

# Chapter 4

## NATURAL RESOURCES PROTECTION PLAN

### Introduction

This chapter provides recommendations for addressing the protection of natural resources in East Goshen Township. The natural landscape is an integral component of East Goshen Township's character and an essential element in maintaining a healthy and safe environment for residents living in the community.

The protection of natural resources received broad support from Township residents in the 2001 East Goshen Township Resident Survey. Question 14 read, "Township-owned property (open space) can be used for a variety of purposes. Please indicate how important (High, Moderate, or Low) each of the following uses of township-owned open space is to you and other members of your household." "Scenic Beauty" was rated of High/Moderate importance by 74% of Township respondents. The residents of East Goshen Township would, therefore, consider the protection of the Township's scenic beauty as a priority. The protection of natural resources is a key component in preserving the scenic beauty of East Goshen Township

The Township has taken a proactive approach by including significant resource protection standards in the Township Zoning and Subdivision and Land Development Ordinances. Many of the recommendations of this chapter serve to support and expand those regulatory efforts.

Note: For a complete explanation and description of individual natural resources please refer to Appendix D, Natural Resources Inventory.

The recommendations identified in this chapter implement the following goal and objectives:

#### **GOAL: Preserve essential natural resources for the benefit of future generations.**

**Objective 4A** Prohibit development and redevelopment within highly sensitive environmental areas.

**Objective 4B** Promote the use of best management practices in design and land development that protect air quality, water resources, wetlands, and floodplains from the impacts of development.

**Objective 4C** Protect scenic vistas and public and privately owned open space from the impacts of development.

**Objective 4D** Protect the headwaters of the Ridley Creek and the Chester Creek.

## Recommendations

**Objective 4A** Prohibit development and redevelopment within highly sensitive environmental areas.

- **Recommendation 4A-1** Promote Preservation of Large Land Tracts.

**DISCUSSION:**

The preservation of large land tracts, through easement or preferred development options, can promote the preservation of natural and/or historic resources, connection of areas of open space, and provision of natural or biodiversity corridors. A regional or local land trust can work with private and/or public organizations to ensure funding and acquisition of large tracts of farmland or undeveloped land.

**Example:** The Willistown Conservation Trust (91%) and East Goshen Township (9%) jointly own a conservation easement on a 55-acre parcel near the intersection of Strasburg Road and Dutton Mill Road. This area of land was placed under easement following the subdivision of a 185-acre parcel, and lies adjacent to areas of floodplain and wetland ensuring that these resources will not be impacted by future development.

**ACTIONS NEEDED:**

**4A-1-1** Inform landowners about the benefits of preservation and the available programs.

- **Recommendation 4A-2** Protect Serpentine as a Unique Natural Resource.

**DISCUSSION:**

Serpentine, or Serpentine as it is commonly called, is one of three types of stone within the Ultramafite sub-category. This green stone is native to the Chester County region and present in the northern half of the Township. The protection of this unique resource promotes the preservation of the unique character and scenic beauty of East Goshen Township.

**STATUS OF CURRENT ORDINANCE STANDARDS: Zoning Ordinance**

Currently the Zoning Ordinance includes regulations requiring applicable federal and state permits prior to the development of serpentine rock formations and surveys of serpentine areas for rare or endangered plants.

**Subdivision and Land Development Ordinance** Currently Serpentine outcroppings are not specifically listed as having to be included on the Conservation Plan. However, the Ordinance does require the location and ownership of “other significant natural or man-made features” on plans.

**ACTIONS NEEDED:**

**4A-2-1** Complete an inventory of Serpentine outcroppings.

**4A-2-2** Revise the Subdivision and Land Development Ordinance to include location and size of any Serpentine outcroppings.

- **Recommendation 4A-3** Promote Woodland Preservation.

**DISCUSSION:**

Woodlands are a very important, but often overlooked, natural resource. In addition to their obvious aesthetic value, trees and other vegetation provide several advantages that benefit the

residents of East Goshen Township as well the preservation of other natural resources. Those benefits include, but are not limited to:

- reduced erosion and sedimentation;
- impeded sheetflow of stormwater and promoting infiltration to groundwater;
- shade;
- wind and sound break;
- animal habitat; and
- screening between uses.

Until recently, tracts that have been developed have rarely utilized this natural resource and the opportunity to integrate woodlands into new subdivisions. Therefore, the areas of woodland have diminished greatly as East Goshen Township has developed during the past few decades. In order to protect woodlands, not only for the reasons listed above, but to preserve the scenic beauty of East Goshen, regulations should be supplemented in the Township Subdivision and Land Development Ordinances.

