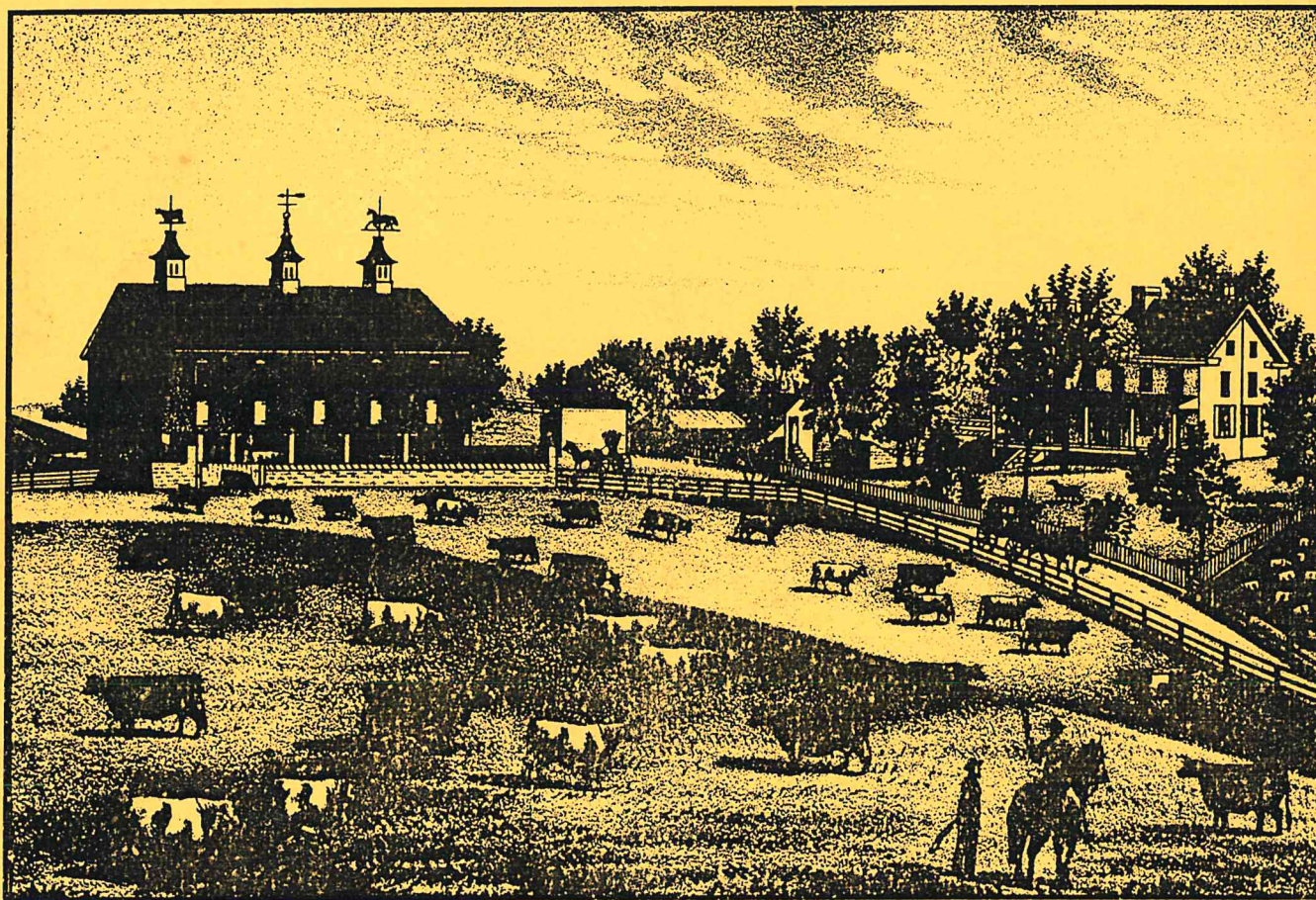


Open Space, Recreation & Environmental Resources Plan

West Brandywine Township
Chester County, Pennsylvania



October 1993

Open Space, Recreation & Environmental Resources Plan

West Brandywine Township
Chester County, Pennsylvania

October, 1993

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West Brandywine Township

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BOARD OF SUPERVISORS

OCT. 21 1993

RESOLUTION # 19-93

West Brandywine Township
Chester County, Pennsylvania

A Resolution adopting an Open Space, Recreation,
and Environmental Resources Plan for the
Township of West Brandywine.

WHEREAS, Article 1, Section 1 of the Pennsylvania Municipalities Planning Code, Act of 1968, P.L. 805, No. 247, as reenacted and amended, sets forth that the intent, purpose, and scope of this Act is to provide for the general welfare by guiding and protecting amenity, convenience, future governmental, economic, practical, and social and cultural facilities, development and growth, as well as the improvement of governmental processes and functions, to guide uses of land and structures, type and location of streets, public grounds and other facilities; and

WHEREAS, the Pennsylvania Legislature has recognized the importance of the preservation of open space, recreation and environmental resources by authorizing counties to make appropriations to municipalities such as Townships to assist them in the purchase or acquisition of lands or buildings, or both, for parks, recreation areas, open space projects and other such outdoor projects, as provided in Section 1999 of the Pennsylvania County Code, 16, P.S. Section 1999; and

WHEREAS, the Board of Supervisors, West Brandywine Township, have received and reviewed the "Open Space, Recreation and Environmental Resources Plan", of 1993, prepared by its Open Space Task Force Committee, with the professional assistance of the Brandywine Conservancy, which they intend to use as a planning tool and device to assist them in future enactments, re-enactments and/or revisions to the Townships Comprehensive Plan, the Zoning and Subdivision and Land Development Ordinances.

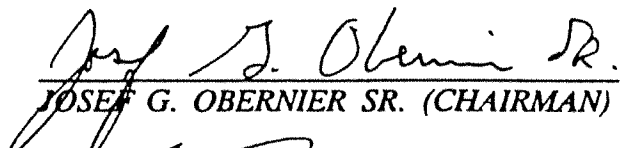
NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors, West Brandywine Township, do hereby adopt the "Open Space, Recreation and Environmental Resources Plan", and that the Township further wishes to express its appreciation to those individuals that participated in accumulating the data and making the recommendations set forth herein.

Resolution # 19 -93
Open Space, Recreation, and
Environmental Resources Plan
Page two

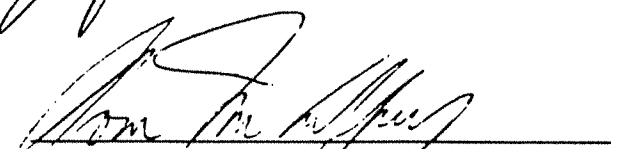
OCT. 21 1993


BE IT HEREBY RESOLVED, this 21ST day of OCTOBER, 1993, the Board of Supervisors, West Brandywine Township, adopt this Resolution.

ATTEST:


JOSEPH G. OBERNIER SR. (CHAIRMAN)


WARREN A. KUHN (SEC/TRES)


THOMAS J. MCCAFFREY (SUPERVISOR)


RONALD A. RAMBO JR (MANAGER)

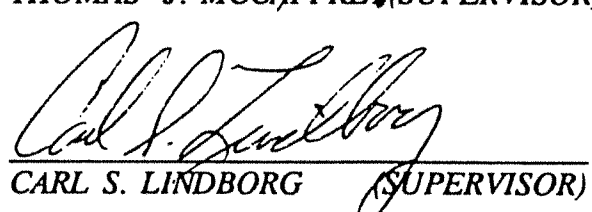

CARL S. LINDBORG (SUPERVISOR)

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SECTION I: INTRODUCTION

In 1991, the Chester County Planning Commission formally announced the County's *Heritage Park & Open Space Municipal Grant Program*. In response, West Brandywine Township applied for eligibility for reimbursement from Chester County of 75% of the costs entailed in the undertaking of this Open Space, Recreation and Environmental Resources Plan. A Task Force was appointed to steer the planning process in accordance with County scope requirements, working with selected consultants.

1. What is Open Space?

"Open space" means different things to different people. To some it is the large spaces between buildings, to others it is rolling agricultural lands, and yet to another it is a hiking trail through the woods. In fact, it is all of these things and more. Open space is an inextricable part of West Brandywine's community character or sense of place. For this Plan, the scope of open space has been broadened to encompass all natural and cultural resources which contribute to West Brandywine's special sense of place. These resources range from wetlands to steep slopes, from dense woodland to long vistas, from open farm fields to closely spaced historic buildings. Certain resources perform valuable environmental functions. Others define West Brandywine's community character. All of them offer aesthetic and psychological benefits whether or not physical access to them is permitted.

The diverse range of resources that characterize West Brandywine also often encompass lands available for development or redevelopment, activities which constitute a landowner's reasonable and lawful expectation of reaping value from the land. This Plan looks toward means to afford development opportunities without unnecessarily destroying the rich natural and cultural heritage of the community.

2. The Planning Process

The planning process and this Plan document were divided into the following sections:

- **Section I: Introduction.**
- **Section II: Community Background Profile & Planning Context.** This section sets the stage for planning by reviewing the historical development of the Township, its current financial situation, and its organizational structure and planning history. Socio-economic characteristics and existing land use patterns also are examined.

West Brandywine Township

- **Section III: Community Values Survey.** A Survey was conducted in the late Spring of 1993, sent by mail to all Township residents and property owners. Survey response represented approximately 25% of resident households.
- **Section IV: Goals and Objectives.** Goals and objectives were articulated for the Township of West Brandywine by the Open Space Task Force, based on review of earlier comprehensive planning efforts, on interpretation of this Plan's more detailed focus on resource protection issues, and in view of the Community Values Survey.
- **Section V: Inventory of Natural & Cultural Resources.** This inventory identifies those environmental features which necessarily influence decisions regarding both conservation and development, along with scenic and historic attributes contribute to West Brandywine's unique sense of place.
- **Section VI: Plan for Open Space.** This section offers a focus on resource protection priorities, analyzing the existing resource network in terms of the current levels of protection afforded. The Plan compares resource protection priorities to current local and regional land use policies, and further recommends approaches to conservation in terms of potential policy and action on the part of the Township.
- **Section VII: Plan for Recreation.** Recreational resources of varied types serve Township residents. Residents pursue active and passive recreation opportunities at a range of sites and facilities within West Brandywine and across the broader region. Recreational service to West Brandywine residents is evaluated here in terms of nationally-accepted recreational facility standards and in light of Community Values Survey responses. Potential development of additional community recreational facilities is explored.
- **Section VIII: Summary Recommendations.** This final Plan section summarizes and prioritizes all recommendations for natural and cultural resources and for recreation, focussing on particular implementation actions which the Township might pursue.

Section II: Township Profile and Planning Context

A. Historical Overview

1. Historical Boundaries

West Brandywine Township, as a distinct entity, is a relative latecomer to the status of Township in Chester County, formed in 1844 as the result of the division of Brandywine Township. Brandywine Township had been created in 1790 from part of East Caln Township, receiving its name from the stream whose two main branches bounded the new township's eastern and western sides. Speculation about how the Brandywine received its name usually is divided into three opinions. One opinion says that a vessel laden with branntwein (brandy) sank in the creek. Another says that Andrew Braindwine owned land near the mouth of the creek and applied his name to the stream, and finally, that a slough near Downingtown discharged muddy water in to the creek, tingeing it the color of brandy.

East Caln, in turn, had been divided from a very large Caln Township, formed in 1702. Unlike many other Chester County communities, none of the original West Brandywine Township (as of 1844) had been clearly associated with any Penn grant. In 1853 a small portion of the south end of West Brandywine was taken in the formation of Valley Township. In 1859, the line running between East and West Brandywine was changed in its location as to take into West Brandywine a portion of East Brandywine. In 1860, another addition was made to West Brandywine from the southeast corner of Honey Brook Township and the western part of Wallace. In this addition was located the Manor Church, which had previously been in Honey Brook Township and which is located on what was at one time Springton Manor, a Penn grant which embraced the larger part of the present Wallace Township. There never was a "Brandywine Manor" but local custom has prevailed in calling that spot by that name.

2. Settlement and Commerce

The majority of the original settlers were English Quakers and later Germans and Scotch-Irish. Early settlement of the area included families from the town of Calne in Wiltshire, England (from which the early, larger Caln Township had taken its name). The Township was predominantly agricultural until relatively recently. Agriculture constitutes one of its major historical themes and dictated the area's cultural landscape, although since 1920 there has been a notable decrease actual farming in the area.

Philadelphia was the principal market for agricultural products from the county, with the farmers themselves attending to most of the business transactions involved in selling their products. Difficulty in obtaining labor in the early settlement years meant every family member took an active part in farm work. They put in long, hard hours of work and could only care for small

West Brandywine Township

areas of land, thus farms were rarely large. The plight of the farmers was eased by the invention of labor saving devices such as the reaper, cultivator and thresher, man-power was substituted by horse-power.

Philadelphia's demand for milk forced the milk business upon the area. The change from beef to dairy farming came quickly - by 1870 a typical farm had no beef cattle or sheep. Natural conditions aided this change. The water supply was good and a great deal of the land was adapted for pasture. By 1879 this area was the principal butter producing area in the state. As of 1919, dairy products were ahead of poultry and eggs, but in 1924 the chicken and eggs increased over the dairy products. Oxen were the chief draft animals before 1840 but gradually gave way to the horse as it was a more tractable and rapidly working animal.

The Brandywine provided the power for grist mills and also supplied ice in the winter that was stored in an ice house at Icedale. A flour and feed mill was located at Brandamore and was listed in the Farm and Business Directory of Chester County in the year 1914, the owner being W.D. Hatfield. Dams were located at Icedale, Brandamore and a small one at Cedar Knoll, twin dams (upper and lower) at Hibernia and Pratts Dam, above Wagontown. A thriving business at the time and before refrigeration, was cutting ice as much as 4 feet thick from the Brandywine, packing it in layers of sawdust and keeping it in the ice house until summer. when it was hauled to cities, including Philadelphia, to chill and preserve food. The Consumer's Ice and Coal Company is listed at Cedar Knoll in the 1914 directory.

An old 1886 map shows post offices at Wildbriar, Brandywine Manor and Cedar Knoll. The Brandamore post office was opened in 1890. Early schools were one-room affairs that usually employed only one teacher to teach all grades from first to eighth. Among them were Lafayette School, Brandywine Manor School, Friendship School, Union School and Wildbriar School. Two churches have been in the area since the forming of the Township. They are the Forks of Brandywine Presbyterian Church, at Brandywine Manor, and the Hibernia Methodist Church, on Hibernia Road, and adjoining grounds of Hibernia Park. The original Hibernia Church was organized in 1840 and the present structure was built in 1841. The Church was established for the workers of the iron and steel mills along the Brandywine, near Hibernia, by Rev. Alban Hooke.

In 1734, the Scotch and Scotch-Irish settlers built a log meeting house upon a lovely hill between the East and West Branches of the Brandywine. One year later, they were formally organized as the Forks of Brandywine Presbyterian Church. A stone church building replaced the log structure in 1761 when the Rev. John Carmichael was called as pastor. An ardent patriot, Carmichael encouraged the congregation to support the cause of the Colonies; the congregation received written thanks from General Washington. Shortly after the death of the Rev. John Carmichael in 1785, the church was destroyed by fire. It was restored in 1787 by the gifts of many interested persons including Benjamin Franklin, Dr. Benjamin Rush, David Rittenhouse, William Bradford, and others. In 1875, the present American Gothic church was built. It was designed by the Philadelphia architect, Samuel Sloan. The building of the church became a community project as

Open Space, Recreation, and Environmental Resources Plan

farmers contributed teams to haul building stones from the neighboring hill and gave generously of their time and effort.

3. Transportation

U.S. Route 322 crosses the northern part of the Township, known variously as "The Lakes-to-the-Sea Highway," "The Downingtown, Ephrata and Harrisburg Turnpike Road" or the "Horseshoe Pike." Once a main road to Harrisburg, taverns were located approximately every seven miles, the travel distance of half a day by coach, when the dirt roads would become seas of mud during rainy spells.

Rail transportation was provided by the mid 1800s' construction of a branch of the Reading Railroad Company. It followed the Brandywine and transported passengers, products of the region, coal, mail and raw materials for the iron works located in what is now Hibernia Park, a portion of which is in West Brandywine Township. The Kaolin Forge was a few miles further north. Stations in this area were at Icedale, Brandamore, Cedar Knoll, Wagontown and Siousca.

4. Architecture and Historic Resources

The Township has a large number of historic resources; historic structural resources of the area reflect regional agricultural tradition, using brick and stone for houses, mills, creameries and butcheries. The 1979-1982 Chester County Survey of Historic Structures listed 136 entries for West Brandywine Township. Sponsored by the Chester County Historical Society, the Chester County Commissioners and the Pennsylvania Historical and Museum Commission, this study was executed by trained professional and volunteers who collected local historical data, identified and mapped structures over 50 years old, and in most cases, performed a first cut evaluation of the historical value and architectural integrity of those structures.

B. Regional and Geographic Setting

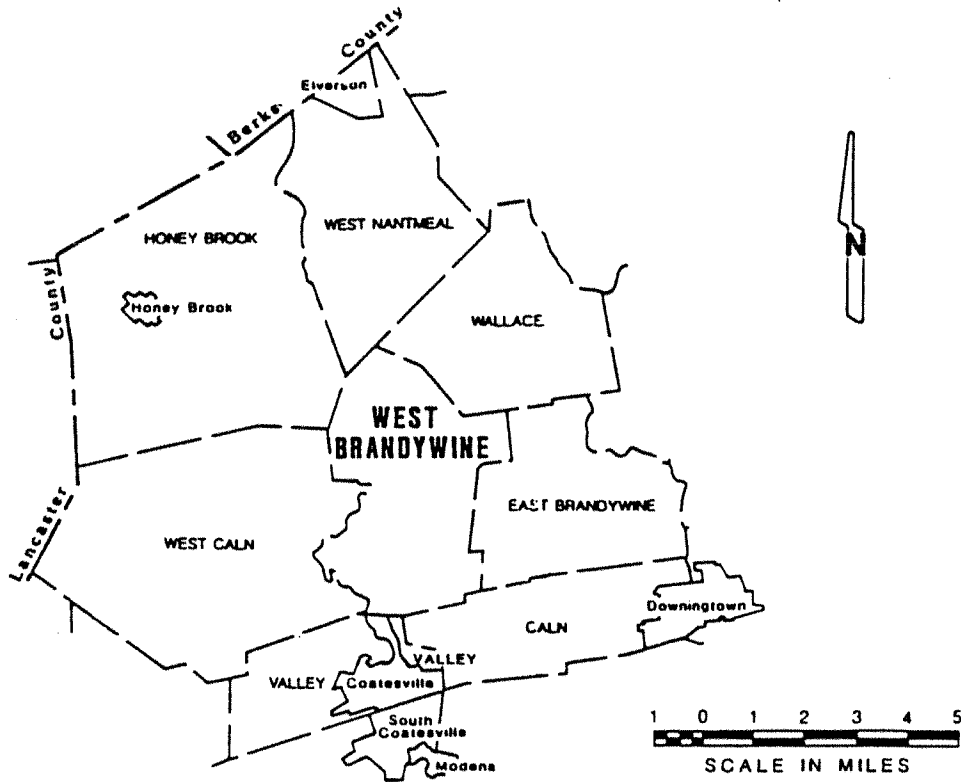
As indicated on the Regional Setting Map, West Brandywine is located within the heart of Chester County, approximately 35 miles west of Philadelphia and 25 miles northwest of Wilmington, Delaware. For statistical purposes, the Township is included within the Philadelphia Metropolitan Statistical Area (MSA) by the U.S. Bureau of the Census. The MSA includes all municipalities within the Counties of Chester, Bucks, Delaware and Philadelphia in Pennsylvania and the New Jersey Counties of Camden, Burlington, Gloucester and Salem.

The 13.25 square miles of West Brandywine Township lie due north of the City of Coatesville, and is surrounded by seven townships: West Nantmeal, Wallace, East Brandywine, Caln, Valley, West Caln and Honey Brook. The Regional Setting Map displays the geographic relationship of these municipalities to West Brandywine. Because these communities are near the urban fringe,

West Brandywine Township

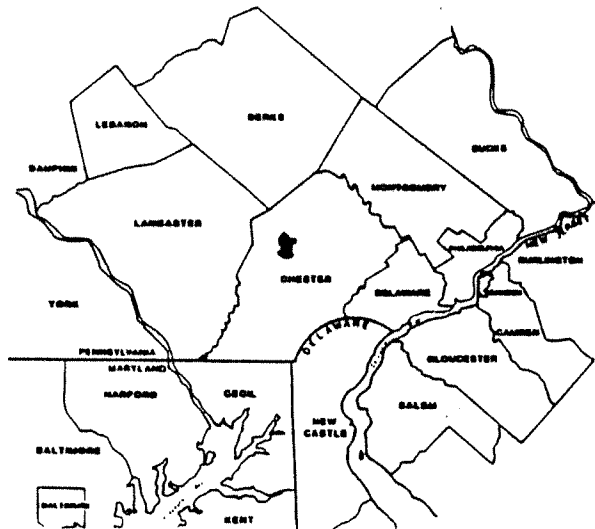
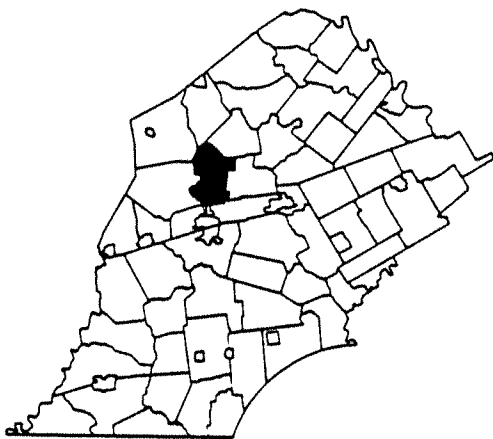
REGIONAL SETTING

West Brandywine Township • Chester County, Pennsylvania



West Brandywine Township
in Chester County

West Brandywine Township
in Southeastern Pennsylvania



Open Space, Recreation, and Environmental Resources Plan

they have experienced varying degrees of development pressures. Municipalities located closer to Route 30, including Caln and Valley, have undergone extensive development involving a variety of uses. Those municipalities to the north and west of the Township, including Wallace, Westnantmeal, Honey Brook and West Caln, have experienced limited increases in the rate of development.

The proximity to regional highway corridors and employment centers, coupled with relatively low real estate values and panoramic vistas has made the Township an attractive setting for residential use.

Since 1970, planned office and industrial development has been attracted to the Route 202 corridor between King of Prussia and West Chester/Exton. This outgrowth of King of Prussia has demonstrated the emergence of technological enterprises, comprising scientific research, communications, computer service, pharmaceuticals and other industries characterized by rapidly changing technology. A 1986 Delaware Valley Regional Planning Commission (DVRPC) study estimated that by the year 2000, 127,000 jobs will exist within the portion of the Route 202 corridor in East Whiteland, Tredyffrin and Upper Merion Townships alone.

Particularly during the 1980's, and continuing into the early 1990's, the Exton Crossroads area in West Whiteland Township became a significant focus of economic development. Planned industrial parks, shopping facilities, and several thousand housing units have been developed within the Township. Several other planned industrial parks are located within ten miles of West Brandywine Township.

Routes 30 and 322 are the principal highways serving West Brandywine and the immediately surrounding municipalities. Both were once rural routes connecting farms and farming communities to regional market towns like Downingtown, Coatesville, Honey Brook, and beyond. Route 322 now serves as a principal arterial route, linking residents with employment and shopping centers, as well as accommodating regional truck traffic. The highway also serves as the principal access to the Lanchester Landfill in Honey Brook Township. The large number of farm tracts alone warrants the need for an access management program to protect the function of the highway. The proposed highway link along U.S. Route 30, known as the Exton By-Pass, has been designed to reduce congestion in the Exton area between Downingtown and Route 202. Once completed, residents of West Brandywine Township will have direct access via expressway to King of Prussia, Philadelphia and Wilmington. Reduced travel times provided by the By-Pass will open municipalities to the west of Exton to further residential development pressure. It is expected that the By-Pass will be completed in the latter part of the 1990's.

C. Township Government

1. Organizational Structure

West Brandywine Township is a Township of the Second Class under the Commonwealth of Pennsylvania system of municipal classification. As such, it operates under the provisions of the Second Class Township Code which sets forth the general and corporate powers of the Township and the manner in which the Board of Supervisors may exercise those powers.

The Township is governed by a 3-person board of supervisors whose members are elected for staggered 6-years terms. The Board is responsible for most local decision making, including land use controls and approval of development proposals.

The Board of Supervisors annually appoints a secretary and treasurer to assist in the day to day operation of the Township. The Board is assisted and advised by a number of volunteer boards and commissions whose members it appoints.

The Planning Commission of West Brandywine Township is established by Township ordinance in compliance with Act 247 of 1968, known as the "Municipalities Planning Code," as amended. The Planning Commission was recently expanded from five to seven members serving 4-year terms. The duties and responsibilities of the Commission are detailed in the Municipalities Planning Code; these include review and recommendations on subdivision/ land development plans, preparation of amendments to the zoning and subdivision and land development ordinances, preparation of a comprehensive plan, and performing duties as the Board of Supervisors may direct. Four of the seven Planning Commission members have served on the Open Space Task Force charged with guiding this Plan. West Brandywine Township also has participated in regional planning bodies established to serve the Upper Brandywine area (also including East Brandywine, Honey Brook, and Wallace) and the Central Region (also including Caln, Coatesville, East Fallowfield, Modena, South Coatesville, Valley and West Caln).

The Zoning Hearing Board of West Brandywine Township consists of three members who are appointed for four-year terms. This quasi-judicial body handles challenges to the zoning ordinance, appeals to rulings of the zoning officer, and considers appeals for variances and special exceptions.

In addition to the Board of Supervisors, the Township is served by an elected Tax Collector and elected Auditors (3). The Tax Collector serves a term of four years and the Auditors are elected to a 6-year term.

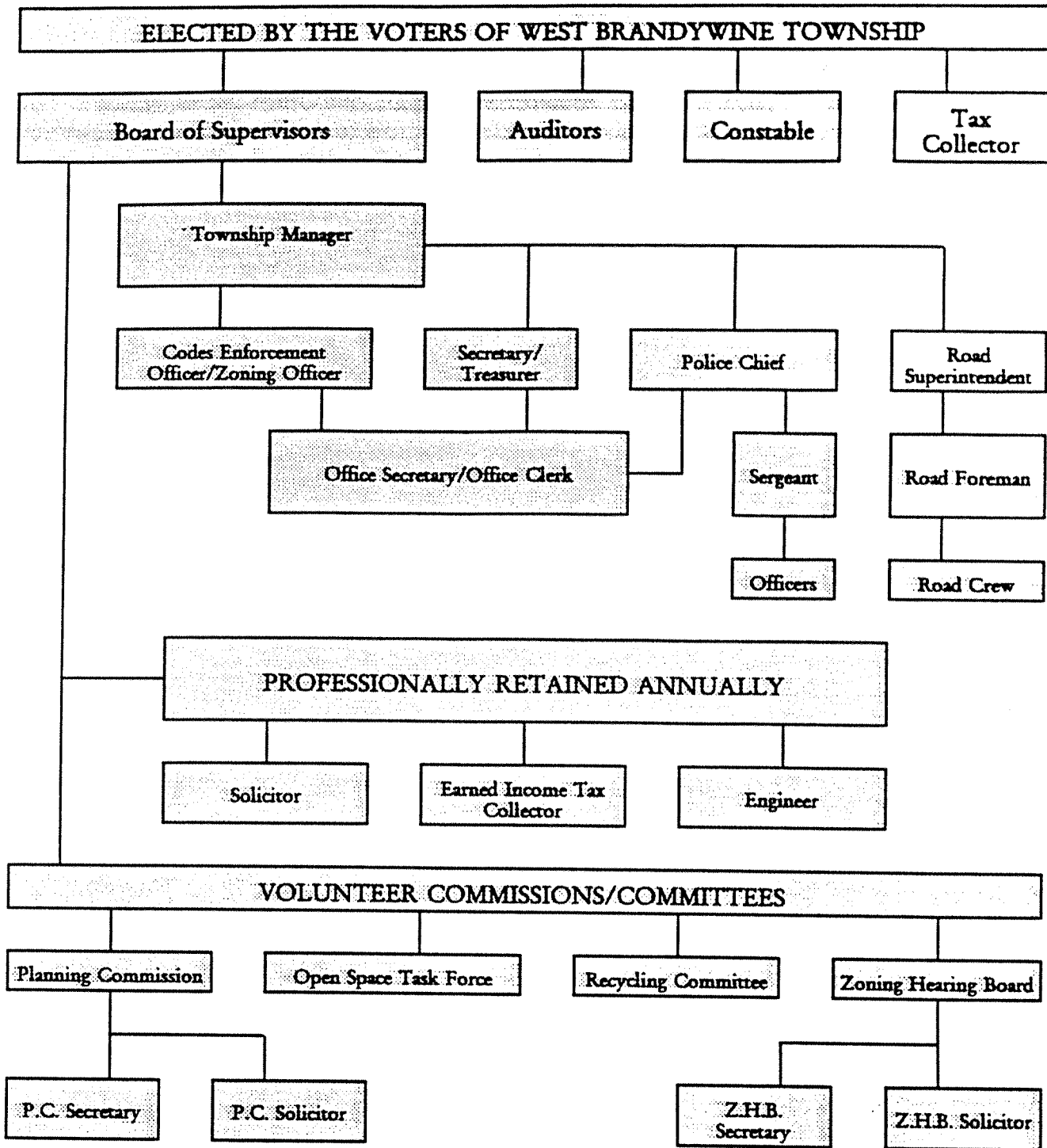
The Township utilizes paid professional legal assistance. Engineering services for subdivision and land development plan review and other related Township projects including sewer construction and road maintenance are provided by a local engineering consulting firm which is appointed

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annually. Other consultants are engaged on an as needed basis for planning, zoning or other special projects requiring technical assistance.

West Brandywine Township is served by a qualified staff including the Township Manager, Township Secretary/Treasurer, Codes Enforcement Officer, and Office Secretary/Clerk. The Police Department consists of the Police Chief, Sergeant, and four full-time and three part-time Officers. The Road Superintendent is assisted by the Road Foreman and a Road Crew with one full-time and two part-time members. Both the Planning Commission and the Zoning Hearing Board are served by their own Secretary and Solicitor.

West Brandywine Township



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2. Municipal Finances

The following tables summarize West Brandywine Township's financial patterns over the last five years. The "General Fund" accounts for all general operations of the Township government. The Liquid Fuels Fund funnels monies received as West Brandywine's share of state liquid fuel tax revenues for use on highway projects within the Township. Changes over this five-year period have been incremental rather than wildly fluctuating.

a. Patterns of Expenditures

General Fund	Balance	Revenues	Expenditures	End Balance
1988	157,476	918,181	926,341	149,316
1989	149,316	966,139	1,110,442	5,013
1990	5,013	1,175,611	1,160,693	19,931
1991	19,931	1,141,624	1,154,621	6,934
1992	6,934	1,224,033	1,203,250	28,517

Liquid Fuels Fund	Balance	Revenues	Expenditures	End Balance
1988	8,749	55,868	45,732	18,886
1989	18,886	58,530	69,911	7,513
1990	7,513	63,887	70,194	1,206
1991	1,206	60,492	43,366	18,563
1992	18,563	85,866	86,481	17,948

TOTAL FUNDS	Balance	Revenues	Expenditures	End Balance
1988	166,225	974,049	972,073	168,202
1989	168,202	1,024,677	1,180,353	12,526
1990	12,526	1,239,499	1,230,887	21,137
1991	21,137	1,202,116	1,197,757	25,497
1992	25,497	1,310,699	1,289,731	46,465

West Brandywine Township

b. Sources of Revenue

West Brandywine Township receives revenues from a number of sources; these include property owners and other Township residents, state programs, and Township fees for specific services, among others. Combined revenues from all sources in 1992 totaled \$1,310,699, including \$1,231,767 to the General Fund and \$85,866 in state liquid fuels funds.

