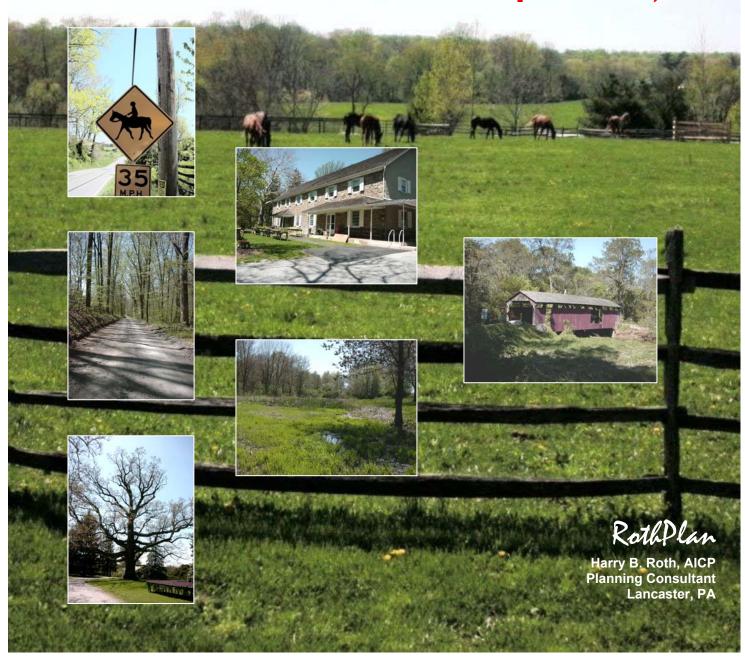
# **Official Comprehensive Plan**

# West Marlborough Township Chester County, PA

"Rural Living through Progressive Action"

**Adopted: Jan. 24, 2006** 



## **ACKNOWLEDGEMENTS**

The consultant for this project would like to acknowledge those members of the Study Committee who contributed to and oversaw the preparation of this Plan:

Member	Affiliation
Hugh Lofting	Board of Supervisors
Michael Ledyard	Board of Supervisors
William Wylie	Board of Supervisors
Richard Corkran	Planning Commission
Anna Myers	Planning Commission
Nancy Swayne	Planning Commission
Josh Taylor	Planning Commission
Elinor Thomforde	Planning Commission
Phoebe Fisher	Resident Member
Wayne Grafton	Resident Member
Claire Murray	Resident Member
Stewart Strawbridge	Resident Member
Shirley Walton	Secretary – Treasurer
Denis Forrest	Township Engineer
Heath Eddy	Chester County Liaison

In addition to the committee members, the Township Secretary, Engineer and the staff of the Chester County Planning Commission and the Geographic Information System Department provided endless cooperation in the assembly of background materials and information for this project in a pleasant and helpful manner. They too deserve special credit:

Secretary/GIS	Affiliation
Shirley Walton	Secretary – Treasurer
Denis Forrest	Township Engineer
Mike Hott	Chester County GIS Dept.
Heath Eddy	Chester County Planning Comm.

This Plan was funded in part through a grant from the **Vision Partnership Program** sponsored by the Chester County Board of Commissioners. The Plan has been prepared in conjunction with the principles of the County's policy plan entitled **Landscapes** as a means of achieving greater consistency between local and county planning programs.

All maps and aerials presented within this Plan rely upon digital information of the Chester County Geographic Information System. While the accuracy of this information is believed to be very high, it should only be used for community planning purposes and cannot be relied upon for definitive site survey delineation.

#### This Plan was prepared by:



Harry B. Roth, AICP, Community Planning Consultant 1681 Crown Avenue, Lancaster, PA 17601 Direct Phone: (717) 291-0927 / Fax: (717) 291-0928 Website: rothplan.net

Look forward to the future!

## RESOLUTION NO. 3-2005 WEST MARLBOROUGH TOWNSHIP CHESTER COUNTY, PENNSYLVANIA

RESOLUTION OF THE BOARD OF SUPERVISORS OF WEST MARLBOROUGH TOWNSHIP ADOPTING THE COMPREHENSIVE PLAN.

WHEREAS, West Marlborough Township had heretofore adopted a Comprehensive Plan in or about 1974; and

WHEREAS, in accordance with Article III of the <u>Pennsylvania Municipalities</u>
<u>Planning Code</u>, the Township has the authority to adopt and amend the Comprehensive
Plan as a whole or in part; and

WHEREAS, West Marlborough Township has with the extensive and considerable assistance of its Planning Commission and consultants, as well as the review and comment of the Chester County Planning Commission, prepared a new Comprehensive Plan for consideration, taking into account all of the current state of development within the Township and taking into account the related basic elements set forth in Section 301 of the Pennsylvania Municipalities Planning Code; and

WHEREAS, the new Comprehensive Plan was prepared and considered by the various agencies; and

WHEREAS, public hearings have been held by the West Marlborough Township Planning Commission and the West Marlborough Township Board of Supervisors on consideration and adoption of the Comprehensive Plan, and, in furtherance thereof, certain modifications and amendments were made to the Comprehensive Plan; and

WHEREAS, the Comprehensive Plan contains an Introduction (Article I), Planning Goals (Article II), Natural and Cultural Features (Article III), Demographics (Article IV), Existing Land Use (Article V), Adjacent and Regional Planning (Article VI), Public Facilities (Article VII), Utilities (Article VIII), Transportation System (Article IX), Future Land Use Plan (Article X), and Implementation (Article XI). A list of Maps are made a part of the Comprehensive Plan as follows: Regional Location Map, Soils and Geology

Map, Natural Features Map, Cultural Features Map, Existing Land Use Map, Adjacent Planning Map, Preserve Lands Map, Public Facilities Map, Transportation Map, and Future Land Use Map.

NOW, THEREFORE, BE IT RESOLVED by the West Marlborough Township Board of Supervisors at its special meeting, immediately following the public hearing on January 24, 2006, that the Comprehensive Plan be adopted and that a true and correct copy of this Resolution be formally and officially appended to the Comprehensive Plan.

ADOPTED AND ENACTED this 24th day of January, 2006.

BOARD OF SUPERVISORS
WEST MARLBOROUGH TOWNSHIP

BY:

William W. Wylie, Jr., Chairmai

Michael/M. Ledyard, Supervisor

Attest:

Sorrotany

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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

Comprehensive Planning: "the allocation of municipal resources towards local goals and objectives."

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.

The West Marlborough Township Comprehensive Plan represents the work of many people. Local elected officials, planning commission members and other appointed citizens oversaw the preparation of the Plan by reviewing the plan content and conducting monthly public meetings. The Plan was funded by a Vision Partnership Grant provided by the Chester County Planning Commission who also appointed a staff liaison to monitor the plan process and ensure that Plan outcomes align with the County's Landscapes Plan. Next the Plan sought specific input from various local, County and State officials and staff regarding the Township's resources and possible programs available to implement the Plan's findings. Finally the Plan incorporates the many public comments received during the planning process.

This Comprehensive Plan first sets forth a set of Community Planning Goals. These goals 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 also seek to correct existing or foreseeable deficiencies or problems, such as improving the design of a particular road intersection or reducing localized flooding through improved storm water management.

Next, this Plan inventories, maps and describes the Region's 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 on. Analyses are performed within each of the Plan's chapters to determine their capabilities in meeting the desired future. Each chapter makes specific recommendations to improve the capabilities of these in attaining locally-expressed planning goals.

Then, 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 2020; all recommendations made within this Plan are structured around this time period.

Finally, implementation strategies are discussed and recommended that will enable the 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.

#### B. MPC 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 that municipal plans be generally consistent with the adopted county plans. Municipalities are also empowered by this Act to carry out joint planning with one another. Finally, the most recent amendments to the MPC specifically enable municipalities to work together and develop regional plans for the allocation of growth and development, along with the delivery of public facilities and services.

These MPC standards are the foundation upon which the Comprehensive Plan for West Marlborough 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 Township residents a vision for the 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 that 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. Many of these recommendations tie in to specific implementation strategies discussed in the Plan's final chapter.

The numerous maps within the Plan have been carefully prepared so that the information can be easily visualized and is 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 Chester County Department of Computing

and Information Services as part of its County-wide Geographic Information System (GIS); the data was dated February, 2004. 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 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 not only serve 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.

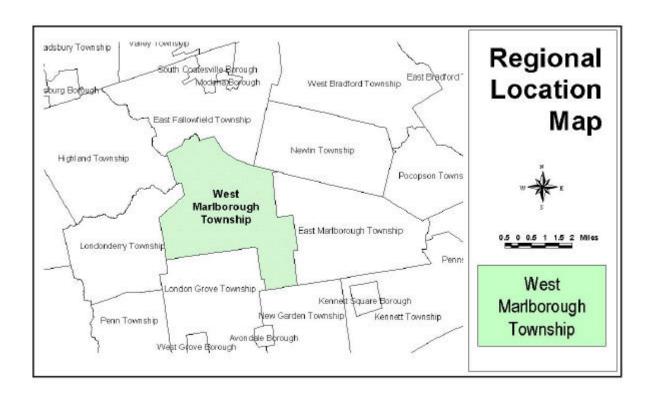
Finally, the Plan provides a future land use scenario that can be useful to many landowners. For example, residents can get an idea of the land uses that are projected around their homes. Prospective developers can use the Plan to package development proposals that conform to the municipal goals, thereby 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 the West Marlborough 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

West Marlborough Township is situated in the southwestern portion of Chester County in southeastern Pennsylvania. The Township has an irregular shape that has an east-to-west width of almost 9000 feet and a north-to-south length of nearly 11,000 feet. At its closest point, the Township is about 8.5 miles southwest of West Chester Borough, the Chester County seat. West Marlborough Township contains a total of approximately 17 square miles with some 11,000 acres.

Except for its northern boundary that partially follows Buck Run for a short stretch, the Township's boundaries are man-made. Along the northern boundary the Township abuts East Fallowfield and Newlin Townships. To the east is East Marlborough Township. South of the Township are London Grove and New Garden Townships. And to the west are Highland and Londonderry Townships. All of the adjoining municipalities are located within Chester County.

Historically, the Township has retained its rural character as a fertile farming/pasturing valley amid its lush and rolling hills with clean-running streams. What little development that has occurred is largely rural in character with the Village of London Grove being the Township's apparent focal community. Farming is mostly related to the raising / breeding of horses and cattle and the cultivation of crops and mushrooms in several large-scale operations. Local officials hope that this Plan will preserve this rural quality of life through positive and legally-defensible planning strategies.



# **II. Planning Goals**

"If you don't know where you are going, any road will take you there!"

-An old saying

To derive the goals for this Plan, members of the study committee were asked to complete a 37-question community development objectives survey. Then, in March, 2004, the Committee met and discussed the results of the survey. The following presents an overall narrative vision of the desired future followed by a detailed listing of specific planning goals for the Township.

## A. Community Vision

West Marlborough Township has a rich agricultural heritage with residents who have embraced conservation of their valuable lands. Furthermore, it is believed that the Township's residents share in this collective vision and form a unified and cohesive community around which to build this Plan. Its population has been declining in recent decades while new developments are being built in those townships that lie just beyond its boundaries.

Residents recognize that their lands are largely agriculturally-productive and environmentally-sensitive and require protection from rampant suburban growth. They also know that many landowners are committed to preservation of their farms and important natural features as evidenced by the amount of:

- land subject to conservation easements;
- land that has had its development rights sold to the Chester County Agricultural Lands Preserve Board; and/or,
- land enrolled within the Township's Agricultural Security Area.

It is clear that the Township's landowners have partnered with the various State and County preservation programs that advocate protection of our dwindling natural and agricultural resources. Finally, local officials are determined to vigorously defend the Township's longstanding culture of large crop, cattle and horse farms producing scenic expanses and opportunities to conduct popular field sports and activities.

However, local officials recognize that all areas must accommodate some growth and they understand that change will occur. They envision a future where limited growth is confined at one or a few locations that "make sense" from an environmental and impact standpoint. These uses will be incidental to the predominately rural/agricultural character of the Township but will accommodate the Township's legally-mandated fair-share of growth and development. Limited residential growth will be closely tied with projected population and housing trends and the development potential of the rural landscape will be used to serve a portion of the Township's projected growth. Other

more intensive uses will be located amid settings that have experienced prior similar growth and can be provided with adequate infrastructure and roads.

Large parcels protect their residential privacy and rural habits. Some crossroad and home-based businesses are permitted to encourage local employment, but only if such uses don't interfere with their neighbors' residences. For new residences, lots are kept smaller than in the past but tied with the protection of large areas of undisturbed terrain. New lotting and access techniques (rural clusters, flag lots and shared driveways) enable new homes to "tuck" into the "nooks and crannies" produced by the Township's sensitive natural features and expansive exceptional value watersheds. The Township's roads are narrow and some are gravel, all contributing to the rural character and an impediment to suburbanization.

## **B.** Community Planning Goals

The following goals were derived from discussions with local officials and citizens of the Township plus the review of completed surveys by local officials. These specific goals will guide the rest of this effort by allocating the Township's resources towards expressed needs. The goals are presented by functional category.

#### **Environmental Goals** Protect and preserve the Township's prime and productive farmlands and active 1. farming operations with recognition that the breeding, raising and training of horses is a legitimate and economically important form of agriculture. Support local, County and State programs of agricultural preservation. 2. 3. Monitor the status of recent legislation that would affect the Township's ability to regulate concentrated animal feeding operations (CAFOs). 4. Coordinate local policies with the management plans for several Wild and Scenic River Corridors within the Township (eg. Lower Brandywine and White Clay Creek). 5. Protect the headwaters of the East Branch of the White Clay Creek, an Exceptional Value Watershed. Reinforce the Township's conservation strategies of sensitive environmental conditions 6. (eg. floodplains, wetlands, habitats, steep slopes, etc.) 7. Acknowledge and support the landowners who have donated conservation easements or transferred their development rights to governmental agencies, thereby limiting development potential. Also recognize the Laurels Preserve. Preserve the scenic beauty of the Township's expansive farms, unspoiled by suburban 8. encroachment. Promote the preservation of historic sites with a voluntary referral program and 9. adaptive-reuse options. Blend an overall program of environmental stewardship that reflects the Township's 10. heritage of expansive crop, cattle and horse farms and field sports.

## **Community Development Goals**

- 11. Permit the creation of accessory businesses and occupations as a means of accommodating a proper scale of commerce and industry that is consistent with the Township's rural character and lack of infrastructure.
- 12. Rely upon larger commercial centers in nearby municipalities for commercial goods and services beyond those needed on a regular basis by local residents.
- 13. Provide for limited new principal commercial and industrial businesses that reflect a local orientation and scale.
- 14. Permit adaptive reuse of the structures within the Township as a means of preserving old buildings through federal tax credits while allowing limited new businesses and other service uses.
- 15. Limit, locate and design rural growth areas so that, if and when public or community-based utilities are required in these areas, they can be provided in an affordable manner.
- 16. Locate rural growth areas amid settings with like uses and structures, soils that can support needed utilities and convenient access to the nearby US Route 1 corridor.
- 17. Coordinate proposed growth areas with projected population so as to properly size growth zones while protecting and preserving outlying areas in a rural condition.
- 18. Locate new rural residences in areas with suitable conditions to support the use while protecting any sensitive environmental features on the building site.

## **Planning Program & Process Goals**

- 19. Devise a technically competent and legally defensible strategy to accommodate the Township's "regional fair-share of growth and development."
- 20. Prepare this Plan so that it complies with the grant requirements of the Chester County Vision Partnership Program and is consistent with the County's "Landscapes" Comprehensive Plan.
- 21. Devise a pro-active land use policy that eliminates the need for incremental rezoning and development reviews that lack coordination and overall vision.
- 22. Provide for a firm, yet cooperative, approach to development reviews that enable local officials to readily identify and protect important natural and cultural features.
- 23. Engage a proactive plan development process that invites public participation and awareness.
- 24. Prepare this comprehensive plan in an unbiased manner that responds only to direction from local officials and avoids undue influence from special interest groups.
- 25. Schedule meetings and the delivery of draft materials to the committee members in a manner that provides a generous period of time for review and comment.

## **Public Facilities, Services & Utilities Goals**

- 26. Aside from a possible small privately-owned and maintained neighborhood park in close proximity with designated growth areas, continue to rely upon the abundant recreation facilities and programs offered by the Unionville-Chadds Ford School District at various school sites in adjoining municipalities.
- 27. Coordinate local planning policies with the need to support local volunteer emergency services.

- 28. Ensure that new rural residences provide for adequate emergency vehicular access.
- 29. Investigate means for improved traffic enforcement.
- 30. Seek to formally link the Township's overall planning review processes with that of the Unionville-Chadds Ford School District.
- 31. Encourage the use of conventional and alternative land-based sewage disposal technologies in lieu of stream discharge systems to minimize adverse environmental impact.
- 32. Coordinate zoning policies with the availability of public or community utilities.
- 33. Continue to rely upon on-lot wells and sewers to accommodate the vast majority of new land uses in suitable areas.

## **Transportation Goals**

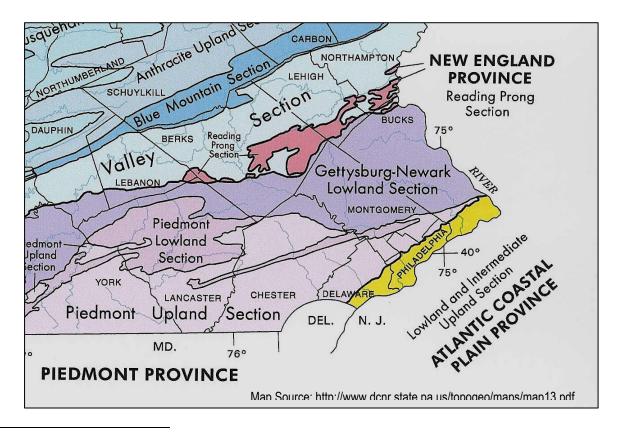
- 34. Attempt to reclaim certain State roads to Township ownership and maintenance as a means of preserving a rural roadscape with narrower cartways and lower speed limits.
- 35. Assess current road conditions and compare with adopted design standards.
- 36. Ease the movement of agricultural vehicles from farm-to-farm along roads within the Township.
- 37. Attempt to reduce the dumping of litter and debris along Township roads.
- 38. Explore the possibility of providing motorist warning concerning agricultural and sporting activities.
- 39. Monitor the long range plans concerning major road corridors that may affect the Township.
- 40. Coordinate future land uses with roads that have sufficient capacity to handle the additional traffic.
- 41. Maintain the Township's roads with rural characteristics to minimize vehicle speeds and discourage "short-cut" through traffic movements.
- 42. Look to improve "rural" road conditions that create traffic safety problems (e.g. inadequate sight distance, excessive speeds and dangerous intersections).
- 43. Better regulate local aircraft sites to protect the rural character, minimize adverse impact on agricultural activities and enhance public safety.

# III. Natural & Cultural Features

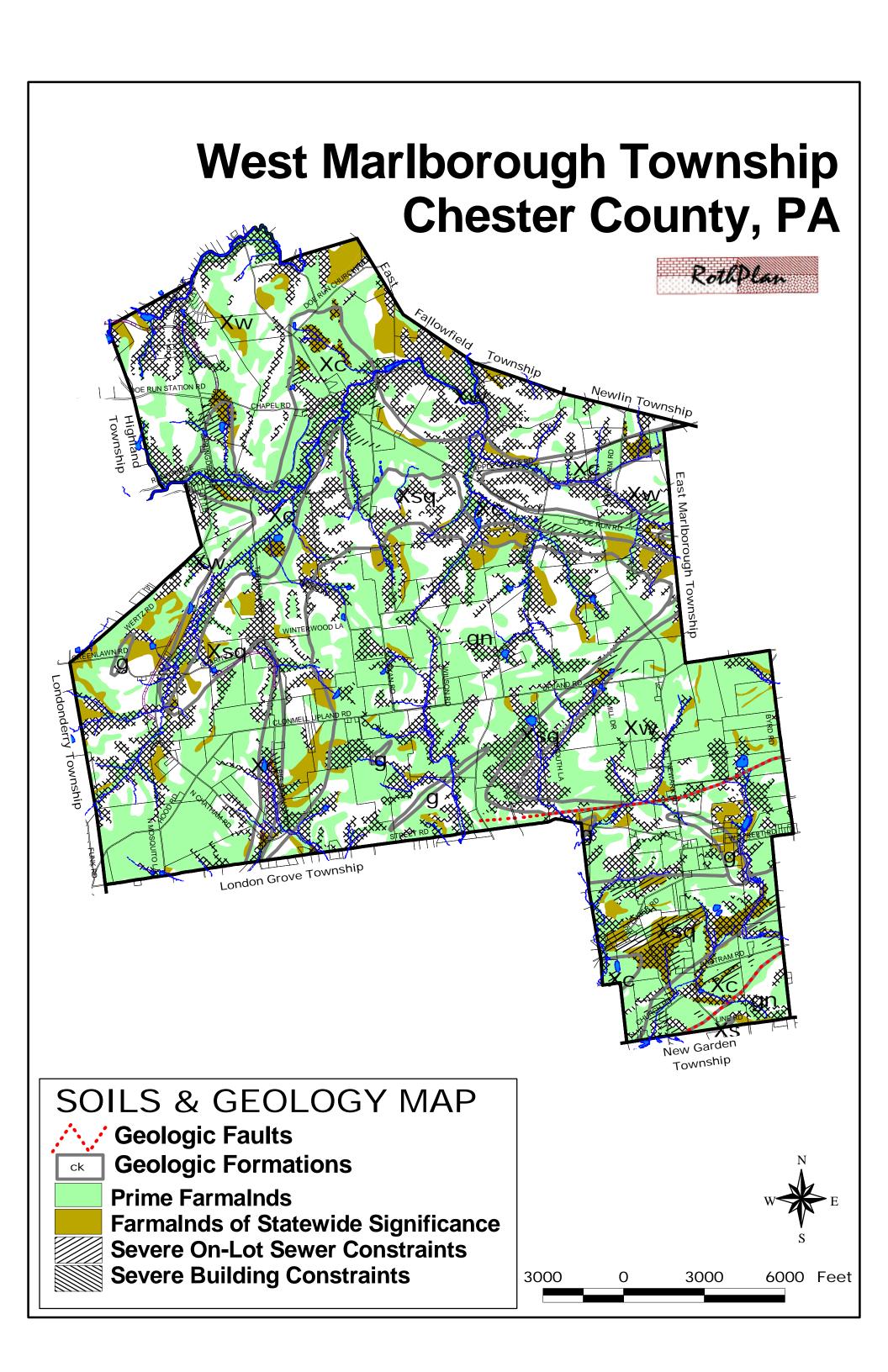
This chapter will describe and map West Marlborough Township's natural and cultural resources. This information is extremely useful in allocating future land uses within the Township, as well as in formulating policies and implementing measures that protect these natural and cultural resources. Much of the information contained within this Section has been updated from the West Marlborough Township Environmental Assessment adopted in 1988.

## A. PHYSIOGRAPHY

Physiographic regions are areas that are broadly categorized based on terrain texture, rock type, and geologic structure and history. West Marlborough Township, along with much of Chester County, is situated amid the Piedmont Physiographic Province; more specifically, the Piedmont Upland Section. This landform consists of broad, gently rolling hills and valleys. Views from uplands often give the viewer the impression that the uplands comprise the remnants of a once continuous sloping surface that is now dissected by the valleys eroded into it. This upland area is developed mainly on metamorphic rocks called schists. These rocks usually have a very well developed plane that was formed during metamorphism. The drainage pattern is usually dendritic with an occasional rectangular orientation. Local relief is generally less than 300 feet, but it can be as much as 600 feet. Elevations in the section range from 100 to 1,220 feet, but are generally between 400 and 600 feet. <sup>1</sup>



http://www.dcnr.state.pa.us/topogeo/map13/13pus.aspx, Feb. 17, 2004.



## B. GEOLOGY

The geology of an area plays an important role in determining the surfacial 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. In addition the geology offers valuable mineral deposits that can be the source of commercial enterprise and construction materials.

## **GEOLOGIC FORMATIONS**

The Soils and Geology Map illustrates the geologic conditions within the Township.

The general configuration of geologic formations found within West Marlborough Township can best be described in a concentric zone pattern. **Granite gneiss (gn)** forms a large core located in the southcentral area of the Township. In addition, two smaller bands are located around London Grove and further south to the Township boundary. This formation provides a median groundwater yield of about 15 gallons per minute (g.p.m.) and should be drilled to a depth of between 100 and 200 feet. This formation is resistant to weathering and produces rough hills with fairly steep to steep and stable slopes. It provides a fair quality foundation for heavy structures but should be excavated to sound materials. Excavations for buildings generally require blasting once the formation's thin mantle is penetrated. Secondary porosity is classified as very low.

**Gabbroic gneiss and gabbro (g)** are found as narrow bands scattered in the southern half of the Township. For the most part, these bands are between 200 and 300 feet wide and are oriented in a predominately northeast-southwest direction. This formation produces a median ground water yield of about 19 g.p.m. and should be drilled to a depth of between 100 and 200 feet for maximum yield. Its resistance to weathering produces fairly steep hills that are stable. This formation provides a fair quality foundation for heavy structures and should be excavated to sound materials. However, its thin mantle (0 to 5 ft.) usually requires blasting for developments using foundations. This formation has a very low secondary porosity. These gneiss rocks tend to weather to a depth of about 8 feet and are tied to the Glenelg-Manor soils.

Radiating outward from the gneiss is the **Setters Formation** (**Xsq**). This quartzite formation is irregular shaped and comprises the third largest land area within the Township. The material is hard, smooth and formed from metamorphosed sandstone. This formation's median yield is about 20 g.p.m. at depths of less than 200 feet. It is highly resistant to weathering forces and has a very thin mantle. If subjected to long continued weathering, medium-sized flat fragments may be broken-down into sand-sized particles. Excavation of this formation requires blasting unless extensive weathering has occurred. Materials located several feet below the surface may be moderately easy to excavate with power equipment. This formation provides excellent quality foundation for heavy structures. Secondary porosity is classified as low in magnitude.

Next the **Cockeysvill Marble (Xc)** formation occurs in irregularly-shaped bands that extend to all areas of the Township. This material is formed as metamorphosed limestone and is harder than limestone and can be polished. It has been widely used for buildings and monuments in the past. Ground- water yields in this formation of up to

1800 g.p.m. are obtainable, the median yield is 73 g.b.m. This formation is moderately resistant to weathering forces and has a varying-depth mantle. Moderately abundant and well-developed fracturing can result in joints and solution channels that can readily convey water and its potential contaminants. This formation has a medium to high secondary porosity. This formation is characterized by low rolling valleys that have gentle and stable slopes. While this formation provides good foundation stability for heavy structures, it usually requires blasting. In addition, thorough sinkhole and bedrock pinnacle investigations should be performed prior to development. Furthermore, testing of groundwater quality obtained from this formation should be undertaken regularly based upon this formation's incidence of solution channels and fractures. Finally, intensive pollution generating activities should be prohibited as a means of protecting the substantial groundwater supplies available from this formation.

The outermost concentire geologic zone within West Marlborough Township is the Wissahickon Schist Formation (Xw). This formation forms the periphery of the Township along most of its northern, eastern and western boundaries. This formation is the largest within the Township. Schists are formed from metamorphosed soft clay shales and tend to weather more deeply that the other materials within the Township. Groundwater yields from this formation average 15 g.p.m. and should be drilled to a depth of about 300 feet for maximum production. Materials of this formation are moderately resistant to weathering; overlying mantle is thin, but highly weathered materials can produce hackly, small plate-like rubble at the base of the exposure. This formation is characterized by a platy cleavage pattern that is highly abundant, well developed, and regularly and closely spaced. Joints are irregular, poorly formed, widely spaced, steeply dipping, and open. These traits produce a low rate of secondary porosity. This formation provides a good quality foundation for heavy structures and is moderately easily excavated with power equipment. Unweathered rock may require blasting.

**Pegmatite (Xpg) and Serpentinite (Xs)** formations are found in the extreme southeast corner of the Township and represent a minuscule amount of the Township's land area. No specific information regarding these formations is contained within the <u>Chester County Geology</u> report. The USGS report, however, did report a median groundwater yield of 11 g.p.m. for the Serpentinite formation. Given the minimal size of these formations, and the Pegmatite formation's location amid a larger Cockeysville Marble formation, no additional research was conducted on these two formations.

Several **Diabase (Trd)** dikes are scattered throughout the Township. These dikes are generally between 5 and 100 feet thick and are oriented in a predominate northeast-southwest direction. The largest of the dikes located within the Township reaches 200+feet in thickness and generally parallels to the east of Doe run. Diabase is characterized by median groundwater yields of approximately 9 g.p.m. Diabase materials are highly resistant to weathering producing large rounded boulders within a thin mantle. Natural slopes are moderately steep and stable. Diabase provides excellent strength for building foundations but requires considerable blasting. Secondary porosity is classified as very low.

**Fault Zones** - Some areas of the country have geologic conditions that are more likely to undergo change in shape and location. These changes are called earthquakes and have definite land use planning implications. However, information obtained verbally from the PA Geologic Survey indicated that the occurrence of "dangerous" earthquakes within this region have never been observed and are considered unlikely. Instead,

Chester County is more likely to experience "curiosity events" that may result in minor" vibrations, but not C9use damage to property or threaten public safety. In fact, no movement of faults along the surface has ever been recorded in this region since the 1700s, when the recording of geologic history originated. Therefore, the threat of earthquake within the Township is negligible; however, fault zones can have implications for use of on-lot sewage disposal. These linear features could convey effluent from subsurface drainage fields. Since no public sewers are in use within the Township, all developments must rely upon on-lot disposal methods. Consequently, the Township's two fault zones should be protected from development.

**Summary** - From this analysis, several important land use implications can be derived. First and foremost, the Cockeysville Marble formation deserves special attention. This formation with its well developed bedding, fractures and solution channels, has the ability to yield sizeable volumes of groundwater. These same characteristics that combine to produce an abundance of ground-water, also present the opportunity for its contamination and the opening of sinkholes and closed depressions.

This formation represents an important natural recharge area that may be needed in the future. As such, intensive land use activities that involve higher amounts of impervious surfaces and/or effluent generation, should be avoided. On the other hand, non-intensive rural/agriculture/conservation uses would allow for the percolation of rain-waters through the soil to regenerate groundwater supply.

Similarly, uses that generate considerable amounts of sewage effluent and other domestic pollutants should be minimized. This will help to maintain the quality of abundant groundwater in this formation, which eventually make their way to the surface and become surface waters. However, rural/agricultural land uses can also degrade groundwater quality, through the extensive use of fertilizers, pesticides and herbicides. The Township should seek to control these materials through sound soil conservation practices and erosion control filter strips. Finally, the Cockeysville Marble formation is also susceptible to sinkhole problems; therefore, urban land uses should be located elsewhere to minimize the threat to, life and property. Section 506 of the Township Zoning Ordinance presently requires applicants within the Cockeysville Formation to mitigate any adverse groundwater impacts associated with their proposed use. The reference to the "Geology Study Map of the Environmental Assessment" contained within Section 506 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township Comprehensive Plan" once the Plan is adopted.

Aside from the Cockeysville Marble formation, the remaining geologic formations are characterized by features that could support nonintensive forms of development. First, each formation produces median groundwater yields that exceed the rule-of-thumb 5 g.p.m. standard needed for domestic well supplies. Next, all formations exhibit sufficient strength to support building foundations, but most require blasting to accommodate structures employing foundations. Third, all formations, except the Cockeysville Marble formation, have secondary porosities between very low to low. Consequently, the risk of groundwater contamination from effluent introduced to solution channels is reduced.

#### **GROUNDWATER PROTECTION**

Geology is also a primary determinant of *groundwater quality and quantity*. 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.

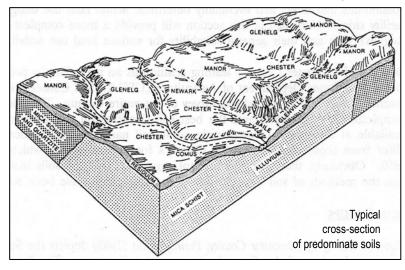
A typical household with three family members requires an average flow of 0.2 to 0.4 gpm with a peak rate of use ranging between 3 and 5 gpm. The Township's geologic formations record median yields of 9 to 73 gpm and can adequately accommodate a sparsely-developed rural land use pattern.

The Cockeysville Marble formation's higher yield offers the opportunity for a public water source. However, local geologic characteristics that provide for abundant groundwater yield present the opportunity for its contamination. Therefore should the Township develop a high yield water source here, it should be accompanied with a suitable wellhead or springhead protection program. Wellhead and springhead protection is a particularly sound investment because protection is more effective and less expensive than cleaning a contaminated groundwater source, which may cost 30-40 times more than initial protection.

## C. SOILS

The Township's soils have been analyzed for their suitability for farming and development purposes; these results are depicted on the *Soils and Geology Map*. 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 sufficiently and above bedrock and the water table. The appropriate development siting of significantly reduces the associated with costs 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.

With its varied topographic and geologic foundation the West Marlborough Township has a complex soils structure. Some 65 different soil types can be found within the Township. Most of the Township is dominated by the Manor-Glenelq-Chester soil association. The Glenelg soils closely correlate with the Township's gneiss formations. The Manor soils follow the Setters formation and the Conestoga soils are linked with the Cockeysville Marble formation.

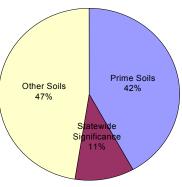
## PRIME FARMLANDS

Section 604.3. of the Pennsylvania Municipalities Planning Code requires municipalities to develop zoning ordinances that "preserve prime agriculture and farmland considering topography, soil type and classification and present use." The United States Department of Agriculture (USDA) rates all soil suitability for agricultural purposes and assigns a numerical

rating from Class I to Class VII. Prime farmland soils are those soils with an agricultural rating of Class I or II. In addition, the USDA considers Class III soils to be of Statewide importance to agriculture. The 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 welldrained but resistant to erosion, and have relatively flat topography. Prime farmlands produce the highest yields with minimal inputs of energy and economic resources,



Soil Composition



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.

The low-lying flat lands contain about 5312 acres that are Class 1 & 2 prime agricultural soils. The foothills tend to have more Class III soils of Statewide importance totaling some 1345 acres. Unfortunately, the soils suitable agricultural most for 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



Typical "rolly-topo" landscape within the Township

productive farmlands. Certainly some valuable farmlands have been lost within the Township but many remain. Prime farm soils and soils of Statewide importance should

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 $<sup>^{\</sup>rm 2}$  PA Municipalities Planning Code, Act 247, as amended, Section 604.3.

be protected from conversion to other uses through appropriate planning and zoning. Information about various agricultural preservation programs is contained with Chapter VI of this Plan.

Section 200 of the Township Zoning Ordinance represents a longstanding effective Agricultural-Conservation Zone that is widely applied throughout much of the Township. This Zone favors continued agricultural use over the conversion and speculation to more urban forms of use and development.

## **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 if on-site sewage disposal systems are contemplated. 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.

Unsurprisingly, many of the soils that possess severe development constraints are not productive farmlands; however, this is not true in every instance. Future planning should avoid development in areas with severe soil constraints or be accompanied by strict siting standards in local zoning or subdivision and land development ordinances (SLDO). Section 505 of the Township Zoning Ordinance regulates activities to protect soils with severe development constraints. The reference to the "Soils Study Map of the Environmental Assessment" contained within Section 505 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township Comprehensive Plan" once the Plan is adopted.