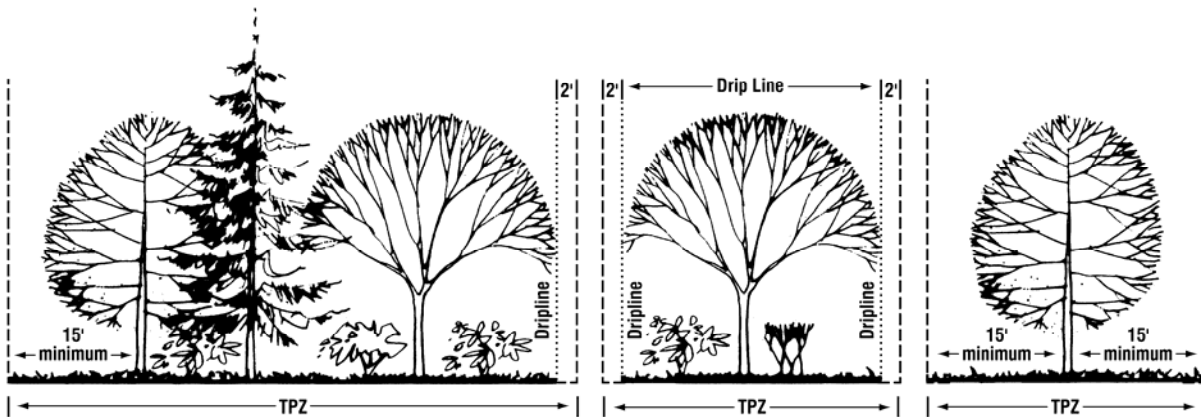
**STATUS OF CURRENT ORDINANCE STANDARDS: Subdivision Ordinance**

Currently, there are regulations that require the protection of tree masses and specimen trees during the construction process. All tree masses and specimen trees are required to be located and labeled on the required Landscape Plan. In addition, a tree list is included that provides a listing of approved canopy and street trees. The tree ordinance prohibits removal of more than 20% of wooded lot or at the most 50% with replacement trees.

**ACTIONS NEEDED:**

- 4A-3-1**      Revise the Subdivision and Land Development Ordinance to promote use of native plant species and prohibit invasive species.
- 4A-3-2**      Update the Subdivision and Land Development Ordinance Definitions section.
- 4A-3-3**      Review specifications for a Tree Protection Zone (TPZ) as per Figure 4-1 below.

**Figure 4-1: Tree Protection Zone**



- **Recommendation 4A-4**      Identify protected resources on subdivision and land development plans.

**DISCUSSION:**

Several steps can be taken to ensure that the protection measures in place are being effectively applied to development proposals. It is important to verify that all protected resources are being shown on subdivision and land development plans and other permit applications that fall under

the resource protection standards. Another step in effective enforcement of the protection measures is to verify that proposed disturbance on the site does not encroach more than is permitted into protected areas.

**STATUS OF CURRENT ORDINANCE STANDARDS: Subdivision Ordinance**

Currently the list of resources to be included on the conservation plan is limited to watercourses, flood plain areas, wetlands, tree masses, specimen trees, and other natural or man-made features.

**ACTIONS NEEDED:**

- 4A-4-1**        Revise the Subdivision and Land Development Ordinance to require the location of first order streams (headwaters), steep slopes, and riparian forest buffers.

**Objective 4B** Promote the use of best management practices in design and land development that protect air quality, water resources, wetlands, and floodplains from the impacts of development.

- **Recommendation 4B-1**        Recommend the use of porous pavement to reduce impervious coverage.

**DISCUSSION:**

Impervious refers to areas or structures that restrict the infiltration of stormwater. For example, an asphalt driveway restricts the infiltration of stormwater promoting additional runoff while a wildflower meadow slows stormwater runoff while accommodating infiltration to groundwater. Structures are another example of facilities that restrict the infiltration of stormwater. The percentage of impervious coverage permitted for specific uses (residential, commercial, institutional, or industrial) should be limited to the amount necessary to accommodate facilities such as driveways, primary structures, and accessory structures.

The use of porous paving facilities can further reduce the need for additional impervious surfaces. There are two forms of porous paving materials: 1) A permeable paving material, comprised of an arrangement of interlocking, prefabricated, perforated blocks, laid on a soil base and providing a stable pervious surface for low-volume vehicular use. Therefore, it can be utilized in overflow parking situations, areas requiring only emergency access, and driveways. 2) Porous pavement, which is a type of pavement that looks and performs similarly to standard asphalt or concrete, allows rain and snowmelt to pass through it reducing runoff from the site and surrounding area. Porous pavement can and has been used in parking areas and other low speed vehicular facilities such as driveways. Unlike standard asphalt or other impervious paving materials, porous pavement requires regular maintenance to ensure that the porosity of the paving material has not been damaged or in any way compromised by pollutants or debris associated with vehicular facilities.

**STATUS OF CURRENT ORDINANCE STANDARDS Zoning Ordinance**

The Township Zoning Ordinance includes impervious coverage percentages for uses permitted by right, by special exception, and by conditional use in all districts in the Township.

**ACTIONS NEEDED:**

- 4B-1-1**        Review impervious surface coverage regulations.
- 4B-1-2**        Promote the use of porous paving materials.

**Objective 4C** Protect scenic vistas and public and privately owned open space from the impacts of development.

- **Recommendation 4C-1** Promote citizen awareness of environmental issues.

**DISCUSSION:**

Landowners, whether they own large or small properties, can benefit from learning about the importance of protecting natural resources and what they can do on an individual basis. Information on the following topics should be conveyed in the Township newsletter and web site and made available at the municipal building:

- The importance of protecting vegetation along stream banks (riparian buffers);
- Woodland preservation and management;
- Control of non-native plant species and promotion of native plant species;
- The need to preserve the integrity of unique Serpentine outcroppings;
- The environmental and legal costs of illegal dumping;
- The development of a local land trust;
- The environmental cost of unnecessary tree removal;
- Organic alternatives to chemical fertilizer;
- The importance of stormwater quality and the impacts of harmful runoff downstream; and
- The requirement for the use of stormwater management best management practices to promote the infiltration of stormwater associated with new development.

Community projects and success stories such as the Chester Creek Restoration and Ashbridge conservation easement create community awareness and justify the efforts of private and public conservation and preservation groups. These activities should be publicized through any means available to the Township in order to create citizen awareness and, where applicable, participation.

**ACTIONS NEEDED:**

- 4C-1-1** Provide information on various environmental and conservation programs and advocates.
- 4C-1-2** Provide residents with information on the benefits of using native plants.

- **Recommendation 4C-2** Create a Scenic Road Overlay District.

**DISCUSSION:**

Scenic roads are defined by both the character of the roadways and the landscapes through which they pass. They may include roads that provide open, undisturbed vistas or those that wind through woodlands or have dramatic changes in elevation. Historic structures, farmsteads, bridges, or unusually large trees are examples of individual cultural and historic features that may be found along a scenic road that contribute to the uniqueness of an area. These roadways are identified in Appendix E.

A Scenic Road Overlay District is a method of protecting scenic roadways from being marred by insensitive development. The overlay would establish additional restrictive regulations beyond the underlying base zoning districts, such as setbacks, design guidelines, access management, and buffers. Regulations can be established to address viewshed protection, access, and aesthetics. The objective of the Overlay District is not only to protect the best use of the adjacent land and

scenic quality of the roadway, but also to ensure the safety and efficiency of traffic flow in scenic areas.

The adoption of a Scenic Road Overlay District provides the following:

- Protection and preservation of surrounding scenic vistas and natural environment from development;
- Incorporation of natural features into the visual environment;
- A buffer to soften the visual intrusion of incompatible land uses or new development;
- Sufficient setbacks to facilitate potential widening of right-of-way without impacting surrounding uses or compromising the visual resources of the scenic roadway; and
- Traffic circulation and safety through scenic areas while accommodating additional development.

**ACTIONS NEEDED:**

**4C-2-1** Consider the creation of a Scenic Road Overlay District.

- **Recommendation 4C-3** Review the Township Open Space and Recreation Plan.

**DISCUSSION:**

*Linking Landscapes; A Plan for the Protected Open Space Network in Chester County Pennsylvania* was developed to be a useful and practical document that focuses on three major areas. First, it presents a countywide inventory of open space features and regional vision of what Chester County could be like if an open space network were established. Second, It presents a listing of actions that County government should initiate in order for the various County departments to coordinate their efforts to protect open space as directed by *Landscapes*. Finally, *Linking Landscapes* provides general guidelines for municipalities who wish to pursue the protection of open space, either through their own initiatives or through partnerships with other entities.

Each chapter in *Linking Landscapes* describes the topic in detail and includes specific actions for addressing them. Many of the actions can be implemented at the municipal level.

There are also several chapters in *Linking Landscapes* devoted to recreational needs. Because this issue is related more to community facilities than natural resource and open space protection, it is discussed in Chapter 7, Community Facilities and Services Plan. The Township should review the chapters and recommendations most relevant to their own needs and develop a course of action to implement them. In many cases these recommendations will supplement current efforts already underway in the Township.

**ACTIONS NEEDED:**

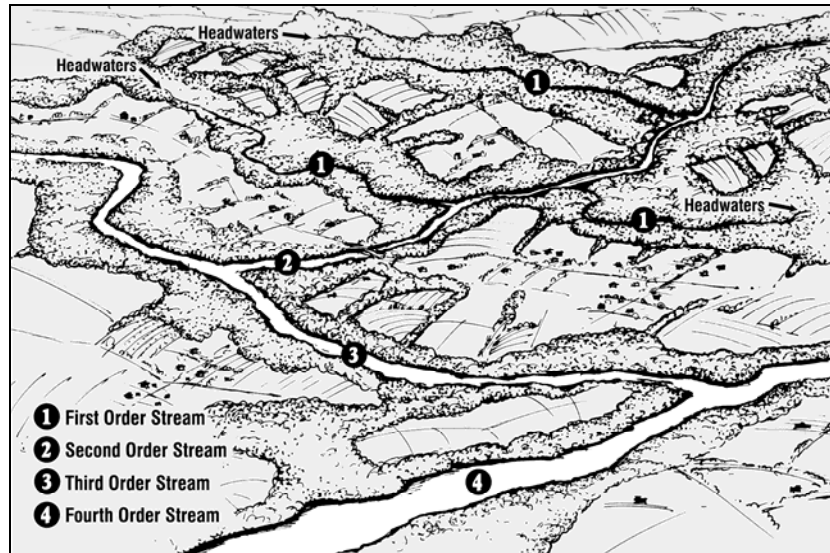
**4C-3-1** Ensure compatibility of the Township Open Space, Recreation, and Environmental Resources Plan (1993) and *Linking Landscapes*.

**Objective 4D** Protect the headwaters of the Ridley Creek and the Chester Creek.

In headwater areas, the exchange between ground and surface waters is the most rapid and direct. Streams in headwater areas, because of their modest flows and inability to flush themselves, are highly susceptible to degradation. Therefore, the ecological health of first order streams, and the watershed as a whole, is dependent on how land in headwater areas is used and maintained. See Figure 4-2. Headwater

areas maintained under a forest or dense meadow (riparian forest buffer) cover yield streams with higher water quality and greater natural or biodiversity than those that are not.

**Figure 4-2: Stream Ordering**



The Ridley Creek is designated as a “High Quality” watershed by the Pennsylvania Department of Environmental Protection (DEP) because of its exceptional water quality. This designation stipulates more stringent guidelines for review by the Chester County Conservation District and/or the Pennsylvania Department of Environmental Protection in regards to proposed stormwater management facilities and stream discharge within the Watershed. Further, it reinforces the need to manage water resources on a watershed basis by ensuring the protection of all associated resources. DEP has also designated Ridley and Chester Creeks as Trout Stocked Fisheries.

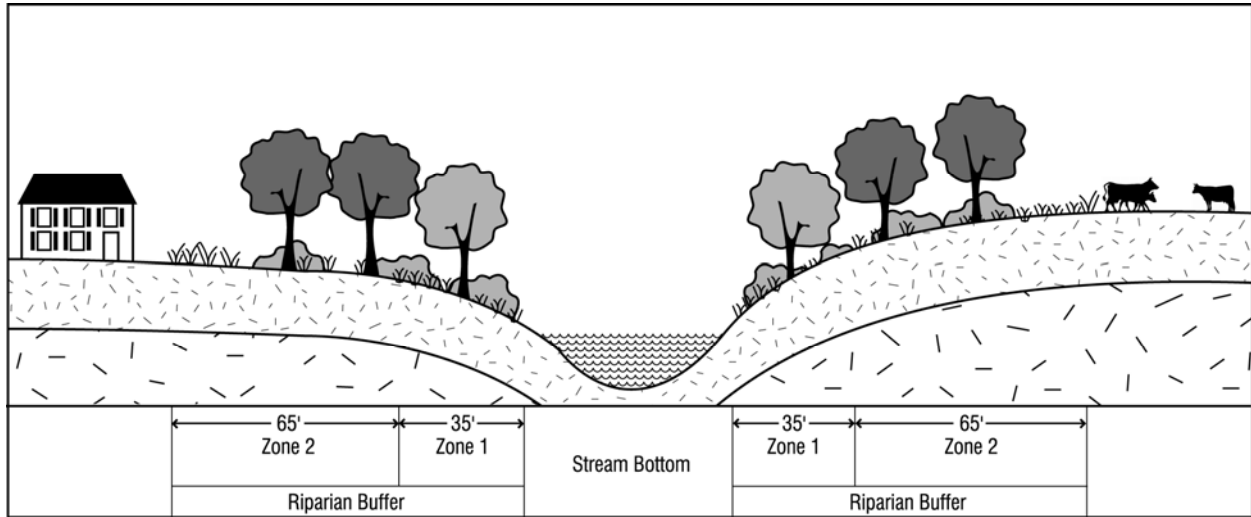
- **Recommendation 4D-1** Promote Protection of Riparian Forest Buffers.

**DISCUSSION:**

In *Watersheds*, the Chester County Water Resources Authority developed a hierarchy for the protection of riparian buffers based on associated plant communities and the stream bank system. The need for this hierarchy is twofold: 1) to establish a system to identify the areas to be protected and 2) to establish the degree of protection needed for these designated areas.

Two zones of protection were established: Zone 1 – Inner Riparian Forest Buffer and Zone 2 – Outer Riparian Forest Buffer. See Figure 4-3.

**Figure 4-3: Riparian Forest Buffer**



*Impact on Watershed:* The condition of the Riparian Buffer directly impacts the quality of water that flows into and through the associated stream corridor and therefore the stability of the associated watershed.

**STATUS OF CURRENT ORDINANCE STANDARDS: Zoning Ordinance**

Currently, the Township Ordinances do not include any regulations pertaining to riparian forest buffers.

**ACTIONS NEEDED:**

- 4D-1-1** Encourage applicants to use local volunteer groups to help with planting of riparian forest buffers, in coordination with the Conservancy Board.
- 4D-1-2** Revise the Subdivision and Land Development Ordinance to include standards to limit or prohibit disturbance within a specified distance from the stream or water body in accordance with Figure 4-3.

**Example:** East Goshen Township has completed a stream restoration project for a portion of the Chester Creek. A Growing Greener Grant facilitated the restoration of the Creek along Reservoir Road between Baldwin Drive and Strasburg Road. The project involved the relocation of sections of the steam. The relocation is expected to decrease the current stream bank erosion and the amount of sedimentation that currently flows into the reservoir during storm events. In addition, several hundred trees and shrubs were planted in order to rehabilitate the associated riparian forest buffer.

- 4D-1-3** Require the establishment and maintenance of riparian forest buffers.

- **Recommendation 4D-2** Promote protection of wetlands.

**DISCUSSION:**

Although construction in wetlands is regulated at both the state and federal level, unless a mechanism is in place to ensure those agencies are contacted as required, wetlands can be damaged or lost altogether during the development process. Site-specific wetland studies are the only clear method to determine the extent of wetlands and areas of wetlands margins in East Goshen Township.

Wetlands Uses – It is recommended that disturbance be precluded in this area.

Wetlands Margin Uses – Once again, it is recommended that disturbance be precluded in this area. If disturbance is unavoidable, a buffer of at least 50-100 feet should be maintained to protect the integrity and quality of the wetland.

*Impact on Watershed:* Wetlands retain and filter stormwater, stabilizing the groundwater and reducing pollutants and nutrients within the watershed.

**STATUS OF CURRENT ORDINANCE STANDARDS: Zoning Ordinance**

The Township Zoning Ordinance currently provides limited regulations for the protection of wetlands.

**ACTIONS NEEDED:**

**4D-2-1**            Revise the Subdivision and Land Development Ordinance to include wetlands margins, permitted uses, and setbacks.

**REFERENCES:**

*A Toolbox for Managing Change in Chester County – Volume I.* Chester County Planning Commission. 1997.

*A Toolbox for Managing Change in Chester County – Volume II.* Chester County Planning Commission. 1999.

*Watersheds. An Integrated Water Resources Plan for Chester County, Pennsylvania and its Watersheds.* Chester County Water Resources Authority. West Chester, Pennsylvania. 2002.

*Linking Landscapes. A Plan for the Protected Open Space Network in Chester County, Pennsylvania.* Chester County Planning Commission. West Chester, Pennsylvania. 2002.

*East Goshen Township Open Space, Recreation, and Environmental Resources Plan.* 1993.

**Figure Sources:**

Figure 4-1: Chester County Planning Commission. West Chester, Pennsylvania. 1998.

Figure 4-2: Chester County Planning Commission. West Chester, Pennsylvania. 2004

Figure 4-3: *Watersheds. An Integrated Water Resources Plan for Chester County, Pennsylvania and its Watersheds.* Chester County Water Resources Authority. West Chester, Pennsylvania. 2002.

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