The Township relies on three sources of tax revenue: real estate, earned income, and real estate transfer. Together, these generated \$591,611 or 48.2% of total revenue to the Township general fund and 45.1% of all revenues.

The largest single source of tax revenue for West Brandywine Township comes from the Township's share of the 1% earned income tax. Revenues from this tax are shared equally between the Township and the Coatesville Area School District. The Township's share for 1992 totaled \$383,574 or 31.2% of general operating revenues. At present, this tax is collected by Berkheimer Associates under a contract with the Township.

West Brandywine has maintained real estate tax levys at the rate of ten mills for several years, within the 14-mill ceiling established by the Commonwealth for townships of the second class. In 1992, total assessed valuation on real estate in West Brandywine was \$16,029,580, meaning that one mill should generate \$16,030 in revenue; actual receipts at the ten-mill rate totalled \$152,630 or 12.4% of the Township's general operating revenues. Property owners in the Township also pay real estate taxes to Chester County (29 mills in 1992) and the Coatesville Area School District (205.1 mills for the year ending June 30, 1992). The third source of tax revenue, the 1% tax on real estate transfers, is collected by Chester County. The Township receives 1/2%, splitting receipts with the County. Transfer taxes netted West Brandywine \$55,407 in 1991, or 4.6% of general operating revenues.

In addition to tax revenues, the Township received substantial revenue from a variety of sources; of particular note is the \$162,917 garnered from trash removal fees, and the \$115,000 received for police services then provided to Wallace Township (Police services contracted by Wallace have been discontinued). Sources of revenue to the general fund in 1992 are charted and are represented in a pie chart on the following pages.

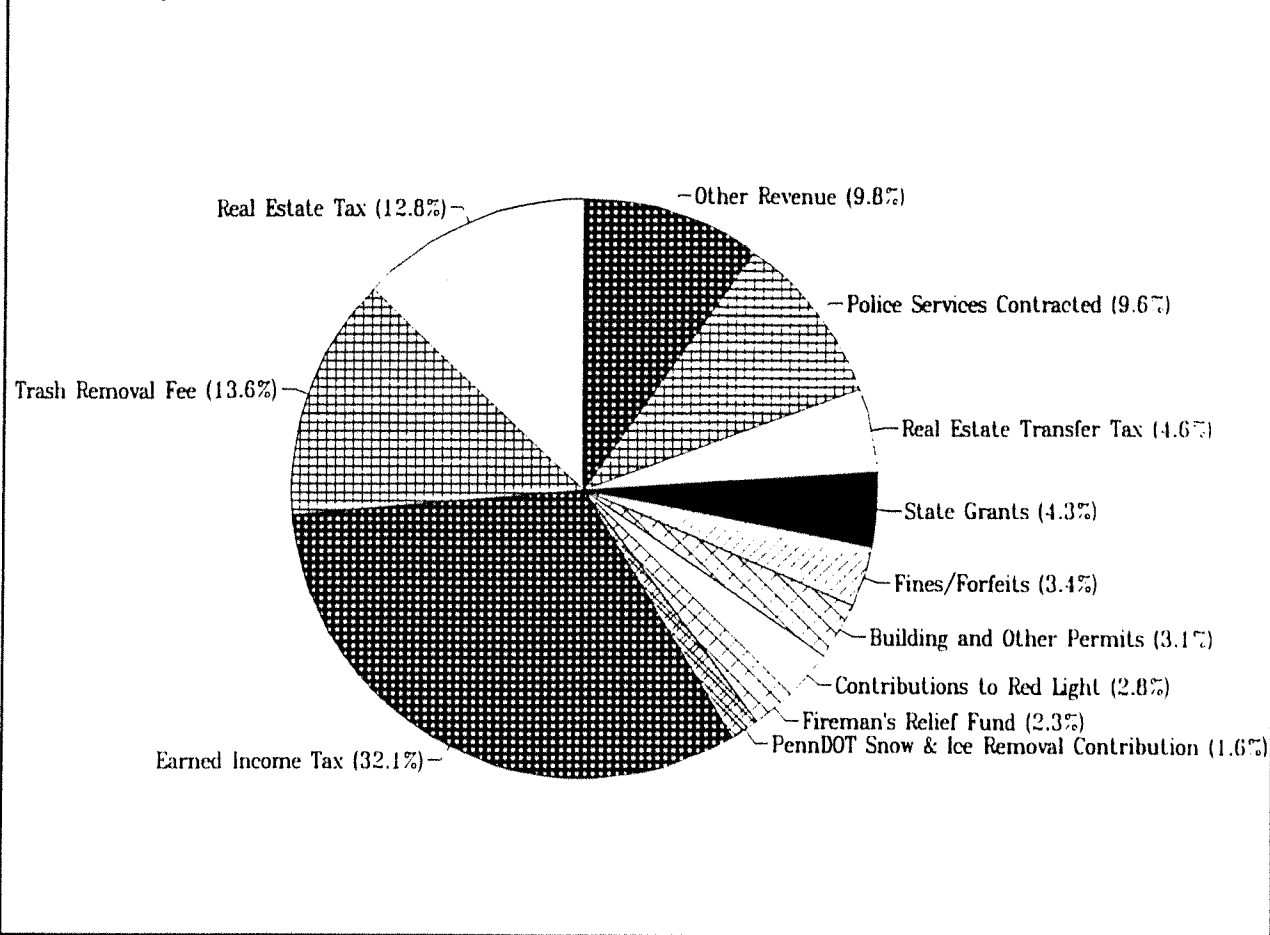
Open Space, Recreation, and Environmental Resources Plan

Revenue Source, 1992	Receipts	Percent of General Fund
Balance, End of 1991	6,934	.6%
Earned Income Tax	383,574	31.2%
Real Estate Transfer Tax	55,407	4.6%
Real Estate Tax	152,630	12.4%
Subdivision Review Fees	3,945	.3%
Interest Income	2,693	.2%
Fireman's Relief Fund	27,600	2.2%
Building Permits	34,854	2.8%
Other Permits	1,885	.1%
Fines and Forfeits	40,629	3.3%
Trash Removal Fee	162,917	12.2%
Police Services Contracted	115,000	9.3%
Contributions to Red Light	33,864	2.7%
State Aid Pension Grant	35,205	2.9%
PennDOT Snow & Ice Removal Contribution	19,185	1.6%
DER Recycling Grant	15,750	1.3%
Other Revenue	110,178	8.9%
Balance end of 1992	29,517	2.4%
TOTAL	1,231,767	100.0%

Pennsylvania's government provides funds to the Township for road maintenance and improvements by reallocating a portion of the liquid fuels tax revenues; the amount received is derived from a formula based on population and the number of miles of Township roads. With a fairly constant road mileage total, this revenue amount has tended to remain relatively steady in recent years. In 1992, the Township received \$85,866 from this source. These funds are earmarked for certain maintenance and new construction activities, but do not fully cover Township expenses for streets and highways.

West Brandywine Township

West Brandywine Sources of Revenue, 1992



c. Breakdown of Expenditures, 1992

For simplification, Township expenditures have been broken down into the following major categories: administration/general government, police and public safety, roads, trash removal and miscellaneous; total expenditures in 1992 were \$1,203,250, excluding use of State liquid fuel funds.

Township administrative and related miscellaneous expenses included, among others, Supervisors' expenses, legal fees, tax collection, administrative staff salaries, retirement fund contributions and other employees benefits, facility maintenance and supplies, and insurance. This category of expenses totaled \$364,807 or 30.3% of all expenditures.

Expenses for police and public safety totaled \$435,776 for 1992, or 36.2% of total expenditures. Included in this total were funds earmarked for fire protection, as well as building inspection/codes enforcement and engineering review fees.

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Expenses for roads totaled \$119,442, or 9.9% of total expenditures. This did not include costs covered by the state liquid fuels fund. The trash removal fee garnered \$186,161 in 1992, or 15.5% of the general fund budget.

d. Township Indebtedness

The Township has \$20,000 in long-term indebtedness, and has arranged short-term financing for new police vehicles and road equipment. Payments for debt service totalled \$7,189 during 1992. The Township had an unreserved fund balance of \$28,517 as of January 1, 1993. Its borrowing base is \$ 1,180,689 (the last three years total revenues divided by three). Its non-electoral debt ceiling is \$2,951,723 (debt which may be incurred without specific voter approval, equal to 250% of the borrowing base).

D. Socio-Economic Features

1. Population Profile

The chart below sets out the pattern of population growth in West Brandywine over the last four decades (population density, or persons per square mile, is based on the Township area of 15 square miles):

Year	Population	Numerical Increase	Percentage Increase	Density per square mile
1960	1,625	-	-	122.7
1970	2,713	1,088	+67.0	204.8
1980	4,068	1,355	+49.9	307.1
1990	5,984	1,916	+47.1	451.7

On a cumulative basis, the population has nearly quadrupled since 1960. This general trend typifies a number of Chester County communities experiencing growth due to outmigration from the nearby urban areas. Interestingly, the actual 1990 census count substantially outstripped the highest projection made for the Comprehensive Plan only two years earlier.

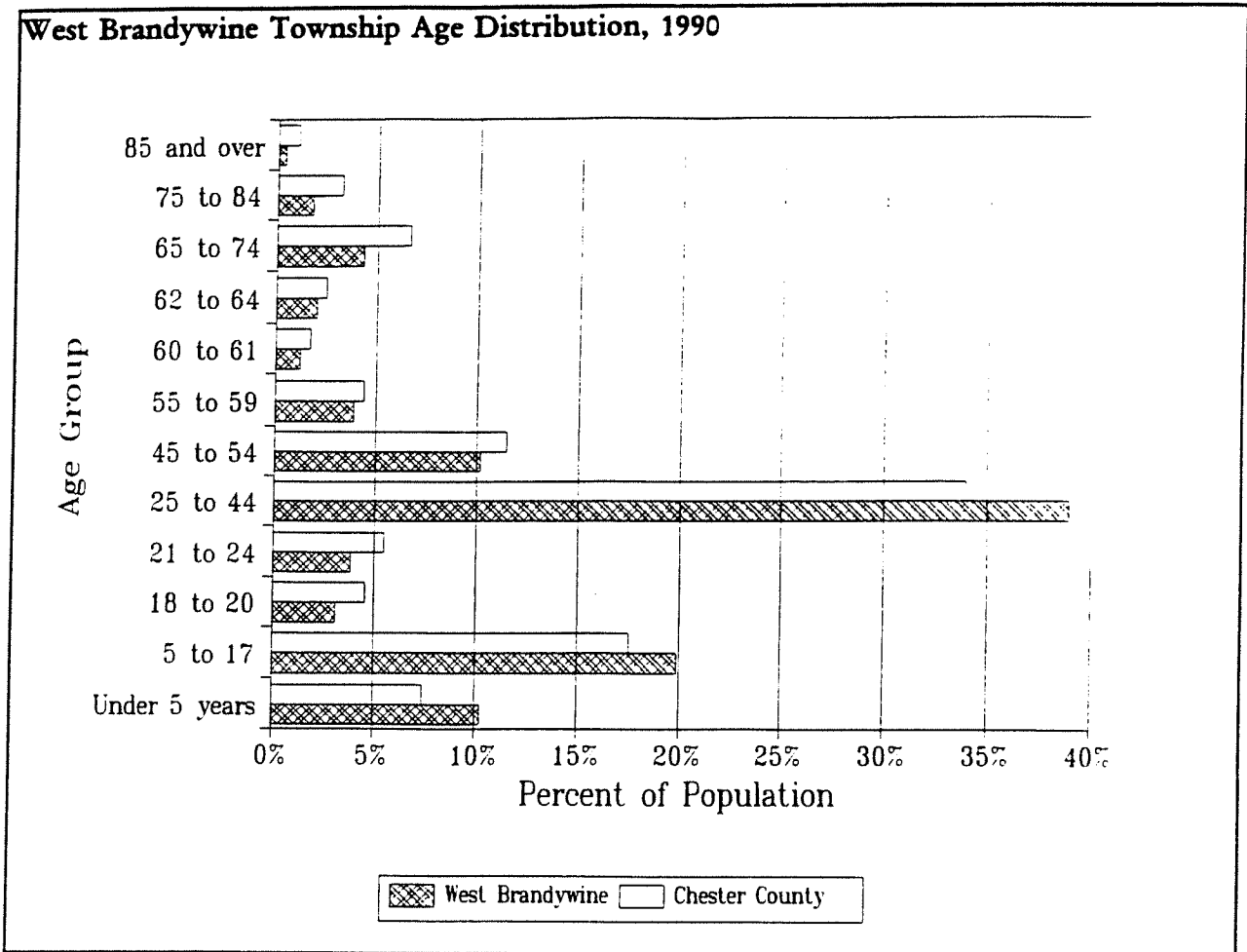
As of 1990, the ratio of females to males in West Brandywine was 0.98. This was slightly lower than the Chester County ratio of 1.04. The gender "gap" has narrowed very slightly since 1980; in 1990 males comprised 50.5% of the total population, a slight drop from the 50.8% level in 1980. It is more common to see a slight majority of females, versus males as in West Brandywine.

West Brandywine Township

Median age of the West Brandywine's population in 1990 was 31.9. By comparison, the median in 1980 was 28.9. The proportion of the Township population in each of several age groupings reported by the 1990 Census is charted on the following page, comparing West Brandywine to Chester County as a whole. West Brandywine's relative distribution by age group varies notably from County norms. Significantly higher percentages are found in the children and youth groups (<5, 5-17) and in the young adult group (25-44). Notably lower percentages are found in the elderly age groups over 65. These numbers reflect continued in-migration of families with young children.

For most planning purposes, it is useful to group the population into three basic age brackets: 0-17, corresponding to pre-school and school-age children and youth; 18-65 comprising the work force; and senior citizens over 65. These three groupings also are charted on the following page, comparing 1990 data to 1980.

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Major Age Groupings

	1980		1990		% change 1980-90
0-17	1,267	31.1%	1,804	30.1%	+42.4
18-65	2,552	62.7%	3,794	63.4%	+48.7
> 65	249	6.1%	386	6.5%	+55.0

West Brandywine Township

The Township population is overwhelmingly white and of non-Hispanic origin. It was made up of the following in 1990:

	West Brandywine Township		Chester County
White	5,786	96.7%	91.6%
Black	161	2.7%	6.4%
American Indian, Eskimo, or Aleut	10	0.2%	0.1%
Asian	18	0.3%	1.1%
Other	9	0.1%	0.8%
Total Population	5,984	100.0%	100.0%

Persons of Hispanic origin (which could include any of the above ethnic backgrounds) numbered 56 and was 1.4% of the Township population in 1990. By comparison, Chester County's population contained 2.3% of Hispanic origin.

With respect to education levels, 84.3% of those West Brandywine residents 25 years of age or older were high school graduates (as compared to 84.9% for Chester County). In this same age group, 24.1% had attained a bachelor's degree or beyond, lower than the 34.7% county-wide. A total of 1,451 Township residents (24.2% of the 1990 Township population) was enrolled in school (pre-primary through college). Of the 1,053 elementary and high school students, 12.2% were enrolled in private school, again a lower percentage than the 18.8% county-wide.

2. Population Projections

After the 1990 census, the Chester County Planning Commission has developed new population projections through the year 2020, charted for West Brandywine below. These projections foresee a continuance, at progressively reduced levels, of the dramatic increases of the 1980's.

Projected Population Growth, 1990-2020

1990 Actual	2000	Percent change '90-2000	2010	Percent change 2000-'10	2020	Percent change '10-'20
5,984	7,550	+26.2	8,730	+15.6	9,970	+14.2

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3. Employment

As reported in the 1990 Census, 975 West Brandywine residents (or 30.7% of employed persons 16 years of age or older) were employed as operators, fabricators, craft, repair and precision production workers, or laborers. Another 969 (30.5%) worked in technical, sales, or administrative support positions, while 853 (26.8%) were employed in managerial or professional positions. Service occupations employed 312 (9.8%), while only 70 (2.2%) were occupied in farming or forestry.

When the same group was categorized by specific industry, manufacturing (both durable and non-durable goods) employed 684 (21.5%), wholesale and retail trade 672 (21.1%), educational service 292 (9.2%), health service 252 (7.9%), finance, insurance and real estate 240 (7.5%), construction 209 (6.6%), and communications and utilities 152 (4.8%). Private sector employees totaled 2,819 (88.7%), including self employed individuals, while 354 (11.1%) worked in federal, state, or local government.

Of those included in the civilian labor force (a total of 3,265), 3,179 (or 97.4%) were employed. Among the 4,318 Township residents 16 years of age and older, 1,047 (24.2%) were not in the labor force; 298 of these were male and 749 female.

Most employed residents of West Brandywine commute to jobs outside the Township. Survey returns indicated that Township residents are mainly employed relatively nearby in central and eastern Chester County, ranging from Coatesville to West Chester and Great Valley. Relatively few commute beyond county bounds, and even less out of state.

4. Income

U.S. Census figures indicate that, on average, Township residents enjoy incomes very close to the county-wide norm, as charted below. Per capita income is somewhat lower because West Brandywine households, on average, include greater numbers of persons not employed, particularly children.

	West Brandywine Township	Chester County
Per capita income	\$16,627	\$20,601
Median family income	\$51,160	\$52,325
Median household income	\$47,889	\$45,642

West Brandywine Township

5. Housing

The number of households in 1990 was 1,992, equating to an average household size of 3.0 persons. While this is a decrease from the 3.4 persons in 1970 and 3.06 persons per household in the 1980's, it still leaves West Brandywine with one of the larger average household sizes in Chester County, and is quite a bit larger than the state average (2.57 persons/household).

The 1990 census reported 2,062 housing units in West Brandywine Township, representing an increase of 49.9% over the 1980 total of 1,388, and more than a 150% increase over the 1970 total. Nearly all new housing units built during the 1980's were single family homes, representing 78.1% of all units in 1990. Mobile homes totalled nearly twenty percent of all units in 1990; other unit types accounted for less than three percent.

The 1991 median sales price of a home in West Brandywine was \$133,200 (down from a median price of \$136,500 in 1990). The 1990 U.S. Census data reported median value for housing units in West Brandywine at \$138,600; by comparison, median value for housing units in Chester County in 1990 was \$155,900 and \$69,700 state-wide.

E. Local Land Use Planning Context

1. Township Land Use Planning Philosophy

Over the years, West Brandywine Township's elected and appointed officials have reflected community desire to promote health, safety and welfare with limited formal governmental involvement, offering limited public services and extending limited regulatory authority to minimize intrusion into the lives of residents and property owners. Voluntary participation in community affairs has been encouraged, minimizing direct Township action and expenditure. The Township asserts its local decision-making autonomy, but recognizes that it is subject to regional impacts and relationships, and has on occasion embarked on cooperative efforts with its municipal neighbors.

Since West Brandywine embarked on local planning in 1962, the Township has endorsed a multi-faceted approach to land use planning: 1) to accommodate development in an orderly manner, 2) to maintain rural community character, and 3) to sustain the desirability of the Township as a residential community, protecting property values.

In general, these objectives have been realized over time. But increasing residential development, while of positive character in its own right, is displacing the true rural landscape to an extent which ultimately jeopardizes maintenance of community character and desirability. Realization of this trend is clearly underlined by response to the Community Values Survey undertaken for this Plan. At this time, renewed interest has been focussed on maintaining agricultural uses and

Open Space, Recreation, and Environmental Resources Plan

more firmly guiding new development away from significant open space resources, as evidenced by this Plan and its recommendations.

2. Overview of Planning Activity in West Brandywine

West Brandywine Township benefits from the continuing and evolving efforts of elected and volunteer public servants who care deeply about the Township and those resources which make it a special place. In 1962, the Township Planning Commission was established with the mission of preparing a Comprehensive Plan for the Township. In December 1965, the first of two planning documents was published, entitled "Development Patterns," and documenting the trends and conditions within the Township. The second study was published six months later, entitled "Proposals and Procedures," and outlined a series of recommendations and actions available to the Township in implementing the objectives of the Plan. Several of the recommendations were implemented over the years, including the adoption of zoning and subdivision controls.

As a result of dramatic changes and planning issues facing the Township, coupled with revised legislation, the Board of Supervisors elected to update the 1966 Plan in 1987. The update process, completed in 1989, reviewed the 1966 Plan and recommended retaining that information which remains pertinent to the future of West Brandywine. The resulting revised Plan reflects goals and objectives of the Township as stated in 1988. While similar to those outlined in the 1966 Plan, the 1989 Plan recognizes the Township's changing role in the region and the challenges it faces in attempting to retain a rural character.

West Brandywine Township's current Zoning Ordinance, defining the type, location, scale and density of development, was adopted in 1984 and has since been amended periodically. The most recent version of the Subdivision and Land Development Ordinance (S/LDO) was adopted in 1987, and also has been amended periodically since then.

The Supervisors appointed an Open Space Task Force late in 1992 for the specific purpose of drafting this Plan. This Plan is expected, in large part, to serve as a new update to the Comprehensive Plan, and possibly offer a springboard for formal renewal of the plan update process.

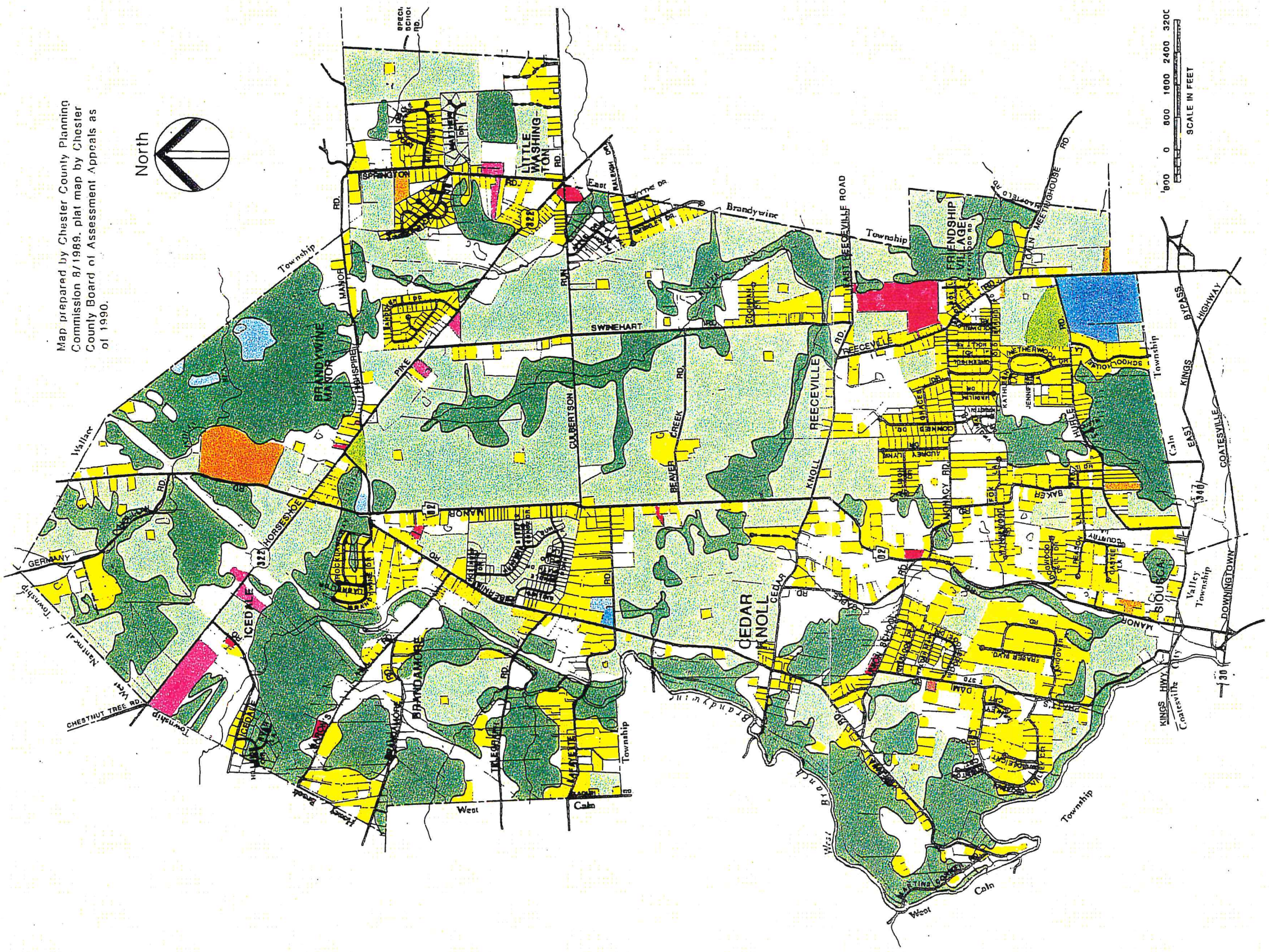
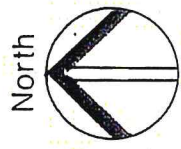
3. Recent Land Use Trends, Current Patterns

West Brandywine Township has changed substantially over the last thirty years, with suburban and large-lot residential development gradually displacing agriculture. The land use category that now occupies the largest single proportion of West Brandywine's land area is single-family residences. Nevertheless, agriculture and woodland still comprise two of the three largest land use categories in 1993. Non-residential development accounts for relatively small amounts of land area, as seen in the following chart. Charted land use categories are portrayed graphically on the Existing Land Use Map.













West Brandywine Township

Land Use Category, 1993	Approximate Acreage	Percent of Land Area
Commercial	64	0.8%
Industrial	49	0.7%
Public Institutional	76	0.9%
Quasi-public Institutional	40	0.6%
Recreation	14	0.2%
Single-family Residential	2,744	32.5%
Multi-family Residential	5	0.1%
Mobile Homes	62	0.8%
Utilities/Transportation	152	1.8%
Agriculture	2,186	25.8%
Woodland	2,392	28.3%
Vacant	694	8.2%
Total	8,478	100.0%

Map prepared by Chester County Planning Commission 8/1989, plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township

	SINGLE-FAMILY RESIDENTIAL		INDUSTRIAL		RECREATIONAL
	MOBIL HOME PARK		QUASI-PUBLIC INSTITUTIONAL		AGRICULTURAL
	MULTI-FAMILY RESIDENTIAL		PUBLIC INSTITUTIONAL		WOODLANDS
	COMMERCIAL		UTILITIES/TRANSPORTATION		VACANT

Existing Land Use

Section III: Community Values Survey

The West Brandywine Township Community Values Survey was conducted in the late Spring of 1993. Surveys were mailed to West Brandywine Township residents and property owners, including absentee owners. All surveys included return postage. Well over 500 surveys were returned, a return rate representing almost 25% of all resident households. Responses are tabulated below as percentages of total response. For certain demographic questions, respondents were asked for information about more than one member of each household; therefore, for such questions the percent shown is calculated on the basis of the specific total response to the particular question.

1. Why did you choose to live in West Brandywine Township?

80.5	Rural, quiet lifestyle
58.3	Housing availability or cost
42.8	Scenic beauty
32.3	Close to work
25.6	Lived here all my life
25.6	Family and friends nearby
14.9	Low taxes
6.8	Quality of schools
5.3	Other

2. Other than a change in your place of employment, which of the following factors would be most likely to cause you to leave West Brandywine Township?

66.5	Area becoming over-developed
63.4	Taxes too high
39.0	Environmental hazards
38.2	Crime rate
30.4	Changes in unique local character
24.6	Quality of schools
8.7	Other
5.1	Inadequate community services
4.9	Inadequate farming opportunities
4.9	Inadequate shopping opportunities
3.0	Inadequate parks and recreation

West Brandywine Township

3. Which of the following issues do you believe are the most important to consider when planning the future of West Brandywine Township?

54.8	Natural resource protection
50.4	Retention of rural atmosphere
42.6	Traffic and road conditions
32.6	Conservation of scenic landscapes and views
32.1	Conservation of quality water supply
32.1	Agricultural preservation
21.7	Adequate sewage disposal
10.8	Protection of historic resources
10.1	Housing affordability
8.0	Community recreation opportunities
4.5	Employment opportunities
3.8	Shopping opportunities
3.2	Diversity of housing types
3.0	Other

It is clear that Township residents like West Brandywine for the quiet, rural lifestyle it offers and the scenic countryside still prominent. Yet they are concerned about the impacts of change, particularly "over-development" and the seemingly unending string of tax increases that development seems to precipitate. This observation can be drawn from responses to the direct questions about why one chose to live in West Brandywine Township and why one might chose to move away, from priorities expressed regarding planning issues, and from the myriad written comments received. A succinct response heard from one resident, *"We moved here because we liked it; We are still here because we like it; Don't screw it up!"* Another wrote, *"West Brandywine must plan now to avoid the rampant growth heading west. The Exton by-pass will only expedite this growth with improved accessibility to the 202 corridor. Without a plan, West Brandywine will look like Exton in 5-10 years. Good luck; You have a challenge to meet!"*

Traffic issues evoked relatively heavy response; more detailed responses are tallied under question #5. Quality of local schools, a frequent topic of conversation in the area and the subject of several written comments, did not garner such a high survey response as might have been expected. As a relatively technical issue, sewage disposal received a fairly high response as an issue of general planning concern, supported by numerous written comments (*"Sewerage, sewerage, sewerage!!!"* scrawled one respondent across the back of his/her survey). Other planning issues received surprisingly short shrift, including housing affordability, recreation, employment and shopping opportunities. Several residents did foresee further traffic problems resulting from "bedroom community" status, calling for development of local service commercial establishments. Penned one, *"We support growth, including commercial growth with control; creating jobs and increasing the tax base, while preserving the peaceful tranquility of the Township, are admirable, though sometimes difficult, goals we should strive for."*

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4. What in your opinion, is the adequacy of the following services in meeting the needs of Township residents?

Category	Adequate	Inadequate	No opinion
Police protection	85.2	5.9	5.5
Trash removal in the Township	83.7	9.1	2.4
Fire protection	80.8	5.7	10.1
Maintenance of Township roads	76.7	16.2	2.8
Recycling opportunities	76.6	15.4	2.4
Maintenance of State Roads (Routes 23, 82, & 401)	69.4	24.2	2.6
Parks and recreation areas	65.9	18.1	11.2
Cable services	65.0	10.5	17.2
Overall effectiveness of Township government	60.6	9.9	22.1
Public water and/or sewer service	18.5	13.5	43.2
Other	0.76	2.6	0.5

Responses to Question #4 indicate general approval of community services as now provided; all services but public water and sewer service (which have limited applicability) garnered at least 65% approval ratings. It is worth noting that the highest responses of "inadequate" went to road maintenance, subject of numerous comment under Question #5, and to provision of park and recreation areas.

5. Are there any roadway locations or intersections within the Township which you believe to be dangerous or need to be better maintained?

Question #5 elicited many comments; almost 400 specific notations of roadway improvement needs were recorded. It is clear that residents consider traffic issues to be both of immediate concern, and a major issue relative to continued local and regional development. Comments received were quite specific about the conditions which needed to be corrected; they involved every major and many minor intersections and roadway stretches throughout the Township.

The most frequently mentioned traffic concern was the need to improve the intersection of Routes 82 and 340, just south of the Township's boundary with the City of Coatesville. This intersection received written comment from more than 100 individual respondents. Many called specifically for installation of a traffic control signal. Several noted recognition that this intersection technically lies beyond the bounds of the Township, hoping for Township lobbying for necessary efforts by other official parties.

The second most frequently mentioned problem intersection was that of Route 82 and Culbertson Run Road, with over 60 comments received. Respondents decried the curve in Route 82 just south of the intersection, and the blind turn it creates for motorists turning from Culbertson Road. One respondent even diagrammed a suggested solution, re-routing Culbertson Run Road southward

West Brandywine Township

around the historic farmstead at the intersection to create a full four-way intersection at Lafayette Road.

Other intersections garnering numerous comment were those of Route 82 and Hibernia Road (many mentioning the notorious "dip" in Hibernia Road), Route 82 and Cedar Knoll/Reeceville Roads (poor sight distance), Reeceville and Monacy Roads (poor sight distance), Culbertson Run and Swinehart Roads (need for 4-way stop), and Route 322 at Little Washington (poor signal timing). Many other intersections received multiple comment, including every intersection along Hibernia Road, Route 82, and Reeceville Road. Comments about poor road condition in general focussed on Reeceville Road, Swinehart Road, and the southern section of Route 82.

