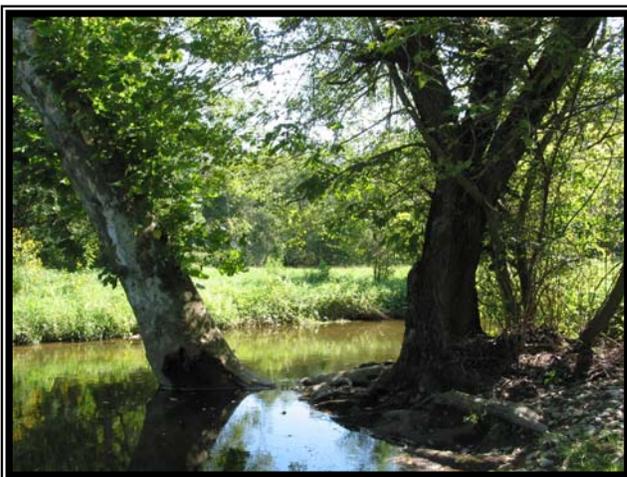




East Bradford Township

2009 Open Space, Recreation & Environmental Resources Plan

June, 2009



**Open Space, Recreation & Environmental
Resources Plan
for
East Bradford Township
Chester County, Pennsylvania**

June, 2009

**Prepared by the Open Space, Recreation & Environmental
Resources Plan Steering Committee
with the assistance of the
Brandywine Conservancy**

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Chapter One Introduction

Comprehensive Plan Update

This *Open Space, Recreation & Environmental Resources Plan* serves as an addendum to the East Bradford Township Comprehensive Plan, and is focused on a broad range of open space, natural and cultural resource protection, and recreational issues. The Plan is intended to complement the Comprehensive Plan with further detail and updates, and it also is intended to read as a stand-alone document. Thus, there is a certain degree of overlap with the Comprehensive Plan as far as the degree to which background and inventory information is presented and issues are discussed. This Plan is intended to be adopted by the Board of Supervisors as a formal addendum to the Comprehensive Plan of 2004. To the extent that the information, analysis and recommendations this Plan presents are more detailed or up-to-date than that contained in the Comprehensive Plan, upon adoption, it should be viewed as updating the Comprehensive Plan with the same legal standing as afforded the Comprehensive Plan in accordance with the provisions of the Pennsylvania Municipalities Planning Code (MPC).

Purpose

This Plan is intended to serve several specific purposes as an addendum to the Comprehensive Plan. It enhances support for recommendations to acquire conservation interests in open space lands, following up on the recommendations of the Comprehensive Plan. Conservation recommendations are presently accommodated through use of the Township Official Map. This Plan also offers a greater level of detail for use by the several Township boards and committees charged with review of subdivision and land development plans, in accordance with the provisions of the MPC and applicable Township ordinances. It offers the legal basis for compliance with MPC requirements for imposition of fees in lieu of dedication of recreational lands and facilities. The Plan offers a defensible basis for amending zoning and subdivision regulations that are designed to implement its goals and objectives. It also provides further detail in stipulation of public policy for conservation, supporting private voluntary conservation efforts, consistent with IRS regulations regarding charitable contribution of conservation interests in open space lands. This Plan also is intended to back up Township applications for grant funds, principally from Chester County and from the Commonwealth of Pennsylvania's Department of Conservation and Natural Resources (DCNR).

Support for grant applications is a key benefit of the *Open Space, Recreation & Environmental Resources Plan*. Both County and state grant applications require that the Township explain how any particular project meets the goals/objectives of the Township Comprehensive Plan (or Open Space, Recreation, or Environmental Resources Plan component). Grant applications also inquire whether a particular project is categorized as a "priority" in adopted municipal plan(s) and whether the project meets "needs" identified in such plan. Since state grant funding, in particular, is competitive, the ability of the Township

to clearly demonstrate compliance with these criteria may be critical to the awarding of grant funds. Thus, an important function of this Plan is to *clearly* outline open space and recreational needs and priorities, in the context of stated planning goals and objectives. From the perspective of grant application review, it also is critical that identified needs and priorities are *current*.

Scope

As an addendum to the 2004 Comprehensive Plan, this Plan builds upon an established level of consistency with Chester County's *Landscapes*, the County Comprehensive Plan Policy Element, an important criterion for County grant receipt. Since *Landscapes* is consistent with regional planning elements set forth by the Delaware Valley Regional Planning Commission, consistency here also may help toward justification of additional transportation enhancement funds administered by DVRPC through Penn DOT (such as the Township already has taken advantage of for the Brandywine Trail, in cooperation with West Bradford Township).

The scope of this Plan has intentionally been designed to generally follow the scope of work guidelines stipulated by DCNR for a "Comprehensive Recreation, Park and Open Space Plan." For this reason, extensive background information and analysis are included, beyond the minimum that might be necessary for the Township itself to update established open space and recreation policy and action. DCNR's guidelines are specifically applicable when a municipality is using DCNR grant funds to develop a Plan itself. Since East Bradford Township has not used state funds for the planning process itself, literal adherence to the DCNR guidelines is not technically required. However, to whatever extent that the Township may wish to potentially utilize state grant funds, it is important that the pertinent details be adequately covered in accordance with the DCNR guidelines.

Chapter Two of this Plan first offers a Vision Statement drawing upon the 2004 Comprehensive Plan and summarily describing how the Township envisions its evolution through the year 2025, an almost twenty year planning horizon for this plan. This is followed by a series of goals and objectives for natural resources, historic resource, scenic resources, circulation, recreation, and development, in each case set forth from the standpoint of how the pertinent topic relates to open space, recreation and environmental resources.

Chapter Three outlines a profile of the Township and presents information regarding the township government and organizational structure, township operations, tax structure and revenue sources, patterns of revenues and expenses, socio-economic profile, population trends, land use patterns, and County-wide planning context. Chapter Three also introduces a brief description of the status to date of implementation of the 1993 Open Space, Recreation and Environmental Resources Plan.

Chapter Four maps, inventories and describes the natural and cultural resources that are found in East Bradford Township, assessing a range of resource protection issues under the following topical headings: topography and steep slopes; agricultural soils and properties; natural diversity; woodlands; forest interior habitat and woodland classification; riparian

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buffers; surface waters; floodplains; headwaters watersheds; wetlands, hydric soils, and groundwater resources; scenic roads and landscapes; and historic resources.

Chapter Five sets forth the Natural & Cultural Resources Protection Plan, discussing diverse approaches, including: establishment of parcel-based open space preservation priorities; non-acquisition policies for resource protection; land use and management issues; regulatory tools; and community education.

Chapter Six describes a Greenways Plan, and discusses various issues relative to greenway planning, including: regional initiatives; ecological restoration needs; wildlife of East Bradford Township; and greenway strategies/recommendations.

Chapter Seven presents a Trails Plan and discusses trail classifications, existing trails in the township, future trails, trail maintenance and security, implementation, and strategies/recommendations for continued trails development and management.

Chapter Eight is the Recreation Plan component, summarized and updated from the 2005 Recreation Plan update. The Recreation Plan includes discussion of broadly accepted standards for provision of community recreational lands and facilities, recreation programming issues, inventory of exiting lands and facilities, assessment of current and projected community park and recreation needs, and strategies/recommendations.

Chapter Nine offers an implementation summary, compiling recommendations from throughout the plan, suggesting a general time frame for implementation of each, and designating the principal individuals and agencies to be responsible.

Maps are included throughout the document where appropriate to augment, illustrate, and clarify the narrative.

Public Participation

The program whereby this Plan was completed has both drawn upon and augmented the public participation undertaken for the 2004 Comprehensive Plan, for which public participation was a vital element. In order to ensure adequate public participation, the Comprehensive Plan relied on a number of different methods, including:

- Distribution and tabulation of a citizen survey, mailed to every household in the Township;
- Public participation meetings as well as monthly meetings of the Comprehensive Plan Task Force, all of which were advertised and fully open to the public;
- Press releases;

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- Development of a project-specific web site linked to the Township's web site, on which event dates and times, meeting minutes, draft chapters, and other pertinent data was posted.

This Plan had been specifically recommended as a follow-up implementation task in the Comprehensive Plan. The development of this Plan has similarly been overseen by the "Open Space, Recreation & Environmental Resources Plan Update Steering Committee," appointed by the Board of Supervisors and representing each of the appointed boards and committees serving the Township, along with key Township staff and a consulting land planner from the Brandywine Conservancy. The Steering Committee reviewed the pertinent survey results, goals and objectives, and recommendations from the Comprehensive Plan, developing consistent recommendations for this Plan. All meetings of the Steering Committee have been advertised and open to the public. A public informational meeting will be held prior to final review of the draft Plan by the Board of Supervisors.

Chapter Two Goals and Objectives

2025 Vision Statement

In the year 2025, the scenic rural-suburban character of East Bradford Township and its critical natural resource systems have been preserved. Regulation and policies to preserve, protect, and enhance the natural, cultural, and recreational resources that have contributed to the Township's rich history and its exceptional quality of life have successfully been applied. Expansive areas of open space have been permanently preserved through the use of innovative strategies such as a residential open space development option, landscape buffering, and effective implementation of the Township's open space program, including acquisition of interests in open space and promotion of other public and private open space conservation efforts. Potentially negative impacts of new growth, including soil erosion, stream degradation, increased traffic, and litter have successfully been minimized. The Township has successfully promoted the efficient use of clean energy.

The East Branch of the Brandywine Creek and its major tributaries are protected from encroachment and degradation by significant buffers of permanently preserved properties. Large areas of woodland habitat have been protected from excessive timbering, while reforestation activities continue to be encouraged, enhancing stormwater management and water quality, as well as carbon sequestration. Wildlife management efforts have resulted in safe maintenance of sustainable populations of deer and other species, while minimizing the negative human and natural resource impacts of overpopulation. Historic resources and their critical landscape contexts have been preserved with many historic structures seeing new productive use consistent with their historical integrity, as a result of Township efforts to promote their continued economic viability. Scenic roadways have been maintained and enhanced through the township's litter management program, and with the addition of bikeways, pedestrian trails, and walkways.

High quality recreational opportunities, both active and passive, are available to every Township resident. For many years, cooperative efforts between the Township and other public, quasi-public, and institutional landowners have been mutually beneficial, augmenting recreational opportunities for Township residents. Residents throughout the Township are able to walk and bike on miles of footpaths and trails that follow the Brandywine and other scenic areas within the township, and safely connect residential neighborhoods and parks within the Township as well as to cultural and business opportunities in West Chester Borough and surrounding areas. Township government and staff proactively engage the public in order to obtain input as well as to educate and inform residents through personal interaction, communications media, and special community events.

Goals and Objectives

Natural Resource Goal:

Conserve those natural features of East Bradford that contribute to its community character and setting, promote the health, safety, and welfare of Township residents, and that comprise natural resource protection or enhancement opportunities. Specific features to be protected include the streams of East Bradford, as well as their floodplains and riparian buffers, wetlands, steep slopes, groundwater resources, woodlands, wildlife habitat, and agricultural soils.

Natural Resource Objectives:

- N 1. Continue to promote and pursue formal acquisition and designation of open space, whether by fee interest, conservation easement, or subdivision plan designation, in locations and configurations which maximize effective conservation of natural resources. Continue to encourage private open space conservation efforts, through reach-out and education efforts.
- N 2. Support public and private efforts to enhance and conserve natural diversity, including natural and naturalized open landscapes such as meadows and non-forested wetlands. Avoid isolation of wildlife habitat areas, seeking to coordinate protection strategies to maintain continuous corridors of protected open space.
- N 3. Continue to promote the maintenance of sustainable wildlife populations. Seek to establish and sustain exemplary management practices at Township-managed parks and open spaces and support education programs to promote safe and sustainable wildlife management on private lands. Encourage safe programs such as the township-enabled Brandywine Valley Archery Club.
- N 4. Protect and maintain the quality and quantity of surface water and groundwater resources, emphasizing opportunities to recharge the groundwater reservoir.
- N 5. Monitor the ongoing effectiveness of Township regulation of natural resources, from perspectives of both resource management and enforcement. Consider revision to regulation and policy as necessary.
- N 6. Continue the development of the Township Environmental Resource Inventory to provide documentation of baseline conditions and as a tool to promote understanding of valuable resources and facilitate decision making among all stakeholders.
- N 7. Monitor and consider extension of regulation of woodland disturbance and timber harvesting in order to promote maintenance of mature woodland habitat and minimize loss of vegetation and topsoil. Continue to encourage preservation of existing trees and reforestation, as appropriate, in designated open space and on private lands. Consider means to establish reforestation in East Bradford so as to take advantage of potential carbon trading markets, reaping both environmental and economic benefits.
- N 8. Support education efforts and other means to encourage use of clean energy sources within the Township.
- N 9. Monitor regional efforts to promote natural resource conservation and enhancement. Promote consistent implementation of broader regional efforts, including the wildlife biodiversity corridors set forth in Chester County's *Linking Landscapes*.
- N 10. Continue to use the Township website and other communication means to educate residents and other stakeholders regarding the values of natural resources and the options available to protect them.

Historic Resource Goal:

Preserve, protect and enhance the integrity of historic and cultural resources and their accompanying landscapes, promoting retention of the Township's community character.

Historic Resource Objectives:

- H 1.** Maintain and update inventory and assessment of historic resources, including principal and contributing historic structures and historic landscape features. Consider extension of historic district designations, potentially including districts shared with other municipalities such as the Lenape Bridge and the Brandywine Battlefield National Historic Landmark.
- H 2.** Pursue coordination of Township open space conservation efforts so as to promote conservation of historic sites and landscapes.
- H 3.** Promote the original/present use of historic structures where appropriate but encourage adaptive re-use where the original or present use is no longer feasible or economically viable, giving appropriate consideration to potential impacts on neighboring properties.
- H 4.** Monitor the ongoing effectiveness of Township regulation of historic resources, including review of the results of resource conservation and adaptive re-use efforts, enforcement of property maintenance codes, minimization of development impacts incompatible with historical integrity, possibilities to coordinate recreational opportunities with historic landscape conservation, and relative effectiveness of HARB versus Historical Commission purview. Consider revision to regulation and policy as necessary, potentially including extension of HARB purview and zoning overlay provisions.
- H 5.** Monitor regional efforts to promote protection of historic resources and historic landscapes. Promote consistent implementation of broader regional efforts, including the Brandywine Valley Scenic Byway and the Brandywine National Heritage Area designation.
- H 6.** Promote public awareness of historic resource values, including both structures and landscapes, throughout the Township and around its borders. For this purpose, consider expanded use of the Township web site, newsletter, and community events such as East Bradford Day.
- H 7.** Expand potential public access to, and awareness of, historical resources by linking appropriate resources with the Township non-motorized circulation system.

Scenic Resource Goal:

Maximize the retention of scenic resources and other open lands in the Township in addition to protecting natural resources, preserving the traditional open land character of East Bradford. Provide for use of open lands so as to offer passive recreational opportunities to residents and compliment efforts to conserve natural resources and scenic and historic landscape settings.

Scenic Resource Objectives:

- S 1.** Identify and continue to seek to conserve visually prominent open spaces and other landscape features, both large and small, which visually characterize the landscape of East Bradford Township, particularly those near the Brandywine and its tributaries and those within view of public roadways.
- S 2.** Identify and monitor the character of scenic roadways within the Township, seeking to preserve those visual characteristics that define the character of the roadways and enhance the implementation of the Brandywine Valley Scenic Byways program.
- S 3.** Monitor the ongoing effectiveness of Township regulation of scenic landscapes and scenic roadways, seeking to minimize the extent and scope of potentially negative impacts

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of land disturbance and land use change. Consider revision to regulation and policy as necessary, potentially including a broader palate of strategies for scenic landscape protection such as increased building setbacks and introduction of additional landscape buffers.

- S 4. Coordinate scenic landscape protection priorities with ongoing open space conservation efforts and through appropriate encouragement of use of the open space development option where residential development occurs.
- S 5. Monitor regional efforts to promote conservation of scenic resources. Promote consistent implementation of broader regional efforts, including the Brandywine Valley Scenic Byway.

Goal for Circulation as it relates to Open Space Resources:

Assure that a safe Township travel network, both vehicular and non-vehicular or non-motorized, is compatible/complimentary with both the scenic attributes and natural resource values of the landscape, as well as the functional qualities of the roadway system.

Objectives for Circulation as it relates to Open Space Resources:

- C 1. Ensure that the Township motorized and non-motorized (e.g., multi-purpose trails, hiking trails, footpaths, bikeways and bicycle routes and equestrian trails) travel networks continue to be developed and enhanced in a manner which offers maximum public accessibility to and interconnection to open spaces and recreational facilities, including linkage to both residential and non-residential land uses within the Township and into the Boroughs of West Chester and Downingtown. Include specific development of footpaths and bikeways in new residential developments, wherever appropriate.
- C 2. Monitor and promote coordination of Township and PennDOT transportation planning and implementation efforts in order to minimize potentially negative impacts to natural, historic, scenic, and recreational resources, while maximizing potential for PennDOT funding assistance for transportation enhancements, including multi-use trails and pedestrian facilities.
- C 3. Consider development of guidelines for recreational use of roads, such as developing a rotating system of closing roads to allow use by cyclists and pedestrians.
- C 4. Support ongoing county-level planning update, as detailed in *Landscapes* for a system of regional recreational corridors.
- C 5. Pursue efforts to maximize safety throughout the Township's motorized and non-motorized travel networks, including speed reduction and enforcement, traffic calming design approaches, user-education, and maximum provision for necessary emergency access.

Recreation Goal:

Promote the adequate provision of lands and facilities for both passive and active recreational opportunities serving East Bradford residents and employees, including but not limited to parks, ball fields, scenic and nature trails, multi-purpose trails, footpaths and bikeways, activity fields and courts, and playgrounds.

Recreation Objectives:

- R 1. Monitor Township active and passive recreational needs, based upon review of the perceptions and opinions of Township residents, Chester County's *Connecting Landscapes* recommendations, nationally accepted recreational standards, and projections for future population and demographic changes within the Township.

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- R 2.** Inventory existing and potential recreational opportunities serving East Bradford residents, including those provided at parks and open spaces, trails, and other public, private and institutional lands within the township, as well as opportunities which may be coordinated with neighboring municipalities.
- R 3.** Seek to identify additional parcels which may be available for future recreational use, including trail use, and particularly where gaps in neighborhood park service may exist. Prioritize identified parcels in respect to their recreational potential, and the potential to fulfill unmet recreational needs.
- R 4.** Coordinate Township open space acquisition efforts, potentially including acquisition of easements or license agreements, to focus on potential passive recreational opportunities in appropriate areas. Update the Township's Official Map on a regular basis to reflect potential acquisition priorities detailed in this plan.
- R 5.** Continue to pursue cooperation with the West Chester Area School District, West Chester University, Natural Lands Trust's Stroud Preserve, the Children's Country Week Association and others, to maximize availability of recreational opportunities for Township residents on appropriate non-Township lands.
- R 6.** Based on needs evaluation conducted for this plan, pursue further development of active and passive recreational facilities at Township parks and open spaces, where appropriate. Coordinate recreational development so as to minimize impacts of overuse at any particular facilities or resource areas.
- R 7.** Coordinate ongoing development and enhancement of the Township motorized and non-motorized circulation system, including multi-purpose trails, footpaths and bikeways, to maximize access to recreational lands and facilities and interconnect with the broader travel network. Promote appropriate interconnection with neighboring municipalities.
- R 8.** Monitor and facilitate use of recreational lands and facilities by appropriate public and quasi-public recreational programming agencies and organizations which offer service to East Bradford residents.
- R 9.** Monitor recreational management, maintenance, insurance, and funding on an ongoing basis, seeking to maximize safe, accessible, and cost-effective service to Township residents.
- R 10.** Promote public awareness of recreational opportunities throughout the Township, including consideration of expanded use of the Township web site, newsletter, published maps, signage, organized recreational activities and community events.

Goal for Development as it relates to Open Space Resources:

Encourage patterns of community development that are responsive to resident needs and consistent with regional development patterns, while maximizing conservation of open space, natural, cultural and recreational resources and environmental quality. Foster and encourage the continued economic viability of agriculture and other open space land uses.

Objectives for Development as it relates to Open Space Resources:

- D 1.** Continue to guide development away from land areas not suitable for buildings or structures due to steep slopes, water hazards, poor soil bearing qualities, inadequate water supply, or poor sewage capabilities.
- D 2.** Monitor regional planning efforts, particularly land use and resource protection issues in nearby areas of neighboring municipalities. Seek to focus regional attention on land use decisions consistent with natural and cultural resource protection efforts within East Bradford and on opportunities to extend efforts logically across municipal boundaries.

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- D 3.** Continue to provide for the establishment of permanent open space when development occurs through appropriate ordinance provisions and promotion of sensitive site design. Encourage the use of the residential open space development option and promote open space configuration which maximizes protection of natural, cultural, and recreational resources, as well as interconnectivity among designated open spaces.
- D 4.** Monitor the ongoing effectiveness of Township resource protection regulation as well as Township development plan review efforts. Consider revision to regulation and policy as necessary to ensure maximum consideration of natural, cultural and recreational resources.
- D 5.** Coordinate Township open space acquisition efforts in consideration of potential open space designation where development occurs. Consider active assistance to owners of farmland and other open space in regard to options for donation or sale of conservation interests, potentially in connection with exercise of limited development options where appropriate. Continue to leverage funds for the acquisition of conservation easements with funds available from state, county, and private resources in order to maximize the extent and benefits of land preservation efforts.
- D 6.** Monitor the ongoing effectiveness of the Township's Agricultural Security Areas and encourage the conversion of agricultural land to formal agricultural preservation designation. Promote agricultural practices and land management efforts which maximize soil conservation and minimize negative impacts to water quality. Promote appropriate use of conservation easements to formally establish and provide for enforcement of such conservation practices.
- D 7.** Monitor and strengthen the ongoing effectiveness of Township water resource regulation in regard to both water supply and surface water and groundwater quality. Focus in particular on the effect of stormwater management regulation, promoting groundwater infiltration and successful implementation of water quality Best Management Practices, consistent with requirements and objectives set forth for the Christina Basin. Promote a policy of no net increase in stormwater runoff from any future development or redevelopment project.

Chapter Three Township Profile

Overview

East Bradford Township comprises fifteen square miles near the center of Chester County. It is located in the southeastern corner of Pennsylvania and is part of the Philadelphia Metropolitan Area. The Township is approximately twenty-five miles west of Philadelphia and about twelve miles north of Wilmington, Delaware. East Bradford lies immediately west of West Chester Borough, and also is bounded by Birmingham and Westtown Townships on the south, West Bradford and Pocopson Townships on the west, East Caln Township on the north, and West Whiteland and West Goshen Townships on the east.

In 1681 King Charles of England granted lands to William Penn from which Bradford Township, named after Bradford, England, was established in 1705. East and West Bradford were divided from Bradford Township in 1731. The current boundaries of the 15 square miles of East Bradford were established after a portion of the southern end of the Township was annexed by Birmingham Township in 1856.

The majority of the original settlers were English Quakers. Historic structures in East Bradford reflect English as well as Swiss German architectural tradition, using brick and stone for houses, barns, mills, creameries and butcheries. Agriculture constitutes one of the Township's major historical themes and largely dictated the character of the cultural landscape for nearly 300 years. Related industries present within the Township included blacksmiths, wheelwrights, shoemakers, weavers and coopers, but by the beginning of the 20th century were silent.

The Township's location, along the drover's paths to the Wilmington and Philadelphia markets, led to taverns dotting the major roadways to lodge drovers and their herds. Strasburg Road, passing through the center of the Township, was the first highway in Pennsylvania. Later, the main line of the Pennsylvania Railroad passed at East Bradford's northeastern corner, where the first suburban residential development in the Township was developed in the 1880's. Trolley transportation came to East Bradford in 1891-92, with a line extending from West Chester to Lenape and later on to Kennett Square. The trolley owner built Lenape Park, a classic "trolley park" of the Victorian era. A second trolley line opened in 1902 between West Chester and Downingtown, prompting a bit of "suburban" development at Brandywine View. Trolley service ceased by 1929 as the automobile became more prevalent.

In 2008, East Bradford Township can be characterized as a largely suburban landscape, particularly on the eastern side of the Township, adjacent to West Chester Borough, with a more rural landscape remaining on the western side of the Township. The Township has seen significant growth over the last 30 years, including 46 percent population increase from 1990-2000. Today, East Bradford represents a diverse community that is influenced in its economy and culture by its proximity to Philadelphia and Wilmington. These major urban areas serve as employment centers and provide many cultural amenities within easy traveling distance. In addition to these areas, residents work, shop, and play in a number of other local urbanized areas, including West Chester Borough, Exton, Downingtown, Coatesville, Great Valley, Kennett

Square, and King of Prussia. East Bradford's convenient location has made the Township an attractive place to live for those wishing both a somewhat rural atmosphere but also access to metropolitan amenities.

Township Government and Organizational Structure

East Bradford 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 those powers may be exercised. The Township is governed by a 3-person Board of Supervisors whose members are elected for staggered 6-year terms. The Board is responsible for most local decision making, including land use controls and approval of development proposals.

The Comprehensive Plan of 2004 summarizes both the organizational structure and broad administrative policies set forth by the Board of Supervisors for government of East Bradford Township. The Township is assisted by the voluntary efforts of several appointed Boards and Commissions, including:

Planning Commission – A seven (7) member advisory board that makes recommendations regarding zoning, subdivision and land development approvals, and development of land use regulatory provisions.

Zoning Hearing Board – A three (3) member quasi-judicial board charged with ensuring fair and equitable administration of the zoning ordinance, including granting of special exception approval and zoning variances, notably relative to administration of environmental regulation.

Environmental Advisory Council – This seven (7) member committee reviews subdivision, highway and other plans for their effects on the environment of the Township and provides guidance to the Board of Supervisors in regard to protection and enhancement of environmental quality.

Parks and Recreation Board – This seven (7) member board advises the Supervisors in regard to recreational land acquisition and development within the Township as well as operation and maintenance of open space and recreational areas and coordination of recreational programs. The Township Trails Committee operates as a subcommittee of the Parks and Recreation Board, with a specific focus on the development of the Township trails system.

Historical Commission – This seven (7) member commission oversee the Historic Resources Protection Standards of the Township ordinances.

Historical Architectural Review Board (HARB) – This five (5) member board reviews plans for historic structures located within one of the two Township historic districts certified by the Pennsylvania Historical and Museum Commission (PHMC) in accordance with Act 167. Membership of the HARB overlaps with the Historical Commission.

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Open Space Review Board – This five (5) member board is primarily responsible for reviewing and prioritizing the acquisition of conservation interests in lands purchased by funds made available from the open space tax approved by referenda in 1998 and 2000.

Agricultural Area Advisory Committee – This five (5) member board is primarily responsible for reviewing requests relating to the Township's Agricultural Security Area, principally related to inclusion of specific properties or not.

Traffic Committee – This seven (7) member committee was created in 2007 for the purpose of objectively analyzing traffic-related concerns within East Bradford Township and making recommendations to the Board of Supervisors.

Open Space, Recreation & Environmental Resources Plan Committee – This nine (9) member committee, additionally served by an appointed secretary and staff liaison, is responsible for guiding the renewal of the 1993 Open Space, Recreation & Environmental Resources Plan, to culminate in the completion of this Plan document.

Township Operations

As the governing body, the Board of Supervisors makes most formal decisions, except for zoning decisions which are under the purview of the Zoning Hearing Board. All other boards, commissions, and committees offer recommendations for action and policy to the Board of Supervisors. The Board delegates codes enforcement, including approval of building permits, to a Codes Enforcement Officer employed as Township staff. The Township also employs an engineer on staff, who fills the role of Township Engineer. Day-to-day management of Township affairs is under the direction of a Township Manager, who further directs the efforts of several additional staff members. The Township is well-served by these professional staff members, who are responsive to resident concerns and cultivate cooperative efforts with neighboring municipalities and other public service agencies, maximizing cost-effective delivery of municipal services.

Township operations specifically pertinent to this Plan fall into a variety of categories involving essentially all of the boards, commissions and committees as discussed above, with coordination undertaken by Township staff. Specific direction is recommended by the Parks and Recreation Board, the Trails Committee, the Open Space Review Board and the Agricultural Area Advisory Committee, as applicable. At the direction of the Board of Supervisors, the Township staff performs a variety of parks, recreation, and open space administration tasks. These tasks include:

- Writing and administering grants for parks, trails, and open space
- Receiving and addressing park-related feedback from residents
- Administering permits for park usage
- Reviewing and repairing park vandalism
- Overseeing park maintenance and repairs
- Making recommendations for amenity improvements or additions

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Development and maintenance of Township open space and recreational lands and facilities, including trails, also is coordinated by Township staff. All Township-owned recreational facilities are relatively new and are regularly maintained in good condition. The West Chester Area School District maintains recreation facilities at Hillsdale and East Bradford Elementary Schools. While certain major development and maintenance efforts are contracted, considerable work is undertaken directly by the Township staff, including:

- Planning and designing trails and paths (e.g. natural surface trails)
- Constructing trails and paths and overseeing their construction by volunteers
- Limited assembly/installation of recreation facilities/equipment
- Monitoring, cleaning, and routine maintenance and repairs to park amenities and facilities
- Paving and resurfacing playgrounds and trails
- Mulching, planting, and pruning
- Fertilizing, topdressing, seeding, and mowing
- Cleaning-up and picking-up trash

At the general level, the Township uses professional consultants for park and trail planning and design. Use of community park facilities, open space preserves and trails is programmed and scheduled through the Township offices, based on policy set by the Supervisors, with input notably from the Parks and Recreation Board. Detailed programming and scheduling, in accordance with Township policy, is handled directly by permitted users. Certain maintenance responsibilities, particularly maintenance of sport fields, also are shared by user groups, in accordance with stipulated use agreements.

The following list inventories Township equipment used for park, open space, and trail maintenance and construction and indicates current condition:

Description	Condition
BobCat ToolCat	New
John Deer tractor model 5320	Good
Woods 72" 3-blade rotary mower	Very good
Wood rear mower RM 990	Very good
Towable lawn sprayer 55 gallon with broom assembly	
Sthil hedge trimmer – hS – 74-24" blade	Very good
Sthil Trimmers (2) FS-88; (2) FS-85; (2) FS-120	Very good
Field Aero-vator 60"	Very good
John Deer lawn edger E-35	Good
Scag walk behind mower	New
Scag zero turn mower	New
Toro Groundmaster 4000 DSL 4WD	New
Toro Groundmaster 3505 DSL 2WD	New
Brush Bandit Chipper OXP 250	New
Big Tex 22' Landscape Trailer	Very good

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<u>Description</u>	<u>Condition</u>
2002 Ford F550 dump truck	Good
2004 Ford F550 dump truck	Very good
2000 Ford F350 4WD pick-up truck	Fair
Clinometer	New
Flagging ribbon	
Flagging pins	
Grub hoe	New
McLoed	New
Rockbar	New
Tape measure	
Digital level	New
Pruners/loppers (4)	New
Shovel (6)	New
Sledgehammer (2)	New
Action hoe	New
Weed cutters (4)	
Saws (6)	
Axe	
Mattock / Pick/Mattock (2)	New
Fire Rake	New
Post-hole digger	
Pick Axe / Pulaski	

East Bradford Township has formed partnerships with the West Chester Cycling Club and the Chester County Trail Club for the purpose of natural surface trail design and construction. Between all three organizations, the Township has access to approximately \$2,000 worth of hand tools used for natural surface trail work. These tools include clinometers, McLoed's, Pulaski's, weed cutters, fire rakes, and more.

Tax Structure/Revenue Sources

Local government operations and services in East Bradford Township are funded by several sources of tax revenue along with other non-tax sources of revenue including building permits, subdivision and zoning permits, state and county grants, and fines. Tax sources constitute the greatest proportion of revenue and include the following:

Real Estate Tax – a property tax based upon assessed valuation (determined by the County). In 2009 it is set at 0.071 mills, as compared to a maximum of 14 mills authorized for general purposes under the Second Class Township Code. East Bradford's real estate tax rate is among the lowest in Chester County. Annual receipts anticipated in 2009 are less than \$60,000, representing only two percent of the General Fund budget.

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Earned Income Tax (EIT) – an income tax based upon wages and salaries and set at 1 percent, which is split with the West Chester Area School District. The Township contracts with an outside firm (Berkheimer Associates) for EIT collection and disbursement administration. The EIT is the single most important revenue source for the Township, expected to account for over 70 percent of general fund revenue in 2009.

Real Estate Transfer Tax – all real estate sales are subject to a 1 percent transfer tax which is split between the municipality where the real estate is located and the County. The Real Estate Transfer Tax is administered by Chester County, which disburses the receipts to the Township monthly. This tax receipt represents the second most significant source of General Fund revenue, expected to contribute over 11 percent in 2009.

Open Space Tax – authorized by PA Act 153 (Open Space Preservation Act) and approved through voter referendum, this is a special purpose dedicated tax within the limits of The Act for the purpose of acquiring interests in real property (fee acquisition and conservation easements). Two separate referendums in 1999 and 2001 resulted in the current Open Space Tax for 2004 of ¼ of 1 percent. Disbursements are received by the Township weekly.

Budgeting/Accounting

East Bradford Township uses the calendar year (January 1 to December 31) as its fiscal year. The overall budget is divided into a number of specific and specialized areas in order to increase the efficiency of budget tracking and accounting.

The General Fund represents the principal operating fund for the Township (police and fire, parks and recreation, planning and zoning, codes enforcement and engineering, legal, administration). Appropriated funds are used for capital projects, major equipment purchases/replacements, etc.

The Sewer Fund is a utility fund established to provide public sewer service to over 1,050 customers in the Township through an inter-municipal agreement with the Borough of West Chester.

The Highway Improvement Fund is a proprietary fund established for design and construction of road improvements in the Township. Revenues are derived from developers' contributions.

Receipts for the State Liquid Fuels Fund are provided by the Commonwealth of Pennsylvania from (gas) tax disbursed annually to all municipalities. The receipts are based upon township road miles and population. Use of the fund is limited to road maintenance/ reconstruction and related equipments purchases.

The Open Space Fund, which was established in 1999, comes from the open space preservation tax (1/4 of 1 percent on earned income). Expenditures are restricted to acquisition of interests in real property and costs associated with these activities. The Open Space Fund remains the Township's only debt or long term loan obligation.

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Finally, the Capital Reserve Fund is comprised of appropriated monies that are used for capital projects, major equipment purchase/replacements, etc. This fund serves a complementary function to the General Fund together with the Five Year Capital Reserve Schedule for longer term planning.

Patterns of Revenues & Expenses, 2004-2008

		General Fund	Sewer Fund	Highway Fund	Liquid Fuels Fund	Capital Reserve Fund	Open Space Fund
2004, actual	Revenues	\$2,855,669	\$629,752	\$ 36,831	\$201,875	\$222,756	\$2,089,096
	Expenses	\$2,666,620	\$648,966	\$ 50,464	\$158,041	\$133,763	\$6,346,458
2005, actual	Revenues	\$2,968,665	\$796,570	\$ 17,385	\$214,952	\$239,639	\$1,856,920
	Expenses	\$2,896,391	\$731,508 ¹	\$ 38,448	\$255,018	\$152,296	\$3,207,912
2006, actual	Revenues	\$3,127,071	\$670,990	\$ 11,250	\$239,624	\$319,700	\$1,783,654
	Expenses	\$2,977,506	\$566,826	\$173,162	\$181,884	\$287,813	\$2,059,962
2007, actual	Revenues	\$3,556,497	\$700,160	\$122,188	\$265,325	\$434,952	\$1,601,584
	Expenses	\$3,194,228	\$609,390 ²	\$ 18,636	\$122,169	\$539,581	\$2,306,284
2008, actual	Revenues	\$3,062,836	\$711,665	\$ 10,500	\$277,923	\$351,255	\$1,154,940
	Expenses	\$3,297,164	\$651,576 ³	\$ 21,123	\$428,045	\$285,991	\$4,995,544

¹ \$ 6,562 of this total came from the capital reserve fund.

² \$ 8,026 of this total came from the capital reserve fund.

³ \$12,309 of this total came from the capital reserve fund.

Actual Fund Balances, 2003-2008

As of...	General Fund	Sewer Fund	Highway Fund	Liquid Fuels Fund	Capital Reserve Fund	Open Space Fund
12/31/2003	\$1,351,333	\$806,168	\$489,524	\$645,576	\$1,492,115	\$13,144,919
12/31/2004	\$1,539,063	\$786,952	\$475,891	\$692,426	\$1,581,108	\$8,830,929
12/31/2005	\$1,611,344	\$852,016	\$454,828	\$665,438	\$1,668,450	\$7,478,650
12/31/2006	\$1,760,912	\$956,180	\$292,916	\$747,849	\$1,697,582	\$7,202,342
12/31/2007	\$2,123,184	\$1,046,949	\$396,468	\$651,381	\$1,592,955	\$6,976,033
12/31/2008¹	\$1,888,862	\$1,117,990	\$385,845	\$501,260	\$1,658,219	\$2,657,038

¹ Not yet audited at time of publication.

Capital & Facility Planning & Expenditures

A necessary component of a systematic approach to funding is planning and provision for significant expenditures involving new facilities (also fleet/equipment) and existing facility improvements and major replacements. In East Bradford Township, the threshold for identifying a capital improvement project/replacement expense is \$10,000. Different fund accounts for East

Bradford Township provide for these expenditures in a variety of ways. Prior to 2003, East Bradford Township did not have a dedicated capital reserve fund attendant to its General Fund.