The following table lists the soil types and their characteristics found within Township:

	SOILS TABLE								
SOILS CHARACTERISTICS OF WEST MARLBOROUGH TOWNSHIP									
	Severe Soil Limitations*								
Soil Symbol	Soil Name	Slope (%)	Agricultural Rating	Hydric	On-lot Sewers	Dwellings with Basements	Dwellings without Basements		
BdA	Bedford silt loam	0-3	2		PS				
BdB	Bedford silt loam	3-8	2		PS				
BdB2	Bedford silt loam	3-8	2		PS				
BrD3	Brandywine loam	15-25			SL	SL	SL		
CaB	Calvert silt loam	3-8		Υ	W, PS	W	W		
CdA	Chester silt loam	0-3	1						
CdB	Chester silt loam	3-8	2						
CdB2	Chester silt loam	3-8	2						

## **SOILS TABLE**

## SOILS CHARACTERISTICS OF WEST MARLBOROUGH TOWNSHIP

					Severe Soil Limitations*		
Soil		Slope	Agricultural		On-lot	Dwellings with	Dwellings without
Symbol	Soil Name	(%)	Rating	Hydric	Sewers	Basements	Basements
CdB3	Chester silt loam	3-8	3				
CdC3	Chester silt loam	8-15					
Ch	Chewalca silt loam	0	2		FL	FL	FL
CmA	Conestoga silt loam	0-3	1				
CmA2	Conestoga silt loam	0-3	2				
CmB2	Conestoga silt loam	3-8	2				
CmC2	Conestoga silt loam	8-15	3				
CmC3	Conestoga silt loam	8-15					
Cn	Conagree silt loam	0	1		FL	FL	FL
Ecb2	Edgemont channery loam	3-8	2		W		
EcC	Edgemont channery loam	8-15	3		W		
EcD	Edgemont channery loam	15-25			W, SL	SL	SL
GeA	Glenelg channery silt loam	0-3	1				
GeB	Glenelg channery silt loam	3-8	2				
GeB2	Glenelg channery silt loam	3-8	2				
GeC	Glenelg channery silt loam	8-15	3				
GeC2	Glenelg channery silt loam	8-15	3				
GeC3	Glenelg channery silt loam	8-15	3				
GeD	Glenelg channery silt loam	15-25			SL	SL	SL
GeD2	Glenelg channery silt loam	15-25			SL	SL	SL
GeD3	Glenelg channery silt loam	15-25			SL	SL	SL
GeE	Glenelg channery silt loam	25-35			SL	SL	SL
GnA	Glenville silt loam	0-3	2		W, PS	W	W
GnB	Glenville silt loam	3-8	2		W, PS	W	W
GnB2	Glenville silt loam	3-8	2		W, PS	W	W
GnC2	Glenville silt loam	0-3	3		W, PS	W	W
GsB	Glenville very stony silt loam	0-3			W, PS	W	W
Gu	Guthrie silt loam	0		Υ	W, PS	W	W
HaB2	Hagerstown silt loam	3-8	2		,		
HoB2	Hollinger silt loam	3-8	2				
HoC3	Hollinger silt loam	8-15					
HoD3	Hollinger silt loam	15-25					
LaA	Lawrence silt loam	0-3	3		FL, W, PS	FL, W	FL, W
LaB	Lawrence silt loam	3-8	3		FL, W, PS	FL, W	FL, W
Me	Made land	J-0	3		1 2, 17, 1 3	ı ∟, vv	ı ∟, vv
MgA2	Manor loam	0-3	2				
MgB2	Manor loam	3-8	2				
			1				
MgB3	Manor loam	3-8	3	<u> </u>	<u> </u>		

## SOILS TABLE

#### SOILS CHARACTERISTICS OF WEST MARLBOROUGH TOWNSHIP

						Severe Soil Limitations*			
Soil Symbol	Soil Name	Slope (%)	Agricultural Rating	Hydric	On-lot Sewers	Dwellings with Basements	Dwellings without Basements		
MgC	Manor loam	8-15	3						
MgC2	Manor loam	8-15	3						
MgC3	Manor loam	8-15							
MgD	Manor loam	15-25			SL	SL	SL		
MgD2	Manor loam	15-25			SL	SL	SL		
MgD3	Manor loam	15-25			SL	SL	SL		
MhE	Manor loam & channery loam	15-25			SL	SL	SL		
MhE2	Manor loam & channery loam	15-25			SL	SL	SL		
MhE3	Manor loam & channery loam	15-25			SL	SL	SL		
MkF	Manor	35-60			SL	SL	SL		
MmD	Manor very stony loam	8-15			SL, PS	SL	SL		
MmF	Manor very stony loam	25-60			SL, PS	SL	SL		
Mn	Melvin silt loam	0		Υ	FL	FL	FL		
MoC2	Montalto channery silt loam	8-15	3		Р	SS	SS		
We	Wedhadkee silt loam	0		Υ	FL	FL	FL		
WoA	Worsham silt loam	0-3		Υ	W	W	W		
WoB	Worsham silt loam	3-8		Υ	W	W	W		
WoB2	Worsham silt loam	3-8			W, PS	W	W		
* FL – flo	ooding / PS – percs slowly / SL –	slope / SS -	- shrink-swell	potential	/W-weti	ness			

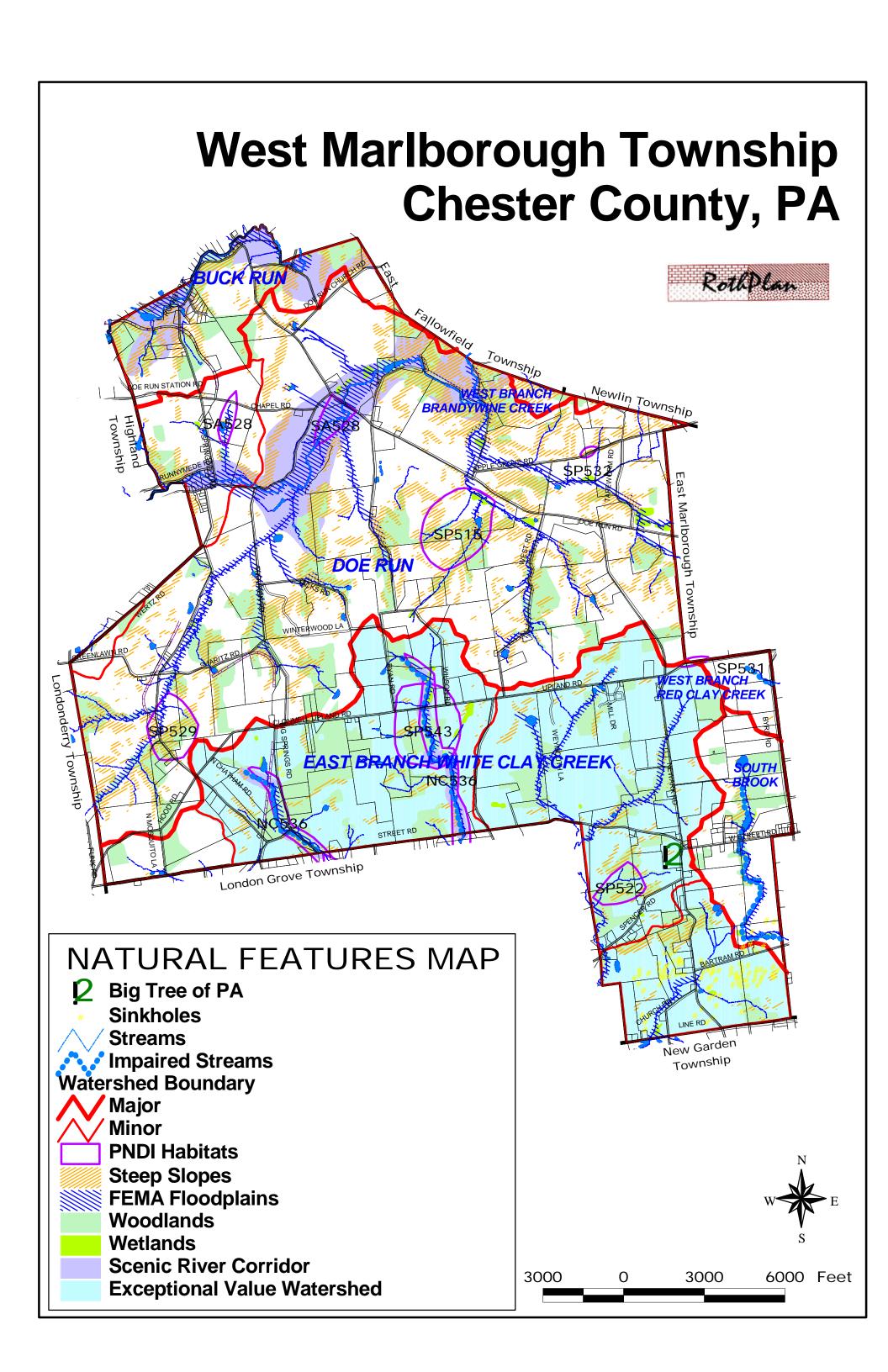
## D. SURFACE WATERS

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 that dispose of surface water from that area. Drainage basins are separated by ridgelines. All of the water draining from West Marlborough Township eventually flows into the Christina River and then onto the Delaware River. The Township's major and minor drainage basins are identified on the *Natural Features Map*.

**Doe Run** is the largest drainage area and drains most of the northern half within the Township. Within the Township water flows in a northeasterly direction and discharges into



the West Branch of the Brandywine Creek which flows east towards the Delaware River. Various unnamed tributaries "fan-out" in a dendritic pattern forming the low-lying shallow valleys characteristic of the Township's landscape.

A tributary of Doe Run is located along the northern tip of the Township. **Buck Run** forms the Township's northernmost boundary for a short stretch and connects with Doe Run just outside of the Township to the east in East Fallowfield Township. Only small areas of the Township are located in this watershed.

The second largest watershed is the **East Branch of the White Clay Creek**. This generally serves the southwestern half of the Township largely south of Clonmell Upland Road. Water flows in a southerly direction from a handful of unnamed tributaries which do not converge until they reach London Grove Township. Most of the area within this watershed has been designated as exceptional value and is described below.

Along the eastern boundary of the Township south of Upland Road are two other smaller watersheds that extend into West Marlborough Township. The West Branch of the Red Clay Creek and South Brook have their headwaters here. Water flows in a southeasterly direction and water from South Brook flows into the West Branch of the Red Clay Creek a short distance into East Marlborough Township.

## **HIGH QUALITY & EXCEPTIONAL VALUE WATERS**

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

**High Quality Waters** include streams or watersheds that have excellent waters and environmental or other features that require special water quality protection. High quality waters are to be protected as they exist; water quality can only be lowered if a discharge is a result of necessary social and economic development and all existing uses of the stream are protected.

**Exceptional Value Waters** include streams or watersheds that constitute outstanding national, state, Township, or local resources, such as waters of national, state, or county parks or forests; waters which are used or projected for use as a source of water supply; waters of wildlife refuges of state game lands; waters which have been characterized by the Pennsylvania Fish Commission as wilderness trout streams and other waters of substantial recreational or ecological significance. Exceptional value waters are to be protected at their existing quality because they have outstanding ecological and/or recreational values. The social and economic justification procedures do not apply. Water quality in exceptional value waters simply cannot be degraded."<sup>4</sup>

About 3520 acres of the Township consist of Exceptional Value waters associated with the headwaters of the East Branch of the White Clay Creek.

<sup>&</sup>lt;sup>3</sup>Pennsylvania Department of Environmental Protection, Local Protection of High Quality Streams (Harrisburg, PA: June, 1981), p. 1.

<sup>&</sup>lt;sup>4</sup> Pennsylvania Department of Environmental Protection, Local Protection of High Quality Streams (Harrisburg, PA: June, 1981), pg.3

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. It is noted that the Township has a "good" start in this effort. Section 511 of the Township Zoning Ordinance applies performance standards to this area that are designed to protect surface water quality. Specifically this section:

- prohibits solid waste disposal and quarry-related uses;
- requires vegetative streamside buffers;
- imposes setbacks for on-lot sewers:
- establishes large-lot zoning with minimal lot coverage;
- requires the applicant to demonstrate methods to manage stormwater control soil erosion and sedimentation and prevent surface and groundwater degradation; and,

## Benefits of High Quality Waters

- 1. Recreational values
- 2. Fisheries protection
- 3. Aesthetic/visual
- 4. Health and welfare
- requires the applicant to demonstrate livestock handling techniques to prevent surface water degradation.

The reference to the "Surface Waters Map of the Environmental Assessment" contained within Section 511 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township Comprehensive Plan" once the Plan is adopted.

The Township has also adopted waste handling and waste disposal reporting requirements within Section 321 of its zoning ordinance. Such zoning provisions require prospective uses to demonstrate compliance with all applicable waste handling and disposal regulations at the local, state and Federal levels as applicable.

For large-scale industries, concentrated feeding animal operations (CAFOs) and/or other uses that generate large waste volumes or hazardous wastes, the reporting

## 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

of this information should be tied with the grant of a special exception or a conditional use so that expert testimony can be provided and scrutinized prior to approval of the use. For other less intensive uses the provision of this information should be prerequisite for granting a zoning permit and all subsequent activities

should be required to comply with such handling and disposal techniques for continued use and occupancy. Should a use need to change its waste handling and disposal techniques, such changes should be reported to the respective municipality. The provision of this information can also be helpful to local fire companies who may have special procedures to follow for uses with hazardous materials and wastes.

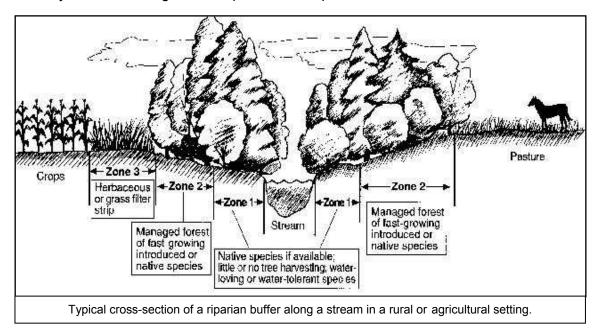
The PA DEP also provides a measure of protection to Exceptional Value Waters by regulating the discharge of wastewater, and other point sources of pollution. However, nonpoint source pollution such as agricultural and other types of runoff is only partially regulated. Under Pennsylvania law, the regulation of land uses and activities which generate nonpoint source pollution is



Riparian buffer along tributary to White Clay Creek.

largely a municipal function. To avoid degradation of these waters, existing and potential future land uses and activities must be carefully scrutinized.

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 and Chester County demonstrate that riparian buffers offer real advantages in the removal of harmful nutrients and sediment from storm water 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.



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 Delaware River and reduce its summer water temperature. Conversely, 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. While the Township already requires 80-foot-wide vegetative buffer strips along watercourses here, the management of riparian buffers is also critical to the buffer's effectiveness. More information about this topic and a sample ordinance are contained with Chapter X of this Plan.

#### **IMPAIRED STREAMS**

"The Department of Environmental Protection (DEP) has an ongoing program to assess the quality of waters in Pennsylvania and identify streams and other bodies of water that do not meet water quality standards as "impaired." Water quality standards are established for the different uses that waters can support and the respective goals established to protect those uses. Uses include, among other things, aquatic life, recreation, and drinking water. Water quality goals are numerical or narrative water quality criteria that express the in-stream levels of substances that must be achieved to support the uses. Periodic reports on the quality of waters in the Commonwealth are required under section 305(b) of the federal Clean Water Act.

"Section 303(d) of the Act requires states to list all impaired waters not supporting uses even after appropriate and required water pollution control technologies have been applied. For example, a waterbody impacted by a point source discharge that is not complying with its effluent limit would not be listed on the 303(d) list. The Department would correct the water impairment by taking a compliance action against the discharger. Waterbodies that still do not meet water quality standards after this additional evaluation, however, must be included on the 303(d) list of impaired waters. The 303(d) list includes the reason for impairment, which may be one or more point sources (like industrial or sewage discharges), or non-point sources (like abandoned mine lands or agricultural runoff).

"States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to the quality that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water. If states do not develop TMDLs, EPA is required by regulation to do so.

"A TMDL is designed to reduce pollutant loads to impaired waters and enable these waters to meet water quality standards. Pennsylvania has committed to developing TMDLs for all impaired waterbodies and will use both traditional and new approaches to correct water quality problems.<sup>5</sup> Within Chester County the State is developing TMDLs for those impaired segments of the Brandywine, White Clay, and Red Clay Creeks and the Christina River; however, these have not yet been completed.

Within the Township about 4 miles of stream length have been identified as "impaired." First the two western tributaries of the East Branch of White Clay Creek appear on the PA DEP Section 303d list of impaired streams due to problems of nutrients, organic enrichment/low dissolved oxygen, pesticides, siltation, suspended solids and water/flow variability. Another segment of South Brook (a tributary to the Red Clay Creek) has also been identified on the PA DEP Section 303d list of impaired streams within the Township because of problems with organic enrichment/low dissolved oxygen, siltation and water/flow variability. These segmants have been depicted on the Natural Features Map.

<sup>&</sup>lt;sup>5</sup> http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/wqstandards/303d-report.htm, March 26, 2003

<sup>&</sup>lt;sup>6</sup> Watersheds, Chester County Board of Commissioners, September 17, 2002, pg.55

Although DEP has not yet completed the TMDLs for these waterways, "the Christina Basin Water Resources Committee is addressing point and non-point source water quality problems through a two-part strategy.

"Point Source Pollutants - Part 1 was initiated in 1994 and consists of a five year stream monitoring and watershed modeling program aimed at controlling point sources of pollutants such as end-of-pipe wastewater discharges. This point source program is being conducted for the first three years by collecting stream water-quality data at over 30 monitoring stations in Pennsylvania and Delaware. Using data from the three year stream monitoring effort, a water quality and hydrodynamic model will be developed to define point source loading. Based on results from the stream monitoring effort and models, point-source reduction programs will be developed which may include modifying effluent limits and/or improvements to wastewater treatment plants.

"Non-Point Source Pollutants - Part 2 consists of identifying non-point source pollutants such as urban and rural runoff. The contribution of the non-point source pollutants will be identified by collection of land use and soil data, and establishing an event-based storm water monitoring program. A non-point source pollutant load model will be developed to provide loading allocations to the receiving water quality model developed in Part 1. Using results from the Christina Basin non-point source load model and other techniques, subwatersheds will be prioritized for water quality improvements. Non-point source programs may include best management practices (BMPs) such as public education, ground water infiltration systems, reforestation, agricultural modifications, and riparian stream buffers to control storm water runoff and reduce water quality impacts. More information can be obtained from their website at "http://www.wr.udel.edu/cb/".

## NATIONAL WILD AND SCENIC RIVERS

"In the 1960s, the country began to realize that our rivers were being dammed, dredged, diked, diverted and degraded at an alarming rate. To lend balance to our history of use and abuse of our waterways, Congress created the National Wild and Scenic Rivers System. In October of 1968, the freshly penned Wild and Scenic Rivers Act pronounced,

"It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

"But designation as a wild and scenic river is not designation as a national park. The

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<sup>&</sup>lt;sup>7</sup> http://www.wr.udel.edu/cb/, March 10, 2004

Wild and Scenic Rivers Act does not generally lock up a river like a wilderness designation. The idea is not to halt development and use of a river; instead, the goal is to preserve the character of a river. Uses compatible with the management goals of a particular river are allowed; change is expected to happen. Development not damaging to the outstanding resources of a designated river, or curtailing its free flow, are usually allowed. The term "living landscape" has been frequently applied to wild and scenic rivers. Of course, each river designation is different, and each management plan is unique. But the bottom line is that the National Wild and Scenic Rivers System is not something to be feared by landowners."

In 1972 the Pennsylvania Scenic Rivers Act No. 283 established the Pennsylvania Scenic Rivers System. This program intends to protect the outstanding aesthetic, pastoral, and recreational values possessed by many waterways and adjoining lands, by encouraging sound conservation practices along them. At that time, the PA DER created a task force to develop a list of those prioritized waterways that should be evaluated under the Scenic Rivers System. As part of this prioritization, the Brandywine Creek was awarded an "1A" ranking, the highest priority possible.

**Lower Brandywine River** - In November, 1987, the PA DER and the Brandywine Conservancy completed a study designed to gain official designation of the "Lower Brandywine" as a Scenic River. The study area included the following sections of the Creek:

- Main stem of River northwest of the Delaware State line;
- East Branch of the River south of Downingtown; and,
- West Branch of River south of Modena.



Included in the West Branch are Buck and Doe runs, both of which traverse West Marlborough Township and comprise about 970 acres.

Then on June 16, 1989 the Lower Brandywine Scenic River was officially designated as a Pennsylvania Scenic River. The Buck and Doe Run segments were specifically classified as pastoral corridors – characterized by qualities found in a rural farming environment including both natural and man-made features. The Act's classification system describes pastoral corridors as follows; this implies the types of uses and settings appropriate along the Buck and Doe Runs:

"Shorelines or watersheds may support a full range of farm or farm-related activities. Small communities or any concentration of habitation should be limited to relatively short stretches. Man-made development, timber harvest, and other resource uses are permitted if accomplished without substantial adverse effects on the pastoral

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<sup>&</sup>lt;sup>8</sup> http://www.nps.gov/rivers/about.html, March 18, 2004

appearance."9

Section 511.3. of the Township Zoning Ordinance regulates suitable activities within the Lower Brandywine Scenic Rivers Corridor. The reference to the "Surface Waters Map of the Environmental Assessment" contained within Section 511 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township Comprehensive Plan" once the Plan is adopted.

East Branch of the White Clay Creek - "The White Clay Creek watershed is one of only a few relatively intact, unspoiled and ecologically functioning river systems remaining in the highly congested and developed corridor linking Philadelphia, Pennsylvania, with Newark, Delaware. The watershed drains 69,000 acres in southeast Pennsylvania and northwest Delaware, and some 95,000 people live within its boundaries. The proposed federally designated areas include all streams of the second order or higher. Under this proposal, the federal designation would include: White Clay Creek, from the confluence of the East and Middle branches in London Britain Township, Pennsylvania downstream to its confluence with the Christina River in New Castle County, Delaware; the East, Middle, and



West branches within Pennsylvania; Middle Run, Pike and Mill creeks in Delaware; and all second order streams as shown on the Recommended Designated Area Map.

"The management plan proposes a strategy for managing the White Clay Creek as a National Wild and Scenic River. 10

The Plan lists the following 8 resource-protection objectives for local governments to consider as follows:

- 1. Protect and improve base flows and stream habitat through recharge and protect the Cockeysville Marble recharge areas from contamination;
- 2. Protect and improve water quality and stream habitats through floodplain and wetland protection;
- 3. Protect and improve water quality and stream habitats through riparian forest buffers;
- 4. Protect and improve water quality and stream habitats through sediment and stormwater management;
- 5. Protect and improve water quality and stream habitats through slope protection;
- 6. Sustain biodiversity through habitat linkage and management;
- 7. Encourage dedication, purchase and stewardship of open space; and,



<sup>&</sup>lt;sup>9</sup> "Lower Brandywine Scenic Rivers Evaluation and Management Study", Department of Environmental Resources and the Brandywine Conservancy, (November, 1987), pg. 96.

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<sup>10</sup> http://mercury.ccil.org/~wcc\_ws/management\_plan/index2.htm

8. Protect historic, cultural and archaeological resources within the White Clay Creek watershed 11.

Section 511.3. of the Township Zoning Ordinance regulates activities within the Lower Brandywine Scenic Rivers Corridor. *This section should be updated and expanded to include areas within the East Branch of the White Clay Creek corridors.* 

## **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

#### **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.

most types of environments. The many benefits wetlands provide are summarized in the above inset.



Wetlands along Rokeby Road.

About 107 acres of wetlands within the Township have been identified using the U.S. Department of the Interior's National Wetlands Inventory, derived from high altitude aerial photograph interpretation of surfacial 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 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. The following hydric soils within the Township have been depicted with severe building and sewer constraints on the Soils & Geology Map contained earlier in this Chapter.

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<sup>&</sup>lt;sup>11</sup> Ibid.

#### HYDRIC SOILS TABLE

#### HYDRIC SOILS CHARACTERISTICS OF WEST MARLBOROUGH TOWNSHIP

					Severe Soil Limitations*			
Soil Symbol	Soil Name	Slope (%)	Agricultural Rating	Hydric	On-lot Sewers	Dwellings with Basements	Dwellings without Basements	
CaB	Calvert silt loam	3-8		Υ	W, PS	W	W	
Gu	Guthrie silt loam	0		Υ	W, PS	W	W	
Mn	Melvin silt loam	0		Υ	FL	FL	FL	
We	Wedhadkee silt loam	0		Υ	FL	FL	FL	
WoA	Worsham silt loam	0-3		Υ	W	W	W	
WoB	Worsham silt loam	3-8		Υ	W	W	W	
* FL – flo	ooding / PS – Percs Slowly / SL -	- slope / SS	– shrink-swell	potentia	I / W - wet	tness		

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.

Future planning should avoid development in areas with wetlands or hydric soils. Section 508 of the Township Zoning Ordinance regulates activities within important wildlife habitats, including wetlands. The reference to the "Important Wildlife Habitats Map of the Environmental Assessment" contained within Section 508 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township

#### **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.

Comprehensive Plan" once the Plan is adopted.

## **FLOODPLAINS**

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 wildlife habitats. Floodplain protection safeguards the public health, safety and welfare, while

## **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.

protecting natural resource values.

About 880 acres of flood hazard areas within the Township 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, which 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 *Natural Features Map*. The presence of alluvial soils may also be used to identify additional areas subject to periodic inundation. The latest Soil Survey for the County identifies the following alluvial soil types for the Township and their respective characteristics:

ALLUVIAL SOILS TABLE								
ALLUVIAL SOILS CHARACTERISTICS OF WEST MARLBOROUGH TOWNSHIP								
Soil Symbol	Soil Name	Slope (%)	Agricultural Rating	Hydric	On-lot Sewers	Severe Soil Lim  Dwellings with  Basements	Dwellings without Basements	
Ch	Chewalca silt loam	0	2		FL	FL	FL	
Cn	Conagree silt loam	0	1		FL	FL	FL	
LaA	Lawrence silt loam	0-3	3		FL, W, PS	FL, W	FL, W	
LaB	Lawrence silt loam	3-8	3		FL, W, PS	FL, W	FL, W	
Mn	Melvin silt loam	0		Υ	FL	FL	FL	
We	Wedhadkee silt loam	0		Υ	FL	FL	FL	
* FL – flo	ooding / PS Percs Slowly - / SL -	- slope / SS	- shrink-swell	potential	I / W - wet	ness		

The delineation of alluvial soils generally provides wider floodplains than those identified by FEMA; this is an option for increased protection against flooding. The Township's alluvial soils have been depicted with severe building and/or sewer limitations on the Soils and Geology Map contained earlier in this Chapter.

Future planning should avoid development of floodplains and or alluvial soils. Sections 204 and 511 of the Township Zoning Ordinance regulates activities within floodplains and alluvial soils in compliance with FEMA standards. The reference to the "Surface Waters Map of the Environmental Assessment" contained within Section 511 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township Comprehensive Plan" once the Plan is adopted.

#### STORM WATER MANAGEMENT

One of the most frequently described planning problems is the impact from storm water runoff. As an area develops, the patterns, volume and velocities of storm water 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. Storm water runoff can and should be managed. The benefits of storm water 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

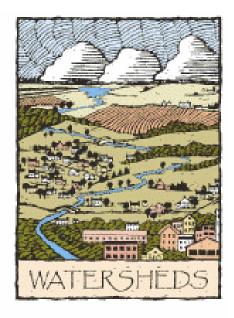
## **Benefits of Storm Water Management**

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

management occurred by applying a watershed-based, comprehensive program of Township 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. Once adopted, local municipalities are required to implement stormwater management ordinances that rely upon selected management techniques within 6 months or risk the loss of future State funding far a variety of projects and activities.

In September, 2002 Chester County adopted its Watersheds Plan. Although this is not technically an Act 167 Plan as mandated by the State, it nonetheless offers valuable analysis and recommendations relative to the control of stormwater.

One of the key tools of the plan was its Watershed Management Model (WMM) to establish baseline conditions of runoff and pollution. WMM was applied to the study watersheds for both present conditions and 2020 conditions based on population growth and land conversion. Results show that, while pollutant loads rise significantly when viewed simply on the basis of population growth and characteristic land use, the incorporation of Best Management Practices (BMPs) can reduce impacts of pollutant runoff for 2020 land use conditions to levels below that of 1998 conditions.



BMPs make a big difference. The model provides insight into the potential to reduce pollutant loading if the entire study area were provided with the recommended BMPs. One analysis conducted for stream sediment loading suggests that West Marlborough Township could reduce its pollution by 50 to 82 percent by year 2020 by using BMPs.

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 provide varying levels of protection and are becoming more widely utilized within Pennsylvania.

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. Nonstructural BMPs are generally implemented through the enactment of municipal ordinances that specify site design and construction standards and operational procedures and activities. The table on page 31 lists BMPs for various land use settings.

Recognizing the length of time required to prepare the 21 different watershed management plans required under Act 167, the Watersheds Plan recommends an interim strategy be adopted immediately by local municipalities throughout the County. The following ten principles of comprehensive stormwater management that should be incorporated into local stormwater management ordinances until such time as they can be refined through completion of their respective Act 167 Plan:

- Reduce the volume of stormwater generated by minimizing impervious coverage (eg. shorter driveways, narrower cartways, one-sided sidewalks, porous pavement, alternative cul-de-sacs) utilizing conservation cluster designs and revising local zoning and subdivision ordinances accordingly;
- 2. Design new developments and their stormwater systems to achieve "open-meadow" hydrologic characteristics;
- 3. Protect groundwater through infiltration of rainfall and stormwater;
- 4. Remove pollutants from stormwater runoff prior to their release into streams or groundwater;
- 5. Protect stable stream channels and the natural features and evolutionary processes that determine and them;
- 6. Reduce flood peak runoff rates at levels of an open meadow condition;
- 7. Insure the continuous operation of stormwater management facilities through proper maintenance:
- 8. Protect lands adjoining development from stormwater impacts;
- 9. Establish forested riparian buffer corridor networks; and,
- 10. Protect wetlands and floodplains to reduce runoff and flooding. 12

The Chester County Conservation District assembled a manual of examples of use incorporating BMPs. It is entitled the "Self-Guided Stormwater Best Management Practices (BMP) Tour, April, 2002.

Considering the use of BMPs and the County's 10 principles of stormwater management, West Marlborough Township should review its stormwater management ordinance with its engineer and make necessary revisions. Once local regulations have been developed, the Township should engage a community planner to make attendant adjustments to its zoning and subdivision/land development ordinances that would act as an impediment to more effective stormwater management.

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<sup>&</sup>lt;sup>12</sup> Watersheds, Chester County Board of Commissioners, September 17, 2002, pgs. 83-84



## BEST MANAGEMENT PRACTICES

<u>Agricultural BMPs</u> 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.

<u>Conservation BMPs</u> 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.

<u>Stormwater Management BMPs</u> 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.

<u>Land Development BMPs</u> 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 if 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 rare, threatened or endangered.

State and Federal agencies have become increasingly concerned over the protection of local natural habitats as a means of

## **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.

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 & HABITATS

Information for this section was obtained from the Chester County Natural Areas Inventory (1994 with 2000 Update). The Chester County Natural Areas Inventory is a document compiled and written by the Pennsylvania Science Office of The Nature Conservancy. It contains information on the locations of rare, threatened, and endangered species and of the highest quality natural areas in the county.

Accompanying each site description are general management recommendations that would help to ensure the protection and continued existence of these rare plants. animals and communities. The recommendations are based on the biological needs of these elements (species and communities). The recommendations are strictly those of The Nature Conservancy.

Implementation of the recommendations is up to

the discretion of the landowners. However, cooperative efforts to protect the highest quality natural features through the development of site-specific management plans are greatly encouraged. Landowners working on management or site plans of specific areas described in this document are encouraged to contact the Pennsylvania Science Office of The Nature Conservancy for further information. 13

Through its partnership in the Pennsylvania Natural Diversity Inventory (PNDI), the Nature Conservancy uses some 800 sources of information to map, describe and disseminate facts about important natural features.

Important plant habitat

The inventory includes animals, plants, habitats, and natural communities that are unique biological resources within the county. The end results provide a list of the most important biological sites, identify their living resources, and provide a map of their locations. Recommendations are included with the inventory on the management of the

<sup>&</sup>lt;sup>13</sup> Chester County Natural Areas Inventory, pg. i.

living resources present.

It is the policy of the PNDI not to release detailed site-specific information about significant natural features for general exposure to the public. This protects the feature from persons who become curious and attempt to locate and collect such features. Instead, PNDI provides generalized locations of known or historic natural features occurrences.

Using PNDI's criteria, it is unsurprising that the Township contains several important habitats. The following tabulates information about these sites that are keyed to their depiction on the Natural Features Map.

Important Natural Areas/Habitats within the Township				
Site Name	Description/Notes	Management Strategies		
SP515	Excellent population of a rare plant within the former King Ranch.	Monitor population; this might be best site for rare plant within PA.		
SA528	One globally-rare and State-rare animal observed in several open wet meadows within the former King Ranch.	Protect wetlands and surrounding upland habitat for migration and nesting.		
SP522	Good population of a "tentatively undetermined" plant species at the Stroud Water Research Center.	Mowing in spring or early summer may reduce competition from weeds.		
SP529	Fair to good population of a rare tentatively undetermined plant species at Green Lawn South.	Site protected under easements; monitor and protect this shaded rocky spring run from contamination of sediments from PA Route 841.		
SP531	Poor population of a Pennsylvania "threatened" annual grass at "East Upland Site."	Limit mowing to early summer and mid autumn. Avoid herbicides. Remove Japanese honeysuckle.		
SP532	Poor population of a Pennsylvania "threatened" annual grass at "Apple Grove Road Site."	Limit mowing to early summer and mid autumn. Avoid herbicides.		
SP 543	Small population of a PA-endangered plant in moist floodplain woodland near the head waters of the East Branch of the White Clay Creek.	No immediate threats are apparent.		
NC536 & NC 518	East Branch of White Clay Creek - PA DEP designated Exceptional Value stream with a "High-Gradient Coldwater Creek Natural Community."	Monitor water quality and encourage vegetated buffers.		
Source: Chester County Natural Areas Inventory (1994 with 2000 Update)				

Many of these important natural areas are contained within other inventoried natural features that have combined to produce the pristine areas of the Township. Consequently these areas will be located outside of future intensive development growth areas. Furthermore, techniques used to

#### **Natural Areas/Habitats 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.

manage these other resources should assist in the protection of these habitats. However, rare and endangered plant and animal species must be preserved and protected from

indiscriminate impact even in rural settings by using development review procedures intended to conserve habitats in which these species occur.

Section 508 of the Township Zoning Ordinance regulates activities within important wildlife habitats, including habitats. The reference to the "Important Wildlife Habitats Map of the Environmental Assessment" contained within Section 508 should be replaced with a reference to this "Natural and Cultural features Chapter of the Township Comprehensive Plan" once the Plan is adopted. Applicants should be required to meet and investigate management strategies with representatives of The Nature Conservancy prior to approval by the Township.

## WOODLANDS

Woodlands comprise approximately 2158 acres within the West Marlborough Township and often coincide with steeply-sloped land or low-lying streambanks. 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.

Section 200.15 of the Township Zoning Ordinance contains suitable regulations for forestry operations.

Next. the concentrations of woodland deserve protection particularly in light of the Township'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 **Benefits of Woodlands Protection** 

- 1. Slows erosion by stabilizing steep slopes and stream banks through extensive root systems.
- 2. Aids in storm water 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 producing beneficial carbon dioxide.
- 7. Moderates climatic conditions by providing wind-breaks and shade from direct sunlight.

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 habitat areas. In addition, developers as well as woodlot

### **Woodland Protection Measures**

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

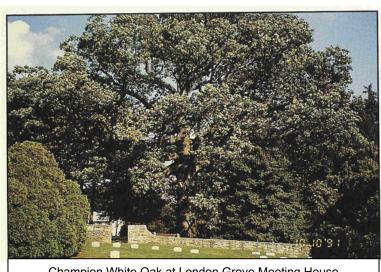
managers should be encouraged to maintain established wildlife corridors in the form of linkages to other wooded areas. *Municipal officials should consider the adoption of zoning and subdivision and land development standards limiting the removal of trees* 

in sensitive areas, and encouraging the preservation of wildlife corridors.

## BIG TREES OF PENNSYLVANIA

When assessing the natural features of an area, trees warrant special consideration. Apart from their obvious aesthetic appeal, trees offer such practical benefits as shade from solar radiation, wind reduction, noise abatement, air pollution mitigation, and an environment for wildlife. However, the trees discussed in this section transcend a simple summation of attributes. They are natural phenomenons and should be protected as such.

Big Trees of Pennsylvania. compiled by a Pennsylvania Bureau of Forestry-sponsored committee. is a registry reserved for the largest member of every species of tree found in Pennsylvania. When assessing the size of a tree. Big Trees of Pennsylvania measures the circumference of the trunk, the height of the tree, and the spread.14 average crown Using this criteria, one tree in West Marlborough Township was were judged to be the largest of its species.