A more general issue frequently mentioned was enforcement of speed limits and signed stops throughout the Township. Several respondents called for reducing the speed limit on Hibernia Road, while a few called for increasing it on Route 82, especially its norther legs. In seeming irony, several comments decried the practice of Township police "wasting time and taxpayers' dollars" setting up speed traps.

6. If 80 houses could be built on 100 acres, which of the following development patterns would you prefer?

42.2	Houses spread fairly evenly over the entire tract on 1-acre+ lots
37.2	Houses built on 1/4-1/2 acre lots on one part of the tract (as in the traditional village pattern, for example) leaving a large amount of permanent open space on the remainder of the tract.
15.2	Attached houses and/or houses on very small lots (as in traditional village pattern), with the great majority of the tract left as permanent open space and/or farmland.
4.2	doesn't really matter

7. Where commercial development is permitted, which of the following development patterns would you prefer?

41.4	Traditional village-style development with relatively small individual buildings fronting directly on the street, with parking generally to the rear, and possibly with mixed residential/non-residential uses, modeled on examples like Marshallton or Main Street in Honey Brook?
35.1	Commercial development limited to smaller individual buildings, either free-standing or in groups that are broken-up to avoid the impression of long strips of buildings and parking lots; similar to recent development at Guthriesville.
11.8	Strip centers with linear strips of stores fronting on parking areas, such as exist along Route 30 in Thorndale.
8.7	Doesn't really matter

8. Should a tract which includes sensitive natural features like wetlands, woodlands, and steeply sloping areas, be permitted less development than one which does not?

yes	no	no opinion
87.3%	6.8%	4.5%

Open Space, Recreation, and Environmental Resources Plan

Responses to Questions #6-8 speak to Township residents' sense for land planning. 54.4% of respondents indicated preference for alternatives to traditional rural/suburban residential development patterns, with smaller lots as a tradeoff for permanent open space. It is not surprising that 42.4% chose the traditional large-lot pattern, which is the norm in West Brandywine. One resident summed it up nicely, *"When I first purchased my home I thought I would like the privacy that comes with a large lot. I now feel that smaller is better and am happy to know that the township is interested in residential land management. Homes placed on 1/2 and 1 acre lots are a waste. We seldom see our kids playing in our yards (they prefer to play in the street), but we spend much of our time caring for our large lawns. Thank you for this opportunity to respond to these issues."*

In terms of commercial development, it is very significant that so many residents responded positively to suggestions of traditional village-style development or groupings of individual buildings, as opposed to the typical strip center. While it is not surprising that respondents generally would agree that permitted development intensity should reflect natural features, the near unanimous response was impressive.

9. How satisfied are you with the current level of land use regulation in West Brandywine Township?

59.4	Unfamiliar with the current regulations
17.9	Satisfied with current regulation level
17.2	Current regulations not strict enough
4.0	Current regulations are too strict
4	Current zoning regulations too strict

Responses to Question #9 seem to speak for themselves; by far the largest group of respondents indicated unfamiliarity with Township zoning regulations. This is not surprising and not at all unique to West Brandywine Township. In most municipalities, "lay" persons are not familiar with the regulatory process unless they are or have been directly involved with it. The fact that so few persons feel that present regulations are too strict can infer general support for use of the regulatory process to implement public policy, particularly when viewed in the context of other survey responses here. Quipped one respondent, *"Let's make stricter ordinances and regulations and in turn leave our township unique and beautiful."*

The degree of unfamiliarity with the regulatory process underlines the importance of the Township newsletter, Township meetings and other potential media to inform and educate the citizenry. A number of residents noted the informational value of this survey; several requested information about Township meetings on an on-going basis. Wrote one, *"I am pleased to see that someone has taken the initiative to aggressively elicit opinion from local resident. I would like some information on local meetings (when, where...). I hope that our Township will continue to strive towards an equal balance of both development and preservation. Thank you for allowing me to participate!"*

West Brandywine Township

10. West Brandywine Township presently has a vegetation control ordinance that requires mowing of any vegetation exceeding 18 inches in height. How do you feel about this ordinance?

59.2	I believe that vegetation management requirements should vary, depending on the particular type of landscape
32.5	I would favor requiring developers to meet specific landscaping standards in any new development.
28.8	I believe the present ordinance is adequate.
5.5	I believe the present ordinance is arbitrary and/or unfair.

In response to Question #10, it is not surprising that a large number of people would happily put the burden of landscaping on the developer. It is worth noting that a significant majority agreed with the suggestion that regulation of vegetation management vary in response to differing types of landscape, an idea that demands a degree of sophistication in the regulatory process as well as an educated public.

11. The Township is using several means to achieve its open space and recreation goals--donations, purchase, regulation--and will continue to. In some cases, spending Township funds may be the most effective approach. Assuming the funds were clearly marked for the stated purpose, would you be willing to pay a nominal increase in municipal taxes to support any of the following?

yes	no	
62.9	29.0	Develop park facilities on existing township lands
51.4	40.5	Purchase land specifically for park and recreation facilities
51.0	39.7	Acquire open space
39.5	50.8	Provide funding to promote private efforts to preserve permanent open space
34.2	55.4	Support and facilitate recreation programming efforts by public and private agencies other than the Township
4.0	9.5	Other

Given the number of complaints about taxes, it is very significant that so much support was garnered for modest tax increases specifically earmarked for open space and recreation purposes. Recent survey results in other Chester County municipalities often has not shown such clear-cut support. Even in West Brandywine, concern about taxes was the subject of 40 hand-written comments on survey forms. Yet support for these purposes was clear, well stated by one writer, "Prevent overdevelopment, keep West Brandywine farmland open and green. Once the land is over developed, it is gone forever. Also, our rural way of country life is gone forever. Purchase land for conservation and preservation of rural areas, prevent paving over beautiful farmland and protect open spaces for future generations. I would gladly pay \$50 or more per year for open space conservation."

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12. Would you support special purpose taxation of real estate for any of the following specific purposes?

yes	no	
32.1	59.0	Expanded fire protection
31.1	60.8	Expanded police protection
29.0	61.5	Expanded Ambulance service
28.1	64.6	Public sewers
26.7	64.0	Municipal recycling program
22.9	69.2	Public water supply
22.5	69.2	Improved Township road maintenance
15.6	75.3	Improvements to municipal administration and police building facilities
2.4	10.5	Other

In contrast to Question #11, Question #12 shows that support for special purpose taxation for general municipal services is weak. This is less surprising when viewed in tandem with the results of Question #4, which indicated strong consensus in regard to the general adequacy of current services. One respondent summed up this feeling nicely, *"I feel the Township is doing a great job overall. In order to keep costs down I realize we cannot continually hire more people. I would like my taxes and subsequent increases to go towards paying people in existing positions competitive salaries, so that we maintain a small but extremely competent group of employees. I have found the police road crew, and office personnel very helpful and good "ambassadors" for our community. They deserve our support!"*

West Brandywine Township

13. For each of the following recreational activities, please indicate those activities in which you and members of your household currently participate, those activities in which you would like to participate if facilities were more available, and those activities for which you would support Township action to facilitate. (sorted by current participation rate)

Recreation Activity	Currently participate	Would like to participate	Would support Twp. action to facilitate
Walking/hiking/jogging	58.3	11.6	15.1
Arts/crafts/hobbies	16.6	10.7	8.9
Fishing	31.5	6.1	9.5
Cultural arts	12.0	14.1	17.9
Camping	17.9	8.2	5.2
Special community events	13.0	15.2	20.4
Sight-seeing or pleasure driving	51.2	2.8	2.2
Picnicking	32.3	9.9	11.4
Bicycling	28.1	12.8	18.9
Swimming	31.3	13.0	14.7
Nature enjoyment/study	35.5	9.5	12.8
Golf	17.2	6.8	9.3
Horseback riding	8.0	15.8	11.6
Baseball/softball	21.7	7.0	17.2
Basketball	12.0	5.5	13.5
other	1.3	0.3	2.8
Off road vehicle use	4.0	6.3	6.6
Archery or target practice	12.4	8.9	8.6
Organized exercise/fitness activities	12.8	13.7	11.8
Social recreation	6.6	10.7	12.4
Hunting	18.9	2.6	6.5
Winter sports	12.2	13.9	16.2
Volleyball	11.4	6.6	13.3
Tennis	10.5	9.1	16.8
Soccer/Football/Lacrosse/field hockey	13.3	6.3	14.3

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13b. Recreational preferences sorted by indication of support for direct Township action to facilitate.

Recreation Activity	Currently participate	Would like to participate	Would support Twp. action to facilitate
Special community events	13.0	15.2	20.4
Bicycling	28.1	12.8	18.9
Cultural arts	12.0	14.1	17.9
Baseball/softball	21.7	7.0	17.2
Tennis	10.5	9.1	16.8
Winter sports	12.2	13.9	16.2
Walking/hiking/jogging	58.3	11.6	15.1
Swimming	31.3	13.0	14.7
Soccer/Football/Lacrosse/field hockey	13.3	6.3	14.3
Basketball	12.0	5.5	13.5
Volleyball	11.4	6.6	13.3
Nature enjoyment/study	35.5	9.5	12.8
Social recreation	6.6	10.7	12.4
Organized exercise/fitness activities	12.8	13.7	11.8
Horseback riding	8.0	15.8	11.6
Picnicking	32.3	9.9	11.4
Fishing	31.5	6.1	9.5
Golf	17.2	6.8	9.3
Arts/crafts/hobbies	16.6	10.7	8.9
Archery or target practice	12.4	8.9	8.6
Off road vehicle use	4.0	6.3	6.6
Hunting	18.9	2.6	6.5
Camping	17.9	8.2	5.2
Other	1.3	0.3	2.8
Sight-seeing or pleasure driving	51.2	2.8	2.2

West Brandywine Township

14. Where do you generally participate in recreational activities?

77.1	At home
60.0	Hibernia Park
45.1	Marsh Creek State Park
38.2	Alongside local roads (walking, jogging, bicycling)
31.5	At private recreational sites (e.g., at YMCA, spas, athletic clubs).
31.5	At local parks outside West Brandywine Township (e.g., W. Nantmeal)
27.5	At local sites within West Brandywine
23.3	Springton Manor Farm
22.4	French Creek State Park
18.4	Struble Trail
16.8	Struble Lake
15.7	At school
9.6	At work
6.9	Other
5.0	Ridley Creek State Park

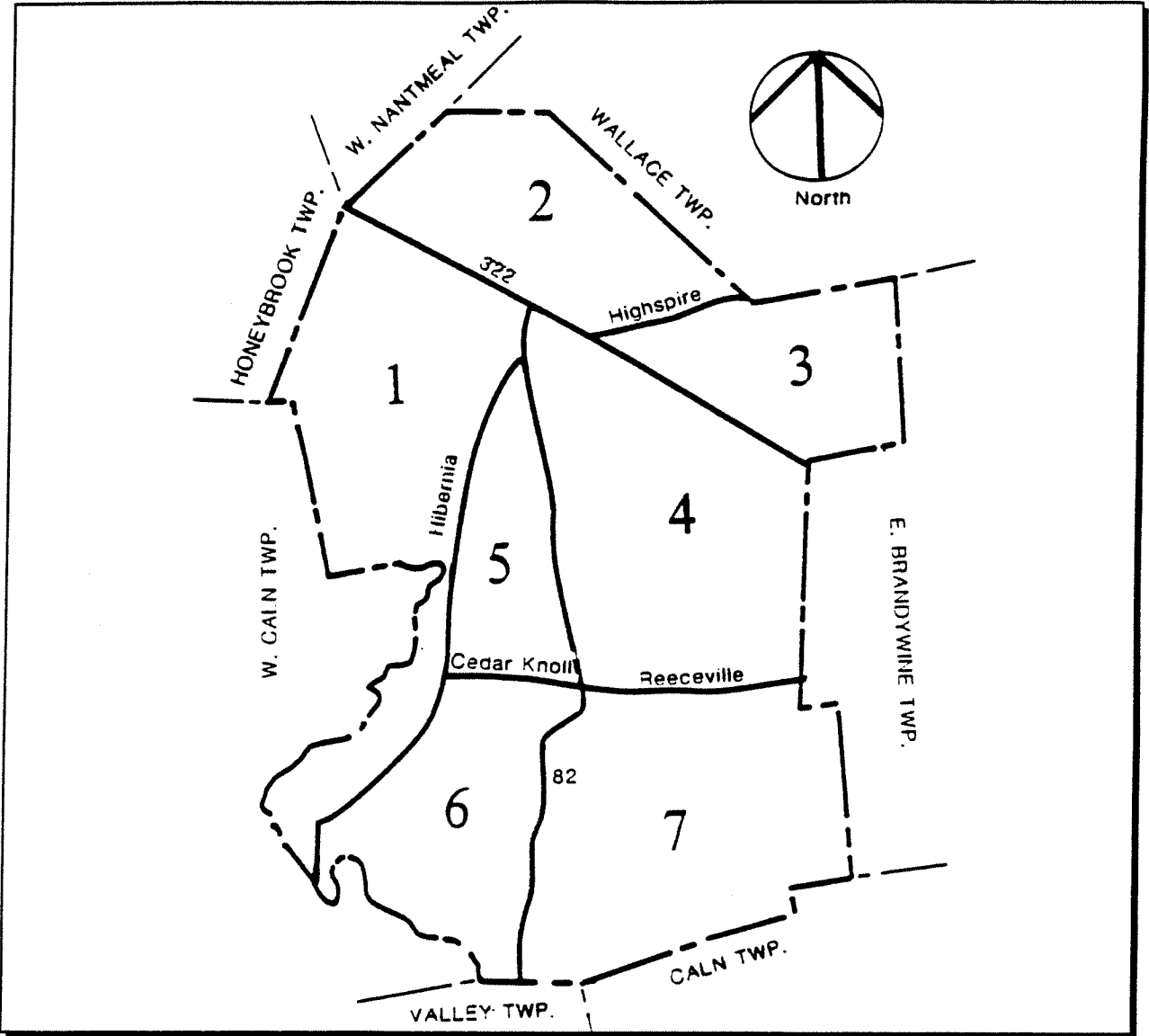
The general range of response to questions regarding recreational participation is consistent with regional norms. It is notable how many residents indicated recreational participation at specific sites, including major sites outside the Township, at Hibernia Park, Marsh Creek and French Creek State Parks, and Springton Manor Farm. In most communities, participation rates at school sites would be expected to fall nearer the top of the list; it is worth noting the location of school sites in the extreme southeast corner of the Township and current District policy which evidently discourages open public use. The high incidence of response for recreation "alongside local roads," in tandem with the high participation rates reported for walking/hiking/jogging, bicycling, picnicking, nature enjoyment, and fishing, would seem to support the rationale for formal establishment of recreational trails, even if generally off-road but within rights-of-way.

Table 13b sorts recreational preferences in order of response to the suggestion that residents "would support Township action to facilitate" participation in certain recreational activities. Response rates in the range of 15-20% can be viewed as relatively high, given that respondents could scatter their responses among 24 activity categories. To a certain extent, responses for Township action mirror participation rates. The high indication of support for programming of special community events and cultural arts is pleasantly surprising, and would seem to underline the value of the new gazebos as a setting for such events. Response in favor of facilitating baseball/softball is also higher than seen elsewhere in Chester County, and bears out need for additional field space reported by local athletic leagues. Support for tennis also may underline a need for additional access to active recreational facilities. The relatively high indication of support for winter sports is interesting in view of undependable winter weather patterns in this area.

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15. Please indicate approximately where you live (map below).

Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7
17.4%	6.9%	9.7%	14.9%	10.3%	13.7%	27.1%



No surprises here; the overall distribution of survey responses would seem to mirror the relative population density of each area of the Township. In fact, this may be viewed as an indication of the relative accuracy of the sample population (survey respondents) as representative of the population of the Township as a whole.

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16. Approximately how large is your property?

49.8	Between 1 and 2 acres
25.4	Less than 1 acre
15.7	Between 2 and 10 acres
8.1	Between 10 and 50 acres
1.0	More than 50 acres

17. How long have you lived in West Brandywine Township?

29.5	10 to 25 years
28.5	5 to 10 years
21.5	1 to 5 years
19.2	over 25 years
1.4	Less than 1 year

18. What are the current principal uses of your property?

96.0	Residence
7.6	Home business
6.1	Farm
1.7	Investment (including rental units)
1.5	Commercial
1.5	None (vacant)
1.0	Other
0.2	Industrial/Manufacturing

19. Please describe your immediate neighborhood

49.3	Scattered residences with varied lot sizes
33.8	Residential subdivision
10.9	Scattered farms, open setting
4.4	Village or hamlet
3.3	Mobile home park
1.3	other

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20. Please tally the number of persons in your household in each age group (percent of total population in each age group indicated).

Males	Females	Age groups
5.1	4.5	0-5 years
6.3	4.8	6-11 years
6.0	4.0	12-18 years
20.2	22.1	19-45 years
9.7	10.4	45-65 years
3.7	3.4	over 65 years

21. Please indicate the approximate range of your total combined household income.

46.3	\$30,000-\$59,000 per year
30.1	\$60-\$100,00 per year
15.7	\$10,00-\$29,000 per year
5.9	Over \$100,000 per year
2.0	Less than \$10,000 per year

22. Where is the principal place of work for employed members of your household?

16.7	Thorndale/Coatesville
14.9	Downingtown/Exton/Lionville
11.2	Other area in Chester County
10.7	West Chester area
9.1	Great Valley/King of Prussia
7.9	Other area (not specifically listed)
6.6	Work at home/farm
5.3	Montgomery County
4.6	Philadelphia
4.3	Work elsewhere in West Brandywine Township
3.8	Delaware County
2.0	Lancaster County
1.4	Reading/Morgantown/Berks Co.
1.2	Delaware (state)
0.3	New Jersey

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23. How would you describe the current primary occupation of your household members?

26.6	Services (including all professional services like banking, insurance, medicine, law, and education, as well as personal types of service including entertainment, social services)
12.1	Manufacturing
11.7	Sales
10.6	Homemaker or Housekeeper
9.6	Retired
6.8	Other
6.2	Transportation or utilities
4.8	Construction
3.9	Government Administration
3.6	Student
1.8	Unemployed
1.5	Farm related

Responses to demographic questions (#16-23) generally correlate to census data, indicating that respondents correspond to a fairly representative sample of the Township's population. Of course, the 1.4% of respondents who indicated that they'd lived in West Brandywine Township less than one year, and a portion of the 21.5% indicating 1-5 years of residency, were not represented in the 1990 census. A significant majority of respondents (58%) indicated residency in the two groups ranging 5-25 years.

Age data evident here is only slightly skewed from census data, primarily in favor of the 45-65 age group (20.1% survey, 17.4% 1990 census). Income data also is relatively consistent, with the two groups indicating household incomes in the range \$30,000-100,000 constituting 76.4% of all responding households. This corresponds to the median family income of \$51,160 reported by the census three years ago.

Employment data was skewed somewhat toward services, with notably fewer individuals reporting manufacturing and government administration than did the 1990 census. On the one hand, it is difficult to compare this data, due to different definitions and breakdown of categories from those reported in the 1990 census. It also is not particularly surprising that newer residents, or even respondents in general, might tend toward service employment.

24. Please offer other comments on issues which you believe should be addressed by the Township either now or in the future.

As with traffic issues, a large number of respondents took the time to add written comments to their survey, touching on a wide range of issues. A number of comments have been quoted

Open Space, Recreation, and Environmental Resources Plan

herein. The most frequent comment revolved around the desire to maintain the open, rural atmosphere that characterizes much of West Brandywine Township. While many persons decried development in general, some called careful monitoring of development, noting a need for a balance between conservation and development objectives.

The second most frequent comment called for holding the line on taxes. Several respondents indicated recognition that the major real estate tax burden derived from the schools. Others called for fairer assessment, including the following: *"Prior to living in West Brandywine, we lived in Baltimore, MD. We experienced an across the board property tax reassessment every three years. It was a system that worked well. Each home owner paid their fair share of taxes. Municipal services had plenty of money. We pay more taxes living here than we did in Baltimore. We don't mind paying for improvements, but reassessment would solve many problems and does not penalize the new homeowner. Thanks for asking our opinion."*

The third most common comment seemed somewhat unusual, with many respondents calling for greater efforts toward recycling and, in particular, for the re-opening of a place to dispose of yard waste. Other comments in regard to services were less numerous, although nearly as many called for a stronger commitment to recreational opportunities, particularly playground areas and safe bicycle routes. A number of respondents noted need for public sewers, while others called for more effective stormwater management practices.

The fourth most frequent comment asked for stricter enforcement of speed limits. The fifth was a very pleasant compliment for the survey itself, and the planning efforts it represents. *"I am very pleased by the message this survey sends,"* wrote one respondent. *"Specifically, Township management is forward looking and wants the input from township residents. I think surveys/questionnaires like this serve to educate us on what possibilities are out there relative to future Township development and growth. Keep this practice up. I think the results of this survey must be published and mailed to each resident along with an outline from Township management on where we're heading in the future."* Added another, *"This survey is significant in that it symbolizes an important shift in West Brandywine government and administration. In the past, I feel that government at the Township level was insulated, narrow-minded and interested in carrying forward the interests of a select group of insiders. I sense changes with new officials toward a greater degree of open-mindedness, sophistication, planning and organization. This is a welcome change!"*

West Brandywine Township

Section IV: Goals and Objectives

Overall Community Development

Goal 1: Provide for development in an orderly manner aiming to maintain the scenic, rural character of the landscape while protecting the health, safety and welfare of current and future residents.

Supporting Objectives:

- 1.1. Define and identify those open space and historic resources which characterize the scenic, rural landscape heritage of West Brandywine Township; evaluate characteristic open space resources to discern priorities for preservation of community character.
- 1.2. Guide the location and character of both development and open space in consideration of: a) community character/heritage; b) natural features; c) proximity and compatibility with existing land uses; and d) availability and capacity of services, including water supply, wastewater disposal, utilities, roadway network and emergency services.
- 1.3. Promote retention of agriculture, recognizing the diverse aspects and particular needs of this land use, from manure storage to marketing; promote participation in the Agricultural Security Area program; avoid nuisance legislation burdensome to agricultural operations.
- 1.4. Maintain the primarily residential and agricultural character of the Township, recognizing the limited role of West Brandywine in providing for regional commercial and employment opportunities.
- 1.5. Coordinate the development of the Township with neighboring Townships, particularly in regard to compatibility of development with adjacent development across municipal lines.
- 1.6. Examine relevant public and private options for open space conservation such as: conservation easements and other private land conservation approaches, acquisition, potential Township ordinance revision/addition (e.g., transfer of development rights (TDR), open space option/cluster, required set asides for trail easements and rights-of-way, performance standards for new developments, increased setbacks and buffers, historic districts, etc.).

Natural Resources

Goal 2: Protect and conserve the natural resources of West Brandywine Township.

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Supporting Objectives:

- 2.1. Ensure that land areas subject to flooding remain undisturbed and free of structures in order to avoid hazard to life and property, and to prevent obstructions to stream flow.
- 2.2. Protect limited groundwater resources through the conservation of their use as a water supply, through proper treatment and disposal of wastewater, and through appropriate management of stormwater runoff.
- 2.3. Promote technical approaches to water resource management which favor recharge of the groundwater reservoir. Encourage the use of alternatives to stream discharge sewage disposal systems, including spray irrigation and subsurface disposal systems.
- 2.4. Encourage minimal extent of impervious surfaces within developments.
- 2.5. Protect surface water quality through appropriate stormwater and wastewater management practices and careful regulation of the use, storage, and disposal of potentially hazardous materials; seek establishment of "high quality" and "exceptional value" stream designations where feasible.
- 2.6. Preserve continuous open space buffers along stream corridors and in and around areas of wetland and very steep slope.
- 2.7. Provide for very low densities of development with strict limitations to vegetation removal and ground disturbance on moderate to steeply sloping lands.
- 2.8. Promote conservation of prime agricultural soils.
- 2.9. Promote conservation of existing woodlands, particularly remaining large, contiguous woodlands with potentially significant habitat value; limit tree removal in development areas to immediate construction sites.
- 2.10. Identify areas of significant wildlife habitat and seek to guide development away from such areas.
- 2.11. Establish performance standards which prevent dangerous or objectionable hazards relative to air quality, noise, odor, vibration, and public health and safety.

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Parks and Recreation

Goal 3: Provide opportunities for parks and recreation which are readily available to Township residents.

Supporting Objectives:

- 3.1. Examine recreational land standards and criteria related to various types of park and recreation facilities; assess recreational opportunities in West Brandywine Township as they relate to regional opportunities and upon reflection of preferences expressed by Township residents.
- 3.2. Identify existing recreational programs available to the residents of the Township, ranging from organized sports to the arts, and serving children, youth, adults, senior citizens, and handicapped individuals.
- 3.3. Identify recreation lands, facilities and programs which can be provided by other public, quasi-public, and private agencies, including all levels of government, schools, churches, civic associations, private recreation organizations, commercial interests, and private property owners; seek coordination of programs to maximize service to West Brandywine residents.
- 3.4. Initiate a program which will assure the acquisition and development of an adequate community park and recreation system. Such a program would include a range of community and neighborhood park(s), play fields, playgrounds, and other recreation facilities necessary to satisfy the diverse needs of Township residents.
- 3.5. Retain open space appropriate for active and passive recreational use within areas allocated for residential use, making use of subdivision regulations to provide for set aside of appropriate lands.
- 3.6. Consider establishment of incentives for development of recreational facilities within development open space or other appropriate locations.
- 3.7. Formalize a program and fund for acceptance of cash contributions to Township park and recreation efforts, including provision for dedication of fees-in-lieu of recreational lands.
- 3.8. Consider establishing a plan for implementation of an informal Township trails system, addressing appropriate linkage, accessibility, general suitability, and appropriate uses(s) (pedestrian, bicycle, equestrian, and cross-country ski); seek to interconnect open space, recreation areas, and residential neighborhoods.

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- 3.9. Pursue funding resources for park and recreational development through the Chester County Heritage Park Municipal Grant Program, the Commonwealth of Pennsylvania RIRA program, a gifts program, and all other potential funding sources.

Residential Areas

Goal 4: Provide for a wide range and variety of safe and sanitary housing which is compatible with the limitations established by the environment, transportation network, community facilities and services.

Supporting Objectives:

- 4.1. Maintain low gross densities of development across the Township, as a whole, due to geologic and topographic conditions, particularly the dependency on the local groundwater system.
- 4.2. Provide opportunities to meet future housing needs through development of a variety of housing types, at a variety of net densities of development. Include opportunities for multi-family and mobile home park uses, subject to appropriate location and design criteria to promote compatibility with community character.
- 4.3. Establish standards for retention of open space within and between areas of residential development (see also #3.5, above).
- 4.4. Establish standards for sewer and water service based on specific net densities of residential development permitted, and consistent with Township sewage facilities planning efforts (as per Act 537).
- 4.5. Establish standards which insure that residential development is compatible with surrounding land uses, including buffers to agricultural lands.
- 4.6. Consistently enforce the uniform building code to ensure safe construction and fire protection; review building code standards and provide for appropriate relief for historic renovation and for alternative construction details which enable new construction compatible with existing historic structures and architectural traditions.

Open Space, Recreation, and Environmental Resources Plan

Commercial Areas

Goal 5: Provide for limited commercial development in logical locations of the Township, aiming to supplement commercial services offered in the surrounding region.

Supporting Objectives:

- 5.1. Establish appropriate location standards, area and bulk limitations, and design criteria for commercial development, consistent with efforts to preserve community character and promote compatibility among differing land uses.
- 5.2. Consider the type, scale, market area, and proximity of businesses within surrounding municipalities when planning for commercial land use.
- 5.3. Seek to avoid traditional strip development of businesses along highways such as Route 82 and 322, favoring commercial development in planned groupings with coordinated approaches to access management and other design issues (refer to #8.2 below).
- 5.4. Review commercial design standards, including provision for parking, signage, lighting, landscaping, and access management; consider periodic revision to further promote these goals and objectives.

Industrial Areas

Goal 6: Provide opportunities for limited industrial development that is consistent with community character objectives.

Supporting Objectives:

- 6.1. Establish strict locational criteria for industrial development based on availability of appropriate services (highway access, water, sewer, emergency management, etc.), and aiming to minimize incompatibility with nearby land uses.
- 6.2. Provide for adherence to industrial design standards which eliminate potential adverse impacts to water and air quality, and which strictly limit the impacts of noise, odor, light, traffic, parking, loading, and storage, etc.

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Community Facilities and Services

Goal 7: Assure provision of an adequate level of public services to Township residents, maximizing coordination with other public and quasi-public agencies.

Supporting Objectives:

- 7.1. Identify those services and facilities best provided by other public, quasi-public, and private agencies; offer appropriate coordination and support where necessary and feasible.
- 7.2. Maintain the Township office complex as a community focal point for Township administration, police department, community meetings and recreation.
- 7.3. Monitor Township provision of police protection; provide for adequate staffing, building space, vehicles and equipment on an on-going basis.
- 7.4. Monitor and support regional fire protection and emergency services to assure adequate service to West Brandywine residents.
- 7.5. Assure safe and adequate water supply throughout West Brandywine Township.
- 7.6. Assure adequate and safe wastewater disposal throughout West Brandywine Township; promote the use of sewer and water technologies which replenish the groundwater system.
- 7.7. Monitor and provide for design standards to ensure proper design and installation of stormwater management facilities.
- 7.8. Assure the proper and adequate disposal of solid waste on a long-range basis; promote opportunities for recycling.
- 7.9. Support the efforts of the Coatesville Area School District to provide continued quality education opportunities and facilities.
- 7.10. Provide opportunities for further development of medical facilities associated with the Brandywine Hospital, to the benefit of West Brandywine residents, and to the degree consistent with overall community development objectives.
- 7.11. Support the programs of regional public libraries.

Circulation

Goal 8: Provide for a safe and efficient circulation system adequate to handle both through and internal traffic, while compatible with existing roadway characteristics, scenic qualities, and community character.

Supporting Objectives:

- 8.1. Coordinate plans for road improvements with land use planning efforts on an on-going basis.
- 8.2. Promote coordination of access management and parking provision to minimize potential turning movement conflict and limit the overall extent of impervious surfaces.
- 8.3. Maintain minimum standards for road construction based upon a functional classification system, and aimed to assure quality while minimizing maintenance costs.
- 8.4. Seek to eliminate existing and potential circulation problems through the subdivision review process.
- 8.5. Establish multiple-year programs for funding road improvements.
- 8.6. Require developers to help finance or otherwise provide for road improvement needs induced or impacted by their development.
- 8.7. Monitor conditions on state roads and work with PennDOT to correct deficiencies.
- 8.8. Seek to maintain the essential qualities of scenic roadways within the Township while planning for needed improvements.

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Section V:

Inventory of Natural and Cultural Resources

A major component of this planning process is the identification of the natural and cultural resources of West Brandywine Township. With these features clearly in mind, their relative importance as individual planning factors and in relation to other resources can be evaluated. Tempered by an awareness of how land in the Township currently is used, and an understanding of the various levels of public and private protection already afforded certain resources, the strategies for further open space and environmental resource protection can be forged.

This section of the plan presents brief descriptions of West Brandywine's natural, scenic, historic, and cultural resources in both narrative and graphic form. A considerable amount of this information was first presented in the 1989 Comprehensive Plan; where appropriate, that information is referenced here.

A. Water Resources

1. Watershed Boundaries

West Brandywine Township is situated entirely within the Brandywine watershed. The Township is split in half by the upland ridge separating the watersheds of the Brandywine's East and West Branches. The eastern half is drained by Indian and Culbertson Runs, and Beaver Creek, all tributary to the East Branch of the Brandywine. The western half is drained directly by the West Branch, which flows into West Brandywine from Honey Brook Township to the northwest. About halfway along its course southward through West Brandywine, the West Branch forms the boundary with West Caln Township until it exits into the City of Coatesville. Subwatershed boundaries are shown on the Water Resources Map.