Debt Management and Finance

The legal framework permitting municipal government to incur debt is focused on the Local Government Unit Debt Act. This 1972 law, reenacted in 1978 establishes general debt limits for non-electoral debt. As of 2004, East Bradford Township has no general obligation debt, and none is planned as of the date of this publication. The Municipality Authority Act is another legislative vehicle for incurring debt often associated with municipal works such as public sewer or water facilities.

In late 2002, the Board of Supervisors authorized a special purpose loan from the Delaware Valley Regional Finance Authority (DVRFA) for the special and sole purpose of implementing its Open Space Preservation Initiative. The proceeds of the \$12,000,000 loan (25-year term, both fixed and variable rates) are for the sole purpose of acquiring real property interests, in accordance with Act 153, the Open Space Preservation Act. The form of the loan actually is a guaranteed revenue note with the obligation of the ¼ of 1 percent Open Space Tax pledged by the Township to ensure the loan repayment.

Socio-Economic Profile and Population Trends

The 2004 Comprehensive Plan provides a thorough assessment of socio economic issues, summarized here. Socio-economic data is based on the 2000 Census which, while dated, is the only comprehensive data available until the 2010 Census. It is notable that the Township grew at nearly three times the average Chester County growth rate between 1970 and 2000. Continuation of that trend would likely lead to significant amounts of new housing construction, increased pressures on scenic and natural resources and open space, increased impacts on groundwater supplies, increasing traffic on Township roadways, and increased pressure on the local school district. However, the Comprehensive Plan clearly set forth the objective that future growth be sustainable, and that it occur in such a manner as to minimize the impacts of growth on municipal services, transportation, open space, natural and cultural features, and quality of life. The success of the Township open space program has enhanced achievement of that objective, removing considerable land from future development potential.

Population density in the Township in 2000 was 627 persons per square mile. This number reflects a net percent change in population, between 1970 and 2000, of 188.5 percent. The median age of Township residents is increasing. In 1980, the median age was 32.4 years. By 1990, the median age had increased to 35.4 years, and according to 2000 census data, the median age increased yet again to 36.9 years. Approximately 27 percent of the population was under 18 years of age in 2000, while 9 percent was age 65 or older. These demographics are relatively consistent with County-wide data.

According to the 2000 Census, there were 3,150 housing units in East Bradford Township, of which 3,076 were occupied. This number represents an increase of 184.3 percent from the 1980 number. The Township's population can generally be characterized as well educated, affluent,

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and able to absorb the costs associated with living in the Township. Unemployment is also relatively low in the Township, with most Township residents employed in Educational, Health and Social services, or in Professional, Scientific, Management, and Administrative positions (U.S. Census 2000).

In the year 2000, East Bradford recorded a population of 9,405 persons. This number was a net increase of 46 percent (4.6 percent per annum) over the 1990 recorded population, which, for the identified time period, was the second highest percentage increase of any of the adjacent municipalities. Based on the Comprehensive Plan, projections included in Chester County’s *Linking Landscapes*, building permit activity since 2000, and build-out scenarios provided by the West Chester Area Regional Planning Commission, the 2005 population of East Bradford Township was estimated to be 10,200 and the 2025 planning horizon population is anticipated to reach 12,400.

Land Use Patterns

East Bradford Township has changed greatly since 1970, illustrated by the dramatic increase in population. The trend has been towards suburban development, particularly in the areas closest to West Chester Borough. While agricultural activity has diminished, a significant portion of the agricultural land remaining in East Bradford, as well as other open space lands, is under the protection of conservation easements, helping to stem the tide of land use change. Chapter Five describes, in greater detail, the notable increases in both developed and protected lands since the completion of the prior plan in 1993. The 2004 Comprehensive Plan documented the gradual suburbanization of much of East Bradford Township and summarized current land use patterns in the following major categories, in each case including undeveloped lands zoned for uses consistent with that category:

Land Use Category	Percentage of total land area
Mixed Development	8.7
Suburban Residential	31.6
Low Density Residential	26.2
Environmental Constraints	33.5

Regional Planning Context – Relationship to Chester County’s *Landscapes*

East Bradford Township is located within the following designations as indicated in *Landscapes*, the Chester County Comprehensive Plan Policy Element that was adopted by the Board of County Commissioners on July 12, 1996.

The areas of the Township generally to the east of the Valley Creek-Brandywine Creek corridor are located in the *Suburban Landscape*. Suburban Landscapes include areas where infrastructure and public services have been, or should be, extended to accommodate residential development and shopping and employment centers. The Plan encourages

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design flexibility and a mix of density and uses, either through revitalization or infill, within the *Suburban Landscape*.

The areas of the Township directly adjacent to West Chester Borough and the southern boundary with West Goshen Township are located within the *Urban Landscape*. Urban Landscapes serve as a focal point for economic, cultural and transportation activities. They also serve as major population centers with all required infrastructure and human services in place to support higher density populations. The Landscapes Plan encourages housing rehabilitation, infill development and economic development within the *Urban Landscape*.

The portion of the Township generally to the north of Route 322 and west of Valley Creek, and the portion of the Township generally to the south of Route 162 west of the East Branch of the Brandywine Creek, are located within the Rural Landscape, which is characterized by farms, farm related businesses, villages, and scattered housing sites. Development proposed within the *Rural Landscape* is encouraged to occur on a limited basis or in Rural Centers in order to preserve agriculture and the rural character typified within this landscape.

The portions of the Township along the Brandywine Creek, Valley Creek, Hollow Run and Blackhorse Run corridors are situated in *Natural Landscape Overlay* areas. Natural Landscape Overlay areas are typified by woodlands, stream corridors, steep hillsides, ridge tops, wetlands, and marshes. These resources are permanent and essential elements of the physical environment, and are the foundation of all landscapes. *Landscapes* encourages the preservation of these sensitive natural areas and discourages development from occurring in natural areas.

Open Space, Recreation & Environmental Resources Plan – Implementation Since 1993

Much has occurred since adoption of the prior *Open Space, Recreation & Environmental Resources Plan* in 1993. The Township has successfully embarked on an aggressive campaign to permanently protect open space, implement trails plans, acquire and develop public parkland, and establish local regulatory provisions to promote conservation of natural and cultural resources. Map 3-1, *Lands Protected Since 1993* graphically portrays the extent of parkland, private conservation lands, and restricted open space that existed in 1993, and the extent to which additional lands have been added to those categories in the years since.

In 1993, the Township already was fortunate to have over 1,000 acres of permanent open space, most of it due to the generous donation of conservation easements by private landowners. This included almost 900 acres of conservation easements, mostly held by the Brandywine Conservancy and including the core of the Stroud Preserve, owned by Natural Lands Trust and then totaling 328 acres. The Township also owned 58 acres of public parkland, and some 91 acres of permanent open space had resulted as conditions of approval of subdivision plans. 1.6 miles of trails had been formally established by 1993, mostly on lands held by homeowners associations.

In the late 1990's, Township voters overwhelmingly approved two open space referenda, initially authorizing an 0.125 percent earned income tax to generate funds for acquisition of interests in

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open space, subsequently doubled to 0.25 percent. Funds thus generated proved to be a key to the implementation of a very forward-thinking response by the Board of Supervisors to development pressures continuing to face the Township. The aggressive open space conservation initiative that resulted also recognized its important role in maintaining quality of life and economic prosperity in the community and region. Today, the East Bradford Township Open Space Program is perhaps the most visible ‘economic’ policy of the Township.

The generation of a significant open space fund, leveraged with the assistance of significant state and County grant funds, has enabled the Township to acquire conservation easements protecting large acreages, which when combined with additional conservation easements acquired by the Natural Lands Trust, Brandywine Conservancy and the North American Land Trust and an easement acquired through Chester County’s agricultural preservation program, have totaled nearly 1,200 acres since 1993. Included in this acreage is an additional 193 acres added to Natural Lands Trust’s Stroud Preserve. Natural Lands Trust also has developed an access area and nearly eight miles of publicly accessible trails there.

The Township also has acquired additional parkland and natural areas totaling almost 500 acres, and undertaken significant recreational development at several parks, notably the new East Bradford Community Park and the Shaws Bridge Park, accomplishing several specific recommendations of the 1993 Plan. The Township is cooperating with West Bradford Township to pursue development of the multi-use East Branch Brandywine Trail between Sugar’s Bridge (Route 322) and the Borough of Downingtown. The Township also has developed nearly eight miles of trails on Township owned or eased parkland and open spaces. This includes trail development at the Singer tract, with 170 acres committed to open space on a limited term basis by easement to the Township.

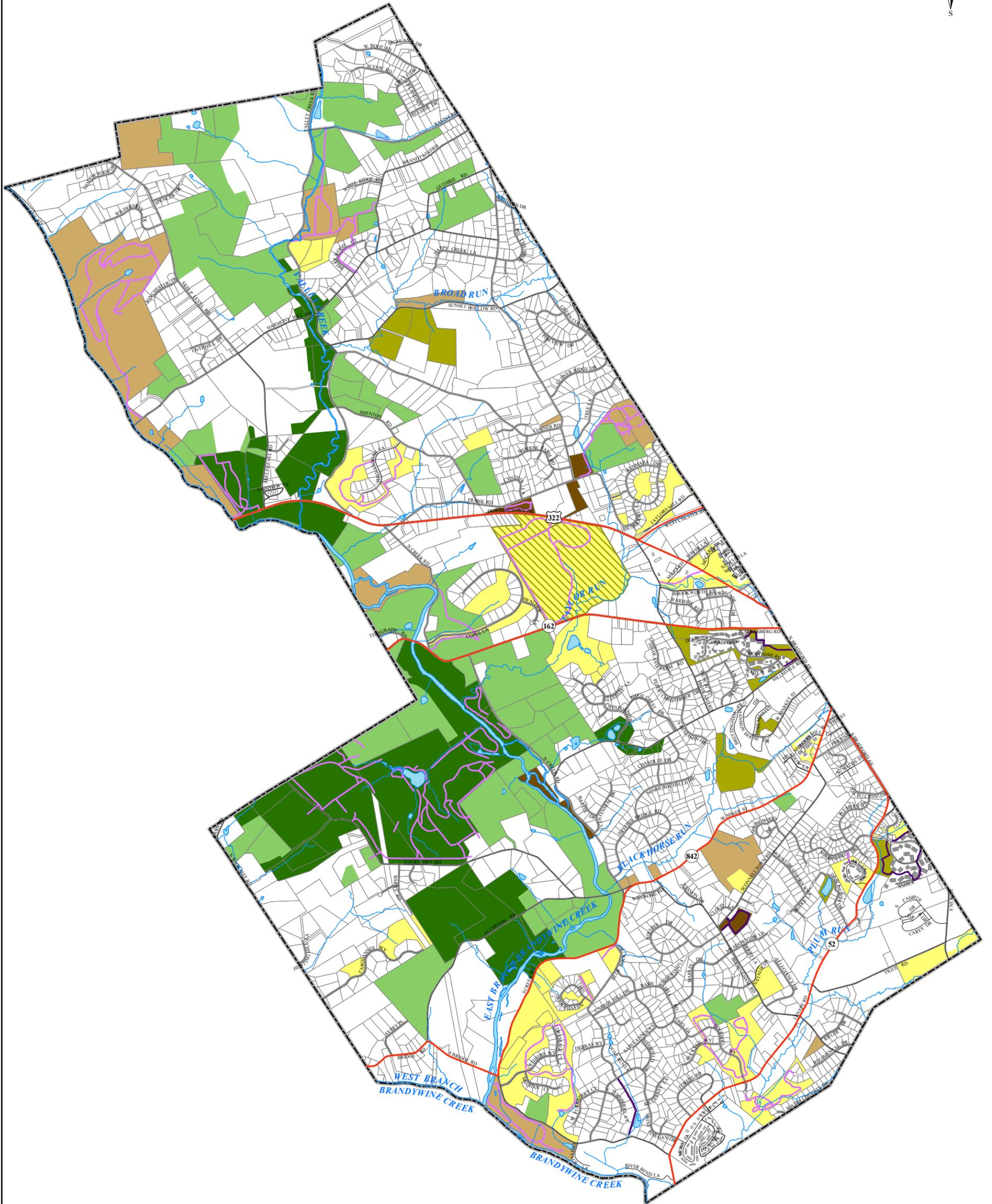
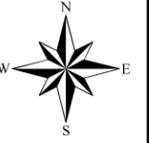
In 2005, the Township purchased the 238-acre Harmony Hill Nature Area (formerly known as the Sonoco property). In 2006, the Township commissioned a trail study to evaluate the feasibility of developing a sustainable, non-motorized trail network designed to accommodate pedestrians, mountain bikers, equestrians, and people with special needs. In June 2007, the Board of Supervisors decided to work with several volunteer groups – notably the West Chester Cycling Club and the Chester County Trails Club – to implement the “Recommended Concept Plan” outlined in the trail feasibility study. Since then, 66 volunteers have donated a total of approximately 420 man hours to build natural surface trails at the property. The West Chester Cycling Club and the Chester County Trails Club entered into a memorandum of understanding with the Township pledging to assist with construction and ongoing maintenance tasks. There currently are 5 miles of trails on the property. Pedestrian and mountain biking uses are permitted; equestrian use may be permitted in the future.

Open Space conservation, parkland acquisition, and recreational development since 1993 have been fully consistent with the recommendations of the 1993 Plan. Open space conservation efforts and additional recreational and trails development is underway as the objectives of the 1993 Plan continue to be achieved. Further review of needed activity in these areas is a principal purpose of this plan.

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The 1993 Plan also made a number of important recommendations regarding ongoing community planning efforts. Most have been fulfilled or are on-going, notably including the use and consistent administration of appropriate regulatory tools to promote natural and cultural resource protection. For example, since 1993, most new development within the Township has used the Open Space Development Option, adopted as an update to earlier provisions for cluster development. The Open Space Development Option expanded upon prior regulation to include specific priorities for resource protection and flexible development siting criteria, enabling avoidance of unnecessary disturbance to sensitive resource areas. Use of this option has resulted in the permanent protection of close to 350 additional acres of open space, most held by local homeowners associations, and including several additional miles of trails.

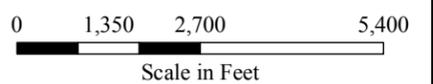
Natural resource protection regulations have been strengthened since 1993, notably including the addition of extensive provisions for the protection of riparian buffers, and for the preservation and management of significant vegetation, as well as expanded provisions for reforestation, landscaping and landscape buffers. Special provisions to create incentives for conservation of scenic landscapes within the Brandywine Scenic Overlay have been adopted, as have scenic roadside maintenance standards. In addition, standards for dedication of recreational lands and facilities, or fees in lieu thereof, have been notably strengthened.



Legend	
	Major roads
	Roads
	Streams
	Bodies of water
	Tax parcels
	Township boundary
Trails	
	Established before 1993 (1.6 mi.)
	Established since 1993 (20.0 mi.)
Conservation & agricultural easements	
	Established before 1993 (898.6 ac.)
	Established since 1993 (1171.8 ac.)
Restricted open space	
	Established before 1993 (90.7 ac.)
	Established since 1993 (395.6 ac.)
	15 year term easements, est. since 1993 (169.9 ac.)
Township parks & open space	
	Established before 1993 (57.8 ac.)
	Established since 1993 (492.9 ac.)

Map 3-1 Lands Protected Since 1993

East Bradford Township Open Space Plan



Brandywine Conservancy
Environmental Management Center
P. O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Protected lands from Chester County Planning Commission, 2005 (revised by Brandywine Conservancy, 05/08/07).
Date created: January 1, 2009

Chapter Four

Natural & Cultural Resources Inventory

Introduction

The following natural and cultural resource issues have been studied for this Plan and are reviewed in this chapter; recreational resources, trails, and greenways are discussed in the Recreation Plan, Trails Plan, and Greenways Plan sections, respectively:

- Topography and steep slopes
- Agricultural soils and properties
- Natural diversity
- Deer management
- Woodlands
- Riparian buffers
- Surface waters
- Floodplains
- Headwaters watersheds
- Wetlands and hydric soils
- Groundwater resources
- Scenic landscapes
- Scenic roads
- Historic resources

Each resource issue is described in terms of its contribution to or impact on the landscape of East Bradford Township, its critical environmental characteristics, its relationship to land use and open space planning efforts and, where relevant, the current levels of resource protection afforded by both the Township open space program and applicable regulation.

Topography & Steep Slopes

East Bradford Township lies entirely within the Piedmont Upland, essentially long eroded upland of the Appalachian system, dissected by a branching pattern of stream valleys. Topography within East Bradford varies considerably. The highest elevation in the township is approximately 525 feet and is found in two locations, one at the point where Brandywine Road crosses into West Whiteland Township and one to the east of Skelp Level Road just south of the boundary with East Caln Township. The lowest elevation is approximately 170 feet and is located at the southern end of the township where the Brandywine Creek flows into Pocopson and Birmingham Townships, just below the confluence of the East and West Branches of the Brandywine. Map 4-1 *Topography* models elevation throughout the township and graphically portrays the form of the dissected upland landscape. This landscape form accentuates several natural resource issues discussed further below. For example, the steeply sloping valley walls accelerate stormwater runoff, while floodwaters are concentrated in the relatively narrow floodplains.

Concentrations of steep slope are found along either side of many of the streams that flow through the township. The 2004 Comprehensive Plan noted that about 65 percent of the township contains slopes in the 0-15 percent range, another 20 percent of the township has slopes in the range of 15-25 percent, and the remaining 15 percent of the township contains slopes that exceed 25 percent. For the purposes of this Plan, steep slopes were mapped to delineate slopes between 20 and 30 percent and slopes in excess of 30 percent. These are the break points now regulated in accordance with the Township Zoning Ordinance, and are indicated on Map 4-2 *Steep Slopes*.

Most of the steeper slopes in East Bradford Township are covered by woodlands today. Typically, they have shallow soils, due to the forces of erosion over time, particularly during the period of American settlement before mechanized farming, when all but the steepest slopes were cleared of trees. Both the steepness of slopes and the presence of shallow soil mantles makes them extremely susceptible to erosion, particularly if vegetative cover is removed, even temporarily. Much of the soil mantle may quickly be washed down slope, causing sedimentation in low-lying areas and in streams and, in places, raising flood elevations. On the steep slopes where the soil has been removed, re-establishment of vegetation can be very difficult, again due to shallow soils and persistent erosive forces. The shallow depth to bedrock corresponding to shallow soil mantle means that development on or across steep slopes also can be quite expensive, with the necessity of considerable rock removal and even blasting.

The Township regulates land use and disturbance on steep slopes under the provisions of the Steep Slope Conservation District. The provisions of the Steep Slope Conservation District apply to slopes of 20 percent or greater. The Steep Slope Conservation District is further divided into areas with slopes of 20 percent or greater but less than 30 percent, and areas defined as “prohibitive slope,” where the slope is 30 percent or greater. Uses by right are essentially limited to parks, passive recreation areas, logging and woodcutting, agriculture and the minimum grading necessary to gain roadway, emergency, driveway or utility line access where it can be demonstrated that no other routing which avoids steep slopes is feasible. In addition, on prohibitive slopes, land disturbance associated with any permitted use(s) is limited to 5,000 square feet. On slopes between 20 and 30 percent only, up to 50 percent of the ground area of a single-family residence may intrude into the steep slope area.

On any portion of a lot or tract located within the Steep Slope Conservation District, the total amount of impervious surface, that may be installed or maintained, may not exceed 50 percent of the maximum amount of impervious surface otherwise permitted in the base zoning district in which the slopes occur.

Man-made slopes resulting from earlier development are nevertheless also treated as steep slopes, with the exception that any man-made slope may be altered so long as the ultimate finished slope is less than the pre-existing slope and no adjacent naturally occurring slopes are altered in the process.

The Zoning Ordinance also reduces the density of development that may occur in areas constrained by steep slopes and other environmental features, by “netting out” steep slopes and certain other features from the calculation of both lot and tract area. Unconstrained areas

are further required to be contiguous and not divided by steep slopes and other highly constraining features. By increasing minimum lot sizes or reducing density or intensity of development, these provisions reduce the likelihood that steep slope areas will need to be disturbed.

The Zoning Ordinance also offers flexibility in the specific placement of development through use of the Open Space Development Option, which affords the opportunity to cluster smaller individual lots or higher net density of development on unconstrained lands, avoiding disturbance of steep slopes and other constrained lands.

Considerable land area sloping 20 percent or more is likely never to confront otherwise applicable zoning regulation, as some 638 acres of such steep slopes are located on lands that are permanently preserved as open space.

Agricultural Soils & Properties

Approximately 30 percent of the land area of East Bradford Township is classified as prime agricultural soils or soils designated as “of statewide importance,” as mapped by the Natural Resource Conservation Service of the US Department of Agriculture. These soils tend to be prone to erosion, particularly on slopes. Their conservation is dependent upon regular use of basic, easily applied conservation practices such as contour farming and planting of vegetated buffer strips. The extent of prime agricultural soils and soils of statewide importance is indicated on Map 4-3 *Agricultural Resources*.

It is clear by looking at development patterns in East Bradford Township, that lands comprising prime agricultural soils also have been generally conducive to building activity. Almost 1,300 acres of prime agricultural soils, close to half of the total inventory, have been converted to suburban use. However, even in this land use context, conservation of the soil resource may prove a valid objective as the agricultural economy changes over time in an area so proximate to major metropolitan markets. A number of East Bradford Township farm owners have committed their lands to permanent conservation, totaling nearly 900 acres, mostly by way of conservation easement or through sale of development rights to the County/State farmland preservation program. These farms are among the total of nearly 1,800 acres that are enrolled in the Township Agricultural Security Area (ASA). Properties within the ASA and those permanently preserved are shown on Map 4-3.

The ASA does not prohibit development or other land use change. It does grant farmers certain relief from nuisance legislation and serves to indicate at least temporary commitment for continuance of agriculture on the part of participating landowners. Properties within the ASA also are eligible for funding through the County/State farmland preservation program for purchase of development rights. The Township Zoning Ordinance also makes provision for the protection of smaller areas of prime agricultural soils by encouraging their location within permanent open space, and by encouraging the location of new structures on nonprime soils. Protection against nuisance legislation (e.g., regarding noise, smell, dust, hours of operation, etc.), afforded by enrollment in the ASA, does not waive applicability of any other regulation, such as grading and other land disturbance standards, impervious coverage limits, or

stormwater management requirements. Stormwater runoff from agricultural properties is a critical issue relative to surface water quality.

The 2004 Comprehensive Plan also analyzed soils from the standpoint of their capacity to handle on-lot sewage disposal systems, upon which a majority of Township residents rely. From an open space planning perspective, it may prove beneficial to focus some conservation efforts on suitable soils to provide opportunities for future land application of treated wastewater, such as spray or drip irrigation, in order to avoid increases in stream discharges.

Natural Diversity

A variety of natural habitat types found in East Bradford were described in the 1993 Open Space Plan and the 2004 Comprehensive Plan, although no comprehensive inventory of natural habitat has been conducted. In the course of preparation of the 2004 Comprehensive Plan, one site was found to be included in the Pennsylvania Natural Diversity Index (PNDI), a site that already is preserved by conservation easements. In addition, West Chester University has set aside a portion of its lands in East Bradford and West Goshen as the Robert B. Gordon Natural Area for Environmental Studies. Most natural habitat fall within woodland and riparian buffer areas that are mapped for this Plan and discussed below. It is important to maintaining the ecological health of the Township that sufficient areas of natural habitat are retained and that natural or naturalized corridors connecting them are established and maintained. While East Bradford Township has witnessed a high rate of growth, concerted efforts to permanently protect open space are resulting in the maintenance of a relatively extensive and diverse natural environment. Open space preservation efforts in this regard are augmented by effective regulatory approaches to protect areas such as steep slopes, floodplains, wetlands and riparian buffers.

Deer Management

Management of an overabundant deer population is a serious concern in parts of East Bradford Township. Deer threaten natural diversity, as they feed heavily on the buds, seedlings, and shoots of native species, promoting the establishment of aggressive and non-native plant species. Human concerns include increased incidence of automobile accidents, property damage to landscaping and crops, and diseases such as Lyme disease, born by the ticks that thrive on abundant deer hosts. Conflicts with deer have resulted from a variety of factors, including encroachment by development and human activity into deer habitat, the presence of woodland areas in close proximity to development, elimination of natural predators, and insufficient safety for conduct of hunting in proximity to development. The Township has recently initiated efforts to establish exemplary management practices at township-managed parks and open spaces and to support educational programs to promote safe and sustainable wildlife management on private lands. An example includes safer hunting options such as the activity of the Brandywine Valley Archery Club, which is permitted to hunt on Township-owned open space lands. The Children's Country Week Association and Natural Lands Trust also have initiated deer management programs on their extensive open lands, as have some private property owners.

Woodlands

East Bradford Township is part of a broad region that prior to European settlement was almost entirely forested, making woodlands the defining characteristic habitat type, to which nearly all other plants and animals had adapted. Remaining woodlands occupy nearly 3,000 acres in East Bradford, approximately 30 percent of the total township land area. These woodlands are still representative of the original predominant ecosystem, known as the Eastern Deciduous Forest. The Oak-Hickory forest is the predominant natural cover type, and, if left unmanaged, most lands eventually would revert to woodland. The woodlands of oaks, hickory, tulip poplar, beech, maples, black cherry, ash, sycamore and other species that we know as “Penn’s Woods” have grown for thousands of years following the retreat of the last Ice Age. These species are favored by growing conditions created by the hard, crystalline geology and the temperate climate. The rich agricultural soils of this area are the result of thousands of years of soil formation from the decomposition of woodland organic matter and the weathering of crystalline geology.

As an ecosystem, woodlands comprise many interdependent relationships between a rich variety of trees, shrubs, plants, grasses, mosses, lichens, fungi, decaying organic matter, mammals, birds, reptiles, amphibians, and invertebrates (including insects). Thousands of species of native plants and wildlife depend on woodland habitat for their existence. The natural diversity and stability of woodlands are crucial as life-support systems for people, plants and animals. Healthy woodlands are perhaps the best natural stormwater management facility, because trees absorb large quantities of water while the rich forest floor stores and impedes the flow and velocity of stormwater runoff. This natural benefit is particularly critical on forested steep slopes. Similarly, forested headwaters are particularly valuable to protecting and maintaining water quality in first-order streams and the larger streams they are tributary to. Woodland area within East Bradford Township occupies nearly 1,000 acres of steep slope and over 1,300 acres of headwaters areas. Trees also function as natural barriers, reducing unwelcome impacts of noise and wind and screening unsightly areas. They function to reduce temperature extremes and moderate evaporation, serving both energy conservation and air purifying functions, acting as the “lungs” of the landscape.

Healthy, maturing woodlands typically include six different layers of vegetation: canopy, subcanopy, understory, shrub layer, herbaceous layer, and humus layer. Dead wood, either standing dead trees (snags) or fallen dead trees and branches (logs) are an additional source of habitat for many species of wildlife, mosses, lichens and fungi. The “structural diversity” offered by the presence of each of the woodland layers offers optimal habitat for a diversity of plant and animal species and optimum benefits to streams and groundwater. In contrast, a manicured forest with only large canopy trees and leaf litter, but no subcanopy, understory, shrub or herb layers, provides an aesthetic and/or recreational experience, but offers minimal benefit from the standpoints of groundwater recharge, stream buffering benefits, habitat diversity, regeneration of new canopy trees, or building of soil. Similarly, too much deer browse in the understory degrades natural woodland functions.

Mapping of woodlands for this Plan was obtained from the Delaware Valley Regional Planning Commission based on aerial photography taken in 2000. Consistent with the Township Zoning Ordinance, which defines woodland as a plant community of one quarter acre or more comprised predominantly of trees, Map 4-4 **Woodland Classification** delineates all patches of woodland greater than one quarter acre in size. Each woodland patch is numbered in order of size, e.g. #1 is the largest (377.53 acres) and #155 is the smallest (0.28 acre). Available woodland mapping does not differentiate between young and mature woodlands, those that recently have been subject to timber harvesting and those that have not. Additional successional woodlands which did not exhibit a complete or nearly complete canopy in 2000 were excluded.

Forest Interior Habitat

Forest interior habitats are ‘deep woods’ areas which lie beyond many of the ‘edge’ influences that tend to degrade a woodland area from the outside, such as light, wind, noise, non-native or invasive species, and even incursion by humans and their pets. These interior areas are typically measured on the basis of a 300-foot buffer of woodland from any outer edge; they tend to create their own micro-climate, remaining cooler in summer and warmer in winter. Forest interior habitats are likely to support a considerable variety of native vegetation and wildlife species. In fact, certain species of forest plants and wildlife depend specifically on the unique conditions of a healthy forest interior ecosystem. Many species of songbirds, for example, are specifically adapted to forest-interior conditions and will not nest elsewhere.

Woodland Classification

Individual woodlands vary widely in size, age, quality, and in the biological/ecological functions they perform. In order to better evaluate and compare the relative importance of individual woodlands, they can be differentiated and grouped into different classes based on the presence of greater or lesser ecological and watershed values. For this Plan, three woodland classes have been mapped and are indicated on the Map 4-4. Class I Woodlands have been defined to exclusively comprise forest interior habitat of 2.5 acres or more, comprising a total of 442 acres and located predominantly in the northern part of the Township. These areas tend to be the most important from the standpoint of environmental and ecological functions provided, worthy of a higher level of protection than other woodlands. Class II woodlands also provide significant ecological services and perform important watershed functions, and include most of the remaining portions of larger woodland areas that are not forest interior habitat. For this Plan, woodland areas other than forest interior habitat, and exceeding 30 acres in size, were mapped as Class II, along with smaller woodlands that comprised at least 18 acres collectively of forested steep slopes or forested headwaters or which shaded at least 0.7 mile of stream. Patches of forest interior habitat less than 2.5 acres were added to adjacent areas of Class II woodland. Based on these definitions, Class II woodlands comprise 1,729 acres and are located throughout the Township. The remaining woodlands, generally small, isolated, and offering fewer benefits, are included in Class III, totaling 670 acres.

A significant percentage of mapped woodlands in East Bradford are afforded de facto protection from development impacts due to their location on floodplains, riparian buffers and steep slopes.

Overlapping such constraints, over 1,500 acres of woodland are located on lands that are permanently preserved as open space. Interestingly, 750 additional acres of mapped woodlands are located on lands classified as “developed.” While such woodlands are not formally protected beyond zoning standards discussed below, at least in the short term, there is limited pressure to redevelop already developed lands more intensively. However, this issue will need to be monitored as the land area committed to neither development nor conservation continues to dwindle.

In addition to restrictions against tree removal in floodplains and riparian buffers, the Township Zoning Ordinance provides further restrictions on tree removal as well as general restrictions on vegetation removal. Section 115-45.B(1) of the Township Code, “Limitations to vegetation disturbance,” provides for limitation of woodland removal, not to exceed an area equal to one half the total area of the lot or tract. Under this section, if the total area of existing woodlands is less than one half the total area of the lot or tract, then woodland removal is prohibited. The zoning text further restricts removal of a trees greater than 12 inches dbh. In addition, regardless of the maximum tree removal limitations, subsequent Section 115-45.B(2) prohibits removal on any lot or tract of more than 20 percent of any existing tree mass, tree line, hedgerow, or individual freestanding trees greater than 6 inches dbh, inclusive of any earlier tree removal on the subject lot or tract. An exception is provided upon the approval of the Township, where “compensatory” planting is undertaken. Trees designated as William Penn trees, defined as greater than five feet dbh, are not to be disturbed or removed from any location, except as necessary for purposes of public access or utilities, or if the tree is deemed hazardous by a certified arborist. Similar restrictions apply to removal of vegetation along scenic roads as described below.

The Zoning Ordinance also provides that all trees, tree masses and their associated vegetation layers, mature trees and other vegetation within 25 feet of a building or structure, parking area or driveway, stormwater management system or other proposed improvement shall be considered within a “tree protection zone” and protected from damage during construction activities. A minimum of 70 percent of the root zone of trees along the perimeter of the tree protection zone must be protected from damage, either by fencing or other means, such as retaining walls, aeration pipes, or a temporary layer of mulch topped with plywood in areas of vehicular traffic. Removal of trees within the tree protection zone, or of any tree greater than 36 inches dbh, also requires compensatory planting. Reforestation is encouraged as an option for compensatory planting on those sites large enough to support a minimum reforestation area of 1/2 acre.

The Zoning Ordinance allows forestry as a permitted use in all districts, as required under the Pennsylvania Municipalities Planning Code (MPC). No restrictions on forestry are stipulated other than the submittal and approval by the Board of Supervisors of a plan prepared by a certified registered forester.

Riparian Buffers

Riparian areas are the immediate lands adjacent to surface waters. These areas are the transitional landscapes between the flowing waters of streams and bordering upland areas.

Protection or reestablishment of vegetative buffers in riparian areas is widely recognized as one of the most important ways to protect and maintain a stream's overall health. Vegetation filters and retains streamside stormwater runoff, and promotes the stabilization of streambanks, thus reducing downstream transport of eroded sediment and pollutants. It provides food, cover and thermal protection for aquatic organisms and other wildlife, and helps to preserve species-rich communities along and adjacent to water bodies. Ample research and literature supports maintenance of riparian buffers as wide as practicable; 100 feet measured from the top of bank is frequently used, although in other jurisdictions, buffers as wide as 300 feet on either side of a stream have been employed.

Considering that the water resource system in East Bradford Township evolved under primarily forested conditions, it is logical to assert that riparian buffers function best when they are forested. In fact, extensive research has demonstrated that forested riparian buffers are irreplaceable in their environmental functions. They both create and maintain cool water temperatures by shading the stream, while optimizing in-stream habitat for pollution-intolerant species such as aquatic insects and wild brook trout. Forested riparian buffers enhance wildlife habitat in the form of food, water, and shelter; supply important nutrients from leaves; contribute woody debris to regulate stream flow and to create resting spots for aquatic species; and, filter runoff from surrounding lands through their roots and vegetative growth underlying the trees. Forested riparian buffers also make excellent flood control areas, recreational corridors, and are highly scenic.

In East Bradford Township, the Riparian Buffer Area Conservation District (RBA) has been established to regulate uses, activities and development within riparian areas in order to promote the environmental functions performed by riparian buffers as described above. The RBA is defined as 100 feet on either side of a stream or water body and 50 feet beyond the boundary of any floodplain or wetland exceeding 20,000 square feet in area. To the extent feasible with available mapping of the surface water system, Map 4-5 **Riparian Buffers** indicates the locations of riparian buffers consistent with their regulation in East Bradford. Riparian buffers also are denoted as to their primary land cover type, with 847 acres or 39 percent of the RBA forested and 1,321 acres or 61 percent open.

A significant percentage of defined riparian buffers in East Bradford Township are essentially protected from development impacts because of their location on lands otherwise restricted, notably as floodplains. 1,046 acres within the RBA are located on lands that are permanently preserved as open space. 560 acres within the RBA are located on lands classified as "developed." All lands within the RBA are subject to the restrictive provisions established in the Township Zoning Ordinance. For purposes of regulating land use and activity, there are two zones or areas within the RBA. Area 1 is the land within 25 feet of a water body or wetland, along with any contiguous area of slopes in excess of 15 percent. Area 2 is the remainder of the RBA up to its maximum width. Within the entirety of the RBA, essentially no new structural development or impervious coverage is permitted, except where permitted in the context of limited expansion of an existing non-conforming use or structure. Within Area 1, vegetation is to be left undisturbed. Within Area 2, active vegetation management may be permitted, including agriculture when limited to no till, no chemical applications, and no

grazing. Existing uses of the land, including vegetation management practices, also are subject to provisions for continuance of non-conforming uses.

Surface Waters

The entirety of East Bradford Township lies within the watershed of the Brandywine, which joins the Christina in Wilmington, DE, just shy of its confluence with the Delaware River. Most of East Bradford Township is drained by the East Branch of the Brandywine Creek and its tributaries West Valley Creek, Broad Run, Taylor Run, Blackhorse Run and Plum Run. In the southern end of the township, at the boundary with Pocopson Township, the East and West Branches of the Brandywine Creek join to form the main stem. Surface waters and watershed boundaries are indicated on Map 4-6 *Water Resources*.

The Brandywine Creek and its tributaries are a major water supply source, but have undergone significant water quality deterioration over the years, with treated sewage discharges and extensive development contributing to increased flow volumes for increased duration, often resulting in excessive erosion and corresponding siltation and lack of clarity in the waterways. The Pennsylvania Department of Environmental Protection (DEP) designates surface waters based on an assessment of several protected use categories such as: water supply, recreation, and aquatic life. Designations for streams in East Bradford Township include:

- Broad Run (parts) – High Quality Cold Water Fishery (HQ-CWF); Migratory Fish
- East Branch of Brandywine Creek – Warm Water Fishery (WWF); Migratory Fish
- West Branch of Brandywine Creek – Warm Water Fishery (WWF)
- Taylor Run – Trout Stocking Fishery (TSF)
- Plum Run – Warm Water Fishery (WWF)
- West Valley Creek – Cold Water Fishery (CWF)
- Blackhorse Run – Trout Stocking Fishery (TSF)

These designations play a role in DEP review and approval of wastewater discharges and stream encroachments, which are permitted on the basis of potential water quality impacts. Measurement of stream water quality, or conversely, impaired quality, varies depending on the designated use category. For example, high quality cold water fisheries are subject to the most stringent standards in East Bradford, and warm water fisheries the least stringent. Most stream segments in East Bradford Township meet state water quality standards for their designated use category. This fact stems, at least in part, from significant time and effort to improve stream quality, underway for over 60 years by local organizations such as the Brandywine Valley Association (BVA) and West Chester Fish, Game and Wildlife Association. Nevertheless, parts of West Valley Creek, Plum Run and Taylor Run still fail to meet state water quality standards for their designated use category and are listed as impaired waters. These impaired streams should be given significant priority in developing and seeking funding for restoration and water quality improvement projects. In addition to the DEP designations, Broad Run is designated a “wild trout stream” by the Pennsylvania Fish and Boat Commission.