Champion White Oak at London Grove Meeting House

A White Oak (Quercus alba) is located on the grounds of the London Grove Meeting House just west of the Village. This tree was probably already a good size when the Meeting House was founded in 1714. First nominated in 1968 it has withstood many subsequent challenges and still remains the co-champion. 15

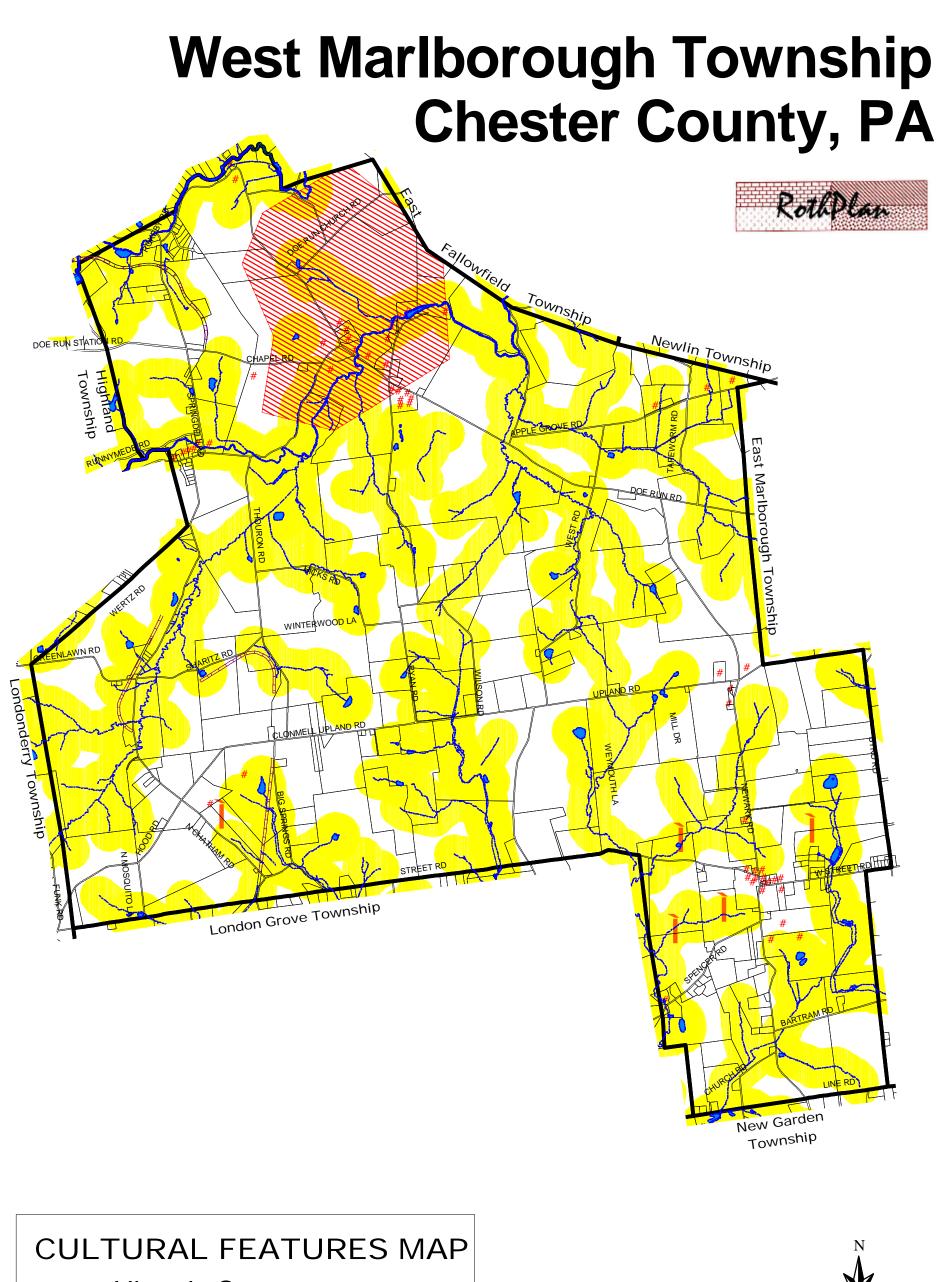
#### F. HISTORIC SITES AND DISTRICTS

West Marlborough Township, like much of southeastern Pennsylvania, is fortunate to possess a rich cultural heritage. Today this heritage is apparent from the many older individual buildings, structures and related settlements that are scattered throughout the Township. Local officials and residents recognize the value of conservation, rehabilitation, and adaptive reuse of these historic resources features as a means of providing a glimpse into the area's important past. Additionally, historic preservation can provide educational opportunities regarding historic lifestyles and architecture. Wellmaintained historic areas create a sense of unique identity that stimulates civic pride and economic vitality, and can become a basis for tourism.

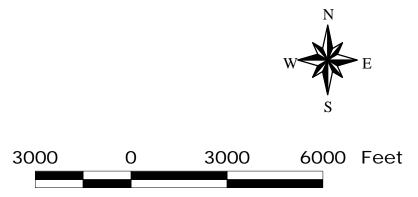
This Section will present analyses of previous historic sites' inventories and offer suggestions regarding preferable means of protecting important sites through this

<sup>&</sup>lt;sup>14</sup>Maurice Hobaugh, Ed., *Big Trees of Pennsylvania*, (Mechanicsburg, PA: 1993), p. 7.

<sup>&</sup>lt;sup>15</sup> Ibid, p.31.



# Historic Structures Historic District Known Archaeology Suspected Archaeology



planning effort and future regulatory programs. Two experts in this subject area were interviewed for the following information.

First, Martha Leigh Wolf (Historic Preservation Specialist with the Brandywine Conservancy) coordinated a Chester County Historic Sites Survey that was conducted under the direction of the Chester County Historical Society. This survey made use of citizen volunteers and identified 136 individual sites within West Marlborough Township that were evaluated as potential historic resources.

Of these potential sites, 58 were recommended for inclusion as part of a federal, state, or local regulatory program. In addition, 24 of these sites have been listed on the National Register of Historic Places either individually, or part of a larger historic district. These nationally-designated resources are specifically enumerated on the Cultural Features Sites Map, so that future planning analyses can consider their protection.

Much of the Township's historical charm is derived from its small crossroads settlements. For example, the Doe Run Village Historic District was listed on the national register in 1985. Several excerpts from the nomination form for this district explain the character of this area and its significance.

"Doe Run village is rather unusual in that its natural features, i.e., the stream, pasture and meadowland, and backdrop of rolling hills have been virtually undisturbed by manmade intrusions since the last century. In a visual sense, the integrity of these features forming the historic setting is as important to the significance of the district as its complement of historic structures. "The village lies wholly within the valley drained by Doe Run Creek and its minor tributaries. [passages omitted]



"The valley drained by Doe Run Creek is unusually wide in the vicinity of the village. For more than one hundred years it has been used primarily as pasture land. An underlying band of limestone serves as an aquifer and enriches the soil and grasses, thereby strengthening the bones of feeding cattle. As early as 1918 (prior to its purchase by Lammot DuPont as a stock farm) the area was renowned as "the great pasture land of valley," its "evergreen meadows highly prized for their abundant pasturage." Due to the area's long use for stock grazing, the adjoining hills essentially are clear of timber. The resulting unobstructed view of the gentle contours of the rich green valley has become a favorite of natives and tourists alike. By more than one visiting Englishman, the natural landscape of Doe Run has been likened as strikingly similar to the "back-country" of England.

"The rolling hills serve as the backdrop for the village itself, comprised of 29 principal buildings, as a group possessing integrity of location, design, materials, workmanship, feeling and association. Like most small, rural historic villages, there are no examples of high style among the assorted modest frame, brick, and stone buildings representing various vernacular architectural traditions and historic uses.

"Given Doe Run's currently (and historically) scattered buildings, the lack of small parcel property lines, and its significance as great pasture and meadowland, the boundaries of the proposed district have been drawn to incorporate the village view shed, i.e., that which can be seen upon entering Doe Run on existing roads or by standing at a central point in the village.

"Using this method, the district spans approximately 500 [sic, 850] acres of land bordering Doe Run Creek and takes in all buildings in, near, and visible from the village. The adjacent hills, most of which rise to between 450-500 feet, form a strong visual boundary on all sides. "<sup>16</sup>

Like Doe Run Village, other village settlements contain groupings of historically-significant features. The 1982 Chester County Historic Sites Survey indicated Rokeby Hollow, Upland, and London Grove, as potential historic districts. In addition, Ms. Wolf opined that another historic district might be approved in the vicinity of Primitive Hall, West Marlborough Township's most important historic building. This district would be based on the Pennock family which built the Hall and other residences; however, more research would be necessary to determine which properties would tie-in with this theme. <sup>17</sup>

In order to protect the visual integrity of these historic settlements, Ms. Wolf offered suggestions regarding future land use planning in their midst. She stated that it would be preferable to orient future growth areas away from these vulnerable historic settings rather than concentrating development around them, as was often the rule in former planning efforts. By creating new freestanding settlements in other areas, the existing historical integrity of the area will not be negatively impacted through modern architectural and site planning designs. This is one of many objectives that will need to be incorporated into the Township's future land use scheme, once this inventorying process is complete.

Fortunately Chester County is "gearing-up" a new project to update its Countywide historic sites inventory and link the new data with the County Geographic Information System (GIS). Specifically, the Chester County Parks and Recreation Department will coordinate the delivery of updated, digital GIS maps of the county's parcels to various local Historic Commissions.

Then members of these local commissions will conduct field checks to verify the accurate location of each historic site on a property-by-property basis to be reflected in the GIS data. Additionally changes and updates in the assignment of UPI numbers to historic resources are being made accordingly. Local commissions are also noting any structures from the previous study (1979-1982) that have been destroyed or altered in

<sup>&</sup>lt;sup>16</sup> "Doe Run Village National Register of Historic Places Inventory-Nomination Form", Brandywine Conservancy, pgs. 2 and 3

<sup>&</sup>lt;sup>17</sup> March 30, 1988 letter from Martha Leigh Wolf to Harry B. Roth, pg. 2.

some fashion. The Commissions will also add sites, buildings, and structures that have matured since the last study into the fifty-year category. 18

Shortly regional coordinators from the Chester County Historic Preservation Network Board of Directors will conduct an orientation meeting to "deputize" local experts. Then subsequent to a field check by Jane L. S. Davidson, and property review in coordination with each Municipal Historic Commission, updated lists of municipal historic resources will be created and incorporated into a new GIS layer for the County. Maps of historic resources depicted in this manner for each municipality, as well as corresponding tabular parcel data, will then be printed and bound to comprise an overall Chester County Historic Resources Atlas. The compiled information will also be submitted to the Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission. <sup>19</sup>

Local Officials from West Marlborough Township should quickly recruit and support local historic preservation experts who have an interest and/or institutional knowledge of the Township's historic resources to assist in this inventory. These experts must also be able to devote considerable time to this effort over the next two years. These local experts should then conduct this inventory with the help of the County staff so as to accurately reflect the Township's important role within the County's history.

Moreover, with this definitive inventory, the Township/County can nominate such resources for inclusion in the National Register for Historic Places and/or the Pennsylvania Register for Historic Places. Finally, the Township can create historic districts that include the creation of an Historical Architectural Review Board (HARB) to oversee building activity within designated historic districts. Once this local historic district has been created, the Township can legally regulate the architectural and visual elements of proposed developments better than attempting to deal with these issues through zoning and subdivision/land development review procedures. The Township should consider the creation of local historic districts (under PA Act 167) if it wishes to provide the highest level of legal protection to its historic sites.

However, an effective historic preservation program does not necessarily require a strict program of architectural control like that associated with an Historic Architecture Review Board. Some municipalities are not ready for such a rigorous approach and 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.

<sup>&</sup>lt;sup>18</sup> May 3, 2004, email from Jane Davidson to Harry Roth.

<sup>&</sup>lt;sup>19</sup> Ibid.

Another intermediate approach to historic preservation is the Historic Conservation District. Often established as an overlay district, an Historic Conservation District is designed to preserve and enhance the character of a neighborhood or Township by encouraging infill development and new construction that respects the context of the existing built environment and its appearance. New construction and demolition are the activities regulated most frequently in conservation districts. The municipal zoning officer usually handles administration.

The conservation district varies from the historic architecture review board district in that exterior change to existing buildings is usually not a regulated activity. A conservation district could be an alternative to a historic district, in the sense that, it does not focus primarily on the historic architecture and its character-defining features but rather the cultural significance of an area. The emphasis is to preserve the physical character of an area (i.e. the farmscapes or the Townships historic villages).

Local officials are encouraged to consider the benefits of these voluntary approaches and gauge public reaction. The following list some of the actions that can better incorporate historic preservation within the Township.

Successful historic preservation involves more than a mere compilation of data. Rather, it should recognize the importance of its historic defining features and indicate how those features relate to the future by:

- 1. 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);
- 2. Identifying individual resources and districts based on the survey that could be eligible for the National Register of Historic Places and apply for listing in the Register;
- 3. Adding regulations into the zoning ordinance which will help achieve historic preservation goals, like the review of demolitions; design guidelines for infill construction; Historic Overlay Zones; incentives for adaptive reuse, rather than demolition, etc.;
- 4. 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,
- 5. Developing partnerships with community groups and organizations to facilitate a public education initiative about local history and the historic resources in the municipality.<sup>20</sup>

<sup>&</sup>lt;sup>20</sup>Letter from Carol E. Wilson, Historic Preservation Specialist to Harry Roth

## G. ARCHAEOLOGICAL RESOURCES

Much the same as historic resources, archaeological resources are also worthy of protection. Essentially, this section will inventory and describe areas that are known, or are suspected, to contain artifacts, remains, objects or any other evidence of prehistoric cultures. Information presented in this Section was obtained from Stephen G. Warfel, Curator, Archaeology, The State Museum of Pennsylvania.



According to Mr. Warfel, the Township's location amid the Piedmont region suggests a very definite pattern of elements that are considered likely to produce archaeological specimens. In his letter dated March 23, 1988, Mr. Warfel describes the suspected incidences of archaeological sites within West Marlborough Township.

"While only a cluster of known archaeological sites are on record in the southeastern portion of the Township, we know from neighboring townships where controlled surveys have been conducted that hundreds of Archaic Period (ca. 8,000 B.C. - 800 B.C.) occupation sites are found near small tributary streams.

"During the Archaic Period, Pennsylvania Indians were nomadic. Many of the known sites appear to be small seasonal campsites which afforded the Indians access to water and unidentified seasonal resources. Certainly not each of these yet-to-be discovered campsites is significant. But, until a systematic survey is conducted in this area, we have no way of predicting where the most important sites are located."<sup>21</sup>

Along with this letter, Mr. Warfel enclosed a map of the Township depicting areas that are known to, and areas that are suspected to, be archaeologically significant. The Cultural Features Map depicts this information.

Essentially, the map identifies seven different known locations where archaeological specimens have been observed by private collectors, and/or professional archaeologists. Six of the seven are concentrated around London Grove, whereas one isolated known location is identified in the northeast quadrant of the intersection of Clonmell-Upland Road and Greenlawn-Chatham Road. Mr. Warfel explained that future development growth areas should be located away from these documented locations.

Suspected archaeological locations appear premised upon the proximity to streams and their tributaries. Areas with the highest probability of yielding archaeological significance occur directly adjacent to the stream channel and its floodplain. Other suspected locations occur just beyond these high- probability sites and generally range between 100 and 900 feet from the stream bank. Only upland locations within the Township are not suspected for archaeological significance.

<sup>&</sup>lt;sup>21</sup> Letter from Stephen G. Warfel to Harry B. Roth, AICP, dated March 23, 1988.

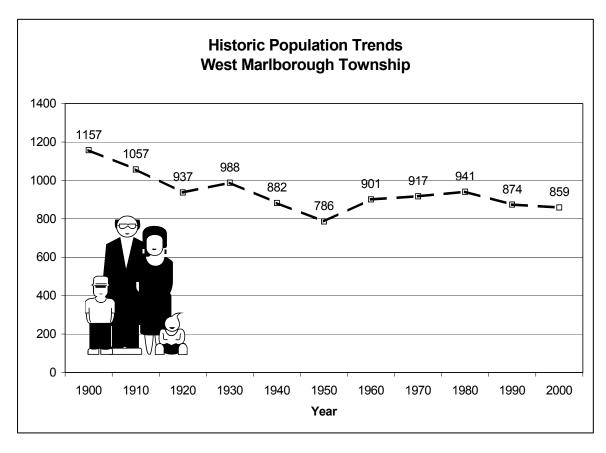
Mr. Warfel has stated that all known and suspected sites should be professionally evaluated prior to their conversion to development. Presently, the Pennsylvania Historic Museum Commission (PAHMC) reviews large-scale development and public works projects for their impact on archaeological resources; these reviews occur under PA Act 273 of 1978. Brenda Barrett, Director of the Bureau for Historic Preservation of the PAHMC believes that similar reviews may be possible for local development proposals. Such an approach would require the Township to adopt local regulations that would require developers to submit their development plans to the PAHMC for review and comment. Such an approach would be unique in the State, but might be possible under the combined enabling legislation of Act 247 (Municipalities Planning Code) and Act 273 (Historic Preservation Act). Ms. Barrett also intimated that a program for identification and protection of the Township's archaeological resources may be fundable through a grant program offered by her agency. Such grant could offer up to 70 percent state monies compared with 30 percent local (or locally-acquired) share.

# IV. Demographics

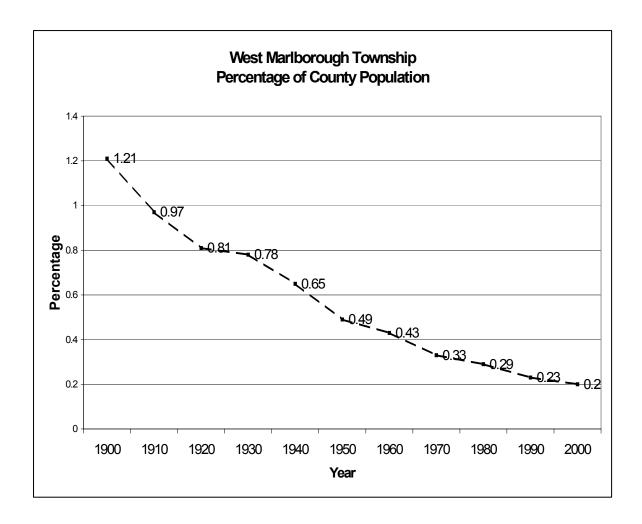
The allocation of municipal resources must consider the population to be served. Population, housing and economic analyses are a principal component of any comprehensive plan. Obviously, the overall size of a population is related to the amount of land, manpower and services to be provided. In addition, 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 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 100 years within the Township.



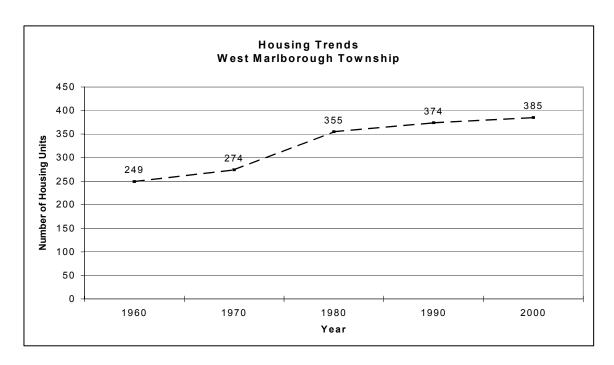
From the above graph, several trends are visualized. First, the Township has realized alternating periods of growth and decline over the last century. Overall the Township has declined in population by about 26 percent since 1900. The Township's low population was recorded in 1950 with slight but steady gains through 1980. Over the last two decades the population has declined by about 10 percent.



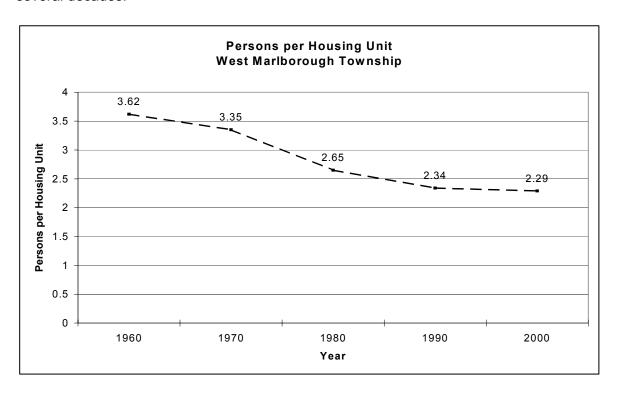
While the Township may have experienced periods of growth and decline over the last century, its proportion of Chester County's population declined each decade. In 1900 the Township accounted for slightly more than 1.2% percent of the total County population. By 2000 that ratio had dropped to 0.2 percent or about one-sixth of the original proportion. This decline was more about the relative growth occurring throughout Chester County that did not occur within West Marlborough Township. This trend is unusual within the region as most rural and suburban townships share considerably within a County's population growth. Suffice it to say that West Marlborough has not experienced the development pressures exerted elsewhere within Chester County.

# **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 The Township since 1960.



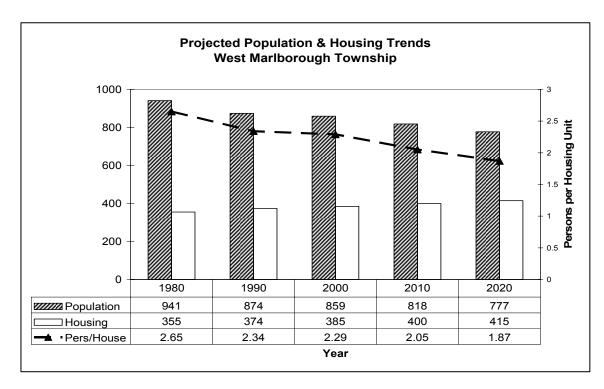
Surprisingly, although the Township's population has declined over the last half century, the number of housing units has increased steadily over the same period. The largest increases occurred during the 1970s but have leveled-off since then. Between 1960 and 2000, the Township's population shrank by about 5 percent; however, its housing stock increased by nearly 55 percent. This occurred because fewer people are living together, as family sizes have decreased and more people are living by themselves. This trend has also occurred throughout Chester County as a whole and throughout the nation for several decades.



# C. Population & Housing Projections

Review of the population and housing trends for the Township over the last few decades reveals a very uniform and steady rate of population decline. This suggests that an arithmetic or linear extrapolation should produce reliable predictions of future population loss if outside influences are not permitted to affect development within the Township. While this technique is considered one of the most basic of projection techniques, it also is one of the most powerful as it considers all of the factors that have affected past growth. For these reasons the linear projections for years 2000 through 2020 will be used to allocate the Township's resources through the balance of this Plan.

As can be seen in the following graph, a "natural" growth curve extends for both the population and housing bars between the historic rate experienced in the past through the projected growth to the year 2020. Similarly, the descending line depicting the reducing average household size also follows a "normal" curve since the large reduction experienced during the 1970s. In addition, the projections derived are consistent with those prepared by the Chester County Planning Commission that show a decreasing population through 2020. The table below the graph depicts the net projected changes to population, housing and persons per housing units, for the Township through the year 2020.



Projected Net Changes Per Decade					
Year 2000 to 2010 2000-2020					
Population	-41	-82			
Housing 15 30					
Persons/Unit	-0.24	-0.42			

# D. Socio-Economic Characteristics (2000)

Age Profile						
Age Group	ge Group West Marlborough Township Chester County					
0-5 yrs	43 (5.0%)	(6.8%)				
5-9 yrs	66 (7.7%)	(7.5%)				
10-14 yrs	68 (7.9%)	(7.6%)				
15-19 yrs	48 (5.6%)	(6.8%)				
20-24 yrs	43 (5.0%)	(5.4%)				
25-64 yrs	507 (59.0%)	(54.1%)				
65+ yrs	84 (9.8%)	(11.7%)				
Median Age	38.5 years	36.9 years				

**Comments:** Overall, the Township population has a median age 1.6 years older than that of Chester County. The Township has proportionally fewer infants but more elementary-age children than Chester County. It has fewer young adults but more middle-age adults. The Township has fewer seniors than does Chester County as a whole.

Gender Profile						
Gender West Marlborough Township Chester County						
Male 440 (51.2%) 49.1%						
Female 419 (48.8%) 50.9%						
Comments: Unlike Chester County as a whole, the Township has slightly more males than females.						

Racial Composition & Hispanic/Latino Origin						
Race West Marlborough Township Chester County						
White	807 (93.9%)	(89.2%)				
African American	11 (1.3%)	(6.2%)				
Native American	2 (0.2%)	(0.1%)				
Asian	5 (0.6%)	(2.0%)				
Pacific Islander	3 (0.3%)	-				
Other	30 (3.5%)	(1.3%)				
Bi-racial	1 (0.1%)	(1.1%)				
Hispanic/Latino	74 (8.6%)	(3.7%)				

**Comments:** Overall the Township has less racial diversity than does Chester County. In total minorities comprise about 6 percent of the Township's population as compared with 10.7 percent of the County's makeup. The Township has considerably more residents of Hispanic/Latino descent, outnumbering all other minorities combined and more than twice the proportion recorded throughout Chester County.

Income					
Area Per Capita Median Family Household Below Poverty					
West Marlborough Township	\$33,245	\$56,875	\$52,283	41 (4.8%)	
Chester County	\$31,627	\$76,916	\$65,295	22,032 (5.2%)	

**Comments:** Per capita income across the Township is slightly above the Countywide average. However, median family and household incomes are well below the County averages. Township officials should make sure that opportunities for affordable housing are provided within the Township so as not to exclude families and households with modest incomes. The Township has relatively less poverty than the whole County and considerable less than that across Pennsylvania which is about 11 percent. Special outreach opportunities and programs should be targeted to assist less fortunate individuals and local officials should be mindful of these limited incomes when planning for costly public infrastructure and services.

Education						
Area High School Diploma 4+ Year @ College						
West Marlborough Township	88.0%	37.2%				
Chester County	89.3%	42.5%				
Pennsylvania	81.9%	22.4%				

**Comments:** Chester County and West Marlborough Township enjoy educational attainment rates considerably above the State and National averages.

Employment Status & Commuting							
	West Marlborough Township Chester County						
Total Labor Force	505 (75.3%)	(69.0%)					
(16+ yrs.)							
Employed	494 (73.6%)	(66.5%)					
Unemployed	11 (1.6%)	(2.5%)					
Carpooled	45 (9.1%)	(8.6%)					
<b>Public Transit</b>	3 (0.6%)	(2.6%)					
Average Commute							

**Comments:** The Township has a higher percentage of workers than does the County who are largely employed. Unemployment is lower within the Township than throughout Chester County. Carpooling is relied upon more heavily than is typical throughout the County undoubtedly owing to the lack of public transport options. Surprisingly average daily commutes are shorter than throughout the County despite the Township's remote location. This suggests that residents may be finding local employment; therefore, planning policies should protect and promote local employment opportunities.

**Civilian Labor Force -** All values are expressed as percentages of the overall labor force.

Occupation	West Marlborough Township	Chester County
Agriculture, forestry, fishing, hunting, mining	22.5	2.0
Construction	5.9	5.6
Manufacturing	9.7	14.8
Wholesale trade	1.4	4.0
Retail trade	8.5	11.2
Transportation, warehousing, utilities	2.8	4.1
Information	2.4	3.0
Finances, insurance, real estate	7.9	10.0
Professional, scientific, management, waste	7.3	13.8
Educational, health, social services	16.4	19.8
Arts, entertainment, recreation, lodging, food	7.3	5.4
Other services	5.9	4.1
Public administration	2.0	2.3

Comments: Agriculture and other rural occupations are the largest single economic sector offering employment to West Marlborough Township residents at a level over 11 times the Countywide average. This concentration of agricultural workers within the Township causes a relative lack of employment in all but a few of the other labor categories reported by the census. Clearly this represents a major finding that must be reflected in the outcomes of this Plan; agricultural activities must be accommodated and protected to ensure adequate employment of the Township's residents. Like in Chester County as a whole, educational, health and social services also represent a major source of employment within the Township. Manufacturing is the third leading employer within the Township followed closely by retail trade. The Township has a slightly higher concentration of 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. Similarly arts, entertainment, recreation, lodging and food service record higher employment levels within the Township; opportunities for these activities should continue to be incorporated into the Township's landscape. Other than these differences the Township exhibits civilian labor force characteristics similar to Countywide averages.

Housing & Household Characteristics					
Other Characteristics West Marlborough Township Chester County					
Group Quarters	17 (2.0%)	(3.4%)			
Family Households	224 (64.2%)	(71.8%)			
Rental Units	160 (45.8%)	(23.7%)			
Vacant Units	26 (6.9%)	(3.6%)			

**Comments**: As expected the rural character of the Township does not lend itself to group quarter residences and the Township's percentage of population within group quarters is minimal. The Township has a lower percentage of family households than does Chester County. The Township has a surprising number of rental housing units and vacant housing units, both at nearly double the County-wide averages. This confirms that the Township has historically offered opportunities for affordable forms of housing within the Township.

Housing Condition					
Area Units Lacking Complete Complete Plumbing Units Lacking Built Pre- 1940 Median No . of Rooms					
West Marlborough Township	0	0	175 (45.3%)	6.2	
Chester County	(0.3%)	(0.3%)	(16.4%)	6.7	

**Comments:** The Township has no reported substandard housing and many of the Township's homes were constructed before 1940. This suggests the potential for an important historic preservation program to protect these valuable cultural resources.

Housing Tenure & Vacancy						
Area	Owner- Owner- Renter- Renter- Area occupied occupied occupied Units Vacancy Rate Units Vacancy Rate					
West Marlborough Township	West 189 6.9% 160 (45.8%) 4.8%					
Chester County	(76.3%)	(3.6%)	(23.7%)	(4.8%)		

**Comments**: Homeownership is very low within West Marlborough Township while the ratio of rental units is almost double the County-wide average. Owner-occupied vacancy rates are also very high as compared with Chester County but the rental vacancy rate is the same as the County. The Township's number of rental units is unusually high and demonstrates that the Township's existing zoning policies do not discriminate against low-moderate income forms of housing which tend to be rental units.

Housing Costs						
Area Average Monthly Average Owner-Occu Rental Costs Housing Values						
West Marlborough Township	\$654	\$171,600				
Chester County	\$754	\$182,500				

**Comments:** Given the Township's remote location and rural character it is understandable that its housing stock comes at less expense than other developed areas within Chester County. Again, the Township appears to be adequately providing opportunities for affordable forms of housing.

Housing Type								
Single- Single- Family Two- Multiple- Mobile Area Detached Attached family family Home								
West Marlborough Township	289 (74.9%)	21 (5.4%)	18 (4.7%)	50 (14.5%)	8 (2.1%)			
Chester County	(62.1%)	(16.6%)	(2.1%)	(16%)	(3.1%)			

**Comments:** As can be seen, the Township exhibits a significant preference towards single-family detached housing. This is not surprising given the Township's larger rural/suburban character when compared with the higher-density areas in urbanized areas of Chester County. Nonetheless, the Township must provide for its fair share of a wide range of housing types; therefore, future residential growth areas must seek to accommodate a more balanced mix of housing.

In order to avoid claims of exclusionary zoning practices and to reflect contemporary housing styles, it is recommended that the Township specifically plan to rely less upon single-family detached units in the future. In addition national housing trends suggest greater reliance on more dense/multi-family units and compact detached units. For these reasons it is recommended that the Township allocate future land use to meet the target growth in the following residential categories:

	Target Projected New Housing Units by Structural Type							
Year	Total	Target single- family detached	Target attached & duplex	Mobile Homes				
2000	385	289 (74.9%)	39 (10.1%)	50 (14.5%)	8 (2.1%)			
2000- 2020	+30 = 415	+2 = 291 (70%)	+ 23 = 62 (15%)	+ 12 = 62 (15%)	+5=13 (3.1%)			

Methods to achieve this mix of future housing are presented in Chapter X of this Plan.

# V. Existing Land Use

or 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. To determine existing land uses, three sources were consulted.

First, the Chester County Office of Assessment records an existing land use code system to help derive property assessments. This data is over 10 years old; however, given the minimal change that has occurred within the Township, this information provides a ready beginning-point



Aerial photo of the Village of London Grove

for the existing land use inventory. The assessment codes were incorporated into the Chester County GIS system and were plotted within the Township. In so doing it was observed that a number of large farms were listed as single-family residences while most were not.

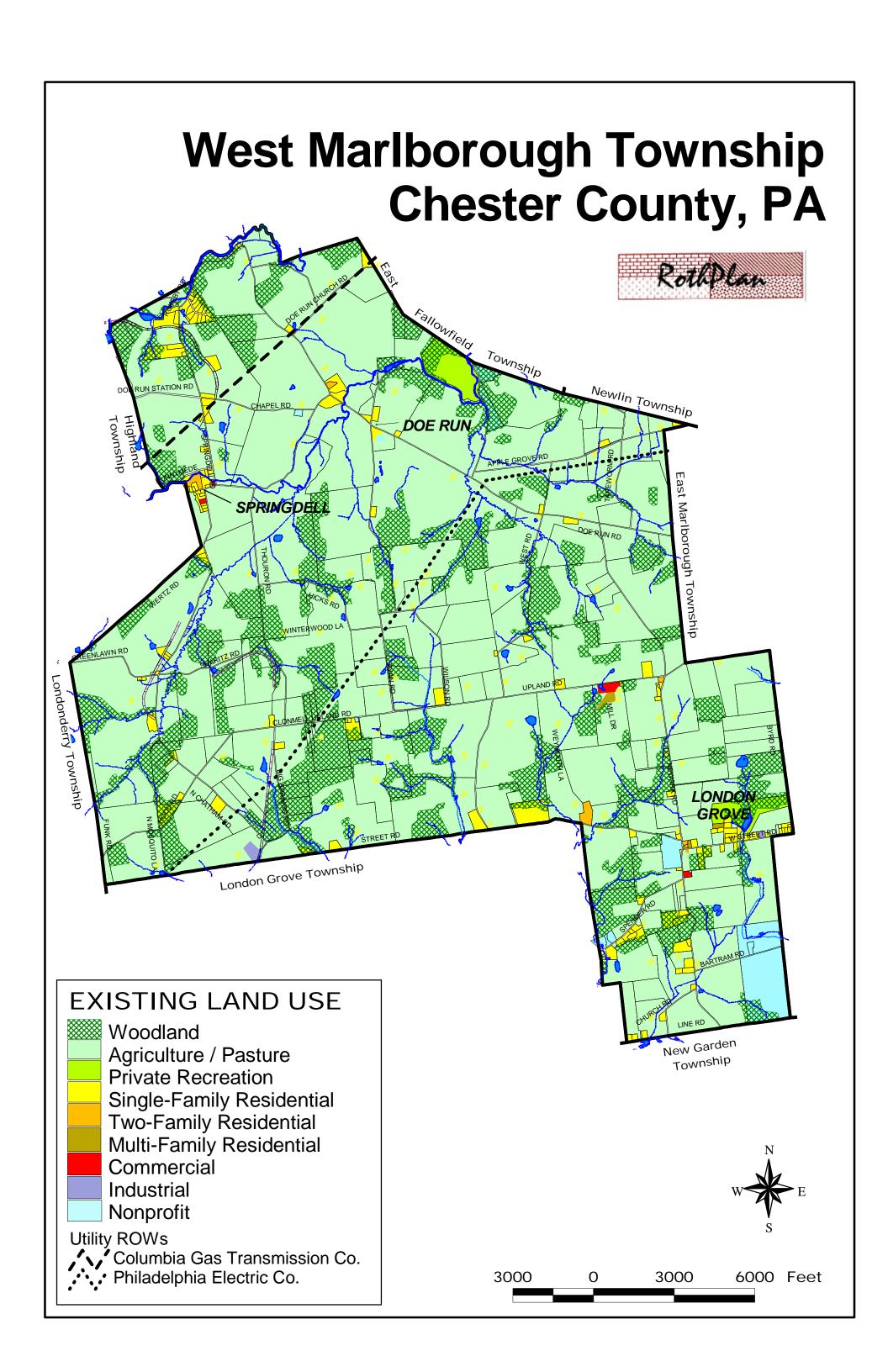
Second, to overcome this discrepancy, aerial photography was analyzed and home sites were located and depicted by "yellow dots" upon the larger farm parcels. In this manner all farms and their respective farmsteads were depicted similarly.

Third, the GIS mapping was field checked during April, 2004 and corrections were noted. Overall the Township's existing land use pattern is very rural with expansive and scenic pasture lands and, to a lesser extent, croplands. A few crossroad settlements exist as does one small subdivision but their scale is very limited. The Township's existing land uses are depicted on the *Existing Land Use Map*, found on the following page.

## Woodland

The Township's rolling topography produces scattered areas that are too steep to cultivate and have been left in woodland cover. These areas follow the natural features and bear little relationship to property lines. The frequent occurrence of these woodlands causes them to be visible from virtually every vantage throughout the Township. About 71 different areas of woodlands totaling 2158 acres have been identified. These range in size from less than ½ to over 217 acres. The average size of woodlands is about 30 acres. Aerial photography suggests that the vast majority of these woodlands are characterized by hardwood species.





# **Agriculture**

Farming is the largest category of land use within the The Township has vast acreage devoted to Township. pasturing and the growing of hay. Additionally the Township has a few cattle operations, a variety of horse operations. several large-scale mushroom houses, a family market garden and crop farming. Farms are family owned and operated and some engage in retail sales directly to the public. Most of the farms have grouped farmsteads with a dwelling unit, one or more barns or stables and other related outbuildings. Many also have accessory dwellings for farm workers in a variety of configurations. Also there were very few farm occupations While some farm buildings are observed in the Township. located close to the road, these examples are few. Instead, barns, stables and paddocks are often setback some distance



Many farms include historic farmsteads.

from the road; this is more true of horse farms where tilling activities are of less concern than for crop farms.



Large and small horse farms are found throughout the Township and are the predominate form of farming.

## **Private Recreation**

The Township has two private recreation sites. First, the Southern Chester County Sportsmans and Farmers site is located along the northeast side of the Village of London Grove. This site consists of 4 rifle ranges, a clubhouse, a skeet range and pond and other open areas. In all, the site contains just under 47 acres. Access is provided at the end of Sportsmans Lane, a private road that connects with West Street Road and provides property access to several adjoining residents. Backdrops to the shooting range are wooded grades along the northern edge of the site, beyond which is open farmland.



Aerial photo of the Southern Chester County Sportsmans and Farmers shooting ranges and clubhouse.

The Laurels Preserve is a privately-owned conservation area located along Apple Grove Road along the northern boundary of the Township. This property was donated to the Brandywine Conservancy by the Buck and Doe Associates L. P. for permanent open space. This holding contains 771.4 acres which span West Marlborough, East Fallowfield and Newlin Townships (109.5 acres are situated in West Marlborough Township).

# Single Family Residential

The 2000 US Census reported that the Township contained 289 single-family detached dwelling units. Aerial photo interpretation suggests that 83 of these dwellings are located upon farms. Accordingly over 200 units are located upon separate lots usually grouped in small neighborhoods and crossroad settlements.

To get a more defined sense of the characteristics of these varied residential settings, the GIS data was used and on-site measurements were taken. Specifically, various "typical" residential uses were sampled and analyzed to determine relevant site characteristics. Because zoning requirements are generally expressed by minimum required standards, within each particular setting, minimum traits that would be shared by most of the properties were noted. These minimum

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 tables below present the results of this analysis.

The Township has only one small neighborhood that could be described as suburban in form located in the northwest corner straddling a private cul-de-sac that connects along the south side of Rokeby Road. <u>Pinecrest Village</u> has a private road with a 50-footiwide right-of-way and a 33-foot paved cartway with rolled curbs and no sidewalks. There are 16 homes with the following property characteristics:



Aerial photo of Pinecrest Village

	Property Characteristics of the Pinecrest Village						
Standard	Standard Lot Area Front Yard Side Yard (ea.) Rear Yard						
Minimum	½ acre	50 ft.	10 ft.	50 ft.	Few, confined to		
Typical	1+ acre	65+ ft.	15+ ft.	100+ ft.	rear yard.		

Another small neighborhood is located in the <u>Village of Springdell</u> located at the intersection of Springdell, Runnymeade, Old Hilton and North Chatham Roads. These roads have the following observed characteristics in this locale:



Road Characteristics in the Village of Springdell							
Road R.O.W Width Cartway Width Surface Curbs/Sidewalks							
North Chatham	33 ft.	25 ft.	Paved	No			
Old Hilton	33 ft.	13 ft.	Paved	No			
Runnymede	50 ft.	18 ft.	Paved	No			
Springdell (PA Rte 841)	33 ft.	25 ft.	Paved	No			

There are 18 homes with the following property characteristics:

	Property Characteristics of the Village of Springdell						
Standard Lot Area Front Yard Side Yard (ea.) Rear Yard Accessory structures							
Minimum	1/3 acre	15 ft.	6 ft.	20 ft.	Frequent, confined to		
Typical	½ acre	30 ft.	20 ft.	75+ ft.	side & rear yards.		

This village also contains three commercial uses (The Whip, Springdell Garage and Springdell Forge) that will be described later in this Chapter.



A panoramic view of the Village of Doe Run as seen from across Doe Run Road.

A third small neighborhood is located in the <u>Village of Doe Run</u> located at the intersection of Doe Run (PA Route 82) and Wilson Roads in the north central portion of the Township. Here a few houses form an historic village that is under common ownership and the location of the Township office/garage. Both roads have 33-foot rights-of-way, Doe Run Road has a 24-foot wide paved cartway and Wilson Road has an 18-foot wide paved cartway. Here are 6 homes with the following property characteristics:

	Property Characteristics of the Village of Doe Run						
Standard Lot Area Front Yard Side Yard (ea.) Rear Yard Accessory structures							
Minimum	13 acres	15 ft.	5 ft.	90 ft.	Located in rear		
Typical	NA	20 ft.	10 ft.	90 ft.	along alley.		

Off-street parking is in rear-yard garages provided along an unpaved alley. The Village of Doe Run also contains three small offices and the Township garage.

The <u>Village of London Grove</u> is the largest grouping of development within the Township. The Village is located straddling West Street Road (PA Route 926) in the southeast corner of the Township. Here a number of mixed uses exist along with 29 single family detached dwellings. West Street Road has a 33-foot wide right-of-way and a 20-foot wide paved cartway. The following tabulates this Village's residential property characteristics:



Village of London Grove along West Street Road

Property Characteristics of the Village of London Grove						
Standard Lot Area Front Yard Side Yard (ea.) Rear Yard Accessory structures						
Minimum	½ acre	50 ft.	6 ft.	100+ ft.	Confined to side and	
Typical	1+ acre	50+ ft.	20 ft.	100+ ft.	rear yards.	

Rural home sites are generally larger than one-acre and often have a deep driveway. These rural home sites occur infrequently as scattered roadside housing. This rural housing also contains some home and rural occupations that provide for close-to-home employment opportunities although this practice is not widespread. Generally, rural homes are well-kept. Sidewalks are not provided within these settings. Some homes rely upon joint-use driveways or private roads. Many of the rural homes are very large with impressive architecture and landscaped settings.

# **Two Family Residential**

Only a few structures contain two dwelling units within the Township. Within the villages these were developed as traditional side-by-side duplexes; however, some two-family conversions of rural detached homes exist at a few locations. The greatest concentration of two-family dwellings occurs within the Village of London Grove with six units. Traditional duplexes within the Village are set close to the road with off-street parking located in the side or rear yards. Rural two-family conversions reflect their rural character with little evidence of their conversion. Because these uses are comprised of conversions of existing rural buildings, their design characteristics are similar



to those for single family detached dwelling units and are highly varied. To attempt to categorize these standards for such few and scattered uses is not necessary, as the Plan would not be recommending a future configuration of two-family dwellings across the Township's rural landscape. It is noted that the Township's current zoning regulations do offer two-family conversions by special exception within its Agricultural/Conservation Zone, subject to various design criteria. Based upon the presence of the existing two-family residences within the Township, local officials should continue use of this zoning policy. Furthermore, this Plan identifies confined locations where two-family dwellings are permitted along with suitable design standards for those areas in Chapter 10.

## **Multi Family Residential**

Only two sites within the Township are recorded with multiple family dwelling units by tax records. Both are located within the Village of London Grove. The first is located on the north side of West Street Road and is pictured to the right. Here a large building has been adapted for multi-family use. This structure shares the same design elements as the other buildings within the village. Front yard setbacks are about 15 feet from the cartway and the bulk of the off-street parking is



located to the side of the building. However, it is noted that two vehicles are parked within the front yard setback area off to the side of the building. The second multi-family site is located within the Village adjoining the Southern Chester County Sportsmans and Farmers site at the end of Sportsmans Lane. A third multi-family site exists on the same site as the Stone Barn on the south side of Upland Road; however, tax records usually record the most intensive use of a property which in this case is commercial. On this site are four townhouse groupings which have 32 total units. The Existing Land Use Map identifies the actual location of these units, their access drives and other uses on the site (eg. commercial, agriculture, woodland and rural residences).

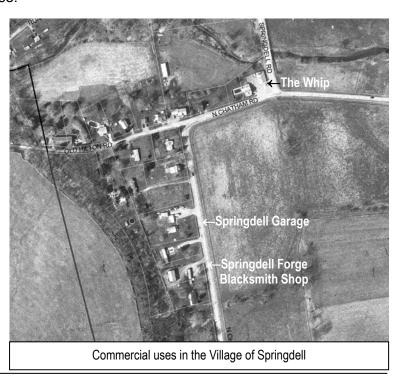
## Commercial

A few sites within the Township are occupied by commerce. The largest of these is the Stone Barn Restaurant and Banquet Hall. This site is located on the south side of Upland Road amid the Township's agricultural landscape. This use includes an adjoining millhouse. All aspects of the use are setback off of the road: this is a classic example of a rural business that contributes to the Township's offerinas atmosphere. It is noted that the site is located within the Township's R-2 Medium to High Density Residential Zone: reflecting the townhouses which are located to the rear of the commercial use. Commercial use of this property is a nonconforming use.

The Village of Springdell also has three commercial uses. The first is The Whip – a very small site that is located close to the road with little space for off-street parking and loading. This site offers beverages and food and is located at the intersection of North Chatham and Sprindgell Roads. The Springdell Garage is located along the west side of North Chatham Road and offers the retail servicing automobiles. Parking and storage are located in the front yard. Third, the Springdell Forge is a blacksmith shop that operates as a rural occupation in an accessory barn behind the house. None of these businesses have commercial zoning



Stone Barn Restaurant and Banquet Hall



under the Township's current zoning scheme.

A final commercial use is located within the Village of London Grove. "Archies" is a small gas station and refreshment counter use with an attached apartment. This site also houses four single-family detached dwellings.

## Industrial

Only two sites within the Township have been identified with industrial uses. The most recognizable is Petragnani Brothers' marble, stone and tile shop located in the Village of London Grove. This 1.3 acre site contains several buildings. Parking lot areas have a paved surface and landscaping but no screening. This use is properly zoned within the Township's B-1 Business Zone.



Petrangnani Brothers countertops manufacturing.

A second industry is located on a farm at the intersection of North Chatham and Street Roads. Here an agricultural outbuilding is being used by Electro-Systems Company. This 15-employee facility assembles electronic components. The improvements of this site are totally contained upon the farm property and no evidence of the use is visible from the road. This site formerly contained a commercial nursery, but that operation has been discontinued. This site could operate as a farm occupation under Section 427 of the Zoning Ordinance, except for the large number of employees. The Township might wish to consider a revision to the farm occupation

standards to facilitate similar employment generating businesses amid its rural landscape as an alternative to designated industrial zones.

# **Nonprofit**

Within the Township are several nonprofit uses. The largest of these is the New Bolton Center of the University of Pennsylvania. There are two parcels which straddle Bartram Road in the extreme southeast corner of the Township. Here are the University's School of Veterinary Medicine and lands devoted to an ongoing nutrient management experiment on water quality. experiment is also being conducted upon adjoining privately-owned lands. The Stroud Water Research Center is located on the north side of Spencer Road. This site houses offices. laboratories and an education center devoted to the protection of water quality.

Another important nonprofit use is the London Grove Friends Meeting House. This historic site holds special significance to many residents for religious services. During the field inspection, residents were preparing the site for its annual plant sale fundraising event. This site is the focal point of the Village of London Grove.



Stroud Water Research Center



London Grove Friends Meeting House

There are two Quaker burial grounds within the Village of London Grove and several other cemeteries scattered across the Township. The Chapel Road Baptist Church is located on the south side of Chapel Road.

## **Utilities**

Several major utility lines pass through the Township. 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 *Existing Land Use Map*. The following describes these major rights-of-way:

<u>Columbia Gas Transmission Corporation</u> maintains a 50-foot-wide right-of-way that runs in a northeast-southwest direction across the northern portion of the Township. This right-of-way straddles a 20-inch natural gas transmission pipeline (line number 1278). The placement of above-ground structures is prohibited within this right-of-way; however, streets and parking lots may be permitted, subject to design review by Columbia Gas Transmission, Inc. Lawn plantings and normal agricultural activities are permitted within the right-of-way. Subsurface sewage disposal systems must be located a minimum of 25 feet from the pipeline and drainage fields shall be designed to drain away from the pipelines.

"PECO Energy Company owns, operates and maintains a 300-foot-wide right-of-way that traverses the Township. Specifically, this right;-of-way is associated with a 230,000 volt overhead transmission line that runs between Conowingo, MD and Plymouth Meeting, PA. The right-of-way nearly bisects the Township and runs in a general northeast - southwest direction. The company may allow construction of buildings within the right-of-way as well as secondary uses utility crossings, roads, parking lots, and recreation. All proposed uses require an engineering review and approval by PECO. Applications for such reviews can be submitted to the Company's Real Estate Department at 2301 Market Street, Philadelphia, PA 19101. Processing of the requests may take 60 days."

# **Pipeline Developments**

In planning for future land uses, and calculating acreage needed to accommodate projected growth, it is important to know the location and types of developments within the Township that have been approved for development, but have not yet been fully developed. This information will also ensure that future planned uses are consistent or compatible with those already approved for construction. According to local staff there are no pipeline projects foreseeable that would need to be reflected within this Plan.

<sup>&</sup>lt;sup>1</sup> July 13, 2004 letter from Dennis E. Wilson, Manager of Leasing and Sales, PECO.

# VI. Adjacent & 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, such as that of a Regional Comprehensive Plan. 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 Chester County for the Township.

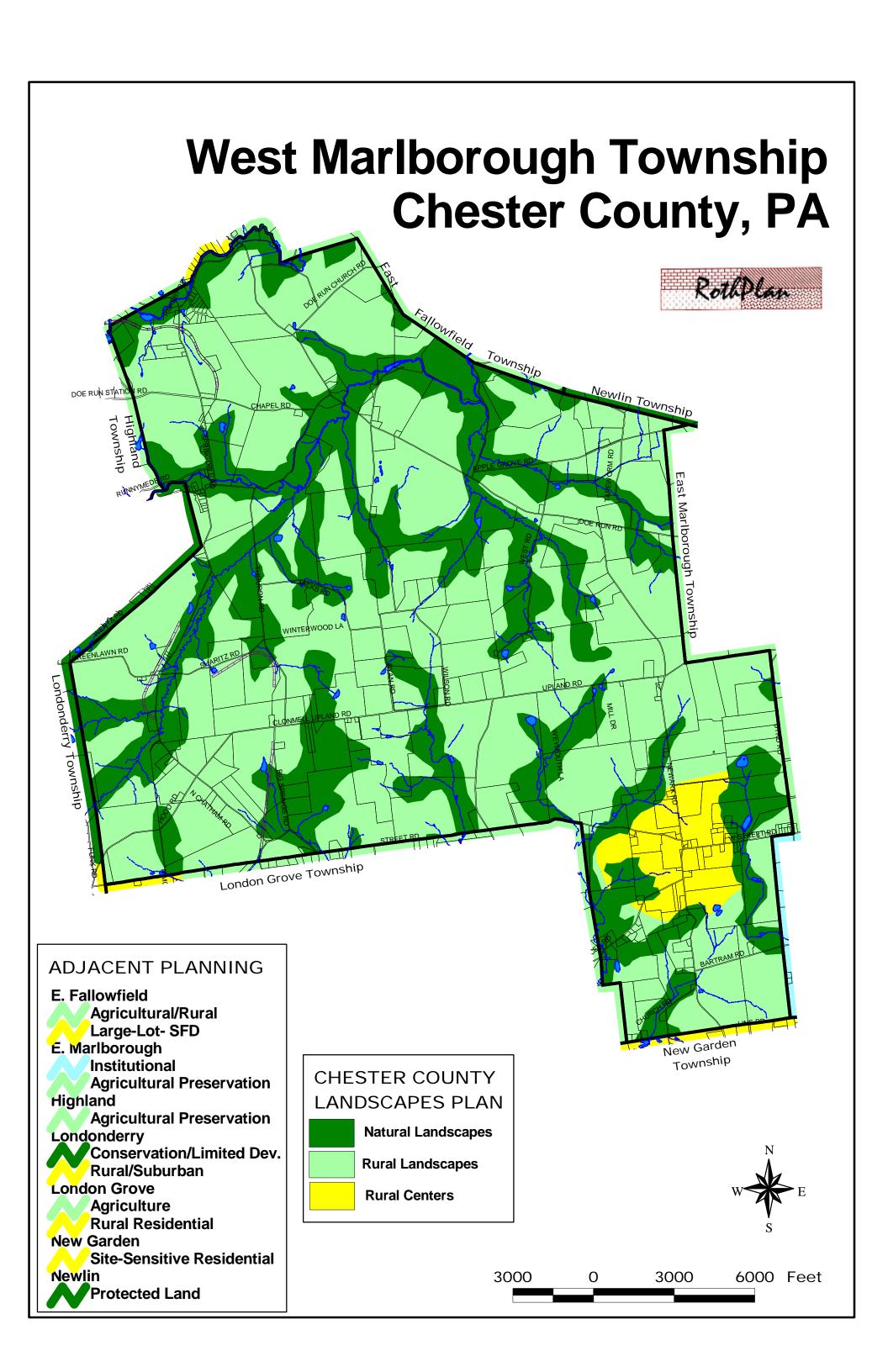
## A. PLANNING IN ADJACENT MUNICIPALITIES

The Adjacent and Regional Planning Map, on the next page, depicts the planned land uses in municipalities that adjoin the Township. As can be seen, many adjoining areas also recognize the rural/natural features of the Township. The following is a brief summary of those land uses planned for each municipality within Chester County bordering the Township.

East Fallowfield Township – Adjoining the Township to the north is East Fallowfield Township. The Township's Comprehensive Plan was adopted in November 1999 as prepared by Township representatives with the assistance from the Grafton Association. The Future Land Use Map of the Plan depicts most of the area contiguous along the northern border as Agricultural/Rural. This category acknowledges the greatest concentrations of prime farmlands, active farming operations and areas enrolled as Agricultural Security Areas. This designation is also meant to protect the incident pockets of environmental sensitivity that occur here. A small area is also designated a Large-Lot Single Family Detached just west of Doe Run Road reflecting the current use. No specific land use densities were presented in either of these land use designations of the Plan.

Newlin Township – Adjoining the Township along the northeastern border is Newlin Township for a short distance. The Newlin Township Comprehensive Plan was adopted in June 1997 and was prepared by local officials with assistance from the Chester County Planning Commission (CCPC). The entire common length is depicted within Newlins' Protected Lands category; however, small features of Natural Constraints and Developed Lands are also reflected in this area. Protected Lands correspond with properties subject to legal constraints preventing development or are governmentally-owned. Natural Areas reflect significant development constraints (e.g. steep slopes, floodplains and wetlands). Developed Lands reflect narrowly drafted existing uses. Overall this pattern will significantly limit future development along this short stretch of West Marlborough Township.

**East Marlborough Township** – Adjoining the eastern edge of the Township is East Marlborough Township. The East Marlborough Township Comprehensive Plan was adopted in September 1990 and was prepared by local officials with assistance from the Chester County Planning Commission (CCPC). The northern half of the common boundary between the two Townships has area planned for Low Density Residential use; however, a close look suggests that this is more of an agricultural category as the density requires a minimum lot size of between 2 and 4 acres. It reflects a



"predominance of agricultural use." Included in this designation are areas of environmental sensitivity including steep slopes, floodplains and wetlands. Just to the north of West Street Road is an area for Medium Density Residential uses. This area is characterized by existing rural residential uses with lot sizes averaging about 1 acre; however, the Plan recommends that this density be increased to 2 units per acre. Another small band of Low Density Residential occurs on the south side of West Street To the south is a larger mass of Institutional land use. This designation acknowledges the New Bolton Center (University of Pennsylvania Department of Veterinary Medicine) and the Upland Country Day School campus. However, in September, 2004 the Township adopted Ordinance No. 04-05 which created a new Agricultural Preservation zoning district and rezoned much of the Township's rural landscape including that area to the north of West Street Road that adjoins West Marlborough Township. This more recent zoning designation is depicted on the Adjacent Planning Map. East Marlborough Township is also part of the Kennett Area Regional Planning Commission which adopted its Plan in year 2000 with assistance from the CCPC.

New Garden Township – Adjoining the southeast tip of the Township is New Garden Township. The New Garden Township Comprehensive Plan was adopted in April 1993 and was prepared by local officials with assistance from the Chester County Planning Commission (CCPC). Here the Future Land Use Plan depicts only one adjoining land use category – Commerce. This 1460 acre area is intended to provide for economic uses that require public utilities and access to major highways (US Route 1). This area includes several large-scale uses such as the New Garden Airport, Brandywine Polo Grounds, Loch Nairn Golf Course and the Township's existing Business Park. This category contemplates large-scale economic development that generates low volumes of vehicle traffic.

However the Township is in the process of revising its comprehensive plan with assistance from the CCPC and the draft plan depicts this area within its proposed Site-Sensitive Residential category. This new category is expected to accommodate cluster-style developments that protect important natural features amid suburban-density neighborhoods. This more recent expression of planned land use is depicted on the Adjacent Planning Map.

London Grove Township – Adjoining the southern border of the Township is London Grove Township. The London Grove Township Comprehensive Plan was adopted in July 1992 and was prepared by Township representatives with the assistance from the Grafton Association. Most of the common boundary with West Marlborough is depicted as Agriculture. This designation suggests a minimum lot size of 10 acres for residences but also enables the transfer of development rights at a rate of 1 unit per 2 acres. The TDR receiving areas are limited to the Medium and High Density Residential categories, none of which border West Marlborough Township. A small node of Rural Residential adjoins the southwest corner of West Marlborough Township; this zone suggests a minimum lot size of 1 to 2 acres and will act as a transition between the agricultural and residential areas of the Township.

**Londonderry Township** – The southwestern edge of the Township adjoins Londonderry Township. The Londonderry Township Comprehensive Plan was adopted in September 1993 and was prepared by Township representatives with the assistance from the Brandywine Conservancy. The vast majority of common boundary with West Marlborough is identified as Conservation-Limited Development. This designation reflects environmental sensitivity but is not characterized by prime farmlands. This

designation should principally protect these features but enable small clusters of homes at locations free of these constraints. A small node of Rural-Suburban is found to the south of Hood Road adjoining the extreme southwest corner of West Marlborough Township. This category acknowledges an area that is evolving from its former agricultural character to more of a rural suburban residential form. Here some limited accessory businesses should be permitted. Londonderry Township is in the process of updating their plan as part of the Octoraro Region and has recently adopted a 25-acre lot size zone along the entire length of West Marlborough Township.

**Highland Township** – The Township's western border also abuts Highland Township. The Highland Township Comprehensive Plan was adopted in November 2001 and was prepared by local officials with assistance from the Brandywine Conservancy. The entire common boundary with West Marlborough is identified as Agricultural Preservation which has 3 stated objectives:

- 1. Promote continued use of prime farmlands for farming;
- 2. Enable landowners to capture economic value while farming; and,
- 3. Support the protection of scattered sensitive environmental features.

This plan recommends a residential density of one unit per 25 acres. Highland Township is part of the Octoraro Regional planning process underway with above Londonderry Township.

#### **B. CHESTER COUNTY COMPREHENSIVE PLAN**

Chester County Comprehensive Plan – <u>Managing Change in Chester County 1996-2020</u> is the Official Comprehensive Plan of Chester County. Since its adoption on July 12, 1996 it has undergone numerous changes to keep pace with the County's dynamic development and strategies to affect the future. This Plan is a policy plan and does not suggest specific land use districts that translate into municipal future land use schemes nor zoning districts. Rather the plan establishes its vision for the future of Chester County as follows:

"Preserve and enhance the unique character of Chester County landscapes by concentrating growth in the most appropriate areas."

Then the Plan calls into action all of the County's local officials and citizens to control growth into compact areas and discourage sprawl. Next the Plan identifies several "livable landscapes" and assigns these to suitable area throughout Chester County. These conceptual categories are meant to be refined by the detailed analysis and visioning conducted as part of local comprehensive planning processes, like this one! Nonetheless, the County's suggested land use scheme for the Township is important and revealing.

Specifically West Marlborough Township is depicted as a mixture of Natural and Rural Landscapes with a Rural Center around London Grove as depicted on the Adjacent and Regional Planning Map.

The **Natural Landscapes** are narrowly drawn representations of floodplains, large woodlands, riparian buffers and areas under governmental control or nature management. These areas don't necessarily exclude farming but their character in many instances would

limit productivity and require careful management to avoid adverse environmental impact for normal farming operations.

The *Rural Landscapes* are commonly linked with agriculture and related accessory occupations. Some limited incidental housing can occur here, but the primary focus should be upon farming productivity. New homes and non-farm uses should be sited away from productive soils. These areas should resist any extension of public utilities and service areas.

Rural Centers are focal points of growth and activity amid the vast rural landscapes. These small nodes should collect local goods and services to serve the daily needs of nearby residents. In addition these areas represent ideal locations for a municipality's legally required varied housing types in compact settings with nearby conveniences. The actual configuration and extent of Rural Centers are meant to be adjusted during municipal Comprehensive Planning processes. At such time as West Marlborough Township officially adopts this Plan; it should formally request Chester County to revise its County Comprehensive Plan to reflect the area(s) planned for this type of development within the Township so that both plans are consistent. This is a customary practice that has been done many times by the County at the request of other municipalities.

Unsurprisingly, this County-wide Plan recognizes the importance of the Township's unique and sensitive natural features. Accordingly the Plan calls for the preservation of its system of connected waterways and other related natural features. Agriculture is planned widely across the Township's landscape in direct support of the Township's longstanding effective agricultural zoning policies. A Rural Center is anchored in London Grove partly in response to existing use but also as guidance to confine the Township's "developed" uses in an efficient and logical location.

All of these policies directly align with those expressed by local officials for the conduct of this Comprehensive Plan. Consequently, the Township's resulting land use plan and related policies should have a high degree of conformance with the County's suggestions for the area. The Chester County Planning Commission's website is located at – <a href="http://dsf.chesco.org/planning/site/default.asp">http://dsf.chesco.org/planning/site/default.asp</a>.

#### C. PENNSYLVANIA AGRICULTURAL SECURITY AREA

Act 43 of the Commonwealth of Pennsylvania was passed in 1981 to allow municipalities to establish Agricultural Security Areas (ASA) to promote more permanent and viable farming operations over the long run by strengthening the farming community's sense of security in land use and right to farm. Individual landowners petition the Township to create an ASA. Each parcel must be at least 10 acres in size and the entire ASA must be at least 250 acres. By establishing an ASA, farmers who want to farm benefit as follows:

- 1. The Township Supervisors agree to support agriculture by not passing local ordinances that restrict normal farming operations or structures;
- 2. The condemnation of farmland by a government in the agricultural security area must first be approved by the State Agricultural Lands Condemnation Approval Board to determine if alternative sites are available for condemnation;

- 3. The farmland preservation options offered by the Chester County Agricultural Land Preservation Board are available to qualified farm owners in an agricultural security area. For example, only a farm owner in an agricultural security area may be eligible to receive cash for permanently preserving the farm with a conservation easement; and,
- 4. Hazardous waste and low-level radioactive waste disposal areas cannot be sited.

Each landowner decides if they want to participate in the program. The farms that make up the 250-acre minimum do not have to be adjacent to one another but do have to be in the same Township. The agricultural security area does not stop development nor restrict farmers in any way; only Township zoning laws regulate what land can be developed. West Marlborough has the most effective Agricultural Security Area program within Chester County. Some 9570 acres are currently enrolled or about 88 percent of the total area of the Township. These ASA areas are depicted on the Preserved Lands Map contained on the next page.

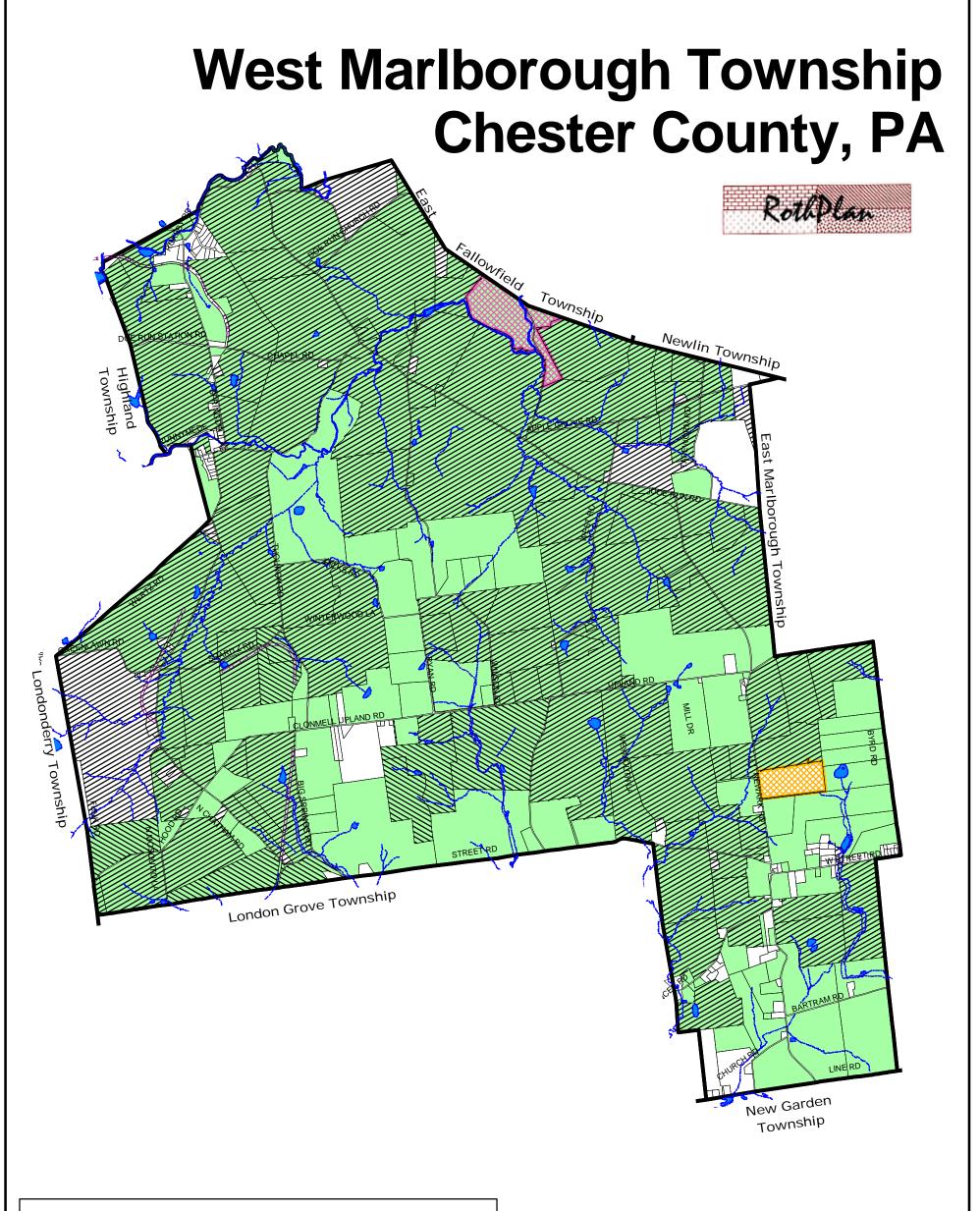
# D. PENNSYLVANIA AGRICULTURAL EASEMENT PURCHASE PROGRAM

In 1988, the State of Pennsylvania established an Agricultural Easement Purchase program (3 P.S. 914.1 et. seq.) pursuant to which the State purchases agricultural conservation easements to permanently insure that land remains in agricultural use. Each county establishes a point system to prioritize applications. The Chester County Agricultural Lands Preserve Board (ALPB) has been established to administer this program. Over the past 14 years, the ALPB has contributed \$25,329,142.76 towards the purchase of farmland development rights. This contribution has leveraged \$39,437,227.88 in State funds. To date the Chester County Agricultural Lands Preserve Board (ALPB) has preserved 163 farms covering more than 16,120 acres. Within West Marlborough Township, the ALPB has acquired easements on 4 farms totaling 377.69 acres.

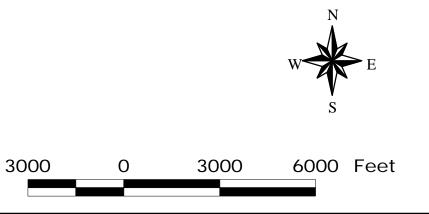
#### E. RESTRICTIVE COVENANTS & EASEMENTS

One technique commonly used to provide a level of protection that transcends local zoning regulations is the restrictive covenant or easement. Under a conservation easement, a landowner (grantor) donates or sells certain specified rights on his/her property to another party (grantee). Then the grantee has the ability to enforce those items stipulated within the agreement that legally creates the easements. It is common for the terms of these easements to dictate the number and location of buildings, to prevent certain uses within new residential subdivisions, and to protect agricultural or open space areas.

Within West Marlborough Township, a substantial amount of property is subject to conservation easements. Approximately 7013 of the Township's 11,129± total acres (roughly 63 percent) have been placed under conservation easements since 1977. For the most part, these easements attempt to preserve the rural and pastoral characteristics of these properties and protect surface and groundwater quality by severely limiting development potential (uses, buildings, structures, roads, utilities and etc.) and imposing strict conservation procedures relating to agriculture and timbering procedures. While the Township has no authority to enforce any regulations contained within these easements, a general understanding of their impact on an area can provide







practical information that can be logically integrated to an allocation of future planned land uses. Therefore, the Township should not target future growth to areas that, to the Township's knowledge, have limitations precluding such development.

The **Brandywine Conservancy**, **Inc.** also owns the Laurels. This property was donated to the Conservancy by the Buck and Doe Associates Limited Partnership for permanent open space. This holding contains 771.4 acres which span West Marlborough, East Fallowfield and Newlin Townships (109.5 acres are situated in West Marlborough Township). The Laurels property largely abuts individual holdings that are themselves, subject to conservation easements as described above.

It is important to note that areas subject to conservation easements are not necessarily open to public access. Some specific properties include "trail easements" which traverse the site, but most properties are not available for public use.

In addition the **Natural Lands Trust** has acquired a conservation easement upon 44 acres (Tax parcel no. 48-8-19); this easement limits future use to one house and another tenant house all of which must be built upon a 4-5 acre building envelope.

## VII. 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.

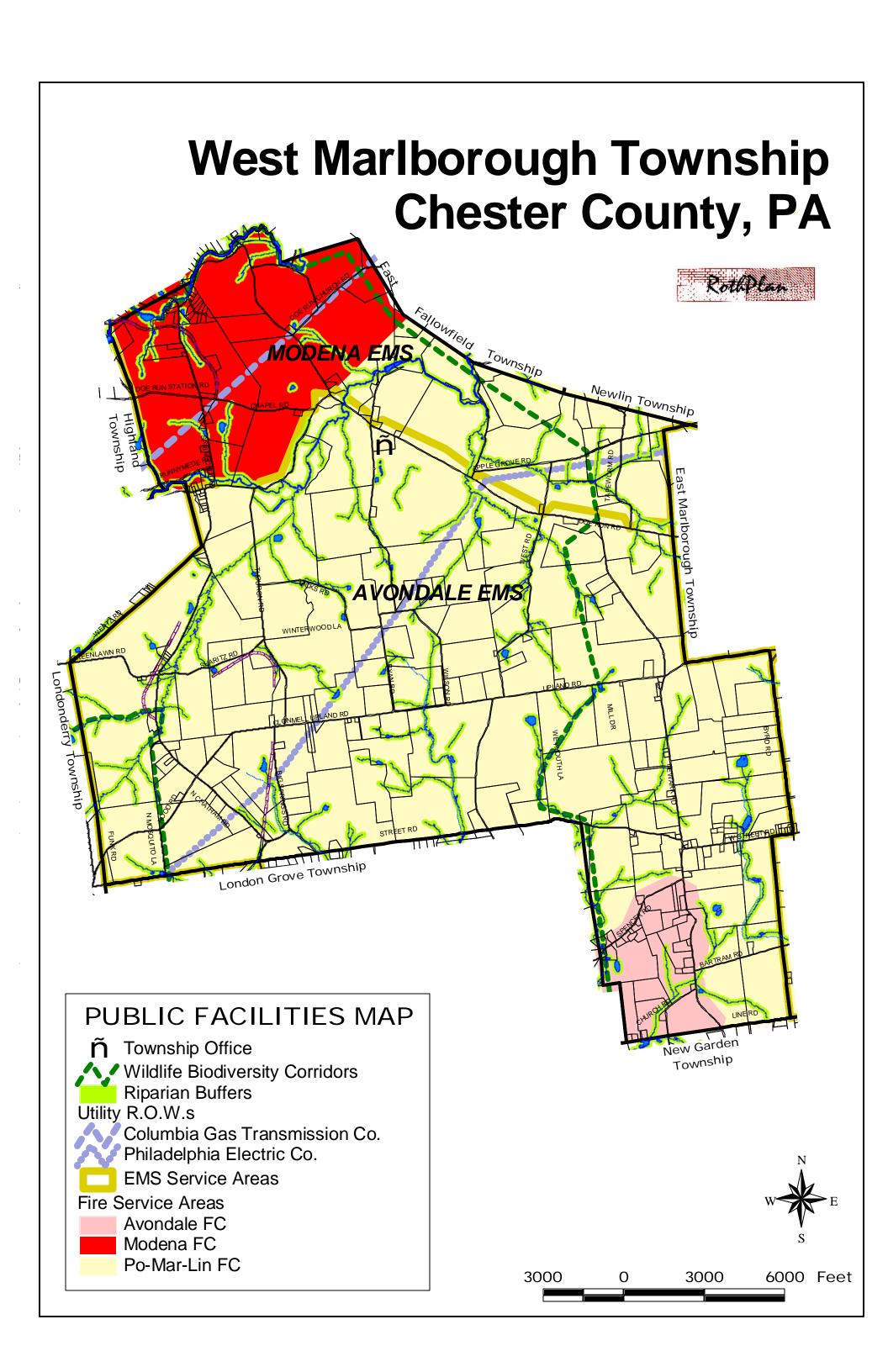
The West Marlborough Township is served by the Unionville-Chadds Ford School District. The Unionville-Chadds Ford School District includes Chadds Ford, Newlin, Pocopson, Birmingham, Pennsbury, East and West Marlborough Townships. The District is governed by a nine-member School Board. Each Board member serves a 4-year term. The following is the District's contact information:

Unionville-Chadds Ford School District 740 Unionville Road, Kennett Square, PA 19348 610-347-0970 Fax 610-347-0976 Website: http://www.ucf.k12.pa.us/

Presently, the School District employs the following grade format:

Public School Grade Format				
Elementary School	K-5			
Middle School	6-8			
High School	9-12			

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



Summary of Unionville – Chadds Ford School District Facilities							
School Name	Year Built	Renovation Dates	Site Size (acres)	Rated Condition	Grades House d	Rated Capacity	2002-2003 Enrollment
Unionville Elementary	1923	1927, 1952, 2002	39.9	Excellent	K-5	700	491
Pocopson Elementary	2001	NA	32.0	Excellent	K-5	725	542
Hillendale Elementary	1962	1987	15.8	Excellent	K-5	600	359
Chadds Ford Elementary	1927	1963, 1970, 1978, 2003	15.8	Excellent	K-5	525	282
Charles F. Patton Middle School	1973	1981, 1987, 1998	35.7	Excellent	6–8	1,250	964
Unionville High School	1959	1965, 1980, 1991	41.8	Excellent	9–12	1,135	1,245

Source: School District

None of the District's public schools is located within West Marlborough Township.



aged students from West Marlborough Township are bused to the Unionville Elementary School located in adjoining East Marlborough Township. This school is the oldest within the District originally constructed in 1923 with four subsequent renovations, the latest of which occurred in 2002. This school also has the largest site of the District's elementary schools with almost 40 acres. Presently just under 500 students attend this school which has a rated capacity of 700. District officials describe the condition of this site as "excellent." In addition, three other elementary schools serve the District, each of which is rated in excellent condition and with abundant residual capacity. In all the four elementary schools have a residual capacity of 876 students and operate at about 66% rated capacity. Accordingly, District Officials do not foresee an immediate need to expand or enlarge elementary school capacity.