2. Stream Order

Stream order classification lends a general picture of the relative importance of a stream and the magnitude and nature of its upstream watershed. In simple terms, first-order streams are fed only by springs or ephemeral streams, and are so classified until they join another first order stream. Two first order tributaries form a second order stream, and so on. Stream order classification in West Brandywine is indicated on the Water Resources Map, based on mapping of streams by the U.S. Geological Survey.

The Brandywine's West Branch enters and leaves the Township as a third order stream, having significant watershed area and numerous tributaries upstream. Indian Run and two small tributaries of the West Branch (in the vicinity of Telegraph Road) enter the Township as first order streams, having only small upstream watershed areas. All other streams draining West

West Brandywine Township

Brandywine begin as first order streams within the Township. Indian and Culbertson Runs, two branches of Beaver Creek, and two unnamed tributaries of the West Branch become second order streams within the Township; Beaver Run becoming a third order stream just prior to flowing into East Brandywine Township.

With relatively low levels of flow and small contributing watersheds, first order streams tend to be subject to greater impact of direct runoff than are higher-order streams; degradation of their water quality can have serious impacts on downstream users. Degradation results most commonly from erosion and consequent sedimentation. This can accompany construction or other land disturbance activities that are not properly conducted in the field and/or inadequately monitored. The retention of vegetation associated with first-order streams is particularly important from the standpoint of natural control of erosion and sedimentation. In addition, the vegetation found naturally within stream corridors contributes to their value as wildlife habitat and breeding areas.

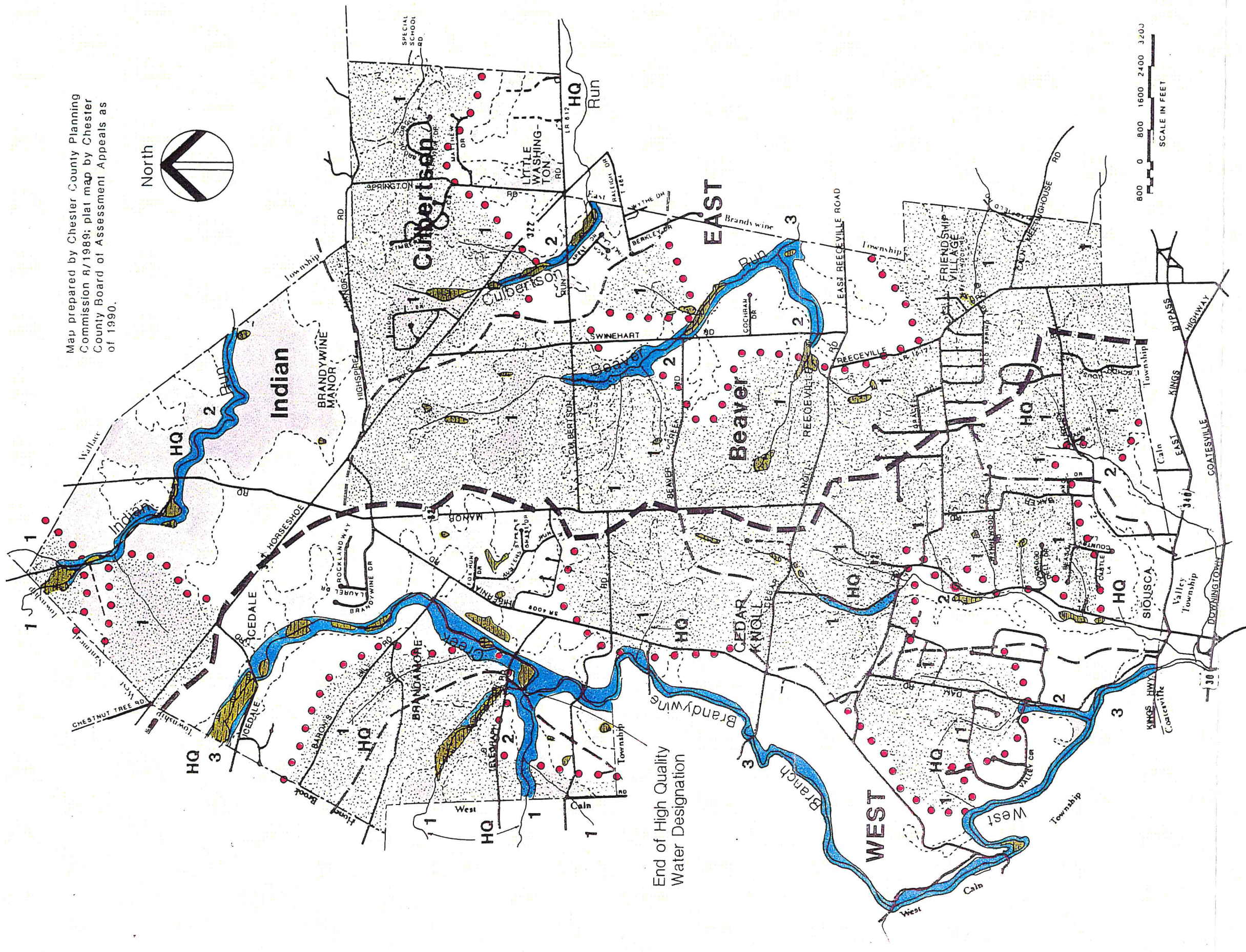
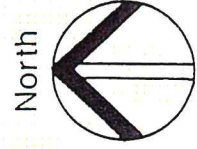
3. Headwater Areas

For planning purposes, headwater areas have been defined as those land areas which drain directly into first-order streams. As noted above, the relatively low volume of first-order streams makes them disproportionately vulnerable to sedimentation and other degradation. The quality of the water contributed from headwater areas is thus of great significance in the overall hydrologic regime. Further, the quantity and regularity of flow from headwater areas is essential to the health of first-order streams and the wildlife on which they depend, particularly during periods of low flow.


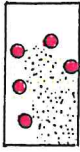
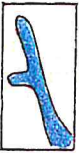




However, the entire watershed area of any first order stream will often have immediate impact upon surface water flow and quality, particularly during heavy storm flow. This is due both to the relative proximity of the entire watershed to the first order stream which drains it, and the small base flow in such streams, allows them to be overwhelmed easily by the impacts of storm flow. Thus, upland areas in these small watersheds are also more sensitive to introduction of impervious surfaces, improper grading, discharge of pollutants, or poor agricultural practices, than are the broader areas tributary to larger streams.

Protection of headwater areas is very important; land use activities in these areas of the Township affect all downstream users, including much of Chester County and northern Delaware. As shown on the Water Resources Map, the majority of West Brandywine Township comprises headwater areas, especially the central upland areas extending from Hurley Road in the south to Highspire Road in the north.

Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township

- | | | | |
|---|----------------------|---|---|
|  | Wetlands |  | Headwater Areas |
|  | Floodplains |  | Stream Corridors/
Order Classification |
|  | Hydric Soils |  | Protected Waters |
|  | Watershed Boundaries | | |

Water Resources

4. Flood Plains

The West Brandywine Township Zoning Ordinance defines the Flood Plain District based on the location of 1) the 100-year flood plain, as mapped by the Federal Emergency Management Agency (FEMA) for the federal Flood Insurance Program, and 2) alluvial soils as indicated in the Soil Survey for Delaware and Chester Counties. These overlapping areas are combined on the Water Resources Map. Alluvial soils have resulted from the repeated deposition of flood waters over millennia; they indicate not only *past*, but potential *future*, flooding. In West Brandywine Township, alluvial soils are the Wehadkee or Chewacla silt loams found along stream corridors.

Flood plain areas (including all alluvial soils) should remain undeveloped and undisturbed for obvious safety reasons, and also to limit potential for erosion, downstream sedimentation, non-point-source pollution, and obstruction or alteration of the floodway. As mentioned in relation to first-order streams, much of the flood plain area in West Brandywine contains vegetative cover important for soil stability and wildlife habitat.

5. Wetlands

Wetlands have been increasingly recognized for their critical ecological functions. They provide irreplaceable wildlife habitat and are important storage areas for both surface and groundwater regimes. Wetlands are directly regulated by the Pennsylvania Department of Environmental Resources and the U.S. Army Corps of Engineers. These agencies have established criteria for the determination of wetlands, based on soil, hydrologic regime, and vegetation. From a lay person's perspective, any area with periodic standing water and wetland vegetation (cattails, phragmites, etc.) may indicate a wetland.

Among the most important functions wetlands perform is as catchment areas for stormwater runoff, reducing velocity of storm flow while filtering and helping to purify it prior to its entering a stream; sediment, nutrients, and pollutants are collected and absorbed by the wetland. Wetlands act as storage areas for both surface and groundwater regimes, and are the areas where surface waters and groundwater meet and intermingle. Wetlands in their natural state also provide important corridors for the movement of wildlife and are among the world's most productive ecosystems.

No comprehensive inventory has been made of wetlands in West Brandywine Township. Detailed determination of wetland locations tends only to be made in the course of development planning which anticipates need for formal permitting from DER or the Army Corps. The National Wetlands Inventory (NWI) has identified certain possible wetland areas in the Township, based on aerial photography. These are included on the Water Resources map. Identified areas include portions of the stream system, certain marshy areas, stormwater detention areas, open excavations, and farm ponds. Known wetland areas are found in pockets along nearly every stream draining

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West Brandywine. Other wetlands certainly exist; their exclusion from NWI mapping is often a function of their small size or specific characteristics, making them difficult to identify from aerial photography. Mapping of hydric soils, discussed further below, often offers the first red flag for potential wetland determination. Loss of wetlands has historically occurred when farmers, believing that the land was going to waste, resorted to drainage tiles/tile fields, perforated drain pipes, pond construction, etc. Wetlands are characteristically associated with hydric soils, alluvial soils, and flood plain areas. They often are found at the heart of important headwaters areas.

6. Hydric Soils and Seasonal High Water Table Soils

Hydric soils formed under anaerobic conditions (literally 'without oxygen,' or saturated); their presence is a strong indicator of possible wetlands. Hydric soils generally are found along stream corridors. They extend in finger-like branches into lower-lying areas throughout the Township. In West Brandywine, hydric soils are likely to be Worsham silt loam and Glenville loam. Hydric soils, which exhibit a depth to seasonal high water table of less than one foot, and hydric inclusions, which exhibit a depth to seasonal high water table of between one foot and 1.5 feet, also are mapped on the Water Resources Map.

Hydric soils often correlate to the most immediate headwaters areas which include the springs, seeps and marshes at the uppermost terminus of stream corridors. Subsurface water, seeping through hydric soils, supplies groundwater to the surface water system. This subsurface water source forms the base flow in streams and defines a baseline for stream water quality. These immediate headwaters areas are the most critical and sensitive from the standpoint of protecting surface water quality.

Hydric soils are not generally suitable for development. They may cause wet basement problems and will not adequately absorb sewage. Pollutants of any sort can easily enter the groundwater system through these soils, potentially contaminating water supply sources or reappearing in surface waters downstream.

7. Surface Water Quality

The Pennsylvania Department of Environmental Resources (DER) sets water quality standards for all streams. These standards most frequently impact local land use by governing the approval of wastewater facilities. The West Branch of the Brandywine below Telegraph Road and the Beaver Creek and its tributaries are base level streams in terms of quality standards for water composition. As indicated on the Biotic Resources Map, all other streams in West Brandywine, including Indian and Culbertson Runs and all tributaries to the West Branch Brandywine have received the "high quality" designation which mandates special criteria for water quality protection. purview over potential impacts to stream water quality. Any proposed wastewater release into either stream, for example, would be subject to very stringent quality control standards, if approved at all. The

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West Branch Brandywine initially enters West Brandywine with a "high quality" designation, despite having received modest discharges of treated wastewater from several sources in Honey Brook Township. The Indian Run Mobile Home Park discharges into Indian Run, also a high quality stream; no other streams in West Brandywine receive direct wastewater discharges.

All streams in West Brandywine have been designated for trout stocking, setting specific water quality criteria related to viability of aquatic life – particularly stocked trout from February 15 through July 31. In addition to standards for chemical composition, these criteria include permissible ranges for water temperature and available dissolved oxygen. Water quality designations are subject to change, based on reevaluation.

Where community wastewater management systems become necessary in lieu of individual systems, alternative approaches involving land application of treated wastewater, can meet a number of water resource planning objectives. Land application can avoid direct impacts to streamflow and surface water quality, replenish groundwater supplies, and offer a regular source of nutrient-rich irrigation water to crop farmers – potentially lowering both production costs and need to apply chemical fertilizers.

Management of stormwater also is critical. Unfortunately, standard engineering approaches tend to concentrate runoff, detaining it only temporarily, then discharging it into the nearest stream. This approach ultimately leads to: (1) downstream flooding; (2) increased pollution of streams from the pollutants washed from the land; (3) reduced recharge of groundwater aquifers; and (4) reduced stream flows during droughts. The goals of stormwater management should be to disturb natural recharge as little as possible, and to encourage recharge of managed flows. Concentration of stormwater should be avoided in favor of "natural" diffuse recharge to the groundwater reservoir, to assist long-term reliance on groundwater sources.

Man-made farm ponds also are part of the surface water system, and are scattered throughout West Brandywine Township. Often such ponds were created by dredging out previously wet or swampy areas; in such cases they represent a functional change from a shallow, richly vegetated, diverse wetland to an ecologically simpler aquatic body. This practice was encouraged until fairly recently by federal agencies. Now, ponds are regulated as wetlands.

Farm ponds are frequently unshaded and the slowly moving water is warmed as it sits in the sun. The resultant thermal pollution reduces the available dissolved oxygen downstream, potentially damaging aquatic life and inhibiting a stream's ability to assimilate other waste. Landscape design solutions may alleviate such impacts, including for example: retaining or planting shade trees, encouraging vegetation that is adapted to marshy edges and traps nutrients, and minimizing the surface area of the pond to that which is necessary for agricultural activities.

West Brandywine Township

8. Geology and Groundwater Yields

Generalized areal geology was mapped for the 1989 Comprehensive Plan and is shown on the Geology and Groundwater Map. The majority of West Brandywine Township is underlain by granodiorite. These rocks are relatively hard and resistant to erosion. They store water only in cracks and fissures. In the western part of the Township, several prongs of gabbroic gneiss and gabbro extend through the valley of the West Branch Brandywine, breaking the continuity of area underlain by granodiorite. These rocks exhibit similar characteristics to the granodiorite. The U.S. Geological Survey estimates that between 5 and 20 wells are necessary in both of these formations to produce one million gallons of groundwater per day. A small area underlain by graphitic gneiss is found in the northeastern portion of the Township along the East Brandywine line, with an uncertain boundary to the area underlain by granodiorite. This rock is characterized by good surface drainage and suitability for foundations. The estimated number of wells needed to produce one million gallons of water per day is between 5 and 15.

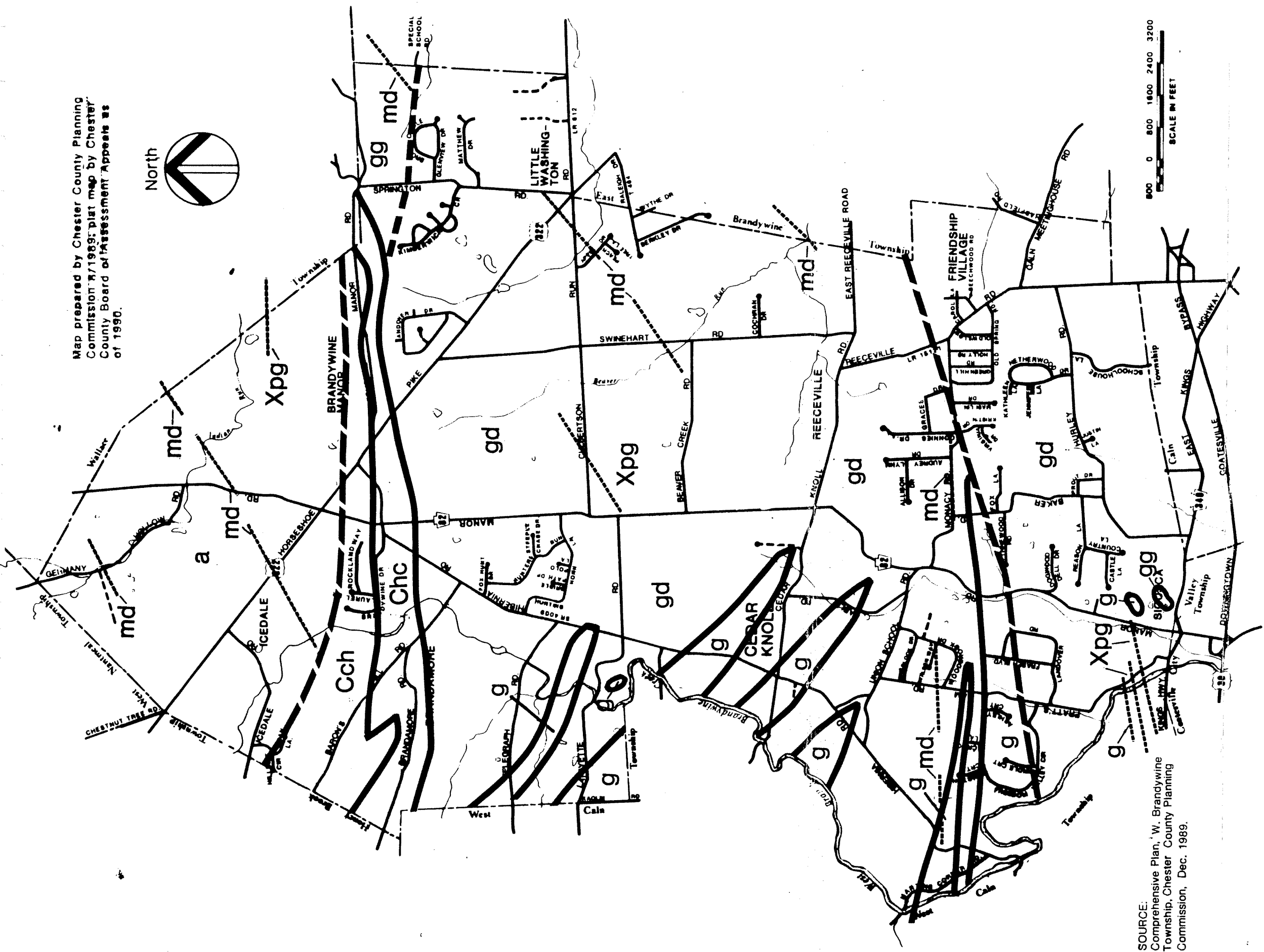
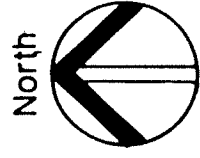
Coinciding with the Barren Hills and the high upland around Brandywine Manor is a band of rock known as the Chickies Formation, extending clear across the northern part of the Township. The Chickies Formation is a hard, massive, predominantly quartzite rock, more resistant to erosion than the gneiss, gabbro, or granodiorite. While this formation is associated with good surface drainage and good to excellent foundation qualities, an estimated 15-40 wells are considered necessary to produce one million gallons of water per day.

To the north of the Chickies Formation, a large, oval, bowl-shaped upland laps into West Brandywine from Wallace, West Nantmeal, and Honey Brook. This area is underlain by the Anorthosite Formation, an interesting and unusual rock type for Chester County. This formation is a hard, igneous rock associated with good surface drainage and moderate well yields, an estimated 5-15 wells necessary to produce one million gallons of water per day. Anorthosite is sufficiently hard for building foundations without being excessively difficult to excavate. Because it contains between 25 and 30% alumina, the rock might have long-range future possibility as aluminum ore when better sources elsewhere are exhausted.

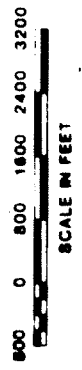
Scattered across West Brandywine are other igneous intrusions which may appear evident on the surface as thin strips of metadiabase and pegmatite. These strips of harder rocks, called dikes, may vary in width from five feet to 100 feet and are generally associated with very low well yields. They impede infiltration of surface drainage, which also may literally create a subsurface 'dike,' altering the flow of groundwater. These geologic strips are fairly common in northern Chester County; their scattered, linear nature makes site-specific testing for adequate water supply and soil percolation important.

Also noteworthy are the two fault zones which transect the Township. Both run east/west across West Brandywine, one where the southern rim of the Anorthosite "bowl" thrusts up against the Chickies ridge, and one through the southern part of the Township, largely along a line of contact

Map prepared by Chester County Planning Commission 7/1989; plat map by Chester County Board of Assessment Appeals as of 1990.



SOURCE:
Comprehensive Plan, W. Brandywine Township, Chester County Planning Commission, Dec. 1989.



West Brandywine Township

Number of wells to produce 1 million gallons per day.	5-15	a	Anorthosite	 Faults
	5-15	gg	Graphitic gneiss	
	5-20	g	Gabbroic Gneiss & Gabbro	 Dikes
	5-20	gd	Granodiorite	
	15-40	Cch	Chickies formation- Hellam Conglomerate	 Geologic Contacts
	15-40	Chc	Chickies formation	

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between the granodiorite and the gabbroic gneiss/gabbro. Because of the potential for increased fractures in the fault zones, their groundwater yields may exceed those of the surrounding geology. Conversely, these zones also present greater opportunities for the spread of pollutants within the groundwater, and may pose stability questions in relation to excavations or other land disturbances.

Consistent data regarding actual well yields in these rock formations is difficult to collect and assess. Most wells are drilled for individual residential purposes; drilling usually stops when sufficient water is found and does not necessarily indicate potential yield. Data collected by the U.S. Geological Survey in a 1989 open file report surveyed some 35 well sites in West Brandywine Township, with reported yields ranging from less than one gallon per minute (gpm) up to 225 gpm (Indian Run community well). Water quality is generally good, with a slightly acid pH and, on average, not too hard.

B. Land Resources

1. Steep Slopes and Landforms

Steeply sloped areas are concentrated in the southwestern and northwestern parts of the Township, forming the valley "walls" of the West Branch Brandywine and certain tributaries. These areas are difficult to farm and have matured into rich woodland stands, discussed further under Biotic Resources, below. Steeply sloped areas are delineated on the Land Resources Map in two categories: moderately steep slopes of 15-25%, and very steep slopes greater than 25%.

Step slopes are particularly vulnerable when their vegetative cover is removed and/or they are disturbed by grading; both disturbances can lead to increased erosion. Although erosion is a natural process – indeed, it has created many of the earth's landforms – human activities can greatly accelerate it. Accelerated erosion disturbs soils, water, and wildlife resources, both locally and downstream. When erosion washes soil particles into streams at a faster rate than the stream can handle them, the resultant sedimentation damages the ecosystem and threatens aquatic life. Sediment washing into a stream also reduces stream channel volume and, as a consequence, can worsen flooding problems. Sedimentation can also wreak havoc upon downstream water supply and industrial intakes. Construction on moderate and steep slopes requires careful attention to structural design, vegetation removal, landscaping, and stormwater management.

2. Prime Agricultural Soils

Prime agricultural soils are deep, not prone to erosion, nearly level, well drained, and generally devoid of stones and rocks. Class I and II agricultural soils comprise the large majority of the Township. Class III soils, termed "additional agricultural soils of statewide importance," also are mapped on Figure 5. In essence, only those areas too steep or too wet to farm are excluded from

West Brandywine Township

the prime categories. Prime soils dominate the gently sloping uplands of West Brandywine. In the absence of agriculture, these soils could support a richly mixed forest of oak, beech, and hickory. Prime agricultural land is also well-suited, in its physical characteristics, for conversion to development uses. Prime agricultural soils are shown on the Land Resources Map.

C. Biotic Resources

1. Wooded Areas

Woodlands still account for nearly thirty percent of the land area in West Brandywine Township. The steep slopes and wetlands associated with the stream corridors make vegetation removal difficult. Thus, it is not surprising that much of West Brandywine's woodland areas are concentrated along the valleys of the West Branch Brandywine, Beaver Creek and Indian Run. The Barren Hills west of the Brandywine also remain largely wooded. Here, relatively poor soil conspired with slope to inhibit tree removal for farming. In the Indian Run watershed, the gentle upland atop the anorthosite formation harbors significant area with shallow depth to water table. Perhaps too wet to farm at times, this area hosts large contiguous woodland areas.

Woodlands fulfill important ecological functions, particularly related to stream health. They slow the rate of surface runoff, filter excessive nutrients and sediment from the runoff water, provide food sources for aquatic species, and help prevent thermal pollution.

The relatively large and mature forest stands in West Brandywine Township are likely to support a considerable variety of native vegetation and wildlife species. Certain species of forest plants and wildlife depend specifically on the unique conditions of a healthy forest ecosystem. Many species of songbirds, for example, are specifically adapted to forest-interior conditions and will not nest elsewhere. Similarly, numerous species of spring ephemeral wildflowers will only bloom on the rich, moist soils of the forest floor.

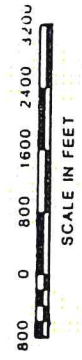
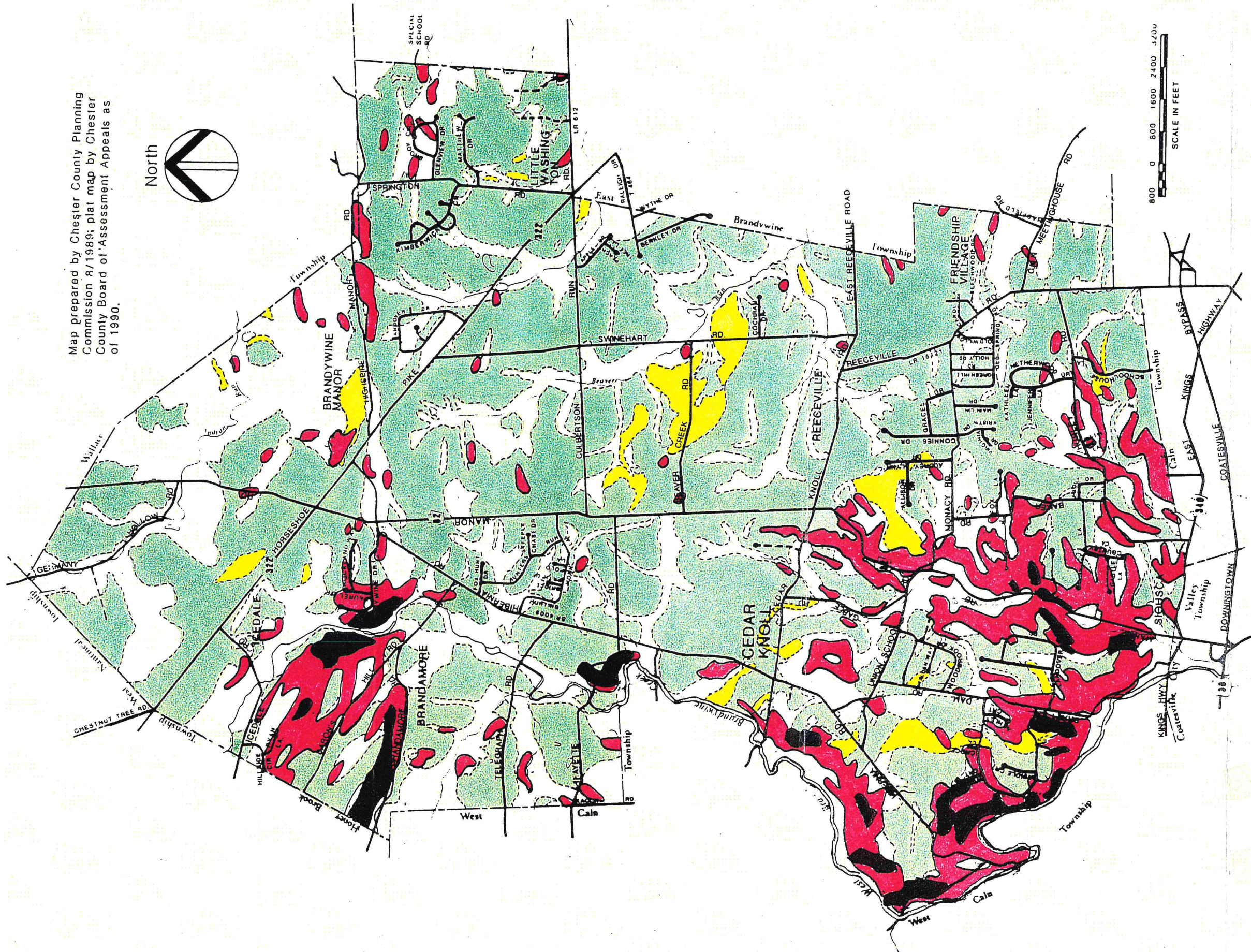
Woodlands also deliver benefits to the condition of the microclimate and ambient air quality. They serve to moderate wind and climatic stress (and thus reduce energy costs), abate glare and noise, and entrap dust and other particulates.

Wooded areas, including occasional scattered tree masses as small as an acre or less, are shown on the Biotic Resources Map.

2. PNDI Sites

The Pennsylvania Natural Diversity Inventory (PNDI) is coordinated and maintained by the Bureau of Forestry within DER, with technical assistance from the Western Pennsylvania Conservancy and, in this part of the state, the Nature Conservancy. The intent of PNDI is to

Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.

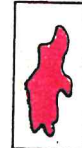


West Brandywine Township

Steep Slopes



OVER 25 PERCENT SLOPE



15 TO 25 PERCENT SLOPE

Prime Agricultural Soils



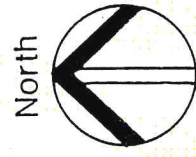
CLASSES I & II



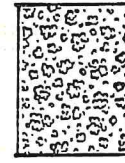
CLASS III

Land Resources

Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township



Significant Wooded Areas



Locally Important Vegetation



HQ-TSF

Habitat Waters

Biotic Resources

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locate and identify the most uncommon natural features which contribute to Pennsylvania's unique natural diversity, including individual plants and animals, habitat communities and geologic features. The state-wide inventory also classifies plant and animal species as rare, threatened, or endangered status in Pennsylvania, and delineates generalized zones of impact for any endangered species. This information is utilized by DER and other state agencies in review of permit applications for state-regulated land disturbance activities.

To date, the PNDI has depended primarily upon information submitted voluntarily by interested individuals and organizations. No sites in West Brandywine Township have been included in the PNDI, nor within any delineated impact zone for endangered species. This does not mean that sites likely to support rare, threatened, or endangered plant or animal species or communities or other unique natural sites might not be identified if any formal effort to do so were to be undertaken. In fact, the Nature Conservancy is presently undertaking a county-wide inventory of natural features, under contract with Chester County. The discussion below highlights valuable woodland habitat areas known to exist in West Brandywine Township, quite possibly hosting PNDI candidate sites.

3. Locally Important Vegetation/Habitat

As a primarily rural landscape, West Brandywine Township contains a valuable mixture of habitat types for native plant and animal communities. With much of the land cleared of its native forest vegetation over the last two centuries, the trees, shrubs, grasses, and herbaceous plants found today occur within limited networks of upland and lowland forest patches, stream corridors and wetlands, old fields, meadows, and hedgerows. The limited extent of these natural areas, and their possible conflict with current and future land uses in West Brandywine Township, highlight the need to preserve healthy habitat areas. These habitats, both individually and in the frequent combinations of two or more types, provide food, cover, and breeding areas required for native birds, mammals, reptiles, amphibians, and insects, including an increasing number of state- and federal-listed rare and endangered species of vegetation and wildlife. Natural areas in West Brandywine have the highest habitat value where they form fairly large, interconnected networks of land, buffered by adjacent agricultural or other open space uses.

a. The Forest Interior Community

The larger forested tracts in West Brandywine Township provide unique habitats for many forest plants and forest interior birds which cannot survive in smaller woodlots, farmfields, or residential areas. The relatively cool, moist forest interior conditions which occur at least 300 feet from the forest edge support many indigenous woodland wildflowers and the warblers and thrushes which breed in the area each summer. This forest interior habitat, already limited in area, is vulnerable to clearing, since any fragmentation will increase the amount of forest edge relative to forest interior. Large, square or round, forest stands provide the highest ratio of interior to edge, and, hence, the most valuable forest-interior conditions.