Recently, BVA has initiated its “Red Streams to Blue Program,” a program focused on protecting and improving water quality throughout the Brandywine Watershed. Streams not meeting water quality standards for their designated use are mapped in red while those that meet applicable standards are mapped in blue. As part of the Red Streams to Blue Program, the BVA is completing a comprehensive assessment of impaired watersheds and identifying necessary corrective actions to turn “red” stream reaches into blue.” BVA has recently completed their study of the Plum Run watershed in the southern part of East Bradford. Water quality and habitat assessment have been completed, along with assessment of current in-stream conditions, identification of areas with erosion problems, and location of major stormwater outfalls. This has led to the outline of a watershed restoration plan establishing priority areas for restoration. It is anticipated that joint efforts on the part of BVA, East Bradford Township, and other stakeholders will result in successful implementation of the restoration plan over time, hopefully “turning a red stream to blue.” An important part of implementation efforts also will include outreach on the part of BVA to homeowners, promoting good and consistent stream stewardship.

The Township has a primary responsibility for ensuring that its practices assist in addressing local and regional concerns for protection of surface waters and their watersheds. The 2004 Comprehensive Plan summarized such concerns as: reductions in stormwater runoff; restoration of water quality in the impaired portions of streams; and the protection and enhancement of historic, cultural, and recreational resources represented by the streams and located along their reaches.

In response to recently promulgated regulation by DEP of “municipal separate storm sewer systems,” referred to as “MS-4,” the Township has obtained from DEP a national pollutant discharge elimination system (NPDES) permit for operation of storm sewer systems. As part of that permit, the Township has adopted the DEP Model Stormwater Management Ordinance, through incorporation by reference into the Township’s own stormwater management regulation. The DEP model focuses on standards and criteria aiming to ensure perpetual maintenance of stormwater facilities. East Bradford Township’s stormwater management regulation additionally favors system designs that rely on infiltration of stormwater, thus filtering stormwater through the soil and bedrock and feeding the groundwater system and base flow to streams rather than exacerbating surging storm flows and concurrent erosion, sedimentation, and transport of pollutants. Stormwater management designs must be developed through a procedure that selects and locates “best management practices” (BMPs), viewing components in series, starting with runoff control at its source, seeking to infiltrate it; achieving quality improvement during conveyance; and as a last step, providing for detention and discharge.

Floodplains

Floodplains are found along all but the smallest streams, wherever periodic flooding occurs. By keeping floodplains unobstructed by development, they are able to carry high volumes of water with minimal property damage during flood events. Unobstructed floodplains act as huge water columns, conveying and storing significant volumes of water at relatively low water surface elevations, while also serving to attenuate the velocity of flood flows.

Floodplains within the Township should remain undeveloped to limit damage from both debris and increased flood elevations during high water events, and also to eliminate the potential for erosion, downstream sedimentation, and non-point source pollution. The presence of undeveloped floodplains acts as an important buffering and filtering system for streams, allowing nutrients and sediment to be deposited on stream bank areas prior to entering the stream itself.

Floodplains are regulated in East Bradford Township through the provisions of the Floodplain District, consistent with the flood insurance program stipulated by the Federal Emergency Management Agency (FEMA). Regulated floodplains are those areas subject to the 100-year flood, which equates to the extent of flooding that would result from a very heavy and extended rainfall event of such magnitude as is estimated to have a one percent likelihood of occurring in any one year. The rainfall and flooding associated with Hurricane Floyd, for example, was estimated to exceed the 100-year flood across much of Chester County. The estimated limits of flooding that would result from a 100-year flood have been mapped by FEMA, as identified in the agency's most recent Flood Insurance Study (FIS). These floodplains are indicated on Map 4-6. Except for purposes such as access, most land development is prohibited within the Floodplain District, along with tree or vegetation removal, topsoil removal, and sod farming. It is prohibited to store any material that, if inundated, would float, or any flammable or toxic material or any other material that, if inundated or otherwise released to the stream, would degrade or pollute the stream or cause damage if swept downstream.

As noted previously in regard to steep slopes, the Township Zoning Ordinance also reduces the density of development that may occur in areas constrained by floodplains, excluding them from net area calculations applicable to both individual lots and tracts subject to subdivision. Unconstrained areas eligible for lot or tract area calculation also may not be completely divided by floodplains or watercourses. Flexibility for development afforded by the Open Space Development Option increases opportunity to remove land disturbance from the immediate vicinity of floodplains. Within East Bradford Township, most floodplains are undeveloped, although 28 residences predating current regulation are located within 100-year floodplain areas, 18 of them being cottages on the Delacy tract at Lenape.

Headwaters Watersheds

"Headwaters" also are mapped on Map 4-6 based on the extent of the immediate watersheds of first order streams. First order streams are the upper most reaches of the stream system, extending from their sources, usually springs or seeps, to the confluence with another stream segment. Land use practices and stormwater runoff in headwaters can have particularly significant and immediate impact upon water quality and quantity in first-order streams. This is due both to relative proximity of the entire watershed to the stream, and to the small base flow in a first order stream, easily overwhelmed by the impacts of storm flow. Headwaters are particularly sensitive to introduction of impervious surfaces, improper grading, discharge of pollutants, or poor agricultural practices. Protection of first order streams and their headwaters also provides substantial benefits to water quality in downstream water reaches (second, third, etc., order streams).

Headwaters areas are not subject to specific township regulation, although portions of headwaters will be regulated under more specific resource protection provisions pertaining to floodplains, wetlands, riparian buffers, steep slopes, and, to a limited extent, woodlands. Substantial acreage in headwaters already is subject to suburban land use, including nearly 2,300 acres. In these areas, monitoring of stormwater management and septic disposal becomes critical. In this vein, East Bradford Township has adopted regulation mandating testing of individual septic systems at least once every three years. On the other hand, over 1,600 acres of headwaters areas have been permanently preserved as open space.

Wetlands and Hydric Soils

Wetlands are recognized for their special ecological values, being among the world's most productive ecosystems. Often found at the heart of important headwaters areas, they offer critical wildlife habitat, filtering of pollutants, and are important water storage areas. In fact, they are the areas where surface waters and groundwater meet and intermingle, underlining the importance of maintaining their water quality.

There is no comprehensive inventory of wetlands in East Bradford Township. The National Wetlands Inventory (NWI) has identified certain possible wetland areas in the township, based on aerial photography, including the stream system, certain marshy areas, stormwater detention areas, open excavations, and farm ponds. Unfortunately, the NWI is inconsistent, excluding many wetlands due to their small size or specific characteristics, particularly vegetation, that make them difficult to identify from aerial photography.

Wetlands are regulated by the Army Corps of Engineers at the federal level and by DEP at the state level, through a joint permitting process. From a regulatory standpoint, the presence of wetland areas is determined on the basis of hydric soil, periodic inundation/saturation, and presence of wetland species such as cattails, skunk cabbage, etc. With no pre-existing inventory, it is the burden of the applicant who wishes to undertake an activity in a wetland to submit a wetlands delineation report for jurisdictional determination. This effective "honor system" is counterbalanced by heavy penalties where violations are discovered.

No development may occur in a regulated wetland area without a permit. The permitting process requires investigation of alternatives, and may require "mitigation." Mitigation may, for example, be accepted where "new" wetlands are created to replace those disturbed or destroyed by development. On a limited basis, permit waivers are available depending on the size and scope of proposed activity within a wetland or the size of watershed feeding the wetland, potentially leaving some wetlands without effective protection.

East Bradford Township generally relies on state/federal regulation for protection of wetlands and does not prescribe additional regulation except in the context of riparian buffer regulation, discussed below, and by reducing the density of development that may occur on lands that include wetland areas. As with floodplains and steep slopes, wetlands are excluded from net area calculations applicable at both the lot and tract level. Unconstrained areas eligible for lot or tract area calculation also may not be completely divided by wetlands. Flexibility for

development, afforded by the Open Space Development Option, increases opportunity to remove land disturbance from the immediate vicinity of wetlands.

Mapping of hydric soils, while generalized, is found in the *Soil Survey of Chester and Delaware Counties*. While hydric soils are often mapped much more broadly than actual wetlands, their location offers the first red flag for potential wetland determination. Hydric soils are most often found in the immediate headwaters areas of streams, springs, seeps, and marshes. Subsurface water that seeps through these soils provides the base flow in streams. The maintenance of this base flow, filtered through the soil layer and subsurface rock, is critical for maintaining water quality in streams. At the same time, the direct interaction of surface and groundwater in hydric soils makes them very sensitive to runoff from impervious surfaces, improper grading, discharge of pollutants, or poor agricultural practices. Generally, hydric soils are poor soils for development, because the presence of significant water causes problems for wet basements and structural stability, and the soils do not adequately treat effluent from on-lot sewage systems. Generalized mapping of hydric soils is shown on Map 4-6.

No specific regulation of hydric soils is undertaken by East Bradford Township, although they frequently will overlap with areas regulated as floodplains, wetlands, or riparian buffers. The Pennsylvania Department of Environmental Protection (DEP) and the Chester County Health Department are responsible for issuing permits for sewage systems and will not permit on-site septic systems or other sewage disposal where there is evidence of insufficient depth to water table, nor where tests show insufficient soil percolation rates. Nevertheless, some 155 acres of hydric soils are found on lots subject to suburban land use. Over 300 acres of hydric soils fall within lands permanently protected as open space.

Groundwater Resources

Much of East Bradford Township's water supply is obtained from underground aquifers, those underground areas where fresh water is stored in the voids within the underground geologic formations. A large number of township residents rely on this groundwater resource for drinking water, emphasizing the importance of the protection of both its quantity and quality. Essentially, the entire township is underlain by relatively hard rock that tends to hold groundwater only in voids and fissures. Well yields are variable and often sparse, but quality is usually good. Water found at any significant depth has likely taken many years to move relatively short distances, thereby limiting the movement of any groundwater pollution. This slow turnover rate of groundwater supplies in a particular aquifer make any quality disruptions that do occur virtually permanent.

The 2004 Comprehensive Plan provides a discussion of key issues relative to management of groundwater resources for sustained quantity and quality. The Plan concludes that prevention of contamination in areas that rely on groundwater is the only really effective means of protecting the quality of available groundwater. Protecting quantity is a function both of limiting groundwater withdrawals and minimizing the diversionary effects of impervious surfaces, primarily through appropriate stormwater management.

Township planning efforts have focused on several issues with beneficial impact to groundwater quantity and quality. These include stormwater management approaches, as noted above, as well as provision for relatively low densities of development in areas dependent upon groundwater supplies. A byproduct of the Township open space program has been the removal of significant acreage from future development potential. East Bradford Township does fall within the Delaware River Basin Commission's Southeastern PA Groundwater Protection Area, applying regulations intended to limit net cumulative groundwater withdraws. However, current withdrawals are well below the stipulated limits. Chapter 111 of the East Bradford Township Code requires public water hookup for any use within 150 feet of a public water supply.

Scenic Landscapes

East Bradford Township can be characterized by its scenic landscapes. In fact, the scenic character of the landscape is both recognized and appreciated by urban, suburban and rural residents alike, and contributes greatly to the perceived quality of life and to property values in the Township. A relatively broad corridor of land along both sides of the Brandywine Creek, from the Delaware state line up to the Great Valley, including the East Branch and its tributary Valley Creek, was officially designated as a state scenic rivers corridor on June 16, 1989, pursuant to the Pennsylvania Scenic Rivers Act of 1972 (Act 283). The Act was designed to integrate the efforts of local governments and planning agencies, state agencies, public and private organizations and individuals to plan, manage, and protect river-related aesthetic, ecological, and cultural resources. The Act does not specifically authorize state acquisition of land within the corridor, but directs agencies whose responsibilities impact river-related resources to coordinate their efforts to preserve and enhance those resources. The Scenic Rivers designation does offer an important public purpose in support of charitable contributions taken for conservation easement donations as well as grant funding for open space acquisition. Local planning controls remain in effect and are encouraged to be used in a manner that complements the state policy.

The 1993 Open Space Plan defined "visually significant landscapes" as landscapes historically characteristic of East Bradford and visible from a public right of way, including not only roads, but trails and even accessible waterways (e.g., a canoe in the Brandywine). The public nature of the view was seen as constituting a clear public interest. The focus on "characteristic" landscapes resulted in an editorial process, whereby "non-characteristic" landscapes (e.g., contemporary development) were deleted from an initial realm of public visibility. The 1993 Plan includes extensive descriptive discussion of characteristic landscape elements, ranging from natural features such as wooded ridgelines and wetland meadows, to cultural features such as pastures, stone walls, and historic structures.

Map 4-7 *Scenic Resources* indicates the extent of the state designated scenic rivers corridor as well as additional scenic landscapes extending beyond the designated corridor. Additional scenic landscapes were mapped based on an update of the 1993 Open Space Plan undertaken in the course of preparation of this Plan. This update essentially comprised a further editorial process, excluding lands that had been developed since 1993 and adding characteristic landscapes to which visual access had been extended through development of new public roads

and trails. In total, lands mapped as scenic comprise over 5,700 acres or 59 percent of the Township land area. Nearly 2,800 acres mapped as scenic landscapes are protected by inclusion within permanent open space, while 1,280 acres fall among “developed” lands.

The Township Zoning Ordinance includes the establishment of the Brandywine Scenic River (BSR) district following the mapping of the state-designated corridor. Within the district, the Township prohibits uses such as facilities for the collection, transfer, or disposal of solid waste, commercial composting facilities, communications towers, and similar structures. Additional provisions are set forth to minimize or mitigate the potentially intrusive nature of new structures within the district. These include limitations for the placement of structures, guidelines on their orientation, and requirements for landscaping and limitations on vegetation and tree removal. New residential development within the BSR is encouraged to take advantage of the location flexibility offered by the Open Space Development Option, to avoid structural placement within prominent viewsheds.

Scenic Roads

East Bradford Township boasts an outstanding number of high-caliber scenic roadways. Scenic roads both accent and offer visual access to open spaces and scenic landscapes. In East Bradford Township, scenic roadways often are the rule rather than the exception. Roadways can be scenic both in terms of the landscape they view and the character of the roadways themselves. Those stretches of road not considered scenic generally are located in areas where development has occurred with little or no regard for the former landscape context and its characteristic landscape elements. Such stretches are not automatically identified by the presence of abutting suburban development. Scenic roadways may belie actual development patterns. For example, where hedgerows, treelines, or woodlots are maintained, curves left unstraightened, and development kept away from prominent vistas, a significant amount of development may occur without destroying the scenic character of nearby roadways.

The 1993 Open Space Plan inventoried a relatively extensive pattern of scenic roadways throughout the Township, assessing their scenic qualities on the basis of a variety of roadway and landscape criteria. The 2004 Comprehensive Plan, in the face of significant intervening development, narrowed the list of eligible roads slightly. The Board of Supervisors subsequently passed Resolution 5 of 2004, officially designating scenic roads within East Bradford Township, as indicated on Map 4-7. Provisions to protect the scenic qualities enjoyed along designated scenic roadways have been incorporated into the Zoning Ordinance, including restriction of removal of roadside deciduous trees, hedgerows and other vegetation, restriction of removal or disturbance of roadside banks and slopes, and prohibition of billboards, solid fencing, illuminated signs, and any signage that detracts from the scenic nature or blocks vistas along the scenic roadway. Where vegetation is removed, replacement standards apply.

The Township also has been a driving force behind an effort initiated in 2002, leading to the formal establishment of the multi-municipal Brandywine Valley Scenic Byway Commission in 2006. The Byway itself was officially designated by the Pennsylvania Department of Transportation (PennDOT) in April of 2005, including several roadways looping through East Bradford Township, as indicated on Map 4-7. The Commission, formally enabled by

ordinance and intergovernmental cooperative agreements approved by each of the seven participating municipalities, and supported by local, state, and federal grant funding, is undertaking the preparation of a comprehensive corridor management plan aiming to preserve and enhance the scenic vistas and natural, historical, archaeological, cultural, and recreational resources that define the Byway. The management plan further seeks to promote implementation of cost-effective solutions for dealing with the impacts of increased development pressure within the Byway area, increased traffic, tourism and economic development implications and evolving natural and cultural resource protection and land conservation issues. Upon completion of the management plan, the Commission and its participating municipalities will be eligible for funding from the National Scenic Byways Program to support implementation of the plan, and will enjoy enhanced eligibility for state funding from the Department of Conservation and Natural Resources (DCNR), the Department of Community and Economic Development (DCED), and PennDOT's Transportation Enhancements Program.

Historic Resources

East Bradford Township is home to a wide variety of extant historic resources, reflecting its long history and richly endowing Township residents with a sense of place and quality of life rooted in the lives and work of our forefathers. To the extent that they continue to be conserved, these resources offer nearly unbounded opportunities for historical interpretation and live, hands-on educational experience.

While no comprehensive record or inventory of pre-historical (pre-European settlement) resources exists, it is known that the area encompassing East Bradford Township hosted significant Native American populations, particularly seasonal encampments along the Brandywine Creek. Wide, sunny floodplain areas were burned to allow for pre-European agricultural practices, taking advantage of the rich alluvial soils. Before being dammed to provide water power, the Brandywine was a particularly rich food source during the annual shad migrations. The area that is now East Bradford Township also was convenient to travelers along the upland path from Delaware Bay to the interior of what is now Pennsylvania, following the divide between the Brandywine and Chester Creeks. The Pennsylvania Museum and Historical Commission maintains an inventory of areas of relative likelihood for pre-historic settlement, essentially focused on streamside areas, particularly broader stream valleys. That theme proved true, for example, in the course of plan approval for the development of "Heritage at Parke Farm," when a significant native American burial ground was discovered in a pocket of upland along the valley of Taylor Run, resulting in the abandonment of development plans for that area and its incorporation into the Stroud Preserve.

There also is no comprehensive inventory of archaeological resources stemming from the historical era, although the Chester County Historical Society hosts a large collection of local artifacts. Undoubtedly significant remnants of historical settlement rest in the soils around nearly every old farmstead, tavern, schoolhouse or crossroads hamlet, emphasizing the importance of conserving the lands that frame the settings of historical buildings, as well as the buildings themselves. On September 11, 1777, many thousands of British troops passed

through East Bradford, pausing at Jefferis Ford (Allerton Road) on their way to engage Washington's Continental Army in what became known as the Battle of the Brandywine, the largest single military engagement during the War for Independence. It is likely that more than footprints were left along their route!

Not long after William Penn arrived in Pennsylvania in 1682, European settlers began to make their permanent home in what is now East Bradford Township. Since that time, a rich historical record has been preserved and many historical structures, landscapes, transportation routes and artifacts remain to tell their stories. A number of these resources are deemed of national historical significance. The nation's official listing of significant historical resources, the National Register of Historic Places, is maintained by the National Park Service. In East Bradford Township, twelve individual locations have been included in the National Register or have been deemed eligible for inclusion by the Pennsylvania Historical and Museum Commission (PHMC), along with 127 resources considered as contributing to the historical integrity of four historic districts listed in the National Register. These are the Taylor-Cope Historic District, the Strodes Mill Historic District, the Paradise Valley Historic District and the Worth-Jefferis Rural Historic District. Each of these is described in the 2004 Comprehensive Plan and mapped on Map 4-8 *Historic Districts*. Upon the request of the Township, two of the four districts (Taylor-Cope and Strodes Mill) have been formally certified by PHMC for regulation under the state historic preservation act, Act 167. Recently, the PHMC issued a finding of "determination of eligibility" for listing on the National Register (DOE) for significant expansion of the Strodes Mill district. The distinction between listing on the National Register and receiving a DOE is important, since formal listing requires approval by the landowner or, in the case of an historic district, by at least 50 percent of the affected landowners (measured in number of landowners, not in acreage of land involved). Yet, while landowners may object to formal listing, a DOE will nevertheless invoke the same degree of federal or state purview.

In 1982, the Chester County Historic Sites Survey and subsequent field checks identified 179 sites in East Bradford Township with significant historical or architectural merit, most involving either individual structures or groups of structures at least 100 years old at the time of the survey. The types and styles of historical resources of prominence in East Bradford are described in the 2004 Comprehensive Plan. Additional historical inventory work was completed on behalf of the Township Historical Commission in 2005. This effort included an extensive photo survey of extant resources and resulted in the identification of nearly 200 additional properties hosting historic resources, including numerous structures built in the first half of the 20th Century. The locations of all sites surveyed in 1982 also were verified. The properties upon which historic resources are found are indicated on Map 4-9 *Historic Properties*, now indicated on the basis of current tax parcels.

Regulation for the protection of historic resources is largely rooted in the National Historic Preservation Act of 1966 (NHPA), which formally heralded the beginning of federal historic preservation policy and formalized the establishment of the National Register of Historic Places. The NHPA, which was further amended in 1976, 1980 and 1992, was intended to create a comprehensive framework for preservation of historic resources through a system of reviews, regulations and incentives. Within this Act, "Section 106" initiated a review process

for impacts on historic resources either listed in, or determined to be eligible for the National Register (having received a DOE from PHMC), for any project using federal funds or otherwise requiring federal approval, permitting, or license, including approvals delegated by the federal government to the states. This includes most PENNDOT projects (which, while undertaken by the state, are dependent on federal funds), as well as telecommunications facilities, and wetlands permits, for example.

Section 106 does not absolutely prohibit alteration or destruction of historic resources, but it does require a thorough investigation of other alternatives and the consideration of mitigation measures. If the Section 106 review results in a “determination of adverse effect,” the subject project will essentially be derailed unless design revisions or mitigation are devised which are viewed as reversing the prior determination of adverse effect. A recent nearby example of Section 106 being invoked resulted in the abandonment of an application for approval of a new cell tower within the Brandywine Battlefield National Historic Landmark, after a determination of adverse impact was issued.

The National Environmental Policy Act of 1969 (NEPA) also may apply to historic resources as well as any other natural or cultural resources that may be impacted by federal action, also broadly construed to include federal funding and federal review purview. When invoked, NEPA requires preparation of potentially extensive environmental impact assessment and provides for formal public involvement in the review process.

Other projects will come under the authority of Section 4(f) of the Department of Transportation Act of 1966. While each application is case-specific, Section 4(f) can be invoked to prohibit the use of federal funds for transportation projects that encroach on or require the “use” of any historic site, public park, recreation area, or wildlife refuge. Exceptions to this prohibition may occur when it is effectively argued that there is no practicable alternative to the use of such land, and that the proposed use includes all possible planning to minimize harm to historic and other resources. Section 4(f) applies to all transportation agencies which fund highway and bridge projects; the Federal Aviation Administration, which approves and funds airport expansions; and the Coast Guard, which owns or operates many historic lighthouses and often has regulatory authority affecting bridges.

The NHPA also encourages cooperation at various levels of government to address historic resources protection and authorized the appointment of a State Historic Preservation Office (SHPO) to administer provisions of the Act at the State level. In Pennsylvania, the PHMC is the state agency responsible for overseeing this coordination. Among the key duties of the PHMC is the responsible for making initial determinations of eligibility for the National Register as well as initial determinations of adverse effect under Section 106. 1980 amendments to the NHPA also authorized the establishment of the Certified Local Government Program, which enables municipalities to participate directly in federal preservation programs and to access via PHMC certain funds earmarked for historic preservation activities, for which only “Certified Local Governments” (CLGs) are eligible. East Bradford Township has recently been formally recognized as a CLG.

In Pennsylvania, Act 167 of 1961 (the Historic District Act) authorizes municipalities to create local historic districts and seek to protect the historical and architectural character of such districts through the regulation of new building, reconstruction, alteration, restoration, demolition, or razing of buildings within districts that have been certified by PHMC. Pursuant to Act 167, East Bradford has established a Historical Architectural and Review Board (HARB) to oversee and administer the certified historic districts located in the Township, which presently include two of the four National Register districts, Strodes Mill and Taylor-Cope. As noted, the locations of these districts is shown on Map 4-8. HARB reviews any proposed change to any resource within either district that has been designated as “contributing” to the historical integrity of the district and recommends to the Board of Supervisors whether or not a “certificate of appropriateness” should be approved for such change. Approval rests with the Board and is prerequisite to any other approval required from the Township, most notably any building or demolition permit. While any National Register historic district is likely to be certified by PHMC, two of East Bradford’s four historic districts have not been submitted for certification (Paradise Valley and Worth-Jefferis) and, therefore, do not fall under the purview of HARB.

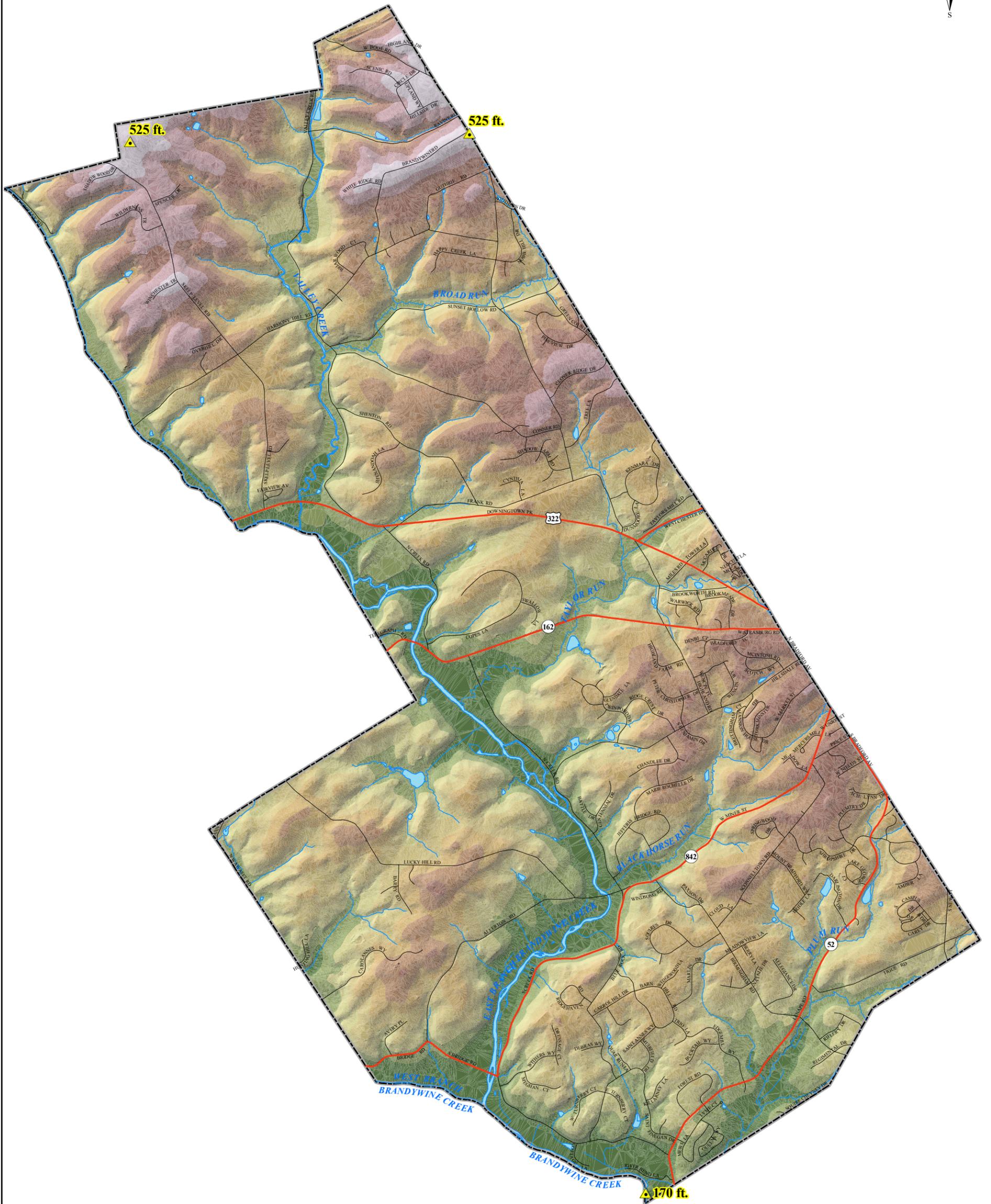
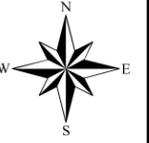
While HARB purview is limited to resources within specific districts certified by PHMC, the MPC, as amended in 2000, specifically mandates that zoning ordinances shall provide for the preservation of historic resources. East Bradford Township has further adopted provisions within the Zoning Ordinance to promote conservation of historic resources throughout the Township, and not just within the boundaries of discrete historic districts. Adopted provisions pertain to all resources included on the Township Historic Resources Map, adopted by the Board of Supervisors as an addendum to the Zoning Ordinance. Until amendment of both the map and the zoning text early in 2009, the Township Historic Resources Map had included all 179 sites indicated on the Chester County Historic Sites Survey of 1982. For regulatory purposes, those sites had been designated as one of two classifications for purposes of local regulation. Class I Historical Resources essentially were designated on the basis of eligibility for inclusion in the National Register of Historic Places, deemed of similar caliber, or otherwise of greatest local historical significance. All remaining identified resources were designated as Class II. Prior to the 2009 amendment, the Township Zoning Ordinance also had provided for designation of Class III resources, comprising any inventoried historic resource not designated in Classes I or II. However, for regulatory purposes, no resources had been designated Class III.

Class I and Class II historic resources are subject to provisions for delay or, ultimately, potential denial of demolition permit. Standards for approval of demolition of any Class I resource require demonstration that the resource cannot be used or reasonably adapted. In addition, submission of a Historic Resource Impact Study (HRIS) is required for any subdivision or land development including any mapped historic resource or located within 100 feet of any resource, in the case of residential uses, and 300 feet in the case of non-residential uses. As incentives for preservation of historic resources, the Zoning Ordinance also provides for special exception approval of area and bulk modifications for Class I resources and, for Class I and Class II resources, conditional use approval of adaptive re-use opportunities that may not otherwise be permitted in the base zoning district.

Chapter 4: Natural & Cultural Resources Inventory, June, 2009

Since completion of the expanded historic resource inventory in 2005, the Township Historical Commission has carefully considered the classification of every historic property, including reevaluation of the classification of the original 179 inventoried sites, now also mapped on a property-wide basis. It was determined that the expanded inventory, covering 361 properties, included many that did not warrant the degree of local regulation heretofore given to sites designated as Class I or Class II resources. Thus, the Historical Commission recommended designation of a new Class III for 142 properties upon which no historic resource regulation would be imposed. In addition, owners of all properties recommended for new designation as Class I were so notified. Where any owners objected to the new Class I classification or failed to respond, the Historical Commission recommended that a new classification be added to the local regulation, termed “Class I DOE,” meaning that they have been determined eligible for Class I. The Historical Commission also revised the designation of one property to “Class I – Demolished.”

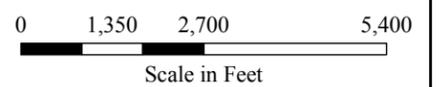
2009 amendments to the Township Zoning Ordinance and the accompanying Historic Resources Map have formalized the recommendations of the Township Historical Commission. Regulation of Class III resources is no longer provided. 129 properties are regulated as Class I resources and 66 properties are regulated as Class II resources. For purposes of land use or building permit regulation affecting the current owner, 23 properties designated Class I DOE resources are regulated in the same manner as Class II resources. Upon the transfer of any such property to new ownership or approval of a land development plan, the classification will be revised to Class I. The one site designated “Class I – Demolished” has been removed from the official Historic Resources Map. However, Map 4-9 shows all inventoried properties and their classifications, including the Class I – Demolished and Class III properties which are not regulated.



Legend	
	High and low points of elevation
	Major roads
	Roads
	Streams
	Bodies of water
	Township boundary
	Elevation in feet
	525 - 486
	486 - 446
	446 - 407
	407 - 367
	367 - 328
	328 - 288
	288 - 249
	249 - 209
	209 - 170

Map 4-1 Topography

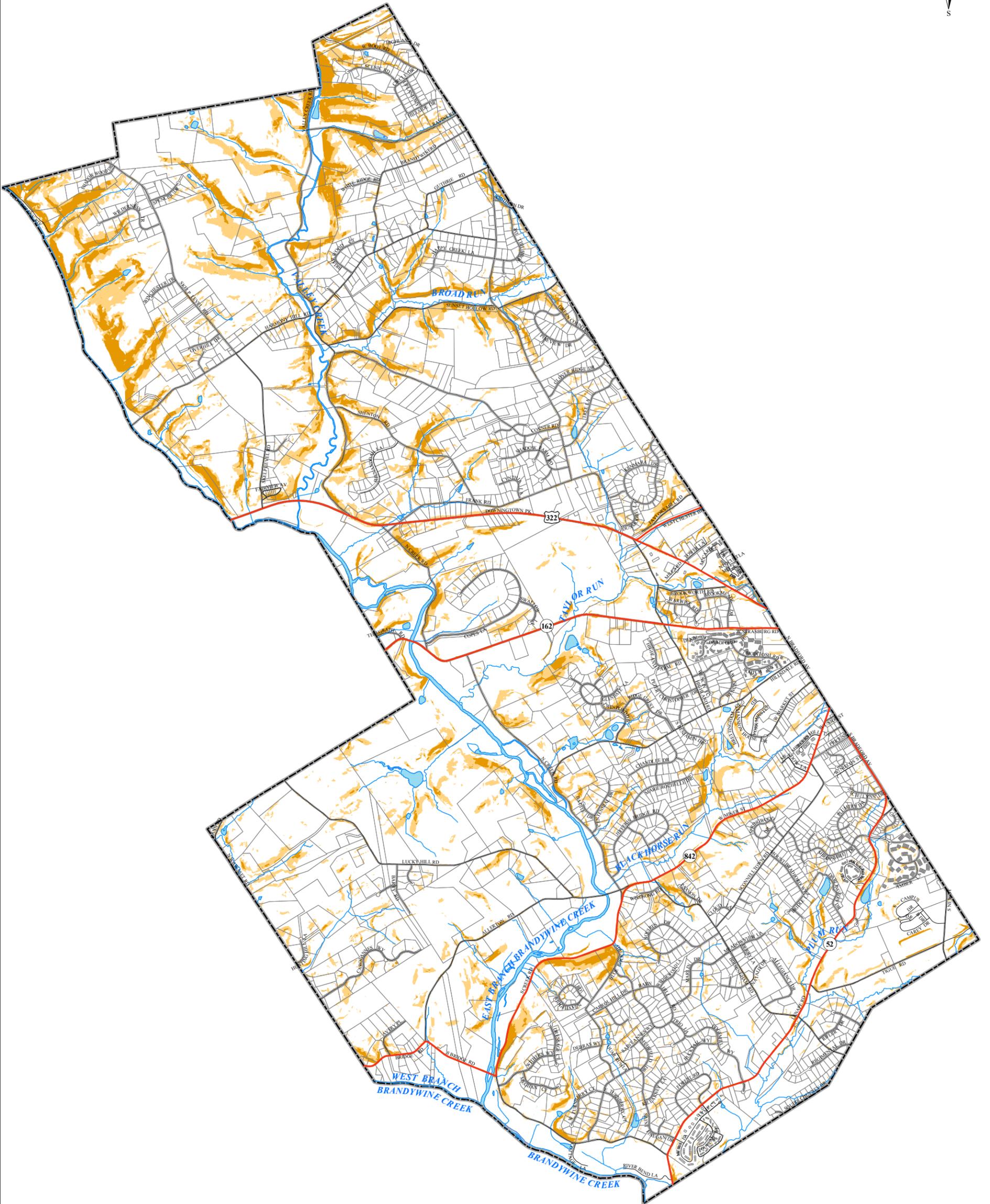
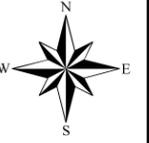
East Bradford Township Open Space Plan



Brandywine Conservancy
Environmental Management Center
P. O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Elevation model created by Brandywine Conservancy from Chester County 5 foot Contours, 2000.