The Unionville-Chadds Ford School District Middle and existing High Schools are also located at in the Village of Unionville in adjoining East Marlborough Township. The Charles F. Patton Middle School was constructed in 1973 and has had three renovations, the last occurring in 1998. This school serves grade 6 through 8, has a rated capacity of 1,250 students and a current enrollment of 964 leaving a residual capacity of 286 students. District officials rate this facility as in "excellent" condition with room to expand if necessary.

Adjoining the Middle School is the High School. Combined these two schools are located on a campus of 77.5 acres. The High School houses grades 9-12 and was originally

constructed in 1959 with three subsequent renovations as late as 1991. This school serves grade 9 through 12, has a rated capacity of 1,135 students and a current enrollment of 1,245. Like other adjoining areas of Chester County, the District is experiencing an enrollment "bubble" in grades 8-11 associated with a westward



expansion of residential development. To accommodate this temporary increase in high school enrollment, the District uses 4 portable classrooms (mobile units) which will be removed once the enrollments decline.

The District's six-year plan (2002-2008) projects a decline in elementary enrollments and the District anticipates losing several teaching positions in the near future as a result. As described earlier in Chapter 4 (Demographics) the number of people per housing unit has declined steadily. This trend coupled with an aging population reduces the number of students enrolling in public schools even in municipalities that are experiencing residential growth. "On average, whereas each housing unit provided one student in 1970, it took two housing units to provide the same number of students in 1990." The District plans that these trends will ease the enrollments within the High School shortly and that it's current capacity is sufficient for the foreseeable future.

The planning goals for this Plan and the population projections provided in Chapter 4 both suggest that West Marlborough Township will bear little growth through the next 10 years. This limited development potential should assist the District by avoiding large in-migrations of new neighborhoods and students.

Nonetheless, the initiation of school expansion is a major project that often takes years to undertake. Therefore it is recommended that the School District closely monitor growth within the District so as to proactively plan for facility expansion well in advance of actual demand for space. The School District could benefit from an improved process of residential development review. By learning of proposed developments early, the District can better prepare for needed school expansion and bus routing. West Marlborough Township should revise its subdivision and land development application requirements so that adequate and timely notification to the School District is assured. Similarly, the School District should allocate manpower and resources so as to properly respond to such applications and provide meaningful feedback to the municipalities.

Unsurprisingly, the School District welcomes additional commercial and industrial growth as a means of increasing its tax base. Based upon the planning goals articulated for this Plan, it is unlikely that the Township will encourage new large-scale commercial and industrial

<sup>&</sup>lt;sup>1</sup> Trends in School Enrollments, Landscapes, Managing Change in Chester County 1996-2020, Chester County Board of Commissioners, pg. 83.

expansion. Nonetheless, the Plan will accommodate some local commerce and industry that should add to the tax base.

Finally, the District suggested a willingness to cooperate with its seven 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 of millions of dollars to local municipalities who would otherwise need to fulfill this need. Township officials should fully cooperate with the School District and contribute resources to the entire parks and recreations system. More on this subject follows in the next Section of this Chapter.

### B. 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 suitable locations for parks. Finally, certain widely-used procedures for the acquisition of parklands via dedication/fee-in-lieu thereof subdivision requirements are only legally defensible if they seek to implement legitimate and logical recreation goals and objectives.

One of the planning goals of this Plan that specifically relates to recreation states:

Aside from a possible small privately-owned and maintained neighborhood park, in close proximity with designated growth areas, continue to rely upon the abundant recreation facilities and programs offered by the Unionville-Chadds Ford School District at various school sites in adjoining municipalities.

Clearly, local officials from West Marlborough Township do not consider the development of a municipal park and recreation system a high priority. To the contrary, the rural and agricultural character of the Township defies extensive investment in active park and recreation facilities and programs, as there is insufficient concentrations of residents to efficiently operate such services. Instead, local officials believe that its citizens are far more concerned with the preservation of open space to offer high-quality settings for outdoor sporting activities and passive pastimes.

As described in Chapter VI, a majority of the Township's landowners have applied various conservation easements to their properties which will ensure their protection from development. About 7013 acres or 63 percent of the total land area of the Township is subject to these conservation easements. Such extensive landowner participation testifies to the residents' support for the protection of open space.

Regardless, the Township has a legal obligation to provide for its "regional fair share of growth and development." This translates into potential new neighborhoods with densities and designs that are likely to introduce the demand for local parks.

Accordingly, residents of these neighborhoods have legitimate claims for the provision of local parks that are convenient, safely accessed and sized to meet their needs.

Recreation planners analyze the level of park service available to a particular area based upon various park types and the intended population to be served. Typically, these evaluations are based upon prescribed standards for park size per 1,000 persons being served and also for predetermined service radii. The National Recreation and Park Association (NRPA) is widely recognized as a source for such standards for various park types.

First, *regional parks* generally contain 200± acres and are typically located within a one hour driving time from the population being served. These parks are generally located throughout a large metropolitan region, and can accommodate a wide variety of recreational activities. Often, these parks are owned and operated by the County, State and Federal government, and in the case of Pennsylvania, many State Game Lands are included in this category. Regional parks usually have a natural orientation with hiking, camping, and picnicking facilities. Other "activity-oriented" facilities, as well as significant historic or archaeological resources, might also be included. Within Chester County, several public organizations and private enterprises are involved with the provision of regional recreation facilities.

Within the Township the Brandywine Conservancy, Inc. owns the Laurels. This property was donated to the Conservancy by the Buck and Doe Associates Limited Partnership for permanent open space. This holding contains 771.4 acres which span West Marlborough, East Fallowfield and Newlin Townships (109.5 acres are situated in West Marlborough Township). The Laurels property largely abuts individual holdings that are subject to conservation easements as described above. Signs posted for this site suggest that its access is limited to members of the Brandywine Conservancy.

Regional Parks Located Within Chester County				
Facility Acres		Activities & Attractions		
National Parks	1182 in County			
Valley Forge National Historic Site	2,948 (820 in Co.)	visitors center, outdoor activities, historic recreations, educational programs and hiking-Horse Shoe Trail.		
Hopewell Furnace National Historic Site	848 (362 in Co.)	horseback riding, hiking, nature study, picnic, museum		
State Parks	3751 in County			
French Creek State Park 7,339 (908 in Co.)		boating, bike trail, camping, fishing, hunting, horseback riding, hiking, picnic, swimming		
Marsh Creek State Park 1,684 (1,684 in Co.)		Hunting, boating, swimming, picnicking		

Regional Parks Located Within Chester County				
Facility	Acres	Activities & Attractions		
White Clay Creek Preserve	1,824 (1,159 in Co.)	Riparian buffer		
County Parks	4,953			
Hibernia	798	18 <sup>th</sup> century iron forge community and Chambers lake		
Nottingham	642	Serpentine barrens habitats		
Springton Manor Farm	254	Cultivated since the 1700s.		
County Struble Trail	38	2.6 mile paved trail to Marsh Creek State Park.		
Warwick	487	Ruins of several early iron forges and stream corridors and woodlands.		
Chester Valley Trail (Eastern Section)	84	1.4 mile trail atop abandoned railroad.		
Future park in West Whiteland Township.	508	Joint park with Township.		
Future park in Newlin Township	644	Various natural settings.		
Future park in West Fallowfield Township	559	Wetlands, forested slopes and floodplain of Octoraro Creek.		
Chester Valley Trail (Western Section)	NA	23.8 mile trail not yet fully acquired.		
Future Octoraro Water Trail	NA	Non-motorized boat access along 10 miles of creek.		
Future Schuykill River Trail Park	407	12.4 mile trail and park along utility ROW and cross the Black Rock, Saratoga & Linfield former silt basins.		
County Struble Trail	NA	14.9 miles through Marsh Creek State Park onto Struble Lake.		
Private Parks	771			
Laurels Preserve	771	Natural preserve		
Total Regional Parks	10,657			

Source: Linking Landscapes, Chester County Board of Commissioners, Feb 26, 2002.

Although only one of the above Regional parks are located within West Marlborough Township, all are located within the recommended travel radii. Because the size and cost usually associated with regional parks transcend the responsibilities of local government, this Plan does not recommend any specific actions associated with the acquisition and development of more regional parks. Instead, this Plan will focus upon the remaining park types within the Region beginning with community parks.

**Community parks** generally contain 20± acres and are intended to serve a population within a 2 mile-service radius. They should be sized at the rate of 5 to 8 acres for 1,000 persons served. These parks generally involve a high level of improvement with multiple sets of athletic fields and courts. Sometimes swimming pools and indoor recreation centers are situated on these community-wide parks. Larger school sites (usually middle, and high schools) have the facilities to qualify as community-based parks, and represent valuable recreation resources that can significantly enhance the level of recreation services offered to a given area. The Unionville-Chadds Ford Middle and High School campuses and the Unionville Elementary School provide community park amenities to the residents of West Marlborough Township. These sites' improvements are tabulated on the following page:

## **FACILITIES INVENTORY**

	SITE NAME	Unionville High School	Patton Middle School	Unionville E.S.
Ş	OWNERSHIP & MAINTENANCE			
0		School District	School District	School District
9	SITE TYPE	Community	Community	Community
BACKGROUND	SITE CONDITION	Excellent	Excellent	Excellent
•	TOTAL ACREAGE (DEVELOPED)	41.8 ac.	35.7 ac.	39.9 ac.
	Swing Sets			4
	Sliding Boards			
_	Climbing Equipment			2
Ž	Merry Go-Rounds			
2	Seesaws			
<b>16</b>	Sand Boxes			
PLAYGROUNDS	Rocking Toys			
-	Big Toys			2
	Hopscotch			1
	Four-Square			3
	Baseball/Softball Fields	3	4	1
_	Soccer/Hockey Fields	3	2	1
RT	Football Fields	1		
COURTS	Basketball Courts (hoops)		2	4
8	Tennis Courts	6		
DS	Volleyball Courts			
FIELDS	Bleachers			
-	Track			
	Media Booth			
	Pavilions			
PICNIC	Total Picnic Tables (in pavilion)			
PIC	Barbecue Pits & Grills			
	Benches			
	Walking/Exercise Trails (length)	1	1	
TRAILS	Biking Trails (length)			
F	Fitness Trails (no. of stations)			
	Measured Path			
	Parking Spaces	400	170	120
	Rest Rooms	18	12	8
K	Water Fountains	15	10	8
SUPPORT	Snack Bar	1		
S	Waste Receptacles	X	X	Χ
	Bike Rack			Χ
	Signs	1	1	

It is important to note that these School District sites serve all of the municipalities within the School District. Their location in the Village of Unionville is relatively close by when considering the total land area of the School District; however, these parks are still beyond the NRPA-recommended two-mile service radius for most areas of West Marlborough Township. *Linking Landscapes, A Plan for the Protected Open Space Network in Chester County, PA*, recommends that West Marlborough Township acquire and develop one 5.2-acre community park now based upon the current population; this park should be enlarged to 5.4 acres by the year 2020. This analysis is based upon the Chester County-derived standard of 6 acres per 1000 residents.

Given the Township's stated goal to only consider the provision of one small neighborhood park, local officials are unwilling to commit to this higher level of service at this time. They believe that their rural character avoids the need for a larger park and that residents value the open character of their settings more than a highly-improved community park.

**Neighborhood parks** are generally between 1 and 20 acres in size and meant to serve a population of 2,000 to 10,000. The recommended service area for these parks is a one-quarter to one-half mile radius. As implied by the name, these parks are intended to provide close-to-home areas for limited athletic activities, playgrounds, and passive pursuits. The NRPA recommends that 1 to 2 acres of publicly-owned land be devoted to neighborhood parks for each 1,000 residents.

Today the Township population is about 850 residents and by the year 2020 this number should drop to about 777. At the NRPA-recommended rate of 2 acres per 1000 population, the Township would require a neighborhood park of about 1.6 acres. However, the recommended service area of up to ½ mile would not cover all areas of the Township. Instead, if and when the need arises, it is recommended that the Township work with prospective developers to develop and maintain a private small neighborhood park amid the planned residential growth areas depicted on the Future Land Use Map contained in Chapter 10 of this Plan. The method for acquiring and developing this park is presented later in the Mandatory Dedication Section of this Chapter. The following lists a typical schedule of costs and improvements associated with this scale of neighborhood park.

Recommended New Park Improvements	Estimated Cost
1. 1.6-acre neighborhood park;	\$85,000
2. master site plan with survey;	\$10,000
a modular playground with safety surfaces;	\$30,000
4. 6-table picnic pavilion/tables/BBQ grills/waste receptacles;	\$8,100
5. 1 basketball court;	\$37,600
6. 1 sand volleyball court;	\$8,000
7. 8 park benches;	\$4,000
8. bike rack;	\$500
9. landscaping and shade trees;	\$4,000
10. park sign;	\$4,000
11. 20-space parking lot;	\$19,140
12. contingency, bonding, and design costs (20% of improvement costs)	\$23,068
Total Parkland & Improvement Costs	\$233,408

**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. West Marlborough Township has a unique set of conditions that would seem to promote the opportunity for linear parks yet reduce their demand.

While the Township has a seeming abundance of opportunities to develop linear parks, the local demand for these parks is lacking. As stated repeatedly, Township residents enjoy an abundance of open space throughout all areas of the Township. People tend to favor linear park developments when their surrounding open space diminishes and their hiking and biking routes are eliminated by new housing and increased traffic. The development of linear parks through West Marlborough Township would merely restrict the current expansive options for hiking, and horseback riding that are widespread amid its protected rural landscape.

However, the County Plan identifies two segments of Wildlife Biodiversity Corridors that blend important natural features (e.g. habitats at risk, woodlands, streams and water bodies, floodplains, wetlands, and flyways) with areas that avoid concentrations of human habitats and activity (e.g. neighborhoods, schools, parks and other developments). These corridors offer animal migration between several habitats and promote bio-diversity and have been identified on the Public Facilities Map.

- A segment that seemingly straddles Buck Run on the north and east boundary of the Township, then turns south and connects with a tributary of White Clay Creek and leaves the Township south of Spencer Road; and,
- A segment that seemingly follows a tributary of Doe Run that originates in a pond in adjoining Londonderry Township and extends northeast into the Township where it turns due south along some woodlands and steep slopes and then heads east to connect with a tributary of the White Clay Creek.

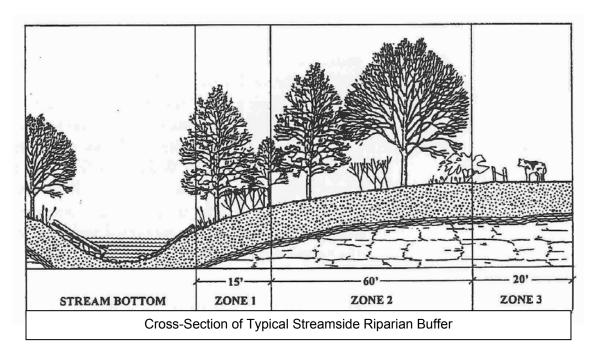
Next, riparian buffers have been demonstrated to significantly improve surface water quality of local streams and their tributaries. At the same location these buffers also offer "habitat highways" where local wildlife can find refuge and food amid agricultural and development settings.

For these reasons, all of the linear park opportunities have been plotted on the Public Facilities Map. But, the plotting of a potential greenway on a map is only a beginning point to a lengthy and potentially difficult process that ends in development and use. Many pitfalls can "derail" this process and prevent project completion. Nonetheless, these greenways have become one of society's popular priorities and therefore local officials should mount a coordinated multi-prong approach to protecting these areas.

Fortunately, the Township has several important and high quality streams that, proper attention, with can offer tremendous environmental, recreational and educational value. These natural corridors represent the best opportunities for greenways that respond to the goals of improved water quality protection. Presently, section 204 of the Township Zoning Ordinance already strictly regulates land use activities within the floodplains. However. additional protection and management is warranted if the Township wishes to improve water quality and offer better streamside recreation and habitat opportunities.



Studies conducted by the U.S. Forest Service suggest that riparian buffers extend to include a 95-foot wide radius from the streambanks. This width is determined by the USDA Department of Forestry, based upon the climatic conditions. Essentially, riparian buffers comprise three distinct zones, as depicted below. The following will describe where to establish, and how to plant and maintain each of these three zones:



**Zone 1** is the landward area located between the streambank edge under typical flow conditions, and the largest width of any of the following:

- fifteen (15) feet, as measured directly perpendicular from the streambank edge;
- the 100-year floodplain;
- any adjoining identified wetlands; and/or,

any adjoining area characterized by slopes exceeding twenty-five percent (25%).

This Zone 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 1 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 2. Intensivelyused locations should be fitted with raised walkways and reinforced embankments. Streamside cleanup of junk and



Riparin Buffer along tributary to White Clay Creek

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

**Zone 2** begins at the inland edge of the above-described Zone 1 and extends at least sixty (60) feet inland therefrom. This Zone 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 2 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 2, but should be provided to prevent compacted soils and root damage.

**Zone 3** begins at the inland edge of the above-described Zone 2, and extends at least fifteen (15) feet inland therefrom. Where a pasture is proposed just beyond the above-described Zone 2, no Zone 3 is required. This Zone should be planted with warm season grasses that are allowed to mature naturally without mowing. The tall grasses ensure that overland storm water flows do not "channel" into Zone 2. New grass plantings should be selected and managed to enable controlled grazing or haying, so long as the grasses are

not reduced to a point where they are no longer able to effectively disperse the surface water flows. This Zone also requires little maintenance. Long summer grasses should be allowed to flourish and recede with the seasons. Grazing and haying is permitted, so long as the residual grass length is sufficient to disperse overland storm water flows into Zone 2 and avoid channelization.



**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. A sample riparian buffer ordiance is contained in Chapter X (Future Land Use) of this Plan and should be adopted throughout the Region.

But zoning regulations alone will not get this job done, as most land uses don't require zoning approval to continue to operate. In these areas, other options exist. First, the USDA Natural Resources and Conservation Service had offered its Conservation Reserve Enhancement Program (CREP). This program is now closed having reached its goal to enroll some 100,000 across the Commonwealth; however, the program may be reopened for inclusion of additional riparian buffers. Essentially 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

"The average cost of the conservation reserve program nationwide is about \$43 per acre per year. However the actual amount farmers will be paid to participate in CREP is highly variable, since it is largely related to local land rental rates. [Within Chester County these payments averaged \$160 per acre per year.] The methodology for determining the total amount to be paid to farmers considers the following: base rental rate, cost of installation of conservation practices, annual maintenance costs and any special incentives. The base rental rate is the average dry land cash rental rate based on the three predominant soil types of the land. The Department of Agriculture maintains this information on a county by county basis for the entire country. The Federal government will pay for up to 50 percent of the cost of installing the conservation practices on the land (e.g. planting trees and grass). The Federal government will also pay a nominal annual maintenance fee (generally \$5 per acre). Finally, the Federal government may make special one-time or annual incentive payments to encourage participation in the program. For example, the Federal government pays a 20 percent annual bonus above the rental payment for certain high priority practices such as installation of filter strips and riparian buffers. States and other program participants may provide other funding to further encourage participation in the program.<sup>2</sup>"

Enrollment in this program is presently closed, but local officials and landowners should monitor the program for possible re-opening. At that time, *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. Information about this program is available from Farm Services Agency (610)* 696-8750.

Most of the success stories surrounding riparian buffers have been the results of dedicated volunteers from conservation and sporting groups. Within the Township conservation organizations have encouraged, aided and assisted landowners in establishing riparian buffers.

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<sup>&</sup>lt;sup>2</sup> http://www.fsa.usda.gov/dafp/cepd/crepqnas.htm

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.

As in the past, local conservation agencies should continue to advocate the use of riparian buffers as part of property management plans associated with conservation and agricultural easements. The Township should also require the installation of riparian buffers for uses that have a potential for generation of surface water pollution as part of its zoning approval process. Intensive livestock operations and waste-related facilities are obvious choices. Finally, Section 511 of the Township Zoning Ordinance should be amended to require the installation and maintenance of a riparian buffer along all streams and tributaries within the Township, not just those associated with the scenic rivers corridors.

Mandatory Dedication (or fee-in-lieu thereof) of Recreation Land - 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. The Township has yet to apply this technique. However, given the previously-described need for a new neighborhood park, the Township should consider use of this technique to generate revenues for this purpose.

Given changing demographics, land values and parkland needs it is important for municipalities to periodically recalculate mandatory dedication standards and their related fees-in-lieu-thereof. The following will provide a basis for such calculations at this time:

The NRPA's recommended minimum standards for local neighborhood parkland is 2 acres per 1000 population. To derive a per unit or per lot standard, the 1,000 population is divided by the average household size (year 2000) reported as follows:

1000 population divided by 2.29 persons per unit equals 436 dwelling units divided by 2 acres equals 200 square feet per dwelling unit.

If raw land was all that was needed to provide for local parks, then the preceding required park acres per dwelling unit would enable the Township to collect parkland that would keep pace with its projected growth. But a neighborhood park is more than raw land; it requires a high level of infrastructure and improvement. Generally, the value of these improvements costs about twice as much as the value of the parkland itself as evidenced in the schedule

of typical neighborhood costs found on page 72. Therefore, it is recommended that the Township triple the preceding acreage figures to derive needed mandatory dedication standards to effectively meet expected demand for a developed neighborhood park. Therefore, each unit should be required to dedicate 600 square feet of land for park purposes.

As an alternative to parkland dedication, municipalities can accept a fee-in-lieu of parkland dedication. This approach can only be used in those instances where the developer and municipality agree on the amount of the fee-in-lieu. In addition, such 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.

According to requirements within the Municipalities Planning Code, amounts of the fees-in-lieu should be derived from the following approach:

An appraiser should be retained by the municipality to analyze recent real estate transactions and derive estimates of fair market value. Such estimates can be based upon all properties within the municipality, or on a neighborhood basis. It is important that the appraiser be informed of the development features (e.g., utilities, zoning, curbs, sidewalks, etc.) common to such lands, so that accurate real estate comparisons can be identified. Once these estimates are derived, they should be periodically updated to reflect the ever-changing value of land.

When disputes between the developer and municipality occur, both the developer and municipality should select an appraiser who, in turn, should jointly select a third appraiser. This third appraiser should then determine the fair market value of the land.

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.

To estimate the value of fees-in-lieu of parkland dedication an average value of \$50,000 per acre will be used to account for the value of improved residentially-zoned land within the Township. The following lists estimated values for fees-in-lieu of parkland dedication per dwelling unit.

Suggested Mandatory Parkland Dedication/Fees-In-Lieu Standards				
Required Park Acres per Dwelling Unit Fee-In-Lieu of Parkland				
.0137 acres (600 sq. ft.) \$689 per unit				

By applying these above figures to the Township's projected growth as described in Chapter IV, the following dedicated acres and/or fees-in-lieu can be collected to meet increasing park demand generated by growth:

Projected Dedicated Parklands or Fees-In-Lieu-Thereof 2000 to 2020			
Time Period Projected New Dwellings Projected Dedicated Projected Fees-In-Li of Parkland Dedicati			
2000-2010	15	0.21 acres	\$10,500
2000-2020	30	0.41 acres	\$20,661

As can be seen, the value of updated mandatory dedication/fee-in-lieu-thereof standards is considerable but represents only about ten percent of the total cost of providing the needed 1.6-acre neighborhood park described earlier in this Chapter. This is because the existing Township residents have not contributed their share of the cost of this service. It is important that Township Officials understand that if the Township collects the mandatory dedication lands or funds, it must follow through with providing the neighborhood park, or risk loss of the lands/revenues. As an alternative to constructing a neighborhood park the Township may decide to donate the proceeds to the School District to be used at the Unionville Elementary School or the Middle or High Schools since these schools already serve the recreation needs of the Township residents.

## C. 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 that 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.

Police protection within the West Marlborough Township is currently provided by the PA State Police. In addition, all emergency police calls are dispatched through the Chester County "911" program. The following information was obtained from Lieutenant Dennis P. Dougherty via survey and follow-up telephone contact.

The Pennsylvania State Police serves a large number of municipalities within Chester County. Specifically, the Avondale headquarters offers principal coverage for five different Zones as follows:

Municipalities Served by Avondale Station of PA State Police			
Zone	Municipalities served		
27	Kennett and Pennsbury Townships		
28	Franklin & London Britain Townships		
29	East Nottingham, Elk, Lower Oxford, Upper Oxford & West Nottingham Townships		
30	Highland, Londonderry, New London, Penn, & West Fallowfield Townships		
31	Avondale Borough, London Grove & West Marlborough Townships		

Presently the Avondale station houses 47 full-time officers, 14 full-time detectives and 6 office help; however, 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, statistics and other factors.

The Lieutenant describes the Avondale station, located at 2 Moxley Lane, Avondale, PA 19311 as adequate. In addition the Department's marked and unmarked vehicles and computers are also described as adequate.

Recent PA State Police Activity Within West Marlborough Township					
Year	Year No. of Total Traffic Accident Responses Responses Serious Offens				
2001	211	56	28		
2002	246	68	27		
2003	232	76	17		

Finally, Lieutenant Dougherty believes that the State Police have the necessary manpower and resources to adequately serve the Township's needs. He believes that the rural area has minor property-related crimes and traffic-related incidents that comprise the bulk of their assistance to the Township. He also opines that the State Police will commit the resources to adequately serve the Township in the future.



Local officials expressed potential dissatisfaction with the patrol of speeding vehicles on the Township's primary roads. Lieutenant Dougherty explains that speeding is a problem in all municipalities and along all major roads. He expressed a willingness to increase patrol at specific locations upon request by local officials but admitted that any long-term commitment to such patrol within the Township is unlikely.

Township officials indicated a willingness to explore the possible sharing of a part-time local police officer with East Marlborough Township for the purposes of patrolling speeders. Lieutenant Dougherty explained that while he has no opinion on the subject, local officials should understand that local police coverage cannot be limited to traffic patrol exclusively. When on-duty, local police officer must patrol their jurisdictions for all police matters. However, if requested, they will provide back-up in serious offenses and emergencies.

Local officials also want to explore the possibility of installing automated traffic enforcement cameras to photograph the license plate numbers of vehicles whose operators fail to obey traffic controls. This technology is emerging but has current legal and technical problems in Pennsylvania. According to Lieutenant Dougherty the following issues would need to be resolved before the Township could employ such a system:

- 1. Section 3368 of the Pennsylvania Vehicle Code requires the use of mechanical or electrical speed recording devices must be operated by a police officer. This Section of the Code would need to be amended for automatic cameras;
- 2. In order to prosecute a violator, an officer would need to be able to testify who was driving the vehicle at the time of the violation; therefore, the camera would need to clearly record the vehicle, its license plate and the face of the driver. Then, this information would need to be immediately transmitted to an officer who was further "down- the-road" so that the operator could be pulled-over to obtain the driver's license information; and,
- Any photos taken would need to also record the date, time and vehicle speed.
  Radar units within Pennsylvania must be approved by PENNDOT and calibrated
  every 60 days at an approved testing facility. Such systems are expensive to
  acquire and operate.

PENNDOT is currently working on a project to make use of digital cameras for traffic enforcement along PA Route 41 through Chester County. Township Officials should closely monitor the details of this new project and see if any of the preceding issues are resolved in a manner that would make use of this technology applicable within the Township. A possible contact would be Robert Pento, PENNDOT, Bureau of Highway Safety and Traffic Engineering at 717-783-6265.

For the time being and the foreseeable future, West Marlborough Township is a rural place with low incident rates and few serious crimes. Police protection is one of the most costly public services that is usually reserved for municipalities that are under going rapid transformation and become inundated with a new breed of crimes. For these reasons it is recommended that the Township continue to rely upon patrol from the PA State Police and that periodic input be furnished to the Department for acute patrol needs.

However, in the distant future this may change. As a rural area develops, local officials find themselves torn between retaining low levels of taxation, and providing for increasing levels

of public facilities and services that are usually expected by the "newcomers." This often pits long-time residents of the community who want things to remain as they were against new residents who move from more urbanized locations, and are often surprised and disappointed by the relative lack of public services. At some point, the new residents usually outnumber the existing inhabitants and the political winds change. At that time, new officials are elected on platforms of better delivery of more services, and real ill-will within the community develops.

Local officials need to know and understand these pressures if they are to persevere through the transition. The question is not <u>if</u> better services and higher taxes result, but <u>when!</u> Fortunately, State programs exist to assist municipalities with these difficult studies and decisions and offer independent expert advice. Some of these programs are free, while others are offered in the form of peer-to-peer grants. In any event, these programs and grants can provide invaluable assistance to the open-minded elected official who is trying to "cut through" all of the local politics and emotion. For this reason, it is suggested that at such time as popular public sentiment shifts towards a higher level of police protection, the Township should partner with one or more of its neighboring municipalities to participate in a PA Department of Community & Economic Development (DCED) regional police feasibility study.

### D. 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. Three separate fire companies have first-call responsibilities within the West Marlborough 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. Two different ambulance companies serve the Township.

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

Summary Characteristics of Fire Companies Serving West Marlborough Township					
Company		Avondale Fire Co.	Modena Fire Co.	Po-Mar-Lin Fire Co.	
First Call Service A (see Public Facilities		Avondale, Franklin, London Britain, London Grove, New Garden & West Marlborough	Modena, S. Coatesville, E. Fallowfield & portions of Newlin & W. Marlborough	East & West amrlborough, Newlin and Pocopson Townships	
Mutual-Aid Service	Areas	Cochranville, Unionville, West Grove	Coatesville, Valley, W. Bradford & portions of Newlin & W. Marlborough	Southern Chester County area	
<b>Station Locations</b> (see <i>Public Facilities</i>	Мар)	123 Pennsylvania Ave. Avondale, PA 19311	5 North Brandywine Ave. Modena, PA 19358	PO Box 36, Doe Run Road Unionville, PA 19375-0036	
Adequacy of Station	n?	OK now, but building new station in future.	OK now, need for expansion with community growth.	Company is planning for a new station as the current facility is too small.	
Average No. of Pers	sonnel	40 full time volunteers 10 volunteer fire police	30 full time volunteer firefighters, 10 volunteer fire police & 1 part-time paid staff	30 full time volunteers	
Adequacy of Person	nnel?	OK	Adequate.	Need more help particularly during the day.	
1 <sup>st</sup> Due Calls	2001	534	180	33	
1999-2001	2002	558	220	28	
	2003	592	240	44	
Mutual-Aid Calls	2001	78	30	NA	
1999-2001	2002	57	30	NA	
	2003	65	30	NA	
Average Emergency Response Time*	у	2.2 to 3.2 mins.	3-5 mins. Adequate!	4-6 mins.	
Major Equipment		<ul><li>2 engines</li><li>2 tankers</li><li>1 squad truck</li><li>1 traffic unity</li></ul>	<ul> <li>2001 1000-gal pumper</li> <li>1989 1000-gal pumper</li> <li>1994 250-gal TAC unit</li> <li>1976 brush truck</li> <li>1996 squad unit</li> </ul>	<ul> <li>1989 Pierce Engine¹</li> <li>1992 Ford / Pierce Rescue¹</li> <li>2000 Ford F 550 / 4-Guys Mini Attack Unit</li> <li>2003 Peterbilt / 4 Guys Tanker</li> <li>2004 Ford Expedition Chief's vehicle</li> </ul>	
Major Problems?		<ul> <li>Fund raising</li> <li>Traffic problems</li> </ul>	<ul> <li>Fund raising.</li> <li>Few donations.</li> </ul>	No water supply; Inadequate property address posting; Narrow driveways; Lack of driveways to horse barns; Accessory apartments without notification to Fire Co; Lack of financial support; Need for more manpower during the day.	
Website		avondalefirecompany.org/default.htm	modena37.com/	pomarlinfc.org/	

<sup>&</sup>lt;sup>1</sup>Po-Mar-Lin is in the process of replacing these units with one truck.

Summary Characteristics of Ambulance & EMS Companies Serving West Marlborough Township						
Company		Avondale Ambulance	Modena Ambulance	Brandywine Hospital M93	S. Chester Co. EMS	
First Call Service Areas (see Public Facilities Map)		Avondale, Franklin, London Britain, London Grove, New Garden & West Marlborough	Modena, S. Coatesville, E. Fallowfield & portions of Newlin, W. Bradfrod & W. Marlborough	North to Morgantown East to Downingtown	Avondale, East Nottingham, Elk, Franklin, Highland, London Britain, Londonderry, London Grove, Lower	
Mutual-Aid Service	Areas	Longwood, Modens, West Grove	Coatesville, Caln, Highland and Valley	South to West Marlborough West to Gap Hill	Oxford, New Garden, Oxford Borough, Penn, Upper Oxford, West Fallowfield, West Grove Borough, West Marlborough & West Nottingham.	
Station Locations (see Public Facilities	Мар)	123 Pennsylvania Ave. Avondale, PA 19311	5 North Brandywine Ave. Modena, PA 19358	201 Reeceville Road Coatesville, PA	8786 Gap Newport Pike	
Adequacy of Station	1?	Cramped; building new station in future.	Adequate for now and foreseeable future.			
Average No. of Pers	sonnel	1 full-time paid EMT 20 part time paid staff 10 full time volunteers	30 full time volunteers 6 part time paid staff	14 full time paid staff	9 full time paid staff 12 part time paid staff	
Adequacy of Person	nnel?	Adequate	Possible need for a 2 <sup>nd</sup> paid EMT on weekdays	Adequate for now		
1 <sup>st</sup> Due Calls	2001	1184	21		NA	
1999-2001	2002	1240	25	About 40 / year	NA	
1999-2001	2003	1300	22		43	
Mutual-Aid Calls	2001	200	NA	NA	NA	
1999-2001	2002	198	NA	NA	NA	
1999-2001	2003	287	NA		NA	
Average Emergency Response Time	y	2-3 mins; adequate	8 mins. Due to volunteer locations	10 mins for 80% 15 mins for 15% 20 mins for 5%	11.6 mins	
Major Equipment		<ul><li>2003 Ford PL custom 4X4 ambulance</li><li>BLS equipment</li></ul>	<ul><li>2000 Lifeline ambulance</li><li>2003 Lifeline ambulance</li></ul>	Paramedic QRS vehicles     Paramdic Capital Equipment and     Medical supplies	<ul><li>2002 Ford Explorer</li><li>2003 Ford Crown Victoria</li><li>2003 Ford Crown Victoria</li></ul>	
Major Problems?		<ul> <li>Need more volunteer EMTs</li> <li>Cramped station</li> </ul>	<ul><li>Lack of volunteers</li><li>Lack of time for training</li><li>Fund raising</li></ul>	Decreasing financial support     Decreasing volunteerism	Costs of salaries & benefits     Needed increased municipal support	
Website		avondalefirecompany.org/ems.htm	modena37.com/			



Modena Firehouse and Engine



Avondale Fire Engine and Fire Police Vehicle



FUTURE VOLUNTEER MANPOWER

Across the nation, fire and ambulance companies are experiencing declining numbers of volunteers. This is particularly true of "younger volunteers" who will become the next generation of emergency service providers. However, given the projected growth within the County, future demands will rise and more manpower will be needed. Nationally, volunteerism in general, is declining. The National Volunteer Fire Council reported that the number of volunteer firefighters dropped 12% since its record high in 1983. And, despite President Bush's call to public service after "9/11", the downward trend continues. 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.

Presently, 3 separate fire companies serve the West Marlborough Township with 100 full-time volunteers, and 20 volunteer fire police. A 1999 study conducted by the Pennsylvania Fire and Emergency Services Institute showed that most fire companies have between 11 and 20 active members. Consequently, the West Marlborough Township's average of 40 full-time members per company suggests that volunteerism is strong. Nonetheless, local fire officials have observed a decline in new membership and know that difficult times lie ahead. Furthermore, in light of the terrorist attacks committed against the United States on September 11, 2001, many experts argue that the capacity to respond to local emergency crises needs to be expanded. Fortunately, many citizens within our society have begun to acknowledge the important and life-saving roles volunteer firefighters, EMTs and local police officers provide.

