LONGSWAMP TOWNSHIP
COMPREHENSIVE PLAN

October 27, 2015

PREPARED BY:

Hanover
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I. Introduction

A. Purpose of the Plan

Healthy, attractive and economically-sound communities do not “just happen.” They are created through vision and foresight and grow and change successfully with the same. Today, local governments are responsible for guiding growth and development within communities, for setting aside open spaces, and for delivering public services. Like any business, local governments need to chart future plans so that they can assure the efficient use of resources. The preparation of a comprehensive plan provides a deliberate framework of information that can be used to make future decisions regarding local government functions. The Comprehensive Plan further provides a sound legal basis for specific implementing measures, such as zoning and subdivision regulations, designed to carry out the intent of the Comprehensive Plan. One definition of comprehensive planning is “the allocation of municipal resources towards municipal goals and objectives”; this definition describes the essence of this work.

The Longswamp Township Comprehensive Plan first sets forth a set of Community Planning Goals. These goals can include broad objectives, such as the provision of adequate housing and employment opportunities, the protection of the environment, and the provision of a balance of public services. They can also seek to address existing or foreseeable deficiencies or problems, such as improving the design of a particular road intersection or reducing localized flooding through improved stormwater management.

Next, this Plan inventories, maps and describes the Township's natural, man-made and human resources over several chapters. These resources include many features, such as land, streams, roads, utilities, parks, housing, schools, police and fire service, businesses, and so forth. Analyses are performed within each of the Plan’s chapters to determine whether these resources will be adequate to meet the desired future, recognizing that many goals can compete for the same resources. Then, each chapter makes specific recommendations to target resources to attain locally-expressed planning goals.

Next, the analyses of resources and recommendations are used together with the Community Planning Goals to develop a future land use scenario and a plan for the future delivery of public and other services. The time frame for this Comprehensive Plan is to the year 2030; all recommendations made within this Plan are structured around this time period.

Finally, implementation strategies are discussed and recommended that will enable Longswamp Township to set in motion the goals, objectives and recommendations identified in the Plan. In the end, any planning process is meaningless unless its recommendations find application as part of the Township's business—the protection of public welfare and the delivery of public services.

Longswamp Township participated in the preparation of the Eastern Berks County Regional Comprehensive Plan, which was adopted in December 2004. The Regional Plan effort included the municipalities of District, Longswamp, and Rockland Townships and Topton Borough, as well as the Brandywine Heights Area School District, with funding by the Berks County Planning Commission. Portions of the text of the Regional Plan have been repeated in this

document, where relevant. However, this Plan is intended solely as a single municipal planning tool and is not intended to bind the Region.

B. Municipalities Planning Code Requirements

Pennsylvania's Constitution gives the General Assembly the power to enact laws that protect the public health, safety and general welfare of its citizens. The General Assembly has, in turn, given local municipalities primary responsibility for community comprehensive planning. Municipalities in Pennsylvania are empowered by the Pennsylvania Municipalities Planning Code (MPC), Act 247 of 1968, to prepare and adopt comprehensive plans according to specified requirements and procedures. Revisions to the MPC made by Act 170 of 1988 expanded the subject matter and goals of comprehensive planning to enable municipalities to manage growth more effectively, and to provide greater protection for environmentally sensitive lands and important historic and cultural sites. Furthermore, Act 170 also requires that all counties in Pennsylvania prepare and adopt comprehensive plans and those plans should be generally consistent with municipal goals in the County.

These MPC standards are the foundation upon which the Comprehensive Plan for Longswamp Township is built. This Plan, therefore, is born not only out of a belief that sound planning is the key to a healthy, attractive and economically sound community, but also out of a respect and regard for the laws of the Commonwealth of Pennsylvania.

C. How to Use This Plan

This Comprehensive Plan is designed to serve several important purposes. Principally, the Plan is intended to share with Longswamp Township residents a vision for the Township's future. Secondly, it is designed to assist the Township in the administration of land use planning programs. A detailed table of contents appears at the beginning of the text which provides quick reference to the appropriate sections of the Plan. ***Action-oriented recommendations within each of the Plan's chapters are printed in bold, italicized letters so that the decision-maker's attention is immediately drawn to them. Such goals will be considered from time to time based upon municipal priorities on an as-needed basis.*** Many of these recommendations tie in to specific implementation strategies discussed in the final Plan chapter.

The numerous maps within the Plan have been carefully prepared so that the information can be easily visualized and meaningful. Related features are composited together so that the reader gains a better understanding of their connection. The many analyses utilized throughout the study are intended to maximize the utility of the findings. Step-by-step descriptions of these methodologies are furnished to enable the reader to gain a better understanding of the issues and their planning implications. All of these features will aid local decision-makers in their evaluation of future planning proposals. Data used to compile the maps in this Plan was largely furnished by the Berks County Planning Commission as part of its County-wide Geographic Information System (GIS). Therefore the data is readily consistent with the County's database and new layers of data created by this Plan are similarly compatible with the County's system.

An additional important function of this Plan is its collection of important information. The term *Comprehensive Plan* accurately describes the composition of this report; its contents are quite comprehensive. Accordingly, the Plan provides convenient access to a wealth of up-to-date factual information concerning the Township's resources. This information will serve not only local officials, but also service agencies, property owners, residents, business leaders, and

prospective developers. The inventories of existing conditions will also provide the groundwork upon which future Plan updates can be more easily accomplished.

Finally, the Plan provides a future land use scenario which can be useful to many landowners. For example, residents can get an idea of the land uses that are projected around their homes. Prospective developers can use the Plan to package development proposals that conform to the regional and municipal goals, thereby ensuring a smooth development review process. Business leaders can glean a sense of secure investment climate from the Township's future land use scenario. In all, the Plan considers many competing interests and devises a strategy to assure their relative harmonious coexistence. It is hoped that the Plan will become a powerful and practical tool in local decision-making.

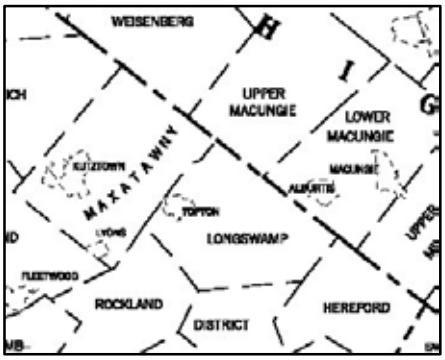
It is important for all persons involved and/or interested in the future of Longswamp Township to read and understand this Plan. Local decision-makers should keep the Plan handy when evaluating future development proposals, service adjustments or public investments.

D. Regional Setting

Longswamp Township lies within what is generally referred to as ~~in~~ the "Eastern Berks County Region". The Region is composed of District, Longswamp, and Rockland Townships and Topton Borough, as well as the Brandywine Heights Area School District. The Region is situated in the northeastern portion of Berks County in southeastern Pennsylvania, approximately 10 miles northeast of the City of Reading, which serves as the County seat of government and is the County's major urban area. Although the Region is within Berks County it abuts Lehigh County and is within commuting distance of the Allentown/Bethlehem metropolitan area. Furthermore the Region also has convenient access to many other nearby urban destinations that can influence its economy and development pattern.

The Eastern Berks County Region's rugged character has historically impeded the construction of primary transportation corridors and this condition is still true today. However, the Region is generally encircled by major roads that lie just a few miles beyond its periphery. US Route 222 runs just north of the Region and provides ready access to Allentown, Reading and Lancaster Cities. PA Route 100 runs a few miles to the east of the Region between Allentown, Pottstown and Philadelphia to the south. PA Route 73 generally parallels the Region's southwestern boundary between Boyertown and Maidencreek. Locally, Pricetown Road provides the most direct connection between the Region and the City of Reading.

Longswamp Township's boundaries are man-made. Along the northeastern boundary, the Township abuts Upper Macungie and Lower Macungie Townships in adjoining Lehigh County. To the southeast is Hereford Township; to the south are District and Rockland Townships; and to the west are Topton Borough and Maxatawny Township – all in Berks County.



II. Planning Goals

A. Community Vision

Longswamp Township will accommodate limited residential growth that is closely tied with projected population trends in settings that are efficient and compact amid rural and agricultural settings. These areas will occur as conservation subdivisions that employ principles and standards of "Growing Greener-Conservation by Design", a concept explained further in Chapter XII (Future Land Use) of this Plan. Further, Longswamp Township seeks to adopt its land use goals to further incorporate agricultural planning to insure that valuable agricultural resources are preserved.

B. Community Planning Goals

The following goals will guide the rest of this effort by allocating Longswamp Township's resources towards expressed needs. The goals are presented by functional category.

ENVIRONMENTAL GOALS

- Protect the wellheads and watersheds for the public water sources contained in Longswamp Township.
- Protect the extensive areas that are part of the four exceptional value and one high quality watersheds within the region (Saucony, and Little Lehigh creeks).
- Protect farmlands.
- Steer development away from steep slopes to avoid stormwater and drainage problems.
- Promote the preservation of historic sites with adaptive-reuse options.
- Continue to promote the creation of riparian buffers.

COMMUNITY DEVELOPMENT GOALS

- Rely on larger commercial centers outside of the Township for regional commercial goods and services.
- Inventory and acknowledge properties that have sold or donated conservation/agricultural easements that prevent their future development.
- Coordinate planned growth areas with anticipated public utility areas.
- Coordinate proposed growth areas with projected population so as to properly size growth zones and protect other areas in a rural state.
- Attempt to promote higher density in planned residential areas and conservation subdivisions as a means of reducing development pressure on the outlying rural landscape.
- Promote conservation subdivision design as a means of conserving natural resources and open space during the development review process.
- Encourage rural businesses that can provide for local employment and contribute to an expanded tax base, particularly for public schools.
- Discourage large-scale commercial and industrial developments due to a lack of sufficient road access unless adequate access/road improvements are agreed upon.
- Locate new rural residences in areas with suitable soils for on-lot utilities or small-scale community systems and manageable stormwater drainage.
- Attempt to "clean up" scattered rural home sites that are littered with junk and debris.

PLANNING PROGRAM GOALS

Use tools for negotiating, such as including an Official Map to the Comprehensive Plan.

PUBLIC FACILITIES AND SERVICES GOALS

- Where practical, seek to provide public facilities and services on a regional basis to avoid duplication.
- Confine park development to the two existing parks in the Township, yet look to coordinate with the School District and the other municipalities in a coordinated delivery of recreation programs and activities.
- Adjust regulations to accept the dedication of open space in conservation subdivisions if such open space contributes to the local park system or dedication/easement for trails.
- Coordinate local planning policies with the need to support local volunteer emergency services.
- Continue to rely on the State Police for coverage.
- Explore the creation of a linear trail along the former Catasauqua & Fogelsville Railroad bed.
- Ensure that new rural residences provide for adequate emergency vehicular access.
- Seek to formally link Municipal and Brandywine School planning by using mutually applicable data.
- Promote expansion of the Mertztown Commercial Area with facilities/services not available.

PUBLIC UTILITIES GOALS

- Coordinate future planned urban growth in areas suitable for growth and areas with potential availability of public utilities.
- Encourage open communication with Topton Borough regarding their progress on their sewage treatment plant as permitted by the DEP.
- Coordinate zoning policies with the location and scheduled availability of public utilities.
- Continue to rely upon on-lot wells and community on-lot disposal systems to accommodate new land uses in suitable areas.

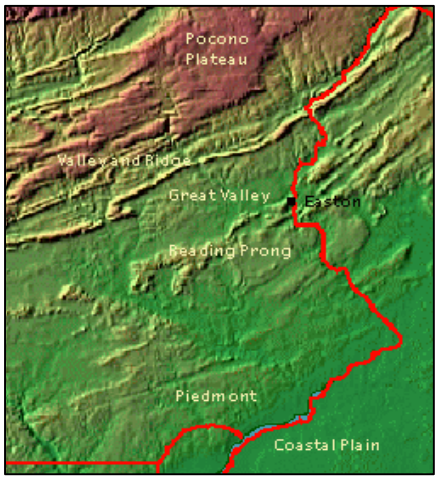
TRANSPORTATION GOALS

- Attempt to increase roadway capacity and traffic flow as a means of encouraging greater economic development potential.
- Assess current road conditions and compare with adopted design standards.
- Provide for pedestrian linkages between developing neighborhoods just outside the Borough with particular attention to facilitating a reduction in school busing.
- Monitor the long range plans concerning major road corridors that may affect the Township.
- Coordinate future land uses with roads that have sufficient capacity to handle the additional traffic.
- Look to improve “rural” road conditions (e.g. inadequate sight distance, tight curves, lack of shoulders, excessive speed limits) in areas that are to be converted to more urban land use.

III. Natural and Cultural Features

This chapter will describe and map the natural and cultural resources of Longswamp Township and the surrounding Eastern Berks County Region. This information will be extremely useful in allocating future land uses within the Township, as well as in formulating policies and implementing measures that protect these natural and cultural resources.

A. Topography



The northern tip of the Eastern Berks County Region (EBCR) is situated within the Great Valley Section of the Valley and Ridge Province. The "Great Valley" section derives its name from the fact that it forms an almost continuous valley extending from New York to Georgia. Along the way this valley takes on local names like the Cumberland Valley, Lebanon Valley, Lehigh Valley and, in Virginia, the Shenandoah Valley. Within the EBCR, this valley is comprised of Cambrian and Ordovician limestones and dolomites that form low, flat and gently rolling terrain with a thick fertile soils cover and a karst drainage pattern. (See the Physiographic Provinces Map).

The southern expanse of the EBCR is located along the northern edge of the Reading Prong of the New England Province. This area is formed by a deeply dissected mountain range that rises more than 800 feet above the adjoining Great Valley. Here ridges of 6 to 8 miles in width extend between the Delaware River to the Schuylkill River near the City of Reading. The rocks include the Cambrian Hardyston Formation and Precambrian Granitic Gneiss. These formations are characterized by large over-turned folds and thrust faults which occurred during two major mountain building geologic periods. This creates a rugged terrain with complex structure and sudden elevation changes.

Areas of 15% to 25% and 25% and greater slopes in the Township are identified on the Steep Slopes Map.

B. Geology

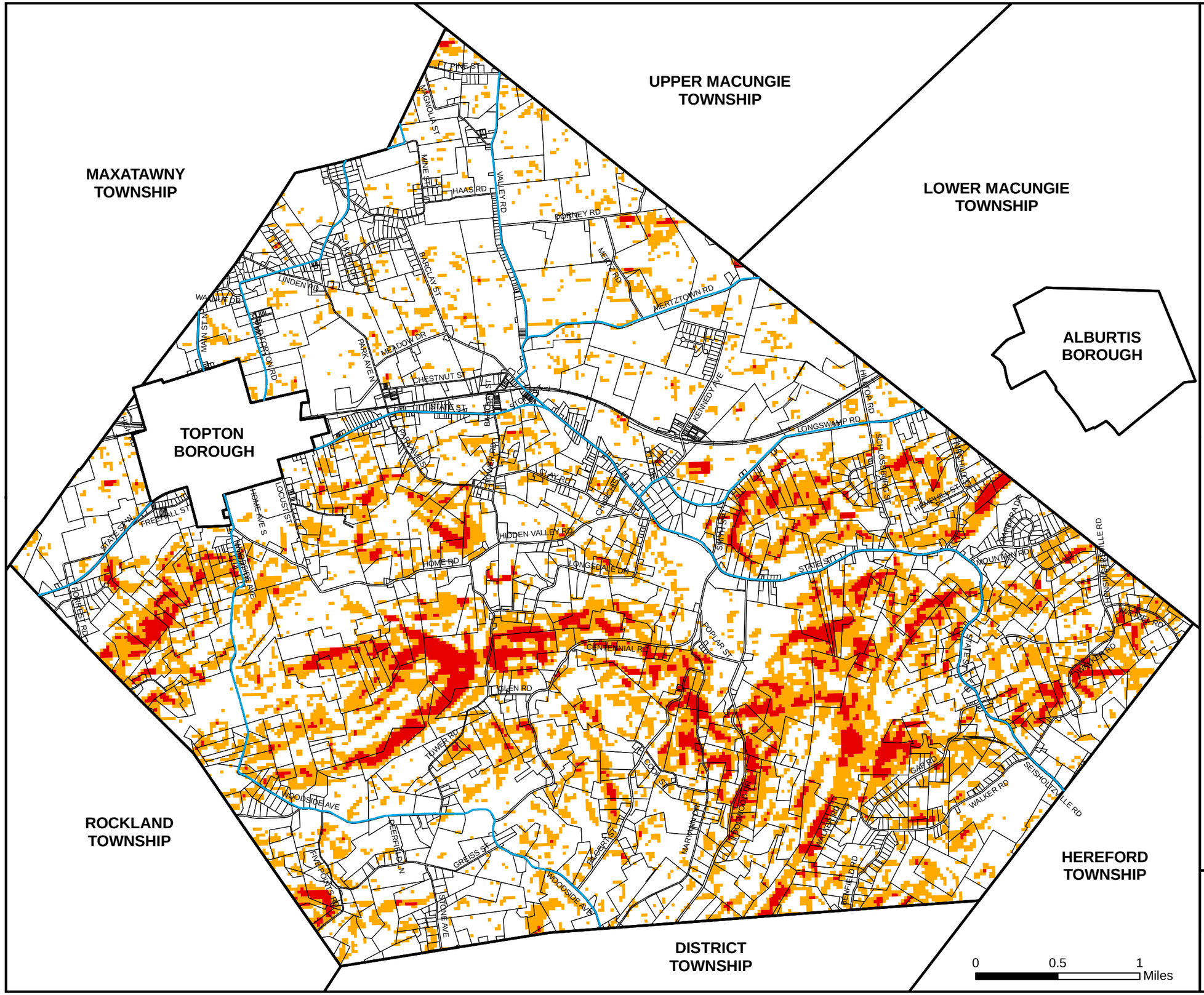
The geology of an area plays an important role in determining the surficial shape of the environment. Throughout the ages, underlying rock is subjected to natural weathering forces that chemically and physically erode its original shape. The physical properties of underlying rock determine its strength and suitability to support development, including the ease of excavation, and ability to support the foundations of various structural types.

GEOLOGIC FORMATIONS

The Geology Map illustrates the geologic conditions within the Township. All of the geologic formations within the Eastern Berks County Region were formed during the Precambrian, Cambrian and Ordovician Eras, which occurred between 523 and over 600 million years ago.

Longswamp Township Comprehensive Plan

Steep Slopes
Longswamp Township
Berks County



Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- 15-25% Slopes
- 25% or Greater Slopes

0 0.5 1 Miles

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

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Longswamp Township Comprehensive Plan

Physiographic Provinces
Longswamp Township
Berks County

UPPER MACUNGIE TOWNSHIP

MAXATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

DISTRICT TOWNSHIP

HEREFORD TOWNSHIP

PINE ST
MAGNOLIA ST
MINE ST
HAAS RD
VALLEY RD
POPLAR ST
MERTZTOWN RD
MERKEY RD
BARCLAY ST
LINDEN RD
WALNUT DR
MAIN ST N
PARK AVE N
MEADOW DR
CHESTNUT ST
HILL ST
STATE ST
BARCLAY RD
PARK AVE S
KENNEDY AVE
HILLTOP RD
LONGSWAMP RD
SCHLOSSBURG ST
HUNSICKER RD
HEMPHILL ST
CLAY RD
CHURCH ST
SMITH ST
MOUNTAIN RD
HENSINGER RD
WALTZEL RD
WALKER RD
SEISHOLTZVILLE RD
GAP RD
LOCUST ST
HOME AVE S
HIGH ST
FREEMALL ST
STATE ST W
FOREST RD
HOME RD
HIDDEN VALLEY RD
LONGSDALE DR
CENTENNIAL RD
GLEN RD
TOWER RD
WOODSIDE AVE
COOK ST
DOGWOOD DR
MARYANN DR
BLUEBIRD ST
GREISS ST
DEERFIELD LN
FIVE POINTS RD
STONE AVE
BENFIELD RD

0 0.5 1 Miles

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries

New England Province

- New England

Ridge and Valley Province

- Great Valley Section

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, PA Bureau of Topographic and Geologic Survey, Department of Conservation and Natural Resources

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Longswamp Township Comprehensive Plan

Geology
Longswamp Township
Berks County

UPPER MACUNGIE TOWNSHIP

MAXATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

HEREFORD TOWNSHIP

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PINE ST
MAGNOLIA ST
MINE ST
HAAS RD
VALLEY RD
POPLAR ST
BARCLAY ST
LINDEN ST
WALNUT DR
MAIN ST N
FAIRFIELD RD
PARK AVE
MEADOW DR
CHESTNUT ST
STATE ST
MERTZTOWN RD
MERTZ RD
KENNEDY AVE
ALLENTOP RD
LONGSWAMP RD
SCHLOSSBURG ST
MARSHALL ST
HEMLOCK ST
MOUNTAIN VIEW DR
MOUNTAIN RD
HENSINGER VALLE RD
WEIKEL RD
WALKER RD
SEISHOLTZVILLE RD
GAM RD
BENFIELD RD
LOCUST ST
HOME AVE S
HOME AVE
NORTHSIDE AVE
ROBERT RD
FREEMALL ST
STATE ST N
HIDDEN VALLEY RD
HOME RD
LONGSDALE DR
CLAY RD
CHURCH ST
SMITH ST
TOWER RD
COOK ST
DOGWOOD DR
MARYANN DR
WOODSIDE AVE
FIVE POINTS RD
PEERFIELD LN
GREISS ST
STONE AVE
PLOWER RD
CENTENNIAL RD
GREEN RD

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- GeologicFormations

Geologic Period

- Cambrian
- Ordovician
- Precambrian

0 0.5 1 Miles

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, PA Bureau of Topographic and Geologic Survey, Department of Conservation and Natural Resources

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The EBCR contains large deposits of Felsic to Mafic Gneiss (formerly known as ***Granitic Gniess) and Hornblended Gneiss*** formations of the Reading Prong. These formations are very hard and resistant to erosion thus forming the hills and ridges so abundant in this area. These formations are composed of compact and dense rock that does not "hold" or "convey" water except through joints and widely-spaced fractures. This makes it difficult to obtain high yield wells although yields of 10 to 15 gallons per minute (gpm) are average. This formation's weathering has over the millennia produced the Region's Gladstone and Towhee soils.

The ***Leithsville Formation*** is principally located along the northern edge of the Reading Prong and the southern edge of the Great Valley landforms, although two small areas of District Township also include this formation. This formation appears as a band that largely straddles State Street through Longswamp Township, Topton Borough and the northern tip of Rockland Township. This formation consists of crystalline dolomite and is a carbonate rock like limestone. Accordingly, this rock is comparatively soft and subject to erosion which over time creates their characteristic flat and fertile lowlands. These same properties make this formation susceptible to the creation of solution channels that can convey large quantities of groundwater; however, these same waters are also susceptible to contamination via the solution channels. This formation's weathering has produced the Region's Laidig and Murrill soils.

The ***Hardyston Formation*** occurs as pockets throughout the Region's larger gneiss formations. It consists of metamorphized quartz sandstone called quartzite. The upper horizons closest to the surface decomposes into a siliceous clay while deeper materials are composed of rounded pebbles of quartz and feldspar called conglomerate. This formation is very hard and resistant to erosion and produces the highest ridges in the area with steep side slopes. Over time, cementation and metamorphism have made this rock more dense and impermeable. Like the gneiss formations, the Hardyston Formation produces low well yields except where it adjoins another more permeable rock type. This formation's weathering has produced the Region's Edgemont soils.

Along the northern tip of the Region are the two formations associated with the Great Valley landform. The ***Allentown Formation*** appears as a broad band sweeping in an east-to-west direction generally north of Pennsylvania Railroad line. A narrower band of ***Epler Formation*** generally straddles Haas Street/Road in northern Longswamp Township. Both of these formations are characterized with carbonate rock that formed during the Ordovician period. These softer limestones have eroded over thousands of years to produce low-lying fertile flatlands with a karst topography. They yield abundant groundwaters through solution channels but are therefore susceptible to widespread contamination. This formation has produced the Duffield and Duffield-Ryder soils within the Region.

Several other minor occurrences of geology are also represented within the EBCR. These include the ***Beckmantown Group, Granodiorite and Granodiorite Gniess, Martinsburg and Metadiabase formation***.

The following table has been constructed to show the relationship between the geology of the Region and four important land use planning considerations. Porosity and permeability, ease of excavation, foundation stability, and groundwater availability are integral to the planning of land use activities. This table is intended for reference use only and can be utilized to determine general characteristics of formation types.

The ***porosity*** and ***permeability*** of a geologic formation refer to how quickly and easily water, air, and other substances pass through the rock. A classification of low means the rock is essentially impermeable. A classification of moderate refers to a permeability of less than 14 feet per day, while high permeability means that substances may pass through the rock at a rate between 14 and 847 feet per day. The ***ease of excavation*** refers to how pliable the rock is when moving or drilling it. The classifications range from easy to difficult. ***Foundation stability*** can be classified as either good, fair, or poor. Good foundation stability means that the bearing capacity of the rock is sufficient for the heaviest classes of construction, except where located on intensely fractured zones or solution openings. Fair foundation stability is determined by the location of the water table, type of rock composition, and weathering depth. Poor foundation stability means that foundations must be artificially stabilized to allow sufficient bearing capacity for construction.

GEOLOGIC FORMATION CHARACTERISTICS

Formation Name (Composition)	Symbol	Porosity & Permeability	Ease of Excavation	Foundation Stability	Groundwater
ALLENTOWN FORMATION (Medium-gray dolomite and impure limestone; dark-gray chert stringers and nodules; laminated; some oolite and sharpstone conglomerate; maximum thickness is about 2,000 feet; reference sections are along Lehigh River and Jordan Creek in vicinity of Allentown, Lehigh County.)	Ꞓal	Solution channels produce a secondary porosity of moderate to high magnitude; low permeability.	Difficult; bedrock pinnacles are a special problem; moderate to slow drilling rate; numerous sandstone beds containing chert lenses slow the drilling rate.	Good; a thorough sinkhole investigation should be undertaken.	Median yields from specific study areas range from 60 to 210 gal/min; many wells are capable of yielding 1,000 gal/min or more; aquifer can be easily contaminated; turbidity is a common water-quality problem.
BEEKMANTOWN GROUP (Where these rocks have not been subdivided into separate formations, they are interbedded, finely laminated, light-gray limestone containing dark-gray dolomite beds; dolomite is fractured, and the fractures are recemented by white calcite; limestone weathers to a pale-gray surface contrasting with the yellowish-gray-weathering dolomite; maximum thickness is about 2,300 feet; reference section is between Leesport and Reading [Berks County] along the Schuylkill River.)	Ob	Joint and solution-channel openings provide a secondary porosity of low to moderate magnitude; low permeability.	Difficult; bedrock pinnacles are a special problem; moderate drilling rate; chert beds, lenses, and quartz sand slow the drilling rate.	Good; should be investigated thoroughly for solution openings.	High yields from fractures and solution cavities; median yield is 50 gal/min in southeastern Pennsylvania; industrial and public supplies are available in most areas.
EPLER FORMATION (Very finely crystalline, medium-gray limestone interbedded with gray dolomite; coarsely crystalline limestone lenses are present; approximately 1,000 feet thick; reference section is along the Reading Railroad about 0.3 mile west of the borough of Richland, Lebanon County.)	Oe; included in Ob	Joint and solution-channel openings provide a secondary porosity of low to medium magnitude; low permeability.	Difficult; bedrock pinnacles are a special problem; fast drilling rate.	Good; should be excavated to sound bedrock and thoroughly investigated for cavernous areas.	In the Lebanon Valley, medium yield is 15 gal/min; in the Lancaster Valley, Epler is a fair source for public supply and industrial use (51 percent of wells studied have yields greater than 25 gal/min).
GRANITIC GNEISS (Light buff to light pink; fine to medium grained; most mineral grains are about 1 mm in diameter; primary minerals are quartz, microcline, hornblende (5 to 10 percent), and occasional biotite.)	gn	Joints provide a very low secondary porosity; low permeability.	Difficult; slow drilling rate.	Good; should be excavated to sound rock.	Median yield is less than 20 gal/min; yields of 35 gal/min or more may be obtainable from wells properly sited and developed; wells should be at least 100 feet deep, but probably not over 200 feet for maximum yield.

GEOLOGIC FORMATION CHARACTERISTICS					
Formation Name (Composition)	**Symbol**	**Porosity & Permeability**	**Ease of Excavation**	**Foundation Stability**	**Groundwater**
GRANODIORITE & GRANODIORITE GNEISS (Medium grained; light pink to green; largely quartz, feldspar, and mica; commonly gneissic.)	ggd	Joints produce a secondary porosity of low magnitude; low permeability.	Difficult; large surface and near-surface boulders hamper excavation; slow drilling rate.	Good; should be excavated to sound material.	Yield of 10 gal/min or less may be expected; yields of 25 gal/min or more may be obtained from wells properly sited and developed.
HARDYSTON FORMATION (Light-gray quartzite; weathers yellow brown; porous and limonitic in many places; quartz-pebble conglomerate occurs at base; maximum thickness is 800 feet; reference to section is at Mt. Penn, Reading, Berks County.)	Cha	Joint- and cleavage-plane openings produce a secondary porosity of low magnitude; low permeability.	Difficult; slow drilling rate, in part due to many quartz veins that exceed 12 inches in width; large boulders may be a special problem; locally highly fractured, highly weathered, and moderately easy to excavate.	Good; should be excavated to sound material.	Median yield of 20 gal/min; water-yielding fractures are seldom found below 200 feet; water is usually soft and of good qualify; iron may be a problem.
HORNBLENDE GNEISS (Dark-gray to black; most grains are about 1 to 2 mm in diameter; hornblende makes up about 50 percent of the rock; the other 50 percent is labradorite [feldspar]; rock is extremely resistant to abrasion and very resistant to rupture, but may be susceptible to crumbling.	hg	Extremely low primary porosity; joint openings provide a low secondary porosity; highly weathered near-surface rock may have high porosity; low permeability.	Highly weathered portion of rock mass has moderately easy excavation; un-weathered rock is difficult; fast to moderate drilling rate.	Good; should be excavated to sound material.	Median yield of reported wells is 10 gal/min; yields of 35 gal/min or more may be obtained from wells properly sited and developed.
LEITHSVILLE FORMATION (Dark-gray to medium-gray dolomite; some calcareous shale and sandy dolomite; cherty; 1,500 feet thick; type section is at Leithsville, Northampton County.)	Clv	Joint openings and solution channels provide a secondary porosity of high magnitude; moderate to high permeability.	Difficult; bedrock pinnacles may be a special problem; fast drilling rate.	Good; solution openings and bedrock pinnacles should be thoroughly investigated.	Median yield is 100 gal/min; large yields may be obtained from solution openings; aquifer can be easily contaminated; turbidity is a common water-quality problem; water is relatively hard.
MARTINSBURG FORMATION (Buff weathering, dark-gray shale, and thin interbeds of siltstone, metabentonite, and fine-grained sandstone; brown-weathering, medium-grained sandstone containing shale and siltstone interbeds occurs in the middle of the formation; basal part grades into limy shale and platy-weathering, silty limestone; may be 12,800 feet thick; reference section is in a small quarry along Longs Gap Road, North Middleton Township, Cumberland County.)	includes Om, Omgs, and Oml	Cleavage- and joint-plane openings provide a secondary porosity of generally low magnitude; low permeability.	Moderately easy in shale; moderately difficult in limestone; difficult in sandstone; fast drilling rate.	Good; should be excavated to sound rock; limestone should be investigated for solution openings.	A median sustained yield of 32 gal/min has been calculated and a maximum well yield of 200 gal/min is reported; yielding zones are commonly less than 150 feet in depth but occur as deep as 400 feet below land surface; the natural quality of the water is often poor due to hydrogen sulfide and high concentrations of iron.
METADIABASE (Dark-greenish-gray to almost black diabase; generally ½ to 1 mm in grain size; consists of augite, feldspar [andesine to labradorite], and magnetite; extensively altered—feldspar is altered to sericite and augite has been replaced by epidote and chlorite; occurs as mostly thin dikes, but a few may be greater than 100 feet thick; reference locality is a mile south of Ritten-house Gap, Berks County.)	md	Joint-plane openings provide a very shallow and low secondary porosity; low perme-ability; effective porosity and permeability probably exist to 150 feet in depth.	Moderately easy where highly fractured and weathered; difficult elsewhere and at depth.	Excellent; should be excavated to sound bedrock.	Yield of less than 5 gal/min are common.

Source: Alan R. Geyer and J. Peter Wilshusen, *Engineering Characteristics of the Rocks of Pennsylvania* (Harrisburg, PA: Pennsylvania Geologic Survey, 1982).

GROUNDWATER AND WELLHEAD PROTECTION

Geology is also a primary determinant of ***groundwater quality and quantity***, as shown in the foregoing table. Groundwater is surface water that has seeped into and is contained by underground geological formations called aquifers. Water stored in aquifers is sometimes released to the surface through springs or can be pumped to the surface through wells. Groundwater aquifers are part of an interconnected network that includes surface waters, such

as streams, ponds, wetlands, and lakes. Aquifers regulate the levels and flow rates of these surface waters by collecting and retaining water reaching the ground and gradually releasing it during dry periods.

Some of the primary geological determinants of groundwater quality and quantity are the type, structure, permeability, porosity, and chemical composition of the bedrock formations present in the area. An understanding of local groundwater conditions is necessary to (1) plan for future public sewer and water needs, (2) allocate future land uses so as to protect important groundwater recharge areas, and (3) protect existing and potential future groundwater sources from contamination.

A typical household with three family members requires domestic water with an average flow of 0.2 to 0.4 gpm with a peak rate of use ranging between 3 and 5 gpm. ***The southern portion of the Township is characterized by geologic formations that average between 10-20 gpm and can adequately accommodate a sparsely-developed rural land use pattern.*** The northern ***portion of the Township*** with its limestone and dolomite formations provides more ample groundwater yields that range between 60 to 210 gpm with many wells capable of obtaining 1000 gpm in the larger Allentown Formation. ***Public water supplies and small-scale community systems within the Township that rely upon wells for source should be located in the vicinity of these carbonate formations to take advantage of the abundant groundwater supplies. However, such sources should be routinely monitored and treated as necessary due to the vulnerability of this groundwater from contamination via the widespread solution channels.***

Wellhead protection safeguarding public groundwater sources is also a particularly sound investment because wellhead protection is more effective and less expensive than cleaning a contaminated groundwater source, which may cost 30-40 times more than initial protection. The following presents a brief synopsis of the five initial steps of the planning process needed to undertake a wellhead protection program as presented in *the Wellhead Protection Workbook for Local Municipal Water Planning Teams* (Lancaster County Planning Commission & Lancaster County Water Resources Task Force):

(1) ***Form a Water Planning Team*** of local officials, citizens, and interested experts who are interested in a successful wellhead protection program and can commit the time to assist in the work involved. Then establish a regular meeting schedule to be followed;

(2) ***Define the land area to be protected*** - A wellhead is defined as an area above or below grade that contributes water to, and could potentially contaminate a water supply. ***Wellhead protection areas should be delineated by a professional geologist at the outset.*** A water supplier may use its own municipal engineer or retain a qualified consultant for this work. Not all public groundwater sources warrant a wellhead protection program. That is a decision that should be made based on several factors: feasibility of protecting the recharge area, influence of surface water on the water supply, existence of a filtration plant, possible interconnection to buy water from another system, or designation of the water source as a sole-source aquifer. Within Pennsylvania wellheads are generally divided among three different zones:

> **Zone I** is a 100 to 400 foot radius immediately surrounding a well or spring in which no development should be permitted. Activities in this area generally pose the greatest risk to groundwater because of the short distance (and

correspondingly short travel time) that contamination must travel to reach the well.

Zone II is a larger area from which the groundwater is pulled into a well by pumping. Generally, the harder a well is pumped, the further out the water is drawn from. Because springs are not pumped, a Zone II is not delineated for springs.

Zone III is the area from which any rain that fails to the surface and eventually flows into Zone II or a spring.

Not all wellhead protection programs utilize the three zone approach and local officials should tailor their program with appropriate levels of regulation and implementation that meets local protection goals and responds to local conditions.

(3) ***Identify potential contamination sources*** - The water planning team should review the following list of potential sources of groundwater contamination then specifically inventory and map such sources within their respective wellhead zones.

Potential Source for Groundwater Contamination

AGRICULTURE Animal burial areas Irrigation Animal feedlots Manure storage areas Pesticide and herbicide storage areas	RESIDENTIAL Fuel storage systems Septic systems, cesspools, water softeners Furniture and wood strippers and refinishers Sewer lines Household hazardous products Chemical applications to lawns
COMMERCIAL Airport Boat Yards Medical Institutions Paint shops Photography business Printing business Carwashes Railroad tracks Railroad yards or maintenance facility Cemeteries Research laboratories Construction areas Road deicing operations (i.e. road salt storage or use) Dry cleaning establishment Scrap and junk yards Gas station Auto Repair Shops Storage tanks and piping (either above ground or underground) Golf courses (chemical applications) Jewelry and metal plating Laundromats	INDUSTRIAL Abandoned properties Asphalt plants Chemical manufacture, warehousing and distribution Electrical and electronic products and manufacturing Electroplaters and metal fabricators Foundries Fire Training Facilities Machine and metal working shops Manufacturing and distribution sites for cleaning supplies Quarries Petroleum products production, storage and distribution Pipelines (e.g. oil, gas) Septage lagoons and sludge Storage tanks (i.e. above ground, underground) Toxic and hazardous spills Wells- operational and abandoned (e.g. water supply, injection, monitoring) Wood Preserving facilities
OTHER Rifle and pistol ranges	WASTE MANAGEMENT Hazardous waste management units (e.g. landfills, land treatment areas, surface impoundments, waste piles, incinerators, treatment tanks) Municipal incinerators Municipal landfills Municipal wastewater and sewer lines Open burning sites Recycling and reduction facilities Stormwater drains, retention basins, transfer stations

(4) **Evaluate alternative tools and techniques** – Based upon results of previous task select from the many techniques that can be used to protect groundwater, including but not limited to:

ASSORTED STRATEGIES AND TECHNIQUES FOR GROUNDWATER PROTECTION

Regulatory Techniques	Non-Regulatory Techniques
· Overlay Zones; · Prohibited Land Uses; · Special and temporary permitting; · Performance standards; · Amortization of land uses; · Restrictive agricultural or conservation zoning; · Lot coverage regulations; · Transfer of development rights; · Staging of development; · Setbacks; · Disturbance requirements; · Conservation plans; · Stormwater management regulations; · Materials & waste handing requirements; · Fuel storage tank regulations; · Well drilling regulations; · OLDs maintenance; · Sewage planning strategies; · Nutrient management plans; · Integrated pest management	· Emergency preparedness; · Contingency planning; · Signage; · Monitoring; · Remediation; · Land purchase; · Land donation; · Easements; · Land banking; · Comprehensive planning · Regional wellhead / watershed protection planning; · Public education; · Environmental watch groups; · Street sweeping; · Household & hazardous waste collection; · Storm drain labeling; · Sinkhole cleanup; · Streambank cleanup; · Streambank fencing & stabilization.

(5) **Develop and implement a plan of action –** Using any combination of the above, prepare a plan that assigns duties and schedules completion. Then, conduct public hearings with local officials for official adoption of plan, and ordinances or approval of resolutions needed to implement the Plan. Regularly review the status of the Plan's effectiveness and related developments within the field of wellhead protection. Conduct ongoing public education about the need for groundwater protection and possible consequences for violations. Whatever, the first step the municipality or water provider takes (either modest or comprehensive) it must have local official and community-based support to be effective.

Given this Plan's goals and the Township's sensitive environmental conditions, it is recommended that all known public wellhead protection areas be reserved for low intensity rural uses with limited permitted lot coverages and woodland preservation requirements that will reduce potential impact on groundwater volumes and quality. Furthermore, any home-based businesses or rural occupations should require the applicant for such uses to demonstrate the means by which he/she will properly handle materials, and dispose of any wastes, that could threaten groundwater contamination.

In addition it is recommended that the following "Best Management Practices" (BMPs) for the control of stormwater be applied to:

1. Minimize on-site impervious areas by preserving natural wooded cover and drainageways on-site.

2. Utilize pervious surfaces, such as porous pavement and gravel as ways to minimize runoff.

3. ***Minimize directly connected impervious area. Promote natural removal of pollutants using vegetation and soil. Direct impervious area runoff to pervious. For example:***

   a. ***roof downspouts to lawns***
   b. ***driveways to lawns***
   c. ***parking areas to lawns or grassed swales***

4. ***Eliminate the opportunity for pollutants to mix with stormwater runoff by:***

   a. ***street sweeping***
   b. ***cover chemical storage areas***
   c. ***dike potential spill areas***
   d. ***regular sediment removal from drainage system***

5. ***Minimize the potential for concentrating pollutants and concentrating stormwater runoff by:***

   a. ***utilizing grass swales and filter strips: and,***
   b. ***utilizing infiltration trenches, where applicable.***

Longswamp Township will consider the agricultural community and work with it to design a wellhead protection program that meets the natural resources protection goals of this Plan while at the same time being sensitive to the agricultural community members' needs.

C. Soils

The constant weathering of geologic formations produces various soil types. The capabilities and constraints exhibited by these soils are related to the geologic characteristics of the underlying rock and the local climatic conditions. A soils analysis is essential to planning for future land uses, which are best located on soils that are suitable and have complementary characteristics for specific land uses. For example, agricultural land uses are usually found where soils are level, well-drained and fertile. Residential land uses are suitably located where soils are fairly level and sufficiently above bedrock and the water table. The appropriate siting of development significantly reduces the costs associated with excavating a foundation, as well as locating and designing an on-lot sewage disposal system. Finally, industrial uses favor soils that are relatively flat and sturdy so as to withstand the heavy weights associated with the operation of large plants.

The EBCR is dominated by **Gladstone Gravelly Silt Loam** soil group. This soil is closely associated with the widespread Granitic and Hornblende Gneiss geologic formations. The areas of this soil that are less sloped tend to be fertile and have moderate development limitations while steeper slopes have thinner soils that are less fertile with severe development limitations, particularly for use of on-lot sewers. To a lesser extent the Region's gneiss geologic areas also have **Edgemont Channery Loam and Towhee Silt Loam** soils. The Edgemont soils are better suited for development than the severely constrained Towhee soils. Just north of the above-described soils are a band of **Murrill Gravelly Loam and Laidig Gravelly Loam** soils in the geologic transition between the rugged gniess and the more level limestone formations. These soils tend to be best suited for development within the Region.

And finally along the northern edge of the Region are found the **Duffield Silt Loams** associated with the Allentown and Epler geologic formations. These soils provide the greatest concentration of prime farmlands but are generally severely constrained for development.

PRIME FARMLAND

A major consideration of any soils analysis is the identification of ***prime farmland***. Prime farmland soils are those soils with an agricultural capability rating of Class I or II. The Agricultural Capability Map shows the agricultural capability ratings of all the soils located in the Township. In addition, the USDA considers Class III soils to be of ***Statewide Importance*** to agriculture. The United States Department of Agriculture (USDA) describes prime agricultural land as "the land that is best suited for producing food, feed, forage, fiber and oilseed crops." It possesses the soil quality, growing season and water supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. Prime farmlands are rich in chemical nutrients, have good permeability to air and water with few rocks, are well-drained but resistant to erosion, and have relatively flat topography. Prime farmlands produce the highest yields with minimal inputs of energy and economic resources, and farming them results in the least damage to the environment. The USDA encourages all levels of government and private individuals to effectively use these valuable resources to meet the nation's food and fiber needs.

Prime farmland soils and Soils of Statewide Importance are depicted on the Soils and Development Limitations Map. Aside from the northern limestone areas, the Region only has scattered Class I and II prime farmlands that extend along the valleys between the rugged ridge tops. The side slopes of the hills transition with Class III Soils of Statewide Importance. Unfortunately, the soils most suitable for agricultural purposes are also those most suitable for development, creating competition between these uses for these soils, and resulting in the loss and fragmentation of the most productive farmlands. Prime farm soils and Soils of Statewide Importance should be protected from conversion to other uses through appropriate planning and zoning, including strengthening the Township's' agricultural zone and applying it to more of the Township's farmlands. Development in certain zoning districts that abuts working farmland can minimize disruption of farming activities by using Conservation Subdivision design, explained further in Chapter XII of this Plan.

DEVELOPMENT CONSTRAINTS

Another important soils consideration relates to those soils that produce constraints for building development and the operation of on-lot utilities. ***Building development constraints*** can include a wide range of soil characteristics, including steep slopes, wetness, depth to bedrock, frost action, shrink-swell, low strength and cemented pans, and flooding. Other soil-related constraints become important for ***on-site sewage disposal systems***. Constraints associated with the installation and operation of these systems include steep slopes, wetness, flooding, slow percolation rates, poor filtration characteristics, and high secondary porosity due to the presence of fractures and solution channels. It is important to identify and map those soils that possess building development and on-site sewage disposal constraints so that future land uses can be kept away from these environmentally sensitive areas. The soils of the Township are

Longswamp Township Comprehensive Plan

Agricultural Capability
Longswamp Township
Berks County

UPPER MACUNGIE TOWNSHIP

MAXATATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

HEREFORD TOWNSHIP

DISTRICT TOWNSHIP

PINE ST
MAGNOLIA ST
MINE ST
HAAS RD
VALLEY RD
POMEY RD
MERTZTOWN RD
BARCLAY ST
LINDEN RD
WALNUT DR
MAIN ST N
FAIRFORD TOWN RD
PARK AVE N
MEADOW DR
CHESTNUT ST
MAIN ST
STONE ST
PARK AVE S
LOWER RD
SLATE RUN RD
FREEDALL ST
HOMEVALE S
LOCUST ST
HARRISBURG AVE
HOME RD
HIDDEN VALLEY RD
LONGSDALE DR
CENTENNIAL RD
GREEN RD
TOWER RD
WOODSIDE AVE
DEERFIELD LN
FIVE POINTS RD
GRIESS ST
STONE AVE
PLEASANT ST
COOL ST
MARYANN DR
LONGWOOD DR
WALLASH RD
BENFIELD RD
KENNEDY AVE
LONGSWAMP RD
SCHLOSSBURG ST
HAMMERHILL ST
HILLTOP RD
PANORAMA DR
MOUNTAIN RD
STATE ST
WALKER RD
SEISHOLTZVILLE RD
HEISSVILLE RD
WEIDEL RD

0 0.5 1 Miles

N
W E
S

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries

Agricultural Soils

- Class I
- Class II
- Class III
- Class IV
- Class V
- Class VI
- Class VII
- Class VIII

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services, USDA NRCS

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Longswamp Township Comprehensive Plan

Agricultural Soils and Development Constraints Longswamp Township Berks County

UPPER MACUNGIE TOWNSHIP

MAXATATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

HEREFORD TOWNSHIP

DISTRICT TOWNSHIP

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Prime Agricultural Soils
- Agricultural Soils of Statewide Importance
- Soils with Severe On-lot Sewer Limitations
- Soils with Severe Building Limitations
- Soils with Severe Sewer & Building Limitations

0 0.5 1 Miles

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services, USDA NRCS

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generally severely restricted for building development and/or on-lot sewers. (See the Soils and Development Limitations Map.) Only a small band of Murrill Gravelly Loam generally straddling the Pennsylvania Lines Railroad and scattered pockets of low-lying Gladstone Gravelly Silt Loams are free of both these severe limitations. ***Future planning should avoid development in areas with severe soil constraints or be accompanied by strict siting standards in the Township's Zoning Ordinance or Subdivision and Land Development Ordinance.***

The following table lists the soil characteristics found within Longswamp Township:

SOILS CHARACTERISTICS OF LONGSWAMP TOWNSHIP

Soil Symbol	Soil Name	Slope	Agricultural Rating	Hydric	Soil Suitability				
					On-lot Sewers	Dwellings	Commercial Buildings	Roads	Severe Limitations*
BkC	Berks-weikert complex	8-15%	3e		Severe	Moderate	Severe	Moderate	s, d
BkD	Berks-weikert complex	15-25%	4e		Severe	Severe	Severe	Severe	c, d, s
CmA	Clarksburg silt loam	0-3%	2w		Severe	Severe	Severe	Severe	c, w, ds
CmB	Clarksburg silt loam	3-8%	2w		Severe	Severe	Severe	Severe	c, w, ds
DbA	Duffield silt loam	0-3%	1		Moderate	Severe	Severe	Severe	c, l
DbB	Duffield silt loam	3-8%	2e		Moderate	Severe	Severe	Severe	c, l
DfC	Duffield-ryder silt loams	8-15%	3e		Severe	Severe	Severe	Severe	c, l, s, rp
EdB	Edgemont channery sandy loam	0-8%	7s		Moderate	Severe	Severe	Severe	c
EdD	Edgemont channery sandy loam	8-25%	7s		Severe	Severe	Severe	Severe	c, s, d
EhB	Edgemont channery loam	3-8%	2e		Moderate	Severe	Severe	Severe	c
EhC	Edgemont channery loam	8-15%	3e		Moderate	Severe	Severe	Severe	c, s
GeB	Gladstone gravelly silt loam	3-8%	2e		Severe	Moderate	Moderate	Moderate	fi
GeC	Gladstone gravelly silt loam	8-15%	3e		Severe	Moderate	Moderate	Moderate	fi, s
GeD	Gladstone gravelly silt loam	15-25%	4e		Severe	Severe	Severe	Severe	s
GfB	Gladstone gravelly silt loam	0-8%	6s		Moderate	Moderate	Moderate	Moderate	
GfD	Gladstone gravelly silt loam	8-25%	6s		Severe	Severe	Severe	Severe	s, rp
GfF	Gladstone gravelly silt loam	25-55%	7s		Severe	Severe	Severe	Severe	s, rp
GnA	Glenville silt loam	0-3%	2w		Severe	Severe	Severe	Severe	c, f, w, ds
GnB	Glenville silt loam	3-8%	2e		Severe	Severe	Severe	Severe	c, f, w, ds
Ho	Holly silt loam	0-8%	3w	Hydric	Severe	Severe	Severe	Severe	f, w, fl, ds, rp
LaB	Laidig gravelly loam	0-8%	2e		Severe	Severe	Severe	Severe	c, ds
LaC	Laidig gravelly loam	8-15%	3e		Severe	Severe	Severe	Severe	c, ds, s
LbB	Laidig very gravelly loam	0-8%	7s		Severe	Moderate	Moderate	Moderate	c, ds
LbD	Laidig very gravelly loam	8-25%	7s		Severe	Severe	Severe	Severe	s, c, ds
Me	Middlebury silt loam	0-3%	2w		Severe	Severe	Severe	Severe	f, w, fl, ds, fi, rp
MuA	Murrill gravelly loam	0-3%	1		Moderate	Slight	Slight	Moderate	
MuB	Murrill gravelly loam	3-8%	2e		Moderate	Slight	Moderate	Moderate	
MuC	Murrill gravelly loam	8-15%	3e		Moderate	Moderate	Severe	Moderate	
ThA	Thorndale-Pennlaw silt loams	0-3%	4w	Hydric	Severe	Severe	Severe	Severe	f, w, c, ds, rp, ds
ToA	Towhee silt loam	0-3%	4w	Hydric	Severe	Severe	Severe	Severe	f, w, c, ds, rp
ToB	Towhee silt loam	0-8%	7s	Hydric	Severe	Severe	Severe	Severe	f, w, c, ds
TwB	Towhee silt loam	0-8%	7s	Hydric	Severe	Severe	Severe	Severe	f, l, w, c, ds
Ua	Udorthents	NA	NA		NA	NA	NA	NA	NA
UmB	Urban land-duffield complex	0-8%	8s		Moderate	Severe	Severe	Severe	c, l
UnD	Urban land-gladstone complex	8-25%	4e		Severe	Severe	Severe	Severe	s, rp, fi
WeB	Weikert-berks complex	3-8%	3e		Severe	Severe	Severe	Severe	c, d, s

*c – cemented pan / f – frost action / s-slope / st – stony / w – wetness / d – depth to rock / l – low strength / fl – flooding / fi – filtering capacity / ds – depth to saturation / rp – restricted permeability

D. Surface Waters

The way in which water moves through our environment has implications for land use planning. First, rivers, streams, creeks, runs, and their floodplains present hazards to development. Second, land areas adjacent to surface waters offer high quality habitat, conservation and recreational opportunities. Finally, the drainage basin within which surface waters flow is a basic geographic unit used to plan and design sanitary and storm sewers; systems that can make use of gravity-fed lines can reduce the costs of these types of utilities.

DRAINAGE BASINS

A drainage basin consists of the streams and associated floodplains which dispose of surface water from that area. Drainage basins are separated by ridge lines. All of the water draining from the Eastern Berks County Region eventually flows into the Delaware River. The Township's drainage basins are identified on the Floodplains, Wetlands, and Drainage Basins Map.

The ***Little Lehigh Creek*** is the largest drainage basin in Longswamp Township, as well as in the Region, and comprises about three-fourths of the Township land area. The Toad, Little Lehigh and Swabia Creeks all originate within Longswamp Township and flow in a northeast direction into adjoining Lehigh County where they all feed into the Little Lehigh Creek. ***This entire drainage area within*** the Township, as well as ***the Region, has been designated by the State as a High-Quality Cold Water Fishery. As such this area should be fitted with future land uses that comply with protective measures aimed at keeping these waters free from unnecessary degradation.***

The ***Perkiomen Creek*** watershed sits along the Region's southeastern border. A small portion of this watershed is located in the southeastern part of the Township, with the majority of the watershed principally within District Township. Several tributaries to the West Branch of Perkiomen Creek originate in this area and flow in an easterly direction where they meet just across the Hereford Township line.

The ***Saucony Creek*** is located in the southwestern portion of the Township and flows into Rockland Township. Small areas also extend slightly into northern District Township. Here the Little Saucony and the main course of the Saucony Creek flow in a northwesterly direction before they merge near Smoketown Road. A portion of the watershed within Longswamp Township is a ***State-designated Exceptional Value Waters. This is the highest level of water quality recognized by the State and commands protection from uses and practices that would degrade its purity.***

Overall the Region's drainage pattern exhibits a course texture and generally dendritic shape. This is consistent with the resistant geologic materials that produce its rugged landform and high elevations. However, the northern tip of Longswamp Township differs from the rest of the Region with a karst topography that lacks significant surface drainage. Here, waters tend to percolate quickly into the ground via the softer limestone bedrock and soils.

HIGH QUALITY AND EXCEPTIONAL VALUE WATERS

The Federal Water Pollution Control Act of 1972 was passed to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." To implement this Federal mandate, the PA DEP passed the Pennsylvania Clean Streams Law and designated some

Longswamp Township Comprehensive Plan

Floodplains, Wetlands, and Drainage Basins Longswamp Township Berks County

UPPER MACUNGIE TOWNSHIP

MAXATATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

DISTRICT TOWNSHIP

HEREFORD TOWNSHIP

PINE ST
MAGNOLIA ST
MINE ST
HAAS RD
VALLEY RD
DORNEY RD
MERTZ RD
MERTZTOWN RD
BARCLAY ST
WALNUT DR
LINDEN RD
MAIN ST N
BLANKENBURG RD
MEADOW DR
PARK AVE N
CHESTNUT ST
STATE ST
STONE RD
KENNEDY AVE
HILLTOP RD
LONGSWAMP RD
SCHLOSSBURG RD
HEMPHILL ST
MOUNTAIN RD
HENSINGER MILL RD
WALKEL RD
WALKER RD
GAP RD
SEISHOLTZVILLE RD
BARCLAY ST
PARK AVE S
CLAY RD
CHURCH RD
GOLF DR
SMITH ST
POPLAR ST
HOME AVE S
LOCUST ST
HOME AVE
WOODSIDE AVE
FREEMALL ST
STATE ST N
FERRIS ST
HOME RD
HIDDEN VALLEY RD
LONGSDALE DR
CENTENNIAL RD
GLEN RD
HOWER RD
DEER FIELD LN
FIVE FARMS RD
GRASS ST
STONE AVE
PAKERT ST
MARYANN DR
DOGWOOD DR
COOL ST
BENFIELD RD

0 0.5 1 Miles

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Water Bodies
- 1% Floodplains

Watershed Quality

- Cold Water Fishery
- Exceptional Value
- Hi Quality Cold Water Fishery

Watersheds

- Sacony Creek
- Little Lehigh Creek
- Perkiomen Creek

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services, FEMA (Effective Date: July 3, 2012)

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12,500 miles of rivers and streams as "special protection water," including ***Exceptional Value Waters*** and ***High Quality Waters***.

Benefits of
High Quality Waters

1. Recreational values
2. Fisheries protection
3. Aesthetic/visual
4. Health and welfare

The majority of Longswamp Township consists of Exceptional Value and High-Quality waters. Clearly surface water quality is a feature that distinguishes the Township and the Region from many other areas within Berks County and across the State. Local officials should take active steps to preserve and protect these "sacred" resources from the ills of inappropriate land use and local activities that could threaten their integrity.

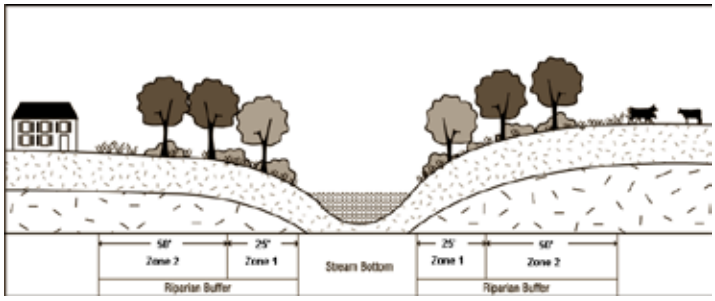
The PA DEP also provides a measure of protection to High Quality and Exceptional Value Waters by regulating the discharge of wastewater, and other point sources of pollutions. However, nonpoint source pollution such as agricultural and other types of runoff is only partially regulated. Under Pennsylvania law, the regulation of land uses and activities which generate nonpoint source pollution is largely a municipal function. To avoid degradation of these waters, existing and potential future land uses and activities must be carefully scrutinized.

Water Quality
Protection Measures

1. Riparian buffers
2. Streambank stabilization
3. Streamside fencing
4. Filter strips
5. Conservation plans
6. Development setbacks
7. Limitations on land uses

While protection of floodplains and wetlands are widely accepted land use management techniques, recent awareness of diminishing surface water quality suggests the need for more protection. Studies conducted by the U.S. Forest Service demonstrate that riparian buffers offer real advantages in the removal of harmful nutrients and sediment from stormwater before it enters the stream. These same riparian buffers can increase the food supply and create interconnected natural systems of movement for local wildlife. ***Riparian buffers are areas adjoining streams where naturally successive vegetation is provided and protected.***

Longswamp Township has adopted riparian buffer standards for developments that seek to locate adjacent to any stream, creek or watercourse.



It is estimated that 85% of all surface water occurs in smaller streams and creeks. Therefore, the inclination of society to focus upon water quality of larger streams, creeks, rivers, and bays is defective. It is vital that surface water quality of small stream headwaters and low-order tributaries becomes our priority. Without such measures, our higher order creeks and rivers are threatened by poor surface water quality. Surface water quality is a direct function of the interaction between water and the land and vegetation through which it flows. The greatest interaction occurs within

lower order streams. Within high order streams and rivers, water is principally contributed from tributaries rather than the adjoining streamside areas; therefore, the opportunity for water quality improvement is minimal. For example, no overhead tree canopy could possibly span the width of the Schuylkill River and reduce its summer water temperature. On the other hand, a well-designed riparian buffer along a low order stream can offer direct water quality benefit to the adjoining property owner and those located downstream. More information about this topic is contained with Chapter XII (Future Land Use) of this Plan.

WETLANDS

Wetlands are areas that are regularly inundated or saturated long enough to produce the particular types of vegetation associated with ***swamps, bogs and marshes***. While there are several definitions of wetlands used by regulatory agencies, all definitions require the presence of hydrophytic plants (plants that grow in wet soils), hydric (wet and anaerobic) soils, and the presence of water at or near the surface at some part of the growing season.

Recently, much attention has been focused upon the importance of wetlands. All wetlands have value, although their value is highly variable. Wetlands support an abundance and diversity of life unrivaled by most types of environments. The many benefits wetlands provide are summarized in the adjacent inset.

Benefits of Wetlands

1. Provide food and habitats for an abundance of animal life.
2. Are breeding, spawning, feeding, cover, and nursery areas for fish.
3. Are important nesting, migrating and wintering areas for waterfowl.
4. Act as natural storage areas during floods and storms.
5. Act as groundwater recharge areas, particularly during droughts.
6. Purify ground and surface waters by filtering and assimilating pollutants.

Wetlands within the Region have been identified using the U.S. Department of the Interior's National Wetlands Inventory, derived from high altitude aerial photograph interpretation of surficial features commonly associated with wetlands. This inventory tends to identify the larger wetland areas only. These include a combination of scattered palestrine and riverine wetlands. Palestrine wetlands are ponds and small lakes, while riverine wetlands are associated with rivers, streams, runs, creeks, and brooks. The Floodplains, Wetlands, and Drainage Basins Map identifies these USDI wetland areas.

The latest Soil Survey completed for the County by the Natural Resources Conservation Service identifies hydric soils which can also indicate the presence of wetland areas. Holly Silt Loam (Ho), Thorndale-Pennlaw silt loam (ThA) and Towhee Silt Loams (ToA, ToB and TwB) are those hydric soils within the Region; these hydric soils have been depicted with severe building and sewer constraints on the Soils and Development Limitations Map contained earlier in this Chapter.

A variety of laws have been passed to protect wetlands. Infill and development in larger wetlands are now regulated by the U.S. Environmental Protection Agency and subject to both State and Federal permitting processes. Careful local planning, education, and the incorporation of protective standards into local subdivision and land development ordinances could extend further protection to the Township's smaller wetlands as well as to land areas immediately surrounding wetlands. A requirement for an Environmental Impact Assessment (EIA) prior to any subdivision approval could identify potential adverse impacts as well as opportunities and mitigating measures intended to protect the resource. Such additional protection would further enhance the many benefits wetlands provide to the Township. Examples of such efforts could

Wetland Protection Measures

1. Modifications to road maintenance practices(e.g., salt and de-icing chemicals).
2. Homeowner education (e.g., application of yard chemicals).
3. Development setbacks.
4. Limitations on land uses.
5. Filter strips.
6. Environmental Impact Assessment.

include any of those measures noted in the adjacent inset. ***Township officials should consider the adoption of various measures to protect the Township's wetlands, including modified road maintenance standards, an EIA requirement in the SALDO, land use and development limitations, and a homeowner educational program.***

FLOODPLAIN PROTECTION

A floodplain is an area of land adjoining a water source, such as a river or stream, that is subject periodically to partial or complete inundation by the water source. The floodplain consists of the ***floodway*** and the ***floodway fringe***. The floodway is the stream channel plus an additional area that must be kept free of encroachments to avoid an increase in flood heights. The floodway fringe is the remaining portion of the floodplain within which encroachments must be limited.

Flooding can result in the loss of life and property, health and safety hazards and significant public expenditures for flood protection and relief. Floodplains also often contain valuable prime farmlands and wild- life habitats. Floodplain protection safe- guards the public health, safety and welfare, while protecting natural resource values.

Benefits of Floodplain Protection

1. Protection of life, health and safety.
2. Protection of property.
3. Protection against surface water pollution.
4. Protection against soil, crop and wildlife habitat loss.
5. Reduces/eliminates need for public expenditures.

Flood hazard areas within the Region have been identified by the Federal Emergency Management Agency (FEMA). Local governments which regulate development and fill within flood hazard areas qualify to participate in the Federal Flood Insurance Program. Flood hazard areas have been identified for the Township, and the Township participates in the Federal Program.

Federal floodplain mapping denotes estimated 100-year floodplain boundaries, areas within which there is the probability that flooding will occur once in 100 years. These areas are identified on the Soils and Development Limitations Map. The most recent Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMS) were issued by the Federal Emergency Management Agency, and dated July 3, 2012. In April 2012, Longswamp Township adopted an amended Floodplain Management Ordinance that reflected the updated FEMA mapping and all other current FEMA requirements.

STORMWATER MANAGEMENT

Benefits of Stormwater Management

1. Reduces off-site and downstream flooding.
2. Reduces soil erosion and habitat loss.
3. Protects surface water quality.
4. Improves groundwater recharge.

One of the most frequently described planning problems is the impact from stormwater runoff. As an area develops, the patterns, volume and velocities of stormwater runoff are likely to change. Individual developments produce marginal impacts; however, these impacts produce major cumulative problems unless measures are used to protect the capacity of watersheds to discharge surface water in a timely manner and at a safe rate. Stormwater runoff can and should be managed. The benefits of stormwater management are summarized in the adjacent inset.

Recognizing the need to resolve serious problems associated with flooding the Pennsylvania General Assembly enacted Act 167, the Pennsylvania Stormwater Management Act. This

Act changed the way local stormwater management occurred by applying a watershed-based, comprehensive program of regional stormwater management. Act 167 requires all counties within Pennsylvania to prepare and adopt stormwater management plans for each of its watersheds, as designated by the Pennsylvania Department of Environmental Protection (DEP). These plans are to be prepared in consultation with municipalities within the watershed, working through a Watershed Plan Advisory Committee. The plans are to contain stormwater controls to manage stormwater runoff from proposed subdivision and land development applications.

Given the Region's importance at the headwaters of many of the County's watersheds these plans have been prepared for all of the areas within the Region. Completed plans within the Township include the Perkiomen Creek Headwaters, the Little Lehigh Creek, and the Saucony Creek Act 167 Watershed Stormwater Management Plans. These plans recommend, among other things, that the Township:

- employ a wide range of planning and design techniques to properly manage stormwater runoff impacts at their source by regulating activities which cause such problems;
- encourage infiltration of stormwater , where appropriate, to maintain groundwater recharge, to prevent degradation of surface and groundwater quality, and to otherwise protect water resources;
- adopt and enforce a full range of environmental protection ordinances for wetlands, floodplains, riparian buffers, steep slopes, and habitats; and
- provide for proper maintenance of all permanent stormwater management best management practices (BMPs) that are implemented in the Township.

Best Management Practices (BMPs) are techniques that manage stormwater from particular land uses in a manner that is more consistent with the natural characteristics of the resources of the watershed. BMPs are a broad series of land and water management strategies designed to minimize the adverse impacts from developments and other disruptive activities.

BMPs can be "structural" or "non-structural". Structural BMPs are measures that require the design and physical constructions of a facility to assist with reducing or eliminating a non-point source of pollution and control stormwater. Structural BMPs are most often applied to agricultural operations and stormwater management. Non-structural BMPs are approaches to planning, site design or regulations that positively affect water quality and reduce stormwater runoff.

Agricultural BMPs include requirements that adequately address soil erosion control measures, nutrient management and pest control. · Conservation management, tillage and contour farming techniques intended to limit disturbance and erosion. · Provisions for grass or filter strips intended to remove sediment or other non-point pollutants from runoff. · Providing stream fencing intended to keep livestock out of stream channels. · Establishing programs for pesticide management intended to reduce the off-site impacts or spraying or applying pesticides. · Developing a manure management program to reduce runoff of nutrients and pathogens to streams.	Conservation BMPs include requirements that adequately address soil erosion control measures and stabilization techniques. · Stabilize stream embankments by utilizing structural or natural techniques designed to minimize erosion. · Provisions for grass or filter strips intended to remove sediment from point or non-point pollutant sources. · Preserve natural resources and habitats. · Establish networks of forested riparian buffers. · Establish mandatory setback requirements from wetlands and floodplains. · Develop a public education program to provide information (seminars and literature) to the residents of the community on the importance of protecting our natural and hydrological resources.
Stormwater Management BMPs include requirements that adequately address surface drainage, groundwater recharge and soil erosion control measures. · Minimize the volume of stormwater runoff generated by minimizing impervious surfaces required to support development. · Promote effective groundwater recharge within all stormwater management facilities including detention ponds, swales and downspouts. · Protect receiving stream channels by routing outfall locations from detention basins through grass or filter strips intended to remove contaminants. · Protect adjacent land areas from direct stormwater discharge by establishing a minimum isolation distance to enhance stabilization and groundwater recharge. · Establish stormwater management and natural features easements. · Utilize pervious surfaces to promote groundwater recharge. · Establish networks of forested riparian buffers. · Minimize thermal impact of stormwater runoff. · Maintain and protect water quality of receiving streams.	Land Development BMPs include requirements that adequately address design requirements and conservation management techniques. · Reduction of infrastructure required to adequately support subdivision and land development activity. · Develop effective requirements to minimize the environmental impacts resulting from the change in land use. · Promote groundwater recharge by establishing minimum standards to maintain a balanced water budget of what is required to support the needs of the development versus the amount of water that is lost as a result of the development. · Incorporate the use of non-structural stormwater management techniques into site landscaping to minimize stormwater runoff and maximize infiltration. · Establish networks of forested riparian buffers as part of the landscaping requirements. · Include incentives in municipal regulations to achieve site design that is sensitive to existing environmental, natural, scenic, historical and cultural resources.

