

ADJACENT LAND USE STUDY FOR
VALLEY FORGE NATIONAL HISTORICAL PARK

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Technical Report NPS/MARVAFO/NRTR - 95/064

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Cooperative Agreement
4000-2-1010

February 1995

National Park Service
Mid-Atlantic Regional Office
Division of Resource Management and Visitor Protection
U.S. Custom House
200 Chestnut Street, Third Floor
Philadelphia, PA 19106

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Note: These maps are referenced within this report. However, because of their size they are not included within the report. Please contact Valley Forge National Historical Park for copies of the maps.

Forward

This project report is organized by sections. The first section contains the introduction which provides the general program statement and delineates the project site in terms of context and boundaries. This information is followed by definitions and an inventory of the land use categories found within the study area. This section concludes with a summary of the applicable land use controls organized on the basis of jurisdiction from local to federal.

Section two focusses upon the laws, regulations, and policies that are potentially relevant to the environmental quality of Valley Forge National Historical Park and its adjacent lands and waters. This discussion of environmental controls is organized by resource issues across jurisdictions.

The third section contains a brief analysis of the impacts of adjacent land uses and affecting controls upon the environmental quality, visitor use, and management of Valley Forge National Historical Park. This analysis is organized by municipality to indicate potential patterns of specific impact.

The report concludes with a list of issues that need to be cooperatively addressed by park management and local governmental officials in response to the existing or potential impacts to the local environmental quality.

Section 1 Context of Study

Introduction

Purpose - The purposes of this study are: 1) to document existing and proposed land uses adjacent to Valley Forge National Historical Park (VAFO), 2) to reference these to relevant affecting public laws, regulations, and policies, and 3) to indicate potential environmental impacts which may influence the mission of the National Park Service.

Context - VAFO is located twelve miles west of Philadelphia, Pennsylvania at the intersection of several major regional highways including the Pennsylvania Turnpike, the Schuylkill Expressway, the Pottstown Expressway, Rte. 30, and Rte. 202. This transportation network has facilitated the movement of industrial and commercial development as well as residential land uses to the vicinity of the park. VAFO is located in an important physiographic region as well, bordering the Great Valley and within the Schuylkill River and Valley Creek floodplains. The intensity of development within this physical setting has a significant potential for environmental impact upon the park.

Study Boundaries - The land holdings of the National Park Service for VAFO fall within the boundaries of both Chester and Montgomery counties in the Commonwealth of Pennsylvania. Portions of the park are located within the jurisdictions of Tredyffrin and Schuylkill townships in Chester County and Upper Merion, Lower Providence and West Norriton townships in Montgomery County. Because of current development patterns and future projections of growth areas, the study boundaries also include East Whiteland Township in Chester County and Upper Providence Township in Montgomery County even though they do not physically touch upon VAFO boundaries. In addