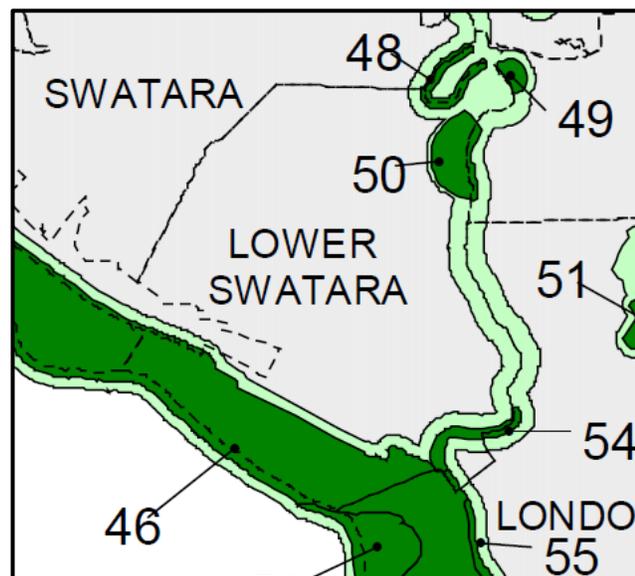


Figure 1-8 Site Index by Municipality, Natural Area Inventory, Dauphin County, 2005

Task 1-3 Locally Significant Natural Areas

Site No.	Site Name
46	<p>SUSQUEHANNA RIVER AT MIDDLETOWN for Bald Eagle habitat Added in 2005 Location: Londonderry, Swatara, Lower Swatara Twps. Middletown Boro & York Co. Conservation Recommendations: Conservation and repair of a 100 meter-wide forested buffer along the shores of the Susquehanna River will help protect the river from sources of pollution and habitat fragmentation. Areas frequently flooded by seasonal and yearly fluctuations in the river level should be restricted from future development. Conservation of the floodplain habitat will help mitigate the effects of floodwaters on adjacent developed areas.</p>
48	<p>SWATARA CREEK AT FIDDLER’S ELBOW / FIDDLER’S ELBOW BLUFFS for aquatic animal species Updated in 2005 Location: Derry, Lower Swatara, Swatara Twps. Conservation Recommendations: Maintaining the best quality water possible will help these species persist at this site in the future.</p>
50	<p>SWATARA CREEK WOODS for two Pennsylvania Threatened plants No change Location: Derry, Lower Swatara Twps. Conservation Recommendations: None</p>

Source: Natural Area Inventory, Dauphin County, 2005

The NAI’s general recommendations for the Township state:

Forested riparian corridors should be restored and maintained where they remain. Forested buffers help filter surface water runoff, preventing many non-point sources of pollution from entering waterways, protecting water quality in the township and the Susquehanna River basin. In addition, reforestation of creek and stream banks can help link larger forested blocks together, contributing to their utility as a natural wildlife corridor. The forested blocks of the township appear to be clustered in a few areas, lending themselves to protection and connectivity. The Susquehanna River in this area is peppered with large and small islands that provide diversity in the river’s topography and are important habitats for wildlife.

Implications

- The three natural sites contribute to flood mitigation and water quality and provide habitat for species of that are unique or rare to Pennsylvania. For these reasons, they should be protected from development and related impacts.

Intentionally bank

Population, demographics and household types are important to understanding and representing its residents' cultural values and service needs.

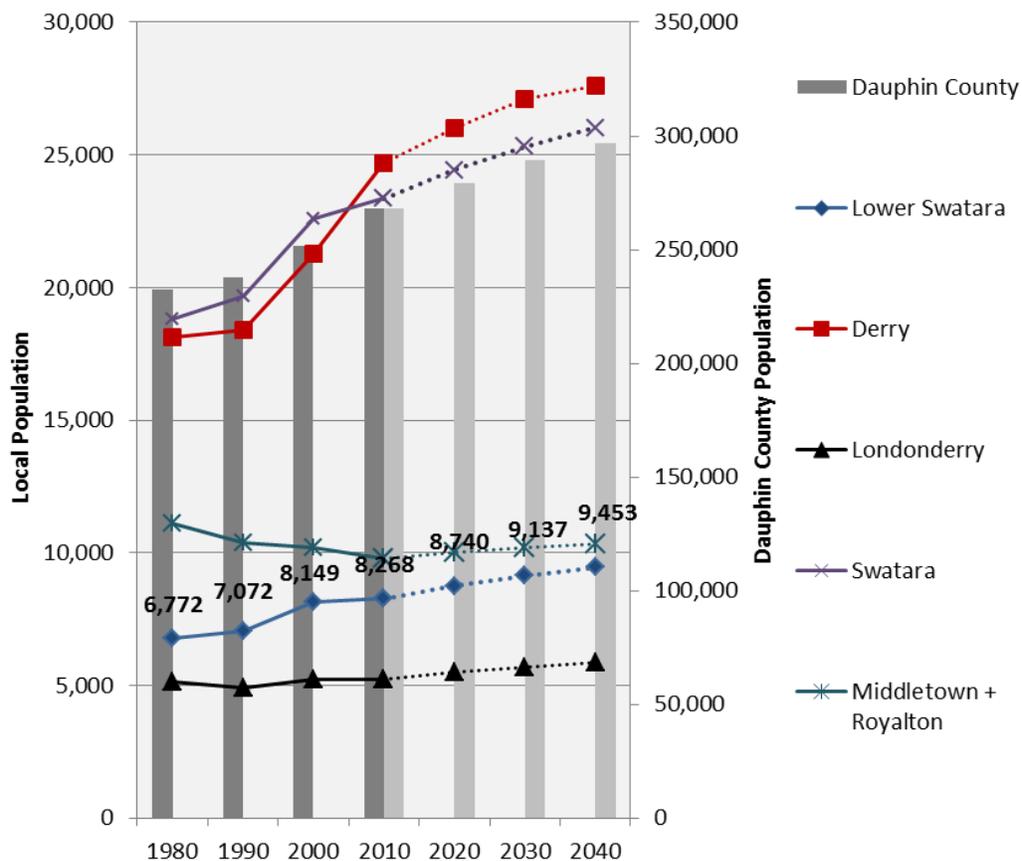
Population Change

In 2010, Lower Swatara Township had a resident population of 8,268. This figure reflects an increase of 119 residents and a growth rate of about one percent. This rate was much slower than the four percent rate of the 1980s and the 15 percent rate of the 1990s. See points and lines in Figure 2-1.

The Tri-County Regional Planning Commission projects a continued steady rise in the Township population at a rate of 3-6 percent per decade, estimating approximately 9,450 residents by 2040.

Among surrounding municipalities, Derry Township's population grew rapidly over the past two decades, Londonderry Township's population was essentially flat, and Swatara Township's population grew rapidly in the 1990s and slightly slower in the 2000s. All are projected to increase in population through 2040. Middletown and Royalton Boroughs lost population since 1980. Tri-County projects that this trend will turn by 2020 and the Boroughs will begin to recover. From a school district perspective, population growth in Lower Swatara (+119) did not offset losses in Middletown (-341) and Royalton (-56).

Figure 2-1 Township and Regional Population Change, 1980-2010, and Projections, 2020-2040

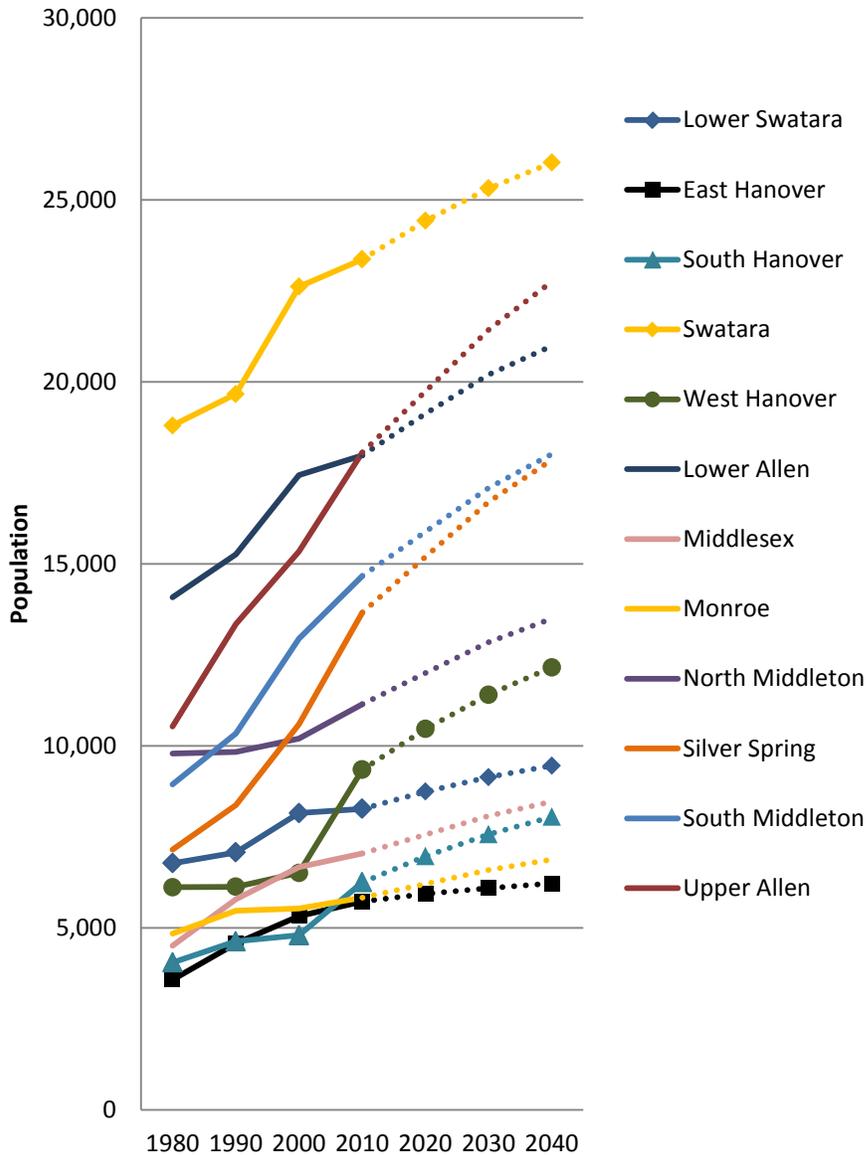


Source: 2040 Regional Transportation Plan, HATS/Tri-County Regional Planning Commission

Overall, Dauphin County experienced a population increase from 1980 to 2010, which is projected to continue. See bars in Figure 2-1.

Compared to 11 municipalities traversed by interstates in the Capital Region, Lower Swatara had the second slowest growth rate (1 percent). West Hanover, South Hanover, and Silver Spring had the three highest growth rates, each exceeding 29 percent. See Figure 2-2.

Figure 2-2 Population Change for Townships with Direct Interstate Access, 1980-2010, and Projections, 2020-2040



Source: 2040 Regional Transportation Plan, HATS/Tri-County Regional Planning Commission

Implications

- More people typically means more demand for both public and private sector services and may translate into more jobs. Population increase also implies greater use of infrastructure and facilities such as more people traveling on the transportation network, greater need for public water and sewage treatment, and potential for increased use of parks.
- There is a perception that property taxes in Lower Swatara, particularly school district taxes, which have funded several new facilities over the past decade, are a major hindrance to community growth.

Race and Ethnicity

In 2010, residents in Lower Swatara's population were predominantly single-race, white residents (90 percent) with an increasing minority race population. African Americans and residents of two or more races each increased by 150 or more residents since 2000. At the same time, the minority Hispanic population more than doubled to 300 residents (4 percent) from 2000 to 2010. See Tables 2-1 and 2-2.