E. Important Plant and Wildlife Habitats

As an area is converted from its natural to a man-made state, the delicate balance of the local ecosystem is often disrupted. This imbalance degrades or strains the environment's ability to support varied forms of plant and animal species. Consequently, species become ***threatened*** or ***endangered***.

Benefits of Habitat Protection

1. Protection of plant and wildlife diversity.
2. Protection of threatened and endangered species.
3. Protection of woodlands and linear corridors.
4. Provision of passive recreation opportunities.

State and Federal agencies have become increasingly concerned over the protection of local natural habitats as a means of protecting wildlife diversity. The protection of these habitats can also provide other benefits, as summarized in the adjacent inset. For these reasons, all levels of government and other conservation-oriented groups have become involved in the protection of these habitats.

NATURAL AREAS

Information for this section was obtained from the *Berks County Natural Heritage Inventory Update 2014* and the *Natural Heritage Inventory of the Lehigh and Northampton Counties – Update 2013*, both prepared by the Pennsylvania Natural Heritage Program (PNHP). The PNHP is a partnership between the Western Pennsylvania Conservancy (WPC), the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Game Commission (PGC), and the Pennsylvania Fish and Boat Commission (PFBC). PNHP collects and stores location and baseline ecological information on rare plants, rare animals, unique plant communities, significant habitats, and geologic features in Pennsylvania.

It is the policy of the PNHP not to release detailed site-specific information about best natural communities and the locations of animal and plant species of concern (rare, threatened, and endangered) for general exposure to the public. This protects the communities, plants and animals from persons who become curious and attempt to locate and/or collect specimens. Instead, PHNP provides a conservation zone that is critical to the preservation of the site (**core habitat**) and a zone of potential impacts within the site's watershed (**supporting landscape**). The following table provides information on the **core habitat** located within Longswamp Township, as identified in the *Natural Heritage Inventory of the Lehigh and Northampton Counties - Updated 2013.*

PNHP *Core Habitat* Natural Heritage Area within Longswamp Township		
Site Name	Municipality	Notes
Little Lehigh Grasslands	Longswamp Township, Upper Macungie Township, and Lower Macungie Township	A landscape dominated by active agriculture with row crops, hay fields and some fallow areas provides habitat for two sensitive species of concern – state significance.

This core habitat area is contained within other supporting landscapes that overlap within this area. Techniques used to manage these other resources should assist in the protection of this core habitat.

Natural Areas Protection Measures

1. Development and vegetation removal setbacks.
2. Modifications to road maintenance (e.g., snow and ice removal; salt and de-icing chemicals).
3. Limitations on land use.
4. Homeowner education (e.g., application of yard chemicals/removing plants).
5. Environmental Impact Assessments.

Rare and endangered plant and animal species must be preserved and protected from indiscriminate development by using development review procedures intended to conserve habitats in which these species occur. ***A requirement for an Environmental Impact Assessment prior to any subdivision approval should be applied to areas within these natural areas. These EIAs can be applied universally within rural areas or imposed as a special overlay zone within the designated areas. Required EIAs should require the identification of potential adverse impacts as well as opportunities and mitigating measures that could protect these areas amid development. Other development review procedures that protect these natural features include those promoted under Growing Greener: Conservation by Design (explained further in Chapter XII), which include a detailed Existing Resources/Site Analysis Plan for every development site, as well as a design process founded on designing around conserved open space.***

WOODLANDS

Woodlands comprise much of the land area within the Eastern Berks County Region. Most of the Region's woodlands are scattered atop the steep ridges that converge here. The side slopes tend to have more fragmentation amid pockets of farming and rural housing on large lots. It is no accident that the Region has high quality surface and groundwaters as forests play a major role in the protection of these waters. It is also no surprise that many of the Region's significant natural habitats also correspond to wooded areas as they offer wildlife cover and food supplies. The forested areas of Longswamp Township are shown on the Forested Areas Map.

Benefits of Woodlands Protection

1. Slows erosion by stabilizing steep slopes and stream banks through extensive root systems.
2. Aids in stormwater management and replenishment of aquifers by promoting groundwater recharge.
3. Aids in purifying groundwater by filtering runoff and reducing sediment wash caused by erosion.
4. Provides important wildlife habitat areas, particularly when large, unbroken areas of forest cover or linkages to other blocks of woodland can be maintained.
5. Offers excellent passive recreation opportunities, such as hiking, horseback riding, photography, hunting, and camping.
6. Helps reduce the level of air pollution by absorbing airborne pollutants and carbon dioxide.
7. Moderates climatic conditions by providing wind-breaks and shade from direct sunlight.

Recent amendments to the Pennsylvania Municipalities Planning Code (MPC) specifically enable local governments to protect significant woodland areas by preventing extensive development in those areas and/or engaging development review procedures that conserve these important natural features. However, the MPC also requires every municipality to permit forestry uses by right in every zone within the Commonwealth. Longswamp Township has made these required changes within its Zoning Ordinance.

Furthermore it is vital that the Township develop and adopt sound forestry management regulations that can protect the sensitivity of wooded areas and adjoining neighbors from the deleterious impacts of uncontrolled logging uses and operations. The Township has adopted a Timber Harvesting Ordinance that addresses many of these requirements. More on this subject can be found in Section XII of this Plan.

Next, the concentrations of woodland deserve protection particularly in light of the Region's desire to protect its ground and surface waters. Reforestation and tree preservation requirements can require that a majority of existing trees in proposed subdivisions or land developments be maintained or replaced, except those whose removal is necessary for the proposed structures and required improvements.

The Township should consider the adoption of other protective measures for woodlands, such as limiting the removal of trees adjacent to streams, in steep sloped areas, and in or adjacent to identified Natural Areas. In addition, developers as well as woodlot managers should be encouraged to maintain established wildlife corridors in the form of linkages to other wooded areas. ***Township officials should consider the adoption of zoning and subdivision and land development standards limiting the removal of trees in sensitive areas, and encouraging the preservation of wildlife corridors.***

Woodland Protection Measures

1. Tree removal setbacks adjacent to streams.
2. Tree removal limitations in steep-sloped areas and in and near Natural Areas.
3. Maintenance of wildlife corridors.

F. Historical Sketch

The Eastern Berks County Region possesses a rich historical heritage that like today is strongly influenced by its rugged terrain and remote location. The following excerpts from previous municipal comprehensive plans assemble a glimpse into the Region's past.

The land area of the Region (and most of Berks County) was purchased in 1732 by the sons of William Penn from the Schuylkill tribe of the Delaware Indians. Swedes made the first European settlement in Berks County along the Maxatawny Creek in 1701. Extensive German settlement soon followed, beginning in 1712. Approximately 75% of Berks County's inhabitants reported German ancestry in the first federal census in 1790. Berks County was incorporated in 1752 from parts of Chester, Lancaster, Philadelphia and Montgomery Counties. Longswamp Township was organized in 1752.

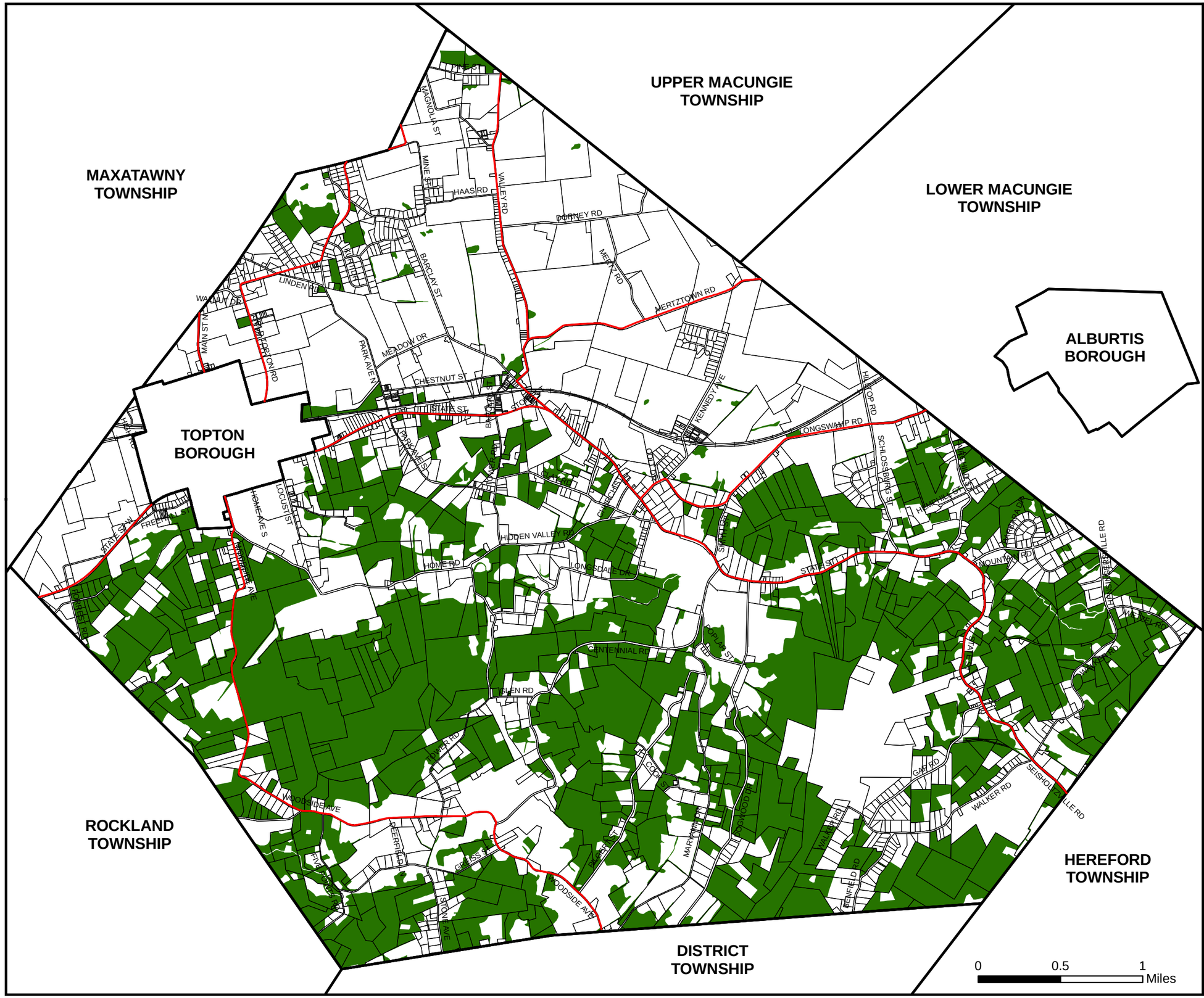
Berks County experienced early industrial development. The mining of ore became the Region's first principal industry by the mid-1800s. The most notable of these was the Sally Ann Charcoal Furnace which produced iron as early as 1791. This furnace required much power to provide air blast in the furnace which was provided by the swiftly-moving waters of the Saucony Creek. There were over 100 mines in the area during the peak of this activity which began its decline around 1900. The Region also supplied charcoal to the nearby iron industries in Pottstown and in the Schuylkill Valley. Ancient coal burning pits can still be found throughout the dense woodlands of the Region. Also a cave is supposedly intact at the original site of the Sally Ann Furnace. The Region's creeks powered many early mills that were an important part of industry and domestic life in the past.

A lack of good farmland and transportation infrastructure has always dampened growth and development within the Region. Today its rugged terrain still presents substantial impediment to widespread development. This Plan will acknowledge this longstanding relationship between the conservation values that have helped to form the Region in the past and the pressures of growth exerted from beyond its boundaries.

The historic settlement pattern that developed in the area over the last 300 years will remain a vital influence on the future growth and character of the Region. It's Pennsylvania-German heritage is still

Longswamp Township Comprehensive Plan

Forested Areas
Longswamp Township
Berks County



Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Forested Areas

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

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very much evident. Existing historic structures and traditional rural values will continue to influence the shape of future development in the area.

HISTORIC SITES

The cultural heritage of the Eastern Berks County Region is evident in the many older individual buildings, structures, and sites throughout the Region. Township officials and residents recognize the value of conservation, rehabilitation, restoration, and adaptive reuse of these historic features as a means of providing a glimpse into the Region's important past. Additionally, historic preservation can provide educational opportunities regarding historic life and architectural styles. Well-maintained historic sites and areas can create a sense of unique identity and stimulate civic pride, and economic vitality and tourism opportunities.

To identify the Township's specific historic sites the Berks County Historic Resources Inventory was used. This inventory includes PHMC, Meiser, Berks County Conservancy, and other resource data. The inventory includes 73 different historic sites that have been identified as important from a local, State and National perspective. The Township has three national register sites. The first is the Mary Anne Furnace Historic Site located at the intersection of Pilgert Road and Mary Anne Drive in Longswamp Township. This well-known site contains a furnace and a farm setting with a manager's house, charcoal house, mule barn, blacksmith shop and other related outbuildings. The second is the Long/Hawerter Mill, which is located at 305 Longsdale Drive in Mertztown. This site contains a historic grist mill located on Little Lehigh Creek. The mill was built about 1800, and is a 1 1/2-story banked stone building with a slate roof. Attached to it is a one-story, frame cider mill and one-story, frame maple sugar house. Also on the property are the watercourses, consisting of the headrace, pond, and dam. The mill operated into the 1950s. The third site is the Topton Lutheran Home Orphanage (Old Main), which is located on Home Avenue. The 3-story building, which was constructed in 1899, is an example of institutional housing.

The following tabulates those sites in Longswamp Township that are listed in the Berks County Conservancy with their respective name, data source, and National Registry status. The sites in the Township are shown on the Historic Resources Map.

Historic Site Name	Inventory	Map Number	Property Address
Kercher Farmstead	PHMC	001	Freehall Street, Mertztown, PA. 19539
Thomas Iron Company	PHMC	002	Walnut Drive
Hancock (Village of)	PHMC	003	Park Ave., Mertztown, PA. 19539
Walbert's Mill	PHMC	004	23 N Park Ave, Mertztown, Pa. 19539
Kline's Store	PHMC	005	441 Klines Corner Rd., Mertztown, Pa. 19539
Mertztown (Village of)	PHMC	006	Chestnut Street
Delong, Bruce Property	PHMC	007	303 Chestnut Street, Mertztown, Pa. 19539
Trexler Hotel	PHMC	008	312 Chestnut Street, Mertztown, Pa. 19539
St. Paul's Church	PHMC	009	323 Chestnut Street, Mertztown, Pa. 19539
Folk Farm	PHMC	010	1365 Dorney Ave., Mertztown, Pa. 19539
Lichtenwalner Farm	PHMC	011	1223 Dorney Rd, Mertztown, Pa. 19539
Fegley & Dresher Farm	PHMC	012	Mertztown Rd, Mertztown, Pa. 19539
Fegley Farm	PHMC	013	Mertztown Rd, Mertztown, Pa. 19539
Weilertown Village of Longswamp	PHMC	014	
Weiler, William Store	PHMC	015	1261 State Street, Mertztown, Pa. 19539
Weiler Tavern	PHMC	016	State Street, Mertztown, Pa.

Historic Site Name	Inventory	Map Number	Property Address
Shamrock Station (Village of)	PHMC	017	
Shamrock Hotel	PHMC	018	300 Kennedy Ave.
Stutzman, Marlowe Property	PHMC	019	50 Stutzman Ln., Mertztown, Pa. 19539
Trexler Farm	PHMC	020	70 Springstone Hollow Ln., Mertztown, Pa. 19539
Wagonhurst Farm	PHMC	021	26 Brookvue Ln., Mertztown, Pa. 19539
Folk Farm	PHMC	022	1010 Woodside Ave.
Longswamp Church	PHMC	023	200 Clay Rd., Mertztown, Pa. 19539
Long / Hawerter Mill	NR	024	305 Longsdale Dr., Mertztown, Pa. 19539
Trexler Farm	PHMC	025	110 Centennial Rd., Mertztown, Pa. 19539
Trexler Family Farm, Blair Creek	PHMC	026	1565 State Street, Mertztown, Pa. 19539
Trexler, Horacio House	PHMC	027	1605 State Street, Mertztown, Pa. 19539
Lesher, Jacob Mansion	PHMC	028	1710 State Street, Mertztown, Pa. 19539
Mary Ann Furnace Historic District	NR	029	Centennial Rd., Mertztown, Pa. 19539
Friel, Barry Property	PHMC	030	150 Pilgert Street, Alburtis, Pa. 18011
Maple Grove Hotel	PHMC	031	2165 State Street, Alburtis, Pa. 18011
Mickley Mill	PHMC	032	9043 Mountain Rd., Alburtis, Pa. 18011
Ward, Walter & Sands, M. Property	PHMC	033	20 Ward Lane
Rohrbach Farm	PHMC	034	1821 Woodside Ave., Alburtis, Pa 18011
Henningsville Hotel & Village	PHMC	035	1750 Woodside Ave., Alburtis, Pa 18011
Lutheran Home Orphanage (Old Main)	NR	036	1 S Home Ave., Topton, Pa. 19562

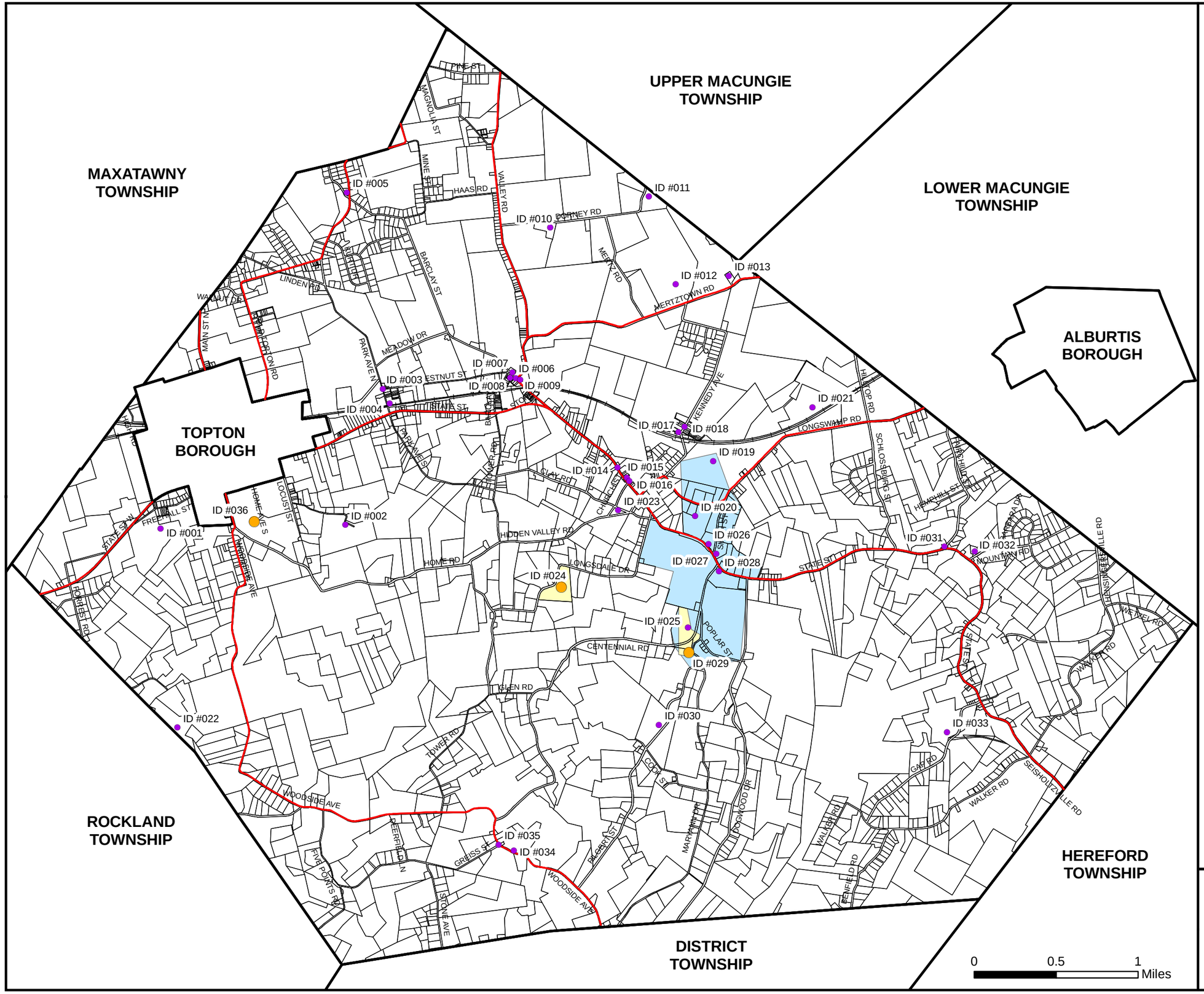
Pennsylvania Act 167-1961 enables local governments to regulate the alteration, demolition or erection of structures within designated local historic districts. Such districts should consist of an area with a significant concentration of historic structures as identified by an inventory and might overlap or entirely include National Register Districts. Proposed local historic districts must be approved by the Pennsylvania Historical and Museum Commission (PHMC) and a Historic Architectural Review Board (HARB) established to provide guidance to governing body decisions on proposed actions within these areas.

Municipalities following this path should then adopt local historic preservation ordinances to be administered by the HARB which apply to local historical districts. These ordinances should contain suitable historical review standards addressing proposed demolitions, alterations and removals of structures, as well as assuring the architectural and historic compatibility of new development with the existing character of the District.

Today, local officials have many resources to engage a meaningful program of historic preservation. An effective historic preservation program does not necessarily require a strict program of architectural control like that described above. Of course, some places require such protection, but some municipalities have adopted more voluntary approaches. First, they clearly designate historic sites and widely publicize their existence. Next, they adopt an "overlay zone" that requires a "waiting period," during which would-be developers and property owners are encouraged to meet and "rub elbows" with local or County historic preservation experts, before they substantially alter or demolish an historic site. Oftentimes, this meeting will give the experts a chance to present other suitable building options that are more consistent with the site's character and will enhance the property's value. In other instances, the waiting period gives the community the opportunity to devise other adaptive reuse options for buildings that are proposed for demolition. In either event, such worthwhile efforts require some commitment on the part of local municipalities to take the next step toward historic preservation.

Longswamp Township Comprehensive Plan

Historic Resources
Longswamp Township
Berks County



Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- National Register Historic Site
- Other Identified Historic Site
- Listed Historic District
- Eligible Historic District

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services, PA Historical & Museum Commission

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This is the approach that Longswamp Township has taken to date regarding historic preservation. In March 2013, the Township adopted a Historic Overlay District as an amendment to the Township Zoning Ordinance. At the same time, a Historic Commission was established to assist in the implementation of the Historic Overlay District. The Historic Commission is tasked with "(1) preparing and maintaining maps and the inventory of historic resources …; (2) reviewing and making recommendations as to proposals for demolition of historic structures and/or buildings …; and (3) advising the Zoning Hearing Board on Special Exceptions affecting historic resources."

Local historical societies, Berks County Historic Preservation Trust, and the Berks County Planning Commission (BCPC) can assist the Township in its historic preservation efforts. The following lists some additional actions that can better incorporate historic preservation within the Township:

A. Establishing realistic goals to implement suitable preservation guidelines and standards. Realistic goals should be established that are adopted with considerable public scrutiny and support (make sure that goals are achievable);

B. Identifying individual resources and districts based on the Historic Commission's Inventory that could be eligible for the National Register of Historic Places and apply for listing on the Register;

C. Adding regulations into the Zoning Ordinance which will help achieve historic preservation goals, like design guidelines for infill construction and incentives for adaptive reuse, rather than demolition, etc.;

D. Updating existing zoning regulations to resolve conflicts with historic preservation goals, like incompatible uses, excessive setbacks, required off-street parking, reduced lot coverage, etc.; and,

E. Developing partnerships with community groups and organizations to facilitate a public education initiative about local history and the historic resources in the municipality.

IV. Demographics

The allocation of municipal resources must consider the population to be served. Population, housing, and economic analyses are a principal component of any comprehensive plan. Obviously, the overall size of a population is related to the amount of land, manpower, and services to be provided. In addition, particular groups within the population have different needs. This section will present past, current, and expected population statistics in order to determine the Township's and the Region's needs.

A. Historic Population Growth

The historical growth pattern of an area provides insight as to the growth that might be expected in the future. The following table lists the amount of population growth that has occurred over the last 50 years within each municipality of the Region.

Historic Population Growth
Eastern Berks County Region

	1960	1970	1980	1990	2000	2010
Longswamp Township	**2,918**	**3,727**	**4,627**	**5,387**	**5,608**	**5,679**
Rockland Township	1,298	1,452	1,911	2,675	3,765	3,778
District Township	570	752	1,094	1,211	1,449	1,337
Topton Borough	1,684	1,744	1,818	1,987	1,948	2,069
Totals	**6,470**	**7,675**	**9,450**	**11,260**	**12,770**	**12,863**

Source: U.S. Census of Population and Housing

From the above table, several trends are visualized. First, the Region has realized a moderately accelerating rate of growth from 1960 to 2000. The 1970s and 1980s saw particularly high rates of growth which slightly diminished in the 1990s, and diminished more since 2000. Longswamp Township led the Region in growth until 2000, with only a 1.3% increase (71 people) from 2000 to 2010. Rockland Township also experienced steady growth until 2000. District Township had a very modest rate of growth throughout the period, but has lost population since 2000. Topton Borough had grown until 1990, but between 1990 and 2000 lost population and then experienced a 6.2% increase since 2000.

Another trend deals with the type of growth occurring. In 1960 Topton Borough comprised about 26% of the Region's population. In 2010 that share had diminished to 16%. Therefore, the suburban and rural residences within the Region comprise 84% of its population. Longswamp Township's growth alone accounts for 43% of the Region's growth since 1960 and today accounts for 44% of the Region's total population. Overall, the Region has grown by 99% since 1960, or about 1,278 new people per decade, until this last decade. From 2000 to 2010, the total regional growth was only 93 new people, thus substantiating the decline in growth in the region over the last decade. It is anticipated that growth will continue to be limited in all three townships due to the continued economic decline, suppressed housing market, and the need to rely on community and on-lot sewage disposal systems.

Next, a comparison of growth within Berks County and the Region can provide further insight into future expectations.

Regional vs. County Growth					
	1970	**1980**	**1990**	**2000**	**2010**
Eastern Berks Region	18.60%	23.10%	19.20%	13.40%	0.7%
Berks County Overall	14.80%	5.40%	7.70%	11.0%	10.1%
Source: U.S. Census of Population and Housing					

As the above table reveals, the Region has, until the last decade, experienced proportional growth above that as the County as a whole. Interestingly, the Region exhibits an inverse pattern of proportional growth when compared with the County between 1970 and 2010. When the County has experienced slower growth, the Region has experienced accelerated growth and vice versa. Extrapolation of the trends beyond the year 2010 suggests that the Region will continue to grow at a rate slower than that of Berks County over the next decade. This seems entirely consistent with the goals articulated for this Plan which call for a dampened rate of growth to facilitate better protection of the Region's valuable natural resources and rural lifestyle.

B. Historic Housing Growth

In addition to population growth, another important consideration when projecting how fast an area will grow relates to its number of housing units. The following table lists the number of housing units within each municipality since 1970.

Housing Growth by Municipality Eastern Berks County Region					
	1970	**1980**	**1990**	**2000**	**2010**
Longswamp Township	**1,113**	**1,619**	**1,925**	**2,097**	**2,467**
Rockland Township	477	704	989	1,368	1,469
District Township	254	400	461	548	565
Topton Borough	590	693	779	842	877
Totals	**2,434**	**3,416**	**4,154**	**4,855**	**5,378**
Source: U.S. Census of Population and Housing					

Unsurprisingly, the number of housing units exhibited similar growth trends as the population within the Region. However, the rate of housing growth is slightly greater than that of population. Between 1970 and 2010, the Region's population grew by 67.6%, while its number of housing units grew by 121.0%. This occurs because fewer people are living together, family sizes have decreased, and more people are living by themselves. It should be noted that the number of housing units in Longswamp Township reported by the 2010 Census increased by 370, while the population of the Township only increased by 71. The annual US Census Building Permit data for the years 2000 through 2009, however, only reported 121 new housing units permitted in the Township, which seems more consistent with the population increase. There also was a significant increase (252) in the number of single occupant nonfamily households in the same period.

The trend toward reduced household size is true for each municipality within the Region since 1970, except Rockland Township which experienced a slight increase in household size during the 1990s, and Topton Borough which experienced a slight increase since 2000, as can be seen in the table below. This trend has also occurred nationally for several decades. Longswamp Township has realized the greatest reduction in household size - by about 30%, while the Region's collective decrease has been about 21.3%. It is important that population and housing projections for the Region take into account this trend so that adequate growth area can be assigned for projected new housing units.

Persons per Housing Unit by Municipality Eastern Berks County Region					
	1970	**1980**	**1990**	**2000**	**2010**
Longswamp Township	**3.35**	**2.86**	**2.80**	**2.67**	**2.30**
Rockland Township	3.04	2.71	2.70	2.75	2.57
District Township	2.96	2.74	2.63	2.64	2.37
Topton Borough	2.96	2.62	2.55	2.31	2.36
Eastern Berks Region	**3.15**	**2.77**	**2.71**	**2.63**	**2.39**
Source: U.S. Census of Population and Housing					

C. Population and Housing Projections

Review of the population and housing trends for the Region over the last few decades reveals a somewhat uniform and steady rate of growth through the year 2000. However, in the last decade, the rate of growth in the region has declined significantly. The historic growth trends through 2000 suggest that an arithmetic or linear extrapolation should produce reliable predictions of growth for the future if outside influences are not permitted to affect development within the Region. However, the economic downturn in the past decade, which greatly suppressed the housing market, suggests that the historic growth trends witnessed through the year 2000 may not return. In addition, the anticipated lack of public sewer facilities in the Region will also serve to limit the magnitude of new residential development. For these reasons, a conservative approach was applied to the projection of population in the overall Region for the years 2020 and 2030. An overall population growth rate of two percent (2%) was used for the period from 2010 to 2020, and a growth rate of three percent (3%) was used for the subsequent decade. The resultant projections, as shown in the following table, will be used to allocate the Township's, as well as the Region's, resources through the balance of this Plan.

Population and Housing Projections Eastern Berks County Region							
	1970	**1980**	**1990**	**2000**	**2010**	**2020**	**2030**
Population	7,675	9,450	11,260	12,770	12,863	13,120	13,514
Housing Units	2,343	3,416	4,154	4,855	5,108	5,604	5,879
Persons per Household	3.15	2.77	2.71	2.63	2.48	2.34	2.30
Source: U.S. Census of Population and Housing and Consultant's Projections							

The following table depicts the results of the allocation of the overall Region's projections to each of the Region's municipalities.

Municipal Level Projections Eastern Berks County Region			
	2010	**2020**	**2030**
Longswamp Township Population	**5,679**	**5,792**	**5,966**
Longswamp Township Housing Units	**2,467**	**2,574**	**2,699**
Longswamp Township Persons/Housing Unit	**2.30**	**2.25**	**2.21**
Rockland Township Population	3,778	3,854	3,970
Rockland Township Housing Units	1,469	1529	1,607
Rockland Township Persons/Housing Unit	2.57	2.52	2.47
District Township Population	1,337	1,364	1,405
District Township Housing Units	565	588	616
District Township Persons/Housing Unit	2.37	2.32	2.28
Topton Borough Population	2,069	2,110	2,173
Topton Borough Housing Units	877	913	957
Topton Borough Persons/Housing Unit	2.36	2.31	2.27
Source: U.S. Census of Population and Housing and Consultant's Projections			

While the above table provides interesting information regarding how much population and housing growth would occur within each municipality within the Region if current planning policies were retained, this Comprehensive Plan can allocate the growth throughout the Region to best "fit" expressed planning goals. Therefore, this Plan must focus upon the Region-wide projections, as provided, rather than those presented for each municipality in the above table. In all likelihood, Longswamp Township, and much of the Region overall, will be limited in its projected growth due to lack of public utilities availability and lack of transportation infrastructure.

The following tabulates the net changes projected within Longswamp Township; these will become target figures for allocating resources to meet growth by decade.

Projected Net Changes Per Decade – Longswamp Township		
Year	**2010 to 2020**	**2020 to 2030**
Population	113	174
Housing Units	107	125
Persons/Housing Unit	- 0.05	-0.04
Source: Consultant's Projections		

Longswamp Township has adopted "Conservation by Design" zoning techniques that will blend agricultural and innovative residential development practices and policies to accommodate the Township's projected growth. These zoning techniques result in an overall density that is comparatively low although actual lot sizes and housing types will be variable. Longswamp Township allows for an overall average of one (1) dwelling unit per four (4) acres of land.

