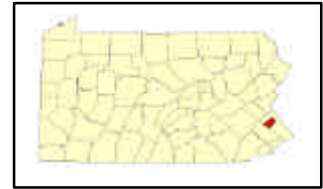


## SECTION I

### INTRODUCTION

#### A. Study Area and Participants

This comprehensive water resources plan was developed for eight municipalities in Bucks County known collectively as the Pennridge Area. A watershed assessment was performed that provided current information and data to be used to develop the plan. The plan addresses the impacts and threats of nonpoint source pollution in an area with a looming threat of conversion of the natural environment to the built environment. The watershed assessment provides a basis of information upon which to establish a long-range plan for restoring and protecting the groundwater and surface water resources of the study area. The plan and its implementation activities are coordinated with municipal land use planning documents (i.e., comprehensive plans, zoning ordinances, subdivision/land development ordinances, and sewage facilities plans), the goal being to provide for Pennridge's fair share of development while at the same time not overtaxing the water resources upon which the population depends.



Several tasks make this plan innovative and unique. First of all, the coordination and cooperation amongst the eight municipalities is an incentive for other municipalities in Pennsylvania. The eight municipalities have formed the Pennridge Area Coordinating Committee (PACC). The PACC meets monthly to discuss issues common to the municipalities. In addition, the project involved a cooperative effort between and among various agencies that have developed sources of information and data, including, but not limited to, the following:

- federal, state, and county agencies
- Delaware River Basin Commission (DRBC)
- municipal governing bodies, planning commissions, various departments
- municipal authorities
- Pennridge School District
- Bucks County Community College
- watershed associations
- citizen monitoring groups
- consultants/engineers/hydrogeologists

The project is coordinated with an Act 167 Plan being developed for the East Branch Perkiomen Creek watershed. The Geographic Information System (GIS) was used for both the required mapped products and as a modeling and analysis tool to develop a holistic and integrated management program for the area's water resources.

The preparation of this *Pennridge Water Resources Plan* is funded in part by a Growing Greener grant obtained from the Pennsylvania Department of Environmental Protection, and a Land Use Planning and Technical Assistance Planning grant from the Pennsylvania Governor's Center for Local Government Services. The participating municipalities provided matching contributions of funds and water resources data. The Bucks County Planning Commission (BCPC) coordinated the project on behalf of the PACC.

The Pennridge Area is located in Bucks County, Pennsylvania, and is approximately 93 square miles in size. As **Figure I-1 – Study Area Map** shows, it is composed of four townships (Bedminster, East Rockhill, West Rockhill, and Hilltown) and four boroughs (Dublin, Perkasio, Sellersville, and Silverdale). Telford Borough, although not a member of the PACC, has been kept informed of the progress of the study. Telford Borough Authority has water supply wells in the Pennridge Area and provides water service to customers in the study area.

The boundary of the study area coincides with the boundary of the Pennridge School District and encompasses headwater areas of eleven DRBC-designated watersheds, shown in **Figure I-2**. The East Branch Perkiomen watershed occupies the largest area, extending southward into Montgomery County. The study area also includes large areas of Unami–Ridge Valley Creeks, Tohickon Creek–Three Mile Run, Tohickon Creek–Lake Nockamixon, Tohickon Creek–Deep Run, Tohickon Creek–Geddes Run–Cabin Run, North Branch Neshaminy Creek and West Branch Neshaminy Creek Basin watersheds. Small areas of Tohickon–Beaver–Morgan Creeks, Dimple Creek and Upper Reach Skippack Creek watersheds are found in the study area.

Lake Nockamixon borders the northwest corner of the study area. Major streams within the study area include the East Branch Perkiomen Creek, Three Mile Run, and the northern reaches of Neshaminy Creek. The region is generally rural and agricultural with commercial, industrial and high-density residential areas clustered along main road corridors such as Route 309 and 313.

## **B. Demographics**

Although the percentage of residential land use, compared to all land uses, remained fairly constant between 1970 and 1990, the percentage of nonresidential development in the study area during the same period increased from 3 percent to 9 percent. Also, agricultural and vacant land uses decreased from 68 percent to 60 percent in the same period. Housing increased approximately 13 percent between 1990 and 2000 and is projected by the BCPC to increase another 11 percent between 2000 and 2010. Thus, it can be noted that the Pennridge Area is experiencing a fairly moderate but steady rate of growth that is expected to continue for the foreseeable future. **Appendix A** presents a summary of Pennridge Area demographics.

Regional context has played a significant role in past development trends and will continue to play a significant role in the future development patterns of the Pennridge Area. With the exception of the boroughs, the Pennridge Area is predominantly rural in nature; however, its scenic qualities and location make it attractive for residents and businesses alike.