While volunteerism is strong today, local officials should communicate regularly with local emergency service responders and support their volunteer recruitment efforts. The following is a list of possible strategies that could be used should additional manpower be needed:

- 1. Recruit firefighters/EMTs who live within the Region and work for businesses located here:
- 2. Recruit firefighters/EMTs who live outside of the Region, but work for businesses located here;
- 3. Establish policies with local governments and businesses that enable their employees to respond to daytime emergencies;
- 4. Identify local volunteer firefighters/EMTs who may work for Chester County, and establish policies for their release from work duties to respond to daytime emergencies within the Township;
- 5. Design ongoing recruitment strategies for new resident volunteers and retention strategies for existing volunteers; and,
- 6. Explore the offering of a "junior" firefighting curriculum within the School Districts as a means of developing interest and expertise among potential future volunteers.

Prior to actual recruiting, it may be necessary to complete the following evaluation process:

- 1. Determine the need by local fire/ambulance chiefs for more volunteers from any of the preceding sources within their respective companies;
- 2. Establish policies within the Region's fire and ambulance companies that allow for nonresidents to become members of their respective companies;

- 3. Identify those local and nonresident volunteers who work for companies within the Region who could potentially respond to daytime emergency calls;
- 4. Determine the level of competence of potential volunteers and/or training needed to "run" with local companies;
- 5. Establish ongoing working agreements with local businesses for the release of volunteer firefighters/EMTs during daytime emergencies;
- 6. Require the potential "daytime" employee volunteer firefighter/EMTs to become an official member of the respective fire/ambulance company, so that they can be covered by the municipality's workmen's compensation insurance policy; and,
- 7. Establish an ongoing mechanism that periodically reinitializes the recruitment process.

Today, emergency services often involve specialized equipment and training. The Township's fire and ambulance companies already have an informal means of efficiently using the specialized skills and expertise of existing volunteers across the Township. Local emergency service ersponders *should also formalize a program to deliver specialized training to ensure a wide and uniform coverage of specialized skills and expertise throughout the Township*. In addition, the PA DCED's Shared Municipal Services Program offers matching grants for any two or more municipalities who jointly perform local government functions. Such grants have been awarded to fund paid administrators to over see the preceding recruitment and training activities.

#### **FUTURE FUND-RAISING**

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. A 2001 study conducted by the Pennsylvania Fire and Emergency Services Institute provided information about the costs saved by the Commonwealth's volunteer fire companies. Essentially, they assumed that, in the absence of volunteer fire companies, paid companies would require:

#### "Typical Costs Associated with Fire Protection"

- One fire company serves each 10,000 population;
- Each company requires 20 full-time paid firefighters;
- Each firefighter would be paid \$55,000, including benefits;
- Each company would have an average annual operating budget of \$50,000;
- The cost of protective clothing/gear for each firefighter would total \$5,688;
- Each company would average 4 emergency vehicles at a cost of \$275,000 per vehicle.

Using these assumptions, the West Marlborough Township would incur the following costs:

## "Estimated Costs of Providing Fire Protection Within West Marlborough Township"

- West Marlborough Township's population of 860 would require 0.1 fire companies;
- \$110,000 annual salaries of 2 paid firefighters;
- \$5,500 annual operating expenses of 0.1 fire companies;
- \$11,376 cost of protective clothing/gear; and,
- \$110,000 cost of emergency vehicles.

The following tabulates the amounts contributed by the Township to its respective fire and ambulance companies in year 2003:

Summary of Township Contributions to Local Fire & Ambulance Companies	
Agency	2003 Contribution
Avondale Ambulance	\$2000 <sup>1</sup>
Modena Ambulance	0
Total Ambulance Contributions	\$2000 <sup>1</sup>
Avondale Fire Company	\$1000 <sup>1</sup> & \$1282.52 <sup>2</sup>
Modena Fire Company	\$1000 <sup>1</sup> & \$1282.52 <sup>2</sup>
Po-Mar-Lin Fire Company	\$2000 <sup>1</sup> & \$5985.11 <sup>2</sup>
Total Fire Company Contributions	\$4000 <sup>1</sup> & \$8550.15 <sup>2</sup>
<sup>1</sup> Contributions from General Fund / <sup>2</sup> Allocations from Firemen's Relief Fund	

A comparison of the Township's 2003 contribution to the local volunteer fire companies of \$12,550.15 is less than 11 percent of the annual expenses needed to man and operate a paid equivalent complement of fire companies. *In order to offset the difference contributed by the Township and the financial value of local volunteer efforts, each of the Region's 453 households would need to pay about \$227 per year to cover operating expenses.* These figures do not even consider the capital costs associated with protective clothing/gear and emergency vehicles that would substantially increase monies needed. Also keep in mind that this analysis only relates to fire protection; volunteer ambulance services also provides for considerable cost savings. Undeniably, local volunteers have made, and continue to make, huge contributions to the safety and financial well-being of the Township and adjoining region. It is vital that their efforts continue!

Local officials and volunteers are aware of these difficulties. Local fire and ambulance chiefs should work with local municipalities on a regular and ongoing basis to mount an educational and media campaign. Such campaign should present specific findings and presents hard, "credible" facts about the cost of delivering these services and the foreseeable equipment needs of the various companies. It could explain the benefits of new equipment and what it can mean to the Region. It could 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 could 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 Region could 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 Region. This will require the preparation of a "Single Application for Assistance," a copy of which can be found online at <a href="www.esa.dced.state.pa.us">www.esa.dced.state.pa.us</a>. The PA DCED will examine the adequacy of the Region's 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.

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 could 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:

<u>DRIVEWAY DESIGN AND ADDRESSING</u> - As a means of improving emergency access and response, the Township should adopt minimum driveway design standards that facilitate adequate emergency access and resist efforts to waive or vary from these safety-related standards. In addition, such design standards should be applied to driveways that serve barns. Such standards should require:

- A minimum 10 foot-wide improved (paved or stone surface) cartway for single-use driveways and 16 feet for joint-use driveways;
- An improved (paved or stone surface) apron connection with the public or private street that extends at least 25 feet off-of the road cartway and has a slope of no more than 8 percent;
- A minimum 12-foot high clear vertical path along the driveway between the road and all structures that is free of vegetation and other obstruction;
- A maximum driveway length of 600 feet for single—use driveways and 1000 feet for joint-use driveways; and,
- Posting of reflective road address number signs at all driveway entrances or turn-outs along joint-use driveways. On paved driveways reflective paint can be used upon the driveway apron to portray the street address number as an alternative to reflective sign posting.

In addition, 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.

On a related matter, one chief complained that Township residents were renting apartments and that his company was unaware of such apartments. It is therefore recommended that the Township revise Sections 200.2.8.C (farm-employee housing), 200.2.8.D. (ECHO housing) and 453 (two-family conversions) to require written notification by the applicant to the first-due fire, ambulance and EMS companies prior to occupancy.

<u>DRY HYDRANT INSTALLATION</u> – One of the Fire Chiefs expressed the need for better sources of water for firefighting within the rural areas of the Region. Dry hydrants

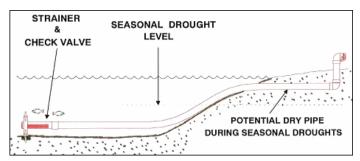
are permanently mounted pipes that are located at local sources of water (ponds and streams) that firefighters can readily access during times of emergency. Typically these hydrants are located alongside an improved public street about 10 feet away from the cartway. They appear as 5" PVC pipes extending 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 Resource Conservation & Development (RCD) is a non-profit agency that has received a federal grant to promote the installation of dry hydrants within southeastern Pennsylvania. Specifically, they will donate all of the materials needed for the installation. This reduces the installation costs by about \$500. Use of volunteer or Township excavating can further reduce costs. John Metric is the local contact at of RCD whose phone number is 215-541-7930.

Easements from private property owners need to be negotiated and recorded so that future conveyances of the property preserve the water access. Prior to

installation into streams, permits are required from the Chester County Conservation District. Installation into ponds does not require a permit. The installation of these hydrants can affect a reduction in homeowner insurance rates.



## **E.** Township Government

This section provides a description of the 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

1300 Doe Run Road, Coatesville, PA 19320

### Office Phone Number

(610) 383-5986

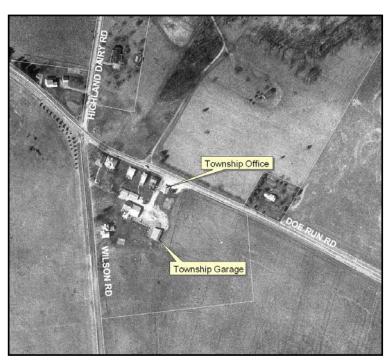
#### **Office Fax Number**

(610) 383-7886

#### **Office Hours**

Thursday: 4:00 to 8:00 P.M. Friday: 8:30 AM to 12:00 Noon

**Description of Office and Facilities:** The current municipal building is leased in the Village of Doe Run. Although the building has a



Doe Run Road address, it sets off of Doe Run Road in the alley behind those buildings fronting along the road. This building is a two-bay garage for large road-maintenance vehicles. It also includes a cluster of tables area where various Township-government agencies meet and a small office and restroom.

Municipal Staff: Staff currently consists of five paid employees as follows:

- Full-time Road Maintenance Supervisor;
- 2 part-time road maintenance / snow removal crew;
- Part time Secretary Treasurer; and,
- Part-time Engineer and Zoning Officer.

**Board of Supervisors:** the Board of Supervisors is the elected governing body of the Township. The 3-member Board meets in the Municipal Garage on the first Tuesday of the month, at 7:30 p.m. Each supervisor serves a 6-year term.

**Planning Commission:** Members are appointed for 4-year terms. The 5 members meet in the Municipal Garage on the first Tuesday of the month, at 7:00 p.m. immediately preceding the Board of Supervisors meeting.

**Zoning Hearing Board:** The 5 members are appointed for 3-year terms and meet as needed.

**Agricultural Security Area Advisory Committee -** This 5-member board meets on an as needed basis but at least once during the required 7-year review cycle.

## VIII. Utilities

#### A. SEWER SERVICE

Given its rural character it stands to reason that West Marlborough Township relies exclusively upon on-lot sewage disposal systems (OLDS). Presently the Township operates under the Chester County Sewage Master Plan adopted in 1970 and the Pennsylvania Department of Environmental Protection (PA DEP) has not requested that the Township prepare its own plan. The Chester County Health Department regulates water, wells, nuisances, sewage and liquid waste under its Chapter 500 regulations.

Today the Township relies upon the Chester County Health Department (CCHD) to act as its sewage enforcement officer (SEO). As SEO, the CCHD issues sewage permits and enforces the state regulations governing the installation and use of OLDS.

According to the CCHD, the Township has minor "issues" regarding its sewage systems. Typically older on-lot sewers were often installed before State regulations governing design and installation methods were in place. Consequently these older systems tend to fail over time and the sewage rises to the land surface. These malfunctions occur occasionally within the Township and on-site remedial actions are usually successful in correcting these problems.

On-lot disposal systems, if constructed and maintained properly, can provide a reliable and efficient means of wastewater treatment in rural and suburban areas where population density is low. However, where such systems are improperly installed or not maintained, contamination of on-site water supplies can result.

Therefore, it is recommended that the Township adopt and implement an OLDS management program. Such a program would require the routine maintenance of systems to include the regular "pumping-out" of subsurface septic tanks. Specifically residents would be required to submit receipts from licensed "pumpers" periodically or be subject to penalty and fines. The CCHD believes that this program is needed within the Township and that the Township staff would be responsible to administer the program.

One of the goals for this plan indicates that the Township intends to resist the use of a sewer system that would outfall into surface water as it would diminish the Township's high quality surface water. All future use of on-lot and/or community sewer systems should be carefully scrutinized regarding potential effects on groundwater quality; this would be accomplished through the preliminary hydrogeologic study requirements of the PA DEP module review process. The presence of the Cockeysville marble geologic formation presents particular problems for the use of sewers that rely upon subsurface filtration due to the formation's high permeability and susceptibility to sinkhole creation. Any use of on-lot sewers should require at least 1 acre of lot area to accommodate the primary disposal site and another replacement disposal site to be approved by the Township SEO. Furthermore the Township Zoning Ordinance should also require that any

## permit issued for a new use that would rely upon a new OLDS, specifically depict and protect the alternate disposal site from disturbance.

Typically the compact configurations of older villages with small and narrow lots, prevents the installation of second on-lot systems due to state-mandated setbacks from on-site wells and adjoining property lines. When malfunctions occur in these settings, other solutions are required and sometimes property owners are forced to resort to regular "pump-out" of holding tanks. Should more malfunctions in a village occur, the holding tank solution becomes impractical. Under these circumstances, the Township would benefit from the design and installation of a small community system to resolve known problems and address likely future malfunctions in the village. Local officials are urged to adopt this response to avoid the need for a larger and more complicated process that could be forced upon the Township by PA DEP. Furthermore, the Township should design any community system with limited capacity to only serve the scale of the existing village with minor in-fill developments and not encourage future residential growth.

Around the Village of London Grove, soils are suitable for conventional subsurface sewage treatment technologies. However, the immediate vicinity of the Village of Springdell contains soils with severe development constraints related to the use of on-lot subsurface sewers (see the Soils and Geology Map contained in Chapter 3 for this delineation). Here, other alternative sewage techniques can be successfully installed upon soils that do not support on-lot subsurface systems. New technologies are constantly emerging that could be applied.

Alternative wastewater systems would permit compact, traditional growth patterns and the extension of existing villages. Because the existing and planned future development of the Township is rural, and because there are no available public sewer systems, the development or extension of a public sewer system is not recommended. Such a major capital facility would not be cost-effective, would encourage development and the loss of farmland, and could degrade the high-quality waters of the Township through traditional stream discharge. Neither is multiple private package plants recommended because of the high incidence of maintenance problems and the use of traditional stream discharge.

Alternative wastewater systems offer various simple, effective ways to collect, treat, and dispose of sewage effluent that are suited to the particular needs of an area. Such systems are especially well suited to villages and small communities in rural areas because they can be sized to meet limited local needs, and designed to have a positive rather than negative impact on the environment. Construction costs are generally low, and maintenance is minimal. Examples of such systems exist in many parts of Chester County due to its complex geologic and soil settings that make the use of on-lot sewers difficult.

A lagoon system accepts raw wastewater from a community and treats it in one or more man-made ponds. Natural biological processes, sometimes aided by aeration, break down the wastewater, providing a secondary level of treatment. The lagoons can be constructed with clay-amended soils or a synthetic liner to form an impermeable barrier, which prevents the escape of untreated wastewater. The sludge created during the treatment process collects at the bottom of the ponds, and only very infrequently (every 10-15 years) needs to be removed. Ponds generally are required to have a minimum of 60 days of storage capacity for extended periods when irrigation cannot take place. Ponds can be designed to provide storm water benefits, and final stage holding ponds can be used for fire-fighting needs.

Spray irrigation is another method of disposing of, or recycling, treated wastewater, rather than discharging it into a stream. Wastewater is disinfected through chlorination, then sprayed onto agricultural crops, golf courses, nurseries, or woodlands, where the first few feet of soil provide filtering, and the nutrients are taken up by plants as fertilizer. Water is near drinking-water quality at the time of irrigation. Groundwater is replenished without contamination. Over time, groundwater nitrate-nitrogen levels may be reduced as they are diluted with water containing lower nitrate-nitrogen levels. The land is irrigated at a rate based on the ability of the plants to use the nutrients and the ground to accept the water. Irrigation can occur daily, alternating days, or weekly. The best soils absorb 1.5 to 2 inches of treated water per acre per week. Wooded sites are more able to absorb water in freezing weather.

Siting standards for lagoons and spray irrigation fields need to be utilized to assure that adequate distances are maintained between these facilities and dwellings, wells, and property lines. DEP recommends that a distance of at least 100 feet be maintained between lagoons and homes, and at least 200 feet between spray fields and homes. Minimum distance between lagoons and wells should be 100 feet, depending on a variety of factors. The minimum distance between spray fields and wells is variable, depending on a number of factors; some spray fields are located directly over wells, providing replenishment of groundwater. It is recommended that buffer strips of at least 100 feet be utilized adjacent to property lines, as an extra measure of protection.

People sometimes have concerns about lagoon systems and spray fields that involve health, odor, appearance, and use of the property. Alternative wastewater systems are no longer considered experimental and have been in use for up to 30 years throughout the County. Lagoon systems with spray irrigation fields have proven particularly successful and increasingly acceptable to the public. Today, over 7,000 lagoons are being used in the country to treat wastewater, most of them operated by small communities.

Lagoons have the appearance of farm ponds, sometimes have walking paths around them, and are generally considered to be attractive. Spray fields can provide a number of open space possibilities. Properly operated and maintained lagoons and spray fields have no discernible odor. Chlorine is used to disinfect the water prior to spraying. Spray sites may be utilized by the public for recreational purposes, with no reason for health concerns. As a precautionary measure, DEP does not permit spray irrigation of treated wastewater on agricultural crops intended for human consumption.

Soils which may be suitable for spray irrigation fields are, according to DEP, also generally those which are suitable for lagoons. More specifically, they are lands with a maximum recommended slope of 4-5% for agricultural fields, and 8-10% for wooded areas or land in permanent grass cover. They should be moderately well-drained, not eroded, not in wetlands and not in floodplains. Soils should be at least 20 inches deep to the limiting zone. The soils suitability criteria for spray irrigation fields are generally less stringent than those for on-lot systems.

Since lagoons and spray irrigation fields are commonly used together, providing respective treatment, storage and disposal functions, alternative wastewater systems as a whole are more suitable for some soils types. The primary variant among these soil types is slope. Lagoons and spray fields can be located together where soils are especially suitable, or can be separated where differing soil types are preferable.

The amount of land needed to accommodate a lagoon system and spray irrigation field depends primarily on the anticipated wastewater flow and soil type. The very smallest systems designed for a single dwelling unit might require a little over one-half acre for both the treatment system and spray fields, with an overall minimum lot size of two acres. Larger systems designed to serve about 50 dwellings might require one acre for a lagoon system and five acres for spray fields, as well as land for a buffer.

Typically, the land set aside for the lagoons in new developments are dedicated by the developer to the municipality, through negotiation, clustering, or other means. Other times these areas are held in common ownership by the homeowners association. In an older development in a remedial situation, municipalities could seek to cooperate with landowners to provide systems which would serve both the new and old areas.

In approving an alternative wastewater system to address a remedial situation, DEP is usually more flexible in its approval standards. A village cluster ordinance with incentives could be effective in encouraging the creation of alternative wastewater systems. Such an ordinance could also enable spray fields to be part of developments. Spray fields can be configured so as to create a number of open space options, including active recreation areas, passive woodlands, or farmland making up a greenbelt around part of a community.

Finally, it is recommended that the Township or an authority own, operate and regularly maintain the community sewer systems (as an independent taxing authority or district) or that it oversee such activities, to assure that they are operating correctly. Any system serving more than several dwellings (2,000 GPD) must have a licensed operator. The Township or its authority may levy tapping and user fees to cover the costs of constructing, connecting to, and operating these systems. However, an authority has the advantages of selling tax-exempt municipal bonds, and its debt is separate from the municipal tax base. DEP is more likely to approve municipal or authority-operated and maintained systems than private ones or ones operated by homeowner associations, because the former tend to be more responsible in the maintenance of such systems.

The suitability of lands for alternative wastewater systems, in combination with the information that is known about historic problem sewer areas, should be used to help determine appropriate areas for future growth in the Township. Future growth should be directed into areas capable of supporting such systems where remedial sewer service capacity can be provided to serve current and likely future malfunctioning OLDS.

Furthermore, local officials should consider adding a new Section to Article 3 of the Township Zoning Ordinance relating to the use of on-lot sewage disposal systems that should:

- 1. Require new uses to test for and reserve two disposal areas (primary and alternate) for sewage on the site to be approved by the SEO;
- 2. Permanently protect the reserve disposal site from disturbance until activated;
- 3. Allow the enlargement of lot size, beyond specified maximums by conditional use, to avoid an unacceptable level of nitrate-nitrogen in adjoining groundwater to be determined through the DEP sewer module review process;
- 4. Enable the use of a sewage effluent dispersal easement by conditional use in-lieu of enlarged lot area as described above;

- 5. Require compliance with the Township's recommended On-lot Sewage Disposal System Management Ordinance; and,
- 6. Where practicable, avoid the placement of on-lot sewage disposal systems upon lands underlain by the Cockeysville Marble geologic formation because of its susceptibility to sinkhole formation and solution channels that could contaminate local groundwater.

#### B. WATER

Like sewage disposal, West Marlborough Township relies exclusively upon on-lot wells for domestic water supply. As reported in the Natural and Cultural Features Chapter (Chapter 3) geology is also a primary determinant of groundwater quality and quantity. 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.

A typical household with three family members requires an average flow of 0.2 to 0.4 gpm with a peak rate of use ranging between 3 and 5 gpm. The Township's geologic formations record median yields of 9 to 73 gpm and can adequately accommodate a sparsely-developed rural land use pattern. Given the Township's limited projected growth and its goal to preserve the rural character, these formations should aptly provide sufficient yield for the Township's projected future. The Township intends to rely upon on-lot wells within the predominately rural landscape for most of its residents.

The Cockeysville Marble formation's higher yield offers the opportunity for a public or commercial water source. However, local geologic characteristics that provide for abundant groundwater yield present the opportunity for its contamination. *Therefore, should a public or commercial water source be developed here, it should be accompanied with a suitable wellhead or springhead protection program.* Wellhead and springhead protection is a particularly sound investment because protection is more effective and less expensive than cleaning a contaminated groundwater source, which may cost 30-40 times more than initial protection. *Local officials should investigate the acquisition of public water supply systems that would serve or originate within the Township. Furthermore, the Township should restrict the location of commercial water withdrawal, processing, storage and distribution to its Business Zone.* 

The Chester County Health Department (CCHD) also regulates the creation and use of wells under Chapter 500 of its Rules and Regulations. Specifically it licenses well drillers, issues well drilling permits and tests and approves water quality from wells for domestic, public and agricultural use. Differing water quality standards are applied based upon the intended use of the water. Finally, the CCHD also requires that abandoned wells be properly filled and sealed by licensed well drillers who must then submit an abandoned well report within 30 days of well abandonment.

The CCHD is unaware of any acute water quality or quantity issues that would prevent a continued rural development pattern or the creation of small village clusters with community

based water systems. Elevated ambient nitrate levels are common throughout agricultural areas of Chester County; however, these are easily resolved through primary treatment.

#### C. SOLID WASTE DISPOSAL

Chester County adopted its first municipal solid waste management Plan in June of 1972 which was approved by 72 of the County's 73 municipalities. However, with passage of the Pennsylvania Solid Waste Management Act of 1980 (Act 100) and the Pennsylvania Municipal Waste Planning Recycling and Waste Reduction Act of 1988 (Act 101), the County undertook another comprehensive plan update. The Chester County Solid Waste Management Plan was adopted by the Chester County Board of Commissioners and ratified by 68 of the County's municipalities in 1990.

Today the County is in the process of updating its Plan to reflect the following revised goals as mandated by the State in revisions to Act 101:

- 1. increasing the recycling rate goal to 35% by the beginning of the year 2003;
- 2. providing ten years of permitted capacity for the County's waste;
- 3. ensuring that all assurances were obtained in a fair, open, and competitive manner;
- 4. reducing the weight or volume of municipal solid waste generated per capita in the County;
- 5. identifying a list of benefits that residents, businesses, and the County will derive from implementing the Plan; and,
- 6. updating all irrelevant, inaccurate, and out-of-date information contained in the Plan.<sup>1</sup>

Under the existing Plan waste generated from the County is generally deposited in one of two landfills within the County. First, about 85 percent of the County's total solid waste from approximately 51 municipalities is placed within the Lanchester Sanitary Landfill located in Honeybrook, Caernarvon and Salisbury Townships straddling the Chester and Lancaster County boundary. Another 15 percent is deposited within the Southeastern Chester County Refuse Authority Sanitary Landfill located in London Grove Township just south of West Marlborough Township.

Under Chapter 15 of the PA Municipal Waste Planning, Recycling and Waste Reduction Act, municipalities with a population of at least 5000 and a density exceeding 300 persons per square mile are required to "establish and implement a source-separation and collection program for recyclable materials. Such determinations are based upon the most recent decennial census conducted by the US Census Bureau. Today, and in the projected future, the Township will not exceed these standards; therefore, recycling will continue as a voluntary option for the Township. Nonetheless, as part of the County's strategy to reduce the stream of solid waste, the Plan recommends the following programs and recommendations applicable to West Marlborough Township:

 The County will assist the 56 non-mandated municipalities to help them implement curbside or drop-off recycling collection programs or to participate in regional recycling programs;

<sup>&</sup>lt;sup>1</sup> Chester County Municipal Waste Management Plan Revision, Gannett Fleming, Feb. 10,2003, pg. I-2

- 2. The Southeastern Chester County Refuse Authority (SECCRA) will operate and expand its curbside and drop-off recycling collection program to serve all of the municipalities located within its service area:
- 3. The SECCRA proposes to construct, operate and maintain an intermediate processing center to process and market recyclable materials generated by its Recycling Program;
- 4. The County will provide technical assistance to and encourages the Chester County Solid Waste Authority, the Southeastern Chester County Refuse Authority, municipalities and private sector businesses to site, operate and maintain leaf and yard waste composting facilities, including the establishment of regional composting facilities and the sharing of compost processing equipment among facility operators.
- 5. The County will help schools, non-profit and civic organizations, municipalities, and recycling program operators develop awareness and educational programs to promote recycling and waste reduction practices.
- 6. The County will provide information and support to municipal recycling advisory committees.
- 7. All municipalities will provide an annual recycling report to the County by February 15 of each year, as required by Act 101.
- 8. The County will publicize the need for municipalities to require that private haulers and collectors provide detailed weight slips, at a minimum once each calendar year, for all recyclable materials collected and marketed to all recyclable material generators.

West Marlborough Township does not have any official policies regarding the disposal of solid waste. Property owners negotiate with private haulers for collection and disposal of wastes. The Township also does not offer any recycling facilities or programs; however, the Southeastern Chester County Refuse Authority (SECCRA) landfill just south in London Grove Township accepts drop-off recyclables.

The SECCRA is a municipal authority formed in 1968 to provide a regional waste management approach to municipal solid waste problems in southern Chester County. The current landfill started operations in 1986 and presently serves 24 boroughs and townships in southern Chester County. The landfill has received more than 1,000,000 tons of waste so far. This will serve the community until 2009. Eighty five thousand people reside in the SECCRA service area and the number is growing at an increasing rate. The residents generate approximately one ton per capita per year.<sup>2</sup>

#### D. OTHER UTILITIES

Several major utility lines pass through the Township. 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* 

<sup>&</sup>lt;sup>2</sup> http://www.seccra.org/, June 28,2004.

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 Existing Land Use Map contained in Chapter 5. The following describes these major rights-of-way:

<u>Columbia Gas Transmission Corporation</u> maintains a 50-foot-wide right-of-way that runs in a northeast-southwest direction across the northern portion of the Township. This right-of-way straddles a 20-inch natural gas transmission pipeline (line number 1278). The placement of above-ground structures is prohibited within this right-of-way; however, streets and parking lots may be permitted, subject to design review by Columbia Gas Transmission, Inc. Lawn plantings and normal agricultural activities are permitted within the right-of-way. Subsurface sewage disposal systems must be located a minimum of 25 feet from the pipeline and drainage fields shall be designed to drain away from the pipelines.

"PECO Energy Company owns, operates and maintains a 300-foot-wide right-of-way that traverses the Township. Specifically, this right;-of-way is associated with a 230,000 volt overhead transmission line that runs between Conowingo, MD and Plymouth Meeting, PA. The right-of-way nearly bisects the Township and runs in a general northeast - southwest direction. The company may allow construction of buildings within the right-of-way as well as secondary uses utility crossings, roads, parking lots, and recreation. All proposed uses require an engineering review and approval by PECO. Applications for such reviews can be submitted to the Company's Real Estate Department at 2301 Market Street, Philadelphia, PA 19101. Processing of the requests may take 60 days."

<sup>&</sup>lt;sup>3</sup> July 13, 2004 letter from Dennis E. Wilson, Manager of Leasing and Sales, PECO.

# IX. Transportation

obility 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.

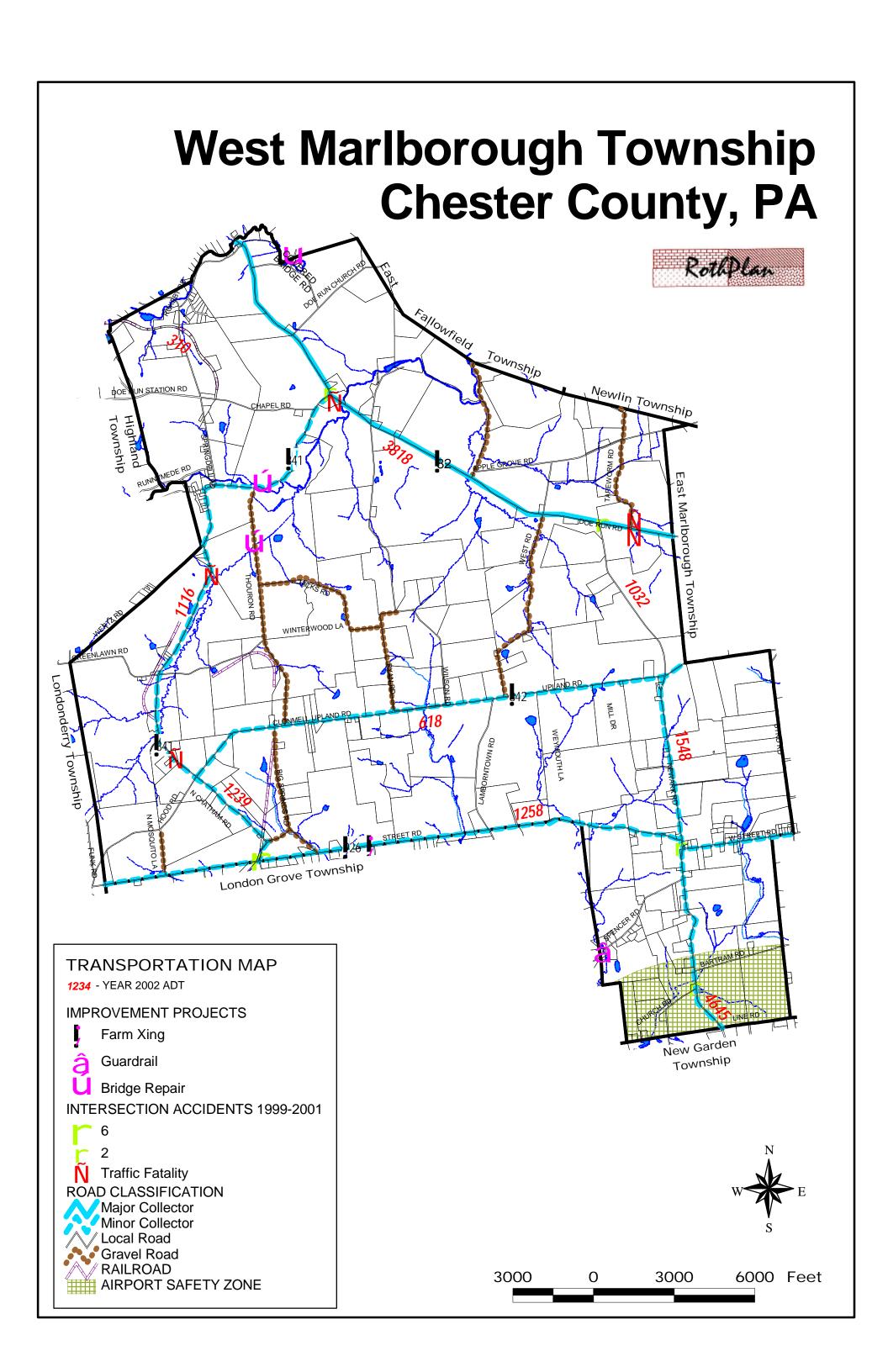
Within West Marlborough Township, local officials and residents believe that decisions made regarding the Township's road system have profound effect on the quality of life. Local officials and residents alike have taken bold steps to defend the Township's active agricultural economy, popular field sports and activities, rural character and lifestyle. Local officials have enacted and strictly enforced effective agricultural and conservation zoning which severely limits development potential throughout widespread areas of the Township. Equally important are the actions of Township landowners, many of whom have applied conservation easements to their properties at great potential financial sacrifice. Local officials are aware of a general lack of traffic enforcement, particularly related to vehicle speeding, which causes many of the Township's traffic accidents. They are committed to managing the Township's transportation in a manner that is consistent with these sacrifices, former planning policies and lack of traffic enforcement. This requires a different approach to road improvements, including traffic diversion, and related traffic enforcement as will be presented later in this Chapter.

First, this chapter will inventory the Township's transportation system, beginning by categorizing roadway functional classifications, as determined by the Chester 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 transportation, railway access and aviation. 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.

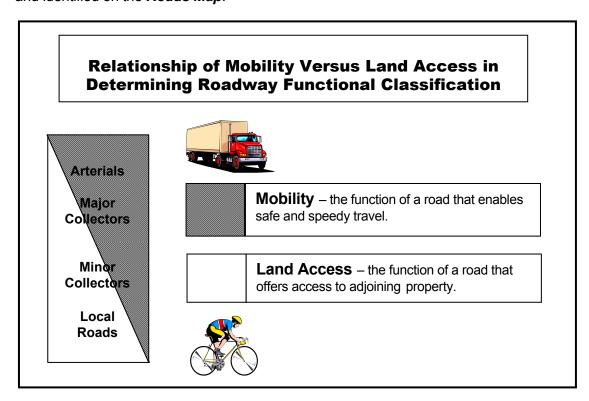
#### A. ROADWAY CLASSIFICATIONS AND DESIGN STANDARDS

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 **Roads Map**.



#### <u>ARTERIALS</u>

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. The following sets forth design standards associated with arterial roads:

	ARTERIAL ROAD DESIGN STANDARDS							
Design Standards								
Maximum	5 x 12 ft.	2 x 10 ft.	2 x 20 ft.	6 ft.	126 ft.	65		
Minimum	Minimum 2 x 11 ft. 2 x 8 ft. 2 x 2 ft. — 42 ft. 40							

The Township has no arterial roads.

#### **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 No. of Lanes Shoulders Border Areas Right-of-Way Design Speed Standards and Width and Width Width (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							
Route Est. ADT No. Cartway Way Shoulders Road Name No. (2002) Lanes With Width L/R MPH						MPH	
Doe Run Road	82	3818	2	24 ft.	33 ft.	2/2	45

Based upon a comparison of recommended road design standards and existing conditions the Township could pursue the widening of shoulders along both roads to eight feet on each side. However, Township Officials believe that the widening of such shoulders would only induce even higher vehicle speeds beyond the excessive speeds of many vehicles already occurring. These speeding vehicles present safety problems along the Township's rural road system. The Township intends to implement traffic calming measures to reduce speeds and impede short-cut movements instead of road improvements that would induce more speeding and traffic carrying capacity.

#### 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 like West Marlborough Township these roads extend greater distances.

The following lists design standards for minor collector roads:

MINOR COLLECTOR ROAD DESIGN STANDARDS						
Design No. of Lanes Shoulders Border Areas Right-of-Way Design Speed and Width and Width Width (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 (2000)	No. Lanes	Cartway Width	Right-of- Way Width	Shoulders L/R	MPH
Springdell Doe Run Road	841	NA	2	20 ft.	33 ft	0/0	40
Greenlawn Springdell Road	841	1116	2	20 ft.	33 ft.	0/0	40
Greenlawn Chatham Road	841	1239	2	20 ft.	33 ft.	0/0	40
Clonmell Upland Road	842	618	2	20 ft.	33 ft.	0/0	45
Street Road	926	1258	2	22 ft.	33 ft.	0/0	45
Newark Road	3033	1548-4645	2	22 ft.*	33 ft.	0/0	40

<sup>\*</sup> PA DOT reports this cartway at 24 feet wide; however, actual measurements suggest otherwise.

Many of the Township's collector roads lack sufficient shoulder width when compared with today's conventional minimum design standards. However, Township Officials believe that the widening of such shoulders would only induce even higher vehicle speeds beyond the excessive speeds of many vehicles already occurring. These speeding vehicles present safety problems along the Township's rural road system. The Township intends to implement traffic calming measures to reduce speeds and impede short-cut movements instead of road improvements that would induce more speeding and traffic carrying capacity.

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. Within the rural areas of the Township the limited density will keep the number of driveways low. However, in residential and commercial areas, local officials must enforce strict policies that will minimize such connections to ensure efficient traffic flow. 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, storm water control, etc.). For access on State roads, local officials should persuade PennDOT officials to limit highway access to the minimum required.

#### **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 the Township. 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 suggested design standards for local streets:

LOCAL ROAD DESIGN STANDARDS						
On-Street Cartway Shoulders Border Areas Right-of-Way Design Speed Parking Width and Width Width (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.