D. Other Socio-Economic Characteristics

Age Profile – 2010						
Age Group	**Longswamp Township**	**District Township**	**Topton Borough**	**Rockland Township**	**Region**	**Berks County**
Under 5 years	**247 (4.3%)**	54 (4.0%)	108 (5.2%)	184 (4.9%)	593 (4.6%)	25,288 (6.1%)
5-9 years	**273 (4.8%)**	57 (4.3%)	47 (5.7%)	241 (6.4%)	688 (5.4%)	26,960 (6.6%)
10-14 years	**308 (5.4%)**	86 (6.4%)	151 (7.3%)	261 (6.9%)	806 (6.3%)	27,828 (6.8%)
15-19 years	**334 (5.9%)**	87 (6.5%)	152 (7.3%)	257 (6.8%)	830 (6.5%)	31,785 (7.7%)
20-24 years	**284 (5.0%)**	54 (4.0%)	140 (6.8%)	164 (4.3%)	642 (5.0%)	27,355 (6.6%)
25-64 years	**3040 (53.5%)**	808 (60.5%)	1114 (53.8%)	2196 (58.2%)	7158 (55.7%)	212,668 (51.7%)
65+ years	**1193 (26.0%)**	191 (14.3%)	287 (13.9%)	475 (12.6%)	2146 (16.7%)	59,558 (14.5%)
Median age	**46.7**	46.7	39.3	44.4	44.1	39.1
Source: 2010 U.S. Census of Population and Housing						
Comments: Overall, the Region's population is older than that of Berks County. It has a lesser number of preschool, elementary and middle schoolers; less teen and young adults; more middle-aged persons; and more seniors. Longswamp Township has an elderly population that is nearly twice that of the other three municipalities, which is undoubtedly a result of the age of residents at the Lutheran Home.						

Gender Profile – 2010						
Gender	**Longswamp Township**	**District Township**	**Topton Borough**	**Rockland Township**	**Region**	**Berks County**
Male	**2752 (48.5%)**	688 (51.5%)	993 (48.0%)	1915 (50.7%)	6348 (49.4%)	201,864 (49.1%)
Female	**2927 (51.5%)**	649 (48.5%)	1076 (52.0%)	1863 (49.3%)	6515 (50.6%)	209,578 (50.9%)
Source: 2010 U.S. Census of Population and Housing						
Comments: The Region as a whole has a more gender-balanced population than does Berks County.						

Racial Composition and Hispanic Origin – 2010						
Race	**Longswamp Township**	**District Township**	**Topton Borough**	**Rockland Township**	**Region**	**Berks County**
White	**5548 (97.7%)**	1307 (97.8%)	2016 (97.4%)	3692 (97.7%)	12,563 (97.7%)	342,148 (83.2%)
African American	**30 (0.5%)**	8 (0.6%)	12 (0.6%)	11 (0.3%)	61 (0.5%)	20,143 (4.9%)
Native American	**7 (0.1%)**	7 (0.5%)	5 (0.2%)	2 (0.1%)	21 (0.2%)	1,285 (0.3%)
Asian	**22 (0.4%)**	2 (0.1%)	1 (-)	15 (0.4%)	40 (0.3%)	5,385 (1.3%)
Pacific Islander	**1 (-)**	0 (-)	0 (-)	1 (-)	2 (-)	128 (-)
Other	**10 (0.2%)**	2 (0.1%)	14 (0.7%)	15 (0.4%)	41 (0.3%)	32,101 (7.8%)
Bi-Racial	**61 (1.1%)**	11 (0.8%)	21 (1.0%)	42 (1.1%)	135 (1.1%)	10,252 (2.5%)
Hispanic	**83 (1.5%)**	7 (0.5%)	58 (2.8%)	68 (1.8%)	216 (1.7%)	67,355 (16.4%)
Source: 2010 U.S. Census of Population and Housing						
Comments: Each of the municipalities, and the Region as a whole, has far less racial diversity than does Berks County. Combined, the Region's minorities comprise only 2.3% of the total population. What little minority population exists is fairly balanced among the different races. Less than 2% of the Region's residents are of Hispanic descent.						

Other Housing and Household Characteristics – 2010						
Other Characteristics	**Longswamp Township**	**District Township**	**Topton Borough**	**Rockland Township**	**Region**	**Berks County**
Group Quarters	**200 (3.5%)**	0 (-)	0 (-)	0 (-)	200 (1.6%)	12,236 (3.0%)
Families with Children under 18	**529 (22.8%)**	140 (26.1%)	254 (30.4%)	434 (30.7%)	1357 (26.6%)	46,425 (30.1%)
Rental Units	**511 (22.0%)**	75 (14.0%)	260 (31.1%)	105 (7.4%)	951 (18.6%)	43,703 (28.3%)
Vacant Units	**143 (5.8%)**	29 (5.1%)	42 (4.8%)	56 (3.8%)	270 (5.0%)	10,471 (6.4%)
Source: 2006 – 2010 American Community Survey – 5 Year Estimates						
Comments: Longswamp Township has the only number of persons residing within group quarters (the Lutheran Home). The Region has a lower ratio of families with children under 18 than does the County overall. Rental units comprise nearly 19% of the Region's total units as compared with over 28% at the County level. Topton Borough has the highest level of rental units. Each of the municipalities, and the Region as a whole, has a lower vacancy rate than does Berks County.						

Education		
Area	**High School Diploma**	**4+ Years at College**
Longswamp Township	**80.8%**	**17.0%**
Topton Borough	81.6%	19.5%
District Township	85.1%	18.8%
Rockland Township	89.7%	30.1%
Region	84.0%	21.5%
Berks County	83.8%	22.1%
Source: 2007 – 2011 American Community Survey – 5 Year Estimates		
Comments: Overall, the Region has a slightly greater proportion of high school graduates than does Berks County, but only District and Rockland Townships exceed the County proportion. Only Rockland Township has more college graduates than does the County as a whole.		

Income - 2010				
Area	**Per Capita**	**Median Family**	**Median Household**	**Persons Below Poverty Rate**
Longswamp Township	**$28,457**	**$64,231**	**$61,712**	**4.0%**
Topton Borough	$27,270	$73,092	$58,625	2.6%
District Township	$28,458	$63,889	$55,000	5.7%
Rockland Township	$34,525	$91,020	$82,824	2.7%
Berks County	$26,332	$65,861	$54,823	13.1%
Source: 2007 – 2011 American Community Survey – 5 Year Estimates				
Comments: The Region is generally more affluent than Berks County overall. Rockland Township has the highest levels of income, along with its high level of educational attainment.				

Employment Status and Commuting – 2010						
Area	**Total Labor Force (16 yrs.+)**	**Employed**	**Unemployed**	**Carpooled**	**Public Transit**	**Average Commute (min)**
Longswamp Township	**70.2%**	**65.5%**	**4.4%**	**6.4%**	**0%**	**23.1**
Topton Borough	62.8%	58.2%	4.3%	5.0%	0%	22.5
District Township	66.4%	62.6%	3.8%	4.9%	0.3%	30.8
Rockland Township	74.1%	70.1%	4.0%	6.3%	1.2%	28.4
Berks County	66.3%	60.4%	5.8%	9.6%	1.7%	23.9
Source: 2007 – 2011 American Community Survey – 5 Year Estimates						
Comments: The Region overall has a higher percentage of workers than does the County and levels of employment are also higher. Only Topton Borough has a percentage of workers and level of employment that do not exceed the overall County numbers. Carpooling is less popular within the Region than within the County and the use of public transportation is nearly impossible due to the Region's remote location. The average commute time within the Region ranges from under the Countywide average in Topton Borough and Longswamp Township to nearly 7 minutes more per trip within District Township. Again, the Region's remote location affects commuting options and travel times.						

Civilian Labor Force – 2010					
Area	**Longswamp Township**	**District Township**	**Topton Borough**	**Rockland Township**	**Berks County**
Agriculture, forestry, fishing, hunting and mining	**(1.9%)**	(1.5%)	(0.8%)	(0%)	(1.9%)
Construction	**(9.7%)**	(12.0%)	(5.7%)	(9.0%)	(5.9%)
Manufacturing	**(29.8%)**	(24.3%)	(28.5%)	(30.9%)	(18.5%)
Wholesale trade	**(1.8%)**	(0.8%)	(3.5%)	(1.3%)	(3.5%)
Retail trade	**(9.4%)**	(16.1%)	(9.1%)	(7.2%)	(12.0%)
Transportation, warehousing and utilities	**(8.2%)**	(5.3%)	(4.7%)	(2.3%)	(4.8%)
Information	**(0.4%)**	(1.8%)	(0.5%)	(1.8%)	(1.5%)
Finances, insurance and real estate	**(1.6%)**	(3.2%)	(3.8%)	(8.1%)	(5.9%)
Professional, scientific, management and waste	**(8.1%)**	(10.0%)	(5.5%)	(7.6%)	(8.6%)
Educational, health and social services	**(16.9%)**	(11.5%)	(21.9%)	(20.8%)	(23.1%)
Arts, entertainment, recreation, lodging and food	**(5.7%)**	(6.8%)	(10.2%)	(4.7%)	(7.1%)
Other services	**(4.4%)**	(3.8%)	(1.9%)	(4.2%)	(4.5%)
Public administration	**(2.0%)**	(2.9%)	(4.0%)	(2.1%)	(2.6%)
Source: 2007 – 2011 American Community Survey – 5 Year Estimates					
Comments: Like in Berks County as a whole, manufacturing jobs still represent the largest single sector of employment within the Region. Topton Borough, and to a lesser extent, Rockland and Longswamp Townships, have a large number of educational, social service and health-related employees. Longswamp Township has the largest concentration of farmers, undoubtedly owing to its fertile geology and soils. The Region has many construction workers, who tend to favor rural home sites where on-site storage of equipment and supplies can occur; this may suggest the need for rural occupation regulations. The Region appears underrepresented in financial services when compared to Berks County as a whole; again, this testifies to its rural character. District and Rockland Townships have a high number of residents who are engaged in professional services. Otherwise, the Region exhibits civilian labor force characteristics in line with Countywide averages.					

Housing Condition – 2010			
Area	**Units Lacking Complete Plumbing**	**Units Lacking Complete Kitchen**	**Built Pre-1940**
Longswamp Township	**9 (0.4%)**	**55 (2.5%)**	**586 (25.8%)**
Topton Borough	0 (-)	0 (-)	305 (40.2%)
District Township	0 (-)	3 (0.6%)	125 (22.9%)
Rockland Township	0 (-)	0 (-)	291 (20.6%)
Berks County	1003 (0.7%)	1718 (1.1%)	48,559 (29.6%)
Source: 2006 – 2010 American Community Survey – 5 Year Estimates			
Comments: Longswamp Township has a ration of substandard housing units higher than that of the County as a whole. Topton Borough has a higher percentage of homes built pre-1940 than any other municipality within the Region, and higher than that of the County as a whole.			

Housing Tenure and Vacancy – 2010				
Area	**Owner-Occupied Units**	**Owner-Occupied Vacancy Rate**	**Renter-Occupied Units**	**Renter-Occupied Vacancy Rate**
Longswamp Township	**1813 (78.0%)**	**1.2%**	**511 (22.0%)**	**3.6%**
Topton Borough	575 (68.9%)	1.7%	260 (31.1%)	4.4%
District Township	461 (86.0%)	1.1%	75 (14.0%)	3.8%
Rockland Township	1308 (92.6%)	1.0%	105 (7.4%)	5.4%
Berks County	110,653 (71.7%)	1.7%	43,703 (28.3%)	7.5%
Source: 2006 – 2010 American Community Survey – 5 Year Estimates				
Comments: Home ownership is higher within the Region's Townships when compared to Berks County; Topton Borough has less home ownership than the Townships and the County as a whole. Owner-occupied vacancy rates are equal to or less than that of the County overall. The percentage of rental units is lower in the Region's Townships and higher within Topton Borough when compared to Berks County. Rental occupancy is higher in all the Region's municipalities when compared to the County.				

Housing Costs – 2010		
Area	**Median Monthly Rental Costs**	**Median Owner-Occupied Housing Values**
Longswamp Township	**$851**	**$181,600**
Topton Borough	$823	$162,200
District Township	$731	$247,400
Rockland Township	$792	$216,600
Berks County	$743	$170,400
Source: 2006 – 2010 American Community Survey – 5 Year Estimates		
Comments: Within the Region, all municipalities but District Township have average gross monthly rents exceeding the Berks County average. Longswamp Township has rents higher than the rest of the Region. Topton Borough has the lowest owner-occupied housing values; these are below averages Countywide. By contrast, Rockland and District Townships have the highest owner-occupied values - $46,000 and $77,000 higher than the Countywide average.		

Housing Type – 2010					
Area	**Single-Family Detached**	**Single-Family Attached**	**Two-Family**	**Multiple Family**	**Mobile Home**
Longswamp Township	**1623 (71.2%)**	**58 (2.5%)**	**41 (1.8%)**	**57 (2.5%)**	**500 (21.9%)**
Topton Borough	426 (52.7%)	209 (25.9%)	28 (3.5%)	195 (17.9%)	0 (-)
District Township	457 (84.0%)	3 (0.6%)	3 (0.6%)	0 (-)	81 (14.9%)
Rockland Township	1287 (91.9%)	42 (3.0%)	0 (-)	0 (-)	72 (5.1%)
Region	3793 (75.4%)	312 (6.2%)	72 (1.4%)	202 (4.0%)	653 (13.0%)
Berks County	89,698 (54.8%)	38,359 (23.5%)	6064 (3.7%)	24,029 (14.7%)	5381 (3.3%)
Source: 2006 – 2010 American Community Survey – 5 Year Estimates					
Comments: As can be seen, the Region overall exhibits a significant preference towards single-family detached housing, despite Topton Borough's greater housing diversity. This is not surprising given the Region's larger rural/suburban character. Longswamp Township has a large stock of mobile homes that is about five times the Countywide average. Similarly, District and Rockland Townships each have percentages of mobile homes exceeding the Countywide average. While this may suggest that the Region has met its fair share of mobile homes, current case law requires municipalities to treat freestanding mobile homes like any other single-family detached dwelling. Therefore, any limits imposed on mobile homes should be limited to development potential within mobile home parks. Also, the Region must continue to readily accommodate mobile homes throughout the rural/suburban areas so as not to invite exclusionary zoning challenges.					

V. Public Facilities

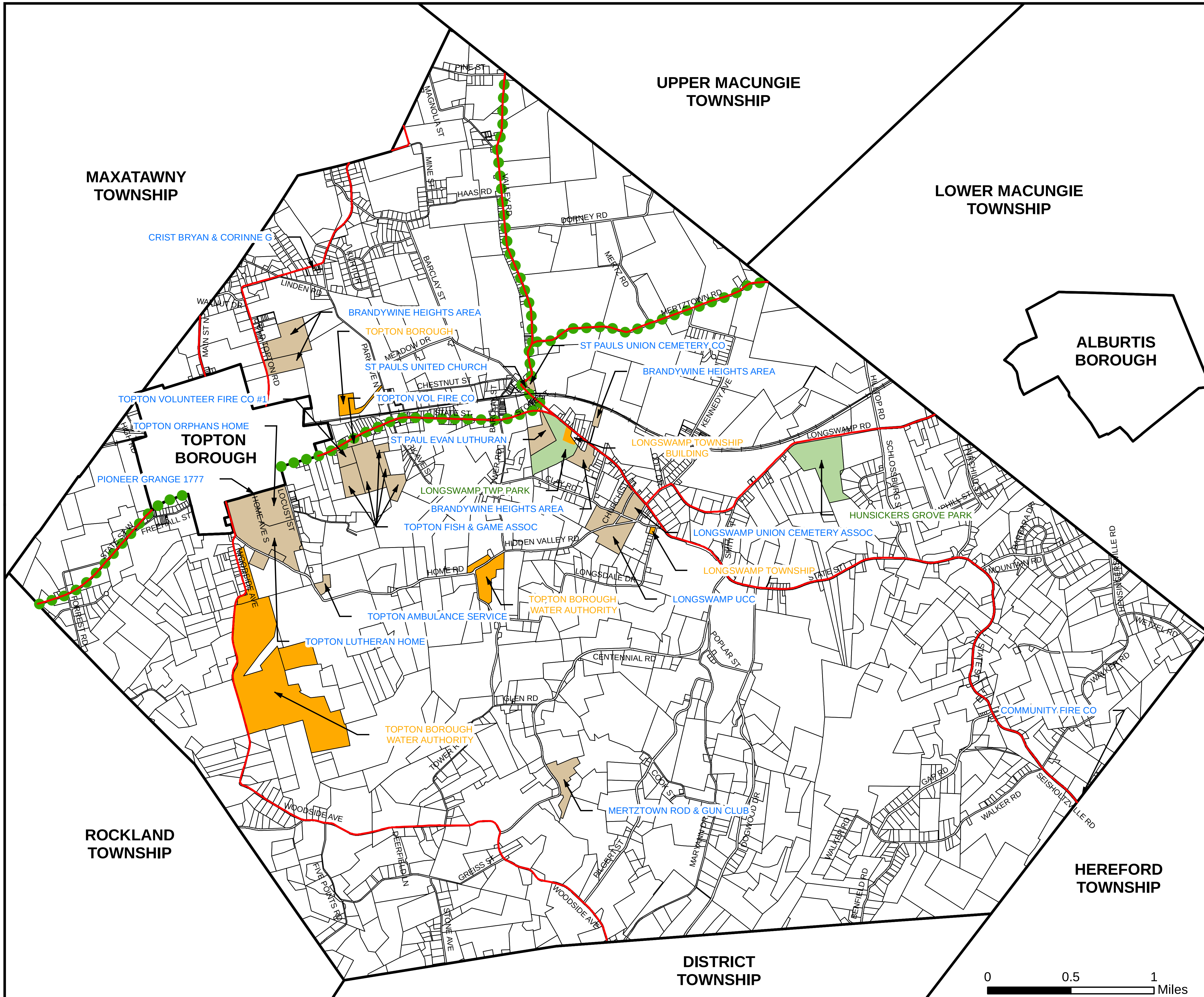
A. Schools

A high quality education is a widely-held objective for most of our society. Historically, school districts have forecast short-term future demands for school facilities, enabling them to program additional building expansion, construction, consolidations, and closures to meet forecasted demands. School district planning can have a direct effect on, as well as be affected by, the land use activities within an area. For instance, new or expanded schools may generate increased nearby residential development, and school closures may contribute to the de-population of communities. At the same time, long-range municipal land use planning may designate new growth areas at some distance from existing or planned school facilities. All of these issues underlie the importance of coordinating school district and municipal comprehensive planning processes to assure that existing and future schools and planned community growth occur hand-in-hand.

The Eastern Berks County Region is served by the Brandywine Heights Area School District. School Board members serve 4-year terms. In addition, the Gateway and Lighthouse Christian Schools also serve the Region. The Public Facilities Map illustrates the location of the public school sites located in Longswamp Township. The remainder of this section will focus upon conditions at the public schools within the Region.

Longswamp Township Comprehensive Plan

Public Facilities
Longswamp Township
Berks County



UPPER MACUNGIE TOWNSHIP
LOWER MACUNGIE TOWNSHIP
MAXATAWNY TOWNSHIP
ALBURTIS BOROUGH
TOPTON BOROUGH
ROCKLAND TOWNSHIP
DISTRICT TOWNSHIP
HEREFORD TOWNSHIP
CRIST BRYAN & CORINNE G
BRANDYWINE HEIGHTS AREA
TOPTON BOROUGH
ST PAULS UNITED CHURCH
ST PAULS UNION CEMETERY CO
BRANDYWINE HEIGHTS AREA
TOPTON VOLUNTEER FIRE CO #1
TOPTON VOL FIRE CO
TOPTON ORPHANS HOME
ST PAUL EVAN LUTHURAN
LONGSWAMP TOWNSHIP BUILDING
PIONEER GRANGE 1777
LONGSWAMP TWP PARK
BRANDYWINE HEIGHTS AREA
TOPTON FISH & GAME ASSOC
HUNSICKERS GROVE PARK
LONGSWAMP UNION CEMETERY ASSOC
LONGSWAMP TOWNSHIP
TOPTON BOROUGH WATER AUTHORITY
LONGSWAMP UCC
TOPTON AMBULANCE SERVICE
TOPTON LUTHERAN HOME
COMMUNITY FIRE CO
TOPTON BOROUGH WATER AUTHORITY
MERTZTOWN ROD & GUN CLUB
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Miles

Legend

- Collector Roads
- Railroads
- Bike Route
- Municipal Boundaries
- Parcel Boundaries
- Governmental
- Institutional
- Parks

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

Hanover
Engineering Associates Inc

Presently, the School District employs the following grade format:

Public School Grade Format	
Kindergarten	Kindergarten
Elementary School	1-4
Middle School	5-8
High School	9-12

The following tabulates conditions at each of the School District's three school sites:

Summary of Brandywine Heights Area School District Facilities

School Name	Year Built	Renovation Dates	Site Size (acres)	Rated Condition	Grades Housed	Rated Capacity	2013-2014 Enrollment
Topton Elementary	1960	1980 & 1990	10.3	Good	K–3	473	425
Intermediate Middle School	1955	1968 & 1995	32	Good	4-5 6-8	1190	211 364
High School	2003	NA	42	New	9–12	800	565

Source: School District

The Brandywine Heights Area School District serves the entire Eastern Berks County Region, including Longswamp Township. The Topton Elementary School is located within Topton Borough. The Middle School, also within Topton Borough, is located sits across Weiss Street from the Elementary School, on the south side. The High School, which was built in 2003, is located in Longswamp Township along Old Topton Road.

One Elementary School serves the entire Region. The Topton Elementary School site consists of 10.3 acres. The school has been renovated twice, the last of which occurred in 1990. This facility is rated in "good" condition by District officials.

The Brandywine Heights Area Middle School Complex is home to both the Intermediate School and Middle School. It is located at the intersection of Henningsville Road and Weiss Street East in Topton Borough. The Middle School was built in 1955 and renovated in 1968 and 1995; its condition is described as "good" by District officials. In 2003, a new High School was constructed on the east side of Old Topton Road in Longswamp Township, a short distance northeast of Topton Borough.

The following lists the residual capacity in each of the public schools that serve the Eastern Berks County Region:

Residual Capacity of Schools Serving Region			
School	**Rated Capacity**	**2013-2014 Enrollment**	**Residual Capacity**
Topton Elementary	473	425	48
Intermediate / Middle School	1190	575	615
High School	800	565	235
		Total Residual Capacity	**898**

The School District prepares a 10-year History of Enrollment and a 10-year Enrollment Projection. The following tables show this:

Brandywine Heights Area School District Enrollment 10-Year History										
Grade	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**2013-2014**
K	123	111	115	110	92	117	112	113	124	84
1	144	126	118	120	116	100	123	110	108	120
2	122	147	130	118	122	119	103	118	114	110
3	137	122	150	134	120	129	120	96	119	111
4	137	142	124	151	135	124	128	119	93	117
5	149	137	147	130	161	137	129	120	117	94
6	171	145	139	145	136	161	142	123	120	117
7	159	167	150	137	148	132	161	132	119	125
8	182	159	173	151	135	154	129	154	127	122
9	182	194	181	191	174	152	159	128	171	145
10	173	167	178	156	170	158	158	151	122	161
11	169	164	164	166	144	169	147	138	142	116
12	147	162	155	148	166	146	165	154	150	143
Total	1,995	1,943	1,924	1,857	1,819	1,798	1,776	1,656	1,626	1,565
% Change		-2.61%	-0.98%	-3.48%	-2.05%	-1.15%	-1.22%	-6.76%	-1.81%	-3.75%
Avg. Grade	153	149	148	143	140	138	137	127	125	120

Brandywine Heights Area School District Enrollment 10-Year Projection										
Grade	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**
K	110	110	110	110	111	111	111	112	112	112
1	84	110	110	110	110	111	111	111	112	112
2	120	84	110	110	110	110	111	111	111	112
3	110	120	84	110	110	110	110	111	111	111
4	111	110	120	84	110	110	110	110	111	111
5	117	111	110	120	84	110	110	110	110	111
6	94	117	111	110	120	84	110	110	110	110
7	117	94	117	111	110	120	84	110	110	110
8	125	117	94	117	111	110	120	84	110	110
9	122	125	117	94	117	111	110	120	84	110
10	145	122	125	117	94	117	111	110	120	84
11	161	145	122	125	117	94	117	111	110	120
12	116	161	145	122	125	117	94	117	111	110
Total	1,532	1,526	1,475	1,440	1,429	1,415	1,409	1,427	1,422	1,423
% Change	-2.11%	-0.39%	-3.34%	-2.37%	-0.76%	-0.98%	-0.42%	1.28%	-0.35%	0.07%
Avg. Grade	118	117	113	111	110	109	108	110	109	109

With the both the historical enrollment decreases and the projected continuing enrollment decreases the School District has sufficient capacity for all of the municipalities within the District boundary. ***It is recommended that the Brandywine Heights Area School District closely monitor growth within the Region so as to proactively plan for facility expansion or restoration well in advance of actual demand for space.***

Unsurprisingly, the School District welcomes additional commercial and industrial growth as a means of increasing its tax base. Based upon the Township's planning goals articulated for this Plan, it is unlikely that the Township, as well as the Region will encourage new large-scale commercial and industrial expansion. Nonetheless, this Plan will accommodate some local commerce and industry and seek to revitalize existing areas, all of which should add to the tax base.

Finally, the School District suggested a willingness to cooperate with the municipalities in the delivery of parks and recreation opportunities, provided student use takes priority during the school year, adequate supervision is provided and other administrative issues can be resolved. Clearly, the School District has already contributed to the availability of parks and facilities within the Region to the benefit of all residents and municipalities. This represents savings in the amount of millions of dollars to local municipalities who would otherwise need to fulfill this need.

B. Police Protection

Police protection is an obvious public service benefiting residents and businesses. The traditional role of the police involves three functions: law enforcement, order maintenance, and community service. Law enforcement involves the application of legal sanctions, usually arrest, to persons who injure or deprive others of life or property. Order maintenance involves the handling of disputes, or of behavior which threatens to produce disputes. The third aspect of the

police function, and the one most likely to occupy the major portion of an officer's time, varies from community to community according to tradition and local ordinances. These activities include such tasks as traffic control, rescue operations, animal control, and ambulance and first-aid services.

The Pennsylvania State Police, Troop L, provides police protection to Longswamp Township, as well as the remainder of the region. Troop L is headquartered at 600 Kenhorst Boulevard, Reading, PA 19611 and includes:

1. criminal investigation section comprised of full-time criminal investigators;
2. criminal investigative assessment unit;
3. fire marshal unit;
4. polygraph unit;
5. auto theft unit;
6. intelligence unit; and
7. vice/narcotics unit.

The Region is situated at a convergence of several patrol zones, which means that any number of patrol vehicles could be called upon to respond to calls, depending upon which vehicles were the closest. Patrol shifts run around-the-clock with varying hours assigned based upon demand. These patrol assignments are subject to ongoing adjustment, depending upon the number of officers actually available for patrol versus the anticipated demand for coverage based upon previous numbers of calls received. The Reading Station unit works closely with the neighboring State Police Stations in Hamburg (Berks County), Fogelsville (Lehigh County) and Skippack (Montgomery County) to ensure a prompt and professional response to the Eastern Berks County Region.

The Reading station manpower needs are assessed annually by the Pennsylvania State Police, Bureau of Research and Development, using a complex equation that considers demographics, geography, crime patterns, and statistics and other factors. The region has a relatively low crime rate. This is expected to continue in the future.

Township officials have expressed an overall satisfaction with the methods and efficiency of the current system of police protection. As a result, the Township's reliance on State Police coverage is anticipated into the foreseeable future.

C. Fire Protection and Ambulance Service

Fire protection is a basic public safety service that is important to the Township. Obviously, fire protection is intended to minimize the loss of life and property due to fire and related hazards. The level of fire protection a community offers also affects the rate which area residents and business owners must pay for fire insurance. Two separate fire companies have first-call responsibilities within Longswamp Township and other adjoining municipalities. In addition to being responsible for their primary service areas, these companies provide reciprocal, mutual-aid assistance to each other and to other surrounding fire companies as needed. Mutual-aid assistance enables neighboring fire departments to supplement manpower and equipment, and thereby respond more effectively to multiple or major calls.

Ambulance service is an obvious lifesaving benefit. Emergency ambulance service involves the pick-up of patients at the scene of an accident or other medical emergency, and their transport to local medical care facilities for treatment. Ambulance service can also involve routine transport, which is the transport of patients from one medical facility to another, or to their home. The Topton American Legion Community Ambulance Service is the primary ambulance company serving the Township.

The tables on the following two pages summarize fire protection and ambulance services within the Township, respectively.

FUTURE VOLUNTEER MANPOWER

Each of the fire and ambulance companies expressed a concern over declining numbers of volunteers. This is particularly true of "younger volunteers" who will become the next generation of emergency service providers. Nationally, volunteerism is declining. This often forces mutual-aid responses from distant companies; this strategy may work in the short term, but will eventually overburden volunteers who will get frustrated and quit. The more you demand of a volunteer, the less you are likely to receive! Declining manpower response is most problematic during the day when many volunteers work outside of their first-due response area.

Fortunately, many citizens within our society have begun to acknowledge the important and life-saving roles volunteer firefighters, EMTs and local police officers provide. Today, emergency services often involve specialized equipment and training. The Eastern Berks County Region's fire and ambulance companies already have an informal means of efficiently using the specialized skills and expertise of existing volunteers across the Region.

Like a lack of manpower, local volunteer fire and ambulance companies are plagued by rising costs associated with the need to purchase equipment and supplies. Local officials and volunteers are aware of these difficulties. In many cases, an area's long-time residents usually financially support local fire and ambulance companies at an appropriate level. They have been historically educated about the value of local volunteer efforts. However, as the Region has grown and will continue to do so, many new residents have moved here from other, more urban, locations where paid fire-fighting and ambulance services are normal.

Summary Characteristics of Fire Companies Serving Longswamp Township			
Fire Company		**Seisholtzville Fire Co.**	**Topton Volunteer Fire Co. # 1**
First Call Service Areas Within the Township (see Public Facilities Map)			Longswamp and Maxatawny Townships and Topton Borough
Mutual-Aid Service Areas Within the Region		As dispatched	Rockland, District, Lyons, Maxatawny, Kutztown, Hereford, Upper Macungie, Lower Macungie, Alburtis
Station Locations Within the Region (see *Public Facilities Map*)		24 Saint Peters Road Macungie, PA 18062	600 State Street Mertztown, PA 19539
Average No. of Volunteers		17 full-time 8 Fire Police	30 full-time 1 fire police
Fire Calls 2011-2013	**2011**	181	145
	2012	NA	201
	2013	49	201
Other Calls 2011-2013	**2011**	0	22
	2012	0	64
	2013	109	62
Average Emergency Response Time*		> 5 mins.	3 mins.
Major Equipment		· 2003 KME attack · 2003 KME pumper · 1996 International pumper · 1996 Ford Utility · 1985 GMC Brush	· 2002 E-One Quint Combo truck · 2013 E-One Engine · 1992 KME Heavy Rescue · 1989 Freightliner Tanker (6000 gal) · 2001 Brush Truck · 2003 Ford Utility

*Time that it takes the vehicle to leave the station.

** - Data taken from Company's Website – May, 2014

Summary Characteristics of the Topton American Legion Community Ambulance Service			
First Call Service Areas Within the Region (see Public Facilities Map)		Maxatawny, Longswamp & Rockland Townships and Topton Borough	
Mutual-Aid Service Areas		District, Fleetwood, Richmond, Kutztown, and Ruscombmanor	
Station Locations Within the Region (see Public Facilities Map)		205 Home Road Mertztown, PA 19539	
Average No. of Volunteers/Paid Staff		2 3 employees 16 volunteers	
Coverage Periods		24/7	
Number of Ambulance Responses (2011-2013)**	**Type of Response**	**Emergency**	**Non- emergency**
	2011	1039	13
	2012	960	13
	2013	839	19
Average Emergency Response Time*		3 minutes	
Major Equipment***		· 2010 Ford E-450 Super Duty Ambulance · 2006 Ford E-450 Super Duty Ambulance · 2000 Ford E-350 Ambulance	
Adequacy of Ambulance Station		Currently OK, recently relocated.	

*Time that it takes the vehicle to leave the station.

**Information provided by Berks County Department of Emergency Services

***Information taken from Company website

These new residents are unaware of their reliance upon, and the plight of, local volunteer companies. Therefore, ***the Township should cultivate awareness among the newly-arrived residents of the need for their financial and manpower support to sustain volunteer firefighting and ambulance services.***

To accomplish this awareness, the local fire and ambulance chiefs should work with the Township on a regular and ongoing basis to mount an educational and media campaign. Such a campaign should be an effort that presents specific findings and presents hard, "credible" facts about the cost of delivering these services and the foreseeable equipment needs of the various companies. It should explain the benefits of new equipment and what it can mean to the Township. It should also portray the competent plans of the local companies in their attempts to ensure an adequate level of protection in the near and long-range future. Schedules for equipment replacements and upgrades should be accompanied with target financial goals to which the public can respond. Citizens should gain an understanding that local companies really need this equipment, and that they are not just "after" the newest and shiniest truck on the market.

To demonstrate these facts, the Township should consider applying to the PA DCED for the preparation of a technical review, as part of its Shared Municipal Service Program, at no cost to the Township. This will require the preparation of a "Single Application for Assistance," a copy of which can be found online at www.esa.dced.state.pa.us***. The PA DCED will examine the adequacy of the Township service providers' equipment to provide adequate service. Then, the results of these impartial and objective analyses should be used to program needed equipment purchases, and justify funding requests and pledge drives in the ongoing media and educational campaign. In addition, the results of the analysis can be used as justification for additional application to the PA DCED for 50/50 matching grants for other equipment needs, like communications and dry-hydrant programs.***

Other related facts that should be emphasized to the public include:

- Local volunteer fire and ambulance companies are responding to ever-increasing numbers of calls based upon the Region's growth with actual figures presented; and,

- Local volunteer fire and ambulance companies are responding to a wider variety of types of calls and that the amount of time spent per incident is also increasing.