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A threshold size of 100 acres or more of unbroken square or round forest can be used as a guideline for maintaining the highest value habitat. Several woodlands of this size can be found in West Brandywine Township, and these have been identified on the Biotic Resources Map as critical areas for conservation efforts. These constitute forest patches in the 100 to 200 acre range, and are the last remnants of forest interior habitat in the Township. Subdivision and development of these remnant patches would permanently fragment them into smaller, narrower tracts of 20 acres or less dominated by edge conditions. Edge effects such as increased sunlight, wind, and dispersal of non-native plants and animals would prevail as the 300-foot edge zone would constitute a larger percentage of the total forest area. Forest-interior birds and plants cannot survive under these conditions.

Four forest-interior priority areas have been identified as critical habitat areas. These appear on the Biotic Resources Map as Locally Important Vegetation under the following numbers: 1) **Indian Run Forest**; 3) **Icedale Forest**; 5) **Hibernia Forest**; 7) **Hurley Road Forest**; These are significant for their size, shape, connection to stream corridors, age, and degree of buffering from development. Each of these four largest tracts of woodland in West Brandywine Township is situated along a stream corridor, providing vital pathways for movement of wildlife through the local landscape, and helping to guarantee clean, consistent supply of groundwater for stream recharge.

The exceptional habitat value of the Indian Run Forest (#1) is directly related to its size and location along the forested Indian Run Valley. This is clearly the largest unfragmented tract of forest in the township, with over 200 acres of relatively square shaped habitat. This translates to roughly 120 acres (60%) of forest-interior habitat, an uncommonly large size for Chester County. The surrounding land use pattern of scattered woodlands, farmfields, and homes provides a substantial buffer from intensive development. Although the age and species composition may vary, the natural diversity value of a forest of this size will surely increase as the stand matures. The forest encompasses almost one half-mile of the Indian Run corridor, which is primarily a wooded corridor most of its length before merging with the East Branch of Brandywine Creek at Springton Manor Farm.

The second major woodland with exceptional habitat value is the Icedale Forest (#3), situated just south of Icedale Road, including both sides of the West Branch of Brandywine below the old Icedale Dam. This relatively square stand exceeds 110 acres in area, with over 50 acres of forest interior habitat. The third exceptional value forest is the Hibernia Forest (#5), a relatively large block of at least 50 acres, with some 10 acres of forest interior habitat. The value of these woods is mainly their size and location along the West Branch of Brandywine Creek. This and the Icedale Forest mutually benefit as anchors along the West Branch wooded stream corridor. In addition to this linkage, the Hibernia Forest has recently become even more important to local natural diversity, since a major area of forest has been cleared for the reservoir in nearby Hibernia Park.

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Finally, a fourth critical forest-interior habitat is identified as the Hurley Road Forest (#7). This is another large tract exceeding 110 acres in area, with at least 50 acres of forest-interior and frontage along a small stream. Other than size and shape, however, this woodland may be the least significant of the four tracts, due to its isolation from other natural areas. The Hurley Road Forest is an island of native habitat surrounded by major roads and housing developments.

b. Stream Corridors and Wetlands

Clearly, the wetland conditions along major streams provide the most extensive wetland habitat in the Township. The plant communities found here are unique in that they are adapted to the prolonged moist conditions of these sites. The species of birds, amphibians, and reptiles which inhabit these wetlands are generally not found in other habitat types. For example, these wetlands account for the presence in West Brandywine Township of wading birds, such as green herons, and frogs like spring peepers.

These habitat areas take on added importance since they are remnants of a previously extensive network of riparian wetlands: wetland areas that, in some cases, were drained and converted to agricultural use. Even as some of these areas are left uncultivated and ungrazed, drainage ditches and tile fields may prevent them from reverting to natural wetland habitats.

Streambank vegetation is valuable for a number of reasons. In addition to the immediate benefits to the stream mentioned previously, streambank vegetation also contributes to the natural diversity of an area. High species diversity is a characteristic generally associated with mature, healthy, natural communities. The trees, shrubs, and plants which grow naturally along stream corridors are adapted to wet conditions, and most are not common in upland areas. During spring and fall migrations, and during breeding times, more species of birds can be found in streamside woodlands and shrubs than in any other habitat in the Township. They provide important corridors for most species of local wildlife, seeking food, cover, and travel routes in streamside vegetation. These riparian woodlands also help preserve aquatic life in local streams, which is part of the reason birds and mammals frequent these areas.

Four major stream corridors have been identified as having exceptional value for supporting natural diversity in West Brandywine Township. They are shown on the Biotic Resources Map as Locally Important Vegetation under the following numbers: 4) **West Branch of Brandywine Creek**; 2) **Indian Run**; 9) **Beaver Run**; and 8) **Rock Run**. Each stream is predominantly wooded for most of its length in the township, and provides vital and unique habitat and corridors for native species of plants and animals. These networks form the backbone of an effective habitat conservation network and their fragmentation would certainly reduce the chances of retaining the full biodiversity of the local landscape. At present, most of these corridors are vulnerable to clearing, which can include clearing of forest vegetation for horse pasture, roads, utility lines, lawns, or timber harvesting. They also lack a guaranteed buffer from adjacent land uses such as roads, parking areas, structures, lawns, and agricultural fields. Buffer strips of land managed as

West Brandywine Township

meadow help to reduce the impacts of stormwater runoff, pollutants from road and parking lot runoff, chemical pesticides and fertilizers, and manure on the quality of water, plants, and animals which make up the stream corridor community.

c. Habitat Waters

In addition to terrestrial or land-based biological diversity, aquatic habitats contribute greatly to the overall species richness of the township. As noted above, the waters of the upper West Branch of the Brandywine (above Lafayette Road), the entire length of Indian Run, and numerous smaller tributary streams are rated by the Pennsylvania Department of Environmental Resources as high quality streams and designated for trout stocking and migratory fishes. These stream quality ratings are among the highest in the state making these streams the gems of West Brandywine's waterways. The quality of these waters and the health of the food chain they support should be carefully considered in every land use and land management activity within their watersheds.

As defined under the Chapter 93 Water Quality Standards for the state, "high quality" means "a stream or watershed which has excellent quality waters and environmental or other features that require special water quality protection." Streams designated for trout stocking are expected to be viable for "maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat." Streams designated for migratory fishes should support "passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which ascend to flowing waters to complete their life cycle."

To a certain extent all of West Brandywine's streams, and particularly those designated "high quality," are likely to support aquatic organisms such as caddis fly nymphs, stonefly nymphs, and mayfly nymphs, all larval stages of aquatic insects which are critical food sources for stocked trout. These indicator species can only survive in waters which are relatively cool, free of excessive algae blooms, toxic pollutants, and heavy sedimentation.

The high quality of these streams can largely be attributed to their surrounding land use patterns. For the most part, they are forested stream corridors surrounded by low density development or agricultural uses. Mature trees are vital in promoting a healthy stream ecosystem. They reduce erosion and sedimentation by stabilizing streambanks, they help regulate cooler water temperatures by shading, and they help filter out pollutants from storm runoff on lawns, farmfields, and roads. Leaf litter (detritus) from streamside trees is known as a vital food source for aquatic organisms. As leaves, twigs, fruits and nuts fall into the stream and gradually decompose, they support the most fundamental levels of the foodchain.

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d. Hedgerows, Meadows, and Old Fields

Hedgerows, in general, provide some of the best wildlife habitat in agricultural landscapes, in that they allow for the development of rich, structurally complex groupings of vegetation between cultivated fields or pastures. Mature hedgerows provide perches for red-tailed hawks, den sites for red foxes, and travel and feeding routes for bobwhite quail. Birds which perch and nest in hedgerows consume large quantities of insects and crop pests. Hedgerows also play an important role in minimizing loss of soils due to wind erosion, and they represent an historic, scenic element of the local landscape. While hedgerow habitats have been cleared from some local farms in recent decades, they have gradually flourished along many fencerows and roadsides throughout the township. Certainly without hedgerows linking otherwise separate natural areas, the local diversity of plants and animals would be diminished.

Meadows and old fields which develop in abandoned farmfields also increase the diversity of available habitat types, which in turn increases plant and animal diversity. Meadow grasses, wildflowers, and old field shrubs represent distinct unique groupings of plants which favor different species of wildlife. With farming still active in much of the Township, fallow fields turning to meadow and old field habitats are uncommon. Today, vacant land often represents the sale of farmland for development. As vacant land it could also indicate something equally as important: with each season the land undergoes natural succession and is able to provide homes to more species of native plants and animals.

At present, West Brandywine Township is characterized by the diverse and interconnected habitats described above. But as development occurs, the danger of these natural areas becoming smaller, more isolated, and less buffered from the negative impacts of development increases, possibly signalling local extinctions of some native species and, in general, simpler natural communities. By developing an awareness of the most valuable habitat networks, namely the forest interiors, the wetland corridors, and the hedgerows and old fields, the community can ensure that its local natural communities remain healthy amidst changing land use patterns.

Conservation practices and municipal land use controls can be used effectively to protect and buffer sufficient areas of each habitat type to maintain, and even enhance, natural diversity in the community. Vegetation/noxious weed ordinances can effectively work as part of the subdivision regulations process. Vegetation ordinances can be used to insure that the impact of new development on critical natural areas is minimized. Under this scenario, applicants for subdivision approval may also be required to submit land clearing and landscaping plans, identifying the specific vegetation to be removed, and to be planted. This would be especially important in the more sensitive habitats discussed in this plan.

D. Scenic, Historic, and Cultural Resources

The relative wealth of scenic, historic and cultural resources still remaining in West Brandywine is integral to the character of the community. It also is an evocative representation of the Township's heritage and its surviving, present-day community character. That character, comprised additionally of exceptional vegetative, topographic, and other man-made features, has been evaluated by the Task Force in relation to the visibility of those elements from road frontages and vista points. Given the interrelatedness of these resources and their importance to the residential and economic base of the Township, the priorities and means for their protection also present overlaps and trade-offs that need to be recognized in the decision-making process.

1. Archaeological Sites

Due to the unavailability of information from county and state agencies, a detailed map of areas of medium or high archaeological potential could not be completed for this plan. It is anticipated that mapping eventually will become available from the Chester County Heritage Preservation Coordinator.

A general rule of thumb for archaeological purposes is to treat any area adjacent to a watercourse as having at least medium potential for artifacts. Accordingly, the areas around the West Branch Brandywine, Culbertson Run, Beaver Creek, Indian Run and their tributary streams should be treated as having archaeological potential.

This logic is reinforced by the industrial associations of use of the streams for water power and the general settlement patterns of Native Americans in Chester County. Sites containing archaeological resources have been discovered periodically in the Township, e.g., arrowheads found in plowed fields and at the base of eroded slopes, and the 19th-century burial plots of former slaves.

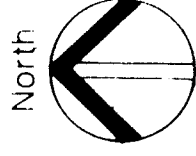
2. Ruin Sites

Like many other Chester County townships, West Brandywine has its share of ruins, both agricultural and industrial. These can encompass abandoned corn cribs to stone remnants of bridges and barns. For the most part, ruins of this sort escaped specific documentation in the 1979-1982 Chester County Historic Sites Survey. Such sites may be ascertained through further investigation.

3. Scenic Roads

As indicated on the Scenic Roads Map, various segments of the existing road network in West Brandywine have been highlighted for the visual quality of the road corridor. Scenic Roads both accent and offer visual access to the open space landscape. Roadways are scenic both in terms of

Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township



State Roads



Township Roads



Principal Arterial



Minor Arterial



Major Collector



Minor Collector



Local Roads

Scenic Roads

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the landscape they view and the character of the roadways themselves, curving and rolling, sometimes open and melding into the space of a broad vista, and sometimes lined with trees, steep banks, or farm buildings, for example. Those relatively few stretches of road which might be classified as "non-scenic" are those locations where visual intrusions mar the roadside landscape, along with those few stretches where development has occurred without respect to characteristic landscape elements.

The Scenic Roads Map compares scenic stretches with their functional classification as defined by the 1989 Township Comprehensive Plan. All Township roads defined as "scenic" are "local" roads carrying relatively light volumes of traffic. Of state road segments mapped as scenic, Route 322 is a principal arterial and Route 82 a minor arterial, while Cedar Knoll, Culbertson Run, Hibernia, and Swinehart Roads all are minor collectors, one step above "local."

4. Scenic Landscape Analysis

a. Characteristic Landscapes

Characteristic landscape elements have derived over time as a result of both natural processes and settlement patterns specific to West Brandywine. A scenic landscape can simply be judged as either characteristic or not. From the standpoint of the public interest, scenic or characteristic landscapes can be defined as "visually significant" based on their visibility from public vantage points, primarily public roads.

Broad Farmland characterizes much of West Brandywine Township, comprising areas of moderate topographical relief and broad agricultural landscapes. This landscape type is laced by treelines, hedgerows, and shallow stream valleys, punctuated by farm complexes, occasional small clusters of houses, ponds and wet meadows. Travelling through the landscape, views alternately glance across the breadth of the land and focus on such details. Building setbacks vary greatly; some structures are literally within a few feet of the public road while others stand back several hundred feet.

Stream Valleys, even while rarely within prominent public view, are an important part of the "characteristic" landscape of West Brandywine Township. The valley of the West Branch Brandywine, in particular, is lined by steep, wooded hillsides which form the valley "walls" and tend to conceal or "soften" the view of ground-level detail. Here, both landform and vegetation create what is perceived as a linear landscape. Structures occupy hollows in the hillsides or natural terraces running perpendicular to the direction of the slope; perceived density is extremely low, structures and small groupings tend to be viewed as singular, isolated objects, and building placement is irregular.

Woodlands tend to be in the age range of 40-60 years, and are frequently dominated by tulip poplar, not one of the dominant trees of the virgin forest (oak, chestnut, etc.). Single larger "wolf"

West Brandywine Township

trees occasionally are found within younger woodlands, indicating that, prior to recent periods of reforestation, open fields had been highlighted by individual large trees or groves of trees. Because, for the most part, even the oldest forests are so young (40-60 years), dense undergrowth often manages to impair views from the public roads. Even in more developed areas, patches of old field, thickets on steep roadside banks, treelines and hedgerows often belie actual development patterns, retaining a sense of the former rural landscape.

The Scenic & Historic Resources Map specifically identifies "scenic open landscape," mostly broad farmland, where within the view from public roads (hence, "visually significant"). That map also delineates woodland areas which, for the most part, include stream valleys within West Brandywine.

b. Visual Accents

"Visual Accents" add particular distinction to scenic quality. To be considered a visual "accent," a landscape element must be: (1) "characteristic" - a typical representative of the local landscape, as described above; and (2) represent a distinctive visual focal point in its specific landscape context. Exemplary visual accents are identified on the Scenic & Historic Resources Map and listed in the accompanying table. Among them are the following types of characteristic landscape features.

Historic Structures are the most frequently encountered visual accent and are integral to the way in which we perceive the landscape. Fieldstone (often covered in stucco), log, frame, and brick buildings are the characteristic building materials of this region. The architecture of most older buildings can be classified simply as "vernacular" with no particular dominant underlying design motif. Historical placement of structures in the landscape was derived from the character of the landscape itself. Buildings were sited to take advantage of opportunities in the landscape, particularly relative to slope and climatic exposure. Building siting seldom attempted to mold the landscape to fit the building as is more common today. A broad range of historic resources, as discussed further below, is indicated on the Scenic & Historic Resources Map, some of which are noted as visual accents.

Hamlets are found at historically important crossroads as well as in isolated clusters of buildings strung along roadways. While none are clustered particularly tightly, they still offer the visual impression of single landscape units, conveying a distinct three-dimensional sense of place. Seven hamlets have been identified on the Scenic & Historic Resources Map.

Great Trees are individual large trees located prominently in a field, or alongside roads or streambanks.

Ponds, as flat, open water bodies, often offer strong visual foci; sharply contrasting both the rolling upland and the steep-sided stream valleys. Their value to wildlife cannot be underestimated.

c. Visual Intrusions

"Visual Intrusions," in contrast, are objects which noticeably detract from the scenic quality of the landscape; to be considered a visual intrusion, an object must be: (1) a "disjunctive" visual element - an element of the landscape which would not normally be considered characteristic; and (2) just as an accent, be located in such a way as to provide a focal point (albeit negative or intrusive) for the public view. Visual intrusions may include some industrial or commercial uses, intrusive utility rights-of-way, transmission lines, junk yards, buildings in styles disjunctive to their landscape context or neighboring buildings, etc. Examples of visual intrusions have been included on the Scenic & Historic Resources Map and accompanying list.

d. Scenic Vistas

Vista points are scenic highlights which can be mapped along public roads where relatively long views are attained - a mile or more, often overlooking immediate roadside landscapes. Magnificent views may be seen from upland areas, looking over long rolling landscapes toward distant hills or focal points like the Forks of Brandywine Church.

5. Historic Sites

An extensive range of historic resources in West Brandywine Township is indicated, in terms of their locations, on the Scenic & Historic Resources Map. These resources were recorded by the Chester County Historic Sites Survey in 1982 and include 136 buildings or groups of buildings. Most of them are agricultural-related buildings or sites and vernacular residences. Instances of industrial association exist at several old mill sites. Some resources stand alone; many are grouped in farmsteads, mill complexes, or hamlet settings. It can be inferred from the county-wide Historic Sites Survey that at least 24 resources are worthy of further study and potential inclusion on the National Register of Historic Places, in addition to those resources located within the National Register district mentioned below.

The county-wide Survey mapped resources generally, at a broad scale of 1" = 2,000 ft., and indexed them only by name of the property owner at that time. Thus, for planning purposes, mapped resources may serve as an indicator that any land disturbance activity in their vicinity may impact their historical integrity, suggesting the necessity for further review. Further information regarding the Survey is available from the County Heritage Preservation Coordinator in the offices of the Chester County Parks & Recreation Department.

6. National Register Sites

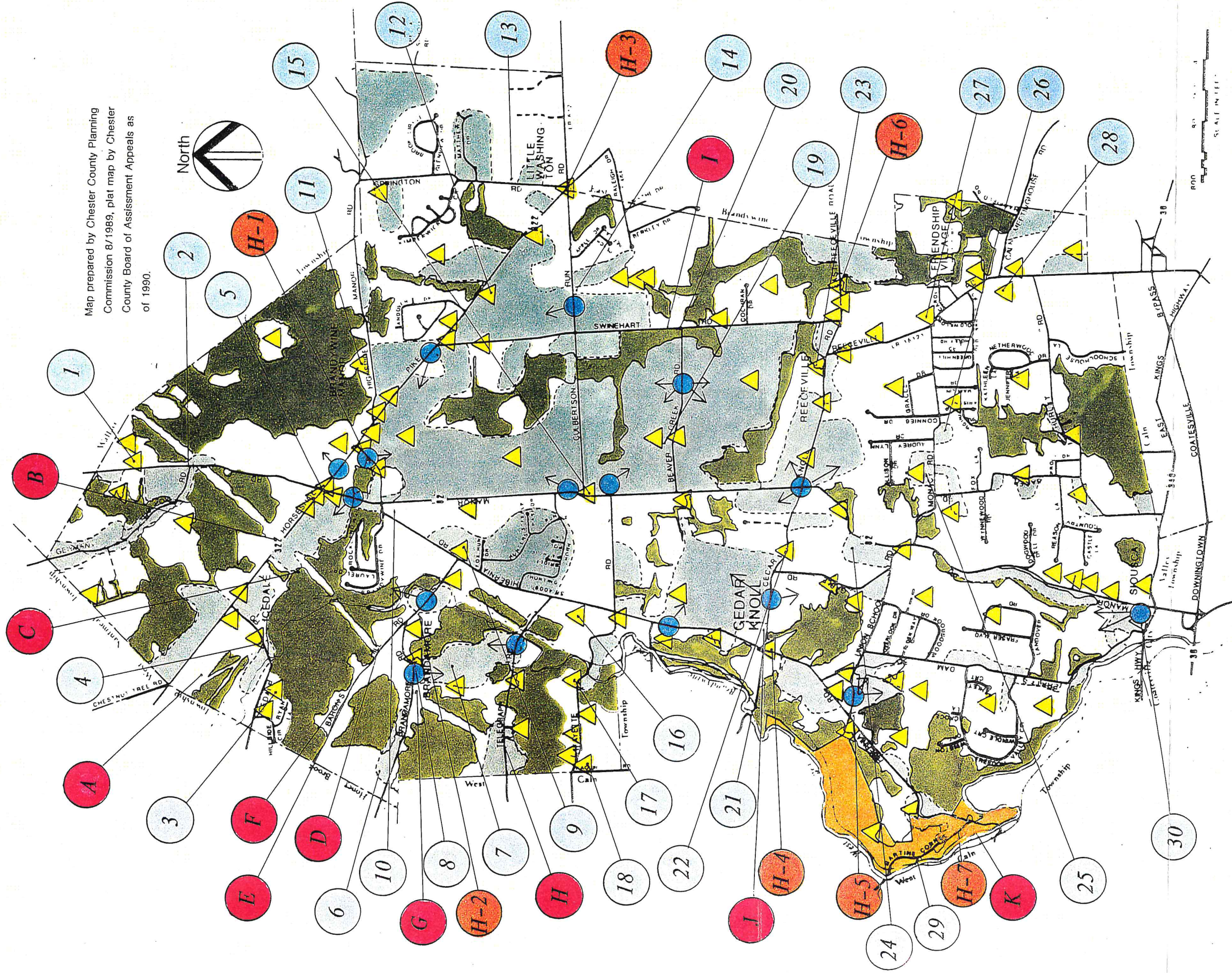
Since the 1982 County Survey, the Hatfield-Hibernia Historic District has been placed on the National Register of Historic Places (in 1984). The historic district comprises clusters of former tenant houses, principal residences, and industrial structures and ruins associated with the Hibernia

West Brandywine Township

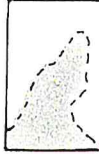

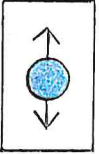

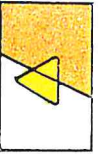

iron works and the Hatfield Mill. It includes all of Hibernia Park, lapping into West Caln Township. No other districts nor individual sites in West Brandywine Township have been placed on the National Register to date. A number of resources may prove to be eligible for the National Register, should further research and formal assessment of historical significance be undertaken. Perhaps the most obvious omission from the National Register is the Forks of Brandywine church. Numerous other resources exhibit merit at glance, including potential districts at Brandamore (Old Mill Bible Conference), Brandywine Manor, and Reeceville, for example.

Map Ref.	Visual Accents (located on Map opposite)	Map Ref.	Hamlets (located on Map opposite)
1.	Spring Hill Farm	H-1	Forks of Brandywine: church & building complex, cemetery with cluster of great oaks
2.	Germany Hollow Bridge	H-2	Brandamore: old mill complex, Brandamore post office.
3.	Building complex on Icedale Road.	H-3	Little Washington: stone house, farm complex (partly in East Brandywine Twp.)
4.	Icedale farm complex.	H-4	Cedar Knoll: building complex including Little Paoli Tavern
5.	Brandywine Manor crossroads	H-5	Hibernia Church: old church and cemetery, building complex
6.	Stone wall along north side of Brandamore Rd.	H-6	Reeceville: string of historical residences
7.	Single great tree and group of sycamore trees	H-7	Hatfield Mill: old mill and tenant house complex (partly in West Caln Township)
8.	Stone wall along south side of Brandamore Rd.		
9.	Farm complex at Hibernia & Brandamore Rds.		
10.	Cemetery at Brandywine Woods		
11.	Great tree & springhouse along Highspire Rd.		
12.	Farm complex along Rt. 322 west of Little Washington		
13.	Cluster of great trees at Krapf's buses.		
14.	Tree-lined "allee" entrance to Little Washington turkey farm		
15.	Farm complex, Rt. 82 & Culbertson Run Rd.		
16.	Log house on Hibernia Road.		
17.	Farm complex on north side of Lafayette Road		
18.	Stone wall along south side of Lafayette Road		
19.	Farm complex & pond along Beaver Creek Rd		
20.	Stone bridge at Swinehart & Beaver Creek Rds		
21.	Mill complex along the Brandywine at Cedar Knoll Road		
22.	Log and stucco house/farm complex along Cedar Knoll Road		
23.	Farm complex on East Reeceville Rd.		
24.	Farm complex & springhouse along Rt. 82		
25.	Farm complex north of Monacy Road		
26.	Farm complex south of Monacy Road		
27.	Prominent historical house at Reeceville and Monacy Roads.		
28.	Former schoolhouse at Reeceville and Caln Meetinghouse Roads		
29.	Waterfalls in the Brandywine along Martins Corner Road		
30.	Pratts Dam Mill Complex.		
		Map Ref.	Visual Intrusions (located on Map opposite)
		A.	Tank farm along Rt. 322
		B.	Overhead power line north of Rt. 322
		C.	Overhead power line south of Rt. 322
		D.	Overhead power line at Baron Hill Road
		E.	Prominent fence along Baron Hill Road, obstructing view
		F.	Junkyard on north side of Baron Hill Road
		G.	Overhead power line at Brandamore Road
		H.	Overhead power line at Telegraph Road
		I.	Fire Training School, debris, chain link fence on Swinehart Road
		J.	Junkyard at Cedar Knoll and Hibernia Roads
		K.	Prominent fence, Hibernia & Martins Corner Roads, intrusive to historic district.

Map prepared by Chester County Planning Commission 8/1989, plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township

- | | | | |
|---|--|---|-------------------|
|  | Scenic Open Landscape |  | Visual Accents |
|  | Vista Points |  | Visual Intrusions |
|  | Historic District/
Historic Resources |  | Hamlets |

Scenic and Historic Resources

Section VI: Plan for Open Space

A. Analysis of Open Space Inventory

The Resource Inventory in the preceding section catalogues a diverse range of open space resources. A "Resource Composite" map has been undertaken to draw together all of the various types of resources inventoried for this Plan, mapped collectively in the four major resource categories: Water Resources, Land Resources, Biotic Resources, Scenic and Historic Resources. Because of the character of open space resources in West Brandywine — overlapping categories of resources are so extensive, this composite map offers limited analytical utility, except to underline the value of open space throughout the Township, even in already developed areas.

To work toward conservation of open space resources most effectively, the Township should focus its attention on those issues *most* essential to a meaningful and coherent open space network in the context of vulnerability to the changes wrought by development. The Resource Priority Analysis Map displays resources which have been grouped first into two categories — "critical" open space resources and "sensitive" open space resources — and further refined to define a "priority open space network" based on the interrelationship of various resources and their vulnerability to the impacts of land use change, as described below. All "critical" resources are deemed part of the Priority Open Space Network. Those "sensitive" resources not part of the Priority Open Space Network are displayed on the Resource Priority Analysis Map as "other open space resources." The rationale for classification of particular individual types of resources as "critical" vs. "sensitive" is discussed further under individual resource categories below, entitled "Specific Resource Protection Objectives."

1. Critical Open Space Resources

Critical open space resources are those that should be protected against the impacts of development or other disturbance. Included are resources which either preclude development for reason of environmental hazard or which are so sensitive that almost any development would destroy their resource values. These critical features include:

- Flood plains
- Hydric and seasonal high water table soils
- National Wetlands Inventory sites
- Pennsylvania Natural Diversity Inventory sites and zones of impact
- Slopes steeper than 25%
- Historic sites and districts

West Brandywine Township

2. Sensitive Open Space Resources

Sensitive open space resources are those that should be able to coexist with, and not succumb to, the impacts of development under the protection of careful planning and design processes. While diverse in their planning implications, they are linked in that appropriate design can mitigate the impacts of development on resource values. This category is comprised of:

- Slopes of 15%-25% grade
- Woodlands
- Headwater areas, beyond hydric and seasonal high water table soils
- Prime Agricultural soils
- Scenic Road corridors
- Visually Significant Landscapes
- Visual Accents
- Areas of probable archeological significance

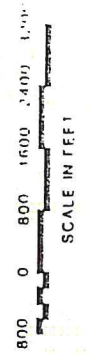
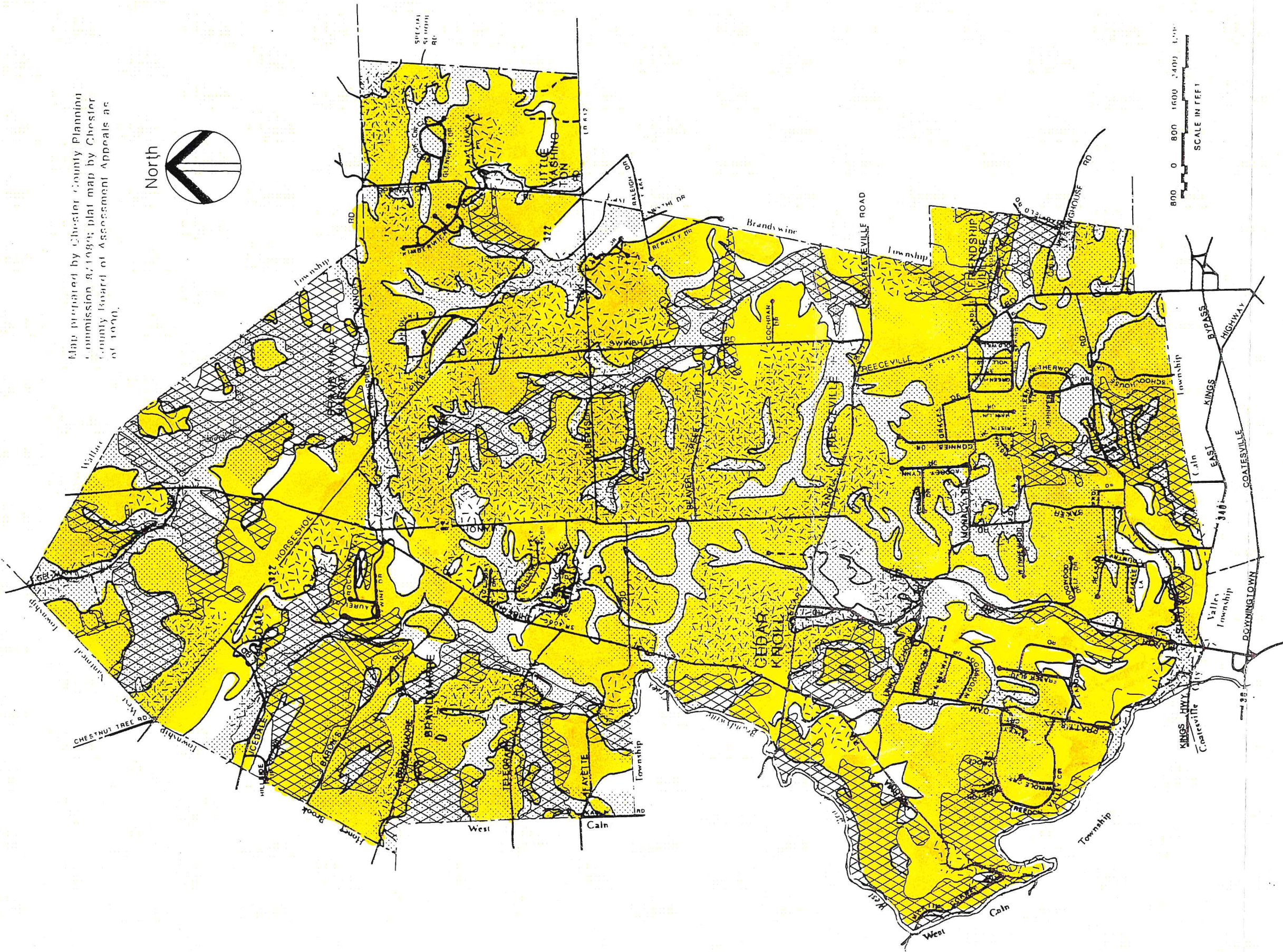
3. Priority Open Space Network

The Priority Open Space Network has been defined to offer a focus for public and private efforts to protect critical and sensitive open space resources in West Brandywine Township. As noted, all critical open space is included in the Priority Open Space Network. Sensitive open space resources are included under specific circumstances, generally on lands which possess multiple resource values, that is, where two or more resource categories overlap. In particular, the Priority Open Space Network has been defined to include the following sensitive resource situations:

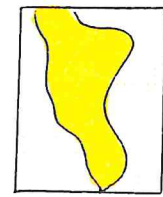
- headwater drainage basins where coincident with woodland and/or with moderate slopes (i.e. 15-25%
- moderate slopes where wooded;
- other large contiguous woodland masses identified as prime habitat;
- prime agricultural soils where coincident with visually significant landscapes.