About nine miles of road within the Township have "gravel" surfaces. These roads are concentrated in the central portion of the Township and most north/south often follow а direction between the Township's more traveled collector roads. Township Officials have long understood that many of their traffic issues and problems arise from impacts associated with motorists who pass through the Township on a daily basis but live and/or work elsewhere. Many of these commuters travel at a high rate of speed which creates traffic



Big Springs Road, a typical gravel road within the Township.

that is inherently incompatible with slow moving agricultural equipment, horseback riding and bicycling pastimes, conducted throughout the Township. As will be reported in the next section of this Chapter, these speeding vehicles also cause most of the Township's traffic accidents. In response, the Township has undertaken a campaign of road "take-back" and surface grinding to restore conditions that inhibit commuter "short-cut" travel and reduce vehicle speeds.

While this approach is rather novel within Chester County, it is gaining acceptance elsewhere in more rural areas of the nation. A recent study conducted in rural southeast Michigan determined that gravel road capacity ranges from about 200 to 1000 vehicles per day based upon the characteristics of the road (surface type, width, drainage, shoulders and alignment). A standard traffic generation rate of about 10 vehicle trips per day per dwelling unit means that areas served by gravel roads should have relatively low densities, if gravel

road capacities are not to be surpassed. This study concluded that the best gravel road can only accommodate 1 dwelling unit per each 6.67 acres, while the worst gravel road capacity was only 1 dwelling unit per 32 acres.<sup>1</sup>

These findings are consistent with the Township's attempt to reclaim its roads to function with a more rural traffic pattern with slower vehicle speeds. They also provide yet another reason that supports the permitted density within the Township's Agricultural/Conservation Zone which is widely applied across the Township and keeps residential development severely limited. Local Officials should continue to remove macadam and replace with a gravel surface as a means of improving compatibility and safety while avoiding an inducement to community growth that would exceed its local infrastructure and public service capacity.

#### **B. TRAFFIC SAFETY**

In addition to reducing congestion, traffic safety is another important consideration in the scheduling of roadway improvements. High accident locations result from factors such as inadequate road design, insufficient sight distance, improper relationship between land use and road classification, improper speed limits, and driver frustration/error. This section describes traffic accident statistics within the Township to gain a general understanding of their location and severity. This will help to ensure a proper relationship between land use and access.

The Pennsylvania Department of Transportation, Center for Highway Safety, provided accident data for the period between 1999 and 2001. This three-year period provides the most recent reportable accident data available. A reportable accident is one in which an injury or fatality occurs, or at least one of the vehicles involved requires towing from the scene. The locations of the majority of accidents discussed on the following pages have been plotted on the *Transportation Map*. It is important to note the local officials have personal knowledge of five fatal traffic accidents that have occurred in the recent past that occurred after the period reported in the PA DOT data; these accidents have been reflected in this Chapter and on the Transportation Map.

Specific accident locations are ranked by frequency for the Township. These specific locations are ranked and reported in two categories. First, accidents that occurred at specific intersections at two or more roads are identified and ranked. Second, accidents that occurred along one road between two roads, or mid-block accidents, are enumerated and ranked. Mid-block accidents also include accidents that occurred along public roads at an intersection with a driveway.

#### **INTERSECTION ACCIDENTS**

The following table ranks those intersections that recorded two or more reportable traffic accidents between 1999 and 2001.

<sup>&</sup>lt;sup>1</sup> The Crunch of Development Along Gravel Roads, Michele Manning, AICP and Mark A. Wyckoff, FAICP. American Planning Association, February, 2004, pg. 2.

1999 Between and 2001 the Township 24 recorded total traffic reportable accidents road at intersections. The worst accident intersection was located at Street Road and Greenlawn Chatham Road. Of the six total accidents recorded here. half involved cars turning left too soon onto Greenlawn Chatham

II	INTERSECTION ACCIDENTS (1999-2001)*				
Rank	Intersection	Total No. of Accidents*			
1	Greenlawn Chatham Road & Street Road	6			
2	Doe Run Road and Springdell Doe Run Road	2			
2	Newark Road & Church Road	2			
2	Doe Run Road & Newark Road	2			
2	Street Road & Newark Road	2			

\*Local Officials believe that the number of reported accidents is lower than that which occurred.

Road in front of vehicles traveling west along Street Road. The other half involved vehicles that failed to stop before turning onto Street Road from Greenlawn Chatham Road. The behaviors of those involved in traffic accidents at this location confirm local officials' suspicions that many of the Township's traffic-related problems involve vehicles that are passing through the Township in a hurry. Only one of these accidents had alcohol drinking as a contributing factor.



The North Chatham Road and Street Roads intersection recorded the highest accident frequency within the Township between 1999 & 2001.

Other multiple accident intersections recorded similar accident types with drivers failing to stop, speeding, and pulling out too soon. Many times these risky behaviors resulted in accidents where the driver needed to take evasive movements or overcompensated and hit a fence, tree or embankment. While it is important to note these intersection-based accidents, the larger traffic safety problem within the Township occurs along the Township's roads away from intersections.

#### MID-BLOCK ACCIDENTS

The adjoining table ranks the mid-block locations with multiple reportable traffic accidents between 1999 and 2001. Overall midblock accidents account for 91 of the 115 total traffic accidents recorded within the Township from 1999 to 2001 or almost 80 This ratio of percent. more frequent mid-block accidents versus intersection accidents is byproduct of the

MID-BLOCK ACCIDENTS (1999-2001)						
Rank	Road Name	Road Number	Total No. of Accidents			
1	Doe Run Road	PA Route 82	29			
2	Newark Road (South of PA Route 842)	SR 3033	21			
3	Street Road	PA Route 926	12			
4	Springdell Doe Run Road Greenlawn Springdell Road Greenlawn Chatham Road	PA Route 841	9			
5	Clonmell Upland Road	PA Route 842	5			
6	Newark Road (North of PA Route 842)	T-389	4			
7	Church Road	SR 3035	3			

Township's rural road system with fewer intersections and longer vehicle travel distances. Generally roads with the highest traffic volumes have a correspondingly high frequency of mid-block traffic accidents. Therefore it is expected that the Township's collector roads recorded the highest mid-block accidents.

# ACCIDENT TYPES & SEVERITY (1999-2001)

`	,			
Ac	cident Type			
Non-collision	4			
Rear-end	9			
Head-on	10			
Backing-up	0			
Angle	12			
Sideswipe	8			
Hit fixed object	69			
Hit pedestrian	1			
All others	2			
Unknown	0			
Total Accidents	115			
Acci	ident Severity			
Fatal	5*			
Major injury	15			
Moderate injury	11			
Minor injury	24			
Unknown injury	2			
Total with injury	52			
*I and afficials have research browledge of five fatal traffic				

\*Local officials have personal knowledge of five fatal traffic accidents that have occurred in the recent past that occurred after the period reported in the PA DOT data

The adjoining table lists reportable accident types and severity within the Township. The Township recorded 115 total reportable traffic accidents between 1999-2001. A strong majority of such accidents involved vehicles swerving off of the road and hitting a fixed object due to excessive speeds or to evade another oncoming vehicle. About one in three accidents produce injury while 13 percent produce severe injury. Fortunately about 21% of the Township's total accidents produce only minor injuries. Moderate injuries result in 10% of all accidents. Five recent traffic-related fatalities are also known to local officials; these fatal accident locations are noted on the Transportation Map.

Weekends (Friday through Sunday) produce about 55% of the total traffic accidents yet the highest accident frequency occurs during the morning rush between 7:00 – 8:00 AM, presumably on weekdays. The three most noted probable factors for accidents include driving on the wrong side, speeding and overcompensation.

#### C. REGIONAL TRAFFIC PATTERNS

West Marlborough Township is unique. Past actions of residents and local officials have combined to create an "oasis" of rural countryside that is located amid developing Chester County. The self-imposed restrictions on development by landowners and the effective Agricultural/Conservation Zone adopted by Township Officials have minimized the residential growth that has occurred for several decades. The Chester County Comprehensive Plan acknowledges this unique character by depicting the vast areas of the Township for continued "Natural and Rural Landscapes."

Unlike most of its neighboring municipalities, West Marlborough Township has lost population since 1980. Accordingly, the Township's projected future growth is limited and can easily be served by the residual capacity of the Township's collector road system. Removal of macadam and replacement with a gravel surface is also consistent with its rural character.

However, growth occurring outside of West Marlborough Township generates traffic that passes through the Township daily. The driving habits of daily commuters threaten the rural character of West Marlborough Township. Excessive vehicle speeds, beyond posted speed limits and upon un-posted roads contribute to frequent traffic accidents as reported earlier. This also threatens slow-moving farm vehicles on the road and those users who engage in recreational activities upon the road and roadside.

Often society's response to such conditions involves the improvement of heavily-traveled roads by widening travel lanes and shoulders, straightening curves, and leveling the road surface. Accordingly, the carrying capacity of such roads increases along with vehicle speeds. This, in turn, induces community growth as traffic flow through the community is eased. Both of these consequences are contrary to the goals of this plan. Local officials believe that road improvements to increase road capacity would only serve the development occurring in adjoining municipalities and invite unwanted traffic flow through West Marlborough Township. Local officials intend to keep roadway design and posted speeds consistent with the Township's rural context and attendant recreational use.

They intend to redirect their efforts in a manner that is more consistent with the Township's goal to preserve its rural character. They understand that these roads have sufficient unused capacity to meet the minimal traffic that would be generated by the Township's projected growth. Instead local officials will focus upon road improvements that:

- 1. Divert ever-increasing high speed traffic that passes though the Township on a regular basis:
- 2. Enhance the safety of residents and motorists on the road;
- 3. Provide for the safe and convenient movement of farm equipment and vehicles;
- 4. Provide for the safe use of roads and roadsides by residents engaging in recreational activities (cycling, walking, horseback-riding, horse-training, fox hunting, etc.):
- 5. Implement traffic calming measures: and,
- 6. Contribute to the Township's rural character.

A more specific list of recommendations is presented later in this Chapter.

#### D. PROGRAMMED TRANSPORTATION IMPROVEMENTS

The Chester County Planning Commission is responsible for development of the County's Transportation Improvement Inventory. Then this is submitted to the Delaware Valley Region Planning Commission who prepares the County's Transportation Improvement Programs (TIP). According to Lee Whitmore (Senior Transportation Planner, Chester County Planning Commission) there are three bridge projects programmed for West Marlborough Township in the 2005 Transportation Improvement Inventory.

First the State-owned bridge along PA Route 841 over Doe Run is scheduled for engineering design in sometime in years 2011 through 2014 at a total cost of \$900,000. Second a County-owned bridge along Thouron Road over Doe Run is scheduled for engineering design during years 2007 through 2010 and actual right-of-way acquisition and construction between years 2011 and 2014; this project has a total cost of \$990,000. Last the Speakman's covered bridge is scheduled for rehabilitation during the next four years (2004-2008) at a total cost of about \$950,000. More about these bridges are contained later in the Recommendations Section of this Chapter.

According to Michael Rebert (Penn DOT Maintenance Office) there are no State-sponsored maintenance or widening projects within the next two years (2004-2005) for the Township. Hugh Lofting, Township Road Manager, lists the following foreseeable road projects within the Township:

	Programmed/Planned Road Improve	ments Projec	ets		
Road Name Route Number	Proposed Project Description <sup>2</sup>	Completion Date	Cost and funding source*		
	Road Take-Back Program	1			
Greenlawn Road T-397	4224 feet - Resurface, oil & chip, speed limit signs, delineator post	2008	\$62,742.00 – PA <sup>1</sup>		
Doe Run Station (Chapel) Road T-398	2534 feet - resurface, oil & chip, speed limit signs, delineator post	2008	\$37,803.00 – PA¹		
Covered Bridge (Dupont) Road T-371	3432 feet - resurface, oil & chip, speed limit signs, delineator post	2008	\$28,360.00 – PA¹		
Doe Run Church Road T-375	2376 feet - resurface, oil & chip, speed limit signs, delineator post	2008	\$35,456.00 – PA¹		
Wilson Road T-400	11,827 feet - resurface, oil & chip, speed limit signs, delineator post	2008	\$180,864.00 – PA <sup>1</sup>		
	Dirt & Gravel Roads Gran	t			
West Road T-386	Replacement of 6 pipes to correct road wash-out along Brandywine Creek, speed limit signs	2003	\$28,309.00 – PA \$18,873.00 – Twp.		
Mosquito Lane T-364	Replacement of pipe White Clay Creek, speed limit signs.	NA	\$6486.00 – PA \$6486 – Twp.		
* Funding source codes: DA State / Two Township					

<sup>\*</sup> Funding source codes: PA-State / Twp-Township

<sup>&</sup>lt;sup>1</sup>This program is funded from maintenance allowances from the State to the Township.

<sup>&</sup>lt;sup>2</sup> The Township may decide to convert these road surfaces to a gravel surface.

#### E. RAILROAD ACCESS

Presently there are no active railroad lines within the Township. The Township's geographic information system data (GIS) reveals several interrupted segments of a railroad right-of-way that has long since been abandoned. This line once served the cattle operation at the King Ranch and was used as transport between Pomeroy, Maryland and Delaware. There are no plans to reactivate this line for rail or recreational use.

#### F. PEDESTRIAN AND EQUESTRIAN ACCESS

As stated earlier, local officials also understand the importance of pedestrian, bicycle and horseback rider access upon the Township's road network. Many landowners within the Township have voluntarily provided large front yard setbacks for structures and fences that offer space for equine access across the Township. Local officials are determined to preserve these existing setbacks rather than use such areas for widened streets and shoulders that would induce greater traffic volumes at higher speeds.

Chester County's Linking Landscapes Plan identifies numerous opportunities for bicycle access throughout the County. The Linking Landscapes Plan describes bicycle routes as those on the shoulder of roads or on the motor vehicle lanes of low volume roadways. The Township's overall strategy to reduce vehicle volumes and speeds is completely consistent with the County's Plan for this biking network; however, the Township will only support bike routes that are compatible upon existing cartways without the need for shoulder and widening improvements. The Township should formally recommend that the County revise its designated bike routes in accordance with these guidelines.

#### G. MASS TRANSIT

The Southeastern Pennsylvania Transportation Authority serves the greater Philadelphia metropolitan area including Bucks, Chester, Delaware, Montgomery and Philadelphia Counties. It offers bus, rail and trolley routes within its service area. However, the Township's rural location precludes any direct service from these public transit modes. The Township sits about equidistance from the Suburban and Coatesville Link routes that generally follow US Route 30 to the north and the SCOOT link which follows US Route 1 to the south. The R5 rail service currently extends west to Thorndale and there are efforts underway to extend this service further west which could aid commuters from the Township. However, paratransit service is offered to the elderly and disabled throughout SEPTA's service area on an upon-request basis.

#### H. AIRPORT SAFETY

There are no public airports located within the Township. However, the Township has recently approved a private helipad. As part of the conditional use public hearing process for this private facility, considerable public opposition was presented based upon the potential impacts of the use amid the Township's rural agricultural setting. Of particular

Linking Landscapes, Chester County Commissioners, Feb. 26, 2002, pg.12.83.

concern was the effect that noise from an aircraft taking-off and landing would have upon nearby residents and livestock. Accordingly, the Township Supervisors imposed conditions of approval upon the grant of this conditional use to address these impacts, among others.

Presently, the Township's Zoning Ordinance provides for such facilities within its Agricultural/Conservation Zone because of its limited development potential. However, it is suggested that the Township abandon this approach based upon public opposition to the previous project and further restrict the location of airports, new landing strips and helipads so as not to avail the expansive area of the Agricultural/Conservation Zone. Instead it is recommended that an Airport Overlay Zone be developed and applied in the area coincident with the Airport Safety Zone for the nearby New Garden Airport. In this manner future aviation uses within the Township will be confined to an area that is already subject to such use by the nearby airport. This area has been depicted on the Transportation Map.

It is recommended that the zoning ordinance continue to rely upon a conditional use review process for such uses so that additional public testimony can be taken and considered before approving such a use. The criteria for this conditional use should be developed based upon the testimony derived during the recent conditional use hearings. Finally, the Township should continue to regulate structural height associated with the Airport Safety Zone for the New Garden Airport as per Section 205 of the Zoning Ordinance.

#### I. RECOMMENDATIONS

Aside from those recommendations presented earlier in this Chapter, local officials intend to implement other actions in response to the Township's transportation-related concerns.

First, local officials are convinced that the ever-increasing volumes of high speed traffic that pass through the Township on a regular basis is inherently incompatible with its active agricultural operations, popular field sports and activities, and overall rural character. In response the Township intends to



seek the diversion of such traffic in a manner that better responds to the goals of this Plan and the wishes of its residents. This may include the studying of declassification of State Routes to alignments outside of the Township by the Transportation Issues Committee as described below. The Township will seek formal cooperation from the County and State agencies that will be required to implement these traffic diversions.

Second, the Township hopes to appoint a Transportation Issues Committee that will focus upon transportation issues and establish ongoing priorities for local and state-funded projects. Fortunately, interest in this subject is high as evidenced by previous initiatives undertaken by local citizen groups. Township Officials hope to tap this enthusiasm and commitment to assist in their decision-making.

Third, speeding is a widespread problem through out the Township. Local officials have recently become aware that traffic enforcement of speeders requires a proper posting of speed limit signs. Many of the Township's roads lack such signs and the

Township is acting to correct this problem. In a related matter, local officials also hope to reduce posted speed limits based upon the rural geometries of the Township's roads and intersections. Numerous traffic accidents are a direct result of excessive speeds. The Township hopes to apply a maximum 35 miles-per-hour (mph) speed limit on all hard-surface roads and a maximum 25 mph, or less on gravel roads.

Presently the Township relies upon the PA State Police for police protection and is generally satisfied with their coverage. However, Township Officials hope to initiate better cooperation with the PA State Police in the patrol of speeding vehicles. The proposed Transportation Issues Committee should develop a list of local speeding locations and timelines to communicate to the State Police for better traffic enforcement.

Next, mechanized traffic enforcement technologies are emerging; however, such technologies are not presently "debugged" and in practice within Pennsylvania. Township Officials intend to monitor such "un-manned" enforcement techniques for possible use within the Township; this, too should be a responsibility of the Transportation Issues Committee.

Based upon a study conducted by local citizens that recommended a series of road closings, pedestrian/animal crossings and traffic calming measures, the Township will direct the proposed Transportation Issues Committee to analyze the Township's road system, solicit public input to gauge support for, and make specific locational recommendations to undertake several "pilot" traffic-calming projects at visible locations to assess their benefits and impacts. Several of these projects are described on the following page.



Proposed location for farm equipment crossing

A similar farm equipment crossing is proposed along Street Road across from Howell-Moore Road where the farmer has already installed a vehicle turn-out so as to evade traffic along this busy road. Here the same principles would be applied as described on the next page for the horse crossings except that the road surface would remain the same but potentially painted to accentuate the crossing location. Again warning signs and clear-sight-triangles are vital components of this design. The

Township has also requested that the state install a 3-way stop sign at this location.

## Sample Potential Traffic Calming Measures

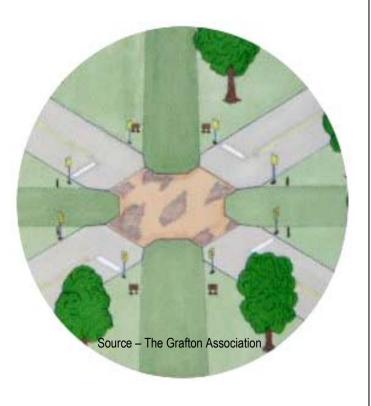


#### **Mid-Block Horse Crossing**

As this diagram depicts a mid-block horse-crossing would involve the narrowing of the road cartway along with a resurfacing of the actual crossing with a "less-improved" surface that clearly identifies the crossing location. Along with these cartway treatments traffic warning signs would be installed upon the approach to the crossing and at the crossing itself. The actual crossing should be oriented as perpendicular approach and the visibility along both approaches should be protected with a clearsight-triangle. As an enhancement post and rail fences could be run along the trail and into the adjoining road right-of-way to further calm vehicle speeds and direct riders through the crossing.

### **Intersection Horse Crossing**

As the adjoining diagram depicts a horse-crossing at the intersection of two roads is different than one located at a mid-block location. Here the trail approach and crossing should bisect the angle of the intersection of the adjoining roads. Again a resurfacing of the actual crossing will aid in the slowing of motor vehicles. Traffic warning signs should be posted along all approaches and at the actual crossing. A clear-sighttriangle should also extend along the road and the trail so that users can see approaching vehicles and riders.

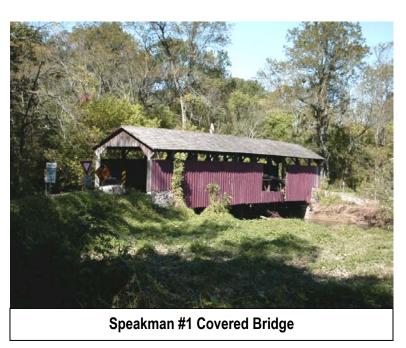


It is important for Township Officials to proceed with caution and implement these measures gradually so that motorists can come to expect these impediments and traffic calming devices. It will also be important for local officials to determine if the installation of these measures will redirect traffic elsewhere with adverse impact. Last, it is vital that the designs of these crossings be submitted for review by local fire, ambulance and police protection agencies to ensure adequate emergency vehicle access. All of these tasks can be the responsibility of the Transportation Issues Committee. Should the installation of these crossings prove effective, the Township hopes to install additional crossings recommended by the Transportation Issues Committee in the future.

Next the Township intends to continue its road turnback program with the State in the hopes of gaining control over most of the Township's roads. Then road resurfacing can further control vehicle speeds and reduce development pressures within the Township.

As part of its ongoing transportation planning, the TIC should seek to cooperate with other adjoining municipalities that have similar intentions regarding the preservation of a rural streetscape. A collective position among several municipalities will have greater influence in advocating local needed transportation investments to the County/State in its Transportation Improvement Program.

Township Finally. the should work with Chester County Planning Commission. and State Officials to cancel redesign road and bridge projects that would merely increase roadway The Township capacity. hopes to retain its historic bridges and will consider options. including all acquisition. bridae its historic preserve character and be with consistent the Township's rural streetscape design. Recently, the Township



negotiated with the State to partially rehabilitate and preserve historic features of the Speakman #1 Covered Bridge but reinforce its structural integrity.

## X. Future Land Use

ne 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 Township'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 Map.

The preparation of the Future Land Use 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.

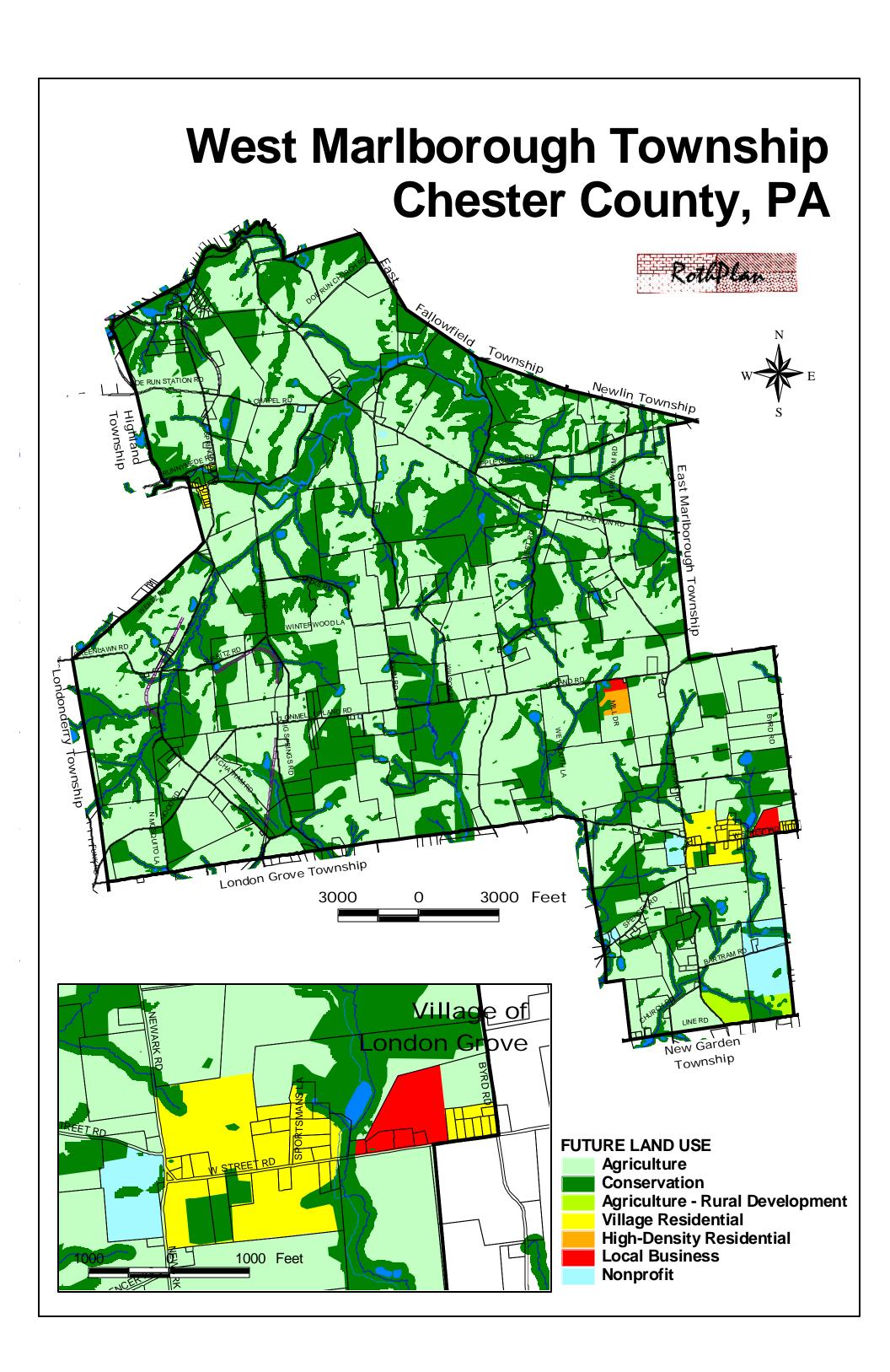
First, this Plan is designed to address future conditions until the year 2020. Accordingly, future growth areas have been generally located and sized to accommodate the growth that is projected during this time frame. This results in a "staged" future land use scheme that (1) reduces the conversion of productive farmlands and sensitive natural features, (2) confines development areas so that public improvements and services can be provided efficiently to a compact area, and (3) predominately focuses infill development around existing settlements. The benefits of this approach are significant, but require that the Township commit to the Plan's updating on or before the year 2020.

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 change to another land use category to enhance compatibility. In rare instances, existing uses were not reflected to suggest the need for change within that given 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 Township-wide 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. 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.

This Chapter presents recommended land use categories that are meant to specifically guide subsequent zoning policies. These categories correspond to those depicted on the Future Land Use Map.

#### A. AGRICULTURAL- CONSERVATION ZONE

Throughout history, agriculture has played a primary role within Pennsylvania, Chester County and West Marlborough Township. Today, this is still true as evidenced by the vast extent of Agricultural use identified in Chapter V (Existing Land Use) of this Plan. As the Soils and Geology Map contained within Chapter II (Natural & Cultural Features) of this Plan



reveals, the Township also contains a generous amount of prime agricultural soils and agricultural soils of statewide importance.

These prime farmlands are found throughout the Township and have a characteristically flat to gently rolling fertile landform. This area also contains the highest concentration of farms that are restricted by Agricultural and Conservation Easements and are part of the designated Agricultural Security Areas as documented in Chapter VI (Adjacent & Regional Planning). Unlike most rural Townships, very little parcelization and development has occurred here in the past and a vast critical mass of this landscape is still devoted to agricultural operations. These resources are being put to good use by the Township's farmers who have largely embraced the need to preserve their farms.

In planning for agricultural land, the Township should adopt a philosophy and policy not to consider agricultural land as "undeveloped farmland awaiting another use." Rather it should be 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 involved has 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. viability of the farming operation was verv tied much to the productivity of the land. Recent years have seen the advent concentrated animal operations feeding (CAFOS). These involve the concentration of large numbers of cows.



Farm stands and accessory uses are valuable features in an agricultural setting. Source – Chester County Planning Commission

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.

Next, the absence of zoning policies in the distant past enabled the development of several clusters of rural homes within the agricultural landscape. These homes exist and future zoning regulations should specifically permit them as permitted uses within this Zone. In so doing the homes avoid the classification as nonconforming uses. This will enable residents to make logical adjustments to these lots/homes without the need to gain approval from a local zoning hearing board for variances or expansions to nonconforming uses. This Zone should also accommodate temporary farm employee housing (including mobile homes) and farm stands both of which were observed during the land use inventory as reported in Chapter V of this Plan.

Last, West Marlborough Township is blessed with considerable natural diversity and environmental integrity. Large areas of exceptional values watersheds and scenic river corridors coincide with vast farmlands. Smaller pockets of steep slopes, wildlife habitats, floodplains, wetlands and woodlands share and are scattered throughout the agricultural landscape. At the same time, these sensitive environmental features offer scenic beauty and passive recreation opportunities. It is not surprising that protection of these resources is foremost in the minds of many local officials and residents. Because of the interrelatedness of these conservation features with the agricultural landscape, it is recommended that the Township develop one zone for both of these land use categories. The base activities and densities should relate to agricultural uses that would be subject to specific measures aimed at protecting sensitive environmental features on the site. This Zone (and others within the Township) should be fitted with a mechanism that ensures that future uses are located, designed and operated in a manner that is compatible with these valuable resources. It is noted that Article 5 of the Township Zoning Ordinance provides such regulations.

Since this Zone contains the largest areas of woodland it is recommended that it also include specific requirements imposed upon forestry and logging operations in accordance with recent changes to the Municipalities Planning Code. Such regulations should ensure that a suitable logging plan complies with required conservation laws and practices. 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; however, the Township must permit forestry uses in each of its zones. At about the same time, 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. A slightly altered copy of this model ordinance is contained on page 121 and was adapted to create Section 200.15. of the Township's Zoning Ordinance which should continue to be applied throughout the Township.

Areas within the Agricultural - Conservation Zone are largely located within the Township's exceptional value 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 creeks and their tributaries.

Unfortunately, many farmers generally have little interest in installing riparian buffers as they reduce land available for crops and pasturing. 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. *Therefore, local officials should adopt and implement a riparian buffer ordinance in this Zone and others. Then compliance should be required whenever a landowner proposes a substantive change to the character of the property that could threaten surface water quality (i.e. intensive livestock operations, waste-related facilities, etc.) and a zoning permit is needed. The Township should also lobby the County Agricultural Lands Preserve Board to revise its conservation easement requirements to encourage the installation of riparian buffers, particularly in high-quality or exceptional value watersheds. Required Natural Resource Conservation Service (NRCS) conservation plans should also be fitted to include riparian buffers. Tax assessment officials should be required to reduce assessed values of lands within 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 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 fundraising and actual riparian buffer construction.



Photo of creek with and without a riparian buffer through farmland.

Source: York County Planning Commission.

A sample riparian buffer ordinance is presented on the page 122 and additional discussion can be found on pages 73-77 of this Plan. 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 Chester County Conservation District of suspected violations.

To manage its rural landscape, it is recommended that an effective Agricultural – Conservation Zone 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 with employee housing and farmstands;
- 3. A fixed ratio of permitted residential density that restricts development potential to as little as is politically acceptable (say 1 lot for every 20 acres of lot area);
- 4. A minimum and maximum lot area of 1 to and 2 acres for non-farm dwellings and up to 5 acres for other non-farm uses;
- 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 protect sunlight easements/equipment turning radii onto adjoining farms and locate homes so as to minimize land use conflict;
- 8. Language that specifically authorizes existing homes as permitted uses;
- An Agricultural Nuisance Disclaimer that informs prospective residents of the potential impacts associated with normal farming practices that are protected under the PA Right to Farm Law;
- 10. Regulations to protect the Zones important and sensitive natural features;
- 11. Regulations to manage forestry and logging operations in accordance with applicable conservation requirements and practices; and,
- 12. Riparian buffer regulations.

Under the current zoning regulations, the Agricultural – Conservation Zone accommodates various large-scale land uses within the Township that could not practically locate within its limited development zones. These uses present the potential for incompatible impact amid the Township's rural landscape and should be restricted in an area where such uses can be efficiently served with nearby roads and their impacts can be managed. The following new Agricultural – Rural Development Zone can accommodate these uses.

It is also noted that areas within the Township that were formerly zoned for residential development have been recommended to be placed within the Agricultural – Conservation Zone, based upon the overall goals of this plan and its abundance of development potential when compared with projected growth. Township officials hope to identify means to preserve property values in such areas through the various conservation easement donation or compensation programs, or others, despite the need to remove these areas from residential development zones.

#### B. AGRICULTURAL- RURAL DEVELOPMENT ZONE

Based upon the legal requirements imposed upon municipalities to provide for all land uses, the Township should create a new Agricultural – Rural Development Zone. This new zone can confine uses that are not otherwise provided for and incompatible with both the Township's development zones and its sensitive and productive Agricultural- Conservation Zone. Within this Zone, agricultural and conservation uses should be subject to the same requirements as apply within the Agricultural- Conservation Zone. However, other uses that must be accommodated within the Township and can be identified shall be permitted subject to specific locational, design and operational requirements. These specific uses will be evaluated using a special exception or conditional use review process during which public comment can be received.

#### The selected location for this Zone:

- 1. Corresponds to a southern area of the Township where impacts can be confined;
- 2. Involves lands without restrictive covenants/easements that would preclude potential development;
- 3. Is nearby other similar developments in adjoining New Garden Township;
- 4. Offer nearby access to US Route 1, a major traffic artery serving Chester County and beyond; and,
- 5. Contains approximately 65 acres to accommodate potentially large-scale uses.

#### **Model Regulations for Forestry Uses**

- 1. In accordance with State law, forestry uses are permitted by right in every zone, subject to the following standards:
- 2. Logging Plan Requirements Every landowner on whose land timber harvesting is to occur shall obtain a zoning permit, as required by this Ordinance. In addition to the zoning permit requirements listed elsewhere in this Ordinance, the applicant shall prepare and submit a written logging plan in the form specified below. No timber harvesting shall occur until a zoning permit has been issued. The provisions of the permit shall be followed throughout the operation. The logging plan shall be available at the harvest site at all times during the operation, and shall be provided to the Zoning Officer upon request. The landowner and the forestry operator shall be jointly and severally responsible for complying with the terms of the logging plan and the zoning permit.
  - 1. Minimum Requirements As a minimum, the logging plan shall include the following:
    - A. Design, construction, maintenance and retirement of the access system, including haul roads, skid roads, skid trails, and landings.
    - B. Design, construction and maintenance of water control measures and structures, such as culverts, broad-based dips, filter strips, and water bars.
    - C. Design, construction and maintenance of stream and wetland crossings.
    - D. The general location of the proposed operation in relation to municipal and State highways, including any accesses to those highways.
  - 2. <u>Map</u> Each logging plan shall include a sketch map or drawing containing the following information:
    - A. Site location and boundaries, including both the boundaries of the property on which the timber harvest will take place, and the boundaries of the proposed harvest area within that property.
    - B. Significant topographic features related to potential environmental problems.
    - C. Location of all earth disturbance activities, such as roads, landings and water control measures and structures.
    - D. Location of all crossings of waters of the Commonwealth.
    - E. The general location of the proposed operation to municipal and State highways, including any accesses to those highways.
  - Compliance With State Law The logging plan shall address and comply with the requirements of all applicable State regulations, including, but not limited to, the following:
    - A. Erosion and sedimentation control regulations contained in Title 25 Pennsylvania Code, Chapter 102, promulgated pursuant to The Clean Streams Law (35 P.S. §691.1. et seq.).
    - B. Stream crossing and wetlands protection regulations contained in Title 25 Pennsylvania Code, Chapter 105, promulgated pursuant to the Dam Safety and Encroachments Act (32 P.S. §693.1 et seq.).
  - 4. Relationships of State Laws, Regulations and Permits to the Logging Plan Any permits required by State laws and regulations shall be attached to and become part of the logging plan. An erosion and sedimentation pollution control plan that satisfies the requirements of Title 25 Pennsylvania Code, Chapter 102, shall also satisfy the requirements for the logging plan and associated map specified in Sections 2.1. and 2.2., provided that all information required by these sections is included or attached.
- 3. Required Forest Practices The following requirements shall apply to all timber harvesting operations:
  - 1. Felling or skidding on, or across, any public road is prohibited without the express written consent of the Municipality, or the Pennsylvania Department of Transportation, whichever is responsible for maintenance of the thoroughfare.
  - 2. No tree tops or slash shall be left within twenty-five (25) feet of any public road, or private roadway providing access to adjoining residential property.
  - 3. All tree tops and slash between twenty-five (25) and fifty (50) feet from a public roadway, or private roadway providing access to adjoining residential property, or within fifty (50) feet of adjoining residential property, shall be lopped to a maximum height of four (4) feet above the ground.
  - 4. No tree tops or slash shall be left on, or across, the boundary of any property adjoining the operation without the consent of the owner thereof.
  - 5. Litter resulting from a timber harvesting operation shall be removed from the site before it is vacated by the forestry operator.
- 4. Responsibility for Road Maintenance and Repair; Road Bonding Pursuant to Title 75 of the Pennsylvania Consolidated Statutes, Chapter 49; and Title 67 Pennsylvania Code, Chapter 189, the landowner and the forestry operator shall be responsible for repairing any damage to Municipality roads caused by traffic associated with the timber harvesting operation, to the extent the damage is in excess of that caused by normal traffic, and shall be required to furnish a bond to guarantee the repair of such potential damages, as calculated by the Municipality Engineer.