Date created: January 1, 2009

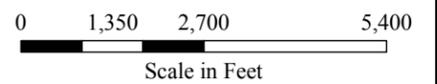


Legend

-  Major roads
-  Roads
-  Streams
-  Bodies of water
-  Township boundary
-  Tax parcels
- Slopes**
-  20% - 30%
-  >30%

Map 4-2 Steep Slopes

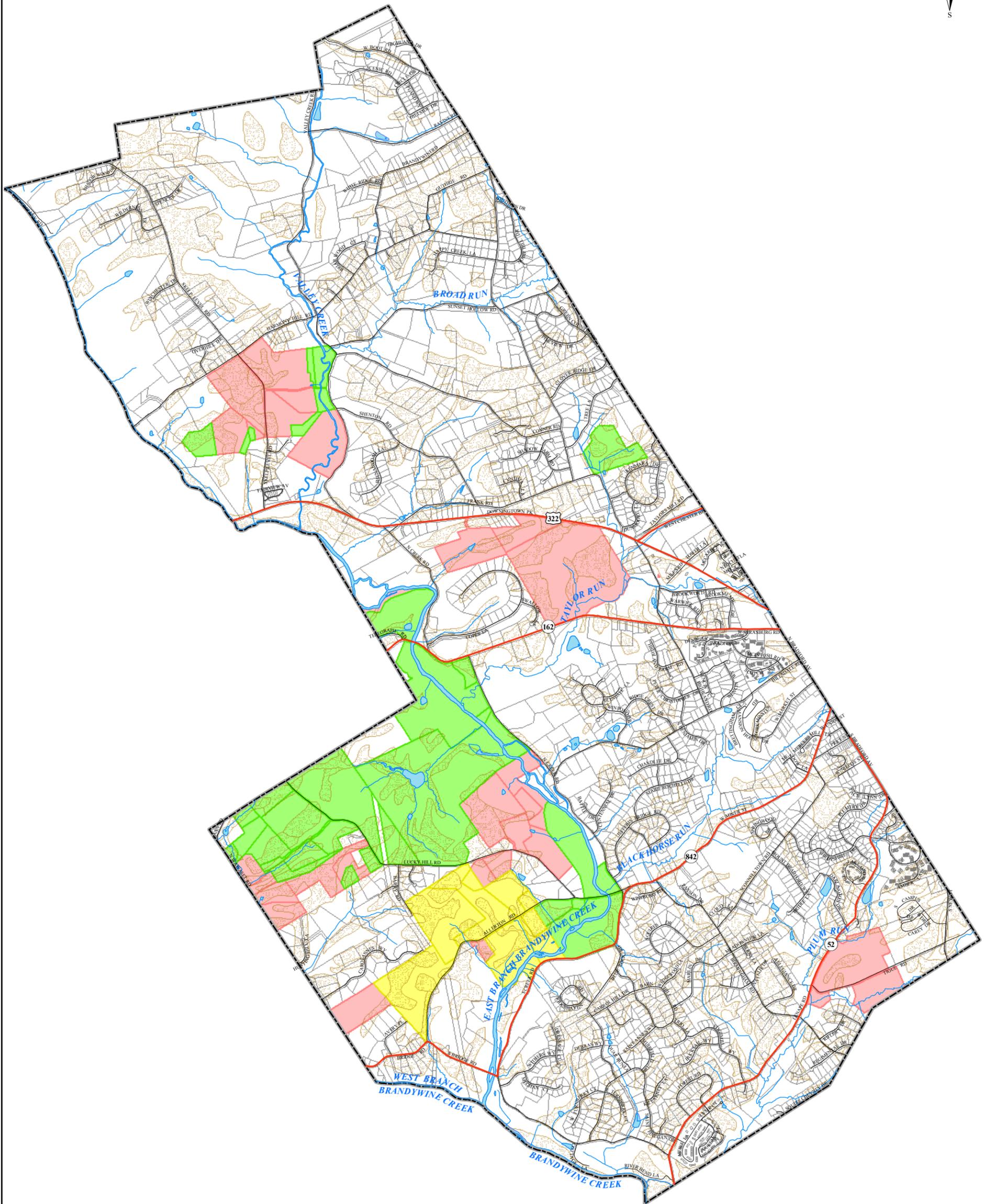
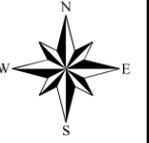
East Bradford Township Open Space Plan



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P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Slopes created by Brandywine Conservancy from Chester County 5 foot Contours, 2000.

Date created: January 1, 2009



Legend

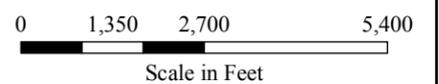
Major roads	Prime agricultural soils
Roads	Tax parcels
Streams	Township boundary
Bodies of water	

Agricultural security areas (ASA)

ASA properties subject to permanent conservation easements
ASA properties subject to County agricultural easement
Other ASA properties

Map 4-3 Agricultural Resources

East Bradford Township Open Space Plan



 **Brandywine Conservancy**
Environmental Management Center
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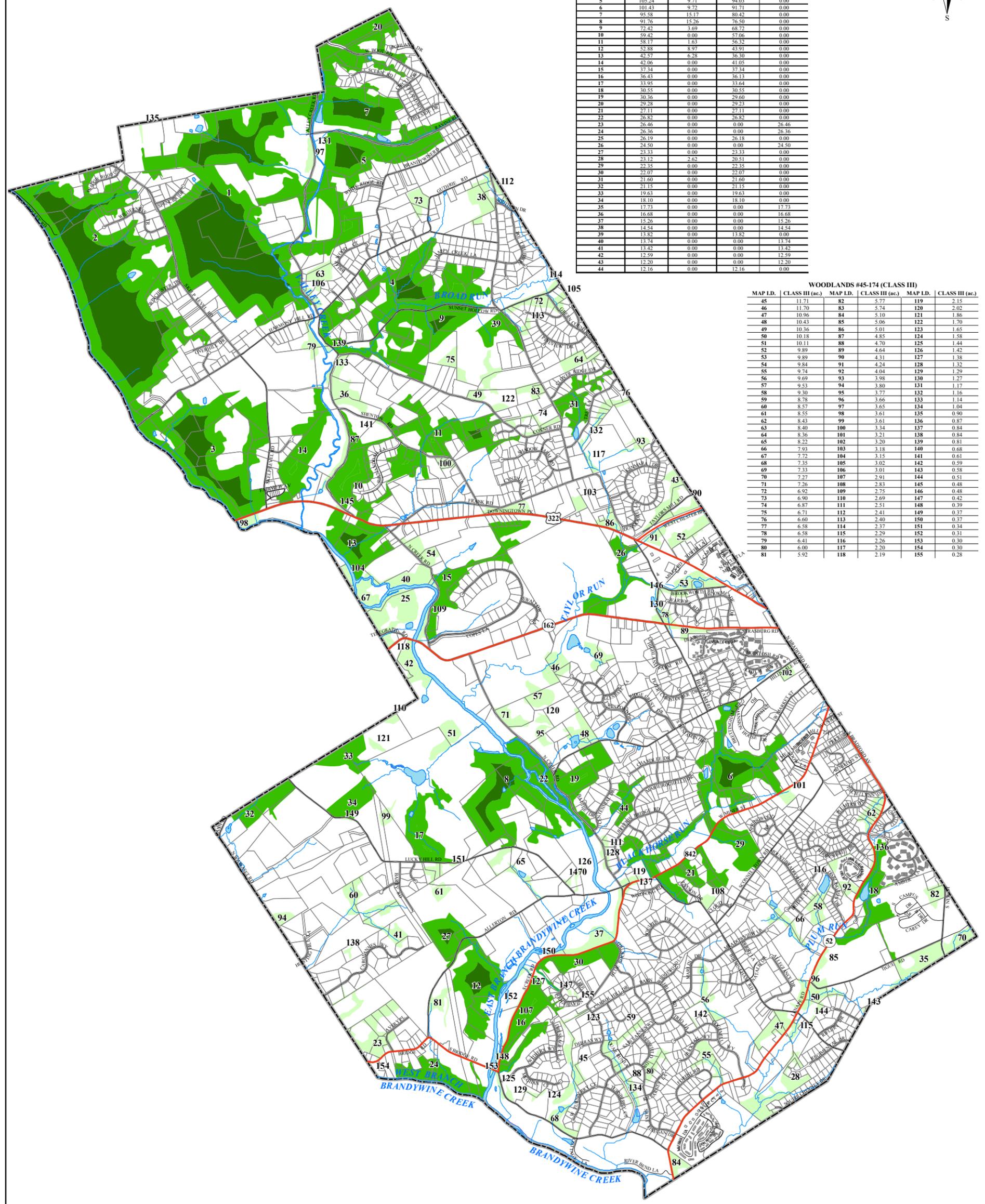
Data Source: Base data from Chester County GIS Department, 2007. Prime agricultural soils from NRCS, 1995. Agricultural security areas from Chester County, 2005. Protected lands from Chester County Open Space CD, 2007.

Date created: January 1, 2009



EAST BRADFORD TOWNSHIP WOODLANDS #1-44 CLASSIFIED				
MAP I.D.	PATCH ACRES	CLASS I (ac.)	CLASS II (ac.)	CLASS III (ac.)
1	377.53	167.48	210.05	0.00
2	342.54	158.83	183.68	0.00
3	145.49	33.35	112.14	0.00
4	108.31	8.92	97.28	0.00
5	105.24	9.71	94.03	0.00
6	101.43	9.72	91.71	0.00
7	95.58	15.17	80.42	0.00
8	91.76	15.26	76.50	0.00
9	72.42	2.69	68.72	0.00
10	59.42	0.00	57.06	0.00
11	58.17	1.63	56.32	0.00
12	52.88	8.97	43.91	0.00
13	42.57	6.28	36.30	0.00
14	42.06	0.00	41.85	0.00
15	37.34	0.00	37.34	0.00
16	36.43	0.00	36.13	0.00
17	33.95	0.00	33.64	0.00
18	30.55	0.00	30.55	0.00
19	30.36	0.00	29.60	0.00
20	29.28	0.00	29.23	0.00
21	27.11	0.00	27.11	0.00
22	26.82	0.00	26.82	0.00
23	26.46	0.00	0.00	26.46
24	26.36	0.00	0.00	26.36
25	26.19	0.00	26.18	0.00
26	24.50	0.00	0.00	24.50
27	23.33	0.00	23.33	0.00
28	23.12	2.62	20.51	0.00
29	22.35	0.00	22.35	0.00
30	22.07	0.00	22.07	0.00
31	21.60	0.00	21.60	0.00
32	21.15	0.00	21.15	0.00
33	19.63	0.00	19.63	0.00
34	18.10	0.00	18.10	0.00
35	17.73	0.00	0.00	17.73
36	16.68	0.00	0.00	16.68
37	15.26	0.00	0.00	15.26
38	14.54	0.00	0.00	14.54
39	13.82	0.00	13.82	0.00
40	13.74	0.00	0.00	13.74
41	13.42	0.00	0.00	13.42
42	12.59	0.00	0.00	12.59
43	12.20	0.00	0.00	12.20
44	12.16	0.00	12.16	0.00

WOODLANDS #45-174 (CLASS III)					
MAP I.D.	CLASS III (ac.)	MAP I.D.	CLASS III (ac.)	MAP I.D.	CLASS III (ac.)
45	11.71	82	5.77	119	2.15
46	11.70	83	5.74	120	2.02
47	10.96	84	5.10	121	1.86
48	10.43	85	5.06	122	1.70
49	10.36	86	5.01	123	1.65
50	10.18	87	4.85	124	1.58
51	10.11	88	4.70	125	1.44
52	9.89	89	4.64	126	1.42
53	9.89	90	4.31	127	1.38
54	9.84	91	4.24	128	1.32
55	9.74	92	4.04	129	1.29
56	9.69	93	3.98	130	1.27
57	9.53	94	3.80	131	1.17
58	9.30	95	3.77	132	1.16
59	8.78	96	3.66	133	1.14
60	8.57	97	3.65	134	1.04
61	8.55	98	3.61	135	0.90
62	8.43	99	3.61	136	0.87
63	8.40	100	3.34	137	0.84
64	8.36	101	3.21	138	0.84
65	8.22	102	3.20	139	0.81
66	7.93	103	3.18	140	0.68
67	7.72	104	3.15	141	0.61
68	7.35	105	3.02	142	0.59
69	7.33	106	3.01	143	0.58
70	7.27	107	2.91	144	0.51
71	7.26	108	2.83	145	0.48
72	6.92	109	2.75	146	0.48
73	6.90	110	2.69	147	0.42
74	6.87	111	2.51	148	0.39
75	6.71	112	2.41	149	0.37
76	6.60	113	2.40	150	0.37
77	6.58	114	2.37	151	0.34
78	6.58	115	2.29	152	0.31
79	6.41	116	2.26	153	0.30
80	6.00	117	2.20	154	0.30
81	5.92	118	2.19	155	0.28



Legend

- Major roads
- Roads
- Streams
- Bodies of water
- Tax parcels
- Township boundary

Woodlands

- Class I
- Class II
- Class III

Map 4-4

Woodland Classification

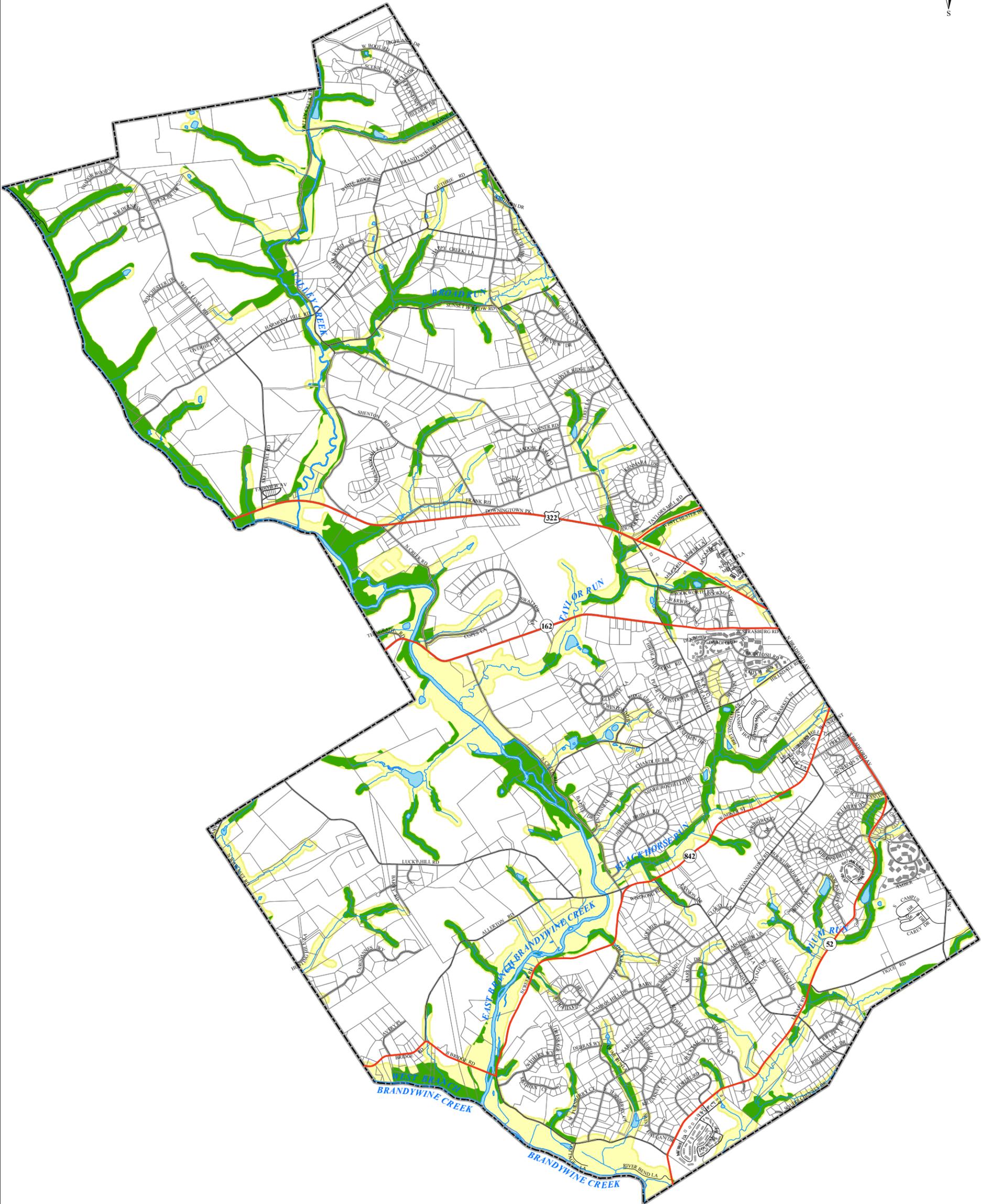
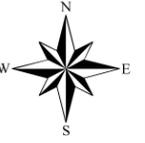
East Bradford Township Open Space Plan

0 1,350 2,700 5,400

Scale in Feet

Brandywine Conservancy
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

*Data Source: Base data from Chester County GIS Department, 2007. Woodlands from DVRPC, 2000 (edited by Brandywine Conservancy, 3/2007).
Date created: January 1, 2009*

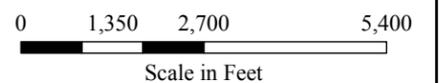


Legend

-  Major roads
-  Roads
-  Streams
-  Bodies of water
-  Riparian buffers - predominantly forested
-  Riparian buffers - predominantly open
-  Tax parcels
-  Township boundary

Map 4-5 Riparian Buffers

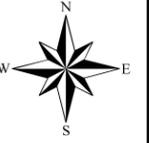
East Bradford Township Open Space Plan



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Data Source: Base data from Chester County GIS Department, 2007. Woodlands from DVRPC, 2000 (edited by Brandywine Conservancy, 3/2007).

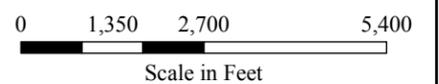
Date created: January 1, 2009



Legend	
	Major roads
	Roads
	Streams
	Bodies of water
	Watershed boundaries
	Hydric soils and soils with hydric inclusions
	Headwater watersheds
	Floodplains (100 yr.)
	Tax parcels
	Township boundary

Map 4-6 Water Resources

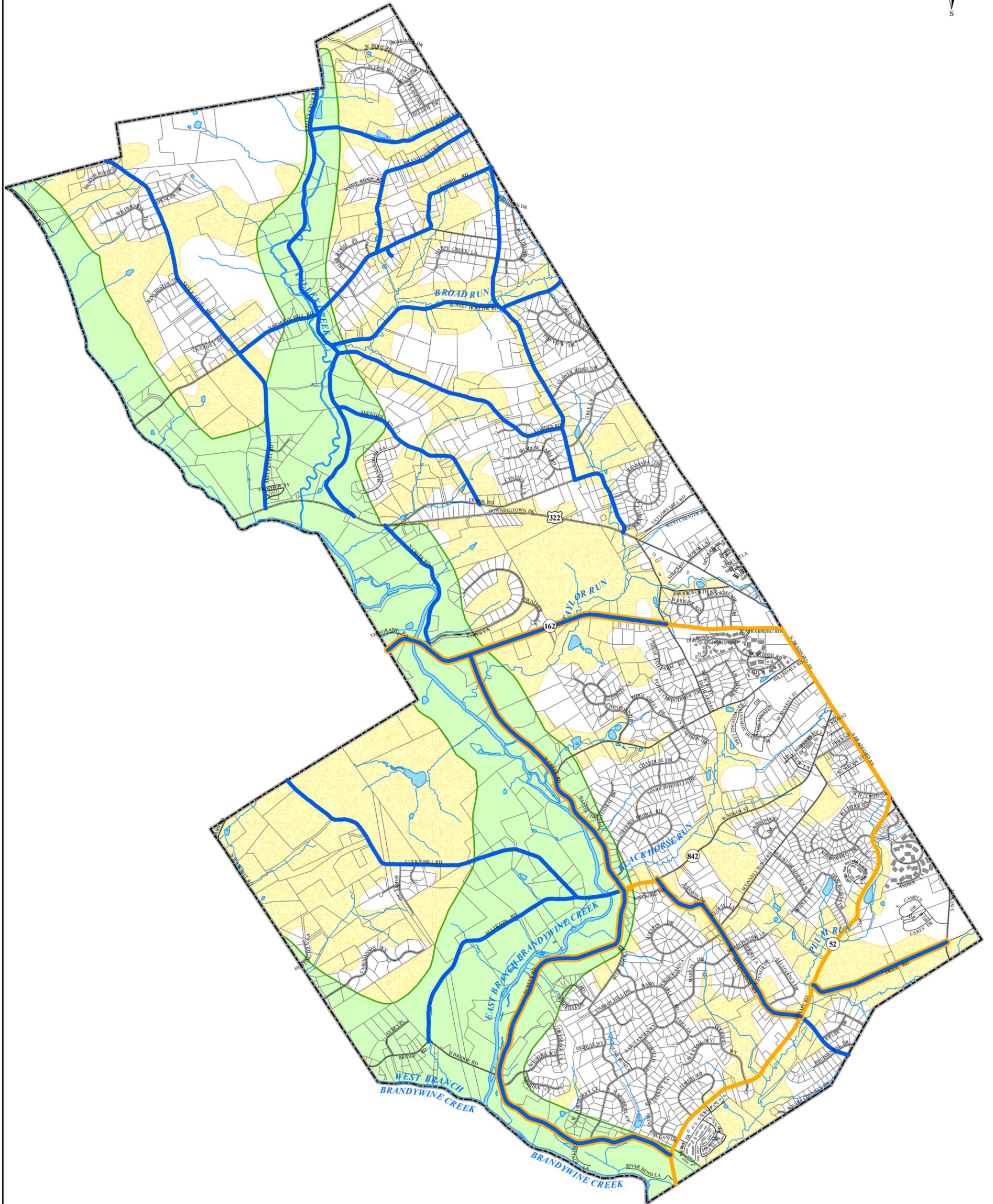
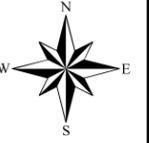
East Bradford Township Open Space Plan



 **Brandywine Conservancy**
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Floodplains from FEMA, 1996. Hydric soils from NRCS, 1995. Headwater watersheds created by Brandywine Conservancy, 4/2007.

Date created: January 1, 2009



Legend	
Roads	Brandywine Valley Scenic Byway designated road segments
Streams	Scenic roads designated by Township Resolution 5 of 2004
Bodies of water	Lower Brandywine Scenic River Corridor designated by Commonwealth, 1989
Tax parcels	Scenic landscapes outside Scenic River Corridor source: 1993 Township Open Space Plan; revised by Brandywine Conservancy, 2007
Township boundary	

Map 4-7 Scenic Resources

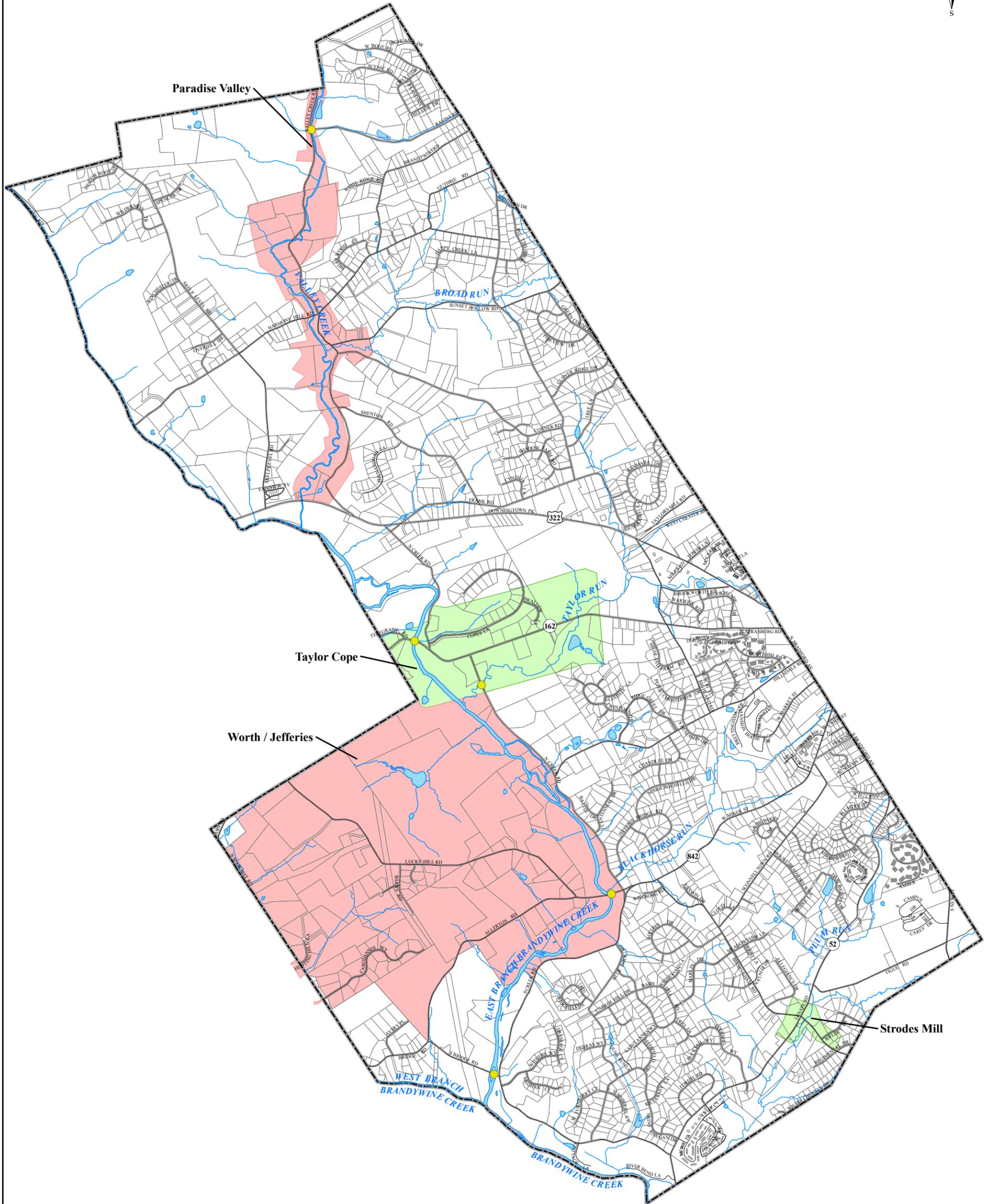
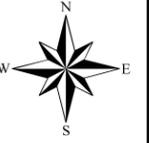
East Bradford Township Open Space Plan

0 1,350 2,700 5,400
Scale in Feet

Brandywine Conservancy
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. See legend for other sources.

Date created: January 1, 2009



Legend

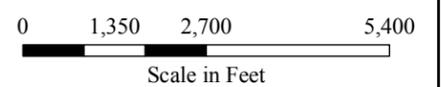
- Historic bridges
- Roads
- Streams
- Bodies of water
- Tax parcels
- ▭ Township boundary

Historic districts

- National Register District (NR)
- NR Districts certified for Act 167 review

Map 4-8 Historic Districts

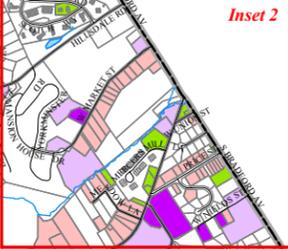
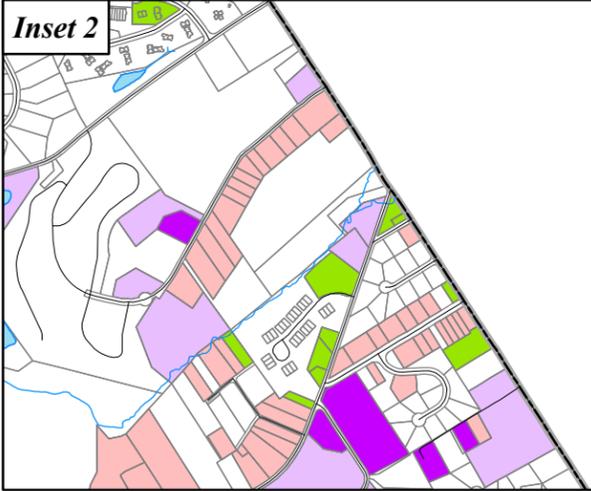
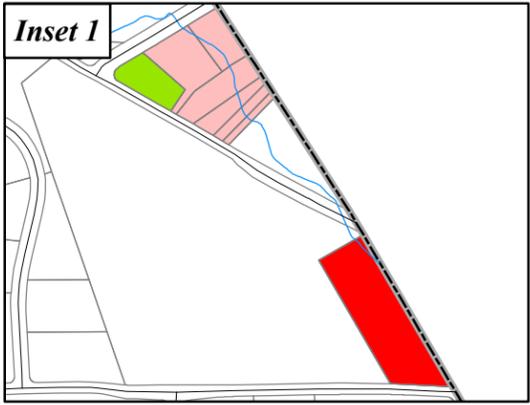
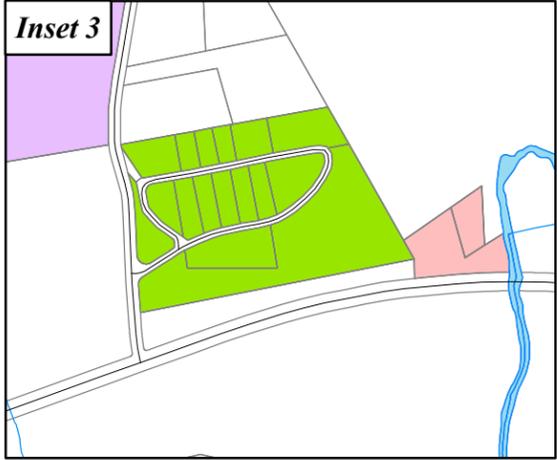
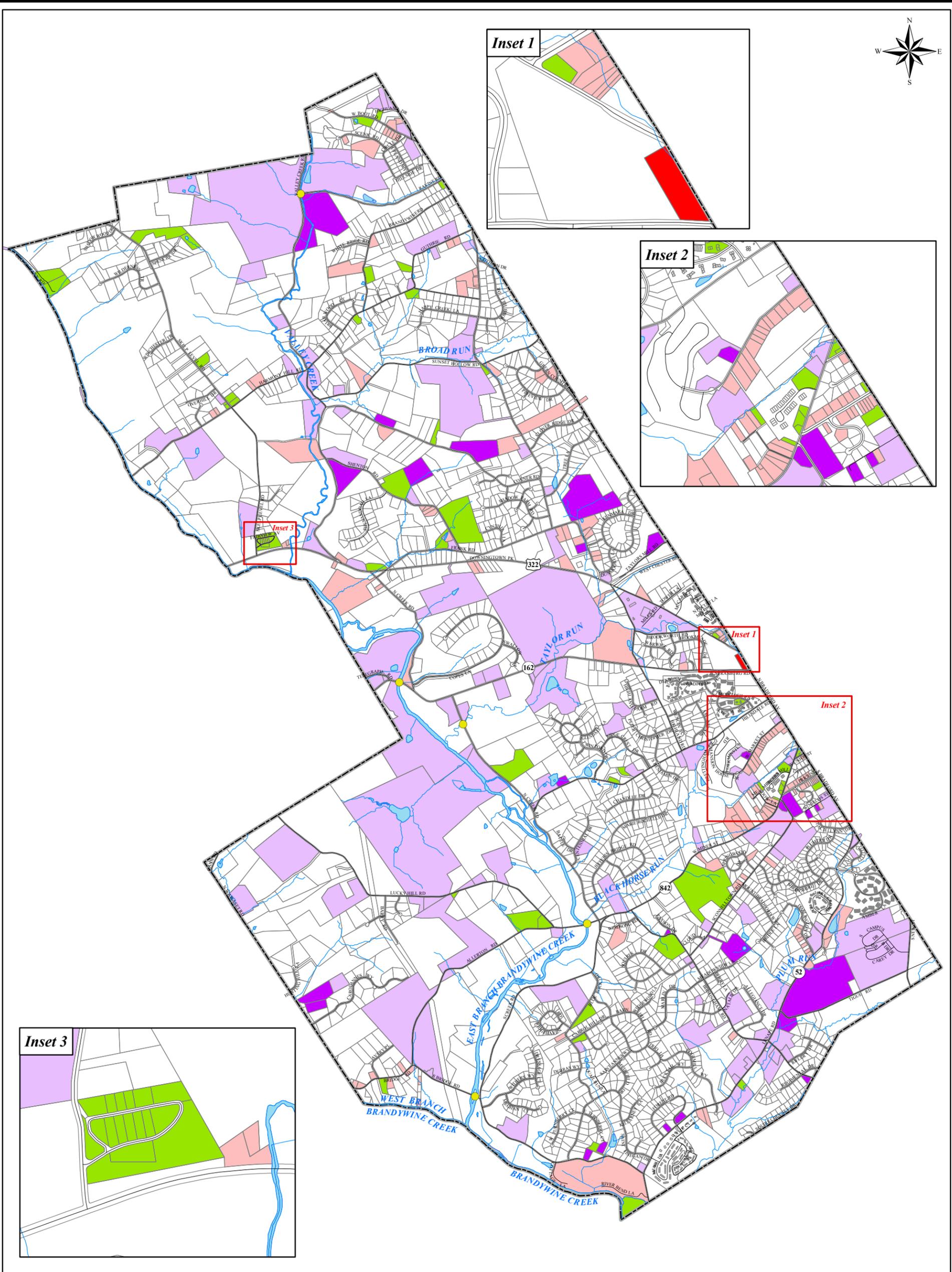
East Bradford Township Open Space Plan



Brandywine Conservancy
Environmental Management Center
P. O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Historic bridges and properties from Chester County Parks and Recreation Department. Historic districts from Rettew Associates, Inc.

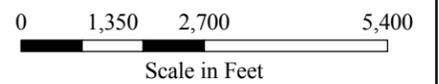
Date created: January 1, 2009



Legend	
	Historic bridges
	Roads
	Streams
	Bodies of water
	Tax parcels
	Township boundary
	Historic properties Class I
	Historic properties Class I DOE
	Historic properties Class I demolished
	Historic properties Class II
	Historic properties Class III

Map 4-9 Historic Properties

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Data Source: Base data from Chester County GIS Department, 2007. Historic bridges and properties from Chester County Parks and Recreation Department. Historic properties from Wise Preservation Planning.
Date created: January 1, 2009

Chapter Five

Natural & Cultural Resources Protection Plan

Introduction

East Bradford Township's open space and resource protection efforts have been very successful, building on a long history of progressive resource protection regulation and early foresight in establishment of a tax revenue source dedicated to acquisition of interests in open space. These efforts have been coupled with creative and progressive financing, and have been significantly augmented and enhanced through successful and enduring partnerships with conservation organizations and through grant funding obtained from Chester County and the Commonwealth of Pennsylvania.

Map 5-1 *Protected & Developed Lands* vividly highlights the success of open space protection efforts in East Bradford since adoption of the last Open Space Plan in 1993, as well as the challenges brought on by continued suburban development. In fifteen years, the developed landscape has increased in area by 57 percent, now consuming a total of almost 4,500 of East Bradford's approximately 9,700 acres. Included within the "developed lands" category are parcels up to approximately five acres in size which have been developed for a principal residential use or other use involving significant structural development. Such parcels are potentially available for further development. An additional 412 acres are consumed by public rights-of-way, mostly roads. Yet in that same span, permanently protected lands have increased from 1,073 to 3,320 acres, an increase of almost 2,250 acres or over 200 percent. These lands include lands subject to conservation easement or conservation ownership, Township parks and open space lands, lands restricted as a result of subdivision plan approval and lands subject to private deed restrictions.

The residual – lands that are neither permanently protected nor already committed to development – has declined sharply, from 55.8 percent of the land area in 1993 to 15.3 percent in 2008. This remaining 1,485 acres represent both significant opportunity and challenge, as efforts to preserve open space face continued pressure for development and the relatively high land costs that such pressure infers. Included within the "residual" lands category are parcels larger than approximately five acres in size, which have been developed for a principal residential or agricultural use, but which still infer relatively significant development potential. The "residual" lands category also includes what essentially are individual vacant lots. A few parcels also may inadvertently have been included which are subject to private deed restriction against further development, where such restrictions did not turn up in deed research undertaken for this Plan.

The "residual" lands, not yet committed to development, are the obvious focus for continued efforts to secure conservation interests. However, lands inventoried as "developed," particularly in a rural-suburban landscape, are not actually entirely "developed," in the sense that they are not devoid of resource values. Significant natural and cultural resources have been inventoried within the "developed" landscape. To some extent, these resources have been "occupied" as part of the suburban landscape, including, for example, a large amount of

prime agricultural soils, and, to a lesser extent, some portions of hydric soils, riparian buffers, and scenic landscapes. On the other hand, scenic roadsides, historic landscapes, woodlands, hedgerows, riparian buffers and steep slopes also are interwoven in a fingery pattern throughout the developed landscape. Such features may, in large part, be protected through township land use regulation. And just as lands inventoried as developed are not devoid of resource values, lands identified as permanently protected do not always afford full protection of the resources they comprise. Resource protection is dependent on the specific provisions of applicable conservation restrictions, on their consistent monitoring and enforcement, and on the character of land management approaches being employed.

Protected Resources Summary

Map 5-1 has been compared to mapped inventories of each of the several resource categories studied for this Plan. These comparisons are charted at the end of this Chapter. There is notable variation in the degree to which the several resources fall upon protected lands versus developed lands, or are found on the “residual” tracts still not committed. Overall, 34.2 percent of the township land mass is protected as permanent open space, while 46.2 percent is “developed,” a percentage that increases to 50.5% when public rights-of-way are included. Residual lands account for the remaining 15.3 percent. Yet, for example, fully 81.4 percent of Class I Woodlands are located on protected lands, further underlining the success of township open space efforts in regard to certain resources. Other examples where the degree to which resource protection notably exceeds the township average of 34.2 percent, and not accounting for protection due to regulation, include riparian buffer areas at 46.8 percent, hydric soils at 47.1 percent, overall scenic landscapes at 48.8 percent, and the state-designated Brandywine Scenic River corridor at 57.4 percent. Residual lands, potentially still available for acquisition of conservation interests, also harbor certain resources in notable excess of the township average of 15.3 percent, including scenic landscapes at 28.7 percent, hydric soils at 29.5 percent, and riparian buffers at 28.2 percent.

Future Open Space Protection Priorities

Assessing priorities for acquisition of interests in open space may involve any number of considerations, including natural resource values, cultural resource values, recreational values, location relative to other important open spaces, assessment of threat of development inconsistent with community planning objectives, and available opportunities for acquisition of open space interests. Map 5-2 *Future Open Space Protection Priorities* has been prepared based on assessment of such diverse planning perspectives, highlighting priority parcels in the “residual” lands category – lands neither developed nor permanently protected – on the basis of a comprehensive evaluation of natural and cultural resource values and community planning objectives. It should be noted that the mapping and priority assessment of individual parcels reflects current tax parcel data and does not recognize situations where multiple parcels might be treated as one due to common ownership.

Map 5-2 indicates all undeveloped and unprotected (“residual”) lands within the top fifty percent relative to scoring of a number of factors in any of three major classifications: natural

resource values, cultural resource values, or community planning issues. Each residual parcel was scored relative to 22 factors as charted below, in accordance with the following procedure:

- Factors that were considered were grouped into three major classifications: natural resources, cultural resources, and community planning.
- Each residual parcel was given a base score relative to each factor, based on measurement criteria as described in the chart below and an assessment of recent mapping and then assigned a score of 1 – 8 based upon the rank of the parcel among all parcels for each factor in accordance with the schedule below. Where any factor was not present on a particular parcel, the ranked score for that factor would be 0. For historic resources, the ranked score was the same as the base score: scored at 8 for any Township designated Class I historic resource or any resource listed on or determined eligible for the National Register of Historic Places; 6 for any Class II historic resource; and 4 for any other inventoried resource. Properties located within an historic district listed in the National Register were assigned a base and ranked score of 8 for that factor, with all other properties scoring 0.

Parcel Rank	Ranked Score
1 – 12	8
13 – 25	7
26 – 38	6
39 – 51	5
52 – 64	4
65 – 77	3
78 – 90	2
91 +	1

- Related factors were grouped (e.g., Woodlands Class I, II, and III) and scored at an assigned percentage totaling 100% for each group. For each factor, the percentage adjustment for each ranked score is indicated in the chart below. These adjustments removed the unintended scoring impact of coincidentally high or low scores among related factors that were likely to be simultaneously present.
- Adjusted ranked scores were multiplied by an assigned weight for each factor, established on the basis of consensus of the Task Force.
- Finally, weighted scores were added to give each parcel a cumulative score under each major classification. Any parcel whose cumulative score was at or higher than the fiftieth percentile under any of the three major classifications was indicated on Map 5-2.

Map 5-2 treats all properties equally that scored at or higher than the fiftieth percentile in any major classification. Clearly, the continuation of an aggressive program for preservation of open space requires dealing with opportunities as they arise, not necessarily in the precise

order inferred by any particular approach to prioritization. The Township may promote “opportunities,” on the one hand, through landowner education and solicitation, and through careful management of funding options. Similarly, the Township may be limited in its response to potential opportunities, whether due to resistance or lack of communication on the part of landowners, or due to funding limitations or timing constraints.

Classification of Future Open Space Protection Priorities

Factor	Base Score Measurement	Ranked Score	% Scored	Weight
Natural Resource Factors				
Woodlands Class I	percent of parcel area	0 - 8	60%	4
Woodlands Class II	percent of parcel area	0 - 8	30%	4
Woodlands Class III	percent of parcel area	0 - 8	10%	4
Slopes > 30%	percent of parcel area	0 - 8	60%	3
Slopes, 20% – 30%	percent of parcel area	0 - 8	40%	3
Riparian Buffers	percent of parcel area	0 - 8	34%	3
Headwaters	percent of parcel area	0 - 8	33%	3
Hydric Soils	percent of parcel area	0 - 8	33%	3
Prime Agricultural Soils	percent of parcel area	0 - 8	100%	4
Cultural Resource Factors				
Scenic Landscapes	percent of parcel area	0 - 8	50%	8
Scenic Roads	length of frontage	0 - 8	25%	8
PA Scenic Byway	length of frontage	0 - 8	25%	8
Historic Resources	score of 4-8 as above	same as base	80%	5
National Register Districts	score of 0 or 8 as above	same as base	20%	5
Community Planning Factors				
Parcel Size	total acres	0 - 8	100%	6
Development Potential	number of units permitted	0 - 8	100%	6
Proximity to Brandywine	stream length within 200’	0 - 8	30%	6
Proximity to development	% developed within 1000’	0 - 8	30%	6
Proximity to protected land	% protected within 1000’	0 - 8	30%	6
Adjacency to protected land	length of adj. bdy. >20’	0 - 8	10%	6
Recreation Potential	unconstrained acres >5 ac.	0 - 8	50%	5
Existing or proposed Trails	miles of trails	0 - 8	50%	5

Acquisition of Interests in Open Space

Act 153 of 1996, “Open Space Preservation by Local Governments,” amended Act 442 of 1967 to specifically provide for acquisition of interests in open space by local governments. Such interests might range from deed restrictions limiting development potential or prohibiting certain uses or activities, to conservation easements, to fee-title acquisition. Act 153 also introduced options for local governments to tax either real estate or earned income above otherwise applicable limits to raise revenues specifically earmarked for acquisition of interests in open space. East Bradford Township was the first municipality in the state to impose an earned income tax for open space, beginning in 1998. Act 153 imposes a number

of requirements for municipalities to follow, to ensure prudent, fiscally responsible, and publicly answerable approaches to expenditure of public funds for open space protection.

A local government may not expend funds collected pursuant to Act 153 unless the lands proposed for protection have been designated for open space uses in a municipally-approved resource, recreation, or land use plan. Informally, the 1993 Open Space Plan, the 2004 Comprehensive Plan and, to a certain extent, the 2005 Recreation Plan Element all have supported this requirement, although the Township has utilized its Official Map to formally designate properties for potential acquisition of interests in open space. Act 153 further requires, absent specific direction as to how, that the relative priority of lands designated for open spaces be established. East Bradford has focused efforts to acquire interests in open space on all lands indicated on the Official Map, assessing relative priority as opportunities arise on a case-by-case basis, under the direction of the Open Space Review Board and the Board of Supervisors.

This Plan may be used to meet the requirements of Act 153 as a general guide for designating future open space on the Official Map. The Official Map effectively secures for the Township a right of first refusal to acquire interests in property for public use. The Official Map affords the Township up to one year to initiate acquisition, upon notification by a landowner of intent to develop the property. Use of eminent domain to implement the Official Map is not otherwise precluded, but that method of acquisition is specifically prohibited where funds acquired under Act 153 are to be used.

Act 153 requires the Township to establish the maximum dollar amount to be paid for purchase of specific interest(s) in open space on the basis of an appraisal of the rights to be purchased, conducted by a qualified professional. The Act further stipulates, if applicable, that the appraised maximum price will be reduced by any donation received from the landowner (e.g., bargain sale). Where funding is available in addition to Township revenues secured under Act 153, such as grants, the appraised value also cannot be exceeded. These requirements necessitate that the Township continue to seek creative approaches toward conservation, if landowners are unwilling to accept the appraised price. Funds derived under the act may be spent for installment purchase of conservation interests, an approach which may ease annual budgeting of the open space fund, lower borrowing costs, while creating a more favorable tax situation for landowners facing heavy capital gains. Funds derived under Act 153 also may be used to cover certain transactional costs relative to the purchase of conservation interests.

The Township also may stretch its own funds by encouraging owners of properties within designated Agricultural Security Areas to sell their development rights under the county purchase of development rights program. The Township may assist such landowners, including potential implementation of conservation easement(s) on non prime farmland portions of their property, elevating the score of the remaining lands under the competitive county priority-scoring system. Using general funds (not subject to Act 153), the Township also may purchase conservation easement(s) that augment county agricultural restrictions, where the additional funds would make a project financially viable.

It also must be remembered that some landowners can still afford to donate conservation easements or to partially donate conservation interests, especially since Congress has reenacted provisions providing for the use of the income tax deduction for charitable contributions over a 16-year period, offering a means to shelter substantial income for an extended period. It is worth noting that the Township may approach conservation of any property through more than one approach, separating lands where conservation interests are to be purchased in accordance with Act 153 from those secured through other means, allowing for appraisal under Act 153 to apply to a reduced tract area and potentially leaving other means for landowners to achieve value on separate portions of the tract. Limited development scenarios might continue to be considered where critical resource values are not compromised. The proper “mix and match” approach will depend on the nature of the conservation interests sought by the Township, the critical resource values to be protected, and the particular landowner’s financial objectives, tax status, and willingness to negotiate. Formal subdivision may be necessary in some cases.

Non-Acquisition Policies for Resource Protection

As noted, the “residual” lands which are the logical focus for efforts to acquire interests in open space now only account for 15.3 percent of the land area of East Bradford Township. While 34.2 percent of the Township land area is subject to permanent conservation restrictions, a percentage that continues to increase, such lands nevertheless require monitoring and, potentially, intervention, to ensure effective protection of natural and cultural resources on a long-term basis. In some cases, this simply reflects the disparate implications of varying natural and cultural resource values. For example, while the best way to preserve a wetland or a woodland may be to leave it alone, the best way to preserve an historic landscape and its built environment is to promote continued investment and intervention to prevent deterioration. The 46.2 percent of East Bradford that already is developed also is neither devoid of resource value nor absent need for continued township efforts to protect natural and cultural resources. A good example of this is illustrated by the findings of the Brandywine Valley Association (BVA) in the Plum Run watershed, which while largely developed, is in clear need of and shows promise for mitigative measures to improve water quality. Many developed properties, both large and small, contain natural and cultural resources, underlining the significance of continued consistent enforcement of township regulation aimed at their protection.

Just as the Township has been quite successful at spearheading efforts to permanently protect open space, East Bradford has progressively instituted a variety of efforts and regulatory measures to protect natural and cultural resources township-wide, regardless of ownership. Many of these efforts have been discussed in the preceding inventory of natural and cultural resources. They have included planning efforts, development plan review, resource monitoring, consistent regulatory enforcement, public education, and support for complementary efforts by other public, private, and non-profit agencies. The 2004 Comprehensive Plan iterated a litany of action items relating to natural and cultural resources. Many recommendations already have been or are being implemented on an on-going basis. It

is not the intention of this Plan to duplicate the recommendations of the Comprehensive Plan; readers are directed to it for further review.

Natural & Cultural Resource Protection Strategies/Recommendations

The following recommendations flow from the goals and objectives set forth for this Plan, from the resource inventory mapping and assessment included in this Plan, and from review of the Comprehensive Plan and existing land use regulation. Please note that specific recommendations for recreation, trails, and greenways are found in the plan sections specific to those topics. While there is considerable overlap with broad resource protection objectives, those topics have been singled out in recognition of funding opportunities specific to them. The Township has and should continue to look creatively at a broad palette of issues, including the following:

Continue to Acquire Interests in Open Space

- 5.1 Use the *Future Open Space Protection Priorities* map developed for this Plan as a general guide for designation of future open space on the Official Map.
- 5.2 Assess opportunities to acquire interests in open space in consideration of proximity and existing or potential interconnection to other protected open space, including open space designated through development under the Open Space Development Option. Particular attention should be focused on opportunities to connect open space in greenway corridors and where potential for further trail continuity exists. Fee title acquisition should be reserved for situations where township recreational or trail priorities can be met or where negotiation of conservation easements fails.
- 5.3 Continue to leverage funds for the acquisition of conservation interests with funds available from state, county, and private resources in order to maximize the extent and benefits of land preservation efforts relative to cost to the Township. This Plan is intended to support applications for grant funding.

Promote Action to Enhance Natural Resource Protection

- 5.4 Support the BVA “Red Streams Blue” program, including continued documentation of baseline conditions of the streams within East Bradford, and assessment of appropriate mitigative action. Inventory of baseline conditions may include water quality, inventory of impervious coverage, assessment of point and non-point source discharges, existing flooding problems, streambank and riparian conditions and floodplain conditions. Potential mitigation might include stormwater management improvements, streambank restoration, floodplain restoration, and riparian reforestation. Further adjustment to impervious coverage limitations, stormwater management requirements and design standards for future land development should be considered. The Township might consider direct funding assistance to expedite these efforts, including potential use of grant funding available to the Township.

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- 5.5 Regularly monitor and continue to participate in regional planning efforts regarding land use and resource protection issues in neighboring municipalities, particularly watershed areas draining into East Bradford and significant natural habitat areas extending across municipal boundaries.
- 5.6 Continue to consider formal partnerships aimed at natural resource protection, including partnerships with Chester County, adjoining municipalities, and other organizations in addition to BVA, such as West Chester University and its Gordon Natural Area, West Chester Fish, Game & Wildlife Association, Trout Unlimited, and local land trusts.
- 5.7 Continue to support public and private efforts to enhance and conserve natural diversity and promote sustainable wildlife populations (also see deer management below), including attention to both forested and non-forested, natural and naturalized landscapes, seeking to avoid isolation of wildlife habitat areas, coordinate protection strategies, and maintain continuous corridors for wildlife diversity.
- 5.8 Consider undertaking annual visual surveys of floodplain areas, riparian buffers, woodlands and, where known, wetlands, to identify regulatory violations.

Promote Action to Enhance Cultural Resource Protection

- 5.9 Continue to support the efforts of the Brandywine Valley Scenic Byway Commission, with a view toward resource protection, mitigation of traffic and land development impacts, and appropriate levels of tourism.
- 5.10 Consider support for potential designation of a Brandywine National Heritage Area, extending beyond the area of purview of the Scenic Byway and, upon Congressional approval, availing the region of additional federal funding for resource protection efforts.
- 5.11 Continue to review the effectiveness of scenic roads regulation, considering periodic revision as necessary, potentially including revision to scenic roads designation and mapping.
- 5.12 Continue to support the addition and extension of historic district designations on the National Register of Historic Places, including expansion of the Brandywine Battlefield National Historic Landmark, potentially including the route of the British flanking movement through the southern part of East Bradford.
- 5.13 Consider request for certification by the Pennsylvania Historical and Museum Commission (PHMC) under Act 167, for extension of the purview of the Township Historical and Architectural Review Board (HARB) to either or both of the two National Register historic districts not yet so regulated, Paradise Valley and Worth-Jefferies, as well as extension of the Strodes Mill Historic District.
- 5.14 The Township should continue to promote, and offer guidance through the Historical Commission for, applications for “determination of eligibility” for the National Register, increasing potential levels of protection under state or federal regulation and

review processes. Priorities for assistance might be established on the basis of township historic resource classification.

- 5.15 Facilitate maintenance of historic structures to preserve their historical integrity through the continued efforts of the Township Historical Commission and HARB. The Township may act as an informational clearing house for appropriate maintenance and restoration means, design guidelines, and funding resources, including tax incentives.

Support Land Use & Management for Resource Protection

- 5.16 Continue to guide placement of land development activities away from unnecessary impact to natural and cultural resource values and promote formal open space designation in the course of development plan review by the Township Planning Commission, EAC, Park and Recreation Board, Historical Commission and other agencies, as applicable. Wherever feasible, the Township should condition development and building approval on demonstrable and enforceable adherence to the resource protection objectives of this Plan, including incorporation of binding open space management plans and land management criteria where applicable.
- 5.17 Continue to focus particular attention, during development plan review, on stormwater management, promoting groundwater infiltration and successful implementation of water quality Best Management Practices (BMPs), consistent with state requirements and objectives set forth for the Christina Basin.
- 5.18 Continue to promote a policy of no net increase in stormwater runoff from future development or redevelopment projects wherever conditions permit. Continue to promote design of new stormwater management systems so as to mitigate existing negative stormwater impacts.
- 5.19 Continue to monitor performance of existing stormwater management systems, identify needed improvements and potential opportunities for mitigation of existing problems, and seek means to implement such improvements.
- 5.20 Consider establishment and/or coordination with a local or regional authority set up to manage and monitor the performance of stormwater facilities.
- 5.21 Monitor and continue to promote the management of deer populations and reduction in tick populations. Safe hunting programs such as that of the Brandywine Valley Archery Club should continue to be encouraged, along with hunting safety education. On a regular basis, continue to assess potential means to enhance exemplary deer management programs and practices on Township open space and other open spaces in cooperation with their owners (e.g., Stroud Preserve, CCWA, and owners of larger private landholdings), investigating potential for additional controlled hunting.
- 5.22 Continue to monitor and promote agricultural practices and land management efforts which maximize soil conservation and minimize negative impacts to water quality, promoting the establishment of best management practices on appropriate public or

private open space lands, in coordination with the Chester County Conservation District and the Pennsylvania Department of Agriculture.

- 5.23 Promote reforestation of riparian buffers, enhancement of forest interior and woodland edge conditions, and planting of new native trees in residential areas.

Refine Regulatory Tools

- 5.24 Periodically review the effectiveness and consistency of regulation of natural and cultural resources, from perspectives of development plan review, adaptive re-use of historic resources, resource management, and regulatory enforcement, including property maintenance codes. Revision to existing regulation and policy should be considered as necessary.
- 5.25 Review design standards imposed by the Subdivision & Land Development Ordinances for consistency with flexible land use regulation provided under the Zoning Ordinance (e.g., Open Space Development Option), to ensure that strict adherence to land development regulation does not impede flexibility which may afford greater resource protection.
- 5.26 Monitor use of the Conditional Use approval process as an effective means for the Board of Supervisors to condition approval of land use or land development on clear implementation and appropriate long-term management of resource protection objectives.
- 5.27 Review the relative roles and effectiveness of HARB purview versus the Historical Commission and consider potential extension of historic district regulation under Act 167.
- 5.28 Consider strengthening provisions for mitigation of impacts to historic resources by land development proposals, potentially linking plan approval to specific mitigation conditions and guarantees.
- 5.29 Review the provisions of the Brandywine Scenic River (BSR) District for consistency with further environmental regulation adopted since 1998. Consider extension of provisions aimed at maintenance of scenic landscapes to all scenic landscapes mapped for this Plan as well as any lands adjacent to designated scenic roads or the Brandywine Valley Scenic Byway. Review and consider adoption of a broader palate of strategies for scenic landscape protection including, for example, modifications to building setbacks, introduction of additional landscape buffers, architectural design standards, and potential use of the conditional use approval process.
- 5.30 Consider further update of stormwater management regulations, dealing with issues beyond those necessary for compliance with MS-4 regulation, including maximum preference for groundwater recharge, reduction in total discharge volumes (not just rates), and employment of design standards consistent with PA DEP “exceptional value” (EV) or “high quality” (HQ) water quality standards.
- 5.31 Review vegetation removal standards and consider specifying procedures for permitting vegetation removal in excess of otherwise applicable limits where

necessary to permit lawful use under the zoning ordinance. Consider modification of requirements for compensatory plantings, to link such requirements to specific levels of tree removal rather than the size of the woodland subject to disturbance, in order to reasonably relate compensatory planting requirements to the size and character of the lot or tract subject to regulation.

- 5.32 Consider regulation of timber harvesting as a permitted land use, consistent with MPC requirements to permit “forestry” in all zoning districts. Such regulation could clearly distinguish timber harvesting, or forestry, from vegetation removal limitations, which otherwise are applicable in the context of building activity or land development. Timber harvesting regulation might include provisions for timber harvesting plan submission and approval, operational standards, escrow requirements to protect against damage to township roads, standards for minimum retention of canopy trees based on woodland classification, and standards to minimize “high-grading” with resultant loss of forest diversity.
- 5.33 Consider amendment to Riparian buffer area regulation to further clarify standards for permitted agricultural uses and activities and standards for vegetation disturbance versus vegetation management (e.g., mowing). Adoption of requirements or incentive provisions for riparian reforestation, applicable at the time of any new application for building or zoning permit or land development, also might be considered. In addition consideration should be given to the addition of standards and procedures to modify applicability of Riparian buffer area regulation, in order to minimize the need for zoning variance requests.
- 5.34 Consider enactment of special provisions for land use and development in headwaters watersheds, potentially including: reductions in impervious coverage limitations and/or linking approval of greater coverage to full recharge of the two-year storm (as opposed to recharge of the pre-development to post-development increment); increased focus on “Red Streams Blue” mitigation; prohibition of inter-watershed stormwater discharge; and provisions or incentives for reforestation.
- 5.35 Consider enactment of provisions limiting introduction of impervious coverage and other development impacts on hydric soils.
- 5.36 Review and consider whether certain zoning use or permitting scenarios warrant incorporation of wetlands delineation requirements in the Zoning Ordinance [see Subdivision & Land Development Ordinance, § 95-13.C(1)(e)].
- 5.37 Consider enactment of provisions to limit bulk water extraction activities.
- 5.38 Consider revision to water supply provisions outside the Public Water Supply Area, to require submission of in-depth hydrologic and hydrogeologic studies, and to condition development or zoning approval on demonstration of adequate supply and demonstration of no adverse effect (post-mitigation, if necessary) to neighboring water supplies or natural features such as streams and wetlands, due to groundwater removal.

Promote Community Education

- 5.39 Continue to support the education of landowners, residents and other stakeholders regarding natural and cultural resources, potentially including expanded use of the Township web site, newsletter, and community events such as East Bradford Day.
- 5.40 Consider public presentation of informational programs promoting private land management activities consistent with the objectives of this Plan, potentially including support for programs offered by other organizations. Examples of such informational programs might include: landscape management approaches consistent with the BVA Red Streams Blue program; promotion of tree planting and riparian restoration; turf grass reduction; meadow management; safe and sustainable wildlife management; agricultural practices consistent with water resource protection objectives; reduction in lawn and garden chemical and nutrient application; proper disposal of oil and other hazardous wastes; recycling opportunities; energy-use reduction strategies; alternative clean energy supplies; conservation planning and estate planning; and historic resource values and adaptive re-use opportunities.
- 5.41 Consider compilation and presentation of design guide(s) (using examples prepared by others where appropriate) for repair and modification to historic structures and landscapes.

Mapped Open Space Resources: Acreage Protected vs. Developed

Woodlands: Protected vs. Developed

	Protected	Developed	Residual	Total
Woodlands	1530.4	807.3	539.0	2841.0
<i>Class 1</i>	359.6	19.7	62.3	441.6
<i>Class 2</i>	851.2	520.6	357.4	1729.2
<i>Class 3</i>	319.6	267	83.6	670.2

Slopes >20%: Protected vs. Developed

	Protected	Developed	Residual	Total
Slopes >20%	638.2	557.4	310.7	1524.4
20-30%	389.4	373.8	197.8	961
>30%	248.8	183.6	112.9	545.3

Riparian Buffers: Protected vs. Developed

	Protected	Developed	Residual	Total
Riparian Buffers	1046.2	559.9	629.4	2235.5
<i>Wooded</i>	457.6	231.5	157.4	846.5
<i>Not Wooded</i>	588.6	328.4	472	1389

Hydic Soils: Protected vs. Developed

	Protected	Developed	Residual	Total
Hydic Soils	310.3	154.6	194.1	659.0

Headwaters: Protected vs. Developed

	Protected	Developed	Residual	Total
Headwaters	1608.4	2286.5	1024.8	4919.7

Floodplains: Protected vs. Developed

	Protected	Developed	Residual	Total
Floodplains	708.8	275.9	356.6	1341.3

Prime Agricultural Soils: Protected vs. Developed

	Protected	Developed	Residual	Total
Prime Agricultural Soils	892	1281.1	721.3	2894.4

Scenic Areas: Protected vs. Developed

	Protected	Developed	Residual	Total
Scenic Areas	2789.0	1280.3	1640.3	5709.6
<i>LBSRC</i>	1454.5	471.7	608	2534.2
<i>Other</i>	1334.5	808.6	1032.3	3175.4

Mapped Open Space Resources - Graphic Comparison of Lands Protected vs. Developed



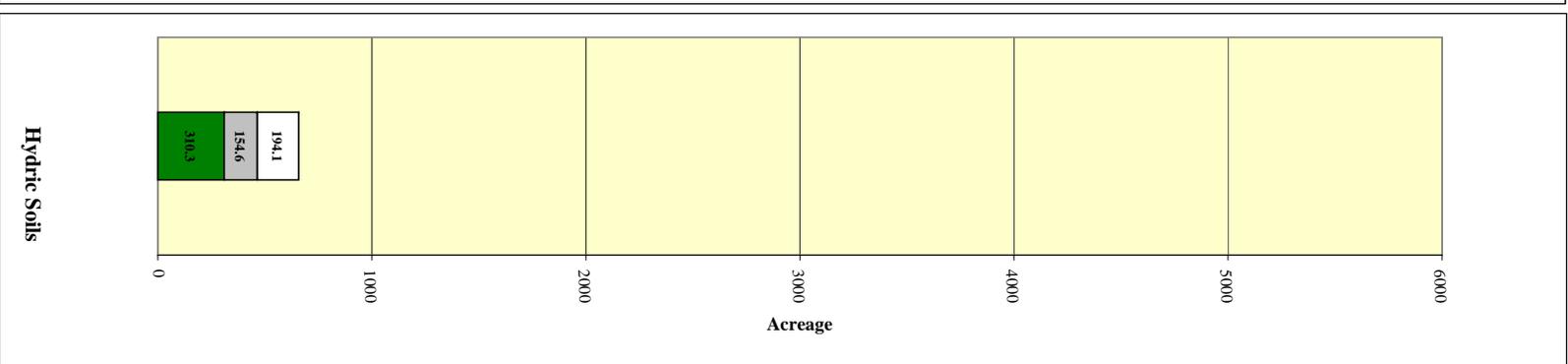
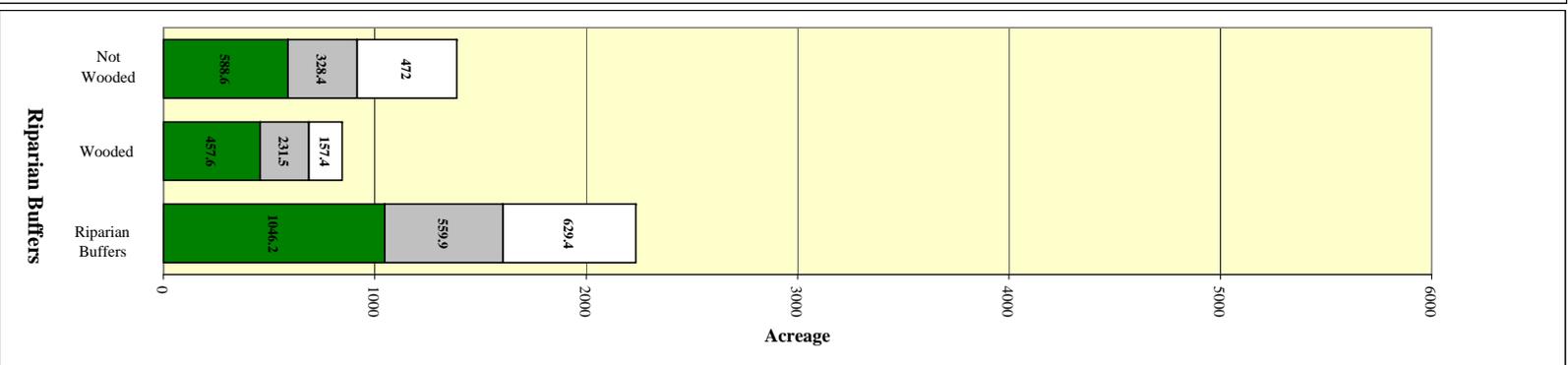
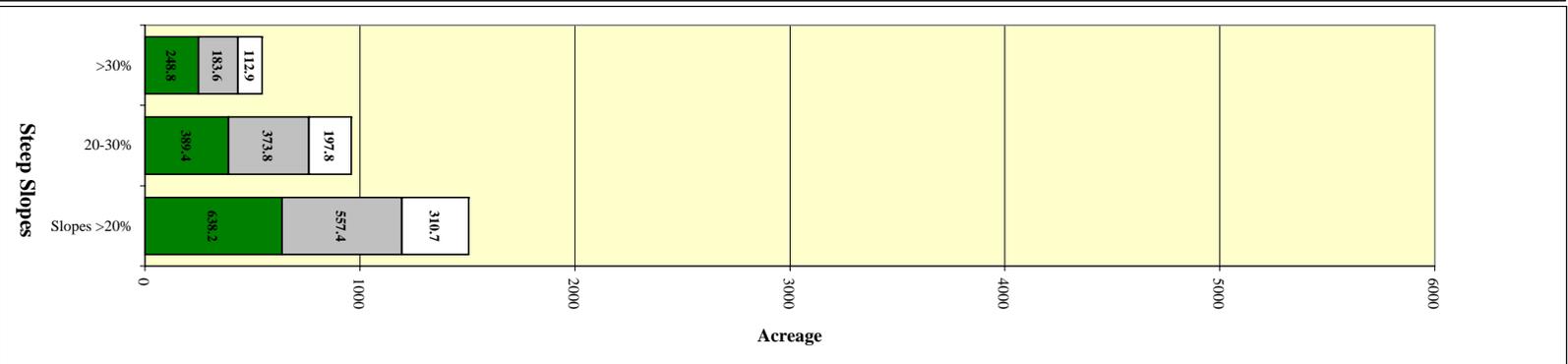
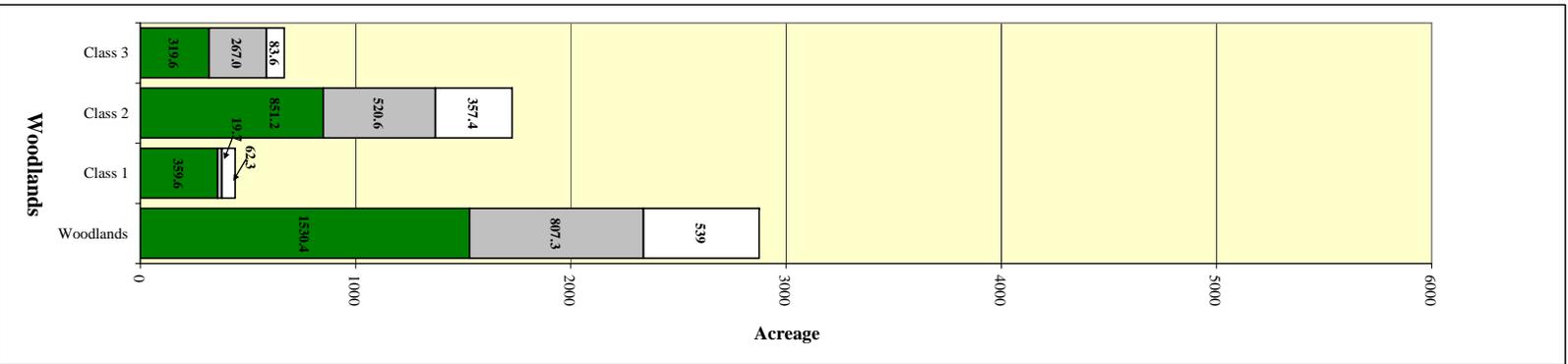
Protected Lands



Developed Lands



Residual Lands



Mapped Open Space Resources - Graphic Comparison of Lands Protected vs. Developed



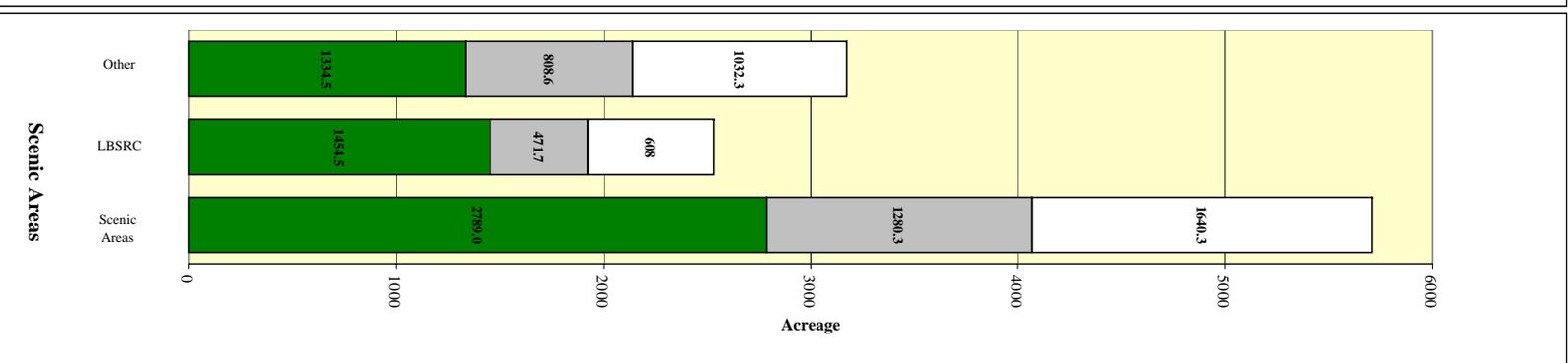
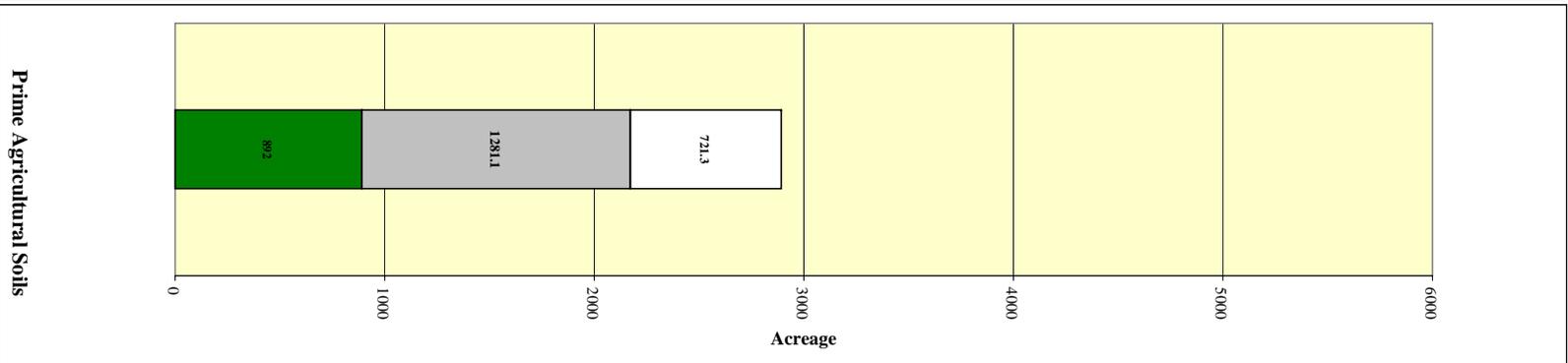
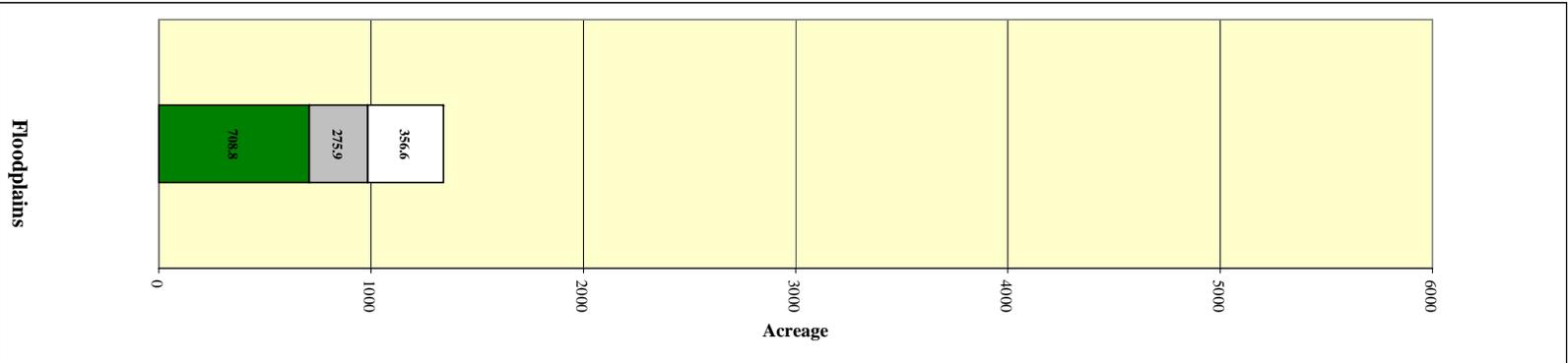
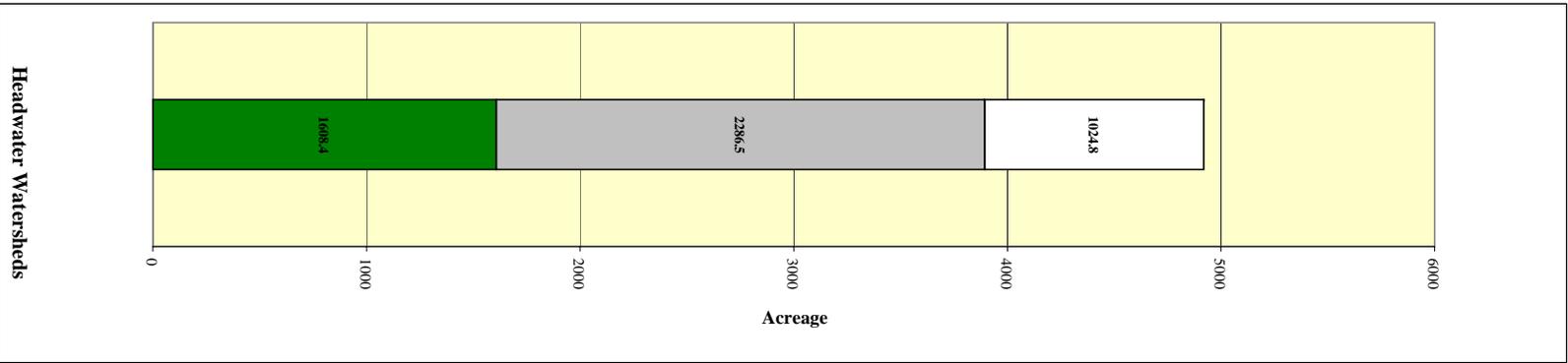
Protected Lands

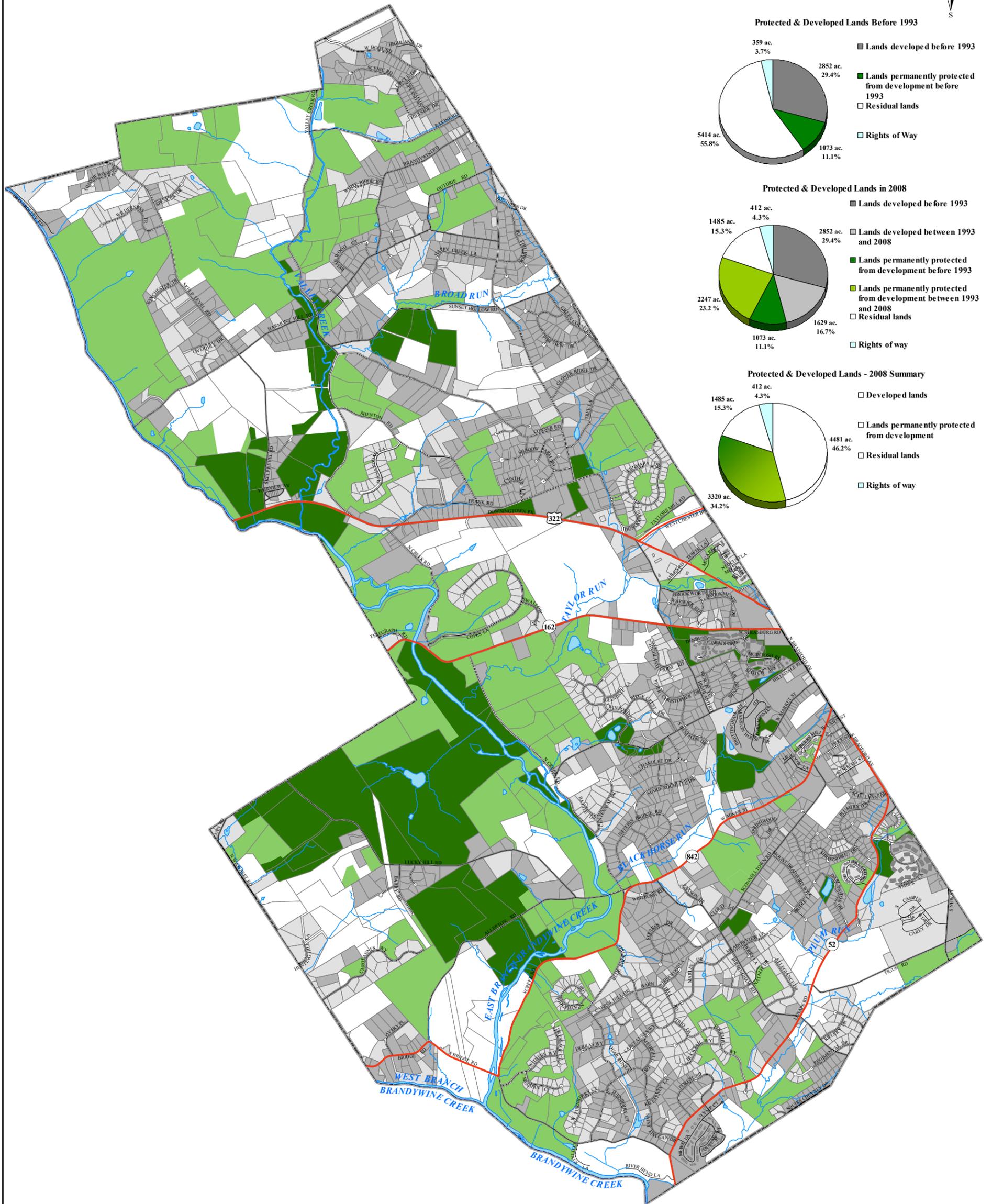


Developed Lands

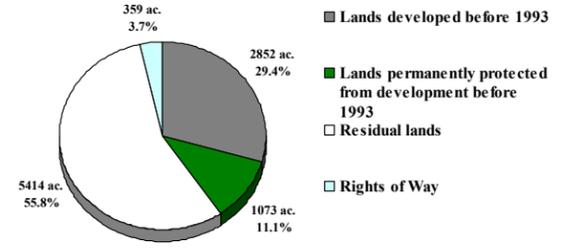


Residual Lands

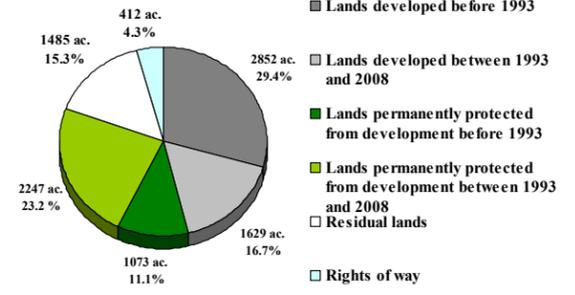




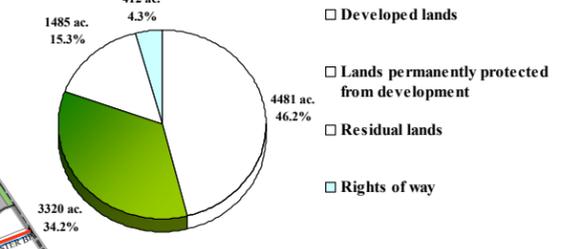
Protected & Developed Lands Before 1993



Protected & Developed Lands in 2008



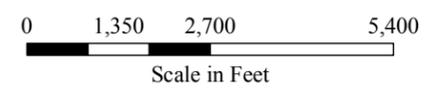
Protected & Developed Lands - 2008 Summary



Legend	
	Major roads
	Roads
	Streams
	Bodies of water
	Tax parcels
	Township boundary
Developed lands	
	Developed by 1993 (2852.0 ac.)
	Developed since 1993 (1628.5 ac.)
Protected lands	
	Protected by 1993 (1072.6 ac.)
	Protected since 1993 (2246.7 ac.)