## **C. Objectives of the Plan**

The Plan's main objectives:

- Protect the supply of surface water and groundwater resources for existing and future recreational, industrial, household and commercial users; and
- Protect surface water and groundwater resources from point and nonpoint pollutants.

This plan was developed with the intent of presenting as much available information as possible that may be necessary or required to implement the plan. The plan is intended to, in as much as

Insert

**Figure I-1 – Study Area Map**

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Insert

**Figure I-2 — DRBC-designated watersheds**

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possible, comprehensively address legal, engineering, and municipal government aspects. Those aspects, when combined, form the basis for the development, implementation and enforcement of municipal ordinance language that will be considered for adoption by each study area municipality. Sample stormwater management and wellhead protection ordinances are provided for reference in **Appendix H**.

#### **D. Public Information, Education, and Participation**

The first of a series of informational fact sheets was prepared in conjunction with the draft plan and is included in **Appendix I**. Public access to information on the progress of the study was available throughout the project through PACC's link on Hilltown Township's web page (<http://www.hilltown.org/pacc/>). **Appendix I** presents a printed version of the web page and the *Pennridge Water Resources Plan* (PWRP) link pages. All of the PACC's monthly meetings are open to the public and there were various municipal officials and public in attendance throughout the study. An advertised public meeting to present the draft plan was held at the Bucks County Community College, Upper Campus, in Perkasio on Thursday, November 29, 2001, at 7:30 PM. The period for receiving written public comment was extended from January 18, 2002 to February 12, 2002. Additional comments were received at the PACC's monthly meetings of January 31, 2002, and February 27, 2002. The written comments received and the PACC's responses to those comments are presented in Appendix J.

#### **E. Basics of Water Resources Management**

Water resource management begins with understanding the sources and uses of both surface and groundwater. Generally, surface water sources include rivers, streams, reservoirs, lakes, and ponds. Groundwater sources include municipal, industrial, commercial, and residential wells and springs. Some human water uses include irrigation, manufacturing, recreation, and consumption. Adequate, clean water is also essential for maintaining the quality and health of the natural ecosystems such as fisheries, forests, wetlands, and aquatic habitats.

**Figure I-3** shows the hydrologic cycle schematically. Simply stated, the hydrologic cycle is the ongoing process, fueled by energy from the Sun, of evaporation and transpiration (from plants and animals), condensation (cloud formation), precipitation, runoff, and infiltration. Runoff (from precipitation events and snowmelt) and infiltration replenish and restore surface water and groundwater resources. However, if adverse impacts such as excessive groundwater withdrawal (e.g., groundwater mining) or discharge of pollutants exceed the system's ability to recover, water availability and quality will decline. Stream baseflow and groundwater aquifers will be reduced, and the concentration of pollutants will increase. Damage to the natural environment (e.g., sensitive ecosystems) will result, and the costs for obtaining and treating water for human uses will increase. Inadequate or improper control of stormwater can also result in erosion and damage to stream channels, roads, bridges, and structures.

Water resource management is a broad and wide-ranging effort including activities such as identifying and delineating source water protection areas, minimizing discharges, and managing stormwater. Zoning and land use regulations and growth management techniques are effective mechanisms for directing development to areas that can best support the proposed uses. Using a watershed-based approach further ensures that downgradient areas are not adversely impacted.

In past years, water resource management was viewed only on a municipal-specific basis. Recently, local perspectives and policies have changed, with the realization that proper water resource management can only be accomplished by evaluating the comprehensive picture. Water resources are increasingly being addressed at the watershed level instead of only at the municipal level. When watersheds cross municipal boundaries, land use regulations need to be consistent across borders to ensure that upstream land and water uses in one municipality do not adversely impact water quality and quantity in downstream municipalities. Multimunicipal efforts such as demonstrated by the Pennridge Area Coordinating Committee are contributing to better, more technically feasible, and more accurate assessment and management of regional water resources. This type of regional cooperation is encouraged by the Pennsylvania Municipalities Planning Code (Act 247 of 1968), commonly referred to as the MPC, which gives cooperating municipalities the authority to make land use decisions based on current and future water supply resources.

Water resource management requires cooperation between state, county, and local officials and involves proper planning, engineering, construction, operation, and maintenance. This involves educating the public and local officials and requires program development, financing, revising policy, and development of workable criteria and adoption of ordinances. The goal of this *Pennridge Water Resources Plan* is to enable future development to occur within the Pennridge Area, while using both structural and nonstructural measures to properly manage water resources.

**Figure I-3**  
**The Hydrologic Cycle**