Any and all means to protect areas within the Priority Open Space Network should be instituted to mandate "site-sensitive" design approaches whenever development is imminent and, more importantly, to introduce conservation measures aimed at guiding development away from these areas. A number of measures might be considered, including: revision of cluster zoning provisions and/or creation of overlay district(s) to further restrict and guide development so as to promote resource protection objectives; provision for sale of development rights within the Priority Open Space Network, to be applied to other areas of the Township (TDR); additional natural features conservation restrictions, further site analysis requirements, and other ordinance modifications discussed herein.

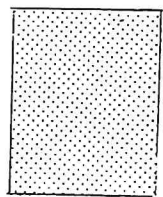
Map prepared by Chester County Planning Commission August 1984; final map by Chester County Board of Assessment Appeals as of 1988.



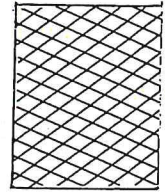
West Brandywine Township



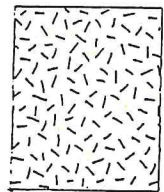
Land Resources



Water Resources



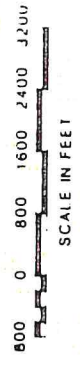
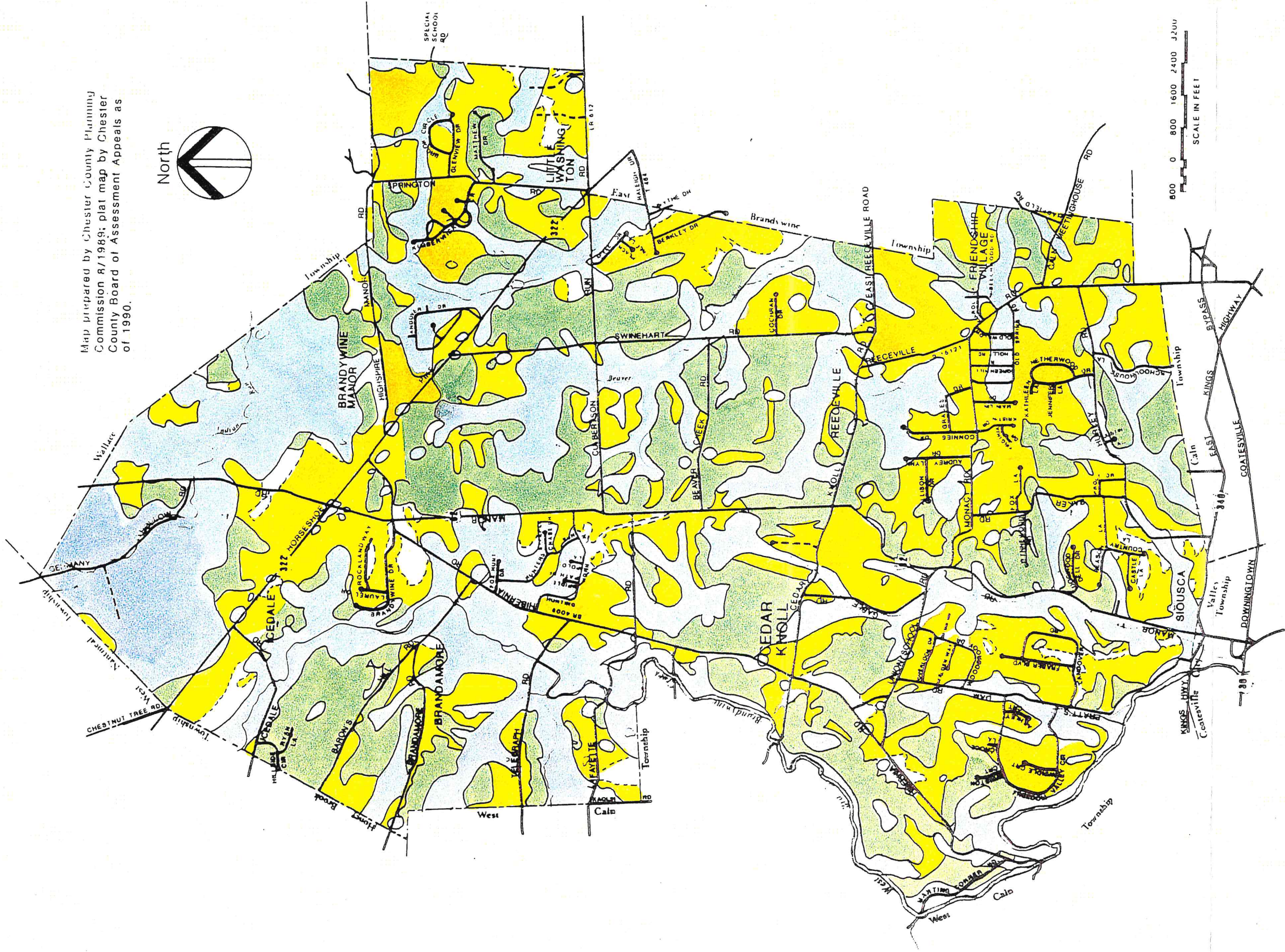
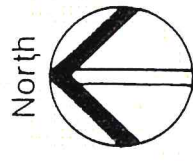
Biotic Resources



Scenic & Historic Resources

Resource Composite

Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township



Critical Open Space



Other Open Space Resources



Sensitive Open Space

Resource Priority Analysis

Open Space, Recreation, and Environmental Resources Plan

The Township should consider all means to encourage landowners to take advantage of private land conservation measures including easement donations, enrollment in cooperative programs such as the Agricultural Security Area, cooperation with the Township in making lands available for wastewater reclamation, and the utilization of agricultural and forest "best management practices."

As the name implies, "site sensitive design" should be utilized whenever development of any open space resource areas is proposed, including sensitive resource areas outside the Priority Open Space Network. While development outside the priority network would generally be preferable to development within it, careful attention to design should aim to integrate new development into the landscape with minimal disturbance to all resource values.

4. Resources Not Subject to Land Use Change

A further component of priority-setting is comparison of resource protection priorities with potential for land use change. At opposite ends of the spectrum are lands which infer little priority, either because the development potential has already been utilized, or because specific protection measures have already been taken.

The "Protected Lands" map delineates a variety of properties exhibiting degrees of protection ranging from rather secure to rather speculative. As "permanently reserved lands," it includes lands formally reserved as open space through the subdivision process, and lands under public ownership. Mapped as "restricted lands" are properties included in the Township Agricultural Security Area, in the Hatfield-Hibernia historic district, within utility (power line and pipeline) rights-of-way, and lands constrained from development by environmental regulatory measures. For analytical purposes, lands were included in this last category which are subject to essential prohibition from development due to presence of very steep slopes (> 25%), floodplains, and known wetlands. At the least secure end of the spectrum of "protection" are lands within the Agricultural Security Area and the historic district. Neither designation guarantees permanent commitment to conservation; rather, both represent public and private interest in conservation at the present time. Even public ownership, in the case of public schools for example, cannot infer absolute guarantee of resource protection.

The Composite Overlay Map overlays mapping of resource protection priorities with lands shown on the Protected Lands Map. To enhance analysis of the current status of resource protection efforts, "restricted lands," as mapped on the Protected Lands Map, have been divided further into two categories: "lands restricted from development," and "lands with limited protection" from land use change. The first group includes lands within utility rights-of-way and lands subject to regulatory protection measures; the later includes lands within the Agricultural Security Area and the registered historic district. Lands subject to no formal resource protection are not overlain.

Finally, in this vein, the Open Space Recommendations Map (page 107) overlays primary land-based recommendations discussed below with mapping of lands which for all intents and purposes

West Brandywine Township

1) lack further development potential in relation to the West Brandywine Township Zoning Ordinance, other than redevelopment; and 2) lands securely protected from further development. This second category is a subset of "protected lands," as described above, including only those deemed essentially "secure" in their protection. These include: 1) **Lands protected through ownership status** - public properties specifically intended to remain as open space, such as Hibernia Park, and permanently designated open space; and 2) **Lands protected through regulatory action** - including lands constrained from development as part of the Floodplain District or Severe Slope District by the Township Zoning Ordinance and lands under the jurisdiction of DER or the Army Corps as wetlands. As noted in the Resource Inventory, concise wetland mapping is not available.

B. Specific Open Space and Environmental Resource Protection Objectives

1. Water Resources

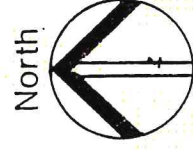
a. Headwater Areas and First-Order Streams

The highly restrictive provisions of Article XII of the West Brandywine Township Zoning Ordinance offer direct protection of the water resources that fall within the Flood Plain District. Protection of headwater areas and first-order streams is less assured under Township regulation. The potential impacts on downstream water quality from degradation of these resources are substantial enough to warrant close scrutiny of proposed disturbances in these areas. Actions to minimize sedimentation and maximize the retention of soil-stabilizing vegetation within headwater areas can be particularly effective. For these reasons, existing woodlands and moderately steep slopes (15-25%) falling within headwater areas have been included within the Priority Open Space Network.

b. Wetlands

Those wetlands delineated through the National Wetlands Inventory mapping are depicted on the Water Resources Map. Additional areas falling within the wetlands definition used by the U.S. Army Corps of Engineers and the Pa. Dept. of Environmental Resources become identified during individual site analyses. Maintenance of such areas in an undisturbed state, including adequately dimensioned buffers, is important to the Township in relation to their continued natural functioning and their place in the visual, open character of West Brandywine. Thus, all wetlands, whether mapped or not, are considered critical open space resources and part of the Priority Open Space Network.

Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.



West Brandywine Township

Permanently Reserved Lands

RESERVED LANDS
(Dedicated Open Space)

PUBLIC LANDS

Restricted Lands

AGRICULTURAL SECURITY AREA

HISTORIC DISTRICT

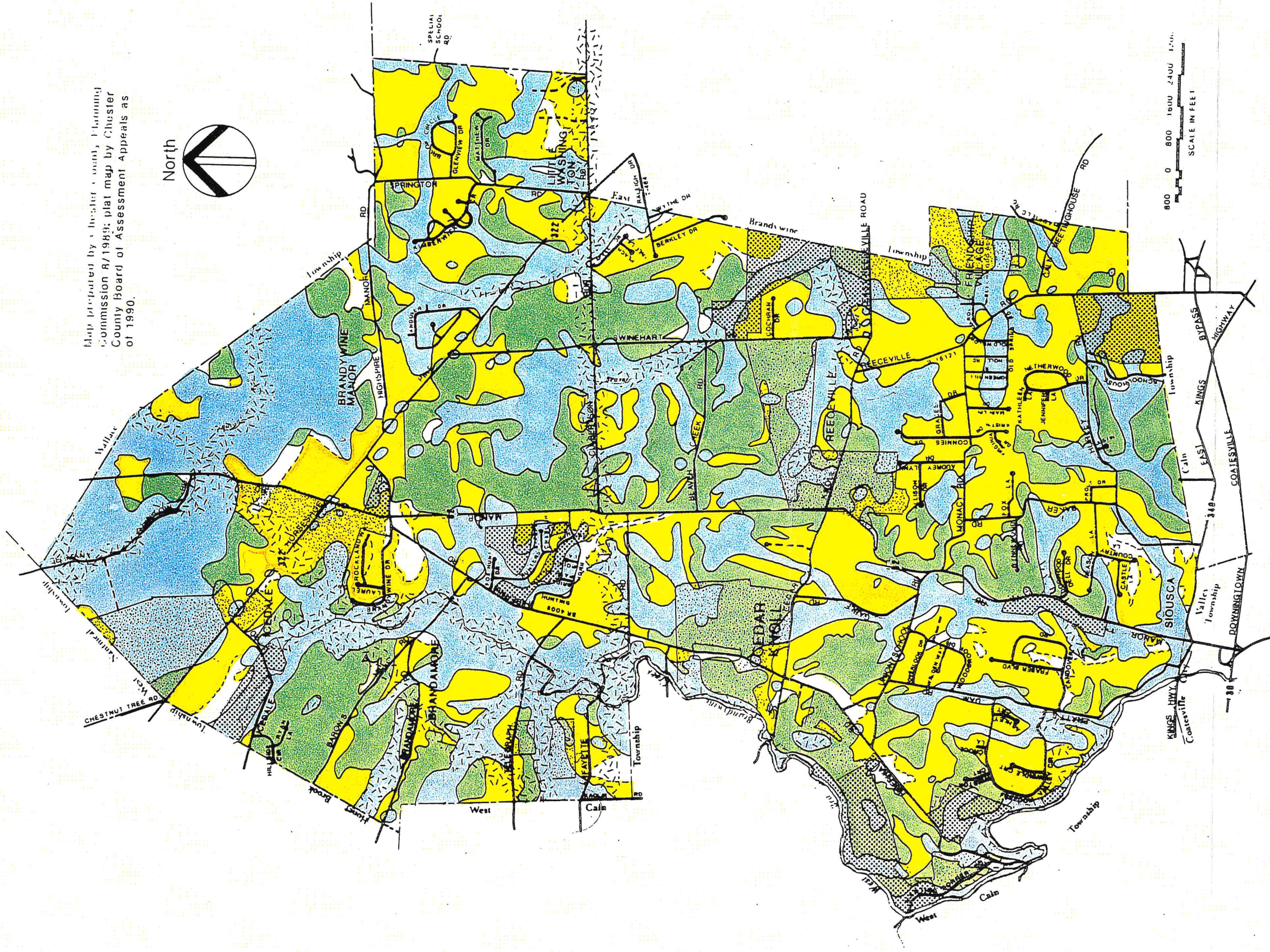
UTILITY EASEMENTS

PROTECTED LANDS
(Subject to Regulatory Protection Measures)


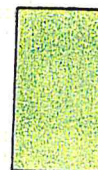

Protected Lands



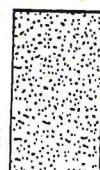
Map prepared by Chester County Planning Commission 8/1989; plat map by Chester County Board of Assessment Appeals as of 1990.

North



West Brandywine Township

-  Critical Open Space
-  Sensitive Open Space
-  Other Open Space Resources

-  Permanently Protected Lands
-  Restricted Lands (Constrained from Development)
-  Lands with Limited Protection (Agricultural Security Area/Historic District)

Composite Overlay

Open Space, Recreation, and Environmental Resources Plan

At present, protection of wetlands relies on a combination of the state/federal permitting process for wetlands disturbance. The permitting procedures of the Army Corps and the Pa. DER remain susceptible to modification, however, as do the roles of the U.S. EPA and the U.S. Fish and Wildlife Service. As such, the Township will need to monitor events at the state and federal levels and be prepared to adjust its own regulations accordingly.

c. Groundwater Resources

The entire Township is underlain by hard rock formations which do not offer an especially abundant supply of groundwater. At the same time, most of the developed properties in the Township rely on these groundwater resources. As development continues, the significance of the limited groundwater reservoir will become more evident. The Township may wish to enact specific provisions within the Zoning Ordinance and the Subdivision/Land Development Ordinance aimed at protecting groundwater quantity and quality. Requirements for specific demonstration of adequate supply and quality might be considered, as recommended in the 1989 Comprehensive Plan, along with provision for assessment of impacts to existing water supplies. Concepts such as wellhead protection, stormwater recharge, wastewater reclamation and reuse, and other links between land use controls and groundwater resources should remain in the forefront of the Township's planning program. Potential for alternative provision of public water service will need careful evaluation, case by case.

2. Land Resources

a. Steep Slopes

Article XIII of the Township Zoning Ordinance establishes the Steep Slope District, further subdivided into the Moderate Slope District, defined as lands with slope measuring between 15 and 25 percent, and the Severe Slope District where slopes exceed 25%. Land uses and disturbances are limited within these areas; indeed, they are virtually precluded where the slope exceeds 25%. Slopes exceeding 25% are included in the area mapped as "lands protected through regulatory action." The Moderate Slope District permits residential development upon approval of the Township Supervisors as advised by the Township Engineer; no specific application process for such approval is provided. The basic objective should be to maintain the integrity of moderate and steeply sloped areas, particularly to limit grading, vegetation removal and other soil disturbance. For this reason, steep slopes are joined by moderate slopes in the Priority Open Space Network wherever wooded.

b. Prime Agricultural Soils

As portrayed on the Land Resources Map, those soils in West Brandywine that are rated as Class I, II, or III occupy almost all of the ground not steep or wet. Township policy to date has not focussed formally on conservation of prime agricultural soils. The 1989 Comprehensive Plan

West Brandywine Township

essentially ignored agriculture, apparently viewing it not as a viable land use on a long-term basis, but as a holding pattern for other future development. Indeed, traditional agricultural lands already have become fragmented by development, while the largest single agricultural property seems destined for cemetery use. Nevertheless, long-term changes in farming practice and economics may renew recognition of West Brandywine's proximity to market and primacy of the Township's available soil resource. This can happen only if we conserve that resource for future use. West Brandywine's neighbors East Brandywine, Wallace, West Nantmeal, and Honey Brook each have stressed conservation of agriculture as an objective of recent planning efforts, perhaps strengthening the potential for conservation of a viable regional agricultural economic base.

Township policy-makers may wish to reexamine whether the Township should, and can, take more directed action on behalf of agricultural land conservation. The Township has established an Agricultural Security Area encompassing scattered farm properties throughout West Brandywine. Formal zoning provisions might be considered to limit nuisance complaints, moderate vegetation management requirements, and otherwise avoid impediments to current agricultural operations. Such measures as agricultural clustering and transferable development rights also might be examined.

3. Biotic Resources

a. Woodlands/Locally Important Vegetation

As delineated on the Existing Land Use Map and supplemented by the Biotic Resources Map and Scenic & Historic Resources Map, sizable tracts of woodland remain in West Brandywine, along with numerous individual "great" trees. These features contribute significant aesthetic and ecological benefits to the community and should be targeted for protection through both public and private measures. They have been mapped as "sensitive" open space resources, and added to the Priority Open Space Network in situations where they contribute to soil and water resource protection objectives and where delineated as significant habitat. Yet, except where located on lands formally protected, such as Hibernia Park, these scattered features have little protection at present.

Protection under public regulation is limited. The flood plain and steep slope controls in the Township Zoning Ordinance call for conservation practices where such areas are wooded. Section 812 of the S/LDO calls for limitation of tree removal to that necessary to effect the proposed use. While clear-cutting is effectively banned where these provisions apply, no specific standards for selective removal have been established. The Township also has a vegetation control ordinance which requires mowing of weedy vegetation exceeding 18 inches in height. No more specific limits to vegetation removal nor other provision for vegetation management have been made to date.

Open Space, Recreation, and Environmental Resources Plan

Considerable woodland area and many great trees are adjacent to, if not within, a public road right-of-way and may be vulnerable to future road improvements unless given proper attention during that process. Indeed, it is recognized that disturbance to or removal of such vegetation may be unavoidable in some cases. In other settings, however, it may be possible to protect the vegetation through stronger vegetation management criteria, environmental impact assessment requirements, and increased use of flexible site design standards.

4. Scenic, Historic, and Cultural Resources

a. Archaeological Sites

Archaeological sites, as they may exist in West Brandywine, were not mapped for this plan. Nor do they enjoy much protection from land disturbances. The prime exception to this is the Act 537 process; sites proposed for development that require sewage facilities approval must be evaluated for the potential existence of archaeological resources. In all cases, however, these potential resources should be given enough attention, on a site-by-site basis, to assure that important opportunities for research and discovery are not lost.

b. Historic Sites

The Historic Resources Map locates the 136 buildings or building groups in West Brandywine that were identified during the 1979-82 Chester County Historic Sites Survey. A few of them have since been included in the Hatfield-Hibernia Historic District, listed in the National Register of Historic Places in 1984. No formal protection for historic resources exists in West Brandywine Township. Historic resources have been included in the Priority Open Space Network partly in view of their extreme vulnerability, and also because conservation of the relatively small land areas they occupy could amount to an insignificant economic burden in the context of flexible approaches to site design. Reconsideration of cluster and lot-averaging provisions, along with potential resource overlay provisions, TDR, etc. should clearly promote protection of historic resources.

c. Scenic Roads

Major stretches of the Township road network were classified as scenic for purposes of future planning and possible protection, as shown on the Scenic Roads Map. While the character of the road frontage varies considerably, from steep and wooded stream valleys to rural hamlets and open agricultural landscape, the principal resource protection objective can be stated rather simply: minimize disturbance to the roadside edge and the public view as the land in question undergoes change.

The Township might consider a formal program, perhaps under the auspices of a standing open space committee, to monitor the condition and character of scenic roads. Intrusive and/or

West Brandywine Township

negative features also can be noted. Committee members might reevaluate scenic qualities as part of subdivision and land development review, adding appropriate notation to this inventory. The Township could provide for specific identification and mitigation of the impacts of prospective development upon scenic roadways and their surrounding landscapes. The Township also could enact zoning provisions to encourage conservation of scenic qualities within development plans. Landscaping, including fencing, can be designed to complement characteristic landscape elements, sometimes concealing or diffusing intrusive qualities.

The Township should consider all possible means to maintain the scenic character of Township roads when road improvements are planned and executed. Similar cooperation on the part of the Commonwealth (PennDOT) should be requested. All Township roads defined as "scenic" function as "local" roads carrying relatively light volumes of traffic, thus inferring little potential conflict between highway safety and scenic conservation objectives.

As noted in the Resource Inventory, and mapped on the Scenic Roads Map, scenic stretches of state roads serve higher functional classifications, at face value inferring priority for traffic considerations over maintenance of scenic quality. The Township Comprehensive Plan noted a number of instances of poor alignment or obstructed sight distance along state roads, but recommended no specific improvements. The Plan also noted need for turning lanes at the intersection of Routes 82 and 322 and several instances of sharp horizontal curve. These situations may ultimately warrant road widening, which will likely impact - but needn't obliterate - scenic qualities of the roadside, if carefully planned. In general, close scrutiny should be made of actual need for road widening, bank trimming, weed control, bridge replacement, use and type of guiderails, introduction of multiple driveway access points, etc., in order to maintain scenic quality while addressing real safety issues.

d. Scenic Landscapes, Visual Accents and Scenic Vistas

Scenic landscape analysis accomplished by the Task Force via "windshield survey" resulted in the extensive mapping of characteristic landscapes, scenic vistas, and visual accents and intrusions shown on the Scenic & Historic Resources Map. These features receive only coincidental protection at this time. No specific regulatory provisions have aimed to preserve scenic resources in West Brandywine Township to date. Their retention as fundamental elements of the West Brandywine visual character is an objective of this plan. They have been mapped as "sensitive" open space resources, and generally excluded from the Priority Open Space Network, because their vulnerability is more a function of design than a question of development or not. Revision to cluster and lot-averaging provisions, potential enactment of scenic overlay zoning provisions, use of TDR, etc. are among means the Township may pursue to promote conservation of scenic landscape qualities.

C. Comparison of Resource Network to Existing Long Range Plans

1. Chester County Land Use Plan of 1988

As mapped, the Chester County Land Use Plan exhibits varying degrees of inconsistency with West Brandywine's Priority Open Space Network. To a certain degree, inconsistency is due to the large scale and very general level of detail undertaken by the county-wide Plan, as opposed to the much higher level of detail afforded when planning specifically for a single municipality. But inconsistencies also result from clear differences in perspectives toward resource protection. This Plan, by nature, is focussed on means to protect community resources. The County Plan takes a very broad look at resource protection issues and seems to concede West Brandywine to the realm of suburban development.

The County Plan designates the southern third of West Brandywine, along with the Little Washington area, specifically for "suburban development. This designation is in fact consistent with development patterns already established in that part of the Township. Nearly all of the rest of the Township is designated "development reserve," anticipating future conversion to suburban development. This designation laps over vast acreage within the critical and sensitive open space resource categories. Only narrow bands of "greenway" are proposed by the County Plan along the West Branch Brandywine and Beaver Creek. A small portion of the Township west of the Brandywine near Brandamore has been designated for "rural development," not inconsistent with West Brandywine's resource protection objectives.

2. West Brandywine Township Comprehensive Plan - Future Land Use

The Township's own Future Land Use map, part of the "Comprehensive Development Plan" prepared for the 1989 Comprehensive Plan, also shows certain inconsistency with the Priority Open Space Resource Network: 1) it also is generalized such that detailed resource protection objectives are not particularly evident, and 2) it appears to presume that almost the entire Township ultimately will be built-out, with limited identification of specific areas for resource conservation.

The Future Land Use map designates narrow bands for stream valley conservation, at the heart of areas characterized by this Plan as critical open space resources, and calls for "rural density" residential development along much of the West Branch Brandywine corridor. It also suggests a prominent area of "green space" in the scenic upland area south of the Forks of the Brandywine Church. Otherwise, scenic open landscape areas are designated for future development. Glaring inconsistencies with resource protection objectives discussed here are found in the designation of a long strip along Route 322 for "highway commercial development," and in a large area of significant woodland habitat denoted "high density" residential development.

3. West Brandywine Township Zoning Ordinance

As discussed above, the Township Zoning Ordinance offers limited protection to certain resources identified by this Plan. The Zoning Map mirrors the Future Land Use map and, hence, its inconsistencies with the resource protection objectives discussed herein. Fine-tuning of resource protection provisions, along with institution of more flexible approaches to development design, can mitigate much of the inferred bias toward wholesale development within the Priority Open Space Resource Network, within the context of existing zoning districts. However, the HC - Highway Commercial district is particularly at odds with resource protection objectives stressed here, as probably is the R-4 Residential district. The LI Limited Industrial district also intrudes into an area of significant woodland habitat and headwater area.

D. Recommended Strategies for Open Space and Environmental Resource Protection

1. On-Going Planning/Administrative Efforts

- Appoint a standing Open Space Committee, charged with a formal role as monitor of resource protection objectives articulated by this Plan. The Committee should:

Establish formal procedures to monitor open space resource protection issues on an on-going basis, including visual landscape quality, scenic roadways, stream corridors, wetlands, significant woodland habitat areas, etc.;

Consider establishment of a natural diversity program to undertake further detailed inventory of important habitat areas and to educate citizens and developer/applicants regarding conservation of biodiversity and healthy habitats;

Coordinate resource protection activities with the Township Planning Commission, Board of Supervisors, and staff;

Review relevant aspects of development proposals, including open space management plans, providing appropriate input to the Planning Commission and Board;

Establish formal procedures to monitor open space management plans for residential and commercial developments;

Consider establishment of funding program to assist landowners with burden of planning, design, and open space management costs, where permanent Township open space resource

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protection objectives are achieved (criteria for Township assistance, i.e., minimum level of conservation commitment and/or limited development, should be set);

Promote public and private efforts to conserve open space resources, fostering of community recognition and appreciation for those resources, and advise the Planning Commission and Supervisors in their regard.

- **Renew Township Comprehensive Planning efforts**, building on the substantial work represented by this Plan to develop a fully up-dated Comprehensive Plan. It can be estimated that this Plan represents 65-70% of the total effort required to complete a new comprehensive plan, affording a level of detail not clearly represented in prior comprehensive planning efforts. Additional study of traffic circulation and community facility issues will be necessary, along with expansion of the summary recommendations map into a full Future Land Use Plan.
- **Continue to encourage the effective use of the Sketch Plan** as provided in Sections 403,404 and 501 of the West Brandywine Township Subdivision & Land Development Ordinance (S/LDO); engage potential applicants in productive evaluation of a site as early in the process as possible. Applicants can be made explicitly aware of the resource inventories prepared as part of this Plan, demonstrating the Township's concerns for resource protection and the limitation of development impacts while site planning remains at a conceptual stage. Sketch plan applications might be required to specifically reference the Township Comprehensive Plan and this Open Space, Recreation & Environmental Resources Plan, and include a Site Analysis as suggested below, to the degree feasible.
- **Strive for consistent administration of regulatory provisions to protect critical environmental resources.** Monitor performance of existing regulations and administrative procedures relative to resource protection objectives.
- **Seek to maximize the correlation between the type/intensity of land use and the availability of/impacts upon groundwater resources.** This will require on-going study of groundwater capabilities and potential impacts of specific development scenarios.
- **Monitor Township Act 537 Sewage Facilities planning efforts** to afford maximum opportunity for wastewater reclamation.

2. Specific Regulatory Actions

- **Consider adoption of a comprehensive "Natural Features Conservation Ordinance" (NFCO).** All zoning and subdivision provisions aimed at open space resource protection, particularly those governing land disturbance and vegetation removal/management, could be compiled into a single freestanding, comprehensive ordinance, or chapter of the Zoning

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Ordinance. The key purpose is to make applicants clearly aware of all environmental regulation and to stress the Township's interests in resource protection.

The NFCO's provisions could be made applicable to any land disturbance, not simply the conventional subdivision or land development applications. This ordinance also could address all wetland areas, including those that may fall beyond the scope of the Corps of Engineers or DER but are nonetheless of concern to the Township. Present regulations appropriate for inclusion in a comprehensive NFCO include S/LDO Sections 810 (stormwater management) and 812 (natural features protection) and Zoning Sections 1200-1214 (Flood Plain District), 1300-1308 (Steep Slope District), 1411 (Stripping of topsoil), 1506 (Landscaping) and 1507 (Screening/Buffering).

Explore specific provisions for management of vegetation, to determine whether any further protection can or should be given to significant habitat areas, particularly extensive woodlands, areas of native vegetation, sites with particular natural diversity value, etc. Limitations to woodland removal could be specified, including provisions placing priority on woodland retention in forest interior areas where significant habitat areas have been identified. Limits on the introduction of exotic, invasive species also could be considered.

Survey results also indicated community support for variable management criteria for differing landscapes. Landowners might be given the opportunity to "register" all or portions of their properties under specific landscape categories (i.e., farm, woodland, meadow, pasture, etc.) and thereby be subject only to the management provisions specific to that landscape type. If such variable management criteria are adopted, monitoring of compliance would be an appropriate role for the Open Space Committee.

Provisions for landscape plans could be expanded to promote potential mitigation strategies for vegetation disturbance, such as reforestation, hedgerow plantings and wetland restoration. Lists of appropriate species can be included to promote the use of native vegetation in landscaping plans.

Vegetation management and landscape plan requirements should be coordinated with stormwater management requirements (in S/LDO) to promote less obtrusive approaches to stormwater management, such as wet meadows planted with native wetland plants.

Review Flood Plain District standards (Z.O. Section 1208) in terms of protecting the scenic, vegetative, and natural diversity aspects of the Township's stream corridors. For example, stricter controls on the removal of native vegetation from the district, or within a specified distance from the stream bank, could be established.

Consider formal establishment of protective buffer zones along stream corridors and wetland areas, stipulating a setback distance from streams which is to remain vegetated and

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is wide enough to protect water quality; provide for appropriate and prohibited activities and uses within the buffer zone. The removal of native vegetation from within the buffer zone should be prohibited. Buffer zones generally range from 25 to 300 feet wide, with 50 feet often being used. To establish the appropriate buffer widths, the Township will need to consider adjacent land uses, the degree of slope and the extent of wildlife habitat desired. General buffer provisions could be applied to all property within the prescribed buffer zone, but not so as to unduly restrict the use of existing individual private lots. Establishment of more restrictive covenants or easements governing the buffer zone could be required as a condition of subdivision or land development approval.

Consider adoption of specific requirements for wetlands delineation, addressing specific situations where such requirement would be made, and the process by which it is reviewed and accepted. The Township should generally be able to rely on the state and federal agencies for appropriate wetlands regulation, but should actively monitor the ongoing compatibility with Township resource protection objectives. Consistent identification and monitoring of wetlands will also protect applicants from inadvertent violation of state and federal legislation.