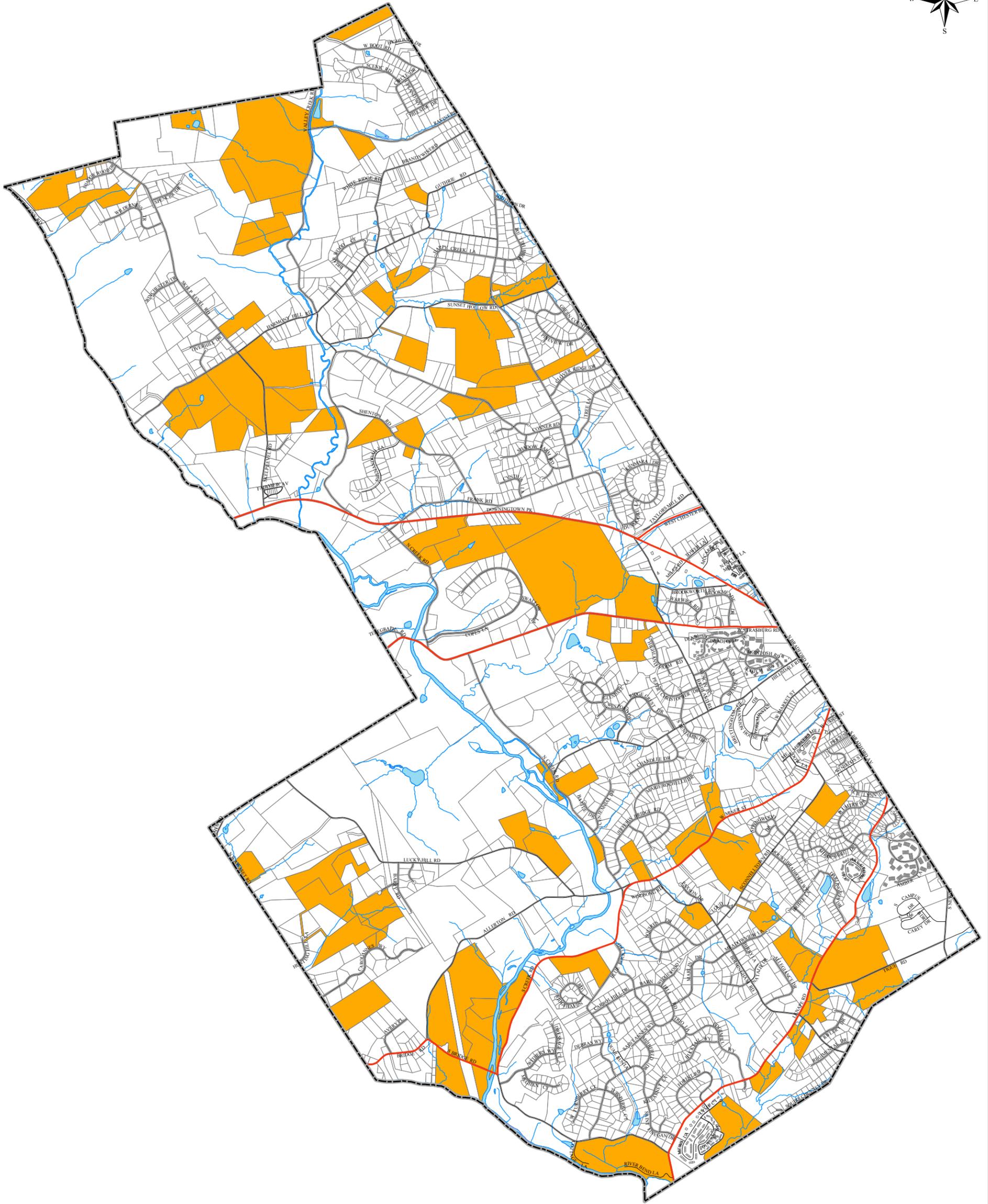
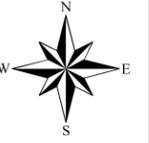
Map 5-1 Protected & Developed Lands

East Bradford Township Open Space Plan



Brandywine Conservancy
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Protected lands from Chester County Planning Commission, 2005 (revised by Brandywine Conservancy, 07/09/08). Developed lands as of 1993 from East Bradford Township Open Space Plan, 1992.
Date created: January 1, 2009

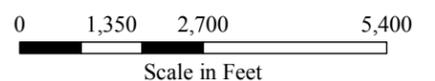


- Legend**
-  Major roads
 -  Roads
 -  Streams
 -  Bodies of water
 -  Open space priorities
 -  Tax parcels
 -  Township boundary

Map 5-2

Future Open Space Protection Priorities

*East Bradford Township
Open Space Plan*



 **Brandywine Conservancy**
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County
GIS Department, 2007. Residual prioritization
developed by Brandywine Conservancy, 11/2007.
Date created: January 1, 2009

Chapter Six Greenways Plan

Introduction

Greenways are landscape corridors that follow the patterns set by natural resources across the landscape. In the case of East Bradford Township, stream corridors and woodlands represent particularly resource-rich areas that form overlapping patterns of natural resources. Most of the Township's floodplains, wetlands, hydric soils, steep slopes, riparian buffers, forest interiors and wildlife habitats are contained in these areas, as indicated on the *Greenways Analysis: Key Natural Features* map. The confluence of so many environmentally sensitive features is by "natural design." If protected and managed appropriately, these patterns of resource areas form an open space *greenway network*, which constitutes an area where the whole is greater in value than the sum of its parts.

Greenways and Regional Context

Greenway planning is a relatively modern approach to open space planning that reflects recent thinking in resource management, watershed protection efforts, conservation biology approaches and open space planning. Specific objectives for establishing and implementing a Greenways Plan in East Bradford Township include:

- Adding emphasis to on-going prioritization of individual land parcels for acquisition of interests in open space;
- Enhancing the competitive position of the Township for potential receipt of State and/or County land preservation funding;
- Achieving a maximum amount of environmental protection with a minimum amount of land;
- Recognizing that natural systems operate in larger patterns and at larger scales than the scale typically represented by individual properties;
- Creating a blueprint for the protection and restoration of contiguous networks of wildlife habitat;
- Providing context and environmental considerations for PennDOT and Township road projects;
- Offering a focus for East Bradford landowner education and outreach, and for consideration of Township-provided incentives for landowner participation in greenways conservation.

Across the United States numerous federal agencies, states, counties, regions, non-governmental organizations, and others have promoted open space and wildlife corridor plans. The State of Delaware has developed a conceptual greenway plan, and in June, 2001, the Commonwealth of Pennsylvania published *Pennsylvania's Greenways: An Action Plan for Creating Connections*. This effort led by the Department of Conservation and Natural Resources (DCNR) targets the creation of a statewide network of greenways in Pennsylvania, with the goal of establishing a local greenway *in every*

community by 2020. The Plan strategy for achieving the statewide network depends on the development of greenway plans for each of the 67 counties.

Chester County has already developed a greenway plan, though it is not known by that name. All three County policy elements of the Comprehensive Plan – *Landscapes*; *Linking Landscapes*; and *Watersheds* – promote the establishment of landscape-level natural corridors, including both stream- and woodland-based corridors. For East Bradford Township, the County has suggested protecting lands along both branches and the mainstem of the Brandywine and Valley Creek in *Landscapes* and *Linking Landscapes*, and establishing mostly forested riparian buffers along all streams in *Watersheds*. The County’s plans are supported by the state’s Lower Brandywine Scenic River designation, which also applies to both branches and the mainstem of the Brandywine and Valley Creek. As clearly seen on the *Greenways Analysis: Regional Corridors* map, most of these corridors continue into adjacent jurisdictions, ultimately requiring a regional approach to fully implement greenways planning concepts.

A Greenways Plan for East Bradford

Building on these regional considerations, the *Greenways Plan* Map was developed through analysis of the confluences of natural resources and existing corridor planning efforts, joining them together into one greenways network. The greenways widen where the woodlands are larger, sometimes growing into larger woodland or floodplain areas that serve as “anchor points,” “cores” or “nodes” for the larger greenways system. This greenways network is designed to promote the broader environmental health and public welfare of the township as well as to be multi-purpose in nature, benefiting watershed and biodiversity resources, in addition to steep slopes, farmland, scenic, recreational, including trail, and historic resources. In this way, it supplements both township regulatory and preservation efforts.

In lieu of more detailed studies, the greenways network can serve as a preservation system for township wildlife habitat (both terrestrial and aquatic) and a blueprint for watershed restoration. The Brandywine, with its clear north-south orientation is well known as a regional migratory bird corridor. Streams represent both upstream and downstream movement for aquatic species.

Roadways, including bridges and culverts, can also be a corridor barrier, a source of land disturbance and soil erosion, and an obstacle to smooth wildlife movement. However, special wildlife crossing design techniques can mitigate their impact. PennDOT and other transportation agencies around the country are beginning to consider such needs and having a greenway network plan in hand can help facilitate and inform that process. Nevertheless, it is useful to remember that most wildlife travels at night, when traffic numbers are much lower than during the daytime.

Ecological Restoration Needs

Redundancy is intentionally built into the greenways network, so that if one corridor is

blocked by a new development or substantially degraded by logging, another may be used in its place. While this system probably functions today, though imperfectly, it is far from completely implemented. Certain “greenway opportunity areas,” or gaps, may be identified where the land management goal is to either reforest the corridor or otherwise to convert it into natural lands as much as possible (that is, reducing mowing, allowing for to improve and help complete the system. These areas can become the target for landowner outreach, education and incentives. They also can be the target for ecological restoration activities.

In keeping with most of the rest of southeastern Pennsylvania, East Bradford Township has undergone several waves of land use conversion throughout its three-hundred year history. The first such wave occurred when the Township was settled by farmers in the early 1700s. Old growth forests were cleared, and the prime agricultural soils they had produced were widely plowed and planted for agricultural crops. Over recent decades and now continuing, a second large-scale conversion has occurred as many of those farmlands and associated second-growth woodlands have been converted primarily into residential developments.

Now, however, the opportunity exists to not only protect many of the remaining developable lands, but also to *restore* those lands and others through the emerging field of ecological restoration. Thus, greenways look at reforesting riparian buffers along large lengths of streams, protecting floodplains and steep slopes in the process.

The restoration of biological and watershed resources has been a major development in resource management philosophy and practice over the last fifteen years or so. Many resources are not static but dynamic, changing over time. They can and do change in quantity and quality, and people, through their decisions and actions or inactions, make a difference in how that occurs. *Renewable resources* are those which inherently renew or regenerate themselves, especially over a relatively short (human) time span. Most biological resources are renewable over time. For example, where trees are allowed to grow through natural succession, a canopy will ultimately form on its own and a new woodland will be re-established. *Restorable resources* are those which human intervention can assist in the process of renewing or re-establishing themselves even if once damaged or degraded. The human action generally takes advantage of the inherent renewability of the resource in the process. An example is a wetland which may have been drained by a field tile in the 1800’s. If the field tile is removed, barring other changes in hydrology, the wetland is likely to become wet again. It is possible to further the process of wetland restoration by replanting wetland plants into a wetland under restoration. Gradually, such a wetland will begin to perform some of the same watershed functions and provide some of the same benefits it did before.

Application of ecological restoration principles, which generally follow natural laws and processes like ecosystem succession, make it possible to restore high-functioning mature, diverse, and healthy forest, wetland, stream, and meadow ecosystems. Once restored, such systems may better perform functions useful to humans, including managing stormwater and improving water quality. It is also possible to restore certain rare and disappearing plant and animal species. It is theoretically possible to restore species that

once occurred in an area but now no longer do. It is possible to restore a living fabric of woodlands in a network of stream and cross-country corridors, and attract and retain new species of plants and animals into these habitats. Soil resources, such as prime agricultural and forest soils, are renewable too, but only over very long time periods

Listed below, nine biological and water resource types can clearly be identified as renewable or restorable in East Bradford Township (streams and wetlands are listed as both watershed and biological resources):

Watershed Resources

- Streams
- Wetlands
- Floodplains
- Aquifers/groundwater recharge areas
- Headwater areas

Biological Resources

- Woodlands
- Meadows
- Wetlands
- Natural areas/Rare species sites
- Wildlife diversity
- Streams

Approaches to greenway conservation in East Bradford Township should take full advantage of ecological restoration approaches to natural resource management. Such approaches may require a long-term view toward achievement of resource conservation and management goals as, for example, restoration of water quality in the Brandywine Creek or restoration of an old growth forest could either take over 100 years. Nevertheless, some resources can take a relatively short time to restore, such as a meadow or a wetland, as described above. A long-term view is supported by the fact that most of the landscape of East Bradford Township is either already protected from further development, or already is developed to the extent permitted under zoning. In either case, such landscapes are relatively stable. Landowner education and participation in conservation approaches are extremely important, as may be governmental incentives to foster such participation.

Wildlife of East Bradford Township

There are no known general wildlife population surveys from East Bradford Township. Still, there are several different kinds of “target species” that are of more ecological concern from the perspective of restoration or renewal of natural landscapes in East Bradford Township. The presence of such target species is an indicator of overall good habitat conditions:

- Endangered, threatened, and rare species, discussed below;

- Riparian species, including beaver, mink, river otter, Cooper's and red-shouldered hawks;
- Habitat-restricted species, for example, forest interior habitat species, especially birds, reptiles, and amphibians;
- Wide-ranging mammals, which make excellent greenway target species, potentially including bobcat, river otter, and gray fox.
- Migratory fishes, such as American shad, an aquatic greenway target species.

A different set of target species are the non-native and invasive ones, including both plant and animal species. Based on township botanical surveys from other Chester County townships, non-native plants are likely to total about *one-third* of the Township's plant species. A township the size of East Bradford may be expected to support approximately 600 – 800 plant species, meaning that some 200- 300 plants are not native to the area. Of these, at least several dozen are invasive. This means that such species did not evolve in the area, and were introduced at some point whether intentionally (such as multi-flora rose) or accidentally (such as garlic mustard and Japanese stilt grass). Invasive plants are a serious ecological threat to ongoing ecological values in Township natural areas, requiring extensive efforts and eternal vigilance to minimize, much less eradicate.

Generalized lists of wildlife expected to reside in or near East Bradford Township are available.

Greenways Strategies/Recommendations

- 6.1 Promote the establishment of the mapped greenway system throughout East Bradford Township.
- 6.2 Continue to acquire lands and easements within the defined greenways. The inclusion of a property within a defined greenway should be used to enhance the competitive position of the Township for potential receipt of State and/or County land preservation funding.
- 6.3 Consider formal incorporation of designated greenways within the zoning ordinance, establishing overlay zoning provisions to promote implementation and protection of greenway corridors. Such provisions might include further limitations to woodland and riparian disturbance, and allowance for modifications to building setbacks where new structures would otherwise penetrate into a greenway corridor. Noted greenway nodes should be protected from penetration into forest interior habitats. Enactment of special criteria for development within greenway corridors might include provisions for location of buildings outside of greenway corridors to the greatest extent practicable and, otherwise, their location as near to the edge of the designated corridor as practicable, in order to protect the largest possible breadth and extent of the greenway corridor from disturbance. Additional ordinance-related recommendations are set forth below.
- 6.4 Prevent alteration of natural ridgelines within any designated greenway corridors, particularly through avoidance and, where not entirely feasible, minimization of permitted grading or earthmoving.

Chapter 6: Greenways Plan, June, 2009

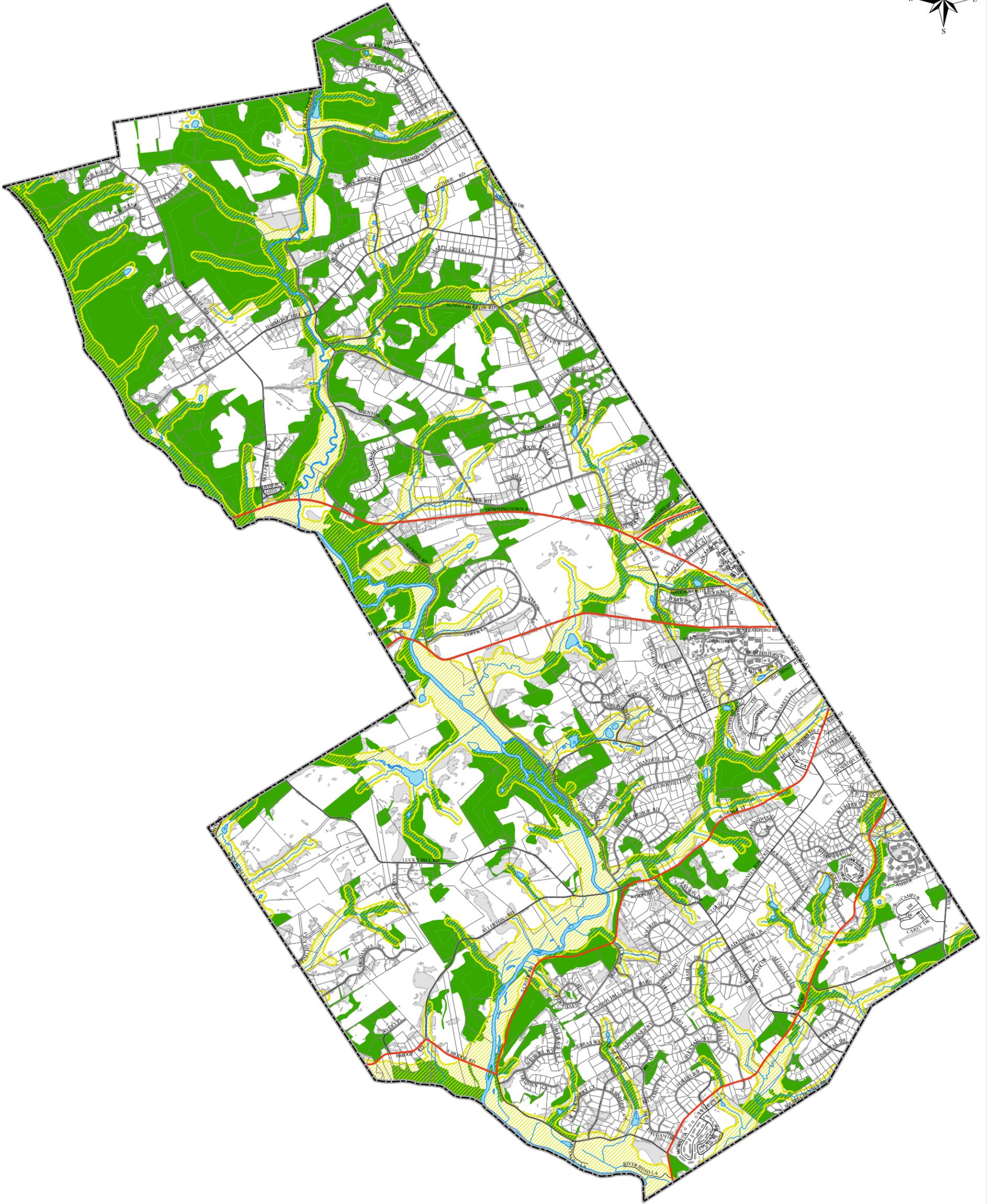
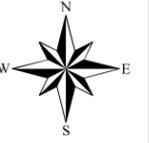
- 6.5 Consider requiring reforestation within designated greenway corridors in the context of any application for approval of a conditional use, subdivision or land development plan, special exception, variance, or building permit. In such cases, submission of a landscape plan should be required that adequately illustrates proposed reforestation plans, including a list of native trees and shrubs to be provided, and delineation of proposed long-term management provisions.
- 6.6 Identify lands that comprise natural habitat ‘gaps’ within proposed greenway corridors and focus land management objectives on either reforestation or conversion to meadow landscapes, delimiting mowing schedules, particularly along streams. Such areas also should become targets for landowner outreach, education and provision of landscape management incentives.
- 6.7 Develop landowner education and outreach materials regarding greenways conservation and management, with a particular focus on the land management activities of homeowner’s associations (HOAs), which often have their own internal funding for landscape maintenance. An effort should be made to persuade HOAs to consider appropriate conversion of existing non-native landscapes into more natural landscapes.
- 6.8 Consider provision of incentives for landowner participation in greenways conservation and management. Examples might include ongoing educational seminars and forums regarding local wildlife and native landscaping, potentially including sponsorship of a native plant sale. Where Township trails occur within greenways, nature education should be promoted.
- 6.9 Promote opportunities for establishment of safe and effective wildlife crossings where greenways intersect roadways, especially at Township roads, reviewing them annually. Wildlife crossing/greenway signs are one means to raise public awareness and to calm traffic. Coordinate with PennDOT in evaluation of ways to improve safety and crossing effectiveness, including under bridges.
- 6.10 Upon the completion of the Township-wide Botanical Survey, which currently is in the process of identifying remaining high quality natural areas and rare plant species locations, incorporate such areas into designated greenway corridors to the greatest extent practicable.
- 6.11 Support efforts underway to restore American shad and other migratory fish to the Brandywine watershed, through promotion of landowner education efforts in this regard.
- 6.12 Promote networking with Chester County, the Pennsylvania Department of Environmental Protection (DEP) and upstream and downstream communities to protect water resources. Partnerships with the West Chester School District and University, Aqua America, Brandywine Valley Association, Brandywine Conservancy, and others should be established to monitor and restore the health of Township streams, and particularly those streams that are considered to be “impaired” by DEP. These include Plum Run, Taylor Run, and upper Valley Creek. Special attention should also be paid to Broad Run, which is classified as a High Quality (HQ) stream and a Cold Water Fishery. As a HQ stream, Broad

Chapter 6: Greenways Plan, June, 2009

Run is subject to DEP's 'anti-degradation' rules. These rules should be translated into Township ordinance provisions to ensure application.

- 6.13 Promote stream clean-ups throughout East Bradford, especially above the public water supply intake located at Ingram's Mills on the East Branch of the Brandywine and throughout the watershed of Valley Creek.

Chapter 6: Greenways Plan, June, 2009



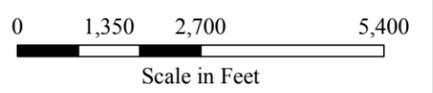
Legend

-  Major roads
-  Roads
-  Streams
-  Bodies of water
-  Riparian buffers
-  Constraints (outside riparian buffers)
-  Woodlands
-  Tax parcels
-  Township boundary

Map 6-1

Greenways Analysis: Key Natural Features

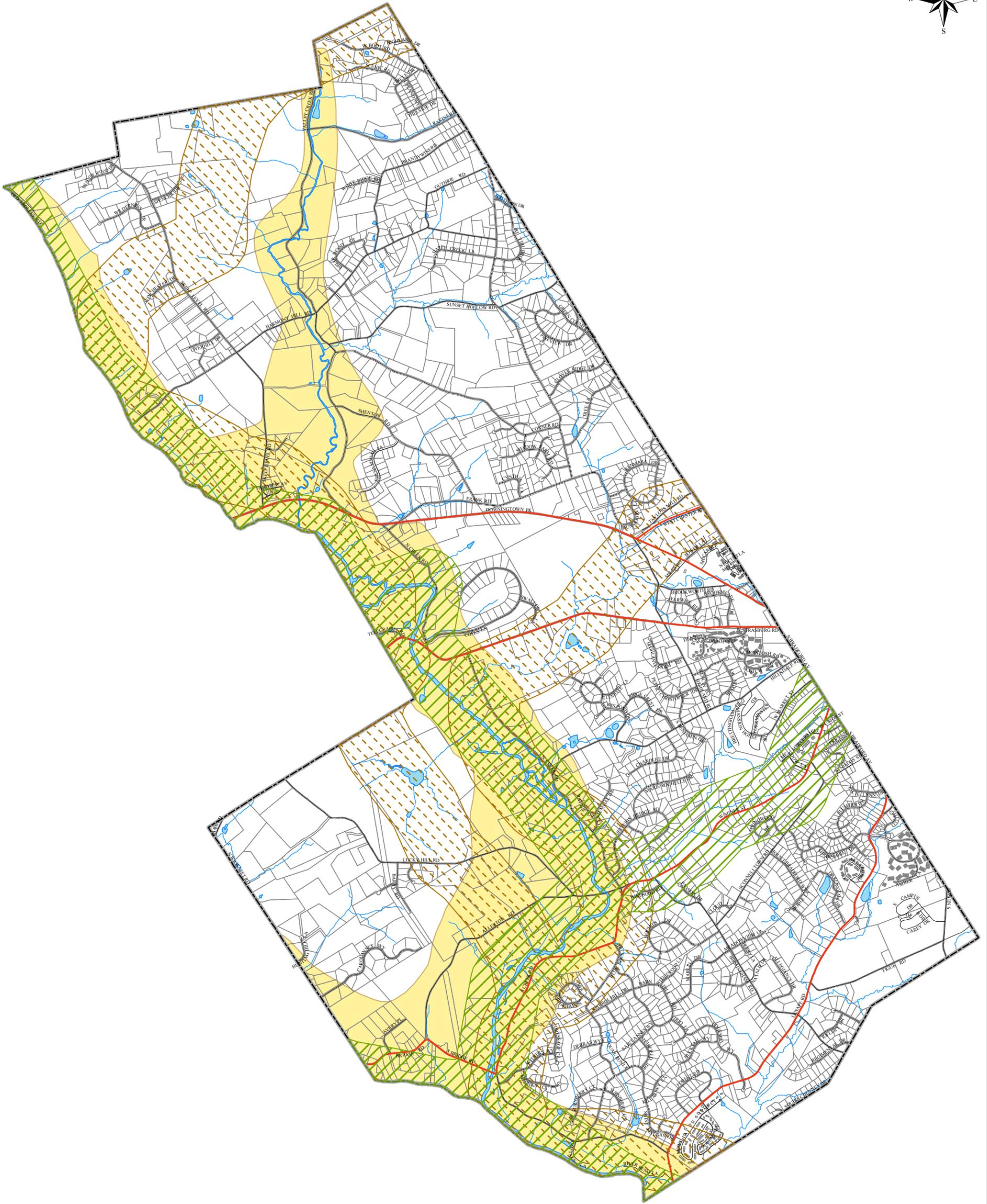
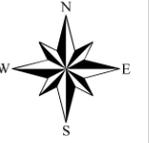
*East Bradford Township
Open Space Plan*



 **Brandywine Conservancy**
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Constraints developed by Brandywine Conservancy, 8/2007. Riparian buffers created by Brandywine Conservancy, 5/2007. Woodlands (edited by Brandywine Conservancy 8/2007) from DVRPC Land Use, 2000.

Date created: January 1, 2009



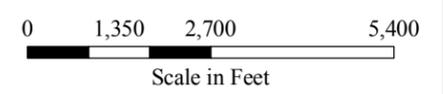
Legend

-  Major roads
-  Roads
-  Streams
-  Bodies of water
-  County Wildlife Biodiversity Corridor
-  County Regional Recreation Corridor
-  State Brandywine Scenic River Corridor
-  Tax parcels
-  Township boundary

Map 6-2

Greenways Analysis: Regional Corridors

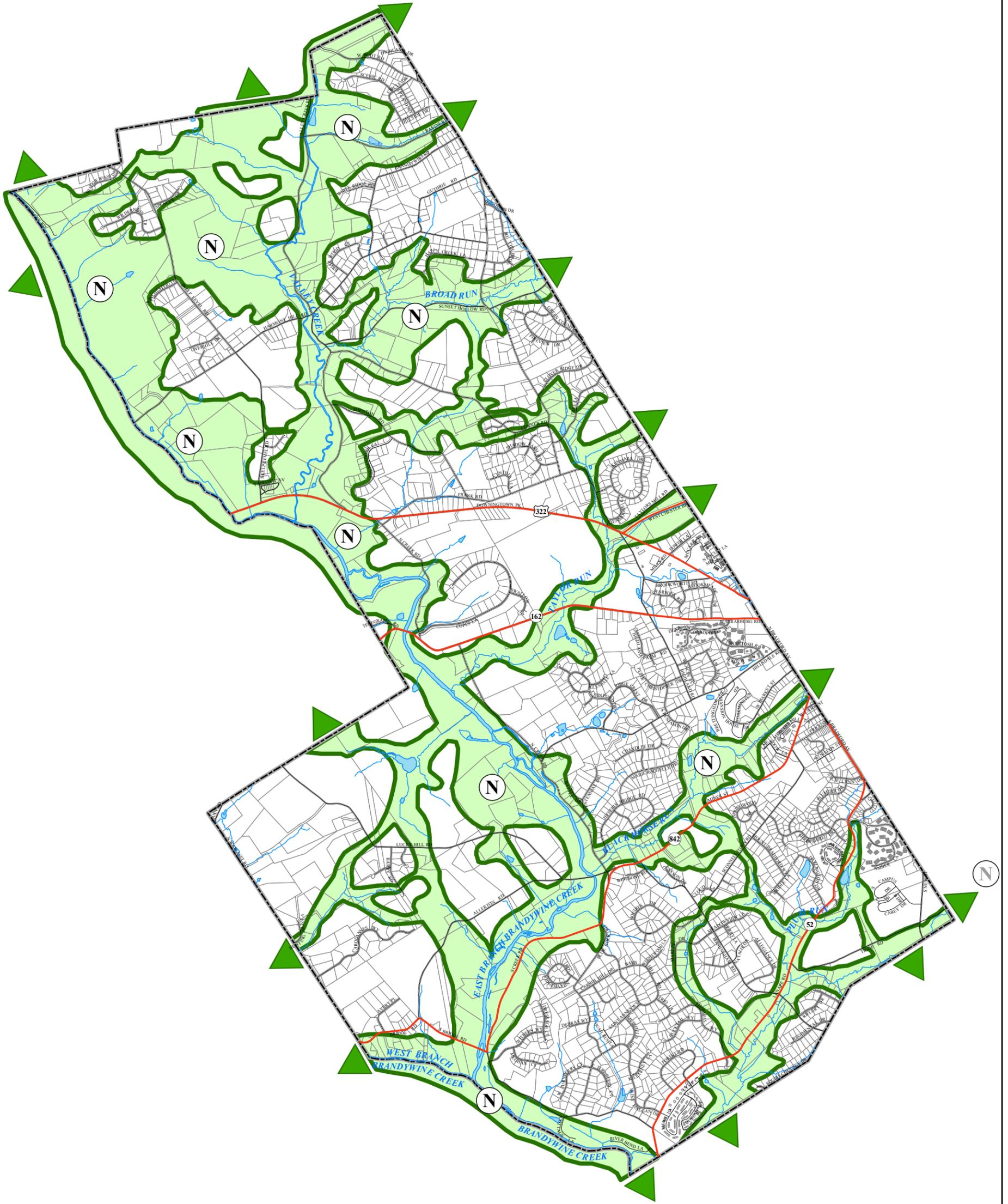
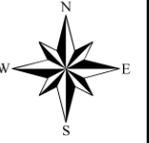
*East Bradford Township
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 **Brandywine Conservancy**
Environmental Management Center
P. O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Regional Recreation Corridor and Wildlife Biodiversity Corridor from Chester County Linking Landscapes, 2001. Brandywine Scenic River Corridor designated by Commonwealth, 1989.

Date created: January 1, 2009

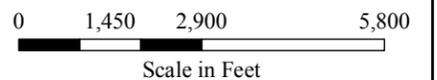


Legend

-  Major roads
-  Roads
-  Streams
-  Bodies of water
-  Tax parcels
-  Township boundary
-  Greenway nodes
-  Greenway extensions beyond boundaries
-  Greenway corridors

Map 6-3 Greenways Plan

East Bradford Township Open Space Plan



 **Brandywine Conservancy**
Environmental Management Center
P. O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Greenway corridors created by Brandywine Conservancy, 8/2007.
Date created: January 1, 2009

Chapter Seven Trails Plan

Introduction

Trails provide residents with essential opportunities for recreation, alternative means of transportation, and maintaining a healthy, active lifestyle. Trails provide a simple, accessible, and affordable form of recreation close to home, and allow a variety of users to enjoy their surroundings, the natural environment, and access to open space. Trails can be utilized for passive enjoyment such as nature appreciation or birding, or for more active activities such as jogging or mountain biking. Whatever one's fitness level or interests, trails are basic recreational and transportation facilities that enhance the enjoyment of a community and its resources.

Trail Classifications

In 2007, the Chester County Planning Commission published *Trail & Path Planning: A Guide for Municipalities*. This resource provides trails advocates, designers, and planners with valuable tools, from outlining basic principles of trail and path planning to ordinance updates and cost estimates. A functional classification, or hierarchy, of trails is described in the *Trail & Path Planning* guide. The following definitions are derived from *Linking Landscapes* as well as those used by the Pennsylvania Department of Conservation and Natural Resources (DCNR):

Trail

A facility with a permanent alignment that is designed, constructed and maintained for multiple uses including walking, hiking, biking, cross-country skiing and/or horseback riding. Trails are usually off-road facilities, but some portions may run parallel to a roadway.

Path

A facility designed, constructed, maintained and used primarily for a single form of travel, such as a bicycle path or a pedestrian path. Paths may be paved or unpaved, depending on type and intensity of use. Presently, several pedestrian paths exist in the township in public parks and in privately-owned HOA open space facilities. However, there are no paths designated exclusively for bicycle use or for equestrian use.

Bicycle Route

A low volume roadway or widened shoulder of a roadway used for bicycle transportation. These include low volume roadways that are identified as signed bike routes through neighborhoods, and widened road shoulders/bike lanes. Although no locally-designated bicycle routes exist in the township, there is one state-designated PA Bicycle Route L which follows Creek Road.

Hiking Route

A known or marked hiking pathway that has not specifically been constructed as a multi-

use trail and does not involve a maintained trail surface but is left in a natural condition.

Sidewalk

A paved surface situated parallel to a roadway, for pedestrian use.

Existing Trails

The *Trails Plan* map graphically illustrates both existing and proposed trails in East Bradford Township according to the classification described above. It is evident that the most common types of trails in the Township today are internal paths constructed in private HOA open space areas and pedestrian paths in public parks. Currently, pedestrian and equestrian paths exist in the Paradise Valley Nature Area and Timbertop/Singer Farm. Trails for pedestrian, mountain biking, and equestrian use have been developed at the Harmony Hill Nature Area. Pedestrian paths also are located in the West Valley Nature Preserve.

East Bradford Township has made a clear priority of trails establishment for several years. This is evident from the number of trails and bikeways that exist in the Township today, as shown on the *Trails Plan* map. The Township has developed independent trail and pathway systems at several parklands, including East Bradford and Shaw's Bridge Parks and at the Timbertop/Singer Farm, trails and an exercise course at the Jane I. Reed Park, and a multi-purpose trail along an abandoned segment of Blue Rock Road (south of St. Finnegan's Road). Trails have also been established through the land development process in Homeowners Association-owned (HOA) open spaces at Plum Tree, Sagamore, Brandywine Overlook, Shenandoah, Brandywine River Estates, and Steeplechase. Extensive trail systems are accessible to the public on private land at Natural Lands Trust's Stroud Preserve and the West Chester Fish, Game & Wildlife Association's West Valley Nature Preserve. Several other trails and conservation easements exist on private lands. A public bike route extends some six miles through the Township, principally along Creek Road, part of Bicycle PA Route L.

The Brandywine Trail is a traditional hiking route that the Wilmington Trail Club began planning in 1941, shortly after the club was founded. Its location is not formally mapped, although it is known to follow several public roads and pass through numerous privately-owned lands. The trail's southern terminus is located in Brandywine Creek State Park, Delaware, on the west bank of the creek, and the upper section terminates at a junction with the Horseshoe Trail at Horseshoe Trail Road near Ludwig's Corner, PA. The Wilmington Trail Club maintains the southern portion of the trail in Delaware, and the Chester County Trail Club performs maintenance north of the state line, through East Bradford Township, and up to Ludwig's Corner. Several portions of the trail go through private property and express permission is required to obtain access. Every effort should be made to move the Brandywine Trail off-road, and to bring it within a reasonable proximity of the Brandywine Creek.

East Bradford Township, in cooperation with West Bradford Township, has begun to implement a 10 to 12-foot wide multi-use trail along a 2.4 mile corridor extending from

the bridge over the Brandywine Creek on Route 322, just south of Downingtown Borough, to a point on Route 322 just east of its re-crossing of the Brandywine into East Bradford. The 1.5 mile segment north of Harmony Hill Road is a joint project with West Bradford Township. The two Townships received partial funding from the Pennsylvania Department of Transportation's Transportation Enhancement program, and from Chester County's 21st Century Fund. The southern segment from Harmony Hill Road to Route 322 is a project of East Bradford Township with funding from Chester County. Chester County's *Linking Landscapes* identifies this north-south trail link, traversing East Bradford Township along the Brandywine Creek, as part of the "Brandywine-Struble Regional Recreation Corridor," indicated on the *Greenways Analysis: Regional Corridors* map. The southern half of this trail runs along the east side of the Brandywine Creek in East Bradford Township, largely following a long-abandoned trolley rail bed. The northern half crosses into West Bradford Township's Brandywine Meadows Preserve. Initial planning, design and environmental clearance work is complete. The Township continues to acquire lands and easements along the corridor. The Township's Harmony Hill Nature Area includes a significant segment of the planned trail route, as does the Sugar's Bridge Nature Area. Development of this multi-use trail will make Downingtown a destination point for residents of East Bradford and surrounding areas. With interconnection through the street grid and sidewalk system in Downingtown, the new trail will offer non-motorized access to the Borough's parks and business centers and will connect to Chester County's Struble Trail and Chester Valley Trail. Once the multi-use trail is open, it is likely that the Brandywine Trail hiking route will be adapted to follow this new route.

One other multi-use trail is found along the old Blue Rock Road right-of-way, north of Delacey Fields. The trail is has an asphalt surface which is broken up and in need of repair. However, it is quite suitable for pedestrians and bicyclists, and provides a convenient link from the southern neighborhoods down onto Creek Road, Delacey Fields, and the Brandywine Creek.

The Township has long recognized Brandywine Creek and Valley Creek as valuable resources and has targeted these corridors for acquisition of open space lands, conservation easements and trails. Several significant destination points are found along the Brandywine Creek, including the Natural Lands Trust's Stroud Preserve, West Valley Nature Area, Shaw's Bridge Park, Harry J. Waite, Jr. Nature Area, Paradise Valley Nature Area, Ingram's Mill Nature Area, Harmony Hill Nature Area, and Sugar's Bridge Nature Area. The Township has established easements, or otherwise provided for future trails development, at the Harmony Hill Nature Area, Sugar's Bridge Nature Area, and Ingram's Mill properties. These preservation efforts have led to the beginnings of a formal greenway and trail network along the Brandywine Creek. The Plum Run greenway corridor is also an area of focus for trails. This corridor would provide a link between the Robert B. Gordon Natural Area and the Brandywine Creek at Brandywine Picnic Park in neighboring Birmingham Township. Tigue Road, on the north side of Plum Run, will become available for multiple trail uses once it is closed to through traffic.

Linking Landscapes identifies another recreational corridor in East Bradford Township, called the County Seat Corridor, shown on the *Greenways Analysis: Regional Corridors* map. This corridor would connect the Brandywine-Struble corridor with West Chester Borough generally along Pennsylvania Route 842. Such a corridor could provide pedestrian and bicycle access to the business district of West Chester Borough for residents in the southern neighborhoods of the Township. Although no trails are currently in place, East Bradford Township envisions pedestrian trails, bicycle routes and sidewalks along the County Seat Corridor, in part taking advantage of the recently acquired Schramm property located between Sconnelltown Road and West Miner Street.

Future Trails

The Township has identified new trails that it intends to build in the 2004 Comprehensive Plan and on the Township's Official Map. These trails, and other proposed trails, are shown in more detail on the *Trails Plan* map. Many of the proposed trails will link together various Township residential areas, parks, and corridors identified in *Linking Landscapes*. The proposed future trail locations are conceptual only, and are not intended to show exact trail placement. Rather, their purpose is to show connections that link various popular destinations and other trails. Because of ownership issues and other site challenges, desired trail routes are identified on the map then later adapted to suit actual site opportunities and constraints.

A key to a successful trail network is a meaningful system of trails with logical beginning and ending points. The most popular trail destinations typically include community and neighborhood parks, deed restricted HOA-owned open space, schools, recreational facilities, and quasi-public open space (i.e. churches, private sports or recreation facilities). East Bradford Township has been successful in establishing numerous important public parks and open space areas and trails that can become destination points. At present, however, the system lacks a consistent degree of connectivity, and trail access to several logical destination points is limited. For example, various short segments of HOA-owned internal paths are isolated from the broader trail network and many trail segments are disconnected from nearby public parks. The Township should pursue agreements with HOAs to link private internal paths into the broader public trail network and extend public access to appropriate internal trail segments. Where trail connections are a priority, the Township should pursue public access by acquiring trail easements in HOA open space.

The Township continues to plan for trails expansion on lands where it participates in the acquisition of conservation easements as well as lands acquired in fee. Wherever practicable, safe pedestrian and bicycle access should be provided to facilitate non-motorized access throughout the community and, particularly, as future neighborhood park development is undertaken. The Board of Supervisors has established a Trails Committee, a subcommittee of the Park and Recreation Board, to oversee and promote efforts to extend trails throughout the Township. As discussed above, it is a municipal priority to complete the Brandywine-Struble corridor trail along the Brandywine Creek and the County Seat corridor trail along Route 842.

Several parking facilities are located along existing trail routes and at community parks. Parking areas provide important points of access for residents that must drive to reach the trail network. Facilities vary from paved surfaces, to gravel pull-off areas. Depending on use, some of the existing parking areas may need to be expanded in the future. Adequacy of signage and prominent display trail rules should be periodically reviewed and improved or augmented where necessary.

Trail Maintenance and Security

The Township Public Works department ultimately is responsible for Township trail maintenance. Volunteers also assist with maintenance, including the West Chester Cycling Club. The Chester County Trail Club has a memorandum of understanding with East Bradford Township regarding trail maintenance in selected sections of trails. The Township's goal is to use as much volunteer effort as possible. This volunteer relationship is financially beneficial, but it also promotes a vested interest in the both the general community and the trails community.

Where formal provision for recreational trail access is made across private lands, including HOA-owned lands, landowner liability has specifically been limited by act of legislature (Act 586 of 1987) commonly referred to as the Recreation Act.

Trail Implementation

Trails can be made permanent either through establishment of trail easements or through public acquisition of private land. In East Bradford Township, both methods have been used to secure public access to the broader trail network. Community or municipal trails planning and implementation may be funded through a variety of sources. The most common sources are from county, state and federal grants. In order to qualify for trail funding from any of these sources, the Township should demonstrate that the trails are consistent with relevant County policies outlined in *Linking Landscapes*. Projects that involve multiple municipal applicants are more likely to be awarded funding. For more information on County, State, and Federal grants, the Township should refer to Chapter 1, page 18 of the Trail & Path Planning guide (see Appendix).

Trail Strategies/Recommendations

- 7.1 Continue to promote the establishment of a safe bicycle and pedestrian circulation system throughout the Township, including provision for handicapped and elderly access, linking recreational areas, schools and residential neighborhoods, consistent with Chester County's *Linking Landscapes* and in furtherance of the Township's Comprehensive Plan and Official Map designations.
- 7.2 Continue to acquire lands and easements along the Brandywine-Struble Corridor, and continue to implement a 10 to 12-foot wide multi-use trail along the Corridor from Route 322 north to Harmony Hill Nature Area with connections into West Bradford Township.

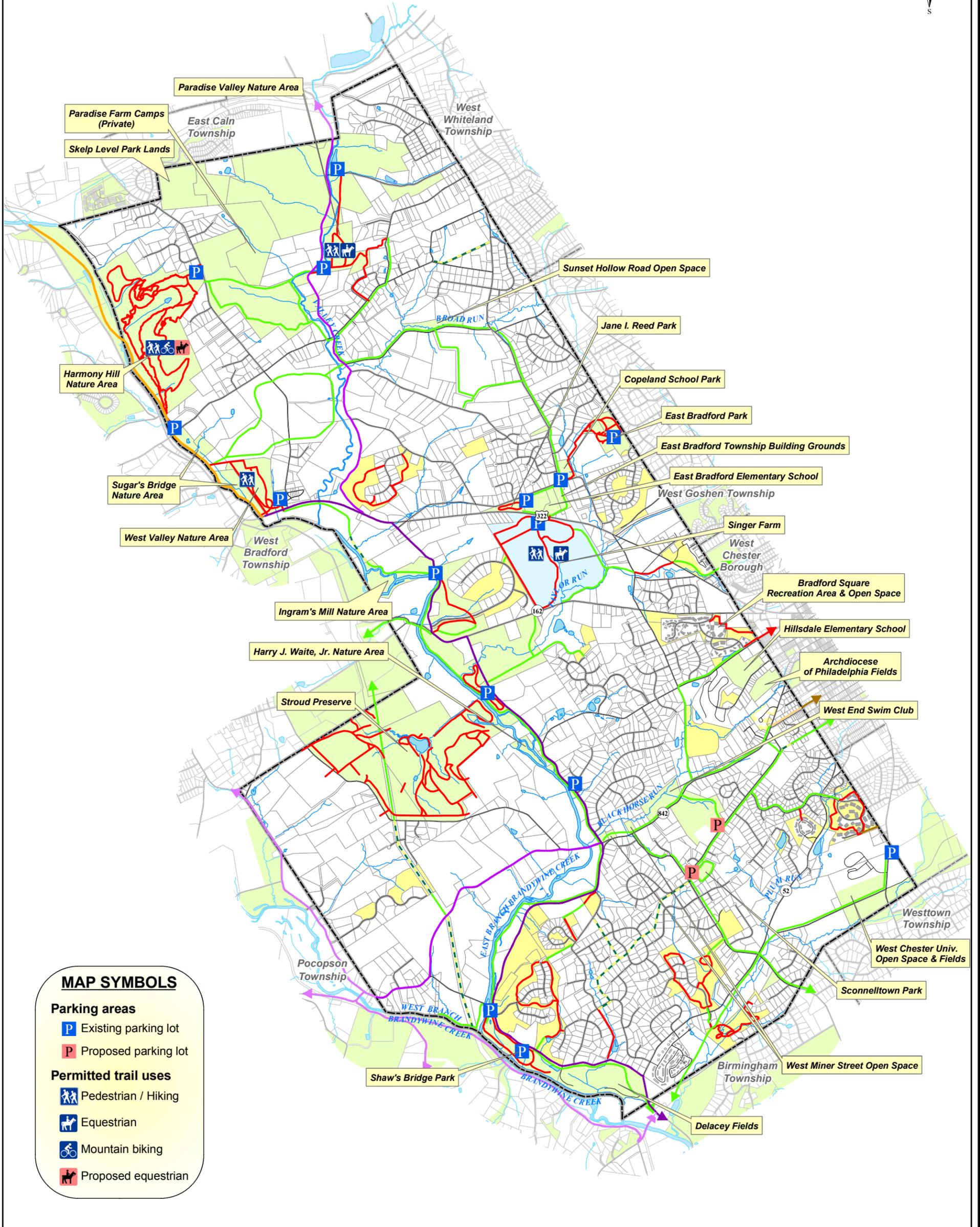
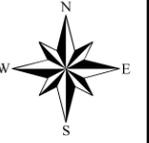
Chapter 7: Trails Plan, June, 2009

- 7.3 Promote coordination with West Bradford and East Caln Townships and Downingtown Borough to formalize and improve interconnection between the aforementioned multi-use trail and the Struble and Chester Valley Trails in Downingtown.
- 7.4 Investigate acquisition of lands and easements along Route 842 to connect the Brandywine-Struble Corridor to West Chester Borough (described in Linking Landscapes as the County Seat Corridor).
- 7.5 Continue to consider measures to identify and formalize traditional bicycle routes through the Township. Several low volume roadways that are currently utilized by bicyclists should be formalized as signed bicycle routes, where appropriate. Whenever feasible, traditional bicycle routes should feature widened shoulders to facilitate bicycle use along-side vehicular traffic.
- 7.6 Continue to pursue preservation of the Brandywine Trail as a traditional hiking route along the Brandywine Creek, coordinating with the Chester County Trail Club. Seek to expand public accessibility to the trail, promote appropriate maintenance, and to identify opportunities for acquisition of lands and easements along the trail in order to eliminate the need to obtain permission from private property owners.
- 7.7 Continue to pursue memoranda of understanding with interested hiking and biking clubs, private and public organizations, and special interest clubs for trail maintenance.
- 7.8 Pursue trail easement agreements with HOA owners to link private internal paths into the broader trail network where appropriate.
- 7.9 Develop consistent logos and signage for community parks and trails to help identify trailheads, parking facilities, and to display trail rules.
- 7.10 Periodically update the Township *Trails Plan* map consistent with the recommendations of this plan update and with Chester County's Trail & Path Planning guide. This map should include a functional classification of trails, including: bicycle routes; multi-use trails; multi-use paths; pedestrian paths; equestrian paths; HOA internal paths; and sidewalks.
- 7.11 Annually evaluate the *Recreational Lands & Facilities* map and *Trails Plan* maps to identify "missing links" in the Township's trail and bikeway system.
- 7.12 Facilitate regional coordination and involvement in trails planning as a transportation strategy in order to enhance eligibility for multi-municipal Transportation Enhancement Act (TEA) grants to fund new trail projects.
- 7.13 Consider pursuit of opportunities to provide linkages to facilities in other municipalities and maximize multi-municipal cooperation.
- 7.14 Continue to take advantage of all available means to leverage local funding with County, State, and Federal trails grants in order to realize a maximum benefit.
- 7.15 Pursue DCNR funding to prepare a Trails Feasibility Study and Master Plan for new multi-use trail segments. The DCNR requires a Master Plan in order for the

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- Township to qualify for DCNR trail implementation grants.
- 7.16 Prepare preliminary cost estimates for completion of the trail network, and assemble a phasing plan for on-going trails development and right-of-way acquisition.
 - 7.17 Establish and maintain a multi-year budget and timetable for the development, maintenance, improvement and renovation of all Township trail facilities.
 - 7.18 Establish a permanent link on the Township's web site showing the location, site plan, available facilities and programs, and operational rules of each component of the Township's trail system. Provide a written feature in the Township newsletter highlighting the community trails network and promoting appropriate trail use.

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MAP SYMBOLS

Parking areas

- Existing parking lot
- Proposed parking lot

Permitted trail uses

- Pedestrian / Hiking
- Equestrian
- Mountain biking
- Proposed equestrian

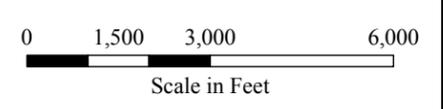
Legend

- Roads
- Streams
- Water resources
- Tax parcels
- Township boundary
- Existing trails (~23.9 mi.)
- Proposed future trails (~25.2 miles)
- Existing HOA trails (~5.7 mi.)
- Proposed future HOA trails (~1.5 mi.)
- Existing signed bike routes (~6.02 miles)
- Proposed future bicycle path (~4.4 mi.)
- Existing sidewalks (~0.1 miles)
- Proposed future sidewalks (~0.2 miles)
- Existing trail right-of-way / easement, not formally open (3.7 mi.)
- Future multi-use Brandywine Trail (~2.23 mi.; partly in West Bradford Township)
- Homeowners Association (HOA) open space lands
- Other open space lands
- 15 year term conservation and trail easements

** Note: Refer to recreation map for open space property classification details.*

Map 7-1 Trails Plan

East Bradford Township Open Space Plan



Brandywine Conservancy
Environmental Management Center
P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Protected lands from Chester County Planning Commission, 2005 (revised by Brandywine Conservancy, 05/08/07).

Date created: January 1, 2009

Chapter Eight Recreation Plan

Introduction

This Chapter specifically summarizes and updates the *East Bradford Township Recreation Plan of 2005* (hereinafter called the 2005 Recreation Plan), adopted by the Board of Supervisors as an addendum to the 2004 East Bradford Township Comprehensive Plan. The 2005 Recreation Plan examines recreational opportunities available to East Bradford Township residents, both within and outside the Township, and recommends both policy and action on the part of the Township to satisfy the recreational needs of its residents. A summary of the 2005 Recreation Plan is provided below.

Standards for Recreation Lands and Facilities

The 2005 Recreation Plan generally classifies open space and recreation lands and facilities as “passive” or “active”. Passive recreation areas are described as areas focused on enjoyment of natural, scenic or historic resources containing limited recreation equipment, facilities, and structures. Prevalent activities in passive recreation areas include hiking, fishing, bird-watching and picnicking, and require limited formal programming. In contrast, active recreation areas are usually focused on organized activities such as team sports, and include active field and court facilities or large-scale playground equipment. Many parks include areas for both active and passive recreational activities. A full discussion of park and recreation facilities including a detailed discussion of regional parks, subregional parks, community parks, neighborhood parks, and sub-neighborhood parks may be found in the 2005 Recreation Plan.

In order to assess relative park and recreation needs, the 2005 Recreation Plan reviewed park and recreational standards and recommendations set forth in *Linking Landscapes*, the Open Space Plan element of Chester County’s Comprehensive Plan. Population-based standards were analyzed as they relate to a general measure of need for parks and recreation facilities. Service area radii and standards for a variety of recreational facilities are also articulated in the 2005 Recreation Plan. Greenways and Trails facilities also are discussed in the 2005 Recreation Plan, and are respectively addressed in Chapters 6 and 7 of this Plan.

Recreation Programming

East Bradford Township residents are served by a wide variety of recreational programs. The 2005 Recreation Plan outlines individual opportunities available to a variety of ages, interests, and capabilities. Many are operated beyond the bounds of the Township. East Bradford is fortunate to have programs available relatively nearby in the West Chester and Downingtown areas. Most programs are offered based on local demand. To the extent they are not limited by facility constraints, existing programs are flexible enough to meet changing needs over time.

Other than the limiting factor of transportation that impacts some young, elderly, and

handicapped individuals, existing programming agencies appear to be offering sufficient recreational opportunities for East Bradford residents at this time. Although the total population might be expected to increase to as high as 12,400 by 2025, special population groups within the Township are still not likely to comprise sufficient members to justify provision of highly specialized recreational programming.

According to the Chester County Planning Commission's population analysis, East Bradford Township has reached that population threshold where, in theory, it can be argued that there is a need for a full-time Recreation Director, clearly a major budgetary consideration. However, recognizing that East Bradford is not an isolated municipality of 10,000 plus population, but is part of the larger West Chester area community, coordination of such a role within the larger community should adequately meet this need, including enhanced coordination and cooperation with other public agencies and with private and quasi-public agencies such as the West Chester Area School District, local fire companies, churches, and social and athletic organizations. Working together, and with the assistance of full time Township staff, those organizations with responsibility and interest in recreational programs might plan for and implement recreation program use of available recreational lands and facilities to the maximum benefit of East Bradford residents.

East Bradford Township may be able to assist in providing opportunities for recreational programming by monitoring recreational demand, encouraging access for local residents to facilities and programs provided by others, informing appropriate programming agencies when and where potential gaps in recreational service appear to exist, and monitoring need for future municipal action. Such efforts would ensure that all sectors of the community are adequately served.

Inventory of Existing Recreation Conditions

Regional Parks

The 2005 Recreation Plan concluded that East Bradford residents were well served by the many regional parks within a one-hour driving radius, including the following four Pennsylvania state parks: Marsh Creek (Chester Co.), Ridley Creek (Delaware Co.), French Creek (Berks and Chester Counties) and Evansburg (Montgomery Co.), as well as the Valley Forge State Forest, District #17, Philadelphia's Fairmount Park system, the bi-state White Clay Creek Preserve (Chester Co., Pa. and New Castle Co., De.), Delaware's adjacent Walter S. Carpenter State Park, Delaware's Lum's Pond State Park, and Maryland's Elk Neck State Park and Fair Hill Natural Resources Area. Residents are known to take advantage of the vast recreational resources of the Chesapeake Bay, which at its closest point is less than a one hour drive from East Bradford Township.

Subregional Parks

Driving times to sub-regional parks range from 15 minutes to the Struble and Chester Valley Trails, to 20 – 25 minutes to Hibernia Park, the Springton Manor Farm interpretive park, and Delaware's Brandywine Creek State Park. All offer a variety of recreational opportunities as outlined in the 2005 Recreation Plan. Chester County's large undeveloped park site located in West Whiteland Township will ultimately bring subregional park service within even closer

proximity of East Bradford residents.

Community Parks and Recreation Facilities

East Bradford residents are served by community recreation facilities throughout the broader West Chester community. Since the completion of the 1993 Plan, the Township has undertaken the further development of a significant local park system. Recreational development varies widely from park to park and few fit neatly into “community” or “neighborhood” park definitions. The following inventory summarizes local park and recreation facilities within East Bradford; all are shown on the *Recreational Lands & Facilities* map. Included are a number of preserves, nature areas and other open space, park and recreational sites not designated as community or neighborhood parks, but which serve to augment local recreational opportunities.

Inventory of Community/Neighborhood Parks (owned by East Bradford Township):

East Bradford Park

Tax parcels: 51-5-22.1 and 51-5-1132
Acreage: 25.9 acres
Active recreation
Adult league baseball field
Little league baseball field
Multi-purpose/soccer field
3 Tennis courts*
Picnic pavilion
Picnic gazebo
Amphitheater
Storage building with rest rooms
Walking trails with connection to Copeland School Park
Parking

Paradise Valley Nature Area

Tax parcel: 51-2-116
Acreage: 32.8 acres
Passive recreation
Picnic tables and bench
Stream crossing to open fields
Fishing access to Valley Creek
Parking limited

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Shaw's Bridge Park

Tax parcel: 51-7-122
Acreage: 37.3 acres
Passive recreation
Picnic tables
Open field
Walking trails
Restroom
Bird viewing platform
Access to Brandywine Creek

Skelp Level Park Lands

Tax parcel: 51-2-21.2
Acreage: 42 acres
Future active recreation
Open fields

Copeland School Park

Tax parcel: 51-5-21
Acreage: 7.3 acres
Active recreation
Little League baseball field
Multipurpose field
Basketball court
Porta-potti
Walking trail connection to East Bradford Park
Parking area

East Bradford Township Building Grounds (including old Copeland schoolhouse)

Tax parcel: 51-5-12.1
Acreage: 7.4 acres
Space available for community meetings, programs, special events

Jane I. Reed Park

Tax parcel: 51-5-12.2
Acreage: 9.7 acres
Passive recreation
Picnic grove with pavilion
Trails/exercise course
Tot play area / kiddie bouncers
Porta-potti
Parking

Sconnelltown Park

Tax parcel: 51-7-82
Acreage: 8.1 acres

Undeveloped; future passive park

Other Open Space/Recreational Facilities

Harry J. Waite, Jr. Nature Area (East Bradford Township)

Tax parcel: 51-7-8.1

Acreage: 14.4 acres

Passive recreation

Fishing access to east branch of Brandywine Creek

Parking

Sunset Hollow Road Open Space (East Bradford Township)

Tax parcel: 51-3-14.9A

Acreage: 12.5 acres

Open space

West Miner Street Open Space (East Bradford Township)

Tax parcels: 51-7-15.5, 51-7-15.6L and 51-7-15.6M

Acreage: 5.7 acres

Open space

Singer Farm Trails (15-year Township easement to 2012)

Tax parcels: 51-5-37 and 51-5-43

Acreage: 22.8 acres

Open space

Walking trails

Parking

Ingram's Mill Nature Area (East Bradford Township)

Tax parcel: 51-4-44.1

Acreage: 38 acres

Passive recreation

Picnic tables and benches

Trails easements provided with future trail connection to Brandywine Trail planned

Parking (additional future parking planned)

Harmony Hill Nature Area (East Bradford Township)

Tax parcel: 51-2-9

Acreage: 238.4 acres

Future location of a portion of the East Branch Brandywine Trail

Pedestrian and mountain biking trails

Parking

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Sugar's Bridge Nature Area, (East Bradford Township)

Tax parcels: 51-4-1, 51-4-3, 51-4-4

Acreage: 33.7 acres

Future location of a portion of the East Branch Brandywine Trail and trail connections into West Valley Nature Area (above)

Schramm Property, (East Bradford Township)

Tax parcel: 51-7-78, part

Acreage: 39.0 acres

Future trails development and parking area with trail/path connection to Scconnelltown Park

East Bradford Elementary School (WCASD)

Tax parcel: 51-5-12 & 51-5-12.1A

Acreage: 18.1 acres

3 multipurpose fields

2 basketball courts

2 tot playgrounds

Gymnasium/indoor space

Parking

Hillsdale Elementary School (WCASD)

Tax parcel: 51-5-94.3

Acreage: 20.8 acres

2 multipurpose fields

2 basketball courts

Tot playground

Gymnasium/indoor space

Parking

Archdiocese of Philadelphia Field (used by St. Agnes Parish CYO)

Tax parcel: 51-5R-10

Acreage: 11.4 acres

1 football & 1 multipurpose field

Track

Delacy Fields (Leased by Brandywine Picnic Park & West Chester United Soccer Club from private landowner – private fields; public rental use available)

Tax parcel: 51-7-123

Acreage: 57.5 acres total – approximately 20 acres recreation fields

1 baseball/softball fields , 5 soccer fields

West End Swim Club (private recreation area, public rental use available)

Tax parcel: 51-7-13

Acreage: 19.8 acres

Swimming lake and pool

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Tennis court
Volleyball court
Picnic pavilions and special events area

Stroud Preserve (Natural Lands Trust)

Tax parcels: 51-5-45.34-E, 51-4-40-E, 51-5-72.2-E, 51-5-45.35-E, 51-5-68-E,
51-4-58.1-E, 51-5-69, 51-6-12-E, 51-6-14-E
Acreage: 530.1 acres
Walking trails
Parking

West Valley Nature Area (owned by PECO; eased by Brandywine Conservancy; leased annually by West Chester Fish, Game & Wildlife Association)

Tax parcel: 51-4-5
Acreage: 38.9 acres
Walking trails
Open space

Thompson Property (part East Bradford Township, part private subject to conservation easement)

Tax parcel: 51-2-110.1
Acreage: 6.1 acres
Walking trails

Township Conservation Easements with Recreational Trails

Cammarato Property

Tax parcel: 51-4-33
Future location of a portion of the East Branch Brandywine Trail

DeFrenes Property

Tax parcels: 51-2-110.2 and 51-2-110.2A
Trail Easement

Bond Property

Tax parcel: 51-5-1133
Easement for trail linking Copeland School and East Bradford Parks

Paradise Farms Camp (Children's Country Week Association)

Tax parcel: 51-2-21, 51-2-23, 51-2-23.1, 51-2-24.2, 51-2-26, 51-2-97, 51-2-106,
and 51-2-107
Future trails

Oven Farm

Tax parcels: 51-5-85, 51-85.3
Future location of a portion of the East Branch Brandywine Trail

Armstrong Property

Tax parcel: 51-5-116

Future location of a portion of the East Branch Brandywine Trail

Homeowners Association Recreational Facilities

Bradford Square Recreation Area & Open Space

Tax parcel: 51-5-86.4, 86.5, 86.6, 86.8, 86.9

Acreage: 27.3 acres

2 tennis courts

Walking/jogging path

Passive open space

Significant additional open space and recreation facilities exist in areas of conserved open space on privately owned land, although often with limited or no public access. East Bradford residents also cross municipal lines to use other community park and recreation facilities in West Chester, West Goshen, Westtown, East Goshen, Downingtown, and elsewhere, including the facilities of the Brandywine Valley YMCA.

Recreation Programs

East Bradford residents participate in a wide range of recreational programs available throughout Chester County. In addition to public programs residents of all ages are served by a number of well-organized private clubs and quasi-public agencies. These include programs offered through organizations such as youth and adult athletic leagues, senior centers, local churches, 4-H Clubs, Boy and Girl Scouts troops, Garden Clubs, Lions Clubs, Elks, Eagles, Rotary Clubs, Masonic Lodges, local branches of the YMCA and YWCA, and American Legion posts. A listing of Athletic Leagues and a full description of the programs offered is set forth in the 2005 Recreation Plan.

Community Parks and Recreation Facilities Assessment

The population figures identified in Chapter 3 were applied to the community and neighborhood park standards set forth in the 2005 Recreation Plan. The result was a 2005 estimated need of 82 acres of community and neighborhood parkland in East Bradford, increasing to 99 acres by the year 2025. In 2005, East Bradford boasted 66 acres of developed community and neighborhood parkland with an additional 138 acres of parkland designated for future development. With recent acquisitions, by the end of 2008, the Township possessed approximately 575 acres of parkland and open space, available for active and passive recreation, clearly in excess of any population-based acreage standards.

In terms of service area standards, most Township residents live within a 2.5-mile service area radius of community parkland with a range of recreational opportunities. Ideally, neighborhood parks offer a walking and bicycle service area radius of one-half mile, yet this need is supplanted through much of East Bradford by backyard recreational opportunities.

Community and neighborhood parkland developed for active recreational use is largely concentrated in the east-central part of the Township. Further active recreational development, designed to meet the facilities needs discussed below, should strive for further geographical distribution of active recreational opportunities. Additional neighborhood park development, where feasible, should focus on underserved portions of the R-3 and R-4 zoning districts, where smaller lot sizes and multi-family development have limited backyard recreational opportunities.

Recreational Facilities Needs

As described above, individual recreational facilities are dispersed among several existing recreation sites. The 2005 Recreation Plan applied population-based standards to identify current and projected needs for recreational facilities which can be compared with existing facilities. The 2005 Recreation Plan identified the following needs:

- 5 baseball/softball fields in 2005 with a projected need for 6 fields by 2025. The Township currently provides 3 public fields and 1 quasi-public field is available (since adoption of the 2005 Plan, one additional quasi-public field was eliminated at the Delacy Fields). Two additional baseball/softball fields are needed to meet projected needs by 2025. Continued availability of the remaining quasi-public field should be monitored.
- 9 football/soccer fields in 2005 with a projected need for 11 fields in 2025. The current inventory includes 2 public and 12 quasi-public fields (since adoption of the 2005 Plan, two additional quasi-public fields were added at the Delacy Fields) which is sufficient to meet projected needs into 2025 so long as dependence upon use of quasi-public fields can continue to be relied upon. Further field development may be necessary to reduce dependence upon quasi-public facilities.
- 5 tennis courts in 2005 with a projected need for 6 courts in 2025. Today there are 3 public (one added at East Bradford Park) and 2 quasi-public tennis courts. Thus, current needs arguably are met, with one additional court needed to meet projected needs by 2025; further development of tennis courts also may be necessary to reduce dependence upon quasi-public facilities.
- 4 basketball courts in 2005 with a projected need for 5 courts in 2025. With current inventories at 1 public and 6 quasi-public, current and projected needs are met so long as dependence upon use of quasi-public courts can continue to be relied upon. With only one of six courts formally public, additional basketball court development probably is necessary.
- Neither the 2005 need for 3 nor the projected need for 4 volleyball courts in 2025 are being met by the inventoried 0 public facilities and 1 private membership facility. Further facility development is needed.

Public recreational facilities alone clearly do not meet standards. As shown above, significant quasi-public recreational facilities augment public facilities in East Bradford, most notably at the

two elementary schools and the Delacy fields. While there are some limitations to public access, these facilities can reasonably be viewed as at least partially meeting public recreational needs. Additional private and limited-access facilities also exist within the Township and throughout the greater West Chester area.

Recreation Strategies/Recommendations

- 8.1 With the Parks and Recreation Board as the lead party, monitor community recreation needs on an ongoing basis, seeking to provide a mix of active and passive recreational opportunities. Particular attention should be paid to potential gaps in recreation service to specific population groups, especially those that tend to be transportation dependent, such as senior citizens and youth.
- 8.2 Monitor, promote and facilitate access for Township residents to use of quasi-public recreational facilities, particularly those of the West Chester Area School District, West Chester University, Paradise Farms, the Stroud Preserve, the West Valley Nature Area, and the Delacy Fields.
- 8.3 Further monitor and promote the potential for cooperative efforts with neighboring municipalities to improve and expand community recreational opportunities available to East Bradford residents.
- 8.4 Establish a process, including funding support, for master planning and ultimate development of additional community park facilities at existing parks and undeveloped park sites, distributing facilities geographically so as to balance recreational opportunities available to residents throughout the Township. For these purposes, additional community park acquisition may not be necessary. Where appropriate, prospective user groups – particularly organized sports leagues – may be relied upon for funding and development support. For purposes of serving the needs of East Bradford residents, the active and passive recreational facilities outlined below should be incorporated into community park development through the year 2025. The recommended numbers of specific facility types are based on the needs analysis described above and assume that existing quasi-public recreational facilities are, on average, available to unrestricted public use about half the time:
 - 2 or 3 Little League baseball fields (or 1 or 2 Little league and one Adult league);
 - Concession building at new field location(s);
 - Rest rooms (at two parks);
 - 4 Soccer fields (multipurpose);
 - 2 Tennis courts (could be one at each of two locations or two at one location);
 - 3 sand pit Volleyball courts;
 - 2 Basketball courts (could be at well-located Neighborhood Parks);
 - Large, well-located play apparatus;
 - 2 Picnic pavilions with tables and grills (at two parks);
 - Parking (at two parks);
 - Landscaping in all new park development areas;
 - Accompanying paths or sidewalks, lighting, signage, waste receptacles,

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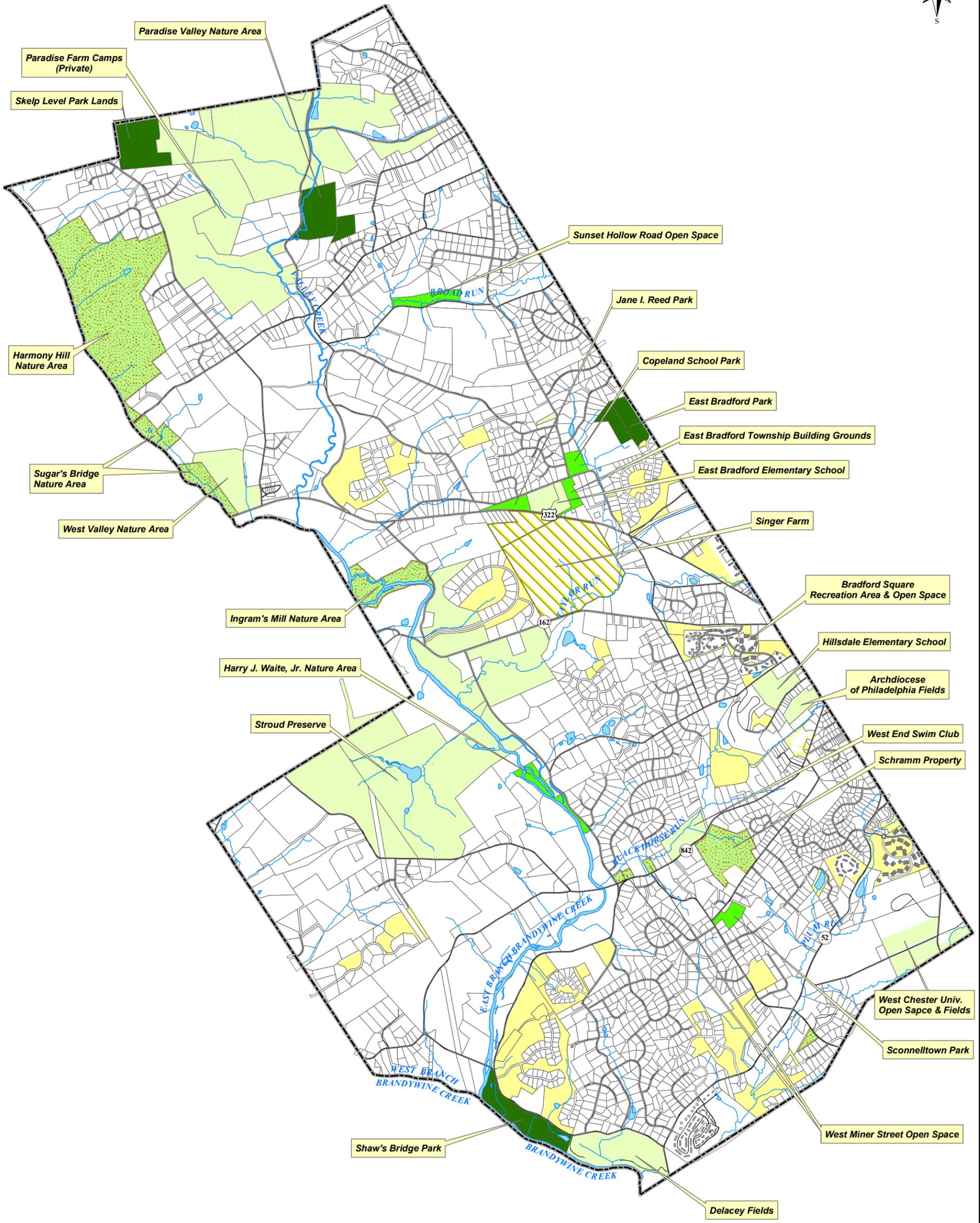
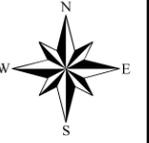
landscaping, stormwater controls, etc., as appropriate at each park.