Table 2-1 Population Composition by Race, 2000 and 2010

	2000	2010	Change	
Total population	8,149	8,268	119	1%
One race	98.9%	97.0%	-32	0%
White	93.7%	90.0%	-237	-3%
Black / African American	3.1%	4.8%	150	60%
American Indian, Alaska Native	-	0.2%	12	300%
Asian	1.5%	1.4%	-11	-9%
Native Hawaiian, Other Pacific Islander	-	-	-1	-100%
Some other race	0.6%	1.2%	55	117%
Two or more races	1.1%	2.9%	151	176%

Source: US Census Bureau, 2000 and 2010 Census

Table 2-2 Population Composition by Ethnicity, 2000 and 2010

	2000	2010	Change	
Total population	8,149	8,268		
Hispanic or Latino (of any race)	1.9%	4.0%	174	112%
Mexican	0.7%	1.2%	46	82%
Puerto Rican	0.8%	1.5%	57	89%
Cuban	-	-	0	0%
Other Hispanic or Latino	0.4%	1.2%	71	222%
Not Hispanic or Latino	98.0%	96.0%	-55	-1%

Source: US Census Bureau, 2000 and 2010 Census

Implications

- The Township should be aware of its increasing diversity, particularly its growing Hispanic population. Officials and staff may observe that cultural values that differ from those of the Township's majority white population, which has informed Township policy and practices to date. At some point, these policies and practices may need to be reviewed. If asked, the school district may be able to

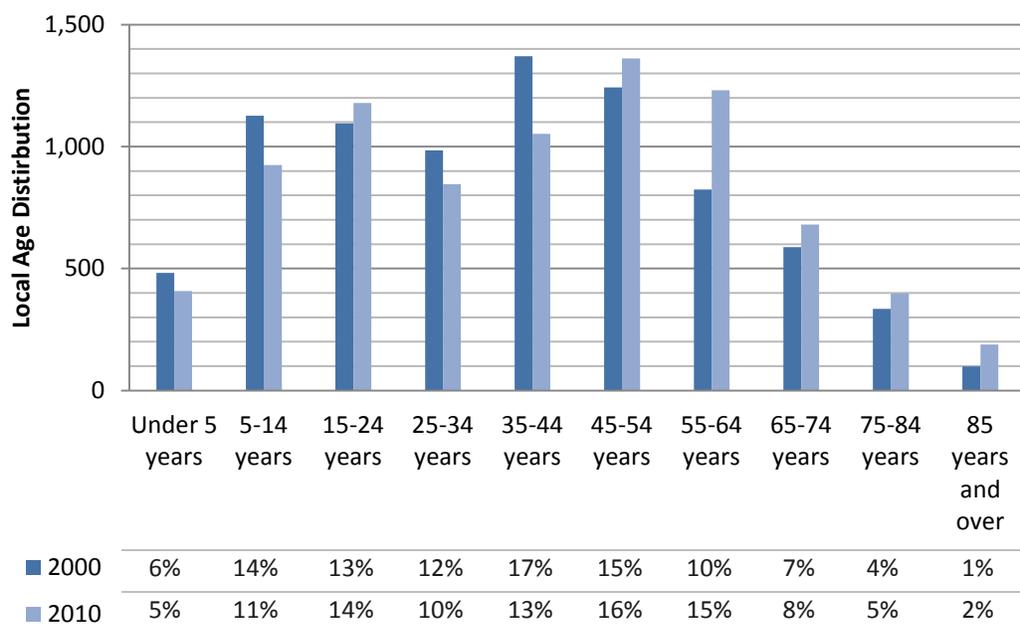
indicate if the local Hispanic population is fluent in English or may benefit from public service announcements and the like in Spanish.

Median Age and Age Distribution

Median age rose from 38.2 years in 2000 to 42.7 years in 2010. Lower Swatara’s largest 10-year age cohorts were the 45-54 year cohort, the 55-64 year cohort, and the 15-24 year cohort. Its smallest cohorts were at the ends of the cohort spectrum.

Between 2000 and 2010, all cohorts under age 45 lost population except the 15-24 year cohort, which was likely due in part to the student increase at growth at Penn State–Harrisburg, and all cohorts over age 45 grew in number. See Figure 2-3.

Figure 2-3 Resident Age Distribution, 2000 and 2010



Source: US Census Bureau, 2000 and 2010 Census

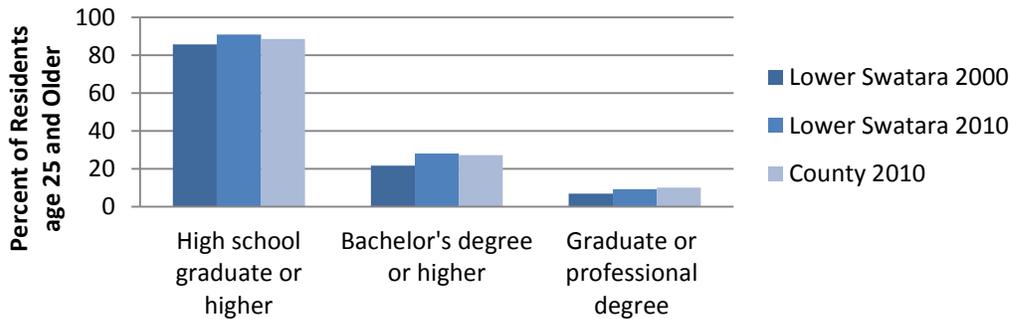
Implications

- Lower Swatara has a growing older adult and senior population. Homeowners may retain their homes and age in place or seek senior-specific housing and turn over their homes to younger (yet possibly mature) owners.
- Fewer younger people may be a natural result of a maturing community or may indicate that suitable housing is not available.
- From an economic development perspective, the local workforce is trending smaller, though the Township’s transportation system provides ample access to a regional workforce.

Educational Attainment

Of the 5,756 residents age 25 and older in 2010, more than 90 percent held at least a high school degree or equivalent; 28 percent held a bachelor’s degree or higher, and 9 percent held a graduate or professional degree. These measures of educational attainment rose for all three categories from 2000 figures. See Figure 2-4.

Figure 2-4 Educational Attainment for the Population 25 Years and Older, 2000 and 2010



Source: US Census Bureau, 2000 Census and 2006-2010 American Community Survey

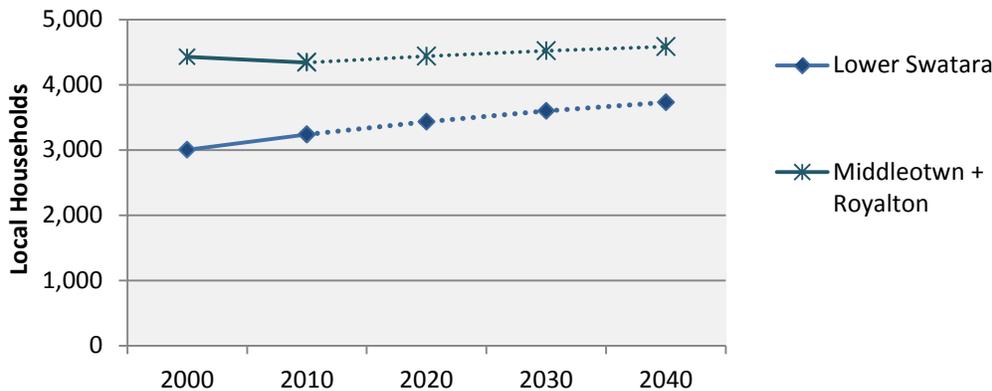
Implications

- Increasing educational attainment measures reflects improving workforce readiness. Significant increases in graduate and professional degree-bearing residents also indicate potential for research and innovation.

Households and Household Size

In 2010, there were 3,236 household in Lower Swatara Township. This figure reflects an increase of 233 households since 2000 – nearly double the population increase – and a household growth rate of eight percent. See Figure 2-5.

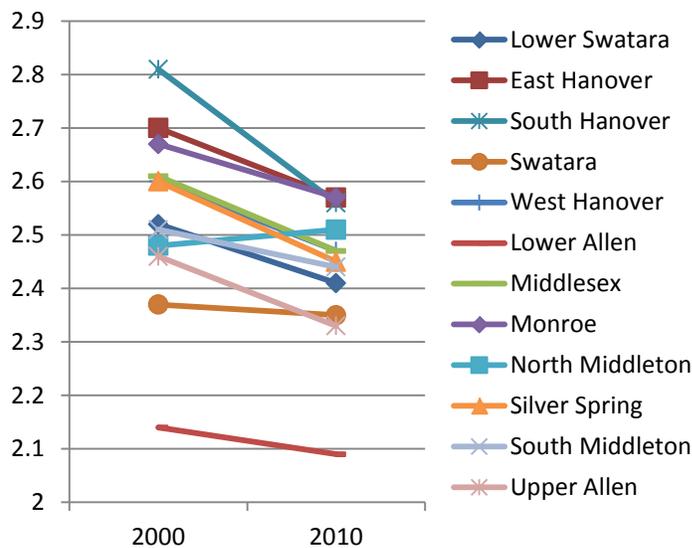
Figure 2-5 Household Change, 2000-2010, and Projections, 2020-2040



Source: 2040 Regional Transportation Plan, HATS/Tri-County Regional Planning Commission

The difference in population and household growth rates is due in large part to smaller households. Nationally, the average household size has been declining since the 1960s. Locally, most trends follow. Lower Swatara’s average household size was smaller in 2010 as persons per household fell from 2.52 in 2000 to 2.41. This trend was true for all of the surveyed townships with direct interstate access in the Capital Region except North Middleton Township, Cumberland County. South Hanover Township had the steepest decline. See Figure 2-6.

Figure 2-6 Change in Household Size, 1990-2010



Source: 2040 Regional Transportation Plan, HATS/Tri-County Regional Planning Commission

Household Composition

Of the 3,326 households, the majority (71 percent) were households of related persons, or family households. Most were married couples with or without children living at home, though some were single mothers or fathers with one or more children. There were more family households in 2010 however there were fewer married couples and more single parents. (Note: 2010 was the first year that the decennial census reported single fathers.)

Non-family households comprising unrelated individuals sharing a housing unit and single occupants are the minority and more rapidly growing household type. Most on-family households are single occupants; about 1 in 3 are seniors. See Table 2-3.

Table 2-3 Household Composition, 2000 and 2010

	2000	%	2010	%	Change, 2000-10
Total households	3,003	100	3,236	100	8%
Family households (families)	2,201	73.3	2,291	70.8	4%
With own children under 18 years	995	33.1	897	27.7	-10%
Married-couple family	1,812	60.3	1,796	55.5	-1%
With own children under 18 years	772	25.7	618	19.1	-20%
Male householder, no husband present	-		130	4	
With own children under 18 years	-		69	2.1	
Female householder, no husband present	291	9.7	365	11.3	25%
With own children under 18 years	166	5.5	210	6.5	27%
Nonfamily households	802	26.7	945	29.2	18%
Householder living alone	673	22.4	773	23.9	15%
Householder 65 years and over	204	6.8	274	8.4	34%

Source: US Census Bureau, 2000 and 2010 Census

Implications

- Trends in household type may influence the housing market, particularly new residential development. The Township has already experienced its first off-campus student housing projects and will soon have its first senior-living community – both will likely include non-family households.

Household Income

The median household income as reported in 2010 was \$67,321, an increase of more than \$18,000 over ten years. Comparing both 2000 and 2010 income values in 2010 dollars, we see that 2010 household income was higher than the inflated \$65,470, demonstrating real value gained for households in the Township.

Median family income, however, barely held its buying power. This may be due in part to seniors transitioning from earned income (wages) to retirement income and to fewer couple households and more single (non-family) households. See Table 2-4.

Note: Couples income and non-family income were first tracked in the 2010 decennial census.

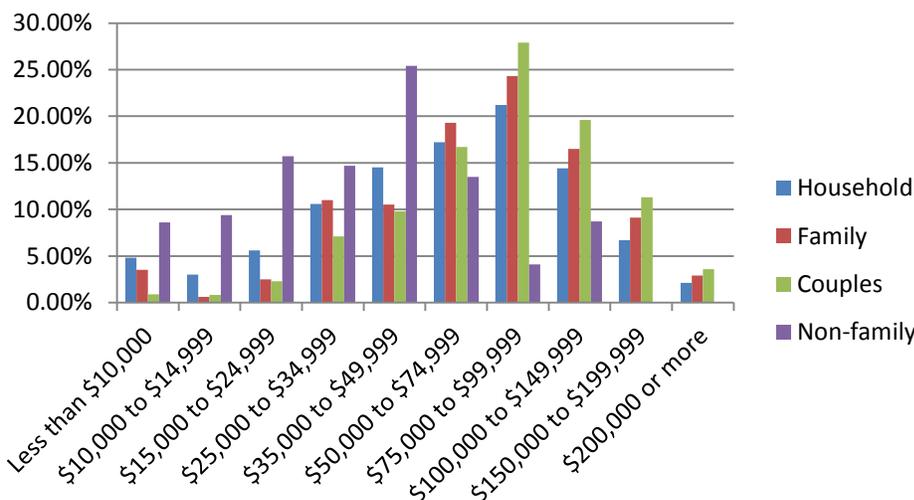
See Figure 2-8 for the distribution of household income range by household type.

Table 2-4 Past 12-Month Income, 2000 and 2010

	Household	Family	Couples	Non-family
Median income 2010	\$ 67,321	\$ 77,776	\$ 81,946	\$ 36,522
Median Income 2000 (1999)	\$ 48,940	\$ 58,203	-	-
In 2010 dollars	\$ 65,470	\$ 77,862	-	-
Real Growth in Income	2.83%	-0.11%	-	-

Source: US Census Bureau, 2000 Census and 2006-2010 American Community Survey

Figure 2-7 Distribution of Household Income by Household Type, 2010



Source: US Census Bureau, 2000 Census and 2006-2010 American Community Survey

Implications

- As the population continues to age, household incomes particularly among seniors are likely to trend toward fixed values and are not likely to gain significant value.

Attractive and diverse housing are among the most important assets of a community. This section describes housing units and types, occupancy, and value characteristics.

Housing Units

In 2010, Lower Swatara Township had 3,403 housing units. This figure reflects an increase of 279 units and a growth rate of about nine percent. See Table 3-1. This rate was much faster than the one percent population growth rate.

Among surrounding municipalities, all municipalities except Highspire Borough experienced increases in housing units. Londonderry Township had the most significant increase, nearly doubling its housing units over the decade, while increases in Middletown and Royalton were each less than 25 units. The Township is a leader in housing unit growth in this southern portion of Dauphin County, due to the fact that the boroughs are able to make only small increases in housing units through redevelopment.

Table 3-1 Housing Units, 2000 and 2010

	Census		Change	
	2000	2010	#	%
Lower Swatara	3,124	3,403	279	8.9%
Middletown	4,387	4,411	24	0.5%
Royalton	415	427	12	2.9%
Highspire	1,373	1,273	-100	-7.3%
Steelton	2,533	2,606	73	2.9%
Derry	9,481	10,267	786	8.3%
Hummelstown	1,953	2,050	97	5.0%
Londonderry	336	657	321	95.5%
Swatara	9,068	9,736	668	7.4%
Dauphin County	111,133	120,406	9,273	8.3%

Source: US Census Bureau

Compared to 11 municipalities traversed by interstates in the Capital Region, Lower Swatara had the slowest housing unit growth rate (9 percent). West Hanover, South Hanover, and Silver Spring had the three highest growth rates, each exceeding 40 percent. See Table 3-2.

Table 3-2 Housing Units for Townships with Direct Interstate Access, 2000 and 2010

			Change	
	2000	2010	#	%
Lower Swatara	3,124	3,403	279	8.9%
East Hanover	2,043	2,339	296	14.5%
South Hanover	1,772	2,527	755	42.6%
Swatara	9,068	9,736	668	7.4%
West Hanover	2,584	3,931	1,347	52.1%
Lower Allen	6,520	7,255	735	11.3%
Middlesex	2,392	2,703	311	13.0%

	2,165	2,375	210	9.7%
	Change			
	2000	2010	#	%
Monroe	2,165	2,375	210	9.7%
North Middleton	4,213	4,634	421	10.0%
Silver Spring	4,185	5,887	1,702	40.7%
South Middleton	5,302	6,216	914	17.2%
Upper Allen	5,198	7,007	1,809	34.8%

Source: US Census Bureau

Implications

- Housing units grew faster than the population. While housing units increased, public service demands per housing unit may be less intensive due to smaller households.

Occupancy and Vacancy

Of the 3,403 housing units, the vast majority (95 percent) were occupied units in 2010. The remaining 167 units (4.9 percent) were vacant. Among all housing units, both occupied and vacant housing units increased in number from 2000 to 2010 and the distribution shifted one percent toward vacant units. Only five of the 167 vacant units were reported as secondary residences for occasional use. See Table 3-3.

At 2.2 percent, the homeowner vacancy rate reflected a tight market, which may drive up the cost of purchase. The rental vacancy rate was greater than 10 percent. A vacancy rate of 4-6 percent is considered healthy, with opportunity for owners to choose among available units. Vacancy rates among both owner- and renter-occupied units increased from 2000 to 2010, likely an effect of the recession.

Table 3-3 Housing Units, 2000 and 2010

	2000		2010		Change
Total housing units	3,124	100	3,403	100	279
Occupied housing units	3,003	96.0%	3,236	95.0%	233
Vacant housing units	121	3.9%	167	4.9%	46
For seasonal, recreational, or occasional use	4	0.1%	5	0.1%	1
Homeowner vacancy rate	1.3%	-	2.2%	-	0.9
Rental vacancy rate	8.4%	-	10.2%	-	1.8

Source: US Census Bureau

Implications

- Prices for owner-occupied units may have been under pressure, while the landlords may have difficulty finding renters.

Housing Type

Housing unit types were estimated in 2010 by the American Community Survey; this estimate of 3,250 housing units is slightly less than the 3,403 housing units counted in the 2010 census. Compared to the distribution of housing unit types in 2000, the housing market in Lower Swatara offered more single-family detached and single-family attached units and more 3- to 4-unit apartments in 2010. The percentages of 2-unit apartments, 5+ unit apartments and mobile homes fell. See Table 3-4.

Table 3-4 Distribution of Housing Type (Units in Structure), 2000 and 2010

	2000	2010	Change in Percentage
Total housing units	3,124	3,250	
1, detached	58.8%	64.8%	6.0
1, attached	14.4%	18.0%	3.6
2 apartments	2.2%	0.7%	-1.5
3 or 4 apartments	0.6%	2.1%	1.5
5 to 9 apartments	1.8%	0.6%	-1.2
10 or more apartments	0.8%	0.7%	-0.1
Mobile home or other type of housing	21.3%	13.0%	-8.3

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Implications

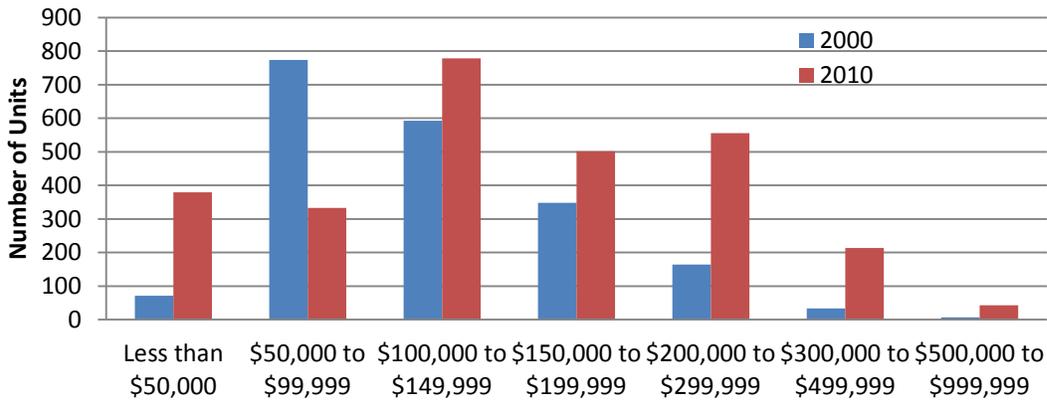
- Housing options increased for those seeking single-family homes. Housing options became more limited for those seeking apartments for temporary housing or lifestyle choices.

Owner-occupied Housing Value

According to US Census Bureau, the distribution of owner-occupied home values shifted slightly from 2000 to 2010. The number of homes in each home value range increased except in the \$50,000 to \$99,999 category where the number fell by about 440 units. The greatest numeric increase was in the \$200,000 to \$299,999 category (392 units) followed by a 308 unit increase in the less than \$50,000 category. Smaller increases in the \$300,000 to \$499,999 category (180 units) and \$500,000 to \$999,999 category (36 units) were significant in that their percentages increases exceeded 500 percent. See Figure 3-1.

The median owner-occupied housing unit value increased from \$109,000 in 2000 to \$144,400 in 2010. After accounting for inflation, this \$34,800 increase translates to a real gain in median home value of \$3,264 or 2.3 percent.

Figure 3-1 Housing Value of Specified Owner-occupied Units, 2000 and 2010



Source: U.S. Census Bureau, 2000 Census and 2006-2010 American Community Survey

Implications

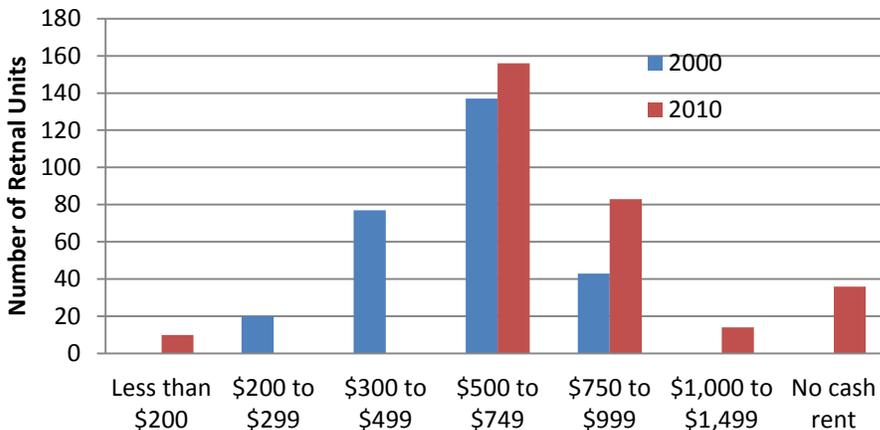
- Overall, home values rose, thereby increasing the value of property taxes revenue for the Township and for the school district.

Occupied Unit Rent

According to Census Bureau, the distribution of rent paid for rental units shifted widely from 2000 to 2010. Rentals at the lowest rate (less than \$200) increased from 0 to 10 units and rentals paying no cash rent increased from 0 to 36 units. Rental units paying \$200 to \$499 were eliminated. Rentals from \$500 to \$1,499 increased by 73 units. No rentals were paying rent of \$1,500 or higher. See Figure 3-2. These figures reflect the redevelopment of parcels near Penn State Harrisburg for private off-campus student housing.

The median rent paid on occupied rental units increased from \$565 in 2000 to \$720 in 2010. After accounting for inflation, this \$155 increase translates to a real loss in median rent of \$7.57 or 1.0 percent.

Figure 3-2 Rent paid by Occupied Rental Units, 2000 and 2010



Source: U.S. Census Bureau, 2000 Census and 2006-2010 American Community Survey

Implications

- Redevelopment of new rental units at a higher unit density likely increased public service demand per unit in the area near Penn State Harrisburg, though the impact overall was likely small.

An analysis of the local economic conditions and trends provides a basis for land use, transportation and infrastructure planning. This section describes the economy by its industries, local labor force, and commuting patterns.

Economic Resources

According to the 2012 Economic Census, Lower Swatara had 205 business establishments within its borders.¹ These businesses employed approximately 5,500 workers. The three industries with the most businesses were transportation and warehousing (34 businesses), wholesale trade (20), and retail trade (19). Together they employed 2,348 workers, or about 43 percent of all workers whose jobs were located in the Township. Government employer data was not fully reported.

Major private sector employers in Lower Swatara include FedEx and its affiliates, TE Connectivity (formerly Tyco Electronics), Phoenix Contact, and numerous commercial and industrial entities concentrated along Fulling Mill Road. Major public sector employers include the Pennsylvania Turnpike Commission, the Harrisburg International Airport, the Penn State Harrisburg and the Middletown Area School District.

Local Jobs

From the Longitudinal Employer-Household Dynamics (LEHD) program at the Center for Economic Studies, also at the U.S. Census Bureau, jobs in the Township in 2012 were counted as 8,518; public administration (includes the Pennsylvania Turnpike Commission), transportation and warehousing, and manufacturing ranked as the top three industries of employment. See Table 4-1.

Table 4-1 Jobs by Industry, Ranked, 2012

	Count	Share
Public Administration	1,632	19.2%
Transportation and Warehousing	1,522	17.9%
Manufacturing	1,287	15.1%
Wholesale Trade	728	8.5%
Administration & Support, Waste Management and Remediation	673	7.9%
Educational Services	637	7.5%
Accommodation and Food Services	341	4.0%
Health Care and Social Assistance	264	3.1%
Construction	207	2.4%
Retail Trade	204	2.4%
Other Services (excluding Public Administration)	196	2.3%
Arts, Entertainment, and Recreation	154	1.8%
Finance and Insurance	139	1.6%
Real Estate and Rental and Leasing	140	1.6%
Management of Companies and Enterprises	129	1.5%
Utilities	93	1.1%

¹ The Economic Census does not generally include government-owned establishments, even when their primary activity would be classified in industries covered by the Economic Census. Because of these exclusions, economic census data for industries in many sectors might appear to be incomplete.

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	Count	Share
Professional, Scientific, and Technical Services	83	1.0%
Information	54	0.6%
Agriculture, Forestry, Fishing and Hunting	25	0.3%
Mining, Quarrying, and Oil and Gas Extraction	10	0.1%
Total Jobs	8,518	

Source: Longitudinal Employer-Household Dynamics

Approximately half of the jobs at local employers are filled by workers with some college education or a completed degree and one in five positions was held by a person with bachelor's or advanced degree. See Table 4-2.

Table 4-2 Jobs by Worker Educational Attainment

	2012	
	Count	Share
Less than high school	580	6.8%
High school or equivalent, no college	2,341	27.5%
Some college or Associate degree	2,441	28.7%
Bachelor's degree or advanced degree	1,847	21.7%
Educational attainment not available (workers aged 29 or younger)	1,309	15.4%

Source: Longitudinal Employer-Household Dynamics

Employers attract workers primarily from central and southern Dauphin County. More than 150 local workers live in Philadelphia and may commute by train or telecommute. See Table 4-3.

Table 4-3 Where Job Workers Live, 2012

	2012	
	Count	Share
Harrisburg city, PA	382	4.5%
Middletown borough, PA	308	3.6%
Colonial Park CDP, PA	162	1.9%
Philadelphia city, PA	154	1.8%
Progress CDP, PA	111	1.3%
Elizabethtown borough, PA	107	1.3%
Steelton borough, PA	100	1.2%
Hershey CDP, PA	91	1.1%
Linglestown CDP, PA	75	0.9%
Palmyra borough, PA	57	0.7%
All Other Locations	6,971	81.8%

Source: Longitudinal Employer-Household Dynamics

Resident Workers

The 3,605 Lower Swatara residents who were employed in 2012, regardless of job location, were most commonly employed in health care and social assistance (465), public

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administration (371), retail trade (358), and manufacturing (310), followed by accommodation and food services (263) and finance and insurance (257). See Table 4-4.

Table 4-4 Resident Workers by Industry, 2012

	2012	
	Count	Share
Health Care and Social Assistance	465	12.9%
Public Administration	371	10.3%
Retail Trade	358	9.9%
Manufacturing	310	8.6%
Accommodation and Food Services	263	7.3%
Finance and Insurance	257	7.1%
Educational Services	240	6.7%
Transportation and Warehousing	227	6.3%
Wholesale Trade	194	5.4%
Administration & Support, Waste Management and Remediation	173	4.8%
Professional, Scientific, and Technical Services	170	4.7%
Construction	119	3.3%
Other Services (excluding Public Administration)	111	3.1%
Arts, Entertainment, and Recreation	108	3.0%
Management of Companies and Enterprises	86	2.4%
Information	51	1.4%
Utilities	45	1.2%
Real Estate and Rental and Leasing	37	1.0%
Agriculture, Forestry, Fishing and Hunting	19	0.5%
Mining, Quarrying, and Oil and Gas Extraction	1	0.0%
Total Resident Workers	3,605	

Source: Longitudinal Employer-Household Dynamics

Resident workers have attained educational level nearly equivalent to local jobs workers. See Table 4-5.

Table 4-5 Resident Workers by Educational Attainment, 2012

	2012	
	Count	Share
Less than high school	228	6.3%
High school or equivalent, no college	908	25.2%
Some college or Associate degree	940	26.1%
Bachelor's degree or advanced degree	798	22.1%
Educational attainment not available (workers aged 29 or younger)	731	20.3%

Source: Longitudinal Employer-Household Dynamics

The majority of resident workers commuted to outside locations for work. Both East Shore and West Shore communities made the list of top ten employment destinations. See Table 4-6.

Table 4-6 Where Resident Workers Work, 2012

	2012	
	Count	Share
Harrisburg city, PA	497	13.8%
Hershey CDP, PA	333	9.2%
Colonial Park CDP, PA	81	2.2%
Middletown borough, PA	74	2.1%
Paxtonia CDP, PA	71	2.0%
Progress CDP, PA	61	1.7%
Lemoyne borough, PA	41	1.1%
Steelton borough, PA	40	1.1%
Carlisle borough, PA	30	0.8%
Camp Hill borough, PA	23	0.6%
All Other Locations	2,354	65.3%

Source: Longitudinal Employer-Household Dynamics

Commuting to Work

With 8,518 jobs in the Township in 2012, more than twice as many workers commuted into the Township (8,145) as commuted out of (3,232) to reach their employment destination. Among those traveling, 86.0% drove alone, 5.5% carpooled, 4.9% walked, 0.4% took public transit, and 0.3% took a cab, motorcycle, or other means. This puts significant pressure on the transportation system. That same year, less than three percent of working residents worked at home, requiring no travel commute to work.

Figure 2-1 Worker Flows into and out of Lower Swatara

Source: U.S. Census Bureau, 2012 Economic Census.

Employment Status of Residents

In 2012, unemployment among resident workers was 2.7 percent, according to the American Community Survey. The local unemployment rate fell to 2.3 percent in 2013 and 1.8 percent in 2014.

Of Township residents age 16 and older, employment in 2012 peaked at 91 percent for those 25 to 44 years old followed by a strong 87 percent for persons age 45 to 54. Unemployment was highest, 6 percent, among persons age 16 to 19.

For the roughly 200 persons living below the poverty in 2012, unemployment was nearly 60 percent. For those with less than a high school education, unemployment was also much higher—28 percent. For those with a disability in 2012, half (150) were participating in the labor force and all of these were employed.

Table 4-7 Employment Status, 2012

	Total Estimate	In labor force Estimate	Employed Estimate	Unemployed Estimate
Population 16 years and over	6,928	66.1%	64.3%	2.7%
Employment status by age				
16 to 19 years	703	42.5%	40.1%	5.7%
20 to 24 years	728	56.0%	56.0%	0.0%
25 to 44 years	1,791	93.4%	90.8%	2.7%
45 to 54 years	1,498	89.2%	87.1%	2.3%
55 to 64 years	952	69.2%	66.1%	4.6%
65 to 74 years	672	22.3%	22.3%	0.0%
75 years and over	584	9.2%	9.2%	0.0%
Below poverty level in the past 12 months	193	40.9%	17.1%	58.2%
Educational attainment for population 25 to 64 years	4,241	86.5%	84.0%	2.9%
Less than high school graduate	214	75.7%	54.2%	28.4%
High school graduate or equivalent	1,437	83.2%	82.0%	1.3%
Some college or associate's degree	1,342	86.7%	84.4%	2.7%
Bachelor's degree or higher	1,248	91.9%	90.8%	1.2%
With any disability	302	50.3%	50.3%	0.0%

Source: US Census Bureau, 2008-2012 American Community Survey

Implications

- Residents have high employment (low unemployment) among those with a high school education or higher. Those with less than a high school education were more likely to be unemployed.
- While educational attainment levels are well-matched between resident workers and local jobs, leading industries and ultimately individual positions are not aligned. Resident workers and inbound commuters will continue to place heavy demands on the transportation system.

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Cultural and historic resources provide relevant information for land use, eco-tourism and recreation planning. This section presents known information about potentially historical resources

Cultural & Historic Resources

The Pennsylvania Historical and Museum Commission Cultural Resources database, CRGIS, lists 30 resources for which some level of historical data has been collected. Of these 30 resources, two are listed on the National Register of Historic Places, a program of the National Park Service that protects nationally significant resources from indiscriminate impacts of federally funded projects. Such projects must consider and disclose their impacts to surrounding resources.

The Conrad Alleman House (also known as the Old Reliance Farmhouse) and the Star Barn Complex are “listed” on the National Register. The Star Barn is expected to be relocated to West Donegal Township, Lancaster County in the near future.

Twenty-one additional sites have been evaluated by the State Historic Preservation Office or SHPO for potential listing on the National Register: 12 were determined to be eligible and 9, ineligible at the time of the evaluation. Eligible sites include several homes, the Pennsylvania Turnpike corridor, and the Pennsylvania Railroad corridor. Ineligible properties include the Olmstead Army Airfield and Middletown Air Depot associated buildings, the Highspire Cemetery and additional residential properties. These properties would be re-evaluated if application to the National Register is sought in the future.

Five additional sites have been catalogued in the database. These either have insufficient information or significance to be eligible for listing. Two sites are noted as demolished.

Table 5-1 Inventoried Cultural Resources

Key Number	Primary Historic Name	National Register Status	Resource Category	Year Built
144154	Alleman, Conrad, House 1412 Farmhouse Ln.	Listed in 2011	Building	1788; c1880
079148	Star Barn Complex; John Motter Barn Nissley Dr.	Listed in 2000	Building	1872
087198	Motter, John Farm (Spring Garden Farm) 1260 Lumber St.	SHPO: Eligible	Building	1897
156425	Matheson, William David, House 331 W Main St.	SHPO: Eligible	Building	c1901
156426	Musselman House 281 W Main St.	SHPO: Eligible	Building	c1885
142024	Mumma Farm 225 Oberlin Rd.	SHPO: Eligible	Building	1858; 1893
122695	Pennsylvania Turnpike: Philadelphia [Eastern] Extension (Carlisle to Valley Forge)	SHPO: Eligible	Structure	c1948; c1950
156427	Bradley House 277 W Main St.	SHPO: Eligible	Building	1889
116364	Odd Fellows Home of Pennsylvania 999 W Harrisburg Pike	SHPO: Eligible	Building	1925
092271	Ulrich, Michael, House 140 Fulling Mill Rd.	SHPO: Eligible	Building	1825

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Key Number	Primary Historic Name	National Register Status	Resource Category	Year Built
105675	Pennsylvania Railroad: Main Line (Philadelphia to Harrisburg)	SHPO: Eligible	District	
116360	Zimmerman House 103-105 Rosedale Ave.	SHPO: Eligible	Building	1926
111777	Middletown Air Depot Historic District	SHPO: Not Eligible	District	
200665	Maria Marroquin Property 1845 Rosedale Ave.	SHPO: Not Eligible	Building	c1900
133214	along SR 3001	SHPO: Not Eligible	Bridge	1950
092249	L.R. 129 Bridge Bridge No. 22 1 0 0129 0 047286	SHPO: Not Eligible	Structure	c1931
122697	Highspire Cemetery Eisenhower Blvd.	SHPO: Not Eligible	Site	c1820
144208	Middletown and Hummelstown Railroad (Middletown to Hummelstown)	SHPO: Not Eligible	District	c1890
200666	Mario Corradi Property 2 South Nissley Dr.	SHPO: Not Eligible	Building	c1960
156465	Middletown Air Depot Base Chapel 501 Ann St.	SHPO: Not Eligible	Building	1942
157287	Olmstead Army Airfield and Middletown Air Depot	SHPO: Not Eligible	District	1917
122695	Pennsylvania Turnpike: Harrisburg East Interchange	Noncontributing to Resource	Structure	1950
116362	Rosedale Farm House 1 Rosedale Ave.	Insufficient Information to Evaluate	Building	c1850
200664	Nissley Drive Post World War II Subdivision	Insufficient Information	District	c1955
144357	Union Canal: Middletown to Reading	Insufficient Information	Structure	c1826
083693	Whitehouse Lane Bridge	Demolished or 100% Destroyed	Bridge	1920
100885	Immaculate Conception Home for Children	Demolished or 100% Destroyed	Building	1915

Source: Pennsylvania Historical and Museum Commission Cultural Resources Geographic Information System (CRGIS)

Five Pennsylvania historical markers are located in the vicinity of the Township. These markers describe people, places and events that are significant in state history.

Finally, other buildings, cemeteries, etc. document the history of the Township's development in their location and design. Farms such as Strites' Orchard and Farm Market have operated here for more than 100 years. There is no known inventory or assessment of these resources.

Implications

- Re-use and redevelopment of the Olmstead Army Airfield and Middletown Air Depot have obscured or demolished the most significant aspects of local history, and few local residents have demonstrated an interest in historic preservation.

Land use analysis provides a basis for changes to land use controls, e.g. zoning, and coordinated infrastructure expansion. This section describes land uses as of 2014 and characterizes recent development activity.

Land Use

Land use is the activity occurring on the land at a particular point in time. Land use changes over time as a result of natural events and economic pressures. Examples include change to more intensive uses with extension or upgrades in supporting infrastructure, can be preserved as protected open space by public ownership or deed restriction, and can be converted to open space with the demolition of structures and impervious surfaces. All can be considered aspects of a community's evolving development or redevelopment.

Land use change, specifically, reuse and redevelopment, has been a part of the Township's history for more than a hundred years. Lands where the Harrisburg International Airport and Penn State Harrisburg are located were first developed by the military in the late 1800s and renamed the Olmsted Air Force Base after World War II. Decommissioning of the air force base made administrative buildings and residence facilities available to the state for re-use as a branch campus of Penn State University in the Harrisburg area, established in 1966. The air field was developed into a commercial airport to offer passenger aviation and air freight services, commencing in 1969. Both the university and the airport have redeveloped various sites in efforts to modernize facilities and meet market needs. Other properties, such as the Capitol Logistics Center and the school district, have been redeveloped with modern facilities for continued use. The central and northern portions of the Township have typically experienced only a single wave of development for residential, commercial, or industrial uses.

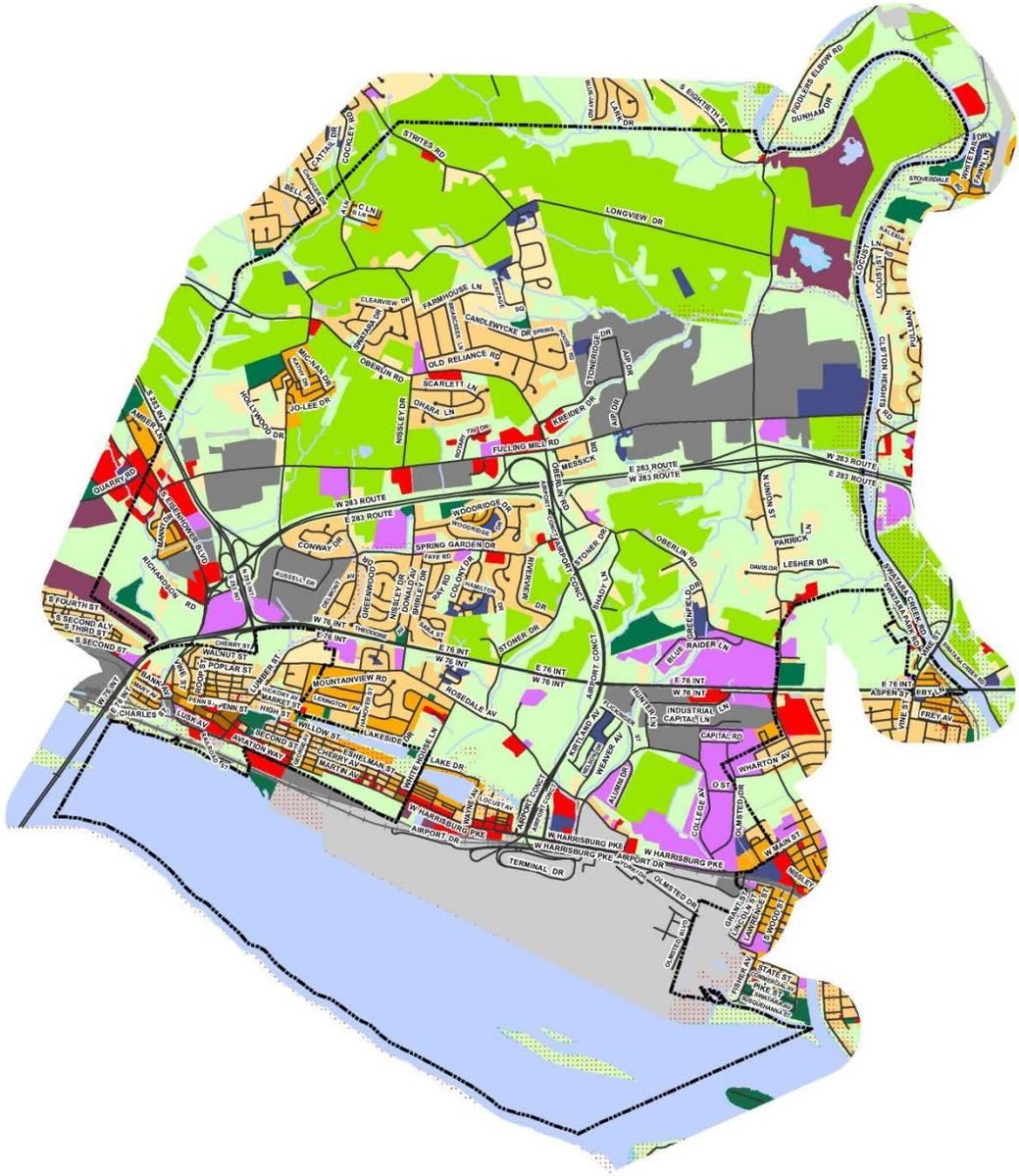
Current Land Use

Land use classification data was most recently updated for Dauphin County in 2014. In 2014, 40 percent of lands in Lower Swatara Township were used for intensive uses, namely residential, commercial, industrial, and institutional uses, or were actively under construction. Quarrying was active in two percent of the Township, and agricultural activities were evident on 20 percent. Open space, such as parks, lawns, and landscapes, as well as natural areas, including river islands, occupied the remaining 38 percent. See Figure 5-1 and Table 5-1.

Table 5-1 Land Status, 2014

	Acres	Percent of Total
Developed	3,784.49	40%
In agricultural use, not preserved	1,840.11	20%
In other unpreserved open space	3,603.88	38%
In extractive use	140.89	2%
Total	9,369.38	100%

Figure 5-1 Land Use Pattern, 2014



- | | | |
|--|--|--|
|  Agriculture |  Residential - 2.1 to 7 units per acre |  Industrial and commercial complexes |
|  Open Space |  Residential - more than 7 units per acre |  Commercial and services |
|  Recreation |  Mixed urban or built-up land |  Transportation and utilities |
|  Open water |  Institutional |  Mines/quarries/pits and junk yards/landfills |
|  Residential - less than 2 units per acre |  Industrial |  Transitional (under construction) |

Source: Tri-County Regional Planning Commission

Table 5-2 Land Use by Type, 2014

Code	Description	Calculated Total Acres
111	Residential - less than 2 units per acre.	361.50
112	Residential - 2.1 to 7 units per acre.	663.07
113	Residential - more than 7 units per acre	168.63
114	Farmsteads - farmhouses, usually associated with and including, barns and outbuildings. (NOT including large, commercial-sized hog/chicken operations; 230). Agriculture may or may not be active.	66.12
120	Commercial and services - Store, shop, mall, gas station or place of business where large-scale production is not occurring.	183.63
130	Industrial - Large buildings that may have production in process.	707.08
140	Transportation and utilities - Transportation right-of-way, toll booth areas, highway departments, transmission stations, water towers/tanks, sewage treatment plants.	1,148.26
180	Institutional - Schools, hospitals, churches and adjoining cemeteries, municipal facilities, fire houses, or other institutional facilities.	359.31
190	Recreational – Parks, campgrounds, golf courses, hunt clubs.	71.15
211	Agriculture: cropland.	1,449.95
212	Agriculture: pasture.	92.05
213	Agriculture: other.	54.51
220	Orchards/groves/vineyards/nurseries/other horticulture.	228.09
230	Large Confined Feeding Operations - Usually associated with a farmstead (114), these are commercial sized building.	15.52
310	Herbaceous - Open, grassy areas with few trees or shrubs.	419.79
320	Shrub/brush - Areas with shrubs, brush, and/or very small trees.	254.09
330	Mixed cover - Areas that are not forested but have a mixture of vegetation.	117.90
410	Deciduous Forest.	1,175.08
500	Coniferous Forest.	1,527.00
750	Mines, quarries, pits and junk yards, and landfills.	140.89
760	Transitional (under construction).	126.89
997	Islands less than minimum mapping unit size.	38.86
TOTAL ACRES		9,369.38

Among developed uses, residential uses had the highest acreage followed by transportation and utilities. Among open space uses, woodlands and other areas dominated by vegetation had nearly twice as much acreage as agricultural uses.

Land Use Trends

Across time, land use classification methods have evolved. In 1976, land use was likely assigned and acreages were likely measured from a paper map, while since 2002 Tri-County Regional Planning Commission has used geographic information systems or GIS technology to map and analyze geographic data. Even with the same technology, corrections in municipal boundaries and refinement of sub-parcel classification have vastly

affected the resulting land use data and acreage calculations. For example, a parcel that was one assigned as commercial use may later be assigned commercial use for the structure, parking lot and immediate surroundings while the balance of the parcel may be assigned as open space. Thus, change over time should be viewed with this in mind.

Generally, community development uses have consumed more land over time. Recent declines in residential, commercial and industrial use acreage are attributed to maturing vegetation that is now separately designated as woodland/open space. Transportation and utility uses and institutional uses have remained steady in their acreage. Recreational use acreage has increased but still comprises only one percent of the Township's total area. Transitional use is a new use code in 2014, applied to parcels or sub-parcels reflecting site disturbance or construction activity.

Among open space uses, agricultural use acreage fell slightly from 2002 to 2014, while woodland/open space more than doubled. Resource extraction acreage was essentially steady.

Table 5-3 Land Use Distribution, 2014

	1976		2002		2014	
Community Development Uses	2,379	30%	4,151	54%	3,784	40%
Residential	621	8%	1,630	21%	1,259	13%
Commercial	125	2%	382	5%	184	2%
Industrial	137	2%	1,000	13%	707	8%
Transportation and Utilities	1,145	14%	828	11%	1,148	12%
Institutional	327	4%	290	4%	359	4%
Recreational	24	0%	21	0%	71	1%
Transitional	-		-		127	1%
Open Space Uses	5,557	70%	3,552	46%	5,585	60%
Agriculture	5,557	70%	2,166	28%	1,840	20%
Woodland and Open Space	-		1,249	16%	3,604	38%
Resource Extraction	-		137	2%	141	2%
Total Land Area	7,936		7,703		9,369	
Open Water	1,408		1,492			
Total Area	9,344		9,195			

Source: 1976 Township Comprehensive Plan; 2002 and 2014 Tri-County Regional Planning Commission

The Tri-County Regional Planning Commission shared interim land use data from 2008. This data reflected real changes in uses, such as development of new homes and businesses and as well as refinements in the delineation of open space within developed sites. Thus changes are widespread.

Recent Development and Remaining Zoning Capacity

Residential Development Trends

Table 5-4 presents residential development activity in two periods: a decade-long view of 2005-2014 and a more recent view of 2009-2014, since the economic recession was declared over, with single-family versus other residential types.

Lower Swatara ranked third among southern Dauphin County municipalities for the 2005-2014 period and second for the more recent 2009-2014, due in large part to the private multi-unit student housing project. While the student housing project was significant in Lower Swatara, other communities across the region and the country experienced an increase in multi-family residential development in response to the recession. Compared to other municipalities with direct interstate access in the Capital Region, the Township did not experience as much overall residential development activity as most.

Table 5-4 Residential Development Trends

New Dwelling Units	Total, 2005-14	Total, 2009-14	Single and Semi- detached, 2009-14	Multi/Attached/ Apartment Conversions, 2009-14
Southern Dauphin County				
Derry	619	258		
Highspire	16	6		
Hummelstown	92	35		
Londonderry	103	51	65%	0%
Lower Swatara	432	270	18%	77%
Middletown	39	23		
Royalton	89	73		
Swatara	878	605	33%	85%
<i>Area above as percent of County</i>	<i>28%</i>		<i>30%</i>	<i>46%</i>
Dauphin County	8,093	3,590	1552	1926
Other Dauphin County				
East Hanover	315	121	58%	13%
South Hanover	716	261	51%	20%
West Hanover	980	277	56%	22%
Cumberland County				
Lower Allen	724	513	18%	77%
Middlesex	344	132	33%	66%
Monroe	216	113	69%	25%
North Middleton	696	210	64%	14%
Silver Spring	1,980	1,238	74%	26%
South Middleton	810	300	76%	13%
Upper Allen	1,466	612	57%	43%

Source: Annual Building Activity reports, 2009-14, Tri-County Regional Planning Commission

Projected Residential Development Trends

Tri-County Regional Planning Commission projected household increases for through 2040. While Lower Swatara is projected to increase in residential households, it lags behind most other municipalities with direct interstate access in the Capital Region in projected numbers. Using the 2009-2014 ratio of single-family to other residential types results in a high number of multi-family, etc. units, though not the highest of the surveyed municipalities.

Table 5-5 Projected Residential Development Trends

Projected Household (Dwelling Unit) Increase	2010-20	2020-30	2030-40	Total, 2010-40	Single and Semi-detached, per 2009-14 trend	Multi/Attached/Apartment Conversions, per 2009-14 trend
Southern Dauphin County						
Derry	571	468	227	1,266	501	628
Highspire	9	8	6	23	23	0
Hummelstown	58	49	39	146	21	125
Londonderry	97	82	65	244	158	0
Lower Swatara	196	165	131	492	89	381
Middletown	74	62	50	186	24	24
Royalton	22	19	15	56	54	0
Swatara	451	381	302	1,134	373	967
<i>Area above as percent of County</i>				30%	24%	33%
Dauphin County	4,764	4,042	3,195	12,001	5,188	6,438
Other Dauphin County						
East Hanover	57	63	49	169	98	22
South Hanover	280	236	187	703	356	140
West Hanover	453	383	303	1,139	641	247
Cumberland County						
Lower Allen	548	514	373	1,435	260	1,108
Middlesex	210	207	159	576	192	380
Monroe	149	147	113	409	282	101
North Middleton	341	336	258	935	597	129
Silver Spring	624	616	472	1,712	1,261	444
South Middleton	500	493	379	1,372	1,038	178
Upper Allen	720	724	565	2,009	1,139	860

Source: 2040 Regional Transportation Plan (Appendix), HATS/Tri-County Regional Planning Commission

Hundreds of acres of capacity remain available for residential development of varying types in the Residential-Agricultural, Residential-Suburban, and Residential-Urban districts.

Commercial Development Trends

Table 5-6 presents commercial development activity for the 2009-2014 period and projected activity for the 2015-2024 period based on the past trend.

Lower Swatara ranked fourth among southern Dauphin County municipalities for new commercial development (uses) and third for improved or expanded commercial uses. Lower Swatara's commercial development activity was similar to other municipalities with direct interstate access in the Capital Region in that more commercial uses improved or expanded their operations than started new; specifically, most similar to West Hanover, South Middleton and Upper Allen Townships..

Table 5-6 Commercial Development Trends

Commercial	Actual		Projected	
	New, 2009-14	Improved/Expanded, 2009-14	New, 2015-2024	Improved/Expanded, 2015-2024
Southern Dauphin County				
Derry	17	244	28	407
Highspire	5	2	8	3
Hummelstown	43	35	72	58
Londonderry	5	7	8	12
Lower Swatara	10	81	17	135
<i>as percent of County</i>	6%	3%		
Middletown	3	6	5	10
Royalton	0	0	0	0
Swatara	23	246	38	410
<i>Area above as percent of County</i>	64%	22%		
Dauphin County	165	2864	275	4773
Other Dauphin County				
East Hanover	5	45	8	75
South Hanover	7	24	12	40
West Hanover	13	48	22	80
Cumberland County				
Lower Allen	8	145	13	242
Middlesex	7	61	12	102
Monroe	1	6	2	10
North Middleton	1	6	2	10
Silver Spring	52	189	87	315
South Middleton	21	107	35	178
Upper Allen	17	123	28	205

Source: Actual: Annual Building Activity reports, 2009-14, Tri-County Regional Planning Commission; Projected: Gannett Fleming, Inc.

Table 5-7 shows that commercial development activity did not significantly affect commercial land use acreage from 2008 to 2014. The intended use of transitional lands

under construction at the time of the land use classification update is not known. Development, both new and improved/expanded, appears to have been predominantly re-use.

Table 5-7 Commercial Land Use Trend

	2002	2008	2014	2002-08	2008-14
Commercial	382	216	196	-166	-20
Transitional (under construction)		87	130	87	43

Source: Tri-County Regional Planning Commission

Based on the trend, Lower Swatara should expect little change in demand for commercially zoned property. With more than 100 acres available in Commercial Highway, Commercial Neighborhood, and Office-Park, there is no need for an increase in the amount commercial zoning.

Industrial Development Trends

Table 5-8 presents industrial development activity for the 2009-2014 period and projected activity for the 2015-2024 period based on the past trend.

Lower Swatara ranked first among southern Dauphin County municipalities for new industrial development (uses) and for improved or expanded industrial uses. Lower Swatara's industrial development activity ranked second after South Middleton Township among other municipalities with direct interstate access in the Capital Region.

Table 5-8 Industrial Development Trends

Industrial	Actual		Projected	
	New, 2009-14	Improved/Expanded, 2009-14	New, 2015-2024	Improved/Expanded, 2015-2024
Southern Dauphin County				
Derry	0	36	0	60
Highspire	0	0	0	0
Hummelstown	0	0	0	0
Londonderry	1	9	2	15
Lower Swatara	4	74	7	123
as percent of County	57%	38%		
Middletown	0	3	0	5
Royalton	0	0	0	0
Swatara	1	0	2	0
<i>Area above as percent of County</i>	<i>86%</i>	<i>62%</i>		
Dauphin County	7	197	12	328
Other Dauphin County				
East Hanover	0	6	0	10
South Hanover	1	0	2	0
West Hanover	0	3	0	5
Cumberland County				
Lower Allen	1	13	2	22
Middlesex	1	11	2	18
Monroe	0	2	0	3
North Middleton	0	11	0	18
Silver Spring	0	1	0	2
South Middleton	7	74	12	123
Upper Allen	0	0	0	0

Source: Actual: Annual Building Activity reports, 2009-14, Tri-County Regional Planning Commission; Projected: Gannett Fleming, Inc.

Table 5-8 shows that industrial development activity, like commercial, did not significantly affect industrial land use acreage from 2008 to 2014. Again, the intended use of transitional lands under construction at the time of the land use classification update is not known.

Table 5-9 Industrial Land Use Trend

	2002	2008	2014	2002-08	2008-14
Industrial	1,000	727	709	-273	-18
Transitional (under construction)		87	130	87	43

Source: Tri-County Regional Planning Commission

Based on the trend, Lower Swatara could expect little change in demand for industrially zoned property. With roughly 200 acres available in the Industrial Park and Industrial Park-Limited districts, there may be no need for an increase in the amount industrial zoning.

However, property owners and developers have expressed interest in additional industrial development in the past two to three years, specifically lands zoned for warehousing and distribution centers along Fulling Mill Road and North Union Street which have easy access to PA 283. The available Industrial Park land is located along PA 441 near the Swatara Township border and the Industrial Park-Limited lands, located along the Airport Connector, do not permit warehousing and distribution centers. Therefore, the Township will need to consider if additional warehousing and distribution center development is desired and if so, where it is best to be located to minimize the impacts of truck traffic on the rest of the community.

Public/Non-Profit Development Trends

Table 5-10 presents public/non-profit development activity for the 2009-2014 period and projected activity for the 2015-2024 period based on the past trend. Such trends may follow population and residential land use trends but are often reflective of regional population and economic changes, not just local ones.

Lower Swatara's public/non-profit development activity was similar to southern Dauphin County municipalities and the rest of the municipalities with direct interstate access in the Capital Region for new development and slightly higher for improved and expanded public/non-profit uses. Lower Swatara is most similar to Silver Spring, South Middleton, and Upper Allen Townships, Cumberland County.

Table 5-10 Public/Non-Profit Development Trend

Public/Non-Profit	Actual		Projected	
	New, 2009-14	Improved/Expanded, 2009-14	New, 2015-2024	Improved/Expanded, 2015-2024
Southern Dauphin County				
Derry	3	63	5	105
Highspire	1	3	2	5
Hummelstown	1	3	2	5
Londonderry	0	4	0	7
Lower Swatara	2	13	3	22
<i>as percent of County</i>	5%	5%		
Middletown	1	14	2	23
Royalton	4	21	7	35
Swatara	2	2	3	3
<i>Area above as percent of County</i>	32%	44%		
Dauphin County	44	280	73	467
Other Dauphin County				
East Hanover	0	5	0	8
Middle Paxton	2	2	3	3
South Hanover	25	4	42	7
West Hanover	1	5	2	8
Cumberland County				
Lower Allen	0	5	0	8
Middlesex	1	4	2	7
Monroe	1	3	2	5
North Middleton	0	6	0	10
Silver Spring	1	12	2	20
South Middleton	2	19	3	32
Upper Allen	2	10	3	17

Source: Actual: Annual Building Activity reports, 2009-14, Tri-County Regional Planning Commission; Projected: Gannett Fleming, Inc.

Table 5-11 shows that public/non-profit development activity, like commercial, may have affected land use acreage from 2008 to 2014. It is known that the Middletown Home was reclassified to institutional. With this in mind, institutional land use acreage otherwise may have declined. Again, the intended use of transitional lands under construction at the time of the land use classification update is not known.

Table 5-11 Public/Non-Profit Land Use Trend

	2002	2008	2014	2002-08	2008-14
Parks and Recreation	21	51	73	30	23
Institutional	290	361	372	71	11
Transitional (under construction)		87	130	87	43

Source: Tri-County Regional Planning Commission

Based on this trend, Lower Swatara could expect little change in demand institutional uses over the next ten years. Lower Swatara permits many of these uses throughout its zoning districts, therefore even a more significant increase would not require a change in zoning.

The transportation system is a critical component of a community's infrastructure. It provides access to and circulation among the numerous local properties and coordinates with contiguous and regional or state facilities. This section characterizes the facilities of each travel mode found in the Township—road, transit, rail, air, and bicycle-pedestrian.

The Street, Road and Highway Network

The existing roadway network in Lower Swatara Township is very diverse including everything from winding, rural country roads, to residential subdivision streets, and high-speed limited access freeways. This has many positive and negative impacts on the surrounding community. The most heavily traveled roads in the Township are the limited access highways, which are owned and maintained by PennDOT or the PA Turnpike Commission. These include:

- Pennsylvania Turnpike (I-76)
- Interstate 283
- PA Route 283
- The Airport Connector

The Turnpike and PA Route 283 travel in an east-west direction through the Township and I-283 and the Airport Connector travel in a north-south direction. These roadways serve to connect businesses and residents of Lower Swatara Township to nearby cities such as Harrisburg and Lancaster as well as regional and national destinations like Pittsburgh and Philadelphia. They also serve significant amounts of through traffic and are all designated truck routes.

Major access points and junctions of these highways within the Township include:

- I-283 PA 283 / Turnpike Interchange
- Eisenhower Boulevard (S.R. 3001) / PA 283 Intersection
- PA 2831 S.R. 441 / Airport Connector Interchange
- Franklin D. Linn Interchange (North Union Street)

PA Route 230, known as West Harrisburg Pike in Lower Swatara Township, parallels the Susquehanna River and is another vital roadway corridor. PA 230 is also a designated truck route. Other important roadways within the Township include:

PennDOT Owned Routes

1. Oberlin Road (PA Route 441)
2. Fulling Mill Road (SR 3002)
3. Eisenhower Boulevard (SR 3001)

Township Owned and Maintained Routes

1. North Union Street (T-390)
2. Spring Garden Drive (T-337)
3. Stoner Drive (T-333)
4. Rosedale Avenue (T-382)
5. Longview Drive (T-386)
6. Lumber Street (T-380)
7. White House Lane (T-384)

Implications

- While the limited access highways provide regional access to and from the Township, they can also act as barriers to movement, particularly to north-south travel. This point was made in the Township's 2004 comprehensive plan, and a

connection from PA 441 to Longview Road was recommended to improve north-south mobility. The land development plan for Phase III of Old Reliance included this connection as Powderhorn Road, which will be completed in 2016.

Highway Functional Classification

As mentioned above, Lower Swatara Township contains a wide variety of roads. Roadway functional classifications are a way to put these streets and highways into categories according to the service they are intended to provide and to define the role that streets or highways play in serving vehicles' trips through the transportation network.

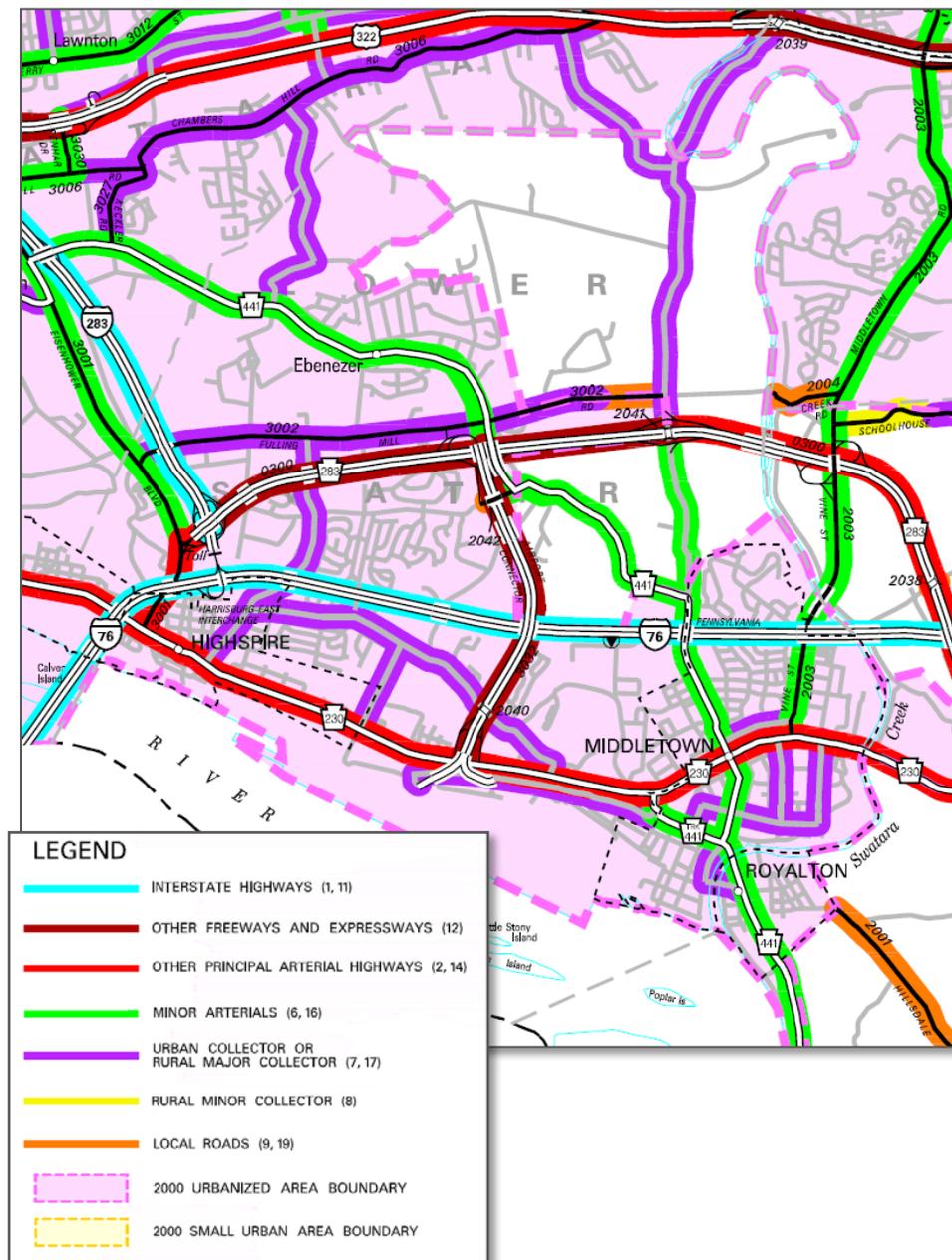
Roadways in Lower Swatara Township represent all six of the following classifications; see Figure 7-1:

- 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.

These functional classifications are sub-classified as urban or rural and are used to determine a roadway's eligibility for federal funding.

In addition to the Functional Classification System noted above, PennDOT further defines roadway classifications into Roadway Typologies. For Further Information regarding this Roadway Typology method, refer to PennDOT Publication 13M Design Manual Part 2 Highway Design.

Figure 7-1 Functional Classification of State Highways



HATS 2040 Regional Transportation Plan (Long Range Plan)

The regional transportation plan for the Harrisburg Area Transportation Study or HATS describes the current status of transportation projects and funding programs, identifies long-term system needs, and recommends transportation projects to meet those needs. The long-range plan sets a framework and priorities for the distribution of federal transportation funds to local projects. The long-range plan is the 2040 RTP.

The current federal surface transportation legislation is FAST Act: *Fixing America’s Surface Transportation (FAST) Act*, a transportation bill that authorizes federal highway, safety, transit, and rail programs over five years from federal fiscal years (FY) 2016 through 2020.

Current and Future PennDOT Improvements

PennDOT's [MPMS IQ](#) is an online database of programmed transportation projects. As of June 2016, MMPS IQ listed eight active projects, five projects programmed for future funds, and one candidate project for future funding.

Table 7-1 Transportation Improvements

Project ID	Title	Primary Improvement Type	Status
84548	PA-283/I-76 Interchange	Interchange Improvement	Active
87449	Fulling Mill Road	Resurface	Active
95378	ITS SMP Phase B Projects	Traffic System Management	Active
97278	Harrisburg Pike Resurface	Resurface	Active
102797	PA 283 Repair	Reconstruct	Active
105283	West Main St Ped Bridge	Transit System Improvement	Active
105485	Emaus St. Ext ROW	Transit System Improvement	Active
107284	Union St Bridge Repair	Bridge Rehabilitation	Active
99900	Oberlin Rd over Ramp	Bridge Preservation Activities	Programmed
99920	Rosedale Ave over Airport	Bridge Preservation Activities	Programmed
99945	Spring Garden Rd over Con	Bridge Preservation Activities	Programmed
100110	Airport Conn North Bound	Resurface	Programmed
100247	Harrisburg Pike Bridge 2	Bridge Replacement	Programmed
100184	Airport Conn South Bound	Resurface	Candidate

Source: MPMS IQ

Pennsylvania Turnpike Improvement

The Union Street Bridge replacement project will accommodate the future widening of the Turnpike Mainline through the Township. The Mainline widening project is anticipated within the next 10-15 years.

Township Road Maintenance and Improvement

Lower Swatara Township receives revenue annually from the Commonwealth's Liquid Fuels Tax Program. This program allocates a portion of the tax collected from the sale of liquid fuels (i.e. gasoline and oil) to municipalities in order to supplement funding for local roadway improvements and emergency services' fuel expenses. The amount received by each municipality is based upon the number of local roadway miles. Currently there are 42 miles of Township roadways in Lower Swatara. The Township conducts activities such as street sweeping, leaf removal, snow plowing, crack sealing, storm drain repairs, and other maintenance activities for these roadways. The Township also reviews the conditions of its roadways frequently in order to determine the need for resurfacing and drainage improvements utilizing visual inspection techniques.

The Township has an ongoing program of roadway rehabilitation and improvement. Over the last ten years, the following major improvements have been completed:

- Road widening has been completed on significant portions of Fulling Mill Road.
- The relocation of Meade Avenue.

- Powderhorn Road has been extended to Longview Drive and will be paved in 2016.
- Two new signals were installed at Union Street and I-283 ramps due to increased traffic from land development.
- Fulling Mill Road and North Union Street intersection was modified including revised striping/lane configurations.
- The relocation of Lawrence Street.

In general, Township roadways are in fair to good condition. The primary roadways previously listed herein have an adequate cart way width and most have some shoulder, though widths vary. The primary Township roadways are marked with double yellow centerlines and some have white edge lines. In the northern part of the Township, truck and/or weight restrictions are present on the Township roads connected to PA 441, Fulling Mill Road, and North Union Street, except for Turnpike Industrial Park Drive.

Improvements are needed to facilitate increased safety, promote growth, and accommodate the growing needs of the community, particularly on Longview Drive, Strites Road, and Gockley Road, but also on other Township roadways where substandard geometric conditions exist.

Advances in technology have made the collection of roadway and roadside conditions more cost effective. A comprehensive Transportation Asset Management and Capital Improvement Plan can be a useful tool to expend these limited transportation dollars in the most effective manner.

Traffic Signals

The Township is the owner and responsible party for the operation and maintenance of traffic signal installations at the following intersections:

1. Union Street and PA 283 Eastbound Ramps
2. Union Street and PA 283 Westbound Ramps
3. Meade Avenue and Olmstead Plaza
4. Eisenhower Boulevard and Fulling Mill Road
5. Eisenhower Boulevard and S.R. 0283 Extended
6. Fulling Mill Road and S.R. 0441 (Oberlin Road)
7. Fulling Mill Road and North Union Street
8. S.R. 0230 and Whitehouse Lane
9. S.R. 0230 and Airport Connector Southbound Ramps
10. S.R. 0230 and Olmsted Plaza
11. S.R. 0230 and First Street
12. S.R. 0230 and Ann Street

Additionally, Lower Swatara Township shares responsibility for the operation and maintenance of a traffic signal at S.R. 0230 and Wood Street with Middletown Borough.

Implications

- The Township should implement an asset management plan for its roadway system along with a fiscally constrained pavement management plan. Advances in technology have made mobile scanning of roadways for condition assessment cost

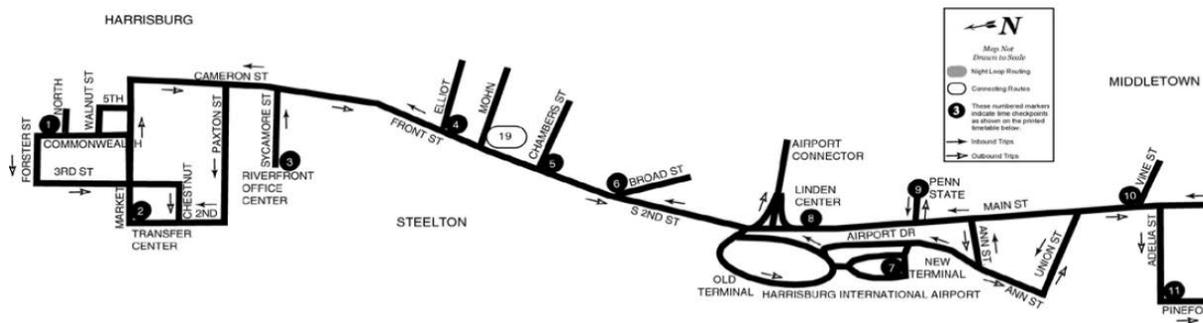
effective and provides an excellent platform for which the Township can develop a robust pavement management program, which includes not only rehabilitation but also preventative maintenance.

- As roadways are improved, minimum cart way, proper drainage, and shoulder widths consistent with PennDOT 3R Design Criteria should be implemented.
- Warning signs should be consistently utilized to advise motorists of safety hazards until feasible improvements can be made.

Public Transit Services

The Cumberland-Dauphin-Harrisburg Transit Authority, also known as Capital Area Transit (CAT), provides fixed route bus services throughout the Harrisburg area. Currently, CAT's Route #7 provides service between Harrisburg, Steelton, Harrisburg International Airport, Penn State Harrisburg, and Middletown with (#) stops in Lower

Figure 7-1 CAT Route #7



Swatara Township. Buses run this route from approximately 5:30 AM to 8:15 PM on weekdays and from approximately 6:15 AM to 7:45 PM on Saturdays. Buses do not currently run on Sundays. CAT #7 has a Transfer Center at the Middletown Amtrak Station. CAT routes change periodically based on service demand and efficiency. See Figure 7-3.

CAT also provides programs such as Share-A-Ride and Special Efforts Transportation (SET) for people with special needs. Share-A-Ride provides door-to-door rides for senior citizens, people with disabilities, and other individuals in Dauphin County. SET operates along with regular bus routes and provides service for individuals who are unable to board a regular bus. CAT also has a Free Transit for Senior Citizens Program and a Reduced Transit Fare Program for people with disabilities.

There are no Park and Ride Locations in Lower Swatara. Residents can access Capitol Trailways and Greyhound intercity bus services by taking the #7 route to the Harrisburg Transportation Center.

CAT also offers RideEco in conjunction with Amtrak, the Southeastern Pennsylvania Transit Authority, the Port Authority Transit Corporation, New Jersey Transit, DART First State (Delaware Transit Corporation) and other transit providers. This program allows employers throughout eastern Pennsylvania, New Jersey, and Delaware to provide tax-free transit vouchers for their employees. These vouchers can be provided as an employer-

paid benefit, as a pre-tax payroll deduction, or a combination of the two and can be used to purchase transit tickets, tokens, and passes. Some vanpool services also accept RideEco.

Implications

- Park-n-ride lots could help to alleviate congestion regional roadways. CAT could study demand and potential locations.

Rail Transportation

Rail-Freight Transportation

Class I rail freight service and infrastructure in the Capital Region are operated by Norfolk Southern Corporation. The Norfolk Southern lines run along the airport grounds. The local shortline operator, Middletown & Hummelstown Railroad (M&H), is a private railroad operating freight transfer or staging service from local shippers to the Norfolk Southern lines. It also operates passenger service between Middletown and a station outside of Hummelstown near Indian Echo Caverns as a tourist attraction.

Rail-Passenger Transportation

Passenger rail service in the Harrisburg area is provided by the National Railroad Passenger Corporation, also known as Amtrak, with the main station located at the Harrisburg Transportation Center at 4th and Chestnut Street in downtown Harrisburg. The nearest secondary station is located in Middletown. Amtrak service is available for commuters to cities such as Philadelphia and as far as New York.

While these stations provide Township residents with access to regional and national destinations, they do not currently serve commuter traffic in and around Central Pennsylvania. This system will undergo a major change in 2016 when a new train station and multi-modal transportation center are constructed adjacent to Ann Street in Middletown. This facility will be connected to the Penn State University Campus via a pedestrian bridge. The multi-modal transportation center is expected to accommodate commercial uses and public transit providers, hotel shuttle vans, limousines, rental cars, and taxis and will include a parking garage. Upon completion of the multi-modal facility, Amtrak will close the existing Middletown station.

Although prominent in the last Comprehensive Plan, commuter rail has met political opposition to its implementation. As such, CorridorOne and other regional commuter rail proposals have been shelved for the time being. Such a system could significantly increase passenger rail travel in Central Pennsylvania and could have a positive impact on roadway traffic congestion.

Implications

- Access to passenger rail service and nearby traveler-oriented services will dramatically improve with the completion of the new multi-modal transportation center.

Aviation Facilities and Services

Lower Swatara Township contains central Pennsylvania's largest airport facility, Harrisburg International Airport (HIA). HIA was originally established as a U.S. Army

base in 1898 and later became Olmsted Air Force Base. When the Air Force base was decommissioned in 1969, the land was turned over to the Commonwealth of Pennsylvania and a public airport was created. In 1998, ownership of the airport was transferred to the Susquehanna Area Regional Airport Authority (SARAA), which oversees operations of the facility. Lower Swatara Township holds one of fifteen member seats on SARAA's board of directors.

HIA currently comprises approximately 800 acres along the Susquehanna River, which is a relatively small area when compared with similar facilities. HIA's location along the River helps minimize noise impacts to surrounding neighborhoods, as flight patterns are oriented along the River. Seventy-four (74) of the 800 acres make up the Terminal Complex. This includes the passenger terminal, aircraft parking apron, circulation roadways, rental car facilities, and short-term parking. The long-term (economy) parking area is located to the east of the Terminal Complex. Additional parking is available from private vendors off-site. The Airport has its own full-time police and fire departments as well as its own water and sewer systems. HIA is currently working with Township officials to develop a new zoning overlay for the Airport area. This overlay could alleviate certain restrictions that exist in the standard zoning ordinances, such as those regarding building height, in order to facilitate development around the Airport.

In accordance with their Master Plan, SARAA is currently undertaking major upgrades and expansions to many of the facilities at HIA. To date, these projects have included demolition of ten former military buildings, the addition of 1,400 parking spaces at the Smart Park Shuttle Lot, and site grading and utility work in the Terminal Complex area. Upcoming construction will include new and relocated taxiways, renovation and expansion of the existing passenger terminal, a new terminal facility, new air cargo aircraft parking areas, new hangars and support facilities, improvements to on-site roadways, the new multi-modal transportation center, and other improvements. These activities indicate that HIA will continue to grow in upcoming years and may present economic development opportunities for the Township.

Implications

- HIA appears to have a steady future serving the Capital Region with passenger and air freight services.

Pedestrian and Bicycle Systems

While the Township does not currently contain any public rail-trail, greenway, or hiking trail facilities, a number of these recreational facilities are nearby and are available to Township residents. These facilities include the:

- Appalachian Trail, a hiking trail from Maine to Georgia, Pennsylvania section travels north and west of Harrisburg;
- Capital Area Greenbelt, a multi-use trail, including some on-road sections, in and around the City of Harrisburg;
- Conewago Recreational Trail, a multi-use trail along Conewago Creek near Elizabethtown, Lancaster County;
- Jonathan Eshenour Memorial Trail in Derry Township

Lower Swatara Township's geographic location provides great opportunity to increase the connectivity among these regional facilities and to increase Township residents' accessibility to them.

In terms of walking and bicycling active (physical) modes of transportation, facilities are located sporadically throughout the Township. Existing sidewalks are generally in good condition, however, there are no striped bicycle lanes in the Township and roadway design varies greatly with regard to bicycle-related features (i.e. shoulders, curb lane widths, etc.).

Implications

- Walking and bicycling facilities that connect residential and commercial areas could improve quality of life in the Township.

Intentionally blank million gallons per day



Public Water Infrastructure and Service

In Lower Swatara Township, public water is provided by Suez, formerly United Water Pennsylvania. Suez serves over 98,000 people in the Harrisburg area and over 5,000 people in Lower Swatara Township.

Suez acquires the water for service to the Township from three main sources: by drawing raw water from Swatara Creek to its treatment plant in Hummelstown; by drawing raw water from Stony Creek and the Susquehanna River to its Sixth Street Water Treatment Plant in Harrisburg; and from water purchased from a private well owned by the Susquehanna Area Regional Airport Authority (SARAA). The Harrisburg water treatment plant can generate up to 12 million gallons of water per day, while the Hummelstown water treatment plant can generate up to 4 million gallons of water per day. Lower Swatara Township receives approximately 90% of its treated water from the Hummelstown plant and 10% from the Harrisburg plant. The well owned by SARAA provides water for the airport and is connected to Suez system. Suez does not have any specific plans for expansion, but they have the capability to expand their services in the region as necessitated by development.

Though the water pressure constantly fluctuates, the water pressure in the Township is generally between 55-70 pounds per square inch. Storage facilities within Lower Swatara Township include a 1 million gallon tank near the airport and a 300,000-gallon tank along Spring Garden Drive. Suez tests its water regularly to ensure that it meets all health and safety standards set by the United States Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (PADEP).

Many residents in Lower Swatara Township currently acquire fresh water from private wells, since public water service is not available to their properties. In some cases, limited service areas are due to the high costs of service area expansion. Some residents have expressed a desire to connect to the public water system if and when it becomes available. A few residents have concerns about groundwater quality.

Water usage and availability is a chief concern within many Central Pennsylvania communities given the drought conditions that have been experienced in recent years. Pennsylvania's relative lack of well regulations also contributes to concerns that new wells could be created that would reduce the viability of existing wells.

In addition, continued suburban development into previously rural and agricultural lands raises concerns over water quality and groundwater recharge. In fact, the October 1997 *Swatara Creek Greenway & River Conservation Plan* prepared for the Dauphin County Parks and Recreation Department indicated, "The primary threat to the lower Swatara [Creek] is increasing urbanization, the major contributor to high coliform levels."

See Map 3 for public water service areas.

Implications

- Suez does not have any specific plans for service area expansion but has the capability to expand as necessitated by development.
- Some residents who rely on private wells have expressed a desire to connect to the public water system if and when it becomes available. A few residents have concerns about groundwater quality.
- Drought conditions and Pennsylvania's relative lack of well regulations contribute to concerns that new wells could be created that would reduce the viability of existing wells.

Public Sewer Infrastructure and Service

The Municipal Authority of Lower Swatara Township provides public sewer service for the Township. There are over 40 miles of sewer lines providing service for 2,200 customers. At the end of 2014, the sewer system provided service for nearly 3,900 equivalent dwelling units (EDUs) for residential and commercial use. Lower Swatara Township does not have its own wastewater treatment plant (WWTP), but rather the wastewater is distributed to three separate WWTPs in neighboring municipalities: the Highspire Borough Authority WWTP, the Middletown Borough WWTP, and the Derry Township Municipal Authority WWTP.

The Municipal Authority of Lower Swatara Township has performed a number of improvements to its collection and conveyance system recently in order to reduce the amount of extraneous inflow and infiltration from entering its sewer system. This reduction can be seen in the lower average flow per EDU now as compared to the previous comprehensive plan update.

Highspire Borough Authority treats the majority of the Township's wastewater. The total permitted capacity of this WWTP is 2.0 million gallons per day and treated water is discharged into the Susquehanna River. The WWTP was upgraded in 2012 in support of Pennsylvania's strategy to reduce pollution within the Chesapeake Bay, the \$10 million upgrades to the treatment plant reduced nutrient discharge levels through an improved biological removal process. The Municipal Authority of Lower Swatara Township is financially responsible for 64 percent of the WWTP's capital, operation, and maintenance costs. Likewise, they have accessibility to 64 percent of its capacity. The Township is allotted up to 1.28 million gallons per day of wastewater. In 2014, Lower Swatara conveyed an average daily flow of 0.737 million gallons per day. Based on the 2014 average flow per EDU of 244.7 gallons per day, Lower Swatara Township has approximately 2,200 EDU's of available capacity.

Middletown Borough services the southeastern portion of the Township, including the areas such as Penn State, Olmstead Plaza, and the Middletown Area High School. The total permitted capacity of this WWTP is 2.2 million gallons per day and treated wastewater is discharged into the Susquehanna River. The WWTP was upgraded in 2012 in support of Pennsylvania's strategy to reduce pollution within the Chesapeake Bay, the \$12 million upgrades to the treatment plant reduced nutrient discharge levels through an

improvement biological removal process. The Authority entered into new 20 year sewage treatment agreement with the Middletown Borough Authority in 2009. In 2014, the Middletown Borough Authority and Middletown Borough entered into a 50 year Municipal Water and Wastewater Utility System Concession and Lease Agreement with Middletown Water Joint Venture LLC. The terms of the 2009 Sewage Treatment agreement between the Authority and Middletown Borough Authority remain in effect. The 2009 sewage treatment agreement provides the Authority with 0.44 million gallons per day of capacity or 20%. Likewise the Municipal Authority of Lower Swatara Township is financially responsible for 20 percent of the WWTP's capital, operation, and maintenance costs. In 2014, Lower Swatara conveyed an average daily flow of 0.181 million gallons per day. Based on the 2014 average flow per EDU of 286.6 gallons per day, Lower Swatara Township has approximately 900 EDU's of available capacity.

Derry Township Municipal Authority services the northeastern portion of the Township, including the area along N. Union Street north of PA Route 283, and most of Fulling Mill Road east of PA Route 441 by providing treatment at its Southwest WWTP. The total permitted capacity of this WWTP is 0.6 million gallons per day and treated water is discharged into the Swatara Creek. Unlike the Highspire and Middletown WWTP's, the Township purchases capacity in the Southwest WWTP as new sewer service capacity request are received in this drainage basin and pays monthly sewer rentals based on the flow conveyed. At the end of 2014, the Township's capacity is 0.101 million gallons per day. In 2014, Lower Swatara conveyed an average daily flow of 0.068 million gallons per day.

As shown on Map 3, there is a very small percentage of the Township that is not incorporated into the public sewer system. These areas are relatively undeveloped and are treated by individual on-lot septic systems owned and maintained by the property owner. The Township is not aware of any residents who are currently discontented with their on-lot septic systems and want to switch to the public sewer system.

The Pennsylvania Sewage Facilities Act of 1966 as amended, commonly referred to as "Act 537," is the primary law controlling individual and community sewage disposal systems. Act 537 requires that every municipality prepare and maintain a sewage facilities plan. Act 537 requires municipalities to review their official plans at five-year intervals and perform updates, as necessary. Municipalities can apply to the PADEP for up to 50 percent reimbursement of the cost of preparing an Act 537 Plan.

High growth municipalities are frequently performing updates to their Act 537 Plan. For stable or slow growth municipalities, 20 years or more may elapse between editions. Regardless of timing, such plans and their approval by PADEP are needed before any major sanitary sewer projects are eligible for funding by the state. The Township's Act 537 Plan was last revised in 1983. The Plan focuses mainly on issues and new developments at that time. It would be appropriate for the Township to consider an update to the Act 537 Plan in the near future to plan for future sanitary sewer needs in the Township. When the Act 537 Plan is updated, the Plan may include a requirement for the inspection and maintenance of on-lot septic systems, a wellhead protection program, and a water quality testing program to ensure that the well water meets all health and safety standards set by

the United States Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (PADEP).

Implications

- The Municipal Authority of Lower Swatara Township has performed a number of Improvements to the collection and conveyance system have reduced the amount of extraneous inflow and infiltration from entering its sewer system and thereby reduced the volume of water conveyed for sewer treatment.
- The Township has capacity for additional sewage treatment: approximately 2,200 EDU's at the Highspire plant; approximately 900 EDU's at the Middletown plant; and additional treatment capacity at the Derry Township plant via contract, as needed.
- The Sewage Facilities Plan update should be completed and implemented.

Stormwater Infrastructure and Service

Stormwater management has become increasingly regulated through the implementation of the federal Clean Water Act and the state Chesapeake Bay Strategy. Each municipality with a separate municipal storm sewer system (MS4) is required to adopt development and other regulations consistent with its permit issued under the National Pollutant Discharge Elimination System (NPDES) and the county integrated water resources plan, and to implement programs and practices to control polluted stormwater.

Lower Swatara Township has municipal stormwater regulations (Chapter 26, Water, of the Township Code of Ordinances) in addition to traditional subdivision and land development requirements. The ordinance intends not only to provide design, construction, and maintenance criteria for permanent onsite stormwater management facilities, but also to regulate the modification of the natural terrain and existing drainage patterns that determine surface water flows.

The Township has put programs and practices in place in support of stormwater management. In partnership with the Dauphin County Conservation District, and in association with its NPDES permit, Lower Swatara Township has established a program to reduce pollutants in stormwater runoff for new construction disturbing one or more acres. The program includes:

- An ordinance,
- Requirements to implement erosion and sediment control best management practices (BMPs),
- Requirements to control other waste at the construction site,
- Procedures for reviewing construction site plans,
- Procedures to receive and consider information submitted by the public, and
- Procedures for inspections and enforcement of stormwater requirements at construction sites.

The Township addresses post-construction stormwater runoff from new development and redevelopments that disturb one or more acres through other measures:

- strategies to implement a combination of structural and non-structural BMPs, such as grass swales, infiltration trench/seepage pits, rain gardens, and storm water basins,
- an ordinance to address post-construction runoff, and
- a program to ensure adequate operation and maintenance of BMPs.

In addition, the Township has trained its staff to prevent and reduce stormwater pollution from activities like maintaining storm sewer infrastructure and performing daily municipal activities, such as road maintenance, street sweeping, and cleaning of storm drains.

The Township also provides information to its citizens about pollution reduction at home and in the neighborhood. Information is made available on the Township website and at the Township office.

The Township is beginning to evaluate the impact of these relatively new programs and practices. In compliance with its NPDES permit, the Township will report its progress and refine its efforts to reduce stormwater pollutants and improve water quality.

Implications

- The Township should continue to document, evaluate and refine its stormwater programs and practices.

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Community facilities and services are those services and facilities provided by both public and private sector entities for the health, safety and welfare of the community. This section identifies these services and trends in service demand and change.

Community Facilities and Services

Police

The Lower Swatara Police Department employs nine Patrol Officers, three Sergeants, two Detectives, one School Resource Officer, and the Chief of Police.

The Chief of Police stated that there has been relatively little crime in the Township in recent years. Property crime is on the decline, however fraud, identity theft, and credit card misuse has been on the rise. Traffic safety has been improving as cars have more built-in safety technology. Driver error remains the cause of most crashes. Fortunately, local drivers are familiar with the hazardous locations and drive cautiously.

Fire Protection

The Lower Swatara Fire Department is a volunteer organization providing fire protection and ambulance services. The Department owns and maintains all fire-fighting apparatus and the Fire Hall at 1350 Fulling Mill Road. Calls for service from 2012 through 2014 averaged 535 per year.

Medical

Residents of the Township have regional access to two health systems. The Penn State Hershey Health System is based in Derry Township. PinnacleHealth is based in Harrisburg. Both offer hospitals and other medical facilities within minutes of Lower Swatara. However, there is no medical or urgent care clinic in the Middletown area.

Education

The Middletown Area School District serves Lower Swatara Township, Middletown Borough, and Royalton Borough. Enrollment in Fall 2015 was 2,427 students. The racial and ethnic composition of students is much more diverse than that of the Township. Districtwide, families are economically challenged, with 51.3 percent qualifying for free or reduced lunch in Fall 2015.

The school district operates three elementary schools (grades K-5), one middle school (grades 6-8), and one high school (grades 9-12). The Lyall J. Fink Elementary School is located in Middletown and was renovated in 2007-08. The John C. Kunkel Elementary School is located on Fulling Mill Road. The Robert G. Reid Elementary School, the Middle School, and the High School South are located on a connected campus. Reid Elementary was completed in 2002. The Middle School was completed in 2007. The District is currently constructing a new high school, which will open for the 2016-2017 school year.

All students living in Lower Swatara are bussed to school.

Private Catholic education for pre-kindergarten through grade 8 is available at the Seven Sorrows of the Blessed Virgin Mary School on East Water Street, Middletown.

The nearest public library is the Middletown Public Library on North Catherine Street in Middletown. The William H. & Marion C. Alexander Family Library in Hummelstown is the nearest branch of the Dauphin County Library System.

Penn State Harrisburg is an undergraduate college and school of the Penn State University. It offers more than 65 associate, bachelors, masters, and doctoral degree programs. The student body of more than 4,400 students is increasingly diverse in race, ethnicity, and origin. Campus alumni now total more than 35,000—a significant network of professionals with connections to the Middletown area.

The Penn State Harrisburg campus spans the Lower Swatara-Middletown border on lands once part of the Olmsted Air Force Base. The campus hosts facilities for academic instruction, residence halls, student affairs and student life services, and athletics. Off-campus student housing is available adjacent to the campus and within a 20-minute walk.

The campus is patrolled by the Department of Safety and Police Services to enforce state laws and University rules and regulations.

Penn State Harrisburg is one of the hubs of the Harrisburg Market Keystone Innovation Zone, making certain business ventures eligible for tax incentives.

Utilities

Electric utilities are provided by PPL Electric Utilities.

Natural gas service is available through UGI.

Land-based telecommunications are provided by Verizon and Comcast.

Solid Waste and Recycling

Lower Swatara provides mandatory residential trash and recyclables collection and disposal services through its designated contractor. Commercial, industrial, and institutional establishments are ineligible for service through the Township contract. Lower Swatara contracts with a single hauler for curbside collection of trash and recyclables.

Parks and Recreation

Lower Swatara owns and maintains eight municipal parks with facilities. Memorial Park and Greenfield Parks are its largest, developed for baseball and soccer, respectively. Shopes Gardens and Woodridge have additional baseball fields. Greenwood Commons has a nature area. Other parks are neighborhood parks with play equipment, pavilions and picnic tables, and grass fields. See Table 9-1 and Map 4.

In 2015, the Township acquired land at the east end of Fulling Mill Road. A public water access may be developed there, but there are no formal plans to date.

Table 9-1 Township Parks

Township Park	Facilities	Size (acres)
Georgetown Park	Playground, and picnic facilities	2.0
Greenfield Park	Soccer, playground, picnic and walking path facilities	20
Greenwood Commons Park and Nature Area	Playground and picnic facilities; nature area	2.4
Memorial Park	Baseball, softball, basketball, tennis, playground, and picnic facilities	16.1
Old Reliance Park	Basketball, playground, and picnic facilities	8.4
Rosedale Park	Basketball, playground, and picnic facilities	0.6
Shope Gardens Park	Baseball, basketball, playground, and picnic facilities	3.5
Woodridge Park	Baseball, playground, and picnic facilities	5.1
Fulling Mill Road site	Acquired in 2015; undeveloped land along Swatara Creek, in the floodplain	10.8
Total		68.9

Source: Lower Swatara Township

Implications

- The demand for Township and community services has not changed significantly in recent years due in part to slow population and household growth. If slow growth continues, demand can be expected to remain steady in overall size or volume but may change in other ways related to its demographics.

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