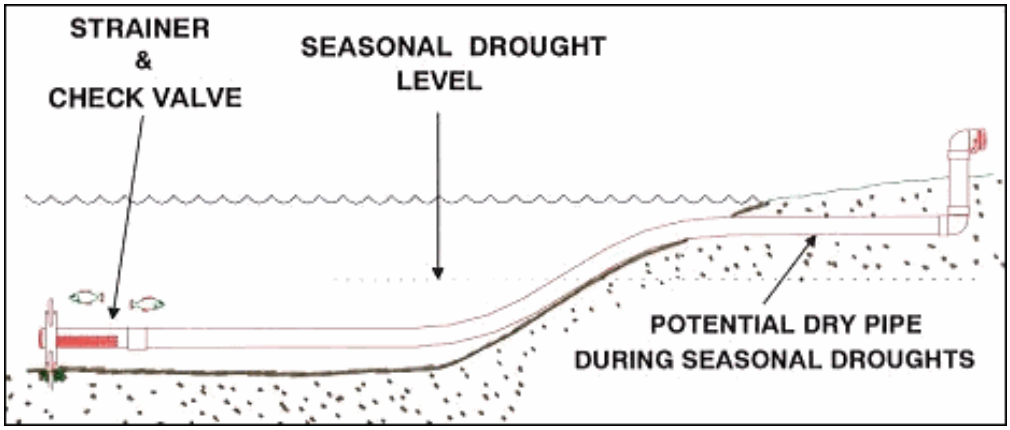
Even though local volunteer firefighters are described as strong-willed, determined and fiercely independent, most agree that difficult times lie ahead. Therefore, as a long-term strategy, ***local volunteer fire companies and municipal officials should begin to explore the partial and gradual use of other funding mechanisms (e.g., billing for responses, fire tax, etc.), so that these measures can be phased-in, in support of local volunteer efforts, rather than allowing for complete failure of the volunteer system which would then be replaced by a completely-paid force.***

Other issues raised by local fire and ambulance companies that could improve emergency service to the Region include:

EMERGENCY RESPONSE MAPPING – ***The County's improving GIS mapping database can provide each fire and ambulance company with emergency response mapping that clearly depicts every property and its address. As this database continues to evolve in the coming years, such maps can depict actual driveway and structure locations and aerial photographs. This can greatly assist in emergency response in rural areas that are difficult to negotiate at street level.***

DRY HYDRANT INSTALLATION – ***Several of the Fire Chiefs expressed the need for better sources of water for firefighting within the rural areas of the Region. Dry hydrants are permanently mounted pipes that are located at local sources of water (ponds and streams) that firefighters can readily access during times of emergency. Typically these hydrants are located alongside an improved public street about 10 feet away from the cartway. They appear as 5" PVC pipes extending out of the ground with suitable tap fittings. From here the pipes travel underground into the water source where strainers are used to keep them clear of debris and silt. The installation of these hydrants can affect a reduction in homeowner***

insurance rates. Two dry hydrants have been placed in the Township, which help the Township water problem greatly. One is located at the Ferry Farm on Woodside Avenue and the other one is located at Tower Road and Home Road at the Topton Borough minehole. The Township is also considering locating one at Hunsickers Grove in the near future.



D. Municipal Government

This section provides a description of Longswamp Township's government structure and function. The role of local officials, boards, commissions, authorities, committees, and staff are set forth to provide an understanding of the hierarchy of local decision-making, input into these decisions, and the role of citizen involvement.

Office Address: 1112 State Street, Mertztown, PA 19539

Office Telephone: (610) 682-7388

Office Fax: (610) 682-9067

Office Hours: Monday–Friday; 9:00 a.m. to 4:00 p.m.

Description of Office and Facilities: The Township Municipal Office adjoins the 30.79-acre Township Municipal Park. The Township purchased its 2,400 square- foot Municipal Office Building from the Shoemaker- Bond VFW during the late 1960-early 1970s. It has been remodeled several times, the most recent of which occurred in 1997. In 2004, the original Township Office was completely replaced with a new building. The Township also has a separate 7-bay garage and Public Works Office Building located at the intersection of Longsdale Drive and Clay Road.

Municipal Staff: Staff currently consists of one part-time position – the Township Administrator/Secretary, a full-time Treasurer, and full-time Operations Administrator. The Public Works Department consists of one part-time employee and four full-time employees. The full-time positions include a Roadmaster/Public Works Manager and three full-time crew members. The part-time position is designed to care for the maintenance of the park and building facilities.

Board of Supervisors: The Board of Supervisors is the elected governing body of the Township. Members are elected for 6-year terms and elected at staggered two-year intervals. The 3-member Board meets regularly at the Township Office on the 2nd and 4th Tuesday of every month. Duties include governing and execution of legislative, executive and administrative powers to ensure sound fiscal management and to secure the health, safety and welfare of the citizens of the Township.

Planning Commission: Members are appointed for 4-year terms. The 5 members meet at the Township Office on the 1st Tuesday of the month unless there is no business to be transacted. The Township is fortunate to have an experienced set of Planning Commission members.

Zoning Hearing Board: The Board consists of 3 regular members, appointed to 3-year terms. The Board meets as needed and also has experienced members.

Park and Recreation Board: Members are appointed for 1-year terms. The Park and Recreation Director's position is managed by the Operations Administrator. The Board is always looking for members and volunteers. Any matters on improvements or new programs are addressed by the Board of Supervisors at their regular meetings.

Agricultural Security Area Advisory Board: Members are appointed by the Board of Supervisors, to 1-year terms. The 5-member Board meets on an as-needed basis to review modifications to the Township's Agricultural Security Area.

Environmental Advisory Board/Committee: Members are appointed by the Board of Supervisors, to a 3-year term. The EAC meets once a month on the 3rd Monday of the month. The Committee was set up to monitor the effects that new and existing development has on the environment.

E. Brandywine Community Library

Location: 60 Tower Drive, Topton, PA 19562 (on the campus of The Topton Lutheran Home) See the ***Public Facilities Map***, for a graphic illustration of this location.

Phone: (610) 682-7115

Fax: (610) 682-7385

Website: www.berks.lib.pa.us./sbr

Primary Service Areas and Population: assigned by the Berks County Public Libraries:

Topton Borough
District Township
Longswamp Township
Rockland Township
Outreach program to Lutheran Home at Topton
Population – 12,863

Hours of Operation: Monday – Wednesday, 10:00 a.m. to 8:00 p.m., Thursday – Friday, 12:00 p.m. to 5:00 p.m., Saturday, 9:00 a.m. to 4:00 p.m. (July and August – 9:00 a.m. to 2:00 p.m.)

Personnel: Library Director, Children's Librarian, Head of Circulation, 2 Circulation Clerks

Facilities Inventory: 7 rooms, 8 computers, 33,040 collection size and DVDs, digital magazines, music CDs, video games, audio books, children's early literacy workstation, newspapers, magazines, Public Wireless Network, Fax service, copy and print services

Major Complications – Staff are not provided benefits, lack of space limits range of services, lack of funding limits hours.

Funding and Budget – Local municipalities have pledged their support as follows: Topton Borough $5.00 per capita, Longswamp Township $2.00 per capita, District Township $1.31 per capita and Rockland Township's 2014 donation of $4,500.

Operating Income (2013)		**% of Total**
State of Pennsylvania	$25,779	17.3%
Berks County	$58,473	39.1%
Local Municipalities	$26,886	18.0%
Other Local Sources	$38,300	25.6%
TOTAL	**$149,438**	

Operating Expenses (2013)		% of Total
Salaries and Benefits	$81,320	65.4%
Collection Expenses	$15,480	12.4%
Operating Expenses	$27,542	22.2%
TOTAL	**$124,342**	

VI. Parks and Recreation

The planning for both passive and active recreation opportunities is an important component of any comprehensive planning effort. Recreation planning seeks to determine the level of demand for recreation facilities and programs, and where needed parks and recreation facilities should be located. Finally, certain widely-used procedures for the acquisition of parklands via dedication or fee-in-lieu thereof subdivision requirements are only legally defensible if they seek to implement legitimate and logical recreation goals and objectives. For these various reasons, the following recreation analysis is offered.

A. Parks and Recreation Administration

Presently each of the individual participants (municipalities and school districts) acquire, develop and program their parks independent from one another. Among the goals of this Plan are:

- To consider ways in which the parks and recreation resources available in Longswamp Township could be utilized, and
- To seek ways to coordinate delivery of recreational programs and activities with the Brandywine Heights Area School District and the other municipalities in the Eastern Berks County Region.

B. Facilities Inventory

The inventory on the following pages is a series of tables which lists all identified recreation sites and their improvements within Longswamp Township. This inventory indicates the site name, the site's ownership and maintenance responsibilities, the site type, and its total recreation acreage. Following this is a specific list of recreation improvements at each site. This list is broken out under several major sub- headings, including playgrounds, fields and courts, picnic facilities, pools, trails, and support facilities. A final section at the bottom of the table allows for comments concerning a particular site, or the listing of any additional improvements.

The Public Facilities Map utilizes the information from the inventory to illustrate the geographic distribution of all public recreation sites within Longswamp Township, including their types, and service radii for locally-oriented facilities as listed below.

Public Parks Within Longswamp Township	
Park Name	**Acreage**
Longswamp Township	***121.6***
Brandywine Heights Area High School	42.0
Longswamp Park	30.9
Hunsicker's Grove	48.7

FACILITIES INVENTORY				
BACKGROUND	SITE NAME	Hunsicker's Grove	BHA High School	Longswamp Park
	OWNERSHIP & MAINTENANCE	Longswamp Township	School District	Longswamp Township
	SITE TYPE	Community	Community	Community
	SITE CONDITION	Excellent	Excellent	Excellent
	TOTAL ACREAGE (DEVELOPED)	48.7 ac.	42 ac.	30.9 ac.
PLAYGROUNDS	Swing Sets			2 (8)
	Sliding Boards			1
	Climbing Equipment			3
	Merry Go-Rounds			
	Seesaws			
	Sand Boxes			1
	Rocking Toys			
	Big Toys			2 w/ rubber surfaces
	Hopscotch			
	Four-Square			
FIELDS & COURTS	Baseball/Softball Fields		1	4
	Soccer/Hockey Fields		1	3
	Football Fields			
	Basketball Courts (hoops)			1
	Tennis Courts		6	2
	Volleyball Courts			1
	Bleachers			
	Track			
	Media Booth			
PICNIC	Pavilions	X		1
	Total Picnic Tables (in pavilion)	X		56 (50)
	Barbecue Pits & Grills	X		
	Benches	x		8
TRAILS	Walking/Exercise Trails (length)			1 mile
	Biking Trails (length)			
	Fitness Trails (no. of stations)			(9)
	Measured Path			1
SUPPORT	Parking Spaces		475	150
	Rest Rooms			2
	Water Fountains			1
	Snack Bar			1
	Waste Receptacles		x	12
	Bike Rack			
	Signs			1
Other/Comments				1 street hockey

INDOOR FACILITIES INVENTORY			
SITE NAME	High School	Middle School	Elementary School
Gymnasium	X	X	
Full Basketball Court	X	X	X
Swimming Pool			
Diving Pool			
Locker Rooms	X	X	
Weight Room	X	X	
Wrestling Room	X	X	
Multipurpose Room			X
Auditorium (No. of Seats)	825	525	
Music Room	X	X	
Gymnastics Room (Equipment)			
Library	X	X	X
Meeting Room			
Indoor Track			
Dark Room	X	X	
Planetarium			
Computer Lab	X	X	

C. Spatial Park Analysis

To determine future community park needs, the minimum NRPA-recommended acreage for community and neighborhood parks will be used or 6 acres per 1000 population. The following tabulates the level of parklands provided and needed based upon projected growth for each municipality and the Region the Township as listed in Chapter IV of this Plan:

Municipality	Existing Park Acreage	Year 2010			Year 2020		
		Population	Needed acres	Surplus/ deficiency	Population	Needed acres	Surplus/ deficiency
Longswamp Township	121.6	6,235	37.4	+84.2	6,862	41.2	+80.4

As can be seen in the preceding table, Longswamp Township enjoys a wealth of community parkland well in excess of the NRPA-recommended minimum now and for the projected future.

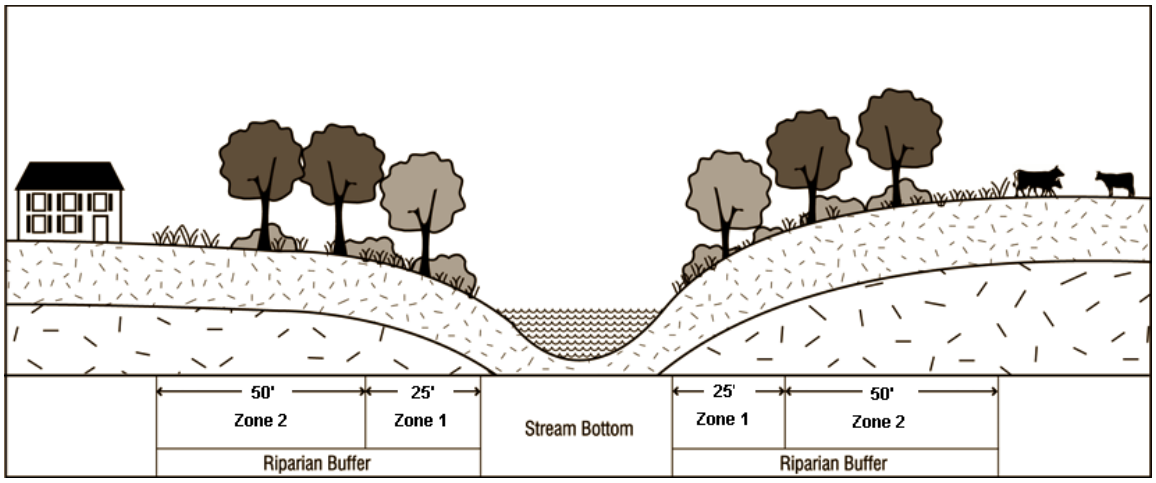
Park sizes are adequate; however, local officials should seek to add improvements to these parks to provide for a wider range of activities and programs.

Linear parks and greenways are also gaining in popularity throughout the nation as less and less open space remains within developing areas. These parks can take many forms from abandoned railroad beds to utility transmission lines and riparian buffers along creeks. This latter form appears to be most applicable within the Eastern Berks County Region. The Berks County Greenway, Park and Recreation Plan (2008) recommends that two different proposed greenways traverse the Township, both of which are depicted upon the Public Parks Map. The Plan also proposes greenways/trails through Longswamp Township (1) linking the Topton Watershed to the Topton Community Park and (2) linking Topton Borough to Hunsicker's Grove Park.

It is important to understand that the depiction of these greenways is conceptual and should not be interpreted on a parcel-by-parcel basis. The plotting of a potential greenway on a map is but the beginning point to a lengthy and potentially difficult process that ends in development and use. Many pitfalls can be encountered and prevent project completion. Nonetheless, these greenways have become one of society's popular priorities and therefore local officials should establish a goal to protect these areas.

Longswamp Township has important and high quality streams that, with proper attention, can offer tremendous environmental, recreational and educational value. To fulfill the goal expressed by local officials to protect water quality additional protection and management is warranted. Studies conducted by the U.S. Forest Service demonstrate that riparian buffers offer real advantages in the removal of harmful nutrients and sediment from stormwater before it enters the stream. These same riparian buffers can increase the food supply and create interconnected natural systems of movement for pedestrians and local wildlife. Riparian buffers are areas adjoining streams where naturally successive vegetation is provided and protected.

Longswamp Township adopted a Riparian Buffer Conservation Ordinance in 2008. The Township's Riparian Buffer Ordinance requires a minimum 75-foot buffer area on each side from the stream banks, or a width equal to the extent of the 100-year floodplain, whichever is greater. The Township's riparian buffers comprise two distinct zones, as depicted below.



Zone One: Inner Riparian Buffer - This zone begins at the top of each stream bank of a watercourse and occupies a margin of land with a minimum width of twenty-five (25) feet measured horizontally on a line (bankfull), as reviewed and approved by the Township Engineer. Where prohibitive slopes (25+%) are located within twenty-five (25) feet of a watercourse, Zone One shall extend the entire distance of this sloped area. If the distance of this sloped area is greater than seventy-five (75) feet, there will be no requirement for the establishment of Zone Two. If the distance is less than seventy-five (75) feet, the width of Zone Two will be adjusted so that the total corridor width (Zone One and Zone Two) will be seventy-five (75) feet maximum.

Zone Two: Outer Riparian Buffer - This zone begins at the outer edge of Zone One and occupies a minimum width of fifty (50) feet in addition to Zone One, unless modified herein. In cases where Zone One extends beyond twenty-five (25) feet due to the presence of prohibitive slopes, the width of Zone Two shall be adjusted so that the full riparian buffer equals a total width of seventy-five (75) feet.

Where the 100-year floodplain extends greater than seventy-five (75) feet from the watercourse, Zone One shall remain a minimum of twenty-five (25) feet wide, and Zone Two shall extend from the outer edge of Zone One to the outer edge of the 100-year floodplain.

The following will describe where to establish, and how to plant and maintain each of these two zones:

Zone One must include mature canopy trees and a ground cover of warm season grasses. New tree plantings should be selected, arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. New grass plantings should be selected and managed to filter-out pollutants and offer habitat. All vegetation within this Zone must thrive in wet conditions. Zone One requires little maintenance. As trees mature, die and decay, it is important that such natural debris be allowed to decompose within the stream. This will provide important food and habitat for beneficial microorganisms, fish and amphibians. Streamside grasses should similarly be allowed to seasonally flourish and recede. Manmade activities should be very limited and confined to perpendicular passages from Zone Two. Intensively-used locations should be fitted with raised walkways and reinforced embankments.

Streamside cleanup of junk and manmade debris is permitted. No animal watering and crossing locations are permitted, unless they are reinforced.

Zone Two must also include mature canopy trees generally three rows deep, and a natural undercover. New tree plantings should be selected that grow rapidly, so as to intercept passing nutrients. Such trees should also be arranged and managed to accelerate canopy growth, and offer native species habitat and food supply. Successive undercover plants should also be allowed to "evolve" with the canopy of this Zone. This Zone requires the most attention, but not for some time after initial planting. Here, the objective is to develop a stable and broad canopy of tree cover. The trees within Zone Two are fast-growing and, therefore, consume many nutrients. The regular pruning and trimming of these trees will increase their nutrient consumption, but should not jeopardize the important overhead canopy of shade. The natural undercover should be undisturbed, except for periodic litter cleanup. Pedestrian paths can weave through Zone Two, but should be provided to prevent compacted soils and root damage.

Buffer Use and Maintenance

Streamside buffers must be generally undisturbed. Mature trees and long grasses absorb more nutrients than do manicured plants. Similarly, the more extensive root systems retain passing sediments. These characteristics reduce pollution and yield abundant food and habitat for wildlife. The temptation to "over-maintain" the streamside must be overcome.

Local officials should educate landowners and developers of the importance of riparian buffers, and the Township's intent to provide for them. Newsletter articles should be used occasionally to introduce these concepts, and then to feature successful implementation examples as they occur. Through the Township's Riparian Buffer Conservation Ordinance, as new developments are proposed, local officials can ensure, through proper site plan review procedures and conservation subdivision design, that these riparian buffers are protected.

But regulations alone will not get this job done, as most land uses don't require Township approval to continue to operate. In these areas, other options exist. First, the USDA Natural Resources and Conservation Service offers its Conservation Reserve Enhancement Program (CREP). This program seeks to enroll some 100,000 across the Commonwealth. ***Landowners adjoining streams are offered annual rental payments for installation and proper management of streamside buffers. The program is proposed to continue for 10-15 years. In addition to the rental payments, landowners are eligible for 100% cost share reimbursement for installation of suitable vegetation within these buffers.*** Enrollment in this program remains open until the State's 100,000-acre goals are achieved. ***Township officials should mount a campaign to***

inform local landowners who abut these creeks. Program experts should be invited to explain the benefits of these programs.

Most of the success stories surrounding riparian buffers within Central Pennsylvania have been the results of dedicated volunteers from conservation and sporting groups. Local anglers have made it their mission to rehabilitate and save stream habitats for fishing purposes. The Eastern Berks County Region, too, shares in these dedicated groups. ***These captive groups should be educated about the benefits of riparian buffers and energized into action. These "neighbors" can probably best effect the peer pressure to convince local landowners to get involved.*** A "hip-boot-brigade" should be formed from local sportsmen who should regularly travel up the waterways and meet with adjoining landowners, and describe the benefits and programs of riparian buffers. ***Another powerful ally are the Region's youth. Environmental studies classes can develop pilot riparian buffers at visible school and park locations; these focused successes enable the benefits of these buffers to be experienced first-hand by the general public. The School District should develop and regularly offer a streamside riparian buffer workshop as part of its curriculum, for students to learn "first-hand" about how man can co-exist with nature. Local and School District officials should cooperate on a number of these pilot projects at visible locations throughout the Region. Then, as successes mount, they should be featured in local newsletter and media articles that widen awareness and attention about their use and benefits. Such projects represent excellent candidates for Growing Greener grants from the State. Once momentum is achieved, other civic groups are likely to get involved.***

Recreational Trails

The Berks County Greenway, Park and Recreation Plan (2008) proposes a regional trail on the railroad right-of-way extending from Maxatawny Township to Topton Borough. In addition, Longswamp Township has been made aware of the existence of an abandoned Catasauqua and Fogelsville Railroad (C&F Railroad) bed which traverses land owned by the County of Lehigh in the Borough of Alburtis, Lehigh County, Lower Macungie Township, Lehigh County, and Longswamp Township, Berks County from Lock Ridge Park to Rittenhouse Gap. This should also be investigated for possible recreational use.

Local officials should educate landowners and developers of the importance of riparian buffers, and the Township's intent to provide for them. Newsletter articles should be used occasionally to introduce these concepts, and then to feature successful implementation examples as they occur.

D. Mandatory Dedication of Recreation Land (or fee-in-lieu thereof)

Mandatory dedication of parkland has become a standard technique for local park systems to keep pace with growth since it was enabled by the Pennsylvania Municipalities Planning Code in the late 1980s. Longswamp Township has adopted mandatory dedication provisions within its Subdivision and Land Development Ordinance.

The Longswamp Township Subdivision and Land Development Ordinance requires the Developer to set aside no less than two thousand (2,000) square feet (0.046 acres) of parkland for each new residential dwelling unit created. As an alternative to parkland dedication, the Township may accept a fee-in-lieu of parkland dedication. The fee-in-lieu amount is based on the equivalent fair market value of the two thousand (2,000) square feet of parkland in the development. Fee-in-lieu funds cannot be used merely to maintain existing facilities, but must be used to:

1. purchase new parkland;

2. purchase new equipment for new or existing parks; and/or,

3. make improvements to existing parks that will serve existing residents and those of the proposed development.

Funds collected under this approach must be used to provide for recreation facilities that are accessible to residents of the proposed development. In determining accessibility to the park, local officials should be guided by the respective park service areas as listed in this Plan.

VII. The Local Economy

The health of the Township's economy has an obvious major impact on the overall welfare of the community. A healthy economy provides not only needed goods and services, but employment opportunities and tax revenues which pay for public facilities and services. There are a number of measures of the health of a community's economy, among them the employment rate, the tax base and the diversity of the local economy. The following will examine the three principal components of the Township's and Region's economy.

A. Agriculture

Due to the realization of the importance of agriculture to the Township's economy, the Township has readopted a philosophy of agricultural growth and the encouragement of agriculture as a primary Township industry.

Agriculture is the leading industry in the Commonwealth of Pennsylvania. It also continues to be an important part of the economy of Berks County, which ranks third in the value of farm products sold throughout the State. Land in farms was estimated to make up 233,744 acres, or 42%, of the County's land area in 2012. With 2,039 farms, the County had the third highest number of farms of all counties in the State; average farm size is 115 acres. However, over the last half century or so the County has lost over 88,238 acres, or a little over 1/3 of the land area devoted to farms in 1959. This equates to a loss of about 1,665 acres per year. However, during the mid-to-late 1990s this rate of loss had dramatically declined due to a change in the Census definition of what constitutes a farm, which accounted for additional acreage being allocated to farms. Also, with the increased demand for certain farm products the County has seen a rise in the acreage of land in farms since 2002. The average market value of agricultural products sold from farms in Berks County has increased from $367,840,000 in 2007 to $528,711,000 in 2012.

While about 80% of the County's farmland is in crop production, most of the crop products are fed to livestock. Therefore most of the cash value of the County's agricultural products relates to livestock operations. Berks County was ranked 98th nationally for agricultural cash receipts in 2012.

The following tables summarize the County's agricultural products for 2012:

Berks County Agricultural Products (Source: 2012 Census of Agriculture)

Major Animal Product	No. of Animals	No. of Farms
Dairy	24,701	296
Poultry (layers)	2,683,591	344
Poultry (broilers)	13,027,727	68
Cattle & Calves	42,091	765
Swine	66,645	101
Sheep	2,303	144

Berks County Agricultural Products (Source: 2012 Census of Agriculture)		
Major Crops	**Acres**	**No. of Farms**
Corn (grain)	52,813	795
Corn (silage)	21,530	450
Hay (alfalfa)	25,040	720
Hay (all hay)	56,385	1,005
Wheat	10,880	364
Barley	4,201	191
Oats	1,390	141
Soybeans	31,936	578
Vegetables	1,197	162

In addition to providing an abundance of farm products, agriculture also supports a wide range of farm supply, and food processing and distribution industries. Snack foods, milk and ice cream, candy, baked goods, and packaged meats are among the many foods processed in the County. While not shown above, other farm products grown in the County include strawberries, apples, peaches, mushrooms, silvicutlure and nursery/greenhouse.

Agriculture also generates substantial taxes that benefit local residents. A 2006 Penn State study found that farms and other types of open land can actually subsidize local government by generating more in property taxes than they demand in services. In Pennsylvania townships studied, farm and open land required between $0.02 and $0.27 worth of services for every tax dollar raised, compared to residential land, which required between $0.94 and $1.48 worth of services for every tax dollar raised.

Agriculture is also important within Longswamp Township. The following tabulates the Township's participation in the various farmland preservation programs available within Berks County:

Longswamp Township Farmland Preservation Status					
Municipality	Acres Enrolled in Agricultural Security Areas	Acres under County's Agricultural Conservation Easements	Acres under Berks County Conservancy's Easement Program	Acres under Effective Agricultural Zoning	Acres enrolled in Clean & Green Tax Assessment Program
Longswamp Township	4,510	1,619	145	2,130*	6,573

* acreage in proposed Agricultural Preservation Zoning District

The following lists those techniques that can be used to protect the farming economy and landscape:

INGREDIENTS FOR SUCCESSFUL FARMING

Protection of farm soils – Longswamp Township contains prime soils and soils of State-wide importance. The same characteristics that make these soils productive make them better to build upon. Therefore they are subject to greater development pressure and hence are more vulnerable.

Critical mass – The trend in agriculture today is toward larger farms as farmers compete in international markets. At the same time, there is a greater focus in some areas on the production of higher value crops which can be raised on less land. Commercial farming operations of all sizes need to be part of a large critical mass of farmland that will assure the continued presence of area farm suppliers and processors in the future. The subdivision of land into parcels larger than that needed for a home site, but too small to effectively farm increases the price of land, making it prohibitive for farmers to purchase land. Areas characterized by scattered sprawl type development and "farmettes" rarely are able to retain any significant agricultural activity.

Freedom from adjacent conflicting residential uses – Commercial farm operations need to be able to operate free from residential uses and the nuisance complaints, traffic and vandalism they can generate. Such pressures lead to a cycle of farmland conversion, rather than reinvestment in farm operations.

Profitability – Agriculture needs to be profitable for farmers to continue farm operations over the long run. To this end, farmers may benefit from a wider range of permissible farm occupations and farm-related businesses, and the possible creation of local outlets or farmer's markets for locally-grown/raised products.

Effective agricultural zoning – Farmland preservation has been affirmed through the State court system as a legitimate governmental goal, as long as implementing ordinances are substantially related to that goal. Not only is it necessary to severely limit the number of nonagricultural uses in an area intended to be preserved for agricultural use, it is also necessary to insure that subdivision for nonagricultural uses should be confined on small lots, leaving a large residual tract for agricultural use

Agricultural Security Area – Some of the Township's farmers have demonstrated their long-term commitment to the future of farming by voluntarily enrolling 4,510 acres in an Agricultural Security Area. Landowners within areas planned for continued agriculture within this Plan, should be encouraged to enroll in this program.

Clean and Green farm tax deferral - This is another incentive program for continued agricultural use. Farmers may voluntarily enroll in this State program, which provides a tax reduction for as long as the property remains in farm use. If the property is developed, back taxes for up to seven years are due. Any farmers within areas planned for continued agricultural use who don't already participate should be encouraged to enroll in the Clean and Green program, to further reduce the possibility of increased taxes. Presently some 6,573 acres are enrolled.

Township officials hope to continue to protect the Township's agricultural base through the implementation of an Agricultural Preservation Zoning District. They recognize that Berks County and other non-profits have paid monies to local landowners to permanently preserve their farms with agricultural conservation easements or other type of conservation easement. Longswamp Township has enacted conservation by design subdivision standards in certain zoning districts

to minimize disruption on adjoining active farming operations among other design priorities. More information on this technique is provided in Chapter XII (Future Land Use) of this Plan.

B. Industry

In early times, the Eastern Berks County Region's industry was limited to mines, furnaces and mills. As discussed earlier, the Region has historically lacked transportation access to support large-scale industry. Due to the Township's rural location and lack of proximity to major highways, many residents travel outside the Township for daily employment. The three major industrial employers in the Township are as follows:

Industrial Employers Within Longswamp Township	
Industry Name	**Products**
Atlas Minerals & Chemicals	Corrosion resistant construction materials, adhesives, sealants & coatings.
Fleetwood Refrigerators	Commercial refrigerator cases
Solt's Sawmill	Lumber processing

An Industrial Site Assessment report completed in April 2001 (commonly known as the "Leak-GoForth" study) made suggestions on how industrial sectors could be strengthened and new sites located throughout Berks County.

First, the characteristics of the County and its current stock of industries suggest that the following eight types of industry are particularly well-suited within Berks County:

1. Food and beverage products;
2. Packaging materials and equipment;
3. Drugs and biotechnology;
4. Communications equipment and electronics;
5. Industrial parts and equipment;
6. Medical equipment and supplies;
7. Corporate and information systems; and,
8. Distribution and warehousing

In addition to these principal industries, other secondary spin-off businesses, suppliers and subsidiaries would also find favorable conditions within the County.

Although the Leak-GoForth Study went on to make recommendations about targeted areas for industrial expansion, no such recommendations apply within the Eastern Berks County Region. Admittedly the Region's rural location, severely constrained landscape and lack of transportation infrastructure make it an illogical site for large-scale industry; therefore, it's not surprising that it was not identified for industrial growth. However, ***rural occupations and small-scale industries should be permitted to allow for local employment so long as such activities do not interfere with nearby homes. Potential businesses should be limited to ones that pose no threat to local water quality by reason of waste disposal or discharge, and do not generate excessive traffic.***

To pursue appropriate industrial opportunities and press an economic development agenda throughout the County, the study recommended that four separate agencies be involved. These entities work together to promote, retain and encourage economic growth and development as described below:

Greater Reading Economic Partnership. (GREP) A public private partnership organization with lead responsibility for driving the countywide economic development agenda and for all general internal communications and external marketing activities. GREP continues to work with both developers and municipalities marketing sites within the County and also helping business retention.

Greater Berks Development Fund. (GBDF) continues as the lead organization for funding, developing, marketing, and managing urban office and industrial properties, with particular attention to redevelopment and revitalization in Reading and other smaller urban communities in the County.

Berks County Industrial Development Authority. (BCIDA) This agency takes on the additional role of acquiring and developing industrial parks and sites in suburban and rural fringe areas of the County which may otherwise be too speculative for private developers and outside the normal realm of the Greater Berks Development Fund. The BCIDA finished a very successful project in North Western Berks County, Berks Park I-78 and is now working on another project on land surround the Reading Airport.

Workforce Investment Board. This organization continues its efforts in helping to prepare the Berks County labor force to meet the needs of existing large industries, while at the same time identifying demands and training workers for new technology-based industries. The Workforce Investment Board, in cooperation with the other agencies, developed the Careers in Two-Years Program with the Reading Area Community College. This program encourages persons to train for specific skilled jobs that are needed by area businesses.

While the County appears to be actively pursuing economic development strategies and programs, these efforts are currently focused on other areas of the County that are better-suited for such uses. Local officials have specifically articulated one of the goals of this plan to "*discourage large-scale commercial and industrial developments except where there is sufficient road access and other infrastructure in place.*" Instead they hope to rely upon rural businesses for employment opportunities and an expanded tax base.

C. Commerce

In Longswamp Township, highway commercial retail and service businesses generally follow State Street between Topton Borough and the Village of Mertztown.

In the outlying rural areas, commerce is generally limited to some small nodes of locally-oriented uses at village crossroads; an exception being the Bear Creek Resort and Conference Center. Small country markets, restaurants and delis, hotels and inns, offices and auto services are typical. Again these sites exhibit a variety of designs ranging from historic and tightly-knit to sprawling with abundant parking.

D. Future Economic Development Potential

Agriculture is expected to continue to be the primary economic activity in Longswamp Township. The Township will focus development within compact growth areas and seek to protect outlying farming. Longswamp Township will promote small-scale and compact neighborhoods with rural densities amid active farmlands. In reviewing such new neighborhoods, local officials should emphasize the need to protect agricultural productivity and avoid designs that would disrupt adjoining farming operations.

Other techniques such as farm-related businesses should be permitted to help the farmer continue to prosper in the off-season and in difficult crop-producing years. Since much of the County's agricultural economy is based upon livestock products, it is imperative that the Township review and strengthen, as necessary, zoning regulations imposed upon Concentrated Animal Feeding Operations (CAFOs). Such operations should be subject to location, design and operational standards that ensure compliance with applicable nutrient management regulations and do not adversely affect growing neighborhoods.

Outlying rural areas should only provide for local commercial nodes at select locations in the vicinity of existing Villages or planned growth neighborhoods. Design standards and the types of permitted uses should reflect this small-scale orientation and residential context. Strict design standards should protect adjoining homes. Rural and farm occupations can provide for small-scale local entrepreneurship provided local groundwater and surface waters are protected from improper handling of materials and disposal of wastes.

VIII. Existing Land Use

For a land use plan to be practical, it must accurately inventory existing land uses and development characteristics. Then, with proper analysis, future land use schemes can reflect reality, and avoid the creation of nonconforming uses when implemented through zoning regulations. The Existing Land Use Map was created digitally using a geographic information system (GIS). The Berks County GIS tax parcel data was modified to include a specific land use designation for each parcel. Land use assessment codes, aerial imagery, information from the Act 167 stormwater plans, and other GIS data related to land use were also used in the analysis.

A. Open Space Land

The Open Space category contains land that is predominantly wooded or vacant that does not include a structure. Examples are meadows and fields (not farmland). Residue land associated with large residential lots over 5 acres, as well as forested land on farmland is also included in the category. The majority of this land is privately owned, except for municipal watershed lands.

As expected, the steep slopes of the Region's mountains and hillsides are largely wooded, with only scattered rural residences on large lots. Many of the lots in this area are uncharacteristically deep when compared with other residences; this suggests that these lots may be used to harvest firewood. In addition, some of these lots are located away from any public road and appear land-locked; these lots would not be permitted under today's subdivision regulations. This land use category includes brush- land, evergreen, hardwood, mixed, and wetland forests. Approximately 6,330 acres, or 40%, of the Township's total land area is classified as open space land.

B. Agriculture

Farming is the second largest category of land use within the Township. About 5,460 acres comprise this use or about 35% of the total land area. Longswamp Township's largest concentration of farmland is in the northern reached portion of the Township where limestone geology produces a low-lying fertile plain. Crop farming is the principal activity with corn, beans pumpkins and trees. Livestock farming occurs to a lesser extent with cows, bulls and sheep. The Township currently does not have large-scale intensive livestock and commercial produce

operations. Also there were very few farm occupations observed in the Township.

C. Residential

The Residential category depicted on the Existing Land Use Map comprises approximately 15% of the Township's land area, or 2,384 acres. Given the way the County records its tax parcel data, this category includes all of the non-farm detached residences within the Township.

Rural home sites are generally larger than one-acre and often have a deep driveway; however, at the crossroad villages homes can be located close together and near the road. In short development within the rural areas varies widely, except within several of the more recent subdivisions that have more uniform layouts and appearances. The Township has considerable scattered "strip" roadside housing throughout its rural landscape. This rural housing also contains various home and rural occupations that provide for close-to-home employment opportunities. Generally rural homes are well-kept aside from an occasional mini-junkyard. Sidewalks are not provided within these settings. On the other hand, neighborhoods within the Township also vary widely.

To get a more defined sense of the characteristics of these varied residential uses, the GIS data was used and on-site measurements were taken. Specifically, various "typical" residential uses were sampled and analyzed to determine relevant site traits. The locations of such settings are noted to verify their suitability. Because zoning requirements are generally expressed by minimum required standards, within each particular setting, traits that would be shared by most of the properties were noted. These traits often represent a low common denominator among the properties within the setting, so as not to suggest design standards that would create zoning nonconformity. The table below presents the results of this analysis.

"TYPICAL" DESIGN CHARACTERISTICS OF SINGLE FAMILY RESIDENCES

Location and Unit Type	Min. Lot Size	Min. Lot Width	Front setback	Side setback	Rear setback	Parking Location	Sidewalks	Notes
Barbara Drive Single Family	1 ac.	150 ft.	50 ft.	30 ft.	50 ft.	Front/side	No	
Mertztown Area Two Family	10,000 sf	50 ft.	15 ft.	10 ft.	30 ft.	Front/side/rear	No	Variable
Store Street Single and Two Family	5,000 sf.	50 ft.	15 ft.	1 ft.	20 ft.	Front/side/street	No	Tight

D. Mobile Home Parks

Several mobile home parks, varying in size, can be found within the Township. These sites differ from mobile homes that are located on separate lots as they are considered single family detached residences. The largest of these by far is the Mountain Village Mobile Home Park, with 279 pad sites. The following details the typical design characteristics of those mobile home parks within the Township:

"TYPICAL" DESIGN CHARACTERISTICS OF MOBILE HOME PARKS

Mobile Home Park	Min. Rd. width	Min. Lot Width	Front Setback	Side Setback	Rear Setback	Parking Location	Sidewalks
Mountain Village	30 ft.	50 ft.	30 ft.	10 ft.	20 ft.	Front pads	Sheds setback 10 ft.

Longswamp Township Comprehensive Plan

Existing Land Use
Longswamp Township
Berks County

UPPER MACUNGIE TOWNSHIP

MAXATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

HEREFORD TOWNSHIP

DISTRICT TOWNSHIP

MAGNOLIA ST
MINE ST
HAAS RD
VALLEY RD
POMEY RD
MERTZ RD
MERTZTOWN RD
LINDEN RD
WALNUT DR
MAIN ST N
BARCLAY ST
PARK AVE N
MEADOW DR
CHESTNUT ST
KENNEDY AVE
ALLENTOP RD
LONGSWAMP RD
SCHLOSSBURG ST
HILLTOP DR
MOUNTAIN RD
SEISHOLTZVILLE RD
WALKER RD
GAUL RD
STATE ST
FREEMAN ST
ROBESON RD
HOMEVIEW DR
LOCUST ST
HOME AVE S
HOME RD
HIDDEN VALLEY DR
LONGSDALE DR
CENTENNIAL RD
POPLAR ST
TOWER RD
WOODSIDE AVE
FIVE POINTS RD
PEERFIELD RD
GRASS ST
STONE AVE
MARYANN DR
DOGWOOD DR
PENFIELD RD

0 0.5 1 Miles

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Residential
- Commercial
- Industrial
- Institutional/Public/Non-Profit
- Recreation
- Forested Areas
- Agriculture
- Mobile Home Park
- Water
- Transportation

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

Hanover Engineering Associates Inc

E. Commercial

Longswamp Township has considerable commercial development. This occurs as pockets of commerce straddling State Street almost the entire width of the Township east of Topton Borough. The greatest concentration of uses occurs in the Village of Mertztown where commercial, industrial and public uses combine to create a town-like character. Commercial uses within the Township are generally more suburban in character with front-yard parking lots, freestanding signs and numerous driveway cuts. Nearly all of the Township's commercial development can be described as strip commercial in configuration and design. Some site integration has occurred, but such examples are rare given the number of businesses. These uses generally lack landscape and buffer strips, interior landscaping within parking lots and screening of outdoor storage. Their highway orientation allows for a wider variety of use. Within the Township are several auto repair garages, a lumber store, motorcycle shop, gift shop, auto glass shop, bank, small grocery store, gas station, restaurants and taverns, medical offices, inns and bed and breakfasts, a large nursery and garden center and a small mower shop.

F. Industrial

Just over 170 acres within the Township are devoted to industrial use. This represents about 1% of the total land area. The Deka/East Penn Manufacturing Distribution Center is the largest industrial site within the Township; however, its acreage is mostly within the adjoining Topton Borough.

Within Longswamp Township, industry is located around the Village of Mertztown. Aside from a large auto salvage yard which is located on the south side of State Street, industry within Mertztown is also located north of the railroad tracks. The Atlas Minerals and Chemicals plant fronts along Mertztown Road. Several industrial/commercial uses relating to auto and truck service are concentrated straddling Chestnut Street between Store Street and North Park Avenue. Other scattered industries include landscaping and excavation contractors, and mini-warehouses.

G. Institutional / Public / Non-Profit

Institutional lands are used for public services such as governmental and public safety facilities, educational facilities (including athletic fields owned by educational institutions), hospitals, cemeteries and religious institutions. Within the Township, institutional uses comprise 124 acres or about 1% of the total land area. The Topton Borough watershed area is located within Longswamp Township along the east side of Woodside Avenue. The Topton Fish and Game site is located on the south side of State Street between Topton Borough and the Village of Mertztown.

In addition to these open grounds this category includes all of the properties owned and operated by the Brandywine Heights Area School District.

One of the most important land uses within this category is the Lutheran Home located just south of Topton Borough in Longswamp Township. This 400-acre campus offers a wide range of residential and nursing-care facilities and services for the elderly. These range from independent

cottages and apartments through skilled nursing care and secure dementia care settings. In addition the site provides for commercial, service and recreational conveniences to its residents on the campus.

Finally this category reflects many numerous governmental uses, post offices, public utilities, maintenance sheds, communication towers, churches, cemeteries, and rectories.

H. Recreation Land

Recreation land provides space and facilities for people to engage in active and passive recreation activities. These include playgrounds, parkland, state gamelands/forests, as well as recreation land owned by non-profit recreational groups (i.e. homeowners associations, sportsman clubs, and little league organizations) and commercial recreation (i.e. golf courses, miniature golf courses, campgrounds, ski areas).

Sites in this category comprise over 288 acres within the Township. The largest of the commercial recreation areas, by a wide margin is the Bear Creek Ski Resort. Others include the Oreville Kart Club and the Global Paintball field. There are two Township park facilities, one located at the Township Municipal Building and Park property on the south side of State Street and the second is Hunsicker Picnic Grove, located along Longswamp Road. Both parks are owned and maintained by the Township and include various pavilions and recreational (active and passive) facilities. Uses within this category also are ones that are operated on a not-for-profit basis and include local rod and gun clubs and other more public parks and playgrounds.

I. Transportation

About 550 acres are devoted to the Township's roads and railroad rights-of-way. More information about these is contained within Chapter XI (Transportation) of this Plan.

J. Water

This category depicts the Township's ponds and lakes. This category does not include streams and creeks. About 58 acres of the Township are within a pond or lake.

The above information is depicted on the Existing Land Use Map.

IX. Adjacent and Regional Planning

The preparation of any comprehensive plan must always consider and, if possible, complement the planning policies in effect in adjoining communities. The highest level of consideration could include a cooperative planning effort of several adjoining municipalities. At a minimum such effort should seek to coordinate land use activities across municipal boundaries to assure compatibility and function. This Chapter presents this analysis and findings of general consistency with the stated planning policies of Berks County for the Region. The Future Land Use and Adjacent Planning Map depicts the planned land uses in municipalities that adjoin the Region. As can be seen, many adjoining areas too recognize the rural/natural features of the Region. The following is a brief summary of those land uses planned for each municipality bordering the Region.

A. Upper Macungie Township (Lehigh County)

Adjoining Longswamp Township along the Township's northeastern border is Upper Macungie Township in Lehigh County. The Township's Comprehensive Plan was adopted in 1992. The Future Land Use Map of the Plan depicts the area contiguous to the northeast corner of the Township as within its Rural 1.5 category. This area is intended to encourage the preservation of outlying farmland while providing for very limited development densities at about 1 dwelling for each 1.5 acres without public utilities. Further south across Dorney Road the Plan recommends the Residential 2 category adjoining Longswamp Township. This category intends to provide for low-density single family residential neighborhoods at densities of up to 3 units/acre with public utilities. Longswamp Township's Future Land Use Plan proposes Rural development west of Valley Road and Agricultural development east of Valley Road.

B. Lower Macungie Township (Lehigh County)

Adjoining Longswamp Township along the Township's northeastern border is Upper Macungie Township in Lehigh County. The Township's Comprehensive Plan was adopted in 1988 and the Township has just initiated an update; however, the Township staff offered that they don't believe that there will be any appreciable changes in the area bordering Longswamp Township. The Future Land Use Map of the Plan depicts the area contiguous to the Region within two categories. First the Agricultural category adjoins Longswamp Township north of the railroad line. This category recommends retention of the farming landscape by limiting development to no more than 10% of the land area of a farm with a minimum lot area of 1 acre per dwelling unit. South of the railroad is the Rural category. Again this area contains farmland but also has steep slopes and woodlands. Continued farming should be encouraged and developments should require at least 3 acres per dwelling lot. Longswamp Township's Future Land Use Plan proposes Agricultural development north of Longswamp Road and Conservation uses to the south.

C. Hereford Township (Berks County)

Adjoining the southeastern portion of Longswamp Township is Hereford Township. The Hereford Township Comprehensive Plan was adopted March 3, 1992. It depicts the widest variety of land uses adjoining the Township, with three separate bands of General Residential use. This category acknowledges areas free from severe development constraints

and prime farmlands. Nonetheless this category is intended to provide densities of no less than 1 dwelling unit per 3 acres. A small Village Area is depicted around Seisholtzville. This category seeks to preserve the established village pattern of land use with limited high density residences, and small shops and offices. Agricultural areas extend south from Seisholtzville to Huff's Church Road. Here active farms are to be protected and farm-related businesses accommodated. Residential developments should be clustered to save valuable farmlands. Conservation areas reflect sensitive natural features such as woodlands and steep slopes. Developments should be required to submit conservation plans that seek to protect important natural features. Longswamp Township's Future Land Use Plan proposes Conservation uses along the entire boundary with Hereford Township.

D. District Township (Berks County)

District Township adjoins Longswamp Township to the south. The April 2015 Eastern Berks Joint Comprehensive Plan (which includes Topton Borough, District Township and Rockland Township) shows Conservation use along the majority of the boundary with Longswamp Township. The Conservation area is proposed for rural, low density uses with a residential density of one dwelling unit per each three to five acres. A small Agricultural area is proposed along Benfield Road adjacent to the southeastern portion of Longswamp Township. The entirety of the adjacent land in Longswamp Township is also proposed for Conservation use.

E. Rockland Township (Berks County)

Rockland Township adjoins Longswamp Township to the southwest. The April 2015 Eastern Berks Joint Comprehensive Plan (which includes Topton Borough, District Township and Rockland Township) shows Agricultural use along the majority of the boundary with Longswamp Township, with a small area of Conservation use located east of Five Points Road. Adjacent land in Longswamp Township is proposed for Agricultural use north of West State Street. The remainder of the adjacent land, south of West State Street in Longswamp Township, is proposed for Conservation use.

F. Maxatawny Township (Berks County)

Maxatawny Township adjoins Longswamp Township along the Township's northwestern boundary. The current Maxatawny Township Comprehensive Plan was adopted on January 6, 2010. It depicts various land uses within the Township, including agriculture, commercial, institutional and residential districts. Adjacent to Longswamp Township it is largely planned for agricultural uses. Longswamp Township's Future Land Use Plan proposes Agricultural development along the southern portion of the common boundary – generally between West State Street and North Main Street. The adjacent area in Longswamp Township extending from North Main Street to east of North Park Avenue is designated for Conservation uses. The remaining adjacent portions to the north are designated for Rural development.

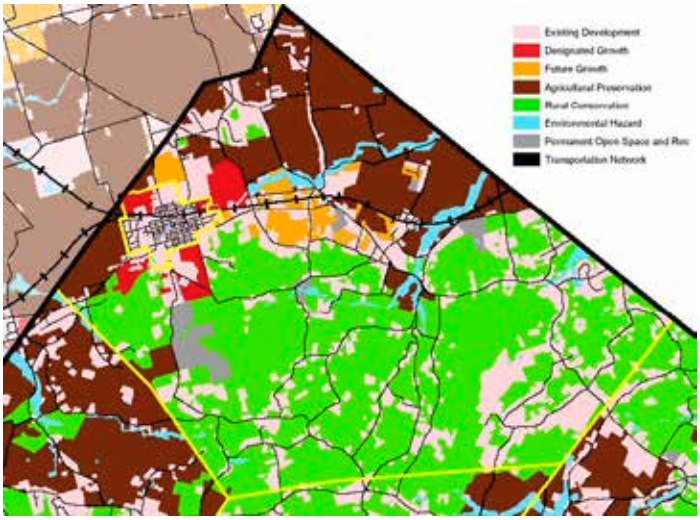
G. Topton Borough (Berks County)

Topton Borough is nearly completely surrounded by Longswamp Township. Much of the existing development in the Township is an extension of the existing uses in adjacent portions of the Borough. The April 2015 Eastern Berks Joint Comprehensive Plan shows industrial development in the northern and northeastern portions of the Borough. Residential areas (at

various densities) and institutional uses abut the Township to the southeast, south and southwest. Adjacent portions of the Township north of the Borough are proposed for Rural development. Areas of the Township to the northeast and east (north of the railroad) are proposed for industrial use. An area extending from the south of the railroad to Locust Street is also proposed for Rural development. The area between Locust Street and West State Street is proposed for Conservation uses. Agricultural areas are proposed on the western side of the Borough, north of West State Street and west of North Main Street.

H. Berks County Comprehensive Plan 2030

The official Comprehensive Plan for Berks County as prepared by the Berks County Planning Commission. The Plan serves as a set of recommendations rather than a regulatory document. It acts as a guide to growth and development and assists the Berks County Planning Commission in evaluating various development proposals and requests for financial assistance by local agencies to County, State, and Federal agencies. The Plan is a general guide and does not reflect in detail the location for all future development nor the precise boundary of such development. The Plan is not a fixed nor rigid document, but will be modified by the Berks County Planning Commission when changes in the development of Berks County indicate the need to alter the Plan. The following depicts the Future Land Use Plan for the Township as depicted in the County Plan:



Unsurprisingly, this County-wide Plan recognizes the importance of the Region's unique and sensitive natural features. Accordingly the Plan calls for the preservation of its Rural/Conservation landscape throughout much of the Region. Agriculture preservation is planned in the northern tip of the Region within its limestone soils and geology. Floodplains, parks and open spaces are scattered throughout the Township as they exist. Similarly, scattered settlement patterns are reflected as existing developments throughout the rural area. However, designated and future growth areas are principally confined to areas outside Topton Borough in Longswamp Township.

The Future Land Use Plan contained in Chapter XII generally follows the County's suggested land use scheme with one exception. Longswamp Township has, after much deliberation, determined that long-term agricultural preservation in <u>all</u> of its northern reaches is unlikely. In response, Longswamp Township is adopting an Agriculture Preservation Zone in a portion of the north and will apply conservation subdivision design and apply design standards in the remaining Rural Zone to minimize disruption on adjoining active farming operations among other design priorities. More explanation of this technique is provided in Chapter XII (Future Land Use) of this Plan. ***After the Plan is adopted, Longswamp Township should request that the Berks County Commissioners revise their Berks County 2030 Plan to be consistent with this revised land use scheme.***

X. Public Utilities

A. Public Sewer Service

EXISTING SERVICE AREAS

There are three designated Sewer Districts in Longswamp Township served through the Borough of Topton's public sewer system. Two of these districts, the Freehall and Woodside Districts, have been established through agreements between the Township and Topton Borough to serve residents of the Township. The third district serves the Brandywine Heights High School located on Old Topton Road. These districts, as well as the additional extensions into the Township from the Borough are described as follows:

- Sewer District #1 extends west in Longswamp Township along Freehall Street to serve several dwellings along this road.

- Sewer District #2 extends south into Longswamp Township along Woodside Avenue to serve several dwellings along this road.

- Sewer District #3 Service is extended extends north to the new High School located in Longswamp Township.

- Two sewer lines extend south into Longswamp Township to serve the Lutheran Home which is the system's largest customer.

- Service is provided to the Deka/East Penn Manufacturing site located to the northeast of the Borough.

- Additional direct service lines also serve the Gross Bus facility and have been committed for a small commercial establishment near Smith Street.

- A sewer line extends along N. Main Street to the north of the Borough in Longswamp Township to serve several dwellings along this road.

Existing public sewer facilities are shown on the Public Utilities Map.

FUTURE PUBLIC SEWER NEEDS

Since 2004, Longswamp Township has submitted several Act 537 Plans to DEP, and each public sewer alternative has been rejected that involves a treatment alternative. Specifically, Longswamp Township's initial plan, submitted just after adoption of the Eastern Berks County Region Comprehensive Plan (EBCRCP) included the construction of a public sewer conveyance system and wastewater treatment plant discharging to the Toad Creek. Other options, including the expansion of Topton Borough's wastewater treatment plant and the extension of Lehigh County Authority's (LCA's) system into Longswamp Township, were explored during the course of the Act 537 Plan, but did not prove to be viable alternatives.

The Act 537 Plan included future growth projections as contained in, and in accordance with, the EBCRCP. Also, as part of the sewer planning process, the Township submitted a Socio-Economic Justification ("SEJ") report which outlined regional goals and growth projections as a

catalyst for discharge into the Toad Creek. The SEJ and the proposed wastewater treatment plant were rejected by DEP. At that time, developers with plans pending at the Township elected not to appeal the decision and neither did the Township because it lacked developer and residential support.

From 2010 through 2012, the Township again explored inter-municipal sewage treatment options, with all attempts being unsuccessful. Several of LCA's shareholders objected to extending public sewer in the western portion of Lehigh County into Longswamp Township due to potential development impact on the adjoining municipalities. Also, discussions with Topton Borough regarding the viable use and/or expansion of the Borough's treatment plant failed to result in an acceptable alternative for the Township.

The largest impediment to public sewer, and therefore growth, in Longswamp Township is the inability to discharge sewage flows into the Toad Creek. The Toad Creek is a tributary of the Little Lehigh Creek and is part of the High Quality Watershed as described in Chapter III of this Plan. As such, special protection regulations are applied by the State and reviewed by the Delaware River Basin Commission in permitting sewage discharges to protect this important resource. Specifically, increased sewage discharges at the Topton Plant for new development can only be considered for approval if all other discharge technologies are shown to be infeasible (e.g. spray irrigation, etc.) and if extremely stringent discharge criteria is met.

Longswamp Township has committed to extensive engineering since 2004 in order to determine the most viable option to address existing on-lot sewage disposal malfunctions and suspected failures. The initial "Analysis of Alternatives" provided an extensive analysis of land application alternatives, such as spray and drip irrigation. The geology and available land in Longswamp Township makes both alternatives non-viable. Sinkhole prone, Karst geology, as well as the need for large tracts of property, make land application for large systems physically and economically unfeasible.

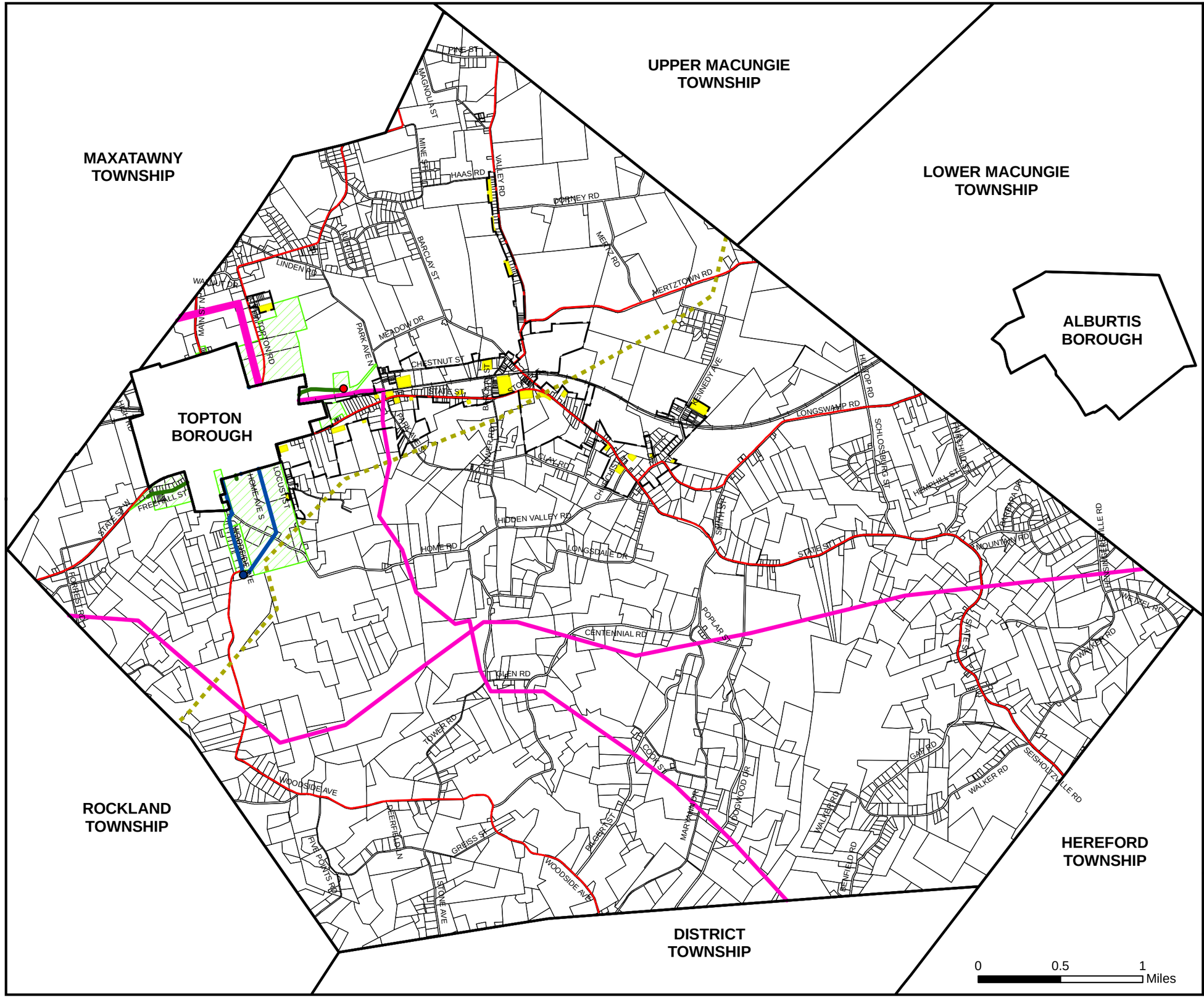
Throughout 2005 to the present, the Township has engaged in an aggressive on-lot sewage management program to supplement its sewage planning. The on-lot management program has proved successful in eliminating several suspected malfunctioning systems. Also, due to the passage of time since the adoption of the EBCRCP, numerous Township residents have replaced malfunctioning systems. The maintenance and replacement efforts of the Township residents have helped to negate the need for a public sewer alternative in most areas.
Longswamp Township also has proactively adopted regulations to manage potential community systems in the wake of negative determinations regarding public sewer alternatives. These community system regulations support the Growing Greener Conservation by Design options, which allow open space as a way to utilize innovative community system alternatives.

In 2012, based upon the mitigation of suspected and existing malfunctions, the Township revised its Act 537 Official Sewage Facilities Plan and submitted an on-lot sewer disposal system alternative to the Pennsylvania Department of Environmental Protection. Longswamp Township acknowledges that through individual on-lot and community systems, smart growth is still a viable option for the Township. However, the 2012 Act 537 Plan protects ground water resources and encourages protection of the high quality waters of the Toad Creek.

Longswamp Township will actively pursue on-lot sewer disposal management objectives, with the use of small-scale community systems or other alternatives to correct isolated areas of the Township. The Township will closely monitor on-lot sewer uses, especially in

Longswamp Township Comprehensive Plan

Public Utilities
Longswamp Township
Berks County



Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Public Sewer District
- Sewage Management District
- Potential Community Onlot Disposal System Site
- Water Treatment Plant
- Waste Water Treatment Plant
- Water Lines
- Sanitary Lines
- First Energy Lines
- Sun Pipe Line Co.

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

Hanover Engineering Associates Inc

high need areas where past malfunctions were determined, and continue to revisit sewer options for the Township as new technology and future alternatives become available.

The Act 537 Plan designated certain areas in the Township for the possible future location of community on-lot sewage systems to serve high need areas. These areas are depicted on the Public Facilities Map and are also proposed to be identified on an Official Map for Public Facilities, which is anticipated to be adopted concurrent with the adoption of this Comprehensive Plan.

B. Public Water

HISTORY AND SERVICE AREA

The Topton Borough Municipal Authority furnishes public water to limited areas within Longswamp Township. This Authority also oversees the public sewer system. The Borough Municipal Authority consists of 5 members who are appointed by the Borough Council to serve 4-year terms. They meet on an as-needed basis.

The original water system was dug and installed as part of the Work Projects Administration (WPA) during the 1940s. Service was later extended into Longswamp Township to serve a few properties on Woodside Avenue and Freehall Streets in the early 1980s. The water treatment plant was renovated in 1997.

WATER SOURCES

For many years the system has relied upon 34 protected springs located at the Borough's watershed property along Woodside Avenue in Longswamp Township south of the Borough. Currently, 33 springs are active and one is inactive. These springs are encased under steel doors to protect their integrity and situated amid a wooded setting that is maintained to ensure good water quality. The springs generate between 60,000 gallons per day (gpd) during dry seasons to 100,000 gpd during wetter periods.

In addition, two wells supplement the Borough's source water. Well No. 1 is located at the northern edge of the watershed property in close proximity to the Borough's treatment plant and storage reservoirs. A second well, known as Well No 2, is located on the east side of Henningsville Road (which becomes Woodside Avenue in Longswamp Township) just south of West Keller Street. Water from this well is pumped up Henningsville Road over ½ mile to the treatment plant and reservoirs located on the watershed property. Combined these wells have a rated capacity of 360,000 gpd. The Borough has adopted wellhead protection measures in place to protect these sources. Currently, Well No. 2 is the only one being used.

TREATMENT, STORAGE AND CONVEYANCE FACILITIES

The Borough's Water Treatment Plant is located along the northern edge of the watershed property, located on the east side of Woodside Avenue about 3,100 feet south of the Borough boundary. This site is located at an elevation above all areas served by the system and enables gravity flow throughout the Borough and the served portions of the Township. A major treatment plant upgrade was completed in 1997. This upgrade was precipitated by a discovery of giardia cyst bacteria in one of the system's supply springs. Specifications of this treatment plant list it as a 2-stage filter system capable of filtering

237,600 gpd. It is designed to adequately filter raw water and maintain proper Federally-regulated drinking water levels according to the following criteria:

- Turbidity;
- Particles in 4 size ranges;
- MS-2;
- Coilpahge virus;
- Giardia lamblia cysts;
- Cryptosporidium Parvum Oocysts;
- Algae; and,
- Sediment.

The plant also incorporates many monitoring and system control devices to ensure optimal plant operation and performance with automated safety systems that activate when adequate performance is compromised. Sodium hypochlorite is used to chlorinate the finished water and soda ash is used to maintain proper pH balance. Raw water storage occurs in two 330,000 gallon covered reservoirs located on the same site and a separate covered 1,000,000 gallon reservoir is used to store finished water that has already been treated. With an average daily consumption of about 184,000 gpd, these reservoirs furnish ample water supply for about 5.5 days of reserve capacity. A general rule-of-thumb suggests that reserve water capacity of 2.5 days is desirable; therefore the Borough has an abundance of reserve water storage capacity. Main water lines are constructed of cast iron and are generally 12 inches in diameter. Residential tap lines are constructed of various materials depending upon their time of installation and are 2-6 inches in diameter. Most of the water lines were installed in the 1940s and are susceptible to failure due to age. The Borough does not have a program for replacement of these lines at this time.

FUTURE PUBLIC WATER NEEDS

Additional public water services may be extended to serve residents of the Township living just outside the Borough on an as needed basis, or to serve small compact growth areas.

C. Solid Waste Disposal

Longswamp Township residents and businesses rely upon private haulers for garbage collection and disposal. Curbside recycling is described as prevalent within the Township.

D. Other Utilities

Aside from the public sewer and water utilities described earlier in this section, several other utility lines pass through the Township. Many of the rights-of-way (ROW) associated with these utilities have distinct implications for future land use and proposed activities. This analysis inventories and maps major utility lines. ***Potential land developers and residents living near ROW should use the PA One Call System at 800-242-1776 to contact representatives of the various utility companies with regard to any proposed projects.*** The locations of the ROWs are plotted on the Public Utilities Map. The following describes these major rights-of-way:

PIPELINES

The Township recognizes the existence of pipelines that currently exist running through portions of the municipality and acknowledges the potential for additional pipelines running concurrently with existing pipelines or in other areas. Such transmission pipelines provide opportunities to meet the energy demands of the Atlantic seaboard but also pose tremendous risk for those communities potentially affected should a pipeline failure occur. Under normal circumstances, underground pipelines are relatively benign; however, where emergencies such as failures do occur, varied threats to public health, safety and welfare can be significant, from direct impacts such as resident injury or death, severe property damage, debris management, contaminated soils and groundwater pollution to indirect impacts associated with cleanup (expanded access points, groundwater recovery and remediation facilities, expanded soil disturbance, etc.). As such, ***the Township should monitor existing and future pipeline activity and enact, where feasible, regulations complimentary to the Pennsylvania Oil and Gas Act*** and the Federal Energy Regulatory Commission designed to protect the public health, safety and welfare and regulate land uses in conformance with the Pennsylvania Municipalities Planning Code, Act 247, as amended.

Among the needs to address are those surface land uses affiliated with transmission pipelines, appropriate access provisions for pipeline rights-of-way, and buffering and setback standards appropriate to reduce adverse impacts to residents of new development should a pipeline failure occur. In addition to buffers and setbacks, the Township should examine the feasibility of increased communication with pipeline operators, particularly as related to new development proposals within proximity of transmission pipelines, and investigate measures to protect new land uses with high on-site populations. The Township should also continue to coordinate its activities with those of the County and State when and if new pipelines are proposed and application proceed through the permit review and construction phases.

SUN PIPE LINE COMPANY

Sun Pipe Line Company owns a 3" underground petroleum pipeline through Rockland and Longswamp Townships as depicted on the Public Utilities Map. The pipeline was constructed of welded steel in the early 1930s to transport petroleum products from Reading to Allentown. Fifty-foot-wide private right of way and easement agreements were purchased from the landowners whose property was crossed by the pipeline. The pipeline has been out of service for many years and has been cut out and removed in various locations. However, Sun still maintains the right of way and has no future plans to give this right of way up. Since the subject line is not active, the company selectively enforces the restrictions that enable preservation of the right-of-way.

FIRST ENERGY CORPORATION

First Energy Corporation has four overhead electrical transmission lines that pass through the Township. In addition they operate their Eastern Topton Electrical Substation on the north side of Furnace Street within the Borough of Topton. These Transmission lines within the Township are listed below:

Line Number	Voltage	Right-of-Way Width
872	69KV	60 ft.
873	69KV	60 ft.
877	69KV	60 ft
5009	500KV	200 ft.

XI. Transportation

Mobility has become one of the most sought-after qualities of life of this century. The widespread use and development of automobiles, trucks and their road networks have enabled motorists to travel independently with great flexibility as to origins and destinations.

Only recently, with increased congestion, has society begun to realize that the extensive use of the automobile may, in fact, be threatening both mobility and safety. This realization has led to efforts to better understand the relationship between transportation planning and land use planning, and has created renewed interest in alternative modes of transport.

This chapter will inventory the Township's transportation system, beginning by categorizing roadway functional classifications, as determined by the Berks County Planning Commission, describing roadway design standards, and presenting available traffic volume data and accident locations according to PADOT records. A brief discussion of regional traffic impacts is followed by a description of alternative modes of transport and railway access. All of this data is then analyzed and applied to the Township's development objectives and other available plan information to form the basis for the chapter's recommendations on future transportation needs, land use scenarios and implementation strategies. Such information should also be useful in reviewing traffic studies associated with proposed developments.

A. Roadway Classifications and Design Standards

Functional classification of roadways refers to a system by which roads are described in terms of their utility. Theoretically, roads provide for two separate functions. First, roads provide for mobility—the ability to go from one place to the next. Second, roads provide a measure of access to adjoining properties. Transportation experts use these two roadway characteristics to determine a road's functional classification.

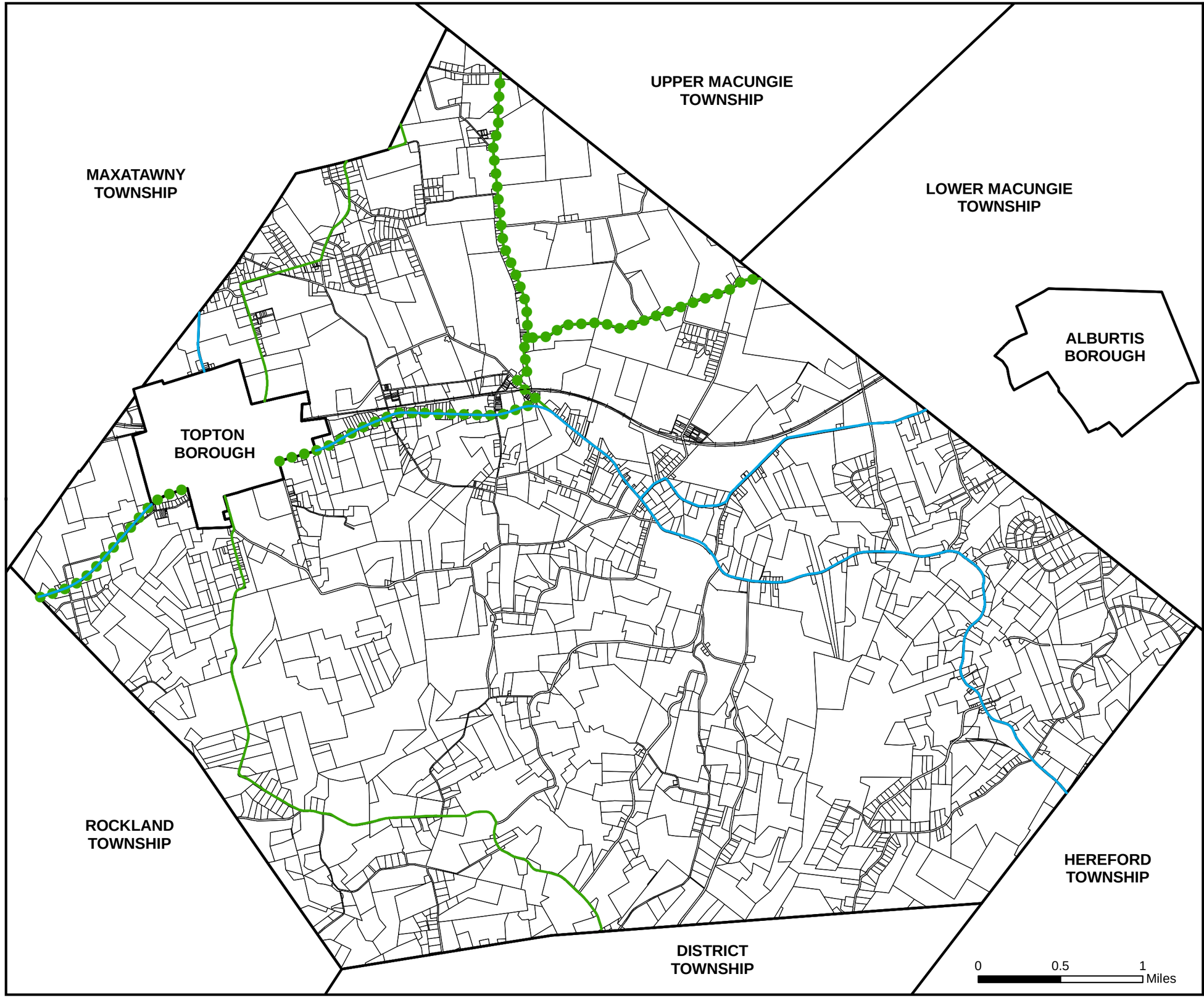
The diagram on the following page depicts the relationship between roadway mobility and roadway land access for each of the three general road types. Roads that provide for greater mobility provide for reduced land access, and vice versa. This important relationship should always be considered when allocating future land uses along existing or planned roads. The following diagram illustrates three road types: arterials, collectors and locals. These road types can be further subdivided into any number of different categories, depending upon the complexity of the roadway network. However, for the purpose of this study, the Township's roadway network can be described as consisting of arterials, major collectors, minor collectors, and local roads. The roads within the Township are classified and identified on the Transportation Map.

B. Arterials

Arterials are intended to provide for a greater degree of mobility than land access. Hence, individual driveway intersections with arterials should occur infrequently. Arterials generally convey between 10,000 and 25,000 average daily trips (ADT) for distances greater than one mile. Arterials often connect urban centers with outlying communities and employment or shopping centers. Consequently, arterials are often primary mass transit routes that connect with "downtown" areas of nearby communities.

Longswamp Township Comprehensive Plan

Transportation
Longswamp Township
Berks County



N
W E
S

Legend

- Rural Major Collector
- Rural Minor Collector
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Bike Route

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services, PennDOT (December 2012)

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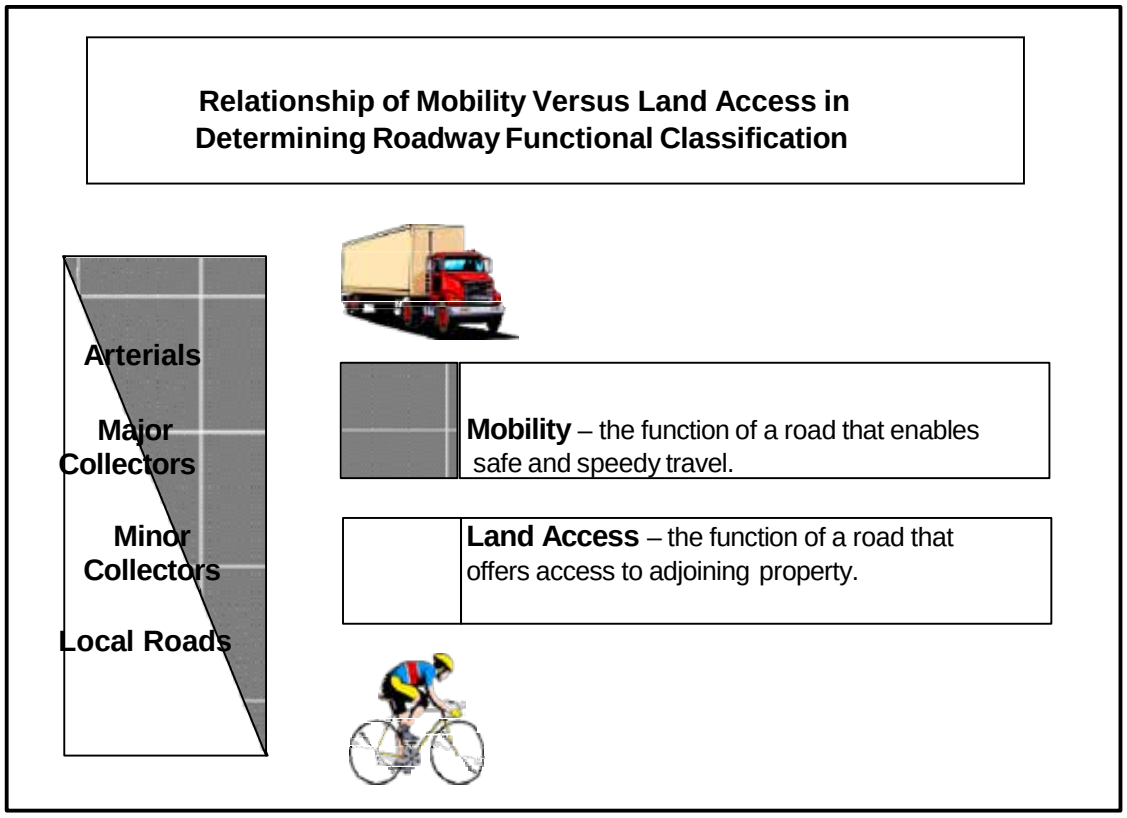

There are no arterials within the Township; however, it is conceivable that some of the Township's major collector roads could begin to encounter higher volumes of traffic that would suggest their reclassification during the life of this Plan. For this reason the following information is presented.

The following sets forth design standards associated with arterial roads:

ARTERIAL ROAD DESIGN STANDARDS						
Design Standards	No. of Lanes and Width	Shoulders and Width	Border Areas and Width	Median Width	Right-of-Way Width	Design Speed (mph)
Maximum	5 x 12 ft.	2 x 10 ft.	2 x 20 ft.	6 ft.	126 ft.	65
Minimum	2 x 11 ft.	2 x 8 ft.	2 x 2 ft.	—	42 ft.	40

MAJOR COLLECTORS

Major collectors provide for medium length travel distances (generally less than one mile) and convey between 1,500 and 10,000 ADT. Major collectors also provide land access to major land uses such as regional shopping centers, large industrial parks, major subdivisions, and community-wide schools and recreation facilities. Major collectors primarily serve motorists between local streets and community-wide activity centers or arterial roads.

The following sets forth design standards for major collector roads:

MAJOR COLLECTOR ROAD DESIGN STANDARDS					
Design Standards	No. of Lanes and Width	Shoulders and Width	Border Areas and Width	Right-of-Way Width	Design Speed (mph)
Maximum	2 x 12 ft.	2 x 10 ft.	2 x 20 ft.	84 ft.	50
Minimum	2 x 11 ft.	2 x 8 ft.	2 x 2 ft.	42 ft.	40

The following table summarizes the characteristics of the Township's major collector roadways:

MAJOR COLLECTOR ROADWAY CHARACTERISTICS						
Road Name	Route No.	Est. ADT (2015)	No. Lanes	Cartway Width	Shoulders L/R	MPH
West State Street	1010	2428-6734	2	28	4/4	40-55
Longswamp Road	1039	1532-2025	2	20	2/2	55
Main Street	1024	3730	2	19	2/2	35-40
State Street	1010	3557	2	28	4/4	40-55

MINOR COLLECTORS

Minor collectors provide for equal amounts of mobility and land access. These streets can serve as the main circulation roads within large residential neighborhoods. Trip lengths tend to be shorter in “developed” neighborhoods, like that of a borough, due to the presence of nearby destinations or higher order roads. However, within the rural areas of the Region these roads travel greater distances.

The following lists design standards for minor collector roads:

MINOR COLLECTOR ROAD DESIGN STANDARDS					
Design Standards	No. of Lanes and Width	Shoulders and Width	Border Areas and Width	Right-of-Way Width	Design Speed (mph)
Maximum	2 x 11 ft.	2 x 10 ft.	2 x 20 ft.	86 ft.	30
Minimum	2 x 10 ft.	2 x 4 ft.	2 x 2 ft.	32 ft.	30

The following table summarizes the characteristics of the Township's minor collector roadways:

MINOR COLLECTOR ROADWAY CHARACTERISTICS						
Road Name	Route No.	Est. ADT (2015)	No. Lanes	Cartway Width	Shoulders L/R	MPH
Old Topton Road	1031	2065	2	19	2/2	40
Mertztown Road	1037	833	2	19	2/2	30
Valley Road	1035	2192	2	19-21	4/4	40
Woodside Ave	1024	527-977	2	19	2/2	40

Many of the Township's collector roads are not constructed in compliance with minimum design standards. While travel lanes are usually within 1-4 feet of the recommended widths, the shoulders need widened between 8 and 12 feet. Most of these "major" roads within the Township are State Roads and therefore, would require improvement by PA DOT. Local officials should act collectively on behalf of the Township to get these deficiencies corrected over time. Certainly not all of these improvements will occur at the same time but the Township should "chip-away" at these needs as funding permits. Obviously roads with higher traffic volumes should be given priority status in this process. The following table prioritizes needed cartway and shoulder improvements to the Township's collector roads based upon reported average daily traffic volumes:

RECOMMENDED IMPROVEMENTS TO THE TOWNSHIP'S COLLECTORS				
Road Name	Route No.	Est. ADT (2015)	Needed Cartway Widening (ft.)	Needed Shoulder Widening L/R (ft.)
Major Collector Roads				
West State Street	1010	2428-6734	0	4/4
State Street	1010	3557	0	4/4
Main Street	1024	3730	3	6/6
Longswamp Road	1039	1532-2025	2	6/6
Minor Collector Roads				
Valley Road	1035	2192	1-3	4/4
Old Topton Road	1031	2065	1	2/2
Woodside Ave	1024	977	1	2/2
Mertztown Road	1037	833	1	2/2

LOCAL ROADS

Local roads are intended to provide immediate access to adjoining land uses. These roads are generally short and narrow, and comprise the bulk of road area within urban and suburban areas. Local roads are intended to only provide for transportation within a particular neighborhood, or to one of the other road types already described.

The following describes the design standards for local roads:

LOCAL ROAD DESIGN STANDARDS					
On-Street Parking	Cartway Width	Shoulders and Width	Border Areas and Width	Right-of-Way Width	Design Speed (mph)
None	18 ft.	2 x 4 ft.	2 x 4 ft.	34 ft.	20
Limited	22 ft.	2 x 4 ft.	2 x 4 ft.	38 ft.	20
Normal	24 – 26 ft.	2 x 4 ft.	2 x 4 ft.	40-42 ft.	20

All of the Township's roads that are not classified as collectors are considered local roads.

Longswamp Township must continue to upgrade its transportation system. Road improvements may be made at the Township level where appropriate. Minor improvements related to maintenance should be done on a continual basis. These tasks might include clearing right-of-ways and sight lines at intersections, cleaning stormwater drains, removing loose gravel, trimming unsafe trees, and repairing surface and shoulder problems.

Subsequent to the adoption of the Eastern Berks County Region Comprehensive Plan in 2004, the Township prepared a Transportation Capital Improvements Plan, in accordance with the requirements of Article V-A of the MPC. The Transportation Capital Improvements Plan included the following components, as required by law:

1. *A description of the existing roadways within the designated transportation service area.*

2. *Identification of the roadway improvements needed to correct existing deficiencies, support pass-through traffic, and accommodate the needs of future development traffic within the designated transportation service area.*

3. *The projected cost of each roadway improvement plan for the three conditions mentioned in item (2) above.*

4. *Source of funding and proposed construction schedule for each improvement project.*

Subsequent to the completion of the Transportation Capital Improvements Plan, the Township adopted a Traffic Impact Fee Ordinance (in 2007) to assess fees to developers to fund construction of eligible roadway improvements.

The Township should continue to identify where and when new roads or alignments must occur, and begin to acquire the necessary rights-of-way. Future road improvement locations may be identified on an Official Map. Township ordinances include standards for road design, installation, and maintenance. Provisions of the existing Subdivision and Land Development Ordinance in effect in the Township dictate that the Township not accept roads for dedication unless they meet the required standards. The Township has the authority to close a road and remove it from public access if it is unsafe. Sub-standard roads should be abandoned to avoid accidents and Township liability. The adequacy of the road network should be reviewed annually, which should lead to a periodic revision of the improvement Plan.

As important as road design is land use access. As discussed earlier in this Chapter, an effective conveyor of traffic cannot provide for unlimited land access. Each driveway or ***roadway intersection introduces conflicting traffic movements that reduce a road's ability to convey traffic quickly and safely.*** Therefore, new connections to the collector road system should be minimized to avoid unnecessary driveway and road cuts. Local officials must enforce strict policies that will minimize such connections to ensure efficient traffic flow. This process is a long-term strategy that will take many years and should start now! Zoning and subdivision/land development regulations can limit permitted driveway cuts, require wider lots, and provide for incentives and design flexibility that encourage adjoining properties to share vehicular access among other things (e.g., parking, loading, signage, stormwater control, etc.). For access on State roads, local officials should persuade PennDOT officials to limit highway access to the minimum required.

C. Regional Traffic Patterns

Analysis of the average daily traffic volumes for the Township's roads provides some insight into the Township's role as a destination or thoroughfare.

The Village of Mertztown is the primary destination within the Township. Traffic to-and-from this area, travel the State Street/Weiss Street East/Main Street corridor daily. Many vehicles travel to the east into adjoining Lehigh County and the more developed Hereford and Washington Townships. In addition many vehicles appear directed towards the US Route 222 corridor via Main Street North, Old Topton Road and Valley Road. Finally a large number of vehicles travel to the west into Rockland Township via Main Street/Bowers Road/Lyons Road/Pricetown Road, presumably towards the City of Reading.

D. Programmed Transportation Improvements

The Reading Area Transportation Study Coordinating Committee (RATS) is responsible for development of the County's Long Range Transportation Plan and its Transportation Improvement Programs (TIP). The most recent version of the TIP includes one project that will seek funding for completion within Longswamp Township.

Programmed/Planned Road Improvements Projects			
Road Name	Project Description	Begin date	Estimated Cost
Longswamp Township			
State Street (SR 1010)	Bridge rehabilitation/replacement over Swabia Creek (Widen narrow pavement or reconstruct bridge – no additional lanes)	2016	$874,000

E. Railroad Access

Presently the Pennsylvania Lines, LLC owns a rail freight line between the Cities of Reading and Allentown. This line is operated by Norfolk Southern which also allows Canadian Pacific trains to pass through the area. This is Norfolk Southern's main railroad line between Reading and Allentown. On either end it connects with other lines that serve even larger cities and areas. Consequently this line is heavily used with between 40 to 60 trains passing through the Region per day. The number of trains increases later in a typical week. Train length varies between 20 and 120 railroad cars. Goods conveyed include the widest variety of freight goods plus inter-modal truck trailers. As a result of this heavy use, Norfolk Southern fully supports any efforts to grade-separate this line from adjoining roads and sidewalks.

The Berks County Comprehensive Plan recognized the importance of rail freight service within the County and advocates its expansion as a means of reducing congestion and highway maintenance costs and improving safety. Within the Region it is expected that the current extensive use of these lines will continue indefinitely and even expand with the development of an intermodal transfer center in nearby Bethlehem. The Plan recommends the following action in support of rail freight:

1. *Municipal zoning of industrial sites should maximize use of rail facilities provided the location is consistent with other growth policies of the plan;*

2. *At-grade crossings on arterials and major collector highways should be eliminated and replaced with grade-separated structures. Structures carrying highways over rails should provide sufficient clearance for modern high-capacity rail cars; and,*

3. *Rail corridors abandoned by private operators should be acquired, when feasible, for their reuse at some later time as transportation corridors (highway, rail or pedestrian/bicycle trail).*

The Township should continue to review railroad crossings and, if warranted in the future, investigate alternatives to the existing at-grade crossings.

F. Pedestrian and Bicycle Access

Since most of the projected residential growth within the Region is to occur within Longswamp Township that will have relatively low rural densities, the use of sidewalks in most instances is impractical. However, the Township may have one or more areas for higher density housing if public/community sewer service is provided***. At that time, Township officials should consider requiring the use of sidewalks to connect with any adjoining higher-density neighborhoods or other activity uses (e.g., school, Borough, church, park, etc.).***

It may not be necessary to line both sides of every street with sidewalks, but some basic system that enables children to travel throughout the community would be a good gauge. Also, linear paths can replace sidewalks in built-up areas that are highly improved along the street. This approach will better integrate residents and reduce their automobile dependency. ***Finally, bus stops should be required at prominent development locations even if current transit service is not yet available.***

The *Bicycle and Pedestrian Transportation Plan for Berks County* identifies the Main Street/Weiss Street East/State Street/Longswamp Road corridor as an existing on-road bicycle route that extends from Fleetwood to the eastern County line. ***The Township should lobby the Berks County Planning Commission and PA DOT's Maintenance Manager to widen road shoulders to allow for a bicycle/pedestrian path along the cartway with proper striping of bike lanes. Should this action exceed the scope of a "maintenance task" then the Township should apply for the project under PA DOT's Betterment Program as part of the County's Transportation Improvement Program. This would create an inviting environment that would encourage use of alternatives to the automobile. Additional improvements that aid cyclists are bicycle-friendly drainage grates, and "Share the Road" signs.***

"Bicycle PA" is the movement to sign and designate multiple intrastate bicycle routes in Pennsylvania. The Bicycle PA effort was initiated by the Pennsylvania Pedal cycle and Pedestrian Advisory Committee (PPAC) and involves the development of six cross-state, "border-to-border" bicycle routes. The six Bicycle PA routes use public roads and some rail trails to guide bicyclists through the state. Each of the six routes has an appointed "route development coordinator" who is in charge of soliciting input from knowledgeable individuals and designing a good route for bicyclists. The routes are designed for competent road bicyclists who may undertake a long distance cycle touring trip. Not all Bicycle PA routes will have perfect shoulders or be entirely free of truck traffic.

Bicycle PA includes two routes that run through Berks County, the Route "L" southern east-west route, and Route "Y", the eastern North-south route. Route "Y" travels through the Eastern Berks County Region entering Longswamp Township via Main Street (SR 1010), Store Street, State Street, Valley Road (SR 1035), and Mertztown Road (SR 1935) before crossing into Lehigh County.

G. Mass Transit

Mass transportation services provided by either the public or private sector serves three essential functions:

1. It provides a means of transportation to those who cannot afford to purchase their own private vehicle.

2. It provides an alternate means of transportation to those who do have a choice.

3. It lowers the total number of vehicles using the highway system which reduces congestion, adverse effects on the environment, and decreases the pressure for highway expansion.

The principal provider of mass transportation services in Berks County is the Berks Area Regional Transportation Authority (BARTA). BARTA offers regularly-scheduled fixed-route bus service throughout Berks County. BARTA operates 22 routes within 34 municipalities reaching an estimated population of nearly 300,000 in Berks County. Presently, no such bus service extends into the Region. However, paratransit service is offered to the elderly and disabled throughout the entire County on an upon-request basis. BARTA periodically revises its routes to maximize ridership and coverage. As the Region grows, local officials may want to initiate bus service in and around Topton Borough, particularly if a large employer locates within the Region.

COMMUTER SERVICES

Commuter Services of Pennsylvania, a program of the nonprofit Susquehanna Regional Transportation Partnership, currently provides services in Berks County and eight additional counties in south-central Pennsylvania. The program, sponsored by the regional transportation planning agencies, transit authorities and chambers of commerce, offers transportation demand management strategies and assistance to employers and individuals for finding options other than driving alone to work. These can include public transportation, car or van pools, telecommuting, biking or walking. The program goal is to reduce the number of vehicle miles traveled and to increase the efficiency of the highway system by reducing congestion and improving air quality. Participation in the program is free and is funded by the Federal Highway Administration through PennDOT and regional planning agencies.

H. Berks County Transportation Improvement Program

Every two years the Reading Area Transportation Study Coordinating Committee (RATS) prepares its Transportation Improvement Program (TIP). The TIP is a prioritized list of transportation projects that require federal funding or non-federally funded projects of regional significance. The TIP lists projects for the following 4 years with projected costs and schedules for their completion. Inclusion of a project in the TIP represents a serious commitment to its implementation. The total cost of any TIP is limited by the amount of funds expected for the County and each project competes for inclusion. While project listing in the TIP is an important step, it does not guarantee funding, final scheduling or an implementation of the project. The TIP-listing represents a collective authorization by Berks County to seek funding for the project and a consensus among regional and State officials as a short-term priority.

Every other year, RATS solicits transportation projects from Berks County municipalities for consideration for the TIP. Standard forms are mailed-out for completion and return. Then RATS evaluates respective applications for their importance and consistency with the County's Long Range Transportation Plan. Projects are selected for inclusion on the current TIP. ***The Township should act in response to this process. It should establish a list of priority projects that are important within the Township and never miss the opportunity to submit this list.***

XII. FUTURE LAND USE

One element important to the comprehensive planning process is the charting of appropriate future land uses and growth areas. This effort embodies all of the background information collected regarding natural features, public facilities and utilities, existing land use, population studies, and traffic patterns. Then, these resources are allocated in a manner that responds to the Region's desires, as expressed in the Community Planning Goals in Chapter II. ***What results is a future land use map that should be used to adjust zoning boundaries, and help properly locate future municipal investments, so as to maximize their efficiency. This Chapter should be used in conjunction with the Future Land Use and Adjacent Planning Map.***

The preparation of the Future Land Use and Adjacent Planning Map was accomplished according to several "ground rules"; an understanding of these "ground rules" will lead to a better understanding of the Plan's recommendations.

First, this Plan is designed to address future conditions until the year 2030. Accordingly, future growth areas have been generally located and sized to accommodate the growth that is projected during this time frame based upon stalled growth and economic conditions. This results in a "staged" future land use scheme that (1) reduces the pressure to develop productive farmlands and sensitive natural features, (2) identifies target development areas with an understanding that public utilities are generally <u>not</u> available, (3) focuses infill development around existing settlements, and (4) enables natural resources and productive farmland to be preserved during the course of development through the use of conservation subdivision techniques in applicable zoning districts. ***The benefits of this approach are significant, but require that Longswamp Township commits to the Plan's updating on or before the year 2025.***

Second, a great deal of emphasis was placed on existing land uses in developed areas. In some limited cases, existing development types were recommended for changes to another land use category to enhance compatibility. In rare instances, existing uses were not reflected to portray a future vision for that locale toward which regulatory efforts can strive. Similarly, isolated land uses within the rural landscape are not identified unless they are large enough in scale to represent regional consequence. This helps to convey the Plan's overall approach towards targeted growth in designated growth areas and conservation of outlying natural features and farms. Furthermore, this document deals with future land use on a property-by-property basis. In rural settings individual home sites are not reflected as they are considered a part of the rural landscape. Overall, this emphasis on existing land use will keep the Plan practical and should make it more useful to local officials in their evaluation of future land use decisions.

Third, Longswamp Township understands only limited growth will be possible within the Township due to minimal infrastructure and the lack of public utilities. Also much of the previously designated future growth is located within close proximity of areas that have easements that would preclude their development. Accordingly, the Plan offers an approach called "Growing Greener: Conservation by Design" which is more fully described as part of the Rural Land Use category description.

A. Agriculture Preservation Zone

Throughout history, agriculture has played a primary role within Berks County, Pennsylvania and the Township; today, this is still true as evidenced in Chapter VII (Local Economy). As the Agricultural Soils Map contained within Chapter II (Natural and Cultural Features) of this Plan reveals, the Township contains a generous amount of prime agricultural soils and agricultural soils of statewide importance. However, many of these farm soils are scattered by steeply sloped woodlands that are also abundant within the Region.

The northern portion of Longswamp Township is underlain by limestone geology. This area has a characteristically flat landform with the most fertile soils of the Township and Region. It also contains the highest concentration of farms that are restricted by Agricultural Conservation Easements and are part of the Longswamp Township Agricultural Security Area. Although some parcelization and development has occurred here in the past, a suitable critical mass of this landscape is still devoted to agricultural use as depicted on the Existing Land Use found in Chapter VIII. These resources are being put to good use by the Region's farmers who have largely embraced the need to preserve their farms. However, some of these areas are also within close proximity of previously developed neighborhoods and nearby public utility service areas. For these reasons officials from Longswamp Township decided that the restrictive nature of effective agricultural zoning in portions of the limestone soils area would be unfair. Instead, Township officials decided to implement another approach in the Conservation and Rural zoning districts adjacent to the Agriculture Preservation Zone called "Growing Greener: Conservation by Design" or briefly "conservation subdivision design." This is more fully described within the Rural land use category description later in this Chapter.

In planning for agricultural land, the local officials from Longswamp Township have adopted a philosophy and policy not to consider agricultural land as "undeveloped farmland awaiting another use". Rather it is viewed as "developed land" that is being used to produce a valuable product. Farming is a land-intensive, manufacturing process that converts raw materials into a product, comparable to other industrial operations, with occasional accompanying impacts of noise, odor and dust. Therefore, this plan advocates a position that this agricultural area not be considered as a holding zone, but as a zone having a positive purpose of utilizing the Township's natural and non-renewable resources for the benefit of the entire community and beyond. This agricultural area should be protected by strict zoning regulations that prevent interference by incompatible uses which weaken the ability to conduct normal farming practices and introduce influences that erode its critical mass.

Traditionally, farming has involved the growing of crops for either sale off of the farm or for consumption by animals on the farm with the subsequent marketing of either meat or milk. Thus, the viability of the farming operation was very much tied to the productivity of the land.

Recent years have seen the advent of concentrated animal feeding operations (CAFOS). These involve the concentration of large numbers of cows, hogs or poultry on a single tract of land with the feed being bought off-site. Because the food these animals eat is often not grown on the tract of land where they are housed, very high animal concentration can be achieved. These highly concentrated operations often create acute odor impacts on neighboring residents. These odors can arise from the animals themselves, but more often from their waste products, both at the site where produced and where they are land-applied. Strict zoning regulations are needed to insure that these operations, should they come into the area, will not adversely affect their immediate neighbors, nor the community at large. However, the municipalities must keep their regulations consistent with the Pennsylvania Nutrient Management Laws.

UPPER MACUNGIE TOWNSHIP

MAXATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

DISTRICT TOWNSHIP

HEREFORD TOWNSHIP

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Longswamp Township Comprehensive Plan

Future Land Use and Adjacent Planning Longswamp Township Berks County

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries

N W E S

Future Land Use

- Rural
- Agriculture Preservation
- Conservation
- Commercial Recreation
- Highway Commercial
- Industrial
- Mobile Home Park

Overlay Districts

- Medical Residential Campus
- Sewage Management
- 1% Floodplains
- Historic

Adjacent Planning

- Conservation
- Agricultural
- Residential
- Commercial
- Industrial
- Institutional

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

Hanover Engineering Associates Inc

To manage these issues in Longswamp Township, it is recommended that effective Agriculture Preservation Zoning District regulations be applied to this area with the following components:

1. ***A deliberately worded purpose statement that cites the valid public purpose to protect and preserve prime agricultural soils and valuable farming operations in compliance with Section 604.(3) of the Municipalities Planning Code;***

2. ***A "hands-off" and "by-right" regulatory approach to farms conducting normal farming operations;***

3. ***Severely restricted development potential (ex. 1 lot for every 10 acres of lot area);***

4. ***A minimum lot area of 1 acre for residential and 4 acres for nonfarm uses, or the minimum needed for on-lot septic based upon environmental factors;***

5. ***Liberal accessory use regulations that specifically include farm occupations, roadside stands and other rural pursuits, provided that these uses have little impact and that adequate provision is made for the safe disposal of wastes;***

6. ***Separate provisions of concentrated animal feeding operations (CAFOs) that ensure proper siting, operation and disposal of wastes;***

7. ***Siting standards for future dwelling units proposed that locate homes so as to minimize conflict with Class I and II soils;***

8. ***An Agricultural Nuisance Disclaimer that informs prospective residents of potential impacts associated with normal farming practices that are protected under the PA Right to Farm Law.***

Although effective agricultural zoning can preserve farmlands in the short term, certain legal principles on accommodating growth can threaten their long-term integrity. Therefore, the Township should continue to support the County's Agricultural Conservation Easement Program and the Township's Agricultural Security Area programs. (See the Agricultural Preservation Map). Certainly, easement funds are limited and not all prime lands can be purchased immediately. Local officials should commit to the preservation of farmlands through zoning until easements can be purchased through this program.

Last, the areas within the Township's Agriculture Preservation Zones are mostly located within the exceptional value and high quality watersheds. Historically, intensive agricultural production has created surface water degradation due to erosion and the application of fertilizers. ***It is critical that deliberate actions be taken by local officials to prevent surface water degradation in these areas. Local officials should employ a variety of techniques that encourage farmers to install riparian buffers along the creek and its tributaries.***

Unfortunately, some farmers have little interest in installing riparian buffers as they reduce land available for crops and pasturing and it requires funding, which some farmers may not have available. Furthermore, ongoing farming operations have little need for zoning approvals and change; therefore, local municipalities have little leverage to require their installation and use. Nonetheless, these areas are often the most critical in determining local surface water quality. ***The Township should review its existing Riparian Buffer Ordinance for any needed***

revisions. Then compliance should be required whenever a zoning permit and/or land development approval is needed. Required Natural Resource Conservation Service (NRCS) Conservation Plans should also be required to include riparian buffers. Farmers should also be educated about the Federal Conservation Resource Enhancement Program (CREP) and income tax deductions that are made available to property owners who place conservation easements upon their properties for riparian buffers. Local watershed groups should target important farms that can offer the best improvement to surface water quality. These sites should become local priorities for fund-raising and actual riparian buffer construction.

In addition, all farms must always conduct their operations in compliance with approved Conservation and Nutrient Management Plans, as applicable. Local officials and staff should quickly notify the Berks County Conservation District of suspected violations.

B. Conservation Zone

The Eastern Berks County Region is blessed with greater natural diversity in its landscape than the rest of Berks County. Much of this landscape takes the form of rocky and wooded hillsides and ridges that are difficult to develop yet offer protection of surface water quality. At the same time these areas present significant natural habitats and passive recreation opportunities. Other lower-lying areas contain valuable wetlands and sensitive floodplains; these areas, too, hold the same value. It is not surprising that protection of these resources is foremost in the minds of many local officials and residents.

Longswamp Township shares in these critical areas. Current case law suggests the limitation of residential development within these areas at one (1) dwelling unit per each three (3) acres. This precedent is based upon a case in which a municipality sought to impose a minimum lot size greater than 3 acres that was successfully challenged. The Court decided that requiring such a large lot size was exclusionary because it elevated the cost of building lots to a point where many would-be residents could not afford them.

On the other hand, recent amendments to the Municipalities Planning Code emphasize the need for local governments to strengthen their protection of natural features. By applying a ratio form of zoning density (like that in agricultural zoning) where a lot is permitted based upon a prescribed number of acres, the number of new units allowed can be kept low to protect the overall setting while at the same time keeping the cost of lot ownership reasonable. This approach has the added benefit of reducing the impacts to the natural areas by confining disturbance and clustering development in a smaller area. This enables the "critical mass" of woodlands and habitats to remain intact while not depriving prospective landowners of "reasonable use" of their land.

It is unknown if the legal system will support as restrictive an approach in a conservation setting, as it has in an agricultural context. However, Eastern Berks County's wealth and concentration of important natural features would seem to provide the strongest argument for such an approach. Similarly, its local officials understand and are committed to the need to protect these areas in their natural state. For this reason, the Township has applied this approach in its Conservation Zoning District, through Conservation Subdivision Design requirements, which was added to the Zoning Ordinance in 2006. The Zoning Ordinance provisions currently in place should enable the development of detached homes at an average density of one dwelling unit per each four (4) acres, with options for increased density with a larger percentage of greenway and open space being provided.

Longswamp Township Comprehensive Plan

Agricultural Preservation
Longswamp Township
Berks County

UPPER MACUNGIE TOWNSHIP

MAXATAWNY TOWNSHIP

LOWER MACUNGIE TOWNSHIP

ALBURTIS BOROUGH

TOPTON BOROUGH

ROCKLAND TOWNSHIP

HEREFORD TOWNSHIP

DISTRICT TOWNSHIP

Legend

- Collector Roads
- Railroads
- Municipal Boundaries
- Parcel Boundaries
- Agricultural Conservation Easements
- Agricultural Security Area Easements
- County Conservation Easements
- Clean and Green

October 27, 2015

Source: Berks County Planning Commission, Berks County GIS, Berks County Mapping, Berks County Department of Emergency Services

0 0.5 1 Miles

Hanover Engineering Associates Inc

The minimum lot size in the Conservation Zoning District is four (4) acres. However, the (recommended) Conservation Subdivision Design approach provides a certain amount of design flexibility in this Zoning District. Lot sizes utilizing the Conservation Subdivision Design approach need be only one acre in size when on-lot disposal are utilized (subject to PA DEP approval) and 12,000 square feet if public or community water and sewer is provided. ***In the Conservation Zone, lot width and setback requirements should be kept reasonable so that homes can be situated amid the rugged terrain without the need for variances. In addition, the use of flag lots and shared driveways can help to tuck small clusters of homes amid the "nooks and crannies" of a natural landscape thereby enabling the preservation of vast and/or inter-connected areas elsewhere on the same parcel.***

The locations of various conservation features have been depicted on the Natural Features Map contained within Chapter III of this Plan. Similarly, the Soils and Geology Map (within Chapter III) depicts soils with severe development constraints for buildings and on-lot sewers. All of these features form the basis for the assignment of the Conservation Zone. In addition, they offer some general perspective on the presence of conditions with a given locale. However, the specific location and extent of these features will require more detailed refinement and analysis during preliminary plan review of the subdivision process. The applicant is required to identify important natural features on the site and keep proposed development activities away or manage impacts within acceptable levels.

Within Longswamp Township, local officials have adopted "Growing Greener" Conservation Subdivision Design standards, which require more rigorous design and review procedures. Specifically, developers are required to subtract important natural resources from density calculations and design compact neighborhoods around greenways and open space. (This approach is described further under the Rural Zone later in this Chapter). This approach requires greater involvement and expertise from local officials in the review of prospective development plans. ***As turnover occurs on the various review boards, the elected officials should seek replacements that have greater environmental awareness and commitment than in the past.***

A recent amendment to the MPC requires that forestry uses be permitted by right within every zone of every municipality within the Commonwealth. Since forestry uses typically occur within conservation settings this discussion is presented here. At about the same time the MPC was amended, the Pennsylvania State Township Association of Supervisors (PSATS), Pennsylvania State University (PSU) and PA Department of Conservation and Natural Resources (PA DCNR) prepared a model ordinance to help regulate and monitor forestry operations. Amendments to the Township Zoning Ordinance in 2006 added forestry operations as a permitted use in all zoning districts. In addition, the Township has adopted a Timber Harvesting Ordinance that addresses requirements related to forestry/timbering operations.

In addition to the Conservation areas depicted on the Future Land Use and Adjacent Planning Map, FEMA Floodplains and USDI Wetlands are shown on the Floodplains, Wetlands, and Drainage Basins Map and should be taken into consideration when reviewing development plans. While protection of floodplains and wetlands are widely accepted land use management techniques, recent awareness of diminishing surface water quality suggests the need for more protection for surface water. Since most of the Region contains State-designated "High-Quality" or "Exceptional Value" watersheds, this is an important local topic.

Studies conducted by the U.S. Forest Service demonstrate that 60-to-95-foot wide riparian buffers offer real advantages in the removal of harmful nutrients and sediment from stormwater before it enters the stream. These same riparian buffers can increase the food supply and create interconnected natural systems of movement for local wildlife. Riparian buffers are areas adjoining streams where naturally successive vegetation is provided and protected. Longswamp Township adopted a Riparian Buffer Conservation Ordinance in 2008, which applies to every identified watercourse in the Township.

The current zoning regulations for the Conservation Zoning District permit the use of home occupations and accessory businesses to offer close-to-home employment. Home occupations are generally confined to uses that can be adequately conducted from within the dwelling unit itself with limited non-resident employees. Rural occupations expand on the home occupation concept and enable other more intensive uses that can make efficient use of rural outbuildings and outdoor storage. Here impacts of noise, light, dust, hours, screening and odor should be scrutinized prior to approval to ensure that adjoining properties are not adversely affected. Farm occupations are confined to larger farms and can be conducted in barns and other outbuildings. Here, local residents from the site and its neighborhood can engage in non-farm activities provided the impacts are contained upon the site and the operator continues to farm. In all cases (home, rural and farm occupations), the applicant should demonstrate safe means of waste disposal that does not threaten the environment. Rural and farm occupations are typically administered by special exception or conditional use to ensure a proper scale and orientation of the use.

After adoption of this Plan, it is recommended that provisions of the existing Zoning and Subdivision and Land Development Ordinances be reviewed relative to the following components:

1. ***Flexible lot design standards that enable new homes to tuck into the "nooks and crannies" of the rugged terrain;***

2. ***Provision for flag lots to facilitate efficient lotting and access, if approved by the Township based on established criteria set forth in the Township Subdivision and Land Development Ordinance;***

3. ***Requirements for a domestic well prior to establishment of new homes;***

4. ***Separate provisions of concentrated animal feeding operations (CAFOs) that ensure proper siting, operation and disposal of wastes;***

5. ***Siting standards for future dwelling units proposed that protect sunlight easements/equipment turning radii onto adjoining farms and locate homes so as to minimize land use conflict; and,***

6. ***An Agricultural Nuisance Disclaimer that informs prospective residents of potential impacts associated with normal farming practices that are protected under the PA Right to Farm Law.***

C. Rural Zone

At the time of writing of the original Eastern Berks County Regional Comprehensive Plan, Longswamp Township was in the midst of updating its Official Sewage Facilities Plan, based on providing public sewer to certain areas of the Township. The current update to the Official Sewage Facilities Plan currently being undertaken by the Township now reflects the Township's inability to provide for public sewer options and its success in mitigating past sewer concerns. Growth is still possible, but relies on existing sewer service and on-lot capabilities.

Also, this area of the Township contains active farms that are subject to agricultural preservation easements adjoining properties where landowners have expressed little interest in continued farming. In short, local officials view this area as potentially undergoing change from farming to limited residential development. Rather than succumb to the usual suburban development styles so prevalent within the County and Central Pennsylvania, local officials from Longswamp Township have applied a different approach. To reconcile these conflicting uses, local officials have blended characteristics from both land use categories and applied rigorous design standards and development review procedures in an attempt to maximize compatibility through the use of Growing Greener: Conservation by Design subdivision techniques.

In the Rural Zone, as well as the Conservation Zone permitted densities in Longswamp Township are determined by multiple *Growing Greener* options, ranging from 1 DU/10 acres to densities less than 1 DU/acre in areas able to be served by community sewer service. Within this density range, the base density is 1 DU/4 acres. At this density at least half the buildable land on a development site would be conserved in natural and formal open space in the form of greenways, farmland, parks, buffering and neighborhood greens. The higher densities would create even more open space.

GROWING GREENER: CONSERVATION BY DESIGN

Growing Greener: Conservation by Design is a conservation planning program designed to help local officials manage growth in a manner that uses the development process to their advantage, by adding land to a community-wide network of open space, each time a property is developed. Using this "Conservation Subdivision Design" approach, a developer can build the maximum number of homes permitted under zoning, but in a less land consumptive manner. Conservation design rearranges the density on each development parcel as it is being planned, so that only half (or less) of the buildable land is consumed by houses, lawns and streets. By permitting development using conservation-based tools, a community can protect its most valued natural resources and special places, while still accommodating full-density growth.

To implement conservation design, zoning and subdivision ordinances are overhauled to focus not only on development-related issues (such as lot dimensions, street geometry, stormwater management, etc.), but to place equal emphasis on conserving a variety of environmental, cultural, historic, and scenic features. It is precisely those features that typically give a community its special character.

Longswamp Township has made the decision to use *Growing Greener* concepts as its primary form of growth management. To manage growth in this way most effectively, the Township has documented its natural and cultural resources on a *Primary Conservation Areas Map*, which provides an overview of environmental features, recreation and open space, and agricultural conservation easements. In addition, Longswamp Township has begun the review of

community-wide open space and possible greenway networks. In addition to general conservation areas, Longswamp Township has analyzed steep slopes and wetland features as key components to its conservation goals. Finally, judgments have been made as to which of the potentially buildable lands should be conserved.

A *Map of Potential Conservation Lands* provides an overview of the Township-wide network, but the details have to be worked out as development (or acquisition) occurs. This is accomplished by requiring the developer to provide a detailed *Existing Resources and Site Analysis Plan* early in the review process. This plan would reflect a thorough understanding of the site, so that even the location of large trees or unusual geologic formations could be identified. It tells reviewers virtually everything they need to know about the property to make informed conservation and development decisions. As the most important document in the subdivision design process, it provides the factual foundation upon which all design decisions are based.

When local land use regulations require developers to design around special natural and cultural features, developers can become the Township's greatest conservationists, at no cost to the community and with no loss of profit to the developer. ***To achieve this, Longswamp Township has undertaken aggressive changes to its Zoning Ordinance and Subdivision and Land Development Ordinance, as well as establishing a unique subdivision procedure in the Township.***

Revisions to the Zoning Ordinance are based on a multi-optioned approach relating density to the provision of open space, offering a range of density incentives to encourage greater open space and density *dis*incentives to discourage lesser open space. In addition, the Zoning Ordinance is more flexible to accommodate development in patterns that preserve natural resources. Both the Zoning and Subdivision Ordinances are further revised to include significant locational and design standards for open space.

A "menu" of density options gives the developer a choice of several approaches toward any particular parcel of land. The *Growing Greener* model ordinance offers five choices, but a municipality may choose to apply only two or three. The first option is "density neutral", with density equal to the "base density" in any given zoning district. In other words, the developer would get the same number of permitted units as under conventional development. This option requires open space to total 50% of the buildable land plus constrained land. Two other zoning options would permit a greater number of lots in exchange for more open space. And two further options would permit development with no open space, but at much reduced densities.

Longswamp Township has developed two zones using *Growing Greener* concepts: a "Conservation District" and a "Rural District." Both districts permit a base density of one (1) dwelling unit per four (4) net acres.

A higher density option (with more open space) is also available. Conditional Use options are also available for a hamlet development and a village development with a density of one (1) dwelling unit per one (1) acre and four (4) dwelling units per one (1) acre, respectively.

Despite Longswamp Township's proximity to Topton Borough, it is critical that other municipalities in the Eastern Berks County Region provide their fair share of growth.

D. Mobile Home Parks Zone

The Eastern Berks County Region has a ratio of mobile homes more than three times the County-wide average. In Longswamp Township more than 1 in 5 dwelling units is a mobile home. For these reasons, the Township believes that it has already met its fair-share burden to provide for mobile homes within its several mobile home parks. Therefore, future mobile home park development will be limited to expansion of existing parks within the Township. Nonetheless, this Zone provides for the Township's mobile home housing stock and is critical to the Township providing for its fair-share of this legally-protected form of housing.

Mobile home parks have unique settings that do not mesh with regulations imposed upon their surroundings. Therefore, occupants of these parks must often apply to the Zoning Hearing Board to undertake minor expansions and adaptations of their homes. This imposes unnecessary bureaucracy and costs upon low-to-moderate income residents who can least afford the hearing and legal representation expenses. To overcome this problem, as part of a comprehensive update of its Zoning Ordinance in 2006, Longswamp Township created a Mobile Home Park District. The stated purpose of the District is ***"… to provide standards for the harmonious development of one, two, and multiple family housing units, mobile home parks, and other uses which are compatible with high density housing."*** The new District encompasses the two existing mobile home parks in the Township. The establishment of this District will enhance the compatibility within the other adjoining zones by eliminating mobile home parks as a potential use within these unsuspecting neighborhoods.

E. Commercial Zones (Highway and Recreation)

Within Longswamp Township, there are two distinct patterns of planned commerce. The first, **Highway Commercial Zone**, provides for larger and more intensive commerce along the Township's major highway. The second, **Commercial Recreation Zone** reflects the existing ski-resort located within Longswamp Township with its unique needs. The following details recommendations for each of these separate areas.

HIGHWAY COMMERCIAL ZONE

A Highway Commercial Zone is planned in the Village of Mertztown along State Street in Longswamp Township. This principal location acknowledges an existing land use pattern in this area plus adjoining access to the Township's most-heavily traveled transportation corridor. This zone is intended to accommodate a wide range of commerce and businesses that are too large or intensive to adapt to a "downtown" setting (like Topton). Vehicle-related sales and services, which often involve outdoor storage that presents impacts too great to integrate within a tight streetscape would also be permitted in the zone.

The area has been sized and configured to allow for coordinated developments and shopping centers that share access drives, off-street parking and loading, signs and stormwater management facilities. Since many of the uses already in place have developed without these shared features, it will take time for this site coordination to spread throughout the area. ***Longswamp Township should develop suitable commercial zoning regulations that require and/or strongly encourage shared development features.*** This can be done by limiting access drive locations, waiving setbacks for shared features, providing lot coverage bonuses and other design incentives for shared features, and generally communicating to prospective developers the Township's desire for these

coordinated designs. ***Longswamp Township should incorporate these zoning requirements, then continuously advocate coordinated designs in the coming years as existing businesses seek to change and new ones emerge.***

To optimally regulate this area, the Highway Commercial Zone should include the shared design features listed above to help to beautify the corridor and reduce visual clutter. Beyond these shared features, other contemporary design features should also be used.

First, the use of front yard landscape strips should be required along the road. These strips will help to define road/site travel lanes and soften the appearance of the roadside and offer shade for pedestrians. ***A minimum 10-foot wide landscape strip should be required, along with ornamental shade trees and sidewalks.***

Off-street loading spaces and outdoor storage areas (exclusive of outdoor sales) should be screened from the roads and adjoining properties.

Sign standards should reflect the vehicle-oriented customers of the area, but should produce signs that are informative without being loud and obtrusive. It is important that signs be large enough so that motorists can easily read them at prevailing speed limits. The number of signs should be limited so that they do not compete for driver's attention, and the use of coordinated signage is encouraged.

On-site lighting of buildings and surrounding areas should employ hooded or screened fixtures that confine glare to the site, and security lighting should be directed toward the building, rather than the area around it. Lighting levels should be established to enable the detection of suspicious movement, rather than the recognition of definitive detail.

Public address systems used in external areas should be designed to keep audible impact at ambient levels.

Again, since many of the Township's commercial uses already exist without these features, their provision will take time and patience. Nonetheless, the Zoning Ordinance should require these features of all uses. This will make the existing uses nonconforming, and allow local officials to negotiate with existing business owners for these features as existing uses grow and adapt.

It is noted that a large number of scattered highway-oriented businesses exist throughout Longswamp Township. The absence of these uses within the planned Highway Commercial Zone reflects a vision of the future for the Region where such uses are confined to areas served by public utilities and services. Some of these scattered businesses could be permitted within their respective Zones (e.g. Conservation, Rural and Agriculture Preservation) as they would be logical uses within those contexts. For example, a country inn or bed and breakfast is an appropriate use within the Conservation, Rural and Agriculture Preservation Zones. Similarly, a horse riding club or riding stable can also be justified within an Agriculture Preservation Zone. Conversely, many of those uses are not consistent with Conservation, Rural or Agriculture Preservation settings unless they are limited in scale as accessory occupations (home, rural and farm occupations). In such cases these uses should be regulated as nonconforming uses by the Zoning Ordinance.

Finally, this Zone provides for the bulk of the Township's planned commercial growth and is critical to the Township providing for its fair-share of growth and development.

COMMERCIAL RECREATION ZONE

The Bear Creek Ski Resort is located in Longswamp Township. This 250+-acre site presents unique regulatory issues that should be managed specifically given the site's location amid a high-quality watershed, an important local habitat, floodplains, wetlands and soils with severe development and on-lot sewer constraints. While the existing use must be accommodated, Longswamp Township should engage a special exception or conditional use review procedure for various acceptable uses, and apply specific criteria to the proposed use to ensure that the:

1. proposed uses and improvements are properly located in relation to the site's important natural features;

2. proposed activities are conducted in a manner that presents minimal impact on the site's natural features and its rural context; and,

3. the preceding reviews associated with expansion/conversion activities do not impose a review procedure so burdensome as to jeopardize continued operations and use of the site.

Many times this type of use requires a two-step approval process where detailed special exception or conditional use scrutiny is applied to an applicant's concept plan. The concept plan outlines the proposed uses of the site and a disturbance envelope on the site. Specific impact reports e.g. noise, light, traffic, water demands, waste disposal and etc.) are required and expert testimony of operational procedures are officially presented on the legal record. Once these overall impacts are determined and adequately managed to the satisfaction of the municipality, the concept plan is approved. Then subsequent alterations on the site that conform to the concept plan can be authorized, by right, subject to needed land development approvals. This enables this type of use to make periodic on-site adjustments without the need to re-initialize the lengthy and public special exception or conditional use review procedure.

As part of a comprehensive update of its Zoning Ordinance in 2006, Longswamp Township created a Commercial Recreation District. The stated purpose of the District is ***"… to provide a location in the Township for Commercial Recreational uses, with their accessory uses, that are compatible with the physical characteristics of the land within the District."*** The new District encompasses the land holdings of the Bear Creek Ski Resort.

F. Industrial Zone

Topton Borough and Longswamp Township are generally considered to be the Region's planned industrial growth areas. Within the Borough industry is planned on the north sides of the railroad tracks. Within Longswamp Township industry is located around the Village of Mertztown also north of the railroad tracks and will extend between Chestnut Street and the railroad line reflecting a concentration of industrial and commercial uses related to auto and truck service.

Within the Township and Region older industries often lack contemporary site designs, include outdoor storage, and lack screening and buffering. ***Local officials should strive to encourage the retrofitting of these amenities as uses expand, change or improve. Most particularly, industries abutting existing or planned residential areas should be fitted with sight-tight fences and/or landscape screens to enhance compatibility. This process will be slow and will require patient persistence; however, now is the time to start!***

New uses proposed amid these older, industrial enclaves should be held to a higher standard of site design, and suitable zoning regulations should be adopted. This will, undoubtedly, make many features of the existing industries nonconforming; however, the nonconforming use provisions of zoning ordinances are intended to effect desired change over time. Furthermore, if new uses are proposed, they should be encouraged to cooperate with their neighboring uses (where practical) in the sharing of vehicular access, off-street parking and loading, signage and stormwater management. ***Local officials should seize every opportunity to upgrade these older industrial sites when confronted with some prospective change.***
The Industrial Zone is suitable for a wide range of industrial activities that contribute to the well-being of the Region by diversifying its economy and providing valuable employment opportunities. ***Zoning should allow for small, start-up business and light industry as permitted uses. However, more intensive uses (listed below) should require the obtainment of a Special Exception or Conditional Use:***

1. Billboards;
2. Truck or motor freight terminals;
3. Junkyards;
4. Quarries and mines;
5. Sawmills;
6. Slaughtering, processing, rendering, and packaging operations;
7. Solid waste disposal, and processing facilities; and,
8. Any other industrial activity that presents adverse impact to surrounding areas.

By requiring a Special Exception or Conditional Use review, Township officials realize the following benefits:

1. require the developer to fully explain the nature of the proposed uses;
2. give local citizens the opportunity to express support or concern over the use;
3. apply specific criteria aimed at minimizing adverse impact to the community and adjoining properties;
4. provide the Township time to engage professional review assistance of the use and its expected impacts; and,
5. allow local officials to attach reasonable conditions of approval to mitigate any negative effects of the use.

Regulations should also limit the number of driveway cuts and freestanding signs, and manage outdoor storage, off-street loading and parking. ***Design standards should encourage functional, yet attractive, sites when viewed from adjoining properties and roads. This involves required landscaping, screening and buffering, and dumpster storage standards.***

Additionally, prospective industries should demonstrate compliance with all applicable Federal and State operations standards. The Township should adopt noise and lighting standards that will ensure compatibility from one site to the next.

Finally, this Zone provides for the Township's planned industrial growth and is critical to the Township providing for its fair-share of growth and development.

G. Public / Institutional

As reported in Chapter VIII (Existing Land Use) the Township's public and nonprofit uses comprise 124 acres, or about one percent of the total land area. The Topton Borough watershed area is located within Longswamp Township along the east side of Woodside Avenue. The Hunsicker Picnic Grove is located along Longswamp Road. The Topton Fish and Game site is located on the south side of State Street between Topton Borough and the Village of Mertztown.

In addition to these open grounds, this category includes all of the properties owned and operated by the Brandywine Heights Area School District and the properties owned by the Township, including the Township Park, the Municipal Office Complex and the Public Works Maintenance Facility.

One of the most important land uses within this category is the Lutheran Home located just south of Topton Borough in Longswamp Township. This 400 acre campus offers a wide range of residential and nursing-care facilities and services for the elderly. These range from independent cottages and apartments through skilled nursing care and secure dementia care settings. In addition the site provides for commercial, service and recreational conveniences to its residents on the campus. It is also the location of the Brandywine Area Community Library. In 2010, the Longswamp Township Zoning Ordinance was amended to create a Medical Residential Campus Overlay District. The Medical Residential Campus Overlay District includes provisions for ***"… large campus-scale facilities which have a primary purpose of providing housing, continuing care and related services for people over the age of fifty-five …"*** The new Overlay District encompasses the land holdings of the Lutheran Home.

Finally this category reflects many numerous governmental uses, post offices, public utilities, parks, communication towers, churches, cemeteries, and rectories.

Given these uses integration within the various settings of the Township, it is recommended that they be specifically permitted in their respective zones as depicted on the Future Land Use and Adjacent Planning Map.

XIII. Implementation

A. Legal Requirements

The development of this Plan has been an ambitious and educational process. Goals have been deliberately set high and many specific recommendations have been made. But this is just the beginning. The Plan outlines a grand strategy, but action and dogged determination will be necessary if the Plan's goals are to be achieved. This final Chapter will provide a list of tasks that must be undertaken to optimally determine Longswamp Township's future.

B. Schedule of Specific Recommendations

The following specific action tasks have been identified with bold italicized print throughout this Plan. The task along with its responsible parties, suggested time frame and a reference where further discussion can be found within the Plan are provided in the following schedule. These tasks should form the basis for Plan implementation and can be used as an agenda of action by local officials over the life of the Plan. It is important for all persons involved and/or interested in the future of the Township to read and understand this Plan. Local decision-makers should keep the Plan handy when evaluating future development proposals, service adjustments or public investments.

Recommended task:	Responsible Parties	Time-frame	Plan reference (Page #)
Recommendations related to the Protection of Natural and Cultural Features (Chapter III)			
1. Public water supply wells should be located in the vicinity of carbonate formations to take advantage of the abundant groundwater supplies. However, such sources should be routinely monitored and treated as necessary due to the vulnerability of this groundwater from contamination via the widespread solution channels.	Township	Ongoing	9-10
2. Implement a well-head protection plan for public water supplies.	Township	Short-term & ongoing	10
3. All known public wellhead protection areas be reserved for low intensity uses with limited permitted lot coverages and woodland preservation requirements that will reduce potential impact on groundwater volumes and quality. Wellhead protection areas should be delineated by a professional geologist or the Township's municipal engineer	Township	Short-term & ongoing	10-13
4. All home-based businesses or rural occupations located within known well-head protection areas should require the applicant for such uses to demonstrate the means by which he/she will properly handle materials, and dispose of any wastes, that could threaten groundwater contamination.	Township	Short-term & ongoing	12

Recommended task:	Responsible Parties	Time-frame	Plan reference (Page #)
5. It is recommended that "Best Management Practices" (BMPs) for the control of stormwater be applied through Ordinance updates as applicable.	Township	Short-term & ongoing	19-21
6. Local officials should emphasize the preservation of prime farmlands and active farms in the design of new developments.	Township	Short-term & ongoing	14
7. Proposed developments should avoid soils with severe development constraints as regulated by local zoning and subdivision and land development ordinances.	Township	Short-term & ongoing	14-15
8. Local officials should take active steps to preserve and protect State-designated high-quality and exceptional value watersheds from the ills of inappropriate land use and local activities that could threaten their integrity.	Township	Short-term & ongoing	16-18
9. Local officials should develop a public/private partnership to protect stream water quality using a combination of educational, assistance and regulatory measures.	Township	Short-term & ongoing	17
10. Township officials should consider the adoption of various measures to protect the Township's wetlands, including modified road maintenance standards, an environmental impact assessment (EIA) requirement in the SALDO, land use and development limitations, and a homeowner educational program.	Township	Short-term & ongoing	18-19
11. Require an Environmental Impact Assessment prior to any subdivision approval within identified natural habitat areas.	Township	Short-term & ongoing	19
12. Adoption of woodland preservation requirements.	Township	Short-term & ongoing	23-24
13. Gauge public support for voluntary historic preservation techniques.	Township	Long-term	26-27
Recommendations related to Demographics (Chapter IV)			
14. Provide for a target mix of housing types to offer greater housing diversity within the Township.	Township	Short-term & ongoing	35
Recommendations related to the Delivery of Public Facilities (Chapter V)			
15. Closely monitor growth within the Township and the Region so as to proactively plan for facility expansion well in advance of actual demand for space.	School District	Short-term & ongoing	39
16. Maintain the Township Public Safety Committee (PSC)	Township	Ongoing	41
17. Enhance sources of daytime volunteer firefighters.	Responsible Providers	Short-term	41, 43-44

Recommended task:	Responsible Parties	Time-frame	Plan reference (Page #)
18. Formalize program of specialized training throughout the Region.	Responsible Providers	Short-term	43
19. Mount an educational and media campaign to cultivate awareness among the newly-arrived residents of the need for their financial and manpower support to sustain volunteer firefighting and ambulance services.	Township	Ongoing	43
20. Apply to the PA DCED for the preparation of a technical review, as part of its Shared Municipal Service Program, at no cost to the Township to examine the adequacy of the Township Service Providers' equipment to provide adequate service.	Township	Short-term	44
21. Explore the partial and gradual use of "other" funding mechanisms.	Local fire and ambulance companies and local officials.	Long-term	43-44
22. Provide detailed geographic information system (GIS) mapping to each emergency service provider.	Berks County	Ongoing	44
23. Install dry hydrants in areas of the Township as needed.	Local fire companies and Township	Long-term	44
Recommendations related to Parks and Recreation (Chapter VI)			
24. Continue to add improvements to parks to offer a wider range of activities and programs.	Township & School District	Ongoing	52
25. Educate landowners and developers of the importance of riparian buffers, and the Township's intent to provide for them.	Township /EAC	Short-term & ongoing	54
26. Mount a campaign to inform local landowners who abut creeks of the Conservation Reserve Enhancement Program (CREP).	Township /EAC	Short-term	54-55
27. Energize Region's youth to develop pilot riparian buffers at visible locations.	Township & EAC & School District	Ongoing	55
28. Amend mandatory dedication standards in current SALDO in-line with updated demographics and land values.	Township	Short-term & ongoing	55-56
29. Apply revenues/parklands acquired from mandatory dedication throughout the Township.	Rec & Parks Committee	Ongoing	56
Recommendations related to the Local Economy (Chapter VII)			
30. Rural occupations and small-scale industries should be permitted to allow for local employment so long as such activities do not interfere with nearby homes. Potential businesses should be limited to ones that pose no threat to local water quality by reason of waste disposal or the applicant must demonstrate adequate means for proper waste disposal to avoid water pollution.	Township	Ongoing	60, 62

Recommended task:	Responsible Parties	Time-frame	Plan reference (Page #)
31. Productive farmlands should be protected with effective zoning.	Township	Short-term	14, 59, 62
32. Strengthen regulations for Concentrated Animal Feeding Operations (CAFOs).	Township	Short-term	62
33. Offer limited local commercial nodes in outlying rural areas with restrictive design features.	Township	Short-term	62
Recommendations related to Adjacent and Regional Planning (Chapter IX)			
34. Request that the Berks County Commissioners revise their Berks County 2030 Plan to be consistent with Longswamp Township's revised land use scheme.	Berks County	Short-term	69
Recommendations related to Public Utilities (Chapter X)			
35. Make use of PA One-Call system with respect to use and developments proposed along the Township's overhead and underground utility rights-of-way.	Residents and developers.	Ongoing	73
36. Actively pursue on-lot sewer disposal objectives with the use of small-scale community systems or other alternatives to correct isolated areas of the Township.	Township	Short-term & ongoing	70-72
37. Closely monitor on-lot uses, especially in high need areas where past malfunctions were determined.	Township	Short-term & ongoing	71-72
38. Revisit sewer options for the Township as new technology and future alternatives become available.	Township	Ongoing	71-72
39. Monitor existing and future pipeline activity and enact, where feasible, regulations complimentary to the Pennsylvania Oil and Gas Act.	Township	Short-term & ongoing	74
Recommendations related to Transportation System (Chapter XI)			
40. Upgrade collector roads to minimum recommended standards.	PennDOT	Short-term	79
41. Reduce and discourage the number of driveway cuts along the Township's collector roads.	Township & PennDOT	Long-term	81
42. Complete various locally-scheduled road improvements.	Township	Short-term	80-81
43. Continue to review railroad crossings.	Township	Long-term	82
44. Install sidewalks in all new higher density planned neighborhoods.	Private Developers	Short-term & ongoing	82-83
45. Lobby the BCPC and PA DOT's Maintenance Manager to widen designated bicycle route with proper striping.	Township & PennDOT	Short-term	83
46. Apply for improvements to designated bicycle route under PA DOT's Betterment Program.	Township	Long-term	83
47. Submit a list of needed transportation projects on behalf of the Township to RATS.	Township	Bi-annually	84

Recommended task:	Responsible Parties	Time-frame	Plan reference (Page #)
Recommendations related to Future Land Use (Chapter XII)			
48. Adopt a new Township zoning ordinance and map that is consistent with the recommendations contained within Chapter XII.	Township	Short-term	85
49. Develop suitable commercial zoning regulations that require or strongly encourage shared development features.	Township	Short-term	93
50. Commit to updating the Comprehensive Plan by the year 2025.	Township	Long-term	85
51. Local officials should emphasize the preservation of prime farmlands and active farms in the design of new developments.	Township	Short-term & ongoing	87-88
52. As turnover occurs, replace members of various boards.	Township	Ongoing	89
53. Encourage retrofitting of existing industrial uses with needed amenities to improve function, appearance and compatibility.	Township	Ongoing	95-96
54. Adopt noise and lighting standards to ensure compatibility from one site to the next.	Township	Short-term	96-97

The preceding table plots an ambitious list of recommended activities. These tasks are vital if the Township is to optimally manage its growth and development and to plan and implement its "vision" for the future. The completion of many of these tasks should result in an improved quality of life within the Township.

Municipal officials are responsible to monitor and evaluate the implementation strategy aimed at achieving the locally-expressed objectives and resultant recommendations set forth in this Plan. ***It is recommended that the Township designate the Township Planning Commission as the agency responsible to meet as necessary to manage Township planning issues. One of their principal duties should be a formal review of the Comprehensive Plan every 5 years.***

Cooperation among all administrative bodies and levels of government is an essential component to a streamlined and successful implementation strategy. The continued use of public participation is also a very important duty of municipal officials. If, for some reason, the recommendations of this Plan do not appear to address the, then, current conditions, municipal officials should not hesitate to amend portions of this Plan or any other policy to rectify those deficiencies.

This Plan holds a wealth of information that can be easily accessed and understood. Its implementation will help residents, businesses and visitors know the Plan is vital, and that the future of the Township is deliberate, and the result of considerable analysis and public scrutiny.

C. Official Map

One of the proposals relating to future public facilities and transportation in the Township calls for the consideration of adoption of an Official Map. The legal basis for adoption of an Official Map lies in Act 247, the Pennsylvania Municipalities Planning Code, as amended. An Official Map shows the locations of existing and proposed streets (if applicable), as well as shows existing and proposed recreational and other municipal facilities for the whole of the Township. The purpose of an Official Map is to notify property owners in the Township of the intention of the Township to develop or expand the street network or develop facilities at some time in the future.

The basis for Longswamp Township's Official Map for public facilities is the Township's Act 537 Sewage Facilities Plan that provides for certain community onlot disposal systems. One of the purposes of the Official Map is to designate certain areas to ensure that properties are available for the location of these community sewage systems in specific areas that will serve the Township's high need areas, as designated by the Sewage Management Overlay District.

The Official Map will be used to implement the Township's Sewage Facilities Plan by providing a mechanism for the Township to reserve and acquire properties that may be necessary to construct community onlot disposal systems. In the case of a mapped community onlot disposal system, under the provisions of the Official Map Ordinance, upon notice of a property owner that he/she intends to subdivide, develop, or obtain a building permit, the Township shall have one year to either purchase the land, come to a mutual agreement with the Property Owner regarding the land disposition, condemn the land through eminent domain, or decide to not acquire the property.

In the case of a mapped street, under the provisions of an Official Map Ordinance, when a parcel of land identified for future street construction is proposed for development, the Township would have the opportunity to acquire that portion of property needed for the future street, or to begin condemnation proceedings to acquire such property. A detailed study and survey is required to identify the exact geographical limits of the proposed road network. This study/survey would require the expenditure of Township funds for technical assistance in its preparation.