#### **Model Regulations for Riparian Buffers**

As recommended within this Ordinance, and as guidance to any other landowner that voluntarily proposes, streamside buffers shall be provided in accordance with the following standards:

<u>Buffer delineation</u> – The applicant must submit a scaled site plan that clearly depicts the streamside buffer comprised of the following three separate Zones:

Zone 1 – The landward area located between the streambank edge under typical flow conditions and the largest combined width of all of the following:

- fifteen (15) feet as measured directly perpendicular from the streambank edge;
- the 100 year floodplain;
- any adjoining identified wetlands; and/or,
- any adjoining area characterized by slopes exceeding twenty-five percent (25%).

Zone 2 – The area beginning at the inland edge of the above-described Zone 1 and extending at least sixty (60) feet inland therefrom; and,

Zone 3 - The area beginning at the inland edge of the above-described Zone 2 and extending at least fifteen (15) feet inland

Pasture Zone 3 Crops Herbaceous or grass filter strip Zone 1 Managed forest of fast-growing Stream Managed forest introduced or of fast growing native species introduced or Native species if available: native species little or no tree harvesting; water loving or water-tolerant species

therefrom. Where a pasture is proposed just beyond the above-described Zone 2, no Zone 3 is required;

<u>Buffer plantings</u> – Each of the respective Zones of the streamside buffer shall include vegetation that already exists or will be planted and maintained by the applicant that satisfies the following design objectives. The applicant shall submit expert evidence that the existing and/or proposed vegetation satisfies such objectives:

Zone 1 – This Zone 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 2 - This Zone must include mature canopy trees generally three rows deep and a natural undercover. New tree plantings should be selected that are rapid growing 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;

Zone 3 – This Zone should be planted with warm season grasses that are allowed to mature naturally without mowing. The tall grasses ensure that overland storm water flows do not "channel" into Zone 2. New grass plantings should be selected and managed to enable controlled grazing or haying so long as the grasses are not reduced to a point where they are no longer able to effectively disperse the surface water flows.

<u>Buffer use and maintenance</u> – 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. The following lists required maintenance activities for each Zone and the applicant must present a working plan that demonstrates compliance with such activities and practices:

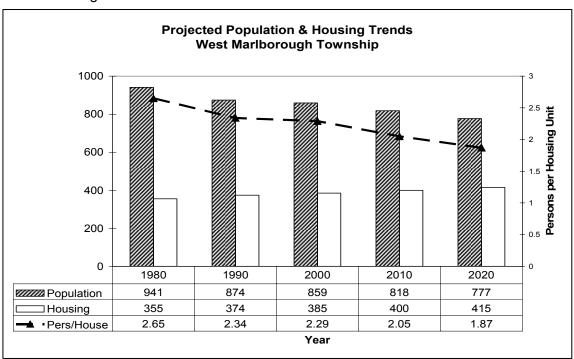
Zone 1 – This Zone compels requires little maintenance. As trees mature, die and decay it is important that such natural debris be allowed to decompose within the stream. This will provide important food and habitat for beneficial microorganisms, fish and amphibious animals. Streamside grasses should similarly be allowed to seasonally flourish and recede. Man-made activities should be very limited and confined to perpendicular passages from Zone 2. Intensive-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.

Zone 2 – 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 2 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 2 but should be provided with raised walkways to prevent compacted soils and root damage.

Zone 3 – This Zone also requires little maintenance. Long summer grasses should be allowed to flourish and recede with the seasons. Grazing and haying is permitted so long as the residual grass length is sufficient to disperse overland storm water flows into Zone 2 and avoid channelization.

#### C. RESIDENTIAL ZONES

Chapter IV (Demographics) of this Plan analyzed population and housing trends within the Township and using past trends projected population and housing growth as depicted below. Then, the net projected population and housing growth is summarized in the following table:



Projected Net Changes Per Decade						
Year 2000 to 2010 2000-2020						
Population	-41	-82				
Housing	15	30				
Persons/Unit	-0.24	-0.42				

Based upon the preceding projections, the Township will need to accommodate at least 68 new dwelling units through the year 2020 even though the actual population is expected to decline.

Most of the Township's residences are located in rural areas. These homes are often part of larger farms and sometimes located on separate lots. It is obvious that this form of housing has been popular within this rural township. A calculation of the development potential associated with the previously-described Agricultural - Conservation Zone reveals that this Zone could accommodate 562 new dwelling units. Clearly, the development potential in this large Zone will provide sufficient opportunity for community growth, particularly for single family detached dwellings. It is noted that many of the

farms within the A-C Zone are subject to development limitations imposed by easement; however, the Township has no authority or control in the enforcement of these easements and cannot therefore assume their continued use from a legal standpoint.

Although the Township has provided for ample residential growth within the A-C Zone, municipalities are legally bound to provide for a range of housing types and the A-C Zone does not offer all forms of housing that must be accommodated.

In order to avoid claims of exclusionary zoning practices and to reflect contemporary housing styles, it is recommended that the Township specifically plan to rely less upon single-family detached units in the future. In addition, national housing trends suggest greater reliance on more dense/multi-family units and compact detached units. For these reasons it is recommended that the Township allocate future land use to meet the target growth in the following residential categories:

Target Projected New Housing Units by Structural Type						
Year	ear Total Target single- Target ear Total family attached & duplex		Total multi- family	Mobile Homes		
2000	385	289 (74.9%)	39 (10.1%)	50 (14.5%)	8 (2.1%)	
2000- 2020	+30 = 415	+2 = 291 (70%)	+ 23 = 62 (15%)	+ 12 = 62 (15%)	+5=13 (3.1%)	

The following table lists the various residential designations depicted on the Future Land Use Plan along with measurements of land area and potential developments based upon permitted densities. In addition pipeline developments have been added to accurately reflect total development potential within the Township:

Planned Residential Growth								
Land Use Category	Planned Acreage <sup>1</sup>	Area (65%) devoted to development features <sup>2</sup>	Base Density Units/acre	Total Potential Planned Units				
Agriculture - Conservation	NA	NA	1/20 acres <sup>3</sup>	562				
Village Residential	45.6	29.6	1	29				
High Density Residential	9.5	6.2	6	37				

<sup>&</sup>lt;sup>1</sup>These acreages do not reflect areas already developed.

- the considerable areas of significant development constraint that exist throughout the Township; and,
- the features within developments that cannot be devoted to actual residential use (e.g. roads, utility easements, parks and etc.)
- the "Right-to-Travel" doctrine which requires that municipalities provide for some choice in personal mobility and residency.

<sup>&</sup>lt;sup>2</sup>These figures reduce the area for development to reflect:

<sup>&</sup>lt;sup>3</sup>This Zone provides for one dwelling unit on properties of between 2 and 20 acres.

As can be seen the total number of potential housing units (628) represents over 20 times that growth projected within the Township through the year 2020. In addition, the "developable" areas of the High Density Residential Zone provide for a potential of 37 duplex, attached and/or multi-family dwellings representing 106 percent of the target projections assigned to these housing types. Given this condition, local officials can resist residential rezoning claims based upon allegations that insufficient lands have been designated for growth.

<u>Village Residential Zone</u> - Within the Township, two Village Residential Zones have been designated. The first, in the Village of Springdell, merely acknowledges the presence of existing neighborhoods with no planned expansion.

The second and the largest is located in London Grove on both sides of West Street Road (PA Route 926). Here a number of mixed uses exist along with several duplexes and multi-family buildings. However, the predominate use in this Village is its approximately 30 single family detached dwellings. Given the absence of available public utilities, local officials intend to limit future growth to uses that can rely upon on-lot utilities. Approximately 45 acres of undeveloped land have been included within this Zone which, at the permitted density of 1 unit per acre, could produce about 29 homes (loss



of 1 unit per acre, could produce about 29 homes (loss accounts for non-development features of building sites).

Many of the buildings within the Villages of London Grove and Springdell are set close to the road with off-street parking located in the side or rear yards. Two and multifamily conversions reflect an historic rural character with little evidence of their conversion. Adjoining roads typically have a 33-foot wide right-of-way, an 18-25-foot wide paved cartway and no sidewalks. Given these conditions, the following lists suggested minimum design standards based upon the prevailing designs of existing developments within these areas.



SUGGESTED DESIGN STANDARDS FOR THE VILLAGE RESIDENTIAL ZONES							
Housing Types	Min. Lot Size (sq. ft.)	Min. Lot Width	Front setback	Side setbacks	Rear setback	Parking Location	
SFD, no public utilities	43,560	125 ft.	25 ft.	20 ft. each	50 ft.	Side and rear yards	

These standards reflect a pattern of development that relies upon on-lot utilities. Actual lot configurations vary with some properties containing smaller setbacks than those presented. Hence the Township could include language within the Village Residential Zone that specifically varies required setbacks (particularly in front yards) to



Historic London Grove along West Street Road

**reflect those found on the same block.** This will ensure compatibility on a block-by-block basis.

To accommodate logical change in these neighborhoods, zoning policies should align with the preceding minimum design standards. This will enable residents to undertake projects that are consistent and compatible with nearby uses, without the need for variance and/or special exception applications and hearings. This will ease municipal workload and increase public acceptance of municipal practices and policies. The Township should require that new uses provide an initial on-lot sewer system and an alternate system should the initial system fail. Also the Township should seek to implement an historic preservation program as more fully explained in Chapter III of this Plan.

Last, the Village Residential Zone adjoins the Township's Local Business Zone and has a central location. Consequently, these neighborhoods should include other nonresidential uses that contribute to their central and nodal roles within the Township and its small-town character. These uses should be specifically accommodated. Civic uses, churches, schools, parks and playgrounds and limited day care facilities should all be permitted as they provide important services within these established neighborhoods.

<u>High Density Residential Zone</u> - As required by law and to reflect contemporary housing trends, West Marlborough Township must provide for the opportunity to develop higher density housing than is customarily found throughout the Township. Duplexes, townhouses and multiple family dwellings are gaining in use across the country as more communities attempt to protect their rural landscapes and preserve productive farmlands. High-density housing accommodates more growth on less ground and thereby reduces development pressures in outlying rural areas. Projections for the Township suggest the need to accommodate 35 new duplex, townhouse and/or multifamily dwellings through the year 2020.

To achieve this target projection a new area has been planned for the High Density

Residential Zone located to the rear of the Stone Barn property located on the south side of Upland Road. This site already contains 32 townhouses behind a commercial business located within the Local Business Zone along the site's frontage. The Future Land Use Map depicts the commercial use and townhouses as they exist but also depicts approximately 9.5 additional undeveloped acres (6.2 net acres) for future growth. At a base density of 6 dwelling units per net acre, this undeveloped area can slightly exceed the Township's high density housing needs. The Township also permits the establishment accessory dwelling units within its



Agricultural – Conservation Zone; this supplements the opportunity to create affordable housing units across most of the Township.

One of this site's principal advantages is the presence of an existing package sewage treatment plant. The plant has considerable reserve capacity to roughly double its current treatment flows. In addition, the site is served by a community water system that, too, can serve additional units. Nowhere else within the Township has the necessary utility capacity needed to accommodate high-density housing. Local officials believe this represents the most practical location for this type of growth and avoids the need to create a new public utility system that could act to induce accelerated growth pressure.

This site is otherwise located amid the rural landscape; therefore, local officials should seek to buffer future high-density residences from the impacts associated with normal farming practices around the site's periphery. Fortunately, the inherent flexibility associated with high-density housing offers ample land area to separate proposed dwellings from adjoining farming operations. This should be a principal design consideration when reviewing a high-density housing plan for this site.

To ensure a proper orientation of this high-density housing amid the surrounding rural landscape, it is recommended that the Township require a cluster housing plan to be approved via the conditional use review process. This technique affords the Township a deliberate and public review to ensure that such housing is properly sited within the context of its natural and cultural features and will offer optimal buffering from nearby rural uses. Incentives can be used to reflect a traditional village configuration and historic building designs.

The following presents suitable design standards for the High Density Residential Zone:

SUGGESTED DESIGN STANDARDS FOR THE R-2 RESIDENTIAL ZONES							
Housing Types	Min. Lot Size (sq. ft.)	Min. Lot Width	Front setback	Side setbacks <sup>2</sup>	Rear setback <sup>2</sup>	Maximum Permitted Height	
SFD, no public utilities	43,560	125 ft.	25 ft.	20 ft. each	50 ft.	35 ft.	
SFD, public sewer	20,000	100 ft.	25 ft.	10 ft. each	50 ft.	35 ft.	
SFD, public water	35,000	125 ft.	25 ft.	15 ft. each	50 ft.	35 ft.	
SFD, public sewer & water	6,000 <sup>1</sup>	60 ft.	25 ft.	6 ft. each	50 ft.	35 ft.	
Duplex with public sewer & water	5,000 <sup>1</sup>	40 ft./unit	25 ft.	10 ft. one side	50 ft.	35 ft.	
Townhouse with public sewer & water	1,800 <sup>1</sup>	18 ft./unit	25 ft.	15 end units	50 ft.	35 ft.	
Multi-family dwellings with public sewer & water	87,120 <sup>1</sup>	200 ft.	25 ft.	30 ft. each	50 ft.	35 ft.	

<sup>&</sup>lt;sup>1</sup> Maximum density of 6 dwelling units per acre.

<sup>&</sup>lt;sup>2</sup> A buffer setback should also be applied when the R-2 Zone adjoins the A-C Zone to protect the rural character of adjoining property.

An issue that is commonly problematic within densely-developed neighborhoods relates to accessory uses. Accessory uses are structures or activities that are incidental to the primary use of a property. For example, a residential accessory structure could include a detached garage, swimming pool or satellite dish antenna. Similarly, a residential accessory activity could be a yard sale, the storage of a boat or trailer, or the repair of personal automobiles.

The impacts of accessory uses are more easily absorbed in rural or suburban areas where lot-to-lot separation is greater. Within the tightly-knit High-Density Residential Zone such separation is impossible and neighbors are more easily affected by another's activities and actions. It is recommended that applicable residential accessory land use regulations be strengthened within the High Density Residential Zone; however, not to the point that they violate recently adopted amendments to the Municipalities Planning Code which authorizes widespread use of "home-based businesses."

#### D. LOCAL BUSINESS ZONE

Within the West Marlborough Township there are two planned Local Business Zones.

These areas represent the locations of principal commercial and industrial activities, as opposed to more limited accessory businesses that can be found throughout the Township.

The Stone Barn Restaurant and Banquet Hall is located on the south side of Upland Road and includes an adjoining millhouse. The use is setback well off the road and offers valuable service to the Township. This use is currently a nonconforming use. Given the scope of operation and condition of the site, it is recommended that this use be specifically designated with proper zoning. The configuration of the zone reflects the current use; however, some expansion could likely occur on this site.

Second, the Village of London Grove also includes another Local Business Zone. This location acknowledges the Petragnani Brothers' marble stone and tile shop. This Zone also includes several other Adjoining properties including 13.5 acres of "developable" land for future local business development.



Stone Barn Restaurant and Banquet Hall



Petragnani Brothers countertops manufacturing.

Like with the Village Residential Zone, the use of public or community utility systems would increase the development potential of this zone by increasing permitted lot coverage. Therefore, the Township should apply a sliding scale of maximum permitted lot coverage based upon such the use of utilities.

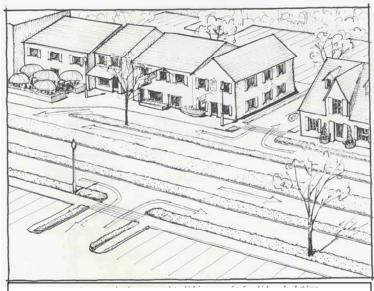
## Assuming:

- a total lot coverage of 55%;
- a 10% reduction in usable area for non-development features;
- a 2:1 ratio of off-street parking area to building area; and,
- a parking/loading size of 300 square feet per space (includes driveways & aisles);

the unused development potential within this Zone could produce about 97,000 square feet of retail floor space with over 600 new parking spaces. If no public utilities are provided, the development potential drops to about 44,000 square feet of retail floor space and just under 300 parking spaces.

Uses permitted here should reflect a local and pedestrian orientation and integrate within the setting without great adverse impact. Uses should remain small and emphasize providing local daily needs to nearby rural residents. Convenience stores, restaurants and taverns, bed and breakfasts, offices, automobile filling stations with minor repair, card, book, magazine, newspaper, music, and video shops, barber and beauty salons, photographic, art and dance studios, tailors, laundromats and dry cleaning drop-off stations, flower shops, jewelry, watch and small appliance sales and various civic uses like churches, cemeteries and post offices are all appropriate. Zoning should allow for small, start-up business and light industry as permitted uses.

But as the Township's sole location for commerce and industry, this Zone must accommodate wide range of commercial and industrial uses. To properly evaluate more intensive uses. the Township should engage either special exception of conditional use review procedures. Zoning regulations should clearly differentiate between local permitted bγ right compared with other uses that require special review at public hearings. Then



Coordinated village-style commerce with shared features and access. Source: Chester County Planning Commission

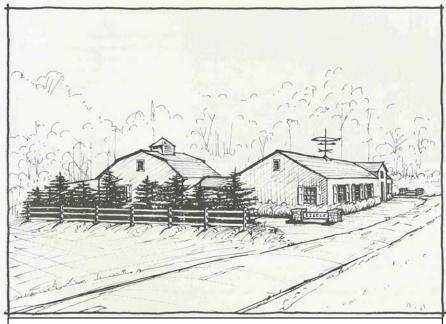
specific criteria should be applied to the more intensive uses to ensure their proper function and appearance within this setting. By requiring a conditional use review local officials realize the following benefits:

- 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. application of 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.

Beyond the uses allowed, the design of a business can dramatically affect its compatibility within its surroundings. **Zoning regulations imposed in this Zone should:** 

- Limit overall retail size per store so to not exceed its local orientation, nor provide an incentive for the demolition of existing historic buildings in favor of more modern commercial building styles;
- 2. Encourage the development of multi-shop arcades particularly within buildings reflecting local village architectural styles. Demolition of historic buildings should be discouraged;
- 3. Limit sign sizes and orientations to reflect their local purpose yet offer ready identification:
- Promote shared use of access drives, and off-street parking and loading spaces.
   Off-street loading spaces should be screened from the roads and adjoining properties.;
- 5. Prohibit outdoor storage in most cases but, if allowed, require effective screening from adjoining roads and residences(exclusive of outdoor sales);
- 6. Require front yard landscape strips 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.
- 7. Require 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.
- 8. Require public address systems used in external areas to be designed to keep audible impact at ambient levels.



A small berm and row of evergreens is an effective screen for a small industry. Source: Chester County Planning Commission

## E. Non-Profit

Chapter V (Existing Land Use) lists the Township's nonprofit uses. These uses have been depicted as they exist to assist in user orientation of the Future Land Use Map. Since zoning regulations that would limit uses to ones of a public nature would be considered confiscatory, it is not recommended that the municipalities adopt public use zones. Rather, these nonprofit uses should be permitted within their respective zones as they occur throughout the Township and are depicted on the Future Land Use Map.

## XI. Implementation

## "Rural Living through Progressive Action"

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 influence the Township's future.

This strategy will require adjustment to incorporate the Township's various municipal planning tools, including its Zoning Ordinance, Subdivision and Land Development Ordinance and other plans and ordinances. It will also rely substantially on meeting and coordinating with the School District, adjacent municipalities, public service providers, and civic organizations on various planning-related issues.

To operationalize this implementation strategy, the table on the following pages has been constructed. This table identifies the various tasks to be implemented, the party or parties responsible for their implementation, and the time line by which the task should be initiated. Along with the task to be performed, a page number reference appears to direct local officials to the location within the Plan that lists the specific recommendations and supporting analysis. Tasks are chronologically grouped by topic as analyzed within the Plan.

Tasks recommended for immediate action are those that are urgent or can be easily undertaken now. Those that are earmarked for short-term implementation are tasks that should begin within the next two years or when opportunities arise for earlier initiation. Finally, those tasks slated for long-term implementation may require significant further analysis and additional resources in order to implement them. Ongoing tasks are also noted.

The completion of tasks should be spread out over a several-year period so as not to overwhelm local resources. If Township officials determine that certain implementation tasks need attention sooner, such tasks should be initiated before other priority tasks.

Ra	commended task:	Responsible Parties	Time- frame	Plan reference (pgs)
1.	It is important for all persons involved and/or interested in the future of the West Marlborough 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.	Local staff, & officials	ongoing	3
	Recommendations related to the protection of Natu	ral & Cultural F	eatures. (C	Chapter III)
2.	Reference to the "Geology Study Map of the Environmental Assessment" contained within Section 506 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan.	Planning Commission & Board of Supervisors.	Urgent	12
3.	At such time as a public water supply is developed, implement a well-head protection plan.	Board of Supervisors.	Long- term & ongoing	13 & 97
4.	Prime farm soils and soils of Statewide importance should be protected from conversion to other uses through appropriate planning and zoning.	Planning Commission & Board of Supervisors.	Ongoing	14 - 15
5.	Reference to the "Soils Study Map of the Environmental Assessment" contained within Section 505 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan."	Planning Commission & Board of Supervisors.	Urgent	15
6.	Reference to the "Surface Waters Map of the Environmental Assessment" contained within Section 511 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan."	Planning Commission & Board of Supervisors.	Urgent	19
7.	The Township Zoning Ordinance should be adjusted to require the reporting of waste handling techniques associated with large-scale industries, concentrated feeding animal operations (CAFOs) and/or other uses that generate large waste volumes or hazardous wastes, which should be tied with the grant of a special exception or a conditional use so that expert testimony can be provided and scrutinized prior to approval of the use.	Planning Commission & Board of Supervisors.	Urgent	19
8.	Reference to the "Surface Waters Map of the Environmental Assessment" contained within Section 511 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan."	Planning Commission & Board of Supervisors.	Urgent	24
9.	Revise Section 511.3. of the Township Zoning Ordinance to include areas within the Exceptional Value Waters of the East Branch of the White Clay Creek.	Planning Commission & Board of Supervisors.	Urgent	25
	Reference to the "Important Wildlife Habitats Map of the Environmental Assessment" contained within Section 508 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan."	Planning Commission & Board of Supervisors.	Urgent	26
11.	Reference to the "Surface Waters Map of the Environmental Assessment" contained within Section 511 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan."	Planning Commission & Board of Supervisors.	Urgent	27

D		Responsible Parties	Time- frame	Plan reference
	commended task:			(pgs)
12.	Review the stormwater management ordinance with its engineer and make necessary revisions to incorporate the use of BMPs and the County's 10 principles of stormwater management, Once local regulations have been developed, the Township should engage a community planner to make attendant adjustments to its zoning and subdivision/land development ordinances that would act as an impediment to more effective stormwater management.	Engineer, Planning Commission & Board of Supervisors.	Short- term	29 - 31
13.	At the appropriate future time, local officials should cooperate with the County in the preparation of its Act 167 Stormwater Management Plans and subsequent recommended revisions to local ordinances.	Engineer, Planning Commission & Board of Supervisors.	Long- term	30
14.	Reference to the "Important Wildlife Habitats Map of the Environmental Assessment" contained within Section 508 of the Zoning Ordinance should be replaced with a reference to the "Natural and Cultural features Chapter of the Township Comprehensive Plan."	Planning Commission & Board of Supervisors.	Urgent	34
15.	Adopt zoning and subdivision and land development standards limiting the removal of trees in sensitive areas, and encouraging the preservation of wildlife corridors.	Planning Commission & Board of Supervisors.	Short- term	34 - 35
16.	Recruit and support local historic preservation experts who have an interest and/or institutional knowledge of the Township's historic resources to assist in the proposed inventory of historic sites within Chester County.	Planning Commission & Board of Supervisors.	Short- term	38
17.	Appoint a committee of interested citizens to assist the County in the update of the inventory of the Township's historic sites, develop a local historic district and appoint an Historical Architecture Review Board.	Planning Commission & Board of Supervisors.	Short- term	38 - 39
	Recommendations rel		raphics. (C	hapter IV)
18.	Provide for a target mix of housing types to offer greater housing diversity within the Township.	Planning Commission & Board of Supervisors.	Urgent & ongoing	50 & 125
	Recommendations related to Adjacen	t & Regional Pl	anning. (C	hapter VI)
19.	Formally request Chester County to revise its County Comprehensive Plan to reflect a land use scheme that is consistent with this Plan.	Board of Supervisors.	Short- term	62
	Recommendations related to the delive	ery of Public Fa	cilities. (C	hapter VII)
	Closely monitor growth within the Township so as to proactively plan for facility expansion well in advance of actual demand for space.	School District	Ongoing	67
21.	Improve the process of residential development review and allocate manpower and resources so as to properly respond to such applications and provide meaningful feedback to the municipalities.	School District	Short- term & ongoing	67
22.	Revise subdivision and land development application requirements so that adequate and timely notification to the School District is assured.	Planning Commission & Board of Supervisors.	Short- term & ongoing	67

Re	commended task:	Responsible Parties	Time- frame	Plan reference (pgs)	
23.	Fully cooperate with the School District and contribute resources to the entire parks and recreations system.	Planning Commission, Board of Supervisors & School District	ongoing	68	
24.	If and when the need arises, it is recommended that the Township work with prospective developers to develop and maintain a private small neighborhood park amid the planned residential growth area.	Board of Supervisors.	Long- term	72	
25.	Educate landowners and developers of the importance of riparian buffers, and the Township's intent to provide for them	Planning Commission & Board of Supervisors.	ongoing	76	
26.	Recommend that the School District develop and regularly offer a streamside riparian buffer workshop as part of its curriculum.	Planning Commission & Board of Supervisors.	Short- term & ongoing	77	
27.	Require the installation of riparian buffers for uses that have a potential for generation of surface water pollution as part of its zoning approval process.	Planning Commission & Board of Supervisors.	Short term & ongoing	78	
28.	Amend Section 511 of the Township Zoning Ordinance to require the installation and maintenance of a riparian buffer along all streams and tributaries.	Planning Commission & Board of Supervisors.	Urgent	77	
29.	Use moneys collected using the mandatory dedication of parkland to support the development a small neighborhood privately-owned and maintained park or in the alternative, donate the money to the School District for use at its parks.	Board of Supervisors	Long term	79	
30.	Continue to rely upon patrol from the PA State Police with periodic input be furnished to the Department for acute patrol needs.	Board of Supervisors	Ongoing	81	
31.	At such time as popular public sentiment shifts towards a higher level of police protection, partner with one or more of its neighboring municipalities to participate in a PA Department of Community & Economic Development (DCED) regional police feasibility study.	Board of Supervisors	Long term	82	
32.	Cooperate with local emergency service providers to enhance strategies for volunteer recruitment, specialized training, education of residents for their financial and manpower support, exploration of "other" funding mechanisms, adoption of uniform driveway design standards that provide for adequate emergency vehicle access, installation of dry hydrants and provision of detailed GIS mapping to each emergency service provider.	Board of Supervisors, Municipal Officials from the neighboring townships & key personnel from local fire & ambulance companies.	Long term	86-90	
	Recommendations related to the delivery of Utilities. (Chapter VIII)				
	Determine areas of future growth directed into areas capable of supporting such systems where remedial sewer service capacity can be provided to serve current and likely future malfunctioning OLDS.	Planning Commission & Board of Supervisors	Long term	95	

Danas		Responsible Parties	Time- frame	Plan reference
	mmended task:			(pgs)
rel	Id a new Section to Article 3 of the Township Zoning Ordinance ating to the use of on-lot sewage disposal systems that should:  Require new uses to test for and reserve two disposal areas (primary and alternate) for sewage on the site to be approved by the SEO;  Permanently protect the reserve disposal site from disturbance until activated;  Allow the enlargement of lot size, beyond specified maximums by conditional use, to avoid an unacceptable level of nitrate-nitrogen in adjoining groundwater to be determined through the DEP sewer module review process;  Enable the use of a sewage effluent dispersal easement, by conditional use in-lieu of enlarged lot area as described above; and, Require compliance with the Township's recommended On-lot Sewage Disposal System Management Ordinance.  Require properties with on-lot sewers to contain at least one acre to accommodate a primary and replacement disposal site and to identify and protect such alternate disposal site as part of the permit approval process.  Avoid the location of on-lot sewers upon the Cockeysville Marble formation.	Planning Commission & Board of Supervisors	Urgent & ongoing	95-96
se	vestigate the acquisition of public water supply systems that would rive or originate within the Township and restrict commercial water mpanies to the Business Zone. At such time as a public water supply developed, implement a well-head protection plan.	Board of Supervisors	Long term	96
de	ake use of PA One-Call system with respect to use and evelopments proposed along the Township's overhead and ederground utility rights-of-way.	Residents & developers	Ongoing	98-99
	Recommendations related to the deli	ivery of Transp	ortation (C	hapter IX)
37. Re	esist attempts to improve collector roads.	Board of Supervisors & road foreman	Ongoing	103
	educe and discourage the number of driveway cuts along the ownship's collector roads.	Board of Supervisors	ongoing	103
me inc	continue to restore the local road system with "gravel" resurfacing as a eans of improving compatibility and safety while avoiding an ducement to community growth that would exceed its local trastructure and public service capacity.	Board of Supervisors & road foreman	ongoing	105, 108
40. Ov To inc	versee completion of three bridge projects approved within the bwnship in 2005 with the caveat that these projects do not merely crease traffic carrying capacity, but that they preserve historic integrity d offer safe pedestrian/bike/horse passage.	Board of Supervisors & road foreman	Short term	109 & 114
	omplete various locally-scheduled road improvements.	Board of Supervisors & road foreman	Short term	109
	ork with all levels of government to divert high-speed pass-through offic away from the Township.	Board of Supervisors & TIC	Long term	109 & 114

Re	commended task:	Responsible Parties	Time- frame	Plan reference (pgs)
43.	Apply an Airport Overlay Zone near the New Garden Airport to confine local aviation-based uses and regulate structural height.	Planning Commission & Board of Supervisors	Short term	110 & 119
44.	Appoint a Transportation Issues Committee (TIC) to establish and act upon local transportation priorities including identification of "speeding" hot-spots to be communicated to the State Police.	Board of Supervisors	Short term & ongoing	111
45.	Post additional signs with reduced speeds to limits.	Board of Supervisors & road foreman	Short term	111 112
46.	Monitor the progress of mechanized traffic enforcement technologies.	TIC & Board of Supervisors	Long term	112
47.	and improved safety.	TIC & Board of Supervisors	Short term	112-113
48.	Cancel or redesign local bridge projects that merely increase vehicle carrying-capacity and do not preserve the historic integrity or provide for pedestrian/bicycle and horse traffic.	TIC & Board of Supervisors	Short term	114
49.	Request that the County formally revise designated bike routes away from roads that would require widening and/or shoulder improvements.	TIC & Board of Supervisors	Short term	110
50.	Preserve the large front yard setbacks used for equine access throughout the Township.	Board of Supervisors	Ongoing	110
51.	Cooperate with other adjoining municipalities in advocating rural streetscapes to the County/State as part of their Transportation Improvement Program process.	TIC & Board of Supervisors	Ongoing	114
	Recommendations related		and Use. (	Chapter X)
52.	Adjust the zoning boundaries of the Official Zoning Map in accordance with those depicted on the Future Land Use Map of this Plan.	Planning Commission & Board of Supervisors	Urgent	115
53.	Commit to updating the Comprehensive Plan by the year 2020.	Planning Commission & Board of Supervisors	Long- term	115
54.	Continue to apply an effective Agricultural Conservation Zone that severely restricts development in favor of normal farming operations and related secondary occupations, has design flexibility to tuck development amid scattered natural features and requires the submission of environmental impact reports .	Planning Commission & Board of Supervisors	ongoing	115-119
55.	Apply strict regulations to concentrated animal feeding operations to protect the surroundings.	Planning Commission & Board of Supervisors	ongoing	116-117
56.	Continue to apply zoning language to permit forestry use by right in all zones throughout the Township with suitable management requirements.	Planning Commission & Board of Supervisors	ongoing	117 & 121

Recommended task:	Responsible Parties	Time- frame	Plan reference (pgs)
57. Adopt a Riparian Buffer Overlay Zone and apply it throughout the Township. Lobby the Chester County Agricultural Lands Preserve Board to encourage the installation of riparian buffers associated with paid conservation easements.	Commission &	Short- term	117-119 & 122
58. Educate farmers 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.	Planning Commission &	ongoing	118
59. Target important farms that can offer the best improvement to surface water quality for fund-raising and actual riparian buffer construction.	Local watershed groups	ongoing	118
60. Create a new Agricultural – Rural Development Zone to confine uses that are not otherwise provided for and incompatible with both the Township's development zones and its sensitive and productive Agricultural- Conservation Zone.	Commission &	Urgent	120
61. Confine the Township's R-1 Zone to the Villages of London Grove and Springdell and apply suitable Village Residential design standards based upon the lack of public utilities and prevailing features and enables public and civic uses.	Commission &	Urgent	125-126
<ul> <li>Realign the Township's R-2 Zone as depicted for High Density Residential Use on the Future Land Use Map and strengthen the review criteria for high density housing to ensure that it:</li> <li>permits a target mixture of housing types,</li> <li>protects important natural features,</li> <li>strengthens accessory use requirements,</li> <li>reflects historic character,</li> <li>features community focal points and,</li> <li>invites regular social interaction.</li> </ul>		Urgent	126-128
<ul> <li>Apply the B-1 Zone in the area depicted as Local Business on the Future Land Use Map of this plan with the following characteristics: <ul> <li>Limit overall retail size per store so to not exceed its local orientation, nor provide an incentive for the demolition of existing historic buildings in favor of more modern commercial building styles;</li> <li>Encourage the development of multi-shop arcades;</li> <li>Limit sign sizes and orientations;</li> <li>Promote shared use of access drives, and off-street parking and loading spaces;</li> <li>Manages outdoor storage with screening;</li> <li>Require front yard landscape strips;</li> <li>Requires shielded on-site lighting of buildings;</li> <li>Limits the level of public address systems;</li> <li>Conditional use review of large scale or intensive uses.</li> </ul> </li> </ul>	Planning Commission &	Short term	128130
64. Continue to permit nonprofit uses within their respective zones as they occur throughout the Township and are depicted on the Future Land Use Map.		Ongoing	131
Recommendations re		entation (C	Chapter XI)
65. Schedule a regular evaluation of the Plan's effectiveness and performance against the current "issues of the day" on an annual basis.	l Planning	Ongoing	139

Re	commended task:	Responsible Parties	Time- frame	Plan reference (pgs)
66.	Conduct a formal review of the Plan at least every ten years in accordance with the Municipalities Planning Code.	Planning Commission & Board of Supervisors	Ongoing	139
67.	Evaluate the Plan's effectiveness and performance against the current "issues of the day" to determine if adjustments or updates are warranted.	Planning Commission	Annually	139
68.	Monitor the planning programs of nearby communities for the possibility of undertaking a future regional comprehensive planning process.	Planning Commission & Board of Supervisors	Ongoing	139-140

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 Planning Commission schedule a regular evaluation of the Plan's effectiveness and performance against the current "issues of the day" on an annual basis to determine if adjustments or updates are warranted. Also the Municipalities Planning Code now requires municipalities to formally review their plans at least once every ten years to determine consistency between local plans, ordinances and County plans; therefore, it is likely that the status of this Plan will be under greater scrutiny than in the past.

One of the most important advancements in community planning to occur within the recent past involves the regional allocation of land use. The PA Municipalities Planning Code (MPC) has two applicable sections that enable this technique:

- 1. Section 811-A. of the MPC specifically authorizes a regional allocation of land use when a regional plan is adopted and implemented through a joint zoning ordinance of the participating municipalities. It states:
  - "Area of Jurisdiction for Challenges. In any challenge to the validity of the joint municipal zoning ordinance, the court shall consider the validity of the ordinance as it applies to the entire area of its jurisdiction as enacted and shall not limit its consideration to any single constituent municipality."
- Section 916.1.(h) of the MPC specifically authorizes a regional allocation of land use when a regional plan is adopted and individual zoning ordinances generally implement the Plan. It states:
  - "Where municipalities have adopted a multimunicipal comprehensive plan pursuant to Article XI but have not adopted a joint municipal ordinance pursuant to Article VIII-A and all municipalities participating in the multimunicipal comprehensive plan have adopted and are administering zoning ordinances generally consistent with the provisions of the multimunicipal comprehensive plan, and a challenge is brought to the

validity of a zoning ordinance of a participating municipality involving a proposed use, then the zoning hearing board or governing body, as the case may be, shall consider the availability of uses under zoning ordinances within the municipalities participating in the multimunicipal comprehensive plan within a reasonable geographic area and shall not limit its consideration to the application of the zoning ordinance on the municipality whose zoning ordinance is being challenged."

While this Comprehensive Plan has been accomplished separately, *local officials should* monitor the planning programs of nearby communities for the possibility of undertaking a future regional comprehensive planning process. This could enable a regional allocation of all land uses, rather than requiring the Township to provide for all land uses, as is the case in this Plan.

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.