Consider adoption of wetland restoration standards for developments on farmland that has been tiled (where tile fields have been used to reduce soil saturation in high water table areas), i.e. a "tile-buster" ordinance.

- **Establish provisions for limitation or exclusion of critical environmental resources for purposes of determining maximum permissible density or intensity of development ("net-out").** Such provisions could be implemented through amendment of the Lot Area definition (Z.O. Section 201) and through incorporation into any other formulae which may be used for calculation of density and/or impervious coverage.
- **Require a Site Analysis as part of the subdivision/land development application under S/LDO Sections 502 and 503,** with a specific checklist of all critical and sensitive resources. Require acknowledgement of review and reference to the resource mapping included in this Plan and in the Township Comprehensive Plan. Site Analysis should be required as part of Preliminary and Final Plan submission. It also can be required with Sketch Plan submission, to the degree and level of detail available at that time. The key benefit to both Applicant and the Township is having appropriate information "on the table" early in the planning process, ideally helping to forge a common understanding of the important issues surrounding each application.
- **Consider requirement for assessment of potential impacts of proposed development upon site resources identified through required Site Analysis (EIA - Environmental Impact Assessment);** draft specific guidelines for impact assessment and determine instances where submission of an EIA would be required, such as under any conditional use application, any major non-residential use, any large residential subdivision, etc.

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- **Establish formal process for Conditional Use approval**, re-defining the range of uses permitted in each district as Uses by Right, Special Exceptions, and Conditional Uses. Appropriate uses would be retained in the hands of the Zoning Hearing Board as Special Exceptions, where they might be measured against a relatively short and discrete "checklist" of community planning considerations. Uses with potentially variable and/or hazardous impacts, or which require considerable study to judge their appropriateness, would be set up as Conditional Uses, to be considered by the Supervisors upon recommendation of the Planning Commission. Application for conditional use approval could require submission of extensive site analysis, environmental impact assessment, market analysis, traffic impact analysis, etc., as appropriate.
- **Develop overlay zoning provisions to aggressively promote protection of scenic, natural and cultural resource values** identified by this Plan. Such provisions would be implemented through incentive or mandated use of cluster provisions or other approaches to flexible development planning available to applicants within the overlay district. Required site analysis would establish the particular land-planning issues associated with community resource protection objectives on any given tract. Net-out provisions can be tailored to significant resource values, with degree of permitted intensity of development contingent upon adherence to performance standards for resource protection. The following specific overlay areas are recommended:

Scenic/Agricultural Conservation Area. This area would encompass the large contiguous upland area at the heart of the Township, characterized by prime agricultural soils and broad vistas sweeping toward the Forks of the Brandywine Church. Specific performance standards and development guidelines should be developed to nudge development out of primary view lines and to promote siting, landscape, and architectural design in keeping with characteristic landscape themes of West Brandywine.

Habitat Conservation Areas. These areas are envisioned where large contiguous woodland habitat exists in areas also significant for protection of water resource values; specifically along the West Branch Brandywine corridor and in the Indian Run watershed. Highly restrictive resource net-out provisions might apply in these areas, with permitted development intensity "returned" to the applicant in response to demonstration of resource-sensitive design. Appropriate performance standards and design guidelines should be developed.

- **Establish a new zoning district to cover the extensive lands designated as "cemetery" in the central part of the Township.** These lands are among the most scenic in West Brandywine; zoning language should be fine-tuned to offer specific provision and appropriate limitations and design controls for cemetery use. For example, "cemetery" might be considered as a candidate for "conditional use" status.

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- **Revise the Zoning Ordinance and map to discourage strip/sprawl commercial development**, particularly along Route 322. Careful study and fine-tuning of provisions currently stipulated in the HC, LI, and R-5 zoning districts is needed (Z.O. Sections 800-804, 900-904, 1000-1005). Zoning map changes should be considered, favoring greater depth to district bounds and less linear highway frontage. Possibilities for development of a mixed-use area along traditional village lines should be considered, building on historical land use and architectural traditions in the Brandywine Manor area.
- **Review areal extent of the R-4 and LI zoning districts as well as provisions for development intensity**; consider modification to these districts to reduce prospects of considerable loss of significant habitat and headwater areas, balancing resource protection objectives with analysis of West Brandywine's "fair share" relative to uses permitted in those districts.
- **Review and consider revision to Cluster and Lot-Averaging provisions** (Z.O. Sections 1511-12), to address the following:

Establish a clear basis for maximum development potential in keeping with the underlying zoning districts and the resource protection objectives set forth here. A formula approach to determination of maximum density or unit count is recommended taking into account appropriate "net-out" considerations.

Consider revision of minimum area and bulk standards for individual lots (with no increase in overall density) to promote flexible approaches to siting of structures, so that unnecessary intrusion into vulnerable resource areas can be avoided. Permit siting and lot area considerations which build upon traditional or historical patterns; Allow for considerable reduction in the minimum size of individual lots, as low as 5,000 square feet, for example.

Ensure that requirements and criteria for selection, management, insurance, and guarantee of permanence of open space are consistent with resource protection objectives articulated by this Plan and delineated by the Priority Open Space Network. Administration of open space requirements should be carefully monitored by the Open Space Committee.

Consider revision of threshold tract size for eligibility for Residential Cluster Design Option (now 20 acres), to expand possibilities to use this flexible approach on behalf of resource protection objectives.

Consider establishment of incentive provisions, possibly in the context of conditional use approval, which might link permitted density within a cluster development to realization of resource protection objectives. Provision for a higher unit count might be made where historic resources would be preserved, or where designated open space is increased substantially beyond the minimum, for example.

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- **Consider expanding incentives for conservation of historic and architecturally significant structures and landscapes.** Establish a "waiting period" prior to permitting demolition, while offering a modest density bonus and/or added design standard flexibility, or allowance for certain additional uses, beyond those otherwise authorized within the zoning district, for example, to promote appropriate adaptive re-use. The essential purpose of any bonus would be to make conservation at least as financially feasible as demolition and replacement. Use of bonus provisions could be linked to the Secretary of the Interiors Standards for Rehabilitation and/or imposition of conservation easements to guarantee appropriate and permanent conservation as a way to make preservation of an historic structure feasible.

3. Other Actions

- **Consider additional approaches to promote retention of the agricultural community.** Expansion of the clustering concept within the zoning ordinance, as described above, could benefit farmland retention by allowing economic value to be realized from land development that does not eliminate the agricultural use of a majority of a tract. As potentially useful options for those willing to commit land to agriculture. Mechanisms such as transferable development rights also can be explored. Review zoning provisions to ensure they do not impose undue or even unintentional hardships on the farming community.

The Township can continue to encourage participation in and continuation of the Agricultural Security Area. It also should be prepared to analyze the effects of any purchase of development rights by county and/or state government, or the placing of any substantial new tracts of land under easement, in terms of their contribution to the Township's protected lands network and possible impact on future land use policy, fair share status, etc.

- **Explore potential for establishment of a program for Transfer of Development Rights (TDR),** as specifically authorized by the Municipalities Planning Code. Development rights could be sold by owners of tracts in a "Sending Area" which could comprise lands within critical and sensitive open space resource areas in certain zoning districts. Zoning provisions would need to be revised for "Receiving Areas," to stipulate appropriate conditions for sufficient increases in density, floor-area ratio (FAR), or land use options to provide incentive for purchase of development rights. The Township should study potential opportunities to enter into a joint zoning program with neighboring municipalities, enabling transfer of development rights to appropriate locations across municipal boundary lines.
- **Consider establishment of scenic road guidelines,** dealing with maintenance of roadside vegetation, fences, walls, and banks; increased setbacks and/or specific design standards in areas of scenic view; standards for improvements to cartway and road geometry, etc.

Approaches toward conservation of scenic roadways are discussed at length in the "Scenic Roads Handbook," published by the Chester County Planning Commission in 1984 (Local

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Government Handbook Number 3) and "Guidelines to Improve the Aesthetic Quality of Roads in Pennsylvania," published by the Pa. Dept. of Transportation and DER in 1978. Any designation of scenic roads in the Township should be closely coordinated with PENNDOT.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 provides federal funding (through state and regional agencies) for many innovative roadway improvements programs. ISTEA goes well beyond the usual definition of road improvements, which have traditionally emphasized paving and widening. ISTEA has set aside funds for programs designed to: provide for pedestrians and bicycles, acquire scenic easements, preserve abandoned railway corridors, and remove outdoor advertising, among others. The Township, or even a voluntary citizens group, could be eligible through ISTEA to obtain funding assistance to acquire scenic easements.

■ Encourage private land conservation.

The main incentives of private conservation tools are federal income, gift, and estate tax reductions. These techniques require negotiation and rely heavily on the willingness and desire of a landowner to preserve open space resources. Given the right set of circumstances these mechanisms can go a long way towards preserving lands otherwise destined for development.

Private land conservation tools generally involve a taxpayers gift of property or property rights to conservation organizations or municipal governments. The types of donations include:

- outright gifts of land;
- gifts of land with retained life estate;
- bargain sales of land;
- gifts by will; and
- conservation easement donations.

Several private conservation organizations actively promote these preservation tools in Chester County, notably the Brandywine Conservancy, French & Pickering Creeks Conservation Trust, and the Natural Lands Trust.

Conservation easements provide a way in which a property owner can participate in the long-term protection of valuable open space resources. A conservation easement is a legal agreement between a property owner (donor) and an eligible recipient (usually a conservation or government organization), under which the landowner establishes restrictions over the use of the property. The recipient (donee) agrees to monitor the eased areas to assure that the easement terms are upheld. Because the public benefits from the permanent preservation of important scenic, historic and natural areas, the donor may qualify for certain federal income tax deductions on the basis that the donated easement is a charitable contribution. Estate and

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gift tax deductions also can result from an easement donation, as a result of reduction in valuation for those tax purposes.

The degree of protection varies with each easement and each site, as do the conditions set between the donor and donee. Generally, easements are designed to protect identified open space resources, preclude or specifically limit development, and minimize land disturbances. Areas eased, and the degree of restriction imposed, should clearly coincide with individual and, ideally, community resource protection objectives.

The Township can promote private land conservation by encouraging the establishment of a landowners cooperative program as described below and through public education.

The Board of Supervisors also could adopt – in the form of a resolution and as an amendment to the Comprehensive Plan – a clearly articulated policy endorsing conservation easements as a means to achieve community open space and environmental resource protection objectives. While it need not be parcel specific, such a policy should refer to the resources inventoried in this plan – comprising the Priority Open Space Network and the specific recommended Conservation Areas – the protection of which could be achieved effectively through the establishment of conservation easements. This action by the Township would help future easement donations to qualify as charitable contributions under Internal Revenue Service regulations.

- **Encourage a private landowner cooperative program**, whereby the Township would aim to facilitate both formal and informal liaison between the Board of Supervisors, Planning Commission, Open Space Committee and individual landowners, local conservation organizations, and county and state programs for open space conservation.

The primary focus of the program would be informational, making sure that landowners are fully aware of all opportunities for land stewardship, including both financial incentives and costs. This could occur through both formal and informal informational meetings, and through introduction of individual landowners to appropriate conservation experts.

The cooperative could monitor all unprotected properties. The Priority Open Space Network, and particularly the recommended Conservation Areas, could be used as a starting point, to help the group focus on high priority parcels.

- **Continue to pursue National Register listing for historic resources.** Structures, sites, and districts of historic significance and integrity may be eligible for listing in the National Register of Historic Places. In the Commonwealth, this process involves submission of a Pennsylvania Historic Resource Survey form to the Pennsylvania Historical and Museum Commission (PHMC) in which the property is described architecturally and historically, and photographic evidence supplied of its structural condition. PHMC staff makes the first-cut determination

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of eligibility, and gives permission to the applicant to proceed with the preparation of a National Register Nomination.

Listing on the National Register does not provide specific protection per se; it does, however, mandate an additional level of review known ("Section 106 Review"), should a federal action, or federally funded action impact the property physically or visually. Examples of actions that would trigger a Section 106 review include a project funded with money from one of the federal grant programs, a project that would involve a permit from the Army Corps of Engineers, or a project which would involve Federal Highway money (in which case a review called a Section 4F review, the transportation equivalent of Section 106).

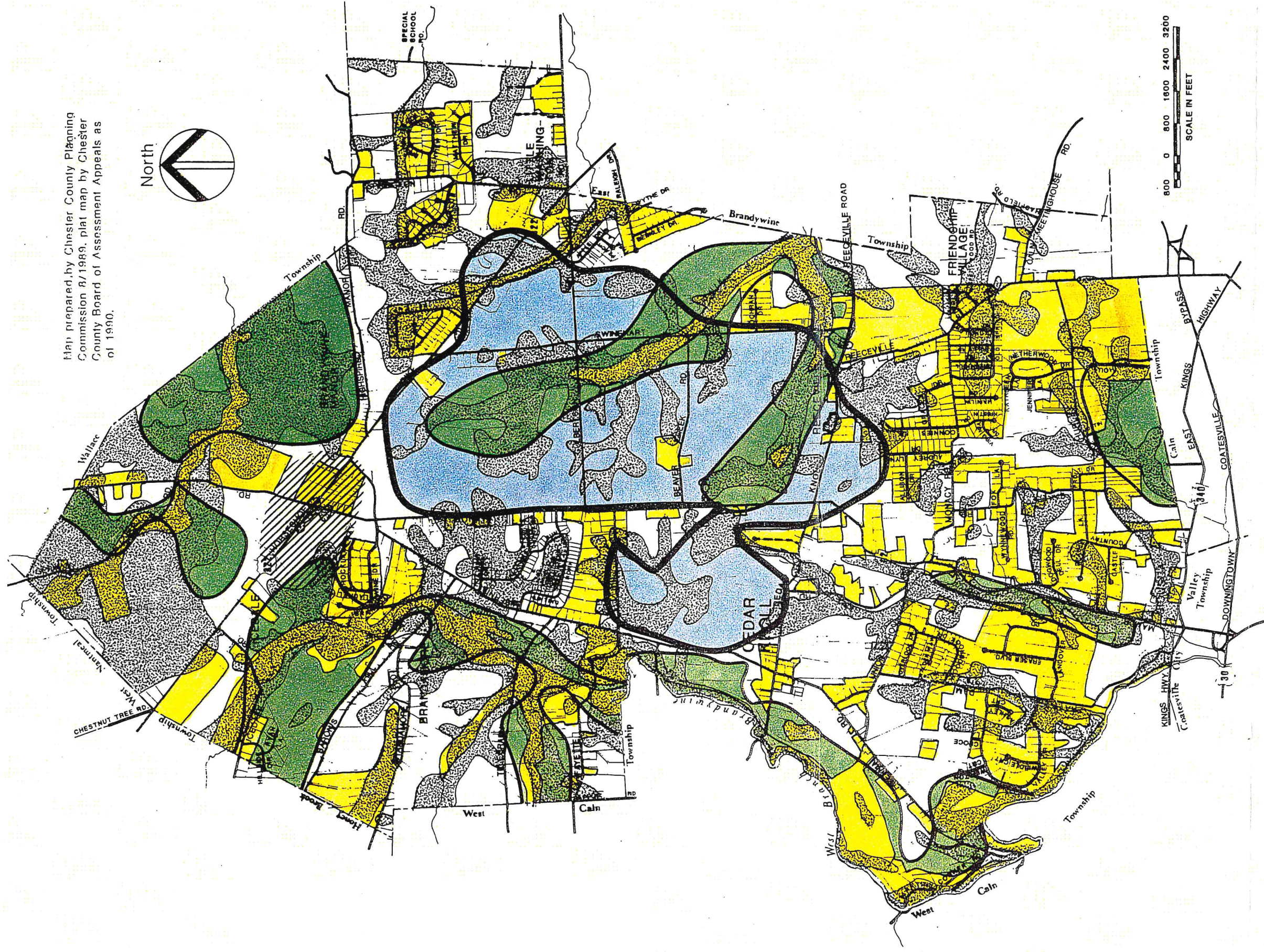
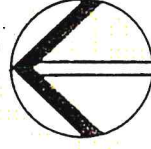
In addition to the added level of review, listing on the National Register enables the owner of a such a property to rehabilitate the property for income-producing purposes and take a 20% Investment Tax Credit on his or her Federal Income Taxes. Additional regulations - The Secretary of the Interior's Standards for Rehabilitation - apply to this process and must be stringently adhered to in order to qualify for the credit. A similar but lesser credit (10%) is also available for owners who rehabilitate older structures (which are not National Register buildings but which might be identified in the Township inventory). Both of these credits were modified by the Tax Reform Act of 1986.

- **Explore potential interest and relative benefits of establishment of historic districts in accordance with Pa. Act 167 to offer additional opportunities for protection of existing villages and historic clusters, at Brandywine Manor, Brandamore, and in the Hatfield-Hibernia district, for example.**
- **Investigate local interest in pursuing formal Scenic River designation for the upper West Branch Brandywine.**
- **Continue to use the Township Newsletter and consider development of pamphlet(s), informational meetings, or other means to educate developers and residents regarding resource-sensitive and open space-oriented design options and ideas.**

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Map prepared by Chester County Planning Commission 8/1989, plat map by Chester County Board of Assessment Appeals as of 1990.

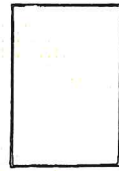
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West Brandywine Township



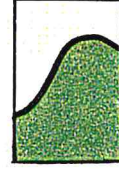
Fine-tune regulation to protect critical environmental resources



Promote flexible development approaches to protect sensitive resources throughout township



Establish overlay provisions to maximize protection of scenic/agricultural conservation area



Establish overlay provisions to maximize protection of Habitat Conservation Area



Promote mixed-use village development in lieu of strip commercial along Rt. 322



Existing developed lands and lands unavailable for development

Open Space Recommendations

Section VII: Plan for Recreation

This Recreation Plan element examines recreational opportunities available to West Brandywine Township residents. It recognizes at the outset that most recreation opportunities are not directly provided by the Township, itself. In fact, West Brandywine Township currently holds a very limited amount of park and recreational lands and formally provides no recreational programs. Hence, to date, there has been extremely limited staff and operational involvement on the part of the Township. The Township does contribute to provision of recreational services by the East Brandywine Youth Association as well as the Caln Little League and Babe Ruth associations. Limited Township involvement would be expected in view of overall population density in West Brandywine and in the context of local perception of appropriate governmental roles. Nevertheless, West Brandywine Township residents avail themselves of a wide variety of recreational services available in central Chester County and beyond. It is appropriate that the Township monitor on-going recreational opportunities, assess unmet local recreational needs on a periodic basis, and reevaluate potential Township involvement.

A. Standards for Recreation Lands and Facilities

As a tool to evaluate local recreational services, we have utilized standards developed for the Chester County Open Space and Recreation Study (1982), based on standards provided by the National Recreation and Park Association (NRPA) and the Delaware Valley Regional Planning Commission. Recreational standards are frequently expressed in terms of number of facilities or amount of park acreage per each 1,000 residents. That threshold is rather large in the context of planning for a total municipal population of roughly 6,000. Thus, population-based standards only can generate a gross order of magnitude of "need" when applied to relatively small populations.

1. Regional Parks

Regional parks are large scale park preserves serving an area greater even than Chester County. Because of their regional significance, such parks are usually provided by federal or state governments. They typically provide a variety of outdoor recreation opportunities – both active and passive, particularly those requiring large land or water areas. Emphasis is often placed on recreation opportunities beyond the scope of those typically provided at local parks, including, for example, camping, boating and swimming. CCOSRS suggests that each regional park be at least 1,000 acres in land area. Across the region, there should be twenty acres of regional parkland available for each 1,000 persons, with a maximum service area radius of thirty miles.

2. Subregional Parks

These parks fill the gap between regional parks and local parks. Ideally, they provide relatively large tracts of public open space within a short drive of home; fifteen minutes is considered a reasonable threshold. Serving less than an entire county, subregional parks are beyond the scope of municipal provision. They are likely to be provided by county government, but could be provided jointly by more than one municipality. Subregional parks should be geared to regular use on weekdays as well as weekends. They should offer the trails, fields, courts, water recreation areas, picnic areas, and woodlands that local parks can only partially provide. CCOSRS suggests 8.5 acres of subregional parkland per 1,000 population with each regional park comprising at least 100 acres and having a service area radius of 7.5 miles.

3. Community Parks and Recreation Facilities

Community park lands and facilities are usually provided by municipal government to serve a variety of local outdoor recreation needs on a regular basis, both active and passive, group and individual. In many municipalities, a system of community and neighborhood parks and/or free-standing recreation facilities might collectively meet local needs in a variety of settings, ideally spreading facilities within walking-distance or a short drive of a broad spectrum of residents. Individual parks might specialize in a particular realm of recreational service.

"Community parks" are the larger of local parks, typically encompassing at least 15 acres and including a range of recreational facilities: multi-use playing fields and courts, specialized areas/facilities for small children and for senior citizens, picnic areas, space for special events, off-street parking, paths, trails and undesignated open space. No single park need necessarily contain a full range of recreational facilities. The actual number of fields, courts and other recreation facilities included at any one park should reflect a careful analysis of community needs (See "Needs Analysis" discussion below). Facilities for indoor recreation should also be available to the community, but need not be provided directly in conjunction with community park facilities, nor even by local government, if alternatives can be made available (school or community buildings, for example).

Individual community parks frequently serve a population base a great deal larger than that of West Brandywine Township, particularly in more densely populated areas. CCOSRS suggests an idealized minimum park size of 20 acres with a service area radius of 2.5 miles. CCOSRS notes further that as much as half the land area in such a park might comprise undesignated open space available for passive recreational pursuit. In practice, community parks often are smaller in land area and more focused toward active recreational opportunities.

"Neighborhood parks" usually are smaller and less complex than community parks. They are specifically intended to provide walking-distance service (up to about one-half mile) in relatively densely populated areas where individual "backyard" recreation opportunities are limited. This

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generally can be equated to neighborhoods where lot sizes average less than one-acre. At present, most households in West Brandywine occupy lots greater than one-acre in area, although many are just an acre. The largest concentration of lots smaller than one-acre is in the Friendship Village area in the southeastern part of the Township. Where neighborhood parks are needed, each ideally should include: relatively flat field area(s) appropriate for a variety of informal field sports; basketball, volleyball, and/or multi-purpose court(s); jogging/ exercise trail (may be informal); tot play area and apparatus; informal picnic and sitting area.

A neighborhood park should comprise 5-10 acres and, ideally, should link to any broader open space system or network in the vicinity. Location relative to major roads or other barriers to pedestrian traffic must be considered when assessing the service area radius for any particular neighborhood park. Specific development of neighborhood parkland should be tailored to suit the needs and preferences of local residents, taking into account the availability or lack of "backyard" recreational opportunities and/or other convenient private/ community recreational facilities.

CCOSRS recommends standards for estimating community park need which vary according to density of settlement. With a reasonable planning horizon of the year 2010, we might expect total population as high as 8,700 in West Brandywine Township (based on Chester County Planning Commission projection). This would correspond to a gross population density of 657 persons per square mile, placing West Brandywine in the broad "rural-suburban" to "suburban" density range for which CCOSRS recommends a minimum of 4.5 acres of community parkland per 1,000 residents and 3.5 acres of neighborhood parkland per 1,000 residents.

4. Recreation Facility Standards

Population-based standards offer a general measure of need for sport field and court areas typically provided at neighborhood or community parks. Standards also can be found for recreation facilities like golf courses, camping areas, and water-based recreation facilities which serve a base population far greater than that of West Brandywine alone. Because the service areas for such facilities are much larger than the immediate community, we will not measure the local population against those population-based standards. For numerous recreational activities/facilities, no population based standards are available. These tend to include primarily "passive" recreational use of open space associated, for example, with: hiking, walking, and equestrian trails; bikeways; picnic areas; fishing; and winter recreation activities.

Population-Based Standards:

Baseball/Softball Fields: 0.5/1,000 pop.
Football Fields: 0.4/1,000 pop.
Soccer Fields: 0.5/1,000 pop.
Tennis Courts: 0.5/1,000 pop.
Basketball Courts: 0.4/1,000 pop.

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Volleyball Courts: 0.3/1,000 pop.

Standard Field Sizes:

Regulation Hardball: 2.8 acres

Junior Hardball: 1.4 acres

Regulation Softball: 1.8 acres

Junior Softball: 0.8 acres

Regular Football: 2.0 acres

Touch Football: 1.4 acres

Regulation Soccer: 1.4 acres

Standard Court Sizes:

Two Reg. Tennis courts: 0.25 acres

Regular Full Basketball Court: 0.2 acre

Regular Volleyball Court: 0.1 acre

Except in more densely populated urban and suburban areas, facilities for swimming are seldom provided at the local governmental level. Nevertheless, opportunities for swimming should be available to local residents; CCOSRS suggests a standard of 0.2 swimming areas per 1,000 population. Swimming areas include not only pools but also swimming beaches at both natural and artificial water bodies.

5. Recreation Programs

While municipal governments often assume a direct role in recreational programming, it is not unusual that such a role be limited in relatively low-density municipalities. West Brandywine Township neither has a Recreation Board or committee nor employs staff with specific responsibility for recreational issues. CCOSRS suggests a population of 10,000 as the threshold for municipal employment of a full-time recreation director. West Brandywine is not expected to reach that population threshold within the next twenty years. Nevertheless, the Township may wish to pursue cooperative employment of recreational staff with neighboring municipalities and/or formal contractual provision for recreational programming through the auspices of other public or private recreation agencies.

Even without direct involvement in recreational programming, it is appropriate for West Brandywine Township to monitor recreational demand, to encourage access for local residents to facilities and programs provided by others, and to monitor need for future municipal action. While there are no hard numeric standards for provision of recreational programs, the Township should be confident that all sectors of the community are adequately served by a wide variety of program opportunities. Programs ranging from organized and individual athletics to arts and

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crafts, social and cultural programs, and special community events should be available to children, youth, adults, senior citizens, and handicapped individuals.

It is appropriate to minimize direct municipal programming involvement through coordination and cooperation (formal and informal) with other public agencies (i.e., Caln and East Brandywine Townships and other neighboring municipalities, and Chester County), and with private and quasi-public agencies, potentially including the Brandywine YMCA, the Coatesville Area and Downingtown Area School Districts, the fire companies, churches and social organizations, East Brandywine Youth Association (EBYA), Downingtown Area Recreation Consortium (DARC), Caln Little League and Babe Ruth, West Bradford Youth Athletics, and any other local youth or adult athletic leagues.

B. Inventory of Existing Recreation Conditions

1. Regional Parks

West Brandywine residents are, to some extent, served by several regional parks. These include four Pennsylvania state parks: Evansburg (Montgomery Co.), French Creek (Berks and Chester Cos.), Marsh Creek (Chester Co.) and Ridley Creek (Delaware Co.). Additional areas which may be considered as helping to fulfill the regional park role include Philadelphia's Fairmount Park system, the State Park Bureau's White Clay Creek Preserve (Chester Co.) and Delaware's adjacent Walter S. Carpenter State Park, the 1,800-acre Ferndale Nature Center (City of Reading) and the Army Corps' Blue Marsh Lake (Berks Co.), with 6,600 acres, including an 1,150-acre lake.

Regional park facilities offer substantial opportunity for picnicking, hiking, and horseback riding. French Creek, Marsh Creek, and Blue Marsh provide for swimming, boating, and fishing. Major camping facilities are provided at French Creek, while Evansburg, Marsh Creek, and Ridley Creek all have youth hostels. Group camping may be permitted on request at the Reading Nature Center. While focused on their interpretive values, Valley Forge National Historical Park (Chester/Montgomery Counties), Hopewell Village National Historic Site (Chester/Berks Counties), and the Nolde Forest Preserve (Berks) all contribute to available regional open space.

2. Subregional Parks

Chester County's Hibernia Park, Springton Manor Farm interpretive park, Struble Lake access area and Struble Trail are located easily within a fifteen-minute-drive service area radius of West Brandywine residents. In fact, Hibernia Park laps across the West Branch Brandywine into West Brandywine Township. All of these County park facilities afford extensive opportunities for picnicking and host numerous special events, although formal programs and facilities are quite limited at both the Struble Lake and Struble Trail. Excepting Struble Lake,

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all offer hiking, and horseback riding. The Springton Manor Farm exhibits antique farm implements and live farm animals and hosts numerous special events aimed to interpret historical farm practices and farm life in Chester County. Picnic facilities are particularly numerous at Hibernia Park, as are unstructured play fields and playgrounds. Hibernia also offers formal campsites and informal tent camping opportunities. An 89-acre water supply lake being developed within the bounds of Hibernia Park also will offer water recreation opportunities upon completion (expected in 1994).

3. Community Parks and Recreation Facilities

Existing community park and recreation facilities serving West Brandywine residents are scattered throughout central Chester County. Park facilities within the Township are somewhat limited relative to the population and geographic extent of the Township, but include several significant public and quasi-public facilities, listed below and indicated on the Recreation Recommendations Map on page ?.

Coatesville Area Schools - North Campus

- 71.9 acres
- 3 baseball/softball fields
- 2 football/soccer fields
- track
- playground equipment
- 3 gymnasiums
- parking

Brandywine YMCA

- 30.6 acres
- 2 baseball/softball fields
- 2 soccer fields
- 4 tennis courts
- basketball court
- jogging track
- playground equipment
- outdoor pool
- indoor pool
- indoor court sport facilities
- indoor program space
- parking

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Township Building and Field

- 8.3 acres
- baseball/softball field
- indoor meeting space
- parking

Forks of the Brandywine Church Field

- 11.5 acres
- baseball/softball field

Hibernia County Park

- 821 acres (114.6 acres in West Brandywine)
- passive open space with stream access
- extensive picnic, camping, interpretive, and special events facilities in West Caln Township

Icedale Lake site (Pa. Fish & Boat Commission)

- 36.8 acres
- passive open space with stream access (former lake site, now meadowland)

Indian Run Girl Scouts Camp

- 70.4 acres
- private camp facilities
- passive open space

In addition, East Brandywine Township's Spatola Park straddles the Township line, lapping into West Brandywine. A proposed Chester County 4-H Center is in the organizational stage of development, intending to utilize a site on Route 322 at the Honey Brook Township line. The Old Mill Bible Conference grounds at Brandamore also offer limited recreational facilities.

4. Recreation Programs

Based on general knowledge and interpretation of the results of the Community Values Survey, West Brandywine residents participate in a wide range of recreational programs; including special community events, organized sports, arts and crafts, nature activities, and social activities. Due to geographic location and limited local population density, many such programs are offered well beyond the bounds of West Brandywine Township, itself.

As noted, the Township supports East Brandywine Youth Athletics (EBYA) and the Caln Babe Ruth Association. The Caln Association focusses on youth baseball; additional program information is not available at this time. EBYA offers youth baseball, softball, and soccer

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programs. During each of the past two seasons (1991 and 1992), the EBYA baseball program had 330 youth participating, half of whom were residents of municipalities other than East Brandywine, many West Brandywine. In each of those years, the girls' softball program served 100 youth. During the four most recent soccer seasons, participation rates were/are:

Fall 1991	513
Winter 1992	378
Fall 1992	517
Winter 1993	367

West Brandywine Township residents are known to participate in youth and adult leagues farther afield, including West Bradford Youth Athletics, American Legion baseball and various adult softball leagues. The Downingtown Area Recreation Consortium (DARC) offers an extremely varied array of programs which are open to West Brandywine residents on a fee basis. These range from arts and crafts, adult education and fitness programs, to specialized social and athletic programs. A large proportion of DARC's programs are aimed at adult users.

The Chester County Volleyball League offers adult time play throughout the County. Local YMCAs (Brandywine, Lionville, and West Chester) offer exercise instruction, aquatic programs (including recreational swimming), adult racquetball, volleyball, and basketball leagues, parent/child programs (Indian Guides/Princesses), and child care and summer camp programs. Other programs are offered through Midget Football, Brandywine Bicycle Club, Brandywine Roadrunners, and local 4-H Clubs, Boy and Girl Scouts troops, Lions Club, Masonic Lodge and American Legion post. Private clubs throughout the region further augment recreational programming opportunities.

Programs for senior citizens are offered at senior centers in Coatesville, Downingtown, and West Chester, and augmented by programs offered by DARC. The senior centers are private, non-profit agencies receiving funding support from the Pennsylvania Department of Aging and the United Way of Chester County. Free transportation has been available on demand by Chester County Paratransit Service. Additional programs of interest to senior citizens are found among those offered by area YMCAs.

5. Community Recreation Operations

All formal recreation programming serving West Brandywine residents is coordinated by the various private programming agencies.

The Coatesville Area School District maintains recreation facilities at its North Campus. The YMCA, County Parks Department and other facility owners noted maintain their respective

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facilities (noted above). The Township maintains the baseball/softball field at the Township building, budgeting \$1,000 annually for field maintenance. Otherwise, direct involvement in recreational operations by Township staff is very limited.

The very limited scope of Township recreational operations is undertaken as needed by the Township Roads Department, under direction of the Township Manager at the request of the Supervisors. Limited security needs are met by Township police. The Roads Department also undertakes general road and bridge maintenance, roadside vegetation management, and maintenance of Township police vehicles. The Department has available a full complement of road maintenance and mowing equipment. Recreational maintenance expenditures are not specifically separated from roads maintenance expenditures and are funded through the Township general fund.

Township involvement in recreational programming is limited to funding assistance to EBYA (\$800 per year) and to the Caln Little League and Babe Ruth association (\$800, collectively). Direct Township recreational involvement over the last five years has remained consistent, limited to \$1,000/year for field maintenance and \$1,600/year for program support, as discussed. Scheduling of field time at the Township ballfield is coordinated through the Township offices by the three agencies using the field: EBYA, Caln Little League, and a local church. The Township stipulates that field space be free for informal use by Township residents on Sundays and at least two evenings per week. Scheduling by the three agencies has remained consistent over the last five years.

C. Recreation Needs Assessment

1. Regional Parks

Based on review of available acreage, facilities and service area radii, regional parks in southeastern Pennsylvania do not adequately meet the regional park needs of their service areas. It is in the interest of the Township to support the expansion of regional parks and associated recreational opportunities.

2. Subregional Parks

The 3,000-acre County park system essentially meets the population-based park acreage standard county-wide; West Brandywine residents are particularly blessed by geographic proximity to Hibernia Park.

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3. Community Parks and Recreation Facilities

Applying population-based standards to 1990 census figures would call for 27 acres of community parkland in West Brandywine, increasing to 39 acres to accommodate population increases to the Year 2010. While none of the existing recreational facilities in West Brandywine Township explicitly fulfill a community park role, the YMCA and public school facilities on Hurley Road form a recreational complex of 102.5 acres. Most active recreational facilities typically part of community park development can be found here. Missing are "natural" areas for passive recreation, formal picnic areas, and area specifically earmarked for community special events. On the other hand, those facilities can be found in Hibernia Park.

From the standpoint of sheer availability of "community" recreational facilities and lands within West Brandywine, the Township would appear to be well served. However, the use of those same facilities for very specific purposes not necessarily related to community recreational opportunities, limits their availability for use by the general public. At the present time, the Coatesville Area School District restricts general public access to school facilities. Location is a further constraint, with the entire northern half of the Township beyond an idealized 2.5 mile service area radius.

Need for neighborhood parkland can be calculated at 21 acres in 1990, increasing to 30 acres by 2010. None of the existing recreation facilities are specifically geared to fulfilling a neighborhood park role. Current development patterns only justify a "need" for neighborhood parkland in those portions of the Township where residents enjoy only limited "backyard" recreation opportunities; essentially where individual lot sizes average less than one acre. At present, only the Friendship Village area along Reeceville and Monacy Roads and the "Cross Creek" and "Kimberwick" developments near Little Washington appear sufficiently dense to make neighborhood park development particularly desirable. A small play area is, in fact, planned at Cross Creek, while open space will be made available for recreational development at Kimberwick. Should development of a public sewerage system ultimately eliminate the need for irrigation fields at Kimberwick, additional recreational lands might be made available.

Large areas of the Township, primarily in the southern half, show average lot sizes only a little larger than one-acre, potentially indicating additional need for neighborhood parkland. Where higher-density neighborhoods might be developed in the future, additional neighborhood park facilities also will be needed. Results of the Community Values Survey indicated significant interest in development of playground areas for young children, close to home.

Section 811 of the West Brandywine Township Subdivision & Land Development Ordinance of 1989 (S/LDO) provides for the set-aside of open areas suitable for recreational uses in subdivisions with more than ten dwelling units or which include the dedication of a new public street. Section 811 further provides a set of standards for appropriate design of recreational

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open space, and incorporates by reference zoning provisions for ownership and management of open space. The S/LDO no longer provides for dedication of fee-in-lieu of land.

Applying population-based standards for recreational facilities to West Brandywine results in the following standard "need" for 1990 and 2010:

Facility Type	Standard Requirement		Existing Facilities	
	1990	2010	Public	Quasi-Public*
Baseball/Softball Fields:	3	4	1	6
Football/Soccer Fields:	5	8	-	4
Tennis Courts:	3	4	-	4
Basketball Courts:	2	3	-	4
Volleyball Courts:	2	3	-	-
Swimming Areas:	1	2	-	1**

*The "public" column includes only the Township-owned ball field. The "quasi-public" column includes facilities at the public schools, the YMCA, and the Forks of the Brandywine church. These facilities are routinely available for community use, but such use is not guaranteed on a long-term basis.

** The indoor and outdoor pools at the YMCA arguably could be counted as two facilities. Additional water recreation opportunities will soon be available at the new lake under development in Hibernia Park.

When planning for field space, fields may be designed for multi-purpose use. However, to facilitate both recreational programming and field maintenance, it is best not to overlap baseball/softball fields with football/soccer fields.

Planning for recreational facility development should also consider the potential needs of various subgroups within the overall population, particularly where the population differs widely from the norms upon which most "standards" are based. The population might be divided into three basic groups: school age, the work force, and retired. These correspond generally to the respective age groups: under 18, 18-64, and over 65. The "typical" array of recreational facilities discussed here would reflect a "normal" population makeup, in terms of the proportion of the population within each group. In Chester County as a whole, these three

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age groups account for 24.9, 64.3, and 10.8 percent of the population respectively. For West Brandywine Township these numbers are 30.1%, 63.4%, and 6.5%. The percentage of population in the larger adult group closely mirrors the County-wide norm, while the youth and senior groups are skewed noticeably. The higher number of youth reflects in-migration of relatively young families, perhaps underlining needs for recreation facilities close to home.

4. Trails

Pathways or trails only occupy a narrow, linear land area, yet frequently are the primary means of access, both physical and/or visual, to the broad open space landscape. Trails may be geared to one or more types of trail use, including hiking, jogging, running, bicycling, equestrian use and cross-country skiing. West Brandywine residents responding to the 1992 Community Survey indicated that walking, hiking or jogging was the number one recreational activity in the Township (58% of residents participating). It also garnered significant indication of support for direct Township action to facilitate. Bicycling, with 28% of residents indicating participation (31%), ranked second highest in support for Township action to make it more available. Bicycle paths are the most needed recreational facility in southeastern Pennsylvania, according to a recent draft of the State Recreation Plan.

Trails may be incorporated into park facilities and open space areas or may be independent, extending recreational opportunity beyond specifically designated park or open space areas. They can serve as links connecting various open space, park and recreation areas to each other and to the populace they serve. Trails can be made permanent through public acquisition or through establishment of easements.

Ideally, trails will occupy suitable natural corridors such as stream valleys or woodlands, or suitable man-made corridors such as railroad rights-of-way, utility easements and scenic, low-traffic-volume roadways. They should be located where easily managed and monitored, and where impacts to residential properties can be minimized. They should have frequent access points from existing roads, and should be designed to link recreation facilities, residential areas, schools, and other centers of activity. Minimum design standards required for intended trail use type(s) should be accommodated. Multi-use trails must have sufficient width and clearance to accommodate all permitted uses. Ideally, bicycle routes will be separated from equestrian/pedestrian routes.

A basic system of bicycle and pedestrian routes might offer safe access between residential neighborhoods and recreational facilities, primarily utilizing lands within existing public rights-of-way, augmented by appropriate segments obtained through the development process. Within road rights-of-way, pathways could be established parallel but separate from the vehicular cartway.

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Experience has shown that where trails are well-used, they tend to be "self-policing" and relatively free of the "problems" inevitably brought up whenever formal trail designation is proposed. A key to proper trail usage is a meaningful system of trails with logical beginning and ending points. Short, disconnected trail segments discourage use and inadvertently offer haven to those bent on misuse. Pocopson Township, for example, has long embarked on a policy of formal trail designation, but keeps trail easements "in escrow" until complete segments can be formally designated. Also critical to proper usage is regular monitoring, ideally by locally based groups who also might promote proper use and contribute to trail maintenance. In a number of communities, locally-based trails associations have been established for these purposes.

Potential liability is frequently raised as a deterrent to formal provision of trail access across private lands. In fact, landowner liability has been specifically limited by act of legislature (Act 586 of 1987). Except in cases of "malicious" failure to warn of hazardous conditions, the act releases landowners from liability for injury to person or property occurring when recreational use is permitted without charge. The act also specifically defines and prohibits "recreational trespass," including vandalism, littering, and failure to leave gates, fences, etc. in the same condition as they were found. A recent court case has broadened the specter of potential responsibility where maintenance of improved recreational facilities has been neglected. It is not entirely clear under what circumstances trails may be considered "improved facilities" in this context.

Over-use of trails can also result in real or perceived problems, ranging from erosion of trail surfaces and habitat damage to loss of privacy for neighbors and deterioration of the recreational experience. Ironically, the more that trail access is restricted or confined in response to perceived abuse, the worse problems resulting from over-use will become on trail segments which remain open. Clearly, the more extensive the available network of trails, the less likelihood that individual segments will suffer from over-use. It is important that trail rights-of-way or easements be clearly documented as to any access restrictions, maintenance or management responsibilities, and monitoring rights or obligations. Such issues should be resolved to the satisfaction of the Township prior to approval of any subdivision or land development plan providing for formalized trail access.

5. Recreation Programs

As discussed above under inventory, West Brandywine Township residents generally are served by a wide variety of recreational programs. While West Brandywine is fortunate to have available programs relatively nearby, transportation becomes a significant potential limiting factor, particularly for youth and senior citizens who are transportation dependent. The Township may consider means to encourage a greater number of program locations within or very near to West Brandywine. Otherwise, existing programming agencies appear, collectively,

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to be offering sufficient recreational opportunities for West Brandywine residents at this time. Most programs are offered based on local demand and, as such, are flexible to meet changing needs over time, to the extent they are not limited by facility constraints.

The major limitation to program flexibility would appear to be availability of facilities. Public and private recreation facilities throughout Chester County are heavily utilized at the present time, particularly the schools. Development of additional Township park areas could not only alleviate regional demand, but would make available to program agencies locations with immediate service to West Brandywine residents. The Township should expedite the realization of such opportunities.

Formal establishment of a Township Park and Recreation Commission could also lead to on-going monitoring of local recreational demand and corresponding opportunities. The Township might seek to point out potential gaps in recreational service to the appropriate agencies. The Township also could assist contact between recreation program agencies, potential users, and those in charge of existing or potentially available facilities; this later group ultimately including the Township, itself.

Even with a total household population ranging as high as 8,700 by the year 2010, special population groups within the Township are not likely to comprise sufficient numbers to justify provision of highly specialized recreational programming. Programs of specific interest to senior citizens should be monitored, along with available transportation means to reach those programs.

D. Recreation Strategies/Recommendations

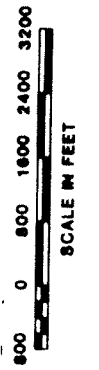
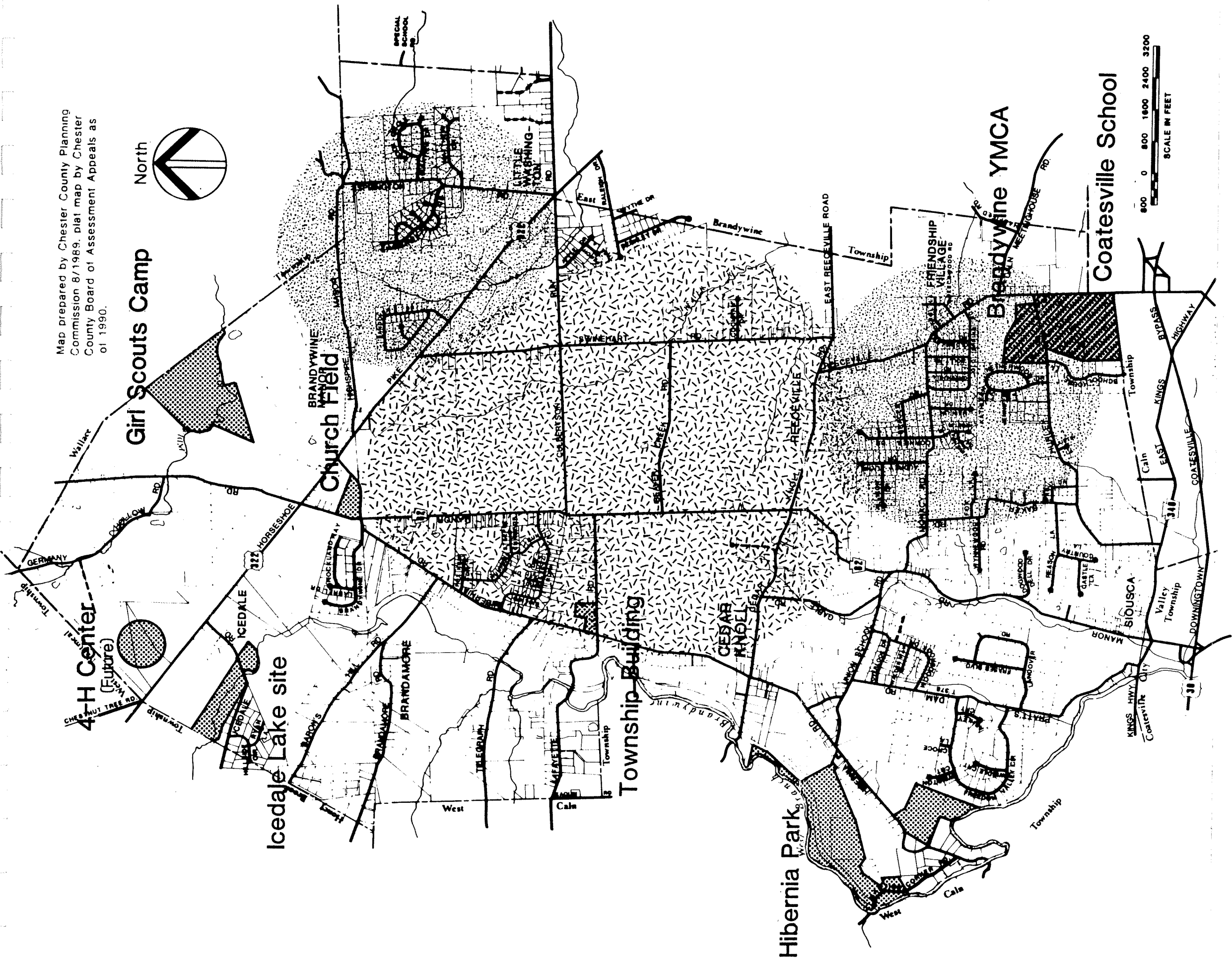
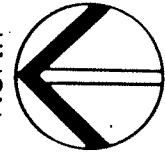
1. Recommended Policy and Action

Land based recommendations are portrayed graphically on the Recreation Recommendations Map.

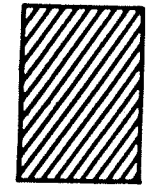
- consider establishment of a standing recreation commission or board;
- monitor community recreation needs on an on-going basis, paying particular attention to potential gaps in recreation service to specific population groups, especially those that tend to be transportation dependent, such as senior citizens and youth;
- monitor and seek to expand and facilitate public use of quasi-public recreational facilities potentially offering community recreational services to West Brandywine residents, particularly the Brandywine YMCA and the Coatesville Area Schools - North Campus;

Map prepared by Chester County Planning Commission 8/1989, plat map by Chester County Board of Assessment Appeals as of 1990.

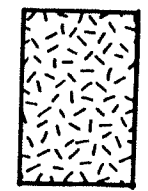
Girl Scouts Camp North



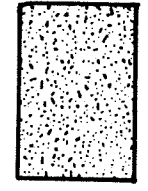
West Brandywine Township



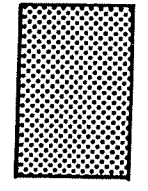
Improve public access to Community Recreation Complex



Seek to develop additional Community Recreation Area (generalized area for location)



Seek to develop Neighborhood Park facilities (generalized area for location)



Existing recreational facilities

Recreational Recommendations

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consider potential development of needed Township recreational facilities on school lands, if such can be negotiated, and if means to develop similar facilities on Township parkland do not materialize;

- pursue acquisition and development of additional community parkland, ideally in the central to northern part of the Township; focus Township community park development on needed active recreational facilities, particularly soccer fields, basketball and volleyball courts;
- monitor potential need and feasibility of neighborhood park and playground development, seeking means to minimize direct costs to the Township, where feasible utilizing open space which may be designated within residential developments;
- seek developer contributions for neighborhood and community park development; re-establish formal fee-in-lieu provisions, based on this Plan;
- monitor potential for cooperative efforts with neighboring municipalities to acquire and develop community park facilities;
- consider formal Township relationship (including proportional funding) with recreation program agencies which can offer services to West Brandywine residents, particularly where (future) Township facilities might be utilized;
- seek to establish a safe bicycle and pedestrian circulation system, linking recreational facilities to residential neighborhoods; such a system could be established, in part, as part of new subdivisions or land developments, and augmented using lands within public rights-of-way, where appropriate. Further study is necessary, focussing on 1) generalized mapping of desirable "links;" 2) delineation of management objectives/policies, particularly in regard to means to monitor access and use, keep pathways or trails clear, remove trash, and ensure compliance with any access restrictions.

2. Projected Community Park Acquisition and Development

Based on analysis of community recreational need, a Community Recreation Area should be developed to serve West Brandywine residents. This area should be planned so as to augment negotiation of formalized access to the quasi-public recreational complex in the southeastern part of the Township. Appropriate land(s) should be acquired or use negotiated. Location(s) in the central or north-central part of the Township are desirable. Should efforts to acquire or negotiate use of appropriate land(s) fail within 3-5 years, the Township should pursue coordinated development of additional recreation facilities on school or other quasi-public property.

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Recommended future development of community recreational facilities are charted below, with sample cost allowances provided. These allowances should be used for illustration purposes only. They assume that all work is contracted; voluntary or donated work, equipment or materials may reduce direct costs to the Township substantially. Potential field user groups may agree to contribute to the Township share of certain capital costs. These estimates also serve to illustrate relative costs of recommended park development elements and, by extrapolation, where cost savings might be sought.

Potential Recreational Development	Sample Cost Allowance
Parking/Access for Community Recreation Area	\$30,000 - \$50,000
Regulation Baseball Diamond (with outfield prepared for soccer use)	\$20,000 - \$30,000
Little League Baseball Diamond (with outfield prepared for soccer use)	\$15,000 - \$20,000
2 Soccer Fields	\$30,000 - \$50,000
Walking/Jogging Path, within park area	\$ 5,000 - \$10,000
Bicycle/Pedestrian path system (cost/ mile, excluding acquisition of r.o.w.)	\$ 5,000 - \$15,000
Exercise Circuit (9-10 stations)	\$ 5,000 - \$10,000
Tot Playground (incl. play equipment)	\$ 5,000 - \$10,000
2 Tennis Courts (incl. nets)	\$35,000 - \$50,000
Basketball Court (incl. hoops)	\$15,000 - \$20,000
Volleyball Court (incl. net)	\$ 2,000 - \$ 5,000

3. Approaches to Funding Park Acquisition and Development

Capital planning to implement development of a community park requires full resolution of 1) means of parkland acquisition, 2) decisions regarding scope of facilities to be developed, and 3) determination of means and timing of development. Pending resolution of those issues and other potential open space and recreation capital expenditures, a formal five-year capital development plan can not be developed.

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Open space/parkland acquisition grant(s) may be awarded from Chester County for up to 50% of total acquisition costs (excluding planning/engineering costs - as much as \$25,000 should be anticipated), up to \$250,000. State RIRA funds, administered by the Department of Community Affairs (DCA), are potentially available for up to 50% of parkland acquisition costs, to a maximum of \$200,000. The County permits grant recipients to match County funds with other grant monies received, requiring a minimum 10% local funding commitment. 50% park facility development grants (up to \$200,000 each) may be utilized, as well as "small facilities" grants for up to \$15,000 each and with nominal Township match required.

Gross capital costs may actually range substantially lower than those illustrated, taking advantage of alternatives to fee acquisition at market rate, and/or voluntary efforts, donations, etc. Nevertheless, the Township role in park acquisition and development will require substantial funding commitment as well. Township funding sources may include general funds, dedicated millage, transfer tax monies, short term loans, bonded indebtedness, or funds assessed new residential development as fees-in-lieu of open space dedication. Pending resolution of actual funding needs, a combination of approaches should be considered.

4. On-going Park and Recreation Operations

Ultimate development of additional community recreational facilities in West Brandywine Township could take many years. It is anticipated that park administration will fall under formal purview of the Township Supervisors, with direction from a Park and Recreation commission or board, if established. Annual maintenance costs for facilities outlined above, once fully developed, can be anticipated in the range of \$10,000-\$20,000. General maintenance could fall within the work program of the Township road crew. Mowing could be scheduled by contract along with roadside mowing programs. Any major park maintenance or development program would be undertaken by contract.

At the general level, use of community park facilities would be programmed through the Township offices, based on policy set by the Supervisors (directly or through delegation to a Park Board). It is anticipated that detailed programming, in accordance with Township policy, would be handled directly by permitted park users groups. It is possible that limited maintenance responsibilities, particularly maintenance of sport fields, might also be shared by user groups, in accordance with stipulated use agreements. Such arrangements, with limited direct involvement by Township personnel, have proven effective elsewhere.

5. Fee-in-Lieu Policy

Recent (Act 170) amendments to the Municipalities Planning Code (MPC) specifically provide for mandatory dedication of lands or fees. The Township could re-amend Section 811 of the S/LDO to provide for dedication of fee-in-lieu of lands/facilities. MPC provisions now require

West Brandywine Township

- **Require a Site Analysis as part of the subdivision/land development application under S/LDO Sections 502 and 503**, with a specific checklist of all critical and sensitive resources, and requiring acknowledgement of review and reference to the resource mapping included in this Plan.
- **Consider requirement for assessment of potential impacts** of proposed development upon site resources identified through required Site Analysis (EIA - Environmental Impact Assessment).
- **Establish formal process for Conditional Use approval**, re-defining the range of uses permitted in each district as Uses by Right, Special Exceptions, and Conditional Uses.
- **Develop overlay zoning provisions to aggressively promote protection of scenic, natural and cultural resource values**, with specific focus on a Scenic/Agricultural Conservation Area and Habitat Conservation Areas.
- **Establish a new zoning district to cover the extensive scenic lands designated as "cemetery" in the central part of the Township.**
- **Revise the Zoning Ordinance and map to discourage strip/sprawl commercial development**, particularly along Route 322; consider designation of a mixed-use area along traditional village lines, building on historical land use and architectural traditions in the Brandywine Manor area.
- **Review and consider revision to Cluster and Lot-Averaging provisions** (Z.O. Sections 1511-12), to: 1) establish a clear basis for maximum development potential; 2) reduce minimum area and bulk standards for individual lots (with no increase in overall density) to promote flexible approaches to siting of structures; 3) ensure that criteria for selection, management, insurance, and guarantee of permanence of open space are consistent with resource protection objectives; 4) consider revision of threshold tract size and establishment of incentive provisions to expand eligibility for use of cluster options.
- **Adopt a clearly articulated policy endorsing conservation easements** as a means to achieve community open space and environmental resource protection objectives.
- **Consider establishment of a standing recreation commission or board** to monitor recreation needs and coordinate Township provision of recreational services.
- **Pursue acquisition and development of additional community parkland**, ideally in the central to northern part of the Township with a focus on needed active recreational facilities.

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- **Seek to formalize public access to the extensive community recreational complex represented by the Brandywine YMCA and the Coatesville Area Schools - North Campus.**
- **Seek to initiate establishment of a safe bicycle and pedestrian circulation system, linking recreational facilities to residential neighborhoods.**

2. Recommended On-Going Planning Efforts

- **Continue to encourage the effective use of the Sketch Plan** to engage potential applicants in productive evaluation of a site as early in the process as possible.
- **Strive for consistent administration of regulatory provisions to protect critical environmental resources.** Monitor performance of existing regulations and administrative procedures relative to resource protection objectives.
- **Continue to use the Township Newsletter** and consider development of pamphlet(s), informational meetings, or other means to educate developers and residents regarding resource-sensitive and open space-oriented design options and ideas.
- **Seek to maximize the correlation between the type/intensity of land use and the availability of/impacts upon groundwater resources.**
- **Consider additional approaches to promote retention of the agricultural community.** The Township can continue to encourage participation in and continuation of the Agricultural Security Area and monitor state and county programs for purchase of development rights.
- **Monitor Township Act 537 Sewage Facilities planning efforts** to afford maximum opportunity for wastewater reclamation.
- **Review areal extent of the R-4 and LI zoning districts as well as provisions for development intensity;** consider modification to these districts to reduce prospects of considerable loss of significant habitat and headwater areas.
- **Continue to pursue National Register listing for historic resources.**
- **Explore specific provisions for management of vegetation,** to determine whether any further protection can or should be given to significant habitat areas, particularly extensive woodlands, areas of native vegetation, sites with particular natural diversity value, etc.

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- **Monitor community recreation needs on an on-going basis**, paying particular attention to potential gaps in recreation service to specific population groups, especially those that tend to be transportation dependent, such as senior citizens and youth;
- **Monitor and seek to facilitate public use of quasi-public recreational facilities** potentially offering community recreational services to West Brandywine residents; consider potential development of needed Township recreational facilities on school lands.
- **Monitor potential need and feasibility of neighborhood park and playground development.**
- **Seek developer contributions for neighborhood and community park development**; re-establish formal fee-in-lieu provisions, based on this Plan.
- **Monitor potential for cooperative efforts with neighboring municipalities to acquire and develop community park facilities.**

3. Recommendations for Consideration over the Long-term

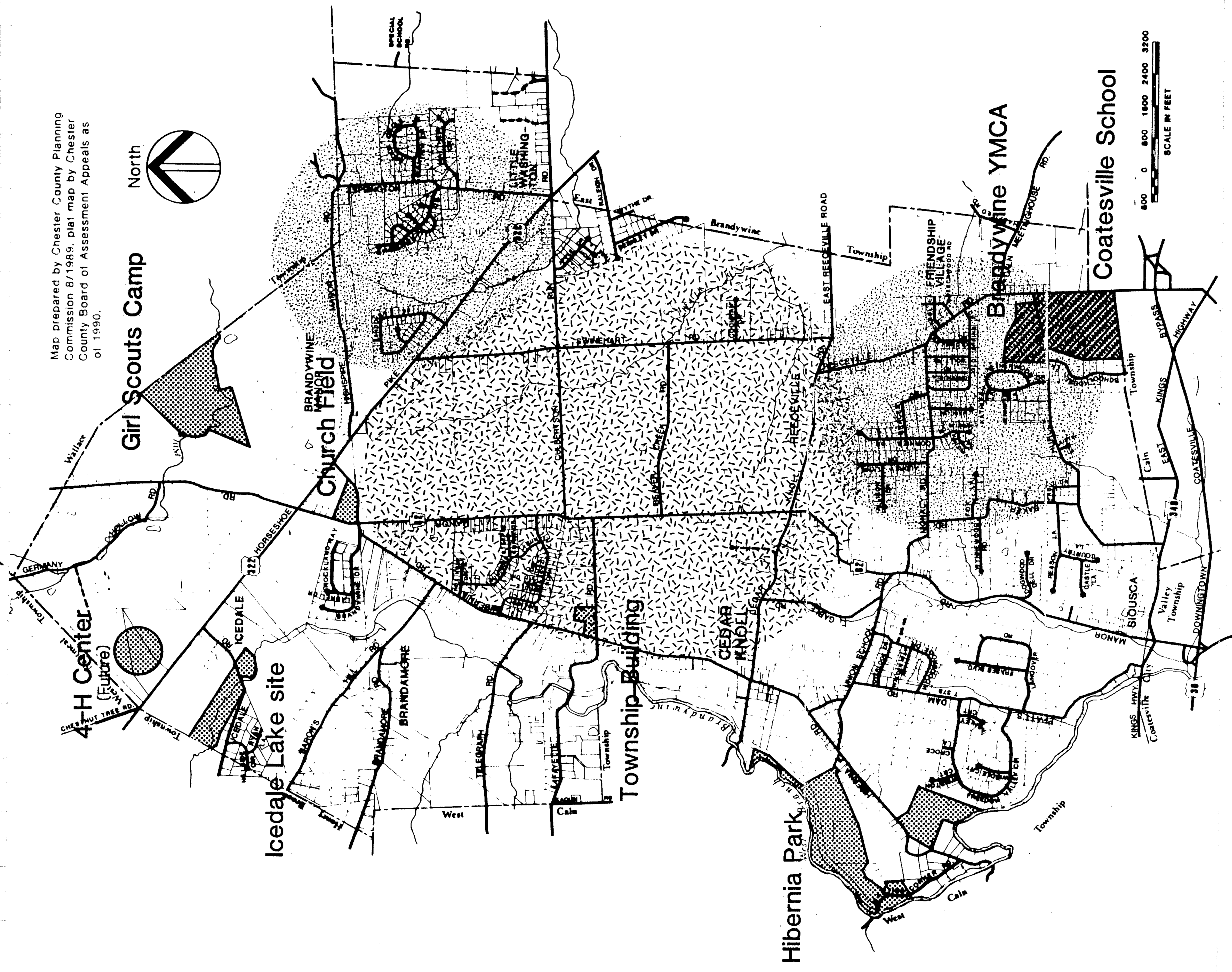
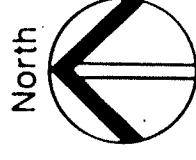
- **Consider adoption of a comprehensive "Natural Features Conservation Ordinance" (NFCO)**, to make applicants clearly aware of all environmental regulation and to stress the Township's interests in resource protection.
- **Consider formal establishment of protective buffer zones along stream corridors.**
- **Consider adoption of specific requirements for wetlands delineation.**
- **Consider expanding incentives for conservation of historic and architecturally significant structures and landscapes**, including establishment of a "waiting period" prior to permitting demolition.
- **Explore potential for establishment of a program for Transfer of Development Rights (TDR)**, including potential opportunities to enter into a joint zoning program with neighboring municipalities, enabling transfer of development rights to appropriate locations across municipal boundary lines.
- **Consider establishment of scenic road guidelines.**
- **Encourage a private landowner cooperative program**, whereby the Township would aim to facilitate both formal and informal liaison between the Board of Supervisors, Planning

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Commission, Open Space Committee and individual landowners, local conservation organizations, and county and state programs for open space conservation.

- **Explore potential interest and relative benefits of establishment of historic districts in accordance with Pa. Act 167 to offer additional opportunities for protection of existing villages and historic clusters.**
- **Investigate local interest in pursuing formal Scenic River designation for the upper West Branch Brandywine.**

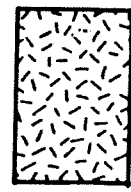
Map prepared by Chester County Planning Commission 8/1989, plat map by Chester County Board of Assessment Appeals as of 1990.



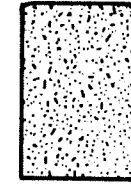
West Brandywine Township



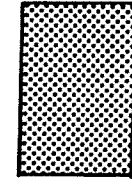
Improve public access to
Community Recreation Complex



Seek to develop additional
Community Recreation Area
(generalized area for location)



Seek to develop
Neighborhood Park
facilities
(generalized area for location)



Existing recreational
facilities

Recreational Recommendations