- 8.5 Establish a process, including funding, for master planning and ultimate development of additional neighborhood park facilities. Ideally, it is desirable to provide a range of recreational facilities within an approximately one-half mile service area radius of residents concentrated on lots of one acre or less and in multi-family developments. The 2005 Recreation Plan identified four areas where neighborhood park service might be improved, located in the northeast, southeast, southwest and south-central portions of the Township. Existing undeveloped park sites could potentially be utilized, including the Sconnelltown Road parksite and the recently acquired Schramm property. Alternative locations could result from negotiation of use of HOA lands (e.g., at Steeplechase or Brandywine Overlook) or through use of private recreational open space such as at the West End Swim Club property or the Delacey Fields. Improved bicycle and pedestrian access could extend the effective service area of any one site. Ideally, each neighborhood park service area should benefit from access to the following facilities, whether located at one or more sites:
- Multipurpose field (not for organized active sports use);
 - Basketball court (if not located at appropriate Community Park(s));
 - Play apparatus;
 - Gazebo (small pavilion) or shaded seating area;
 - Trails/exercise course ;
 - Parking ;
 - Accompanying paths or sidewalks, security lighting, signage, waste receptacles, stormwater controls, etc., as appropriate at each park;
 - Landscaping in all new park development areas, including landscape buffering to limit impact to neighboring residential properties.
- 8.6 Continue to monitor the collection and use of fees-in-lieu of open space dedication from both residential subdivisions and non-residential land developments. Such funds should be earmarked for specific open space and recreation needs identified herein, which will serve the area under application for development. It should be noted that most community recreational development, including trails, can reasonably be argued as serving all areas of the Township.
- 8.7 As discussed more fully in the Trails Plan (Chapter 7), continue to promote the establishment of a safe bicycle and pedestrian circulation system, including provision for handicapped and elderly access, linking recreational areas, schools and residential neighborhoods throughout the Township and into the Borough of West Chester.
- 8.8 Ensure that any subdivision or land development proposal, potentially impacting an identified recreational need, is reviewed by the Parks and Recreation Board with an opportunity to provide comments on their review to the Planning Commission and Board of Supervisors during the plan review and approval process.
- 8.9 In periodic evaluation of the Township's Official Map, consider further reservation of future park sites and open spaces which may be determined necessary to meet the recommendations set forth herein.
- 8.10 Establish and keep up-to-date a regular, multi-year schedule for the development,

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maintenance, improvement and renovation of all Township recreational facilities, and establish and/or continuously update, as needed, use and maintenance agreements between the Township and those entities using Township facilities for recreational programs.

- 8.11 Continue to regularly update the Township's web site, including links showing the locations and site plans of each component of the Township open spaces and park system, available recreational facilities and programs, and operational rules. Open space, park and recreational facilities should similarly be highlighted periodically in the Township newsletter.

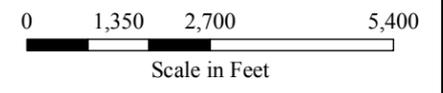


Legend

Roads	Other Township open space
Streams	Homeowners Association open space and open space restricted by deed or subdivision plan
Bodies of water	Other open space lands
Tax parcels	15 year term conservation and trail easements
Township boundary	<i>* Note: See Trails Plan for trail locations.</i>
Community parks / park sites	
Neighborhood parks / park sites	

Map 8-1 Recreational Lands & Facilities

East Bradford Township Open Space Plan



Brandywine Conservancy
 Environmental Management Center
 P.O. Box 141 Chadds Ford, Pennsylvania 19317 (610) 388-2700

Data Source: Base data from Chester County GIS Department, 2007. Protected lands from Chester County Planning Commission, 2005 (revised by Brandywine Conservancy, 05/08/07).

Date created: January 1, 2009

Chapter Nine Implementation

Introduction

This chapter summarizes all of the recommendations made in the four plan chapters: Natural & Cultural Resources Plan, Greenways Plan; Trails Plan, and Recreation Plan. Overlapping recommendations between the several topics have been combined. In each case, the relevant objectives set forth in Chapter 2 are referenced and chapter and page references are given so that the complete text may be reviewed without being entirely re-stated here. For each recommendation, a recommended time frame (or priority) for implementation is suggested in italics, whether on-going, immediate (i.e., urgent), short-term, or long-term. In addition, lead responsible agency or party is noted, in some cases multiple, using the following italicized acronyms:

BOS – Board of Supervisors
EAC – Environmental Advisory Council
HC – Historical Commission
ORB – Open Space Review Board
PC – Planning Commission
PennDOT – Pennsylvania Department of Transportation
P&R – Park and Recreation Board
TC – Trails Committee
Traffic – Traffic Committee
Staff – Township Staff
ZHB – Zoning Hearing Board

Following the summary recommendations is a summary of potentially available funding mechanisms, in addition to Township general funds, which are discussed in Chapter Three. Finally, the implementation recommendations here are summarily charted by recommended time frame.

Land Preservation

The Township should:

- 9.1 Use the *Future Open Space Protection Priorities* map developed for this Plan as a general guide for designation of future open space on the Official Map. This will address Objectives N 1, N 6, H 2, S 1 and R 4, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2, 3 and 5 and Chapter 5, pages 2, 3, 4 and 7) *Ongoing* – *ORB, BOS, Staff*
- 9.2 Continue to acquire conservation interests in mapped priority open spaces, with particular attention to opportunities to connect open space along mapped greenway and trail corridors. This will address Objectives N 2, N9, C 1, R 7, as set forth in Chapter 2

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(See discussion in Chapter 2, pages 2, 4 and 5, Chapter 5, pages 5-7, Chapter 6, pages 1-7 and Chapter 7, pages 5 and 6) *Ongoing – ORB, TC, BOS*

- 9.3 Continue to leverage funds for the acquisition of conservation interests and development of trails and recreational facilities with funds available from federal, state, county, and private resources, utilizing this Plan to increase the township's competitive position relative to other applicants. This will address Objective D 5 as set forth in Chapter 2 (See discussion in Chapter 2, page 6, Chapter 5, page 7 and Chapter 7, pages 5 and 6) *Ongoing – Staff, BOS*

Natural & Cultural Resource Protection

The Township should:

- 9.4 Promote action by private landowners to maintain natural and cultural resources, including active agricultural lands, acting as an informational resource. Consider assisting landowners in designated Agricultural Security Areas to sell their development rights under the county purchase of development rights program. This will address Objectives N 1 and N 10, as set forth in Chapter 2 (See discussion in Chapter 2, page 2 and Chapter 5, pages 6, 8, 9 and 12) *Ongoing – Staff, All ABC's as applicable*
- 9.5 Continue to guide land development activities so as to preserve natural and cultural resource values and promote formal open space designation and management. This will address Objectives D 1, D 3 and D 5, as set forth in Chapter 2 (See discussion in Chapter 2, pages 5 and 6, and Chapter 5, page 9) *Ongoing – PC, HC, EAC*
- 9.6 Continue to promote and enforce successful implementation of water quality Best Management Practices (BMPs), and mitigation of negative stormwater impacts. This will address Objectives N 4 and D 7, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2 and 6, Chapter 4, page 10, and Chapter 5, page 9) *Ongoing – Staff, PC, EAC*
- 9.7 Consider the potential use of a local or regional authority which may be set up to manage and monitor the performance of stormwater facilities. This will address Objectives N 4 and D-7, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2 and 6, and Chapter 5, page 9) *Long-term – Staff, BOS*
- 9.8 Promote Best Management Practices for forest management and reforestation of woodlands, riparian buffers and greenways. This will address Objective N 7, as set forth in Chapter 2 (See discussion in Chapter 2, page 2, Chapter 5, pages 8, 10 and 11, and Chapter 6, page 6) *Ongoing – EAC*
- 9.9 Continue to promote the implementation of the BVA "Red Streams Blue" program, including implementation of stream restoration plans. This will address Objectives N 4 and D 7, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2 and 6, Chapter 4, pages 9 and 10, and Chapter 5, pages 7 and 11) *Ongoing – EAC, Staff*
- 9.10 Monitor and participate in regional planning efforts, partnering with other agencies and

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organizations where appropriate to promote resource protection and management. Such planning efforts include, but are not limited to: efforts to restore native and migratory fish to the Brandywine watershed; the Brandywine Valley Scenic Byway; and the proposed Brandywine National Heritage Area. This will address Objectives H 5, S 5, C 4 and D 2, as set forth in Chapter 2 (See discussion in Chapter 2, pages 3, 4 and 5, Chapter 5, page 8, and Chapter 6, page 6) *Ongoing/Long-term – Staff, EAC, PC, BOS*

- 9.11 Facilitate wildlife crossings where greenways intersect roadways, particularly where roadway improvements are made. This will address Objectives N 2 and N 9, as set forth in Chapter 2 (See discussion in Chapter 2, page 2, Chapter 5, page 8, and Chapter 6, page 6) *Long-term – EAC, Staff, PennDOT*
- 9.12 Continue to promote sustainable wildlife management programs. This will address Objectives N 2, N 3 and N 9, as set forth in Chapter 2 (See discussion in Chapter 2, page 2, Chapter 4, page 4, Chapter 5, pages 8, 9 and 12, and Chapter 6, page 6) *Ongoing – Staff, EAC*
- 9.13 Promote stream clean up. This will address Objective N 4, as set forth in Chapter 2 (See discussion in Chapter 2, page 2 and Chapter 6, page 7) *Ongoing – Staff, EAC*
- 9.14 Continue to promote “determination of eligibility” for additional individual listings and potential extension of historic districts listed in the National Register of Historic Places. This will address Objective H 1, as set forth in Chapter 2 (See discussion in Chapter 2, page 3, Chapter 4, pages 4 through 17, and Chapter 5, page 8) *Ongoing – HC*

Local Regulation

The Township should:

- 9.15 Regularly review the effectiveness of Township regulation of natural and cultural resources, and consider revision to or extension of existing regulation and policy where necessary to further promote resource protection and impact mitigation. This will address Objectives N 5, H 4, S 3, and D 4, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2, 3, and 6, Chapter 4, pages 2 through 19, and Chapter 5, pages 8 and 10) *Ongoing – Staff, PC, EAC, HC, BOS*
- 9.16 Continue to review and consider periodic revision to designation, mapping and regulation of scenic roads and landscapes. This will address Objectives S 1, S 2, and S 3, as set forth in Chapter 2 (See discussion in Chapter 2, page 3, Chapter 4, pages 14 and 15, and Chapter 5, pages 8 and 11) *Ongoing – Staff, BOS*
- 9.17 Review and revise both SALDO and Zoning provisions where necessary to maintain consistency of land use regulation. This will address Objectives N 1 and D 4, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2 and 6, and Chapter 5, pages 10 and 11) *Immediate – Staff, PC, ZHB*
- 9.18 Continue to use the Conditional Use approval process as a vehicle for the Board of Supervisors to achieve implementation of long-term resource protection and

management objectives. This will address Objectives D 3 and D 4, as set forth in Chapter 2 (See discussion in Chapter 2, page 6, and Chapter 5, page 10) *Ongoing – Staff, BOS*

- 9.19 Consider new woodland protection regulations that link disturbance limitations to woodland classification. This will address Objective N 7, as set forth in Chapter 2 (See discussion in Chapter 2, page 2, Chapter 4, page 7, and Chapter 5, page 11) *Short-term – EAC, BOS*
- 9.20 Consider developing regulations for timber harvesting operations, including plan submission and permit requirements. This will address Objective N 7, as set forth in Chapter 2 (See discussion in Chapter 2, page 2, Chapter 4, page 7, and Chapter 5, page 11) *Immediate – EAC, Staff, BOS*
- 9.21 Consider the addition of standards and procedures for modification of Riparian buffer and vegetation management regulation, to minimize the need for zoning variance requests. This will address Objectives N 2 and N 5, as set forth in Chapter 2 (See discussion in Chapter 2, page 2, Chapter 5, page 11) *Short-term – BOS*
- 9.22 Consider enactment of additional resource protection regulation to require or promote conservation of ridgelines, headwaters, hydric soils, forest interiors, riparian buffers, greenway corridors, and groundwater supply. This will address Objectives N 1, N 2, N 4, N 5, and S 1, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2 and 3, Chapter 5, page 11, and Chapter 6, pages 5 and 6) *Short-term – EAC, PC*
- 9.23 Consider requesting that the Pennsylvania Historical and Museum Commission (PHMC) certify extension of the purview of the Township Historical and Architectural Review Board (HARB) over additional historic districts listed in the National Register of Historic Places. This will address Objective H 4, as set forth in Chapter 2 (See discussion in Chapter 2, page 3, Chapter 4, page 19, and Chapter 5, pages 8 and 10) *Long-term – HC, BOS*

Park, Recreation and Trails Development & Management

The Township should:

- 9.24 Monitor community recreation needs, seeking to provide a mix of active and passive recreational opportunities for all population groups. This will address Objective R 1, as set forth in Chapter 2 (See discussion in Chapter 2, page 4, and Chapter 8, pages 10 and 11) *Ongoing, P&R*
- 9.25 Continue to promote the establishment of safe bicycle, equestrian, and pedestrian movement throughout the Township. This will address Objectives C 1 and R 7, as set forth in Chapter 2 (See discussion in Chapter 2, pages 4 and 5, Chapter 7, pages 4 and 5, and Chapter 8, page 11) *Ongoing – TC, PC*

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- 9.26 Pursue trail easements or use agreements with HOA organizations to link trails on HOA lands into the broader trail network and further extend public access where appropriate. This will address Objectives C 1, R 2, and R 3, as set forth in Chapter 2 (See discussion in Chapter 2, pages 4 and 5, and Chapter 7, page 6) *Ongoing – TC, Staff*
- 9.27 Monitor and promote cooperative efforts with neighboring municipalities and other local recreation facilities and providers to improve and expand community recreational and trail use opportunities. This will address Objective R 7, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, page 6, and Chapter 8, page 10) *Ongoing – Staff, P&R*
- 9.28 Consider measures to establish signed bicycle routes on appropriate low traffic volume roadways throughout the Township. This will address Objectives C 1, C 3, and R 7, as set forth in Chapter 2 (See discussion in Chapter 2, pages 4 and 5, and Chapter 7, pages 1 and 6) *Long-term – TC, Traffic*
- 9.29 Establish a process and funding support for master planning for future recreational development at Township open spaces, parks, recreation facilities, and trails as described in Chapter 8. This will address Objectives R 3, R 6, and R 7, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, page 6, and Chapter 8, page 11) *Short-term – Staff, P&R, BOS*
- 9.30 Implement planned recreational and trails development consistent with this Plan and the master planning efforts undertaken pursuant to recommendation #9.29 above. This will address Objectives R 6 and R 7, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, pages 5, 6 and 7, and Chapter 8, pages 9 through 12) *Long-term – Staff, P&R, BOS, Volunteer User Groups*
- 9.31 Continue to monitor the collection and use of fees-in-lieu of open space dedication from both residential and non-residential land developments. This will address Objective R 9, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, and Chapter 8, page 11) *Ongoing – Staff*
- 9.32 Keep up-to-date, multi-year schedules for the development, maintenance, improvement and renovation of all Township recreational facilities and trails. This will address Objectives R 8 and R 9, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, pages 6 and 7, and Chapter 8, page 11) *Short-term/Ongoing – Staff, P&R*
- 9.33 Continue to coordinate up-to-date use and maintenance agreements with open space, park, and trail user groups and recreation programming agencies. This will address Objectives R 5 and R 8, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, page 6, and Chapter 8, page 12) *Ongoing – TC, Staff, P&R*

Community Education

The Township should:

- 9.34 Continue to support diverse means to educate landowners, residents and other stakeholders regarding the importance of preservation of natural and cultural resources and related topics as discussed in Chapter Five. This will address Objectives N 1, N 8, N 10, H 6, and H 7, as set forth in Chapter 2 (See discussion in Chapter 2, pages 2 and 3, Chapter 5, page 12, and Chapter 6, page 6) *Ongoing – EAC*
- 9.35 Continue to periodically update and produce maps and site plans of the Township parks, open space, and trail and path system. This will address Objective R 10, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, pages 6 and 7, and Chapter 8, page 12) *Ongoing – Staff*
- 9.36 Continue regular update to the Township’s web site, cataloguing the location, available facilities and programs, and operational rules for each component of the Township’s park, open space, and trail system. This will address Objective R 10, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, page 7, and Chapter 8, page 12) *Ongoing – Staff*
- 9.37 Continue to offer periodic features in the Township newsletter highlighting recreational facilities and trails, and promoting their appropriate use. This will address Objective R 10, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, page 7, and Chapter 8, page 12) *Ongoing – Staff*
- 9.38 Develop consistent logos and signage for community parks, open space preserves, and trails to help identify points of public access, parking, recreation facilities, and to display rules for public use. This will address Objective R 10, as set forth in Chapter 2 (See discussion in Chapter 2, page 5, Chapter 7, page 6, and Chapter 8, pages 10 and 11) *Ongoing – P&R, Staff*

Funding Mechanisms

Municipal Fundraising for Park Acquisition and Recreational Development

Dedicated Open Space Funds. As described in Chapter Five, acquisition of open space interests will continue to be partially funded through an on-going dedicated income tax as provided for through Act 153 of 1996 “Open Space Preservation by Local Governments.” The Township dedicates one quarter of a percentage point of annual earned income tax revenue to Open Space initiatives which alone results in nearly \$1.4 million dollars being dedicated to Open Space funding each year. These funds handily service the debt on the \$12 million that has been bonded to date for purchase of interests in open space. Anticipated annual revenue receipts from the dedicated income tax should permit consideration of additional bonding.

Fee-in-Lieu of Recreational Dedication. The Municipalities Planning Code (MPC) specifically provides for mandatory dedication of recreational lands or fees in lieu thereof. This Plan, incorporating the updated 2005 Recreation Plan, will meet the recreation planning prerequisite required by the MPC. It is important to note that dedication of recreational lands or payment of a fee does not supplant an applicant's obligation to provide general open space areas or trail rights-of-way, particularly where the Open Space Development Option is utilized. Because East Bradford Township already has made very significant efforts to obtain parkland, in most cases, dedication of fees will serve Township recreational development purposes better than dedication of additional parcels of land. To the extent that any developer does dedicate appropriate lands or facilities, any recreational fee should be correspondingly reduced. However, land dedication alone is very unlikely to ever meet the full realm of recreational need for the subject application and, therefore, some fee nearly always will be justified.

Since East Bradford's existing and recommended community park and recreation facilities are distributed throughout the Township at a variety of community and neighborhood park sites, it can be argued that any funds used for community-based park acquisition and recreational development will serve all residents of East Bradford Township, including residents or employees of any new development that provided funds. Thus, in any new development where the Township and applicant agree that a fee will be paid in lieu of setting aside recreational lands, the contributed funds might be earmarked for any of the recreational purposes recommended by this Plan, as may be amended by the Board of Supervisors from time to time, or as may otherwise specifically be agreed to by the Applicant.

Fees collected must be earmarked for specific recreational expenditures consistent with this Plan and deposited into interest-bearing account(s) to be expended only for those purposes for which the fees specifically were collected. If the Township does not utilize collected fees as specified within three years of collection, the developer who paid the fee may request refund plus interest accrued. This provision demands that fees collected be carefully and intentionally earmarked in step with ongoing park acquisition and development plans. By the same token, it is likely that some applicants will forego opportunities to claim refunds, whether in the interest of public relations or due to the manner in which they treat the fees paid for tax purposes. At the time fees are paid, the Township also may request that the Applicant voluntarily release the Township of any obligation to refund unused fees or extend the three-year time frame. Funds obtained through fee-in-lieu also may be used to match potential State and/or County grant funds for park and recreational acquisition or development.

The Township has adopted recreational land dedication requirements contained within the Subdivision & Land Development Ordinance (§95-34.1.D(1) of the Township Code), requiring 2,000 square feet of recreational land per new residence or 500 square feet per each 1,000 square feet of building area on all floors of any non-residential development. The ordinance also sets forth minimum standards for acceptance of lands which may be offered for dedication. Alternative fees in lieu of land dedication are authorized in §95-34.1.E, to be set by resolution of the Board of Supervisors from time to time. Based on extensive analysis

of existing and future park and recreational needs and associated costs, undertaken at the time of the 2005 Recreation Plan, a fee of \$5,780 per new residential unit is recommended, along with a fee of \$1.60 per square foot of new non-residential development.

Other Funding Streams. The Township also may pursue additional funding options, if needed to augment revenues dedicated specifically for open space, park and recreation lands and facilities. Potential additional funding streams may include any one or a combination of the following: dedicated millage; dedication of a portion of transfer tax revenues; and short term loans.

Donations and Voluntary Efforts. Gross capital costs to the Township may be minimized by taking advantage of means to facilitate voluntary efforts. Such alternatives include facilitating voluntary efforts regarding establishment of conservation easements, leases or license agreements for recreational use of private lands, donations and bargain sales on the part of individual property owners, and volunteer assistance in recreational and trails development. Regardless of what lands or services are donated for parks and recreation, the Township staff role(s) in regard to open space management and recreational facility and trails development, will continue to require funding commitment as well.

Grants Available for Resource Protection, Open Space and Park Acquisition and Recreational Development

Prior to preparation of formal capital development plans, various planning tasks must be completed to determine financial feasibility, park and facility locations, and to detail the means and timing of development. Both Chester County and the Commonwealth of Pennsylvania have grant programs to assist municipalities in funding the acquisition and development of parkland and related open space and facilities. Grants to support open space planning and to acquire land for spray or drip irrigation are administered by the Chester County Planning Commission. The County's Parks and Recreation Department administers funds for the acquisition and development of parkland, as well as for trails and greenways. The County's Park Facilities Grant program also is available to municipal applicants for the construction or rehabilitation of recreation facilities. The Parks and Recreation Department also administers grant programs to support the creation of municipal trail and greenway systems. With criteria similar to those applied to the park acquisition and facilities grant programs, these funds can be used to support trail corridor acquisition, the development or rehabilitation of trails, or the acquisition (by easement or in fee) of natural resource lands associated with greenways.

Keystone Historic Preservation Grant Program. Administered through the PHMC, Keystone Historic Preservation Grant Program funding is available to nonprofit organizations and public agencies for the preservation, restoration and/or rehabilitation of historic resources listed in or eligible for listing in the National Register of Historic Places or contributing historic properties in a National Register Historic District. The grants are administered on a competitive basis and require a 50/50 cash match.

Certified Local Government Program. East Bradford Township is a Certified Local Government (CLG) and is eligible for additional 50/50 matching grants to support staffing, training, and administration of cultural resource surveys, national register nominations, technical and planning assistance, and educational and interpretative programs for historic preservation.

Pennsylvania Department of Conservation and Natural Resources (DCNR). DCNR funds projects through a variety of programs. The Community Conservation Partnerships Program (C2P2) is the umbrella term used to describe a number of programs and funding sources. Funding levels vary by program and year; and differing types of projects and applicants are eligible for the programs. One of DCNR's primary goals is to promote statewide land conservation. "Growing Greener II" provides funding of \$90 million over the next five years to help meet that goal. DCNR's grant programs combine Growing Greener II funds with Keystone and other funds to provide an unprecedented opportunity for land conservation in Pennsylvania.

Despite the highest level of open space funding DCNR has ever been able to offer, it is finding that the demand from many areas of the state has risen as well. Local governments and land trusts alike may apply for open space funds, and selection preference will be given to those projects which meet a number of important local needs such as conservation value and biodiversity, recreational connectors and value, importance of watersheds protection and local support. Its primary goals for land conservation are land that is connected to important larger landscapes such as greenway corridors, land that is adjacent to other conserved land, or land that is identified in a county open space and greenways plan. Additionally, priority will be given to land that meets key biological needs for threatened species of plants or animals, conserves important watershed lands or buffers or meets community recreation needs.

Municipalities, municipal agencies, pre-qualified land trusts and other nonprofit enterprises are all eligible applicants. Any official agency created by the municipality under the laws of the Commonwealth, such as municipal authorities and intergovernmental commissions, are eligible. Generally, grant funds awarded by DCNR must be matched dollar-for-dollar by cash and/or by eligible non-cash value. No costs or non-cash match incurred prior to the approved project period are eligible for reimbursement or use as a match.

The Community Conservation Partnerships Program is administered on a yearly application cycle. The primary open application period is from January to mid-April for planning, acquisition, and development projects.

Chester County Open Space Grant Programs. Chester County's municipal grant program is structured to fund projects with maximum public benefits and also favors projects that attract substantial funding from other sources. Any municipality in Chester County may apply for these grants. Funding is offered to top ranked projects that provide the highest degree of public benefit. There are no minimum acreage requirements. Municipal park and open space acquisition grants must be supported by appraisals that are reviewed and approved by the County.

The County's goal is to provide financial assistance to local governments to meet their responsibilities for providing public lands for the recreation and open space needs of their

residents. Objectives of the program are to retain open space, assist with the installation of recreational facilities, protect natural and scenic resources, preserve historically significant cultural landscapes, and promote intergovernmental cooperation.

The Chester County Open Space Preservation Department administers the following municipal grant programs:

- Open Space Acquisition Grant reimburses a maximum of 50% of the approved cost for either full-fee acquisition or conservation easement acquisition. In the event that an extraordinary conservation opportunity presents itself, the County will consider requests in excess of \$500,000 on a case-by-case basis for acquisition grants.
- Development Grants reimburse park facility and trail construction up to a maximum of 50% of a project's cost to a maximum of \$250,000 if outlined criteria are met. Maximum cumulative County construction funds for any one facility over the life of the facility are \$250,000.

To receive a grant, the municipality is required to have adopted, or commit to producing an Open Space, Recreation, and Environmental Resources Plan that satisfies County plan standards. Municipalities are further required to have signed, or commit to signing, a Vision Partnership Program Memorandum of Understanding with the Chester County Planning Commission prior to reimbursement, a copy of which must be submitted with any application. Applications are generally due in early November of each year.

Chester County Vision Partnership Grant. The Board of Commissioners of Chester County established the Vision Partnership Program to promote cooperation between local and County governments to implement *LANDSCAPES*, the County's comprehensive policy plan. The Vision Partnership Program (referred to as the VPP) is a planning grant program and was created following the adoption of *LANDSCAPES* in 1996. Municipalities that participate in the VPP have access to planning grants and technical assistance to assist them in improving local planning programs and achieving consistency with the principles of *LANDSCAPES*.

The VPP grant program provides funding opportunities to member municipalities to update their local plans and ordinances. The purpose of the grant program is to achieve consistency between municipal plans and ordinances and the policies established within *LANDSCAPES*. Items identified in the County's Consistency Review Report as necessary to achieve consistency with *LANDSCAPES* are eligible for funding under the VPP grant program.

In the following summary recommendation chart, lead agents are abbreviated or indicated by acronym as set forth in the introduction to this Chapter. Possible funding sources are similarly abbreviated as follows:

- Ag – State/County agricultural preservation funding
- CC – Chester County parks, recreation or open space grants
- CLG – Certified Local Government or other funding administered by PHMC
- DCNR – state grants administered by DCNR
- DEP – state grants or assistance provided by DEP
- devps. – developers

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EGGS – Efficient Growth for Growing Suburbs program of DVRPC

FL – fees-in-lieu of recreational dedication

gen. – general funds of East Bradford Township

HIF – Highway Improvement Fund of East Bradford Township

OSF – dedicated Open Space Fund of East Bradford Township, subject to Act 153

PaDOT – Pennsylvania Department of Transportation

vol. – volunteer efforts

VPP – planning grants through Chester County’s Vision Partnership Program

Summary - Implementation of Plan Recommendations

Recommended Action for Immediate Consideration (Summary Recommendation #)	Lead Agent(s)	Possible Funding Sources	Objectives Addressed	Text page refs.	Recs. by Chapter
1. Review and update the SALDO and ZO to maintain consistency among provisions (9.17)	Staff, PC, ZHB	gen.	N 1, D 4	5-10, 11	5.25, 5.36
2. Develop regulations for timber harvesting (9.20)	EAC, Staff, BOS	gen.; VPP	N 7	4-7, 5-11	5.32

Recommended Action for Short-term Consideration	Lead Agent(s)	Possible Funding Sources	Objectives Addressed	Text References	Recs. by Chapter
3. Consider new regulations linking disturbance limitations to woodland classification (9.19)	EAC, BOS	gen.; VPP	N 7	4-7, 5-10	5.31
4. Consider new standards for riparian buffers modification & vegetation management (9.21)	BOS	gen.; VPP	N 2, N 5	5-11	5.33
5. Consider additional resource protection regulations for ridgelines, headwaters, hydric soils, forest interiors, riparian buffers, greenway corridors, & groundwater supply (9.22)	EAC, PC, BOS	gen.; VPP	N 1, N 2, N 4, N 5, S 1	5-11, 6-5,6	5.34, 5.35, 5.37, 5.38, 6.3, 6.4, 6.5, 6.10
6. Initiate master planning for future park, recreation & trails development (9.29)	Staff, P&R, BOS	gen.; DCNR	R 3, R 6, R 7	7-6, 8-11	7.11, 7.15-16, 8.5, 8-9
7. Keep schedules for development, maintenance & improvement of all facilities (9.32)	Staff, P&R	gen.	R 8, R 9	7-6,7, 8-11	7.7, 8.10

Recommended Action for Long-term Consideration	Lead Agent(s)	Possible Funding Sources	Objectives Addressed	Text References	Recs. by Chapter
8. Coordinate with a regional authority to monitor stormwater management facilities (9.7)	Staff, BOS	gen.; DEP	N 4, D-7	5-9	5.20
9. Monitor and participate in regional planning efforts, partnering where appropriate (9.10)	Staff, EAC, PC, BOS	gen.; VPP; EGGS	H 5, S 5, C 4, D 2	5-8, 6-6	5.5-6, 5.9-10, 6.11-12
10. Facilitate wildlife crossings where greenways intersect roadways (9.11)	Staff, EAC, PaDOT	HIF; PaDOT; DCNR	N 2, N 9	6-6	6.9
11. Consider requesting PHMC to extend the purview of the Township HARB (9.23)	HC, BOS	gen.; CLG	H 4	4-19, 5-8,10	5.13, 5.27
12. Establish signed bike routes (9.28)	TC, Traffic	gen.;	C 1, C 3, R 7	7-1,6	7.5
13. Implement planned development of recreational facilities & trails (9.30)	Staff, P&R, BOS	gen.; FL; DCNR ; CC; vol.	R 6, R 7	7-5,6,7, 8-9-12	7.6, 7.16-17, 8.4-5, 8.10

Recommended Ongoing Policy and Action	Lead Agent(s)	Possible Funding Sources	Objectives Addressed	Text References	Recs. by Chapter
14. Use <i>Future Open Space Protection Priorities</i> map as guide for open space designation (9.1)	BOS, Staff, ORB	OSF	N 1, N 6, H 2, S 1, R 4	5-2,3,4,7	5.1
15. Focus on conservation of greenway & trail corridors (9.2)	ORB, TC, BOS	OSF; DCNR, CC	N 2, N 9, C 1, R 7	5-7, 6-1-7, 7-5,6	5.2, 6.1, 6.2, 6.3, 7.2, 7.4
16. Maximize use of grant funds (9.3)	Staff, BOS	all potential grants	D 5	5-7, 7-5,6	5.3, 7.12, 7.14
17. Promote private action to maintain natural, cultural & agricultural resources (9.4)	Staff, all ABC's	gen.; OSF, CC, DCNR, Ag	N 1, N 10	5-6,8,9,12	5.7, 5.15, 5.22, 5.39-41
18. Guide land development so as to protect and manage open space resources (9.5)	PC, HC, EAC	gen.; review fees	D 1, D 3, D 5	5-9	5.16
19. Implement water quality BMPs (9.6)	Staff, PC, EAC	gen.; DEP, developers	N 4, D 7	4-10, 5-9,10	5.17, 5.18, 5.19, 5.30
20. Promote Best Management Practices for forest management (9.8)	EAC	gen.;	N 7	5-8,10,11, 6-6	5.7, 5.23, 5.32, 6.8
21. Promote the "Red Streams Blue" program (9.9)	Staff, EAC	gen.; DCNR; DEP; vol.	N 4, D 7	4-9,10, 5-7,11	5.4, 5.34, 5.40
22. Promote coordinated wildlife management programs (9.12)	Staff, EAC	gen.; vol.	N 2, N 3, N 9	4-4, 5-8,9,12, 6-6	5.7, 5.21, 5.40, 6.8, 6.9
23. Promote stream clean up (9.13)	Staff, EAC	gen.; vol.	N 4	6-7	6.13
24. Promote "determination of eligibility" for individual National Register listings (9.14)	HC, BOS	gen.; CLG	H 1	4-17,18, 5-8	5.12, 5.14
25. Review effectiveness and consider revision to resource protection regulations (9.15)	Staff, PC, EAC, HC	gen.; VPP	N 5,H 4, S 3, D 4	4-2-19, 5-8,10	5.8, 5.24, 5.28, 5.29
26. Review designation, mapping and regulation of scenic roads and landscapes (9.16)	Staff, BOS	gen.	S 1, S 2, S 3	4-14,15, 5-8,11	5.11, 5.29
27. Use Conditional Use process to achieve resource protection and management (9.18)	Staff, BOS	gen.; review fees; devps.	D 3, D 4	5-10	5.26
28. Monitor recreation needs (9.24)	P&R	gen.	R 1	8-10,11	8.1, 8.8
29. Promote safe bicycle and pedestrian movement (9.25)	TC, PC	gen.	C 1, R 7	7-4,5, 8-11	7.1, 8.7
30. Pursue trail easements with HOAs (9.26)	Staff, TC	gen.; FL	C 1, R 2, R 3	7-6	7.8
31. Cooperate with neighboring municipalities to expand recreation and trails (9.27)	Staff, P&R	gen.; FL; DCNR; CC	R 7	7-6, 8-10	7.3, 7.13, 8.2, 8.3
32. Monitor collection and use of fees-in-lieu of open space dedication (9.31)	Staff	gen.	R 9	8-11	8.6
33. Coordinate use & maintenance agreements with rec. user groups/program agencies (9.33)	TC, Staff, P&R	gen.; vol.	R 5, R 8	7-6, 8-12	7.6, 7.7, 8.10
34. Support means to educate residents regarding resource preservation (9.34)	EAC	gen.	N 1, N 8, N 10, H 6, 7	5-12, 6-6	5.39, 5.40, 5.41, 6.6, 6.7
35. Update maps and site plans of Township parks, open space, and trails (9.35)	Staff	gen.	R 10	7-6,7, 8-12	7.10, 7.18, 8.11
36. Consider update to the Township website listing facilities & programs (9.36)	Staff	gen.	R 10	7-7, 8-12	7.18, 8.11
37. Highlight recreational facilities and trails in the Township newsletter (9.37)	Staff	gen.	R 10	7-7, 8-12	7.18, 8.11
38. Develop logos and signage for Township parks, trails, and preserves (9.38)	P&R, Staff	gen.; FL	R 10	7-6, 8-10,11	7.9, 8.4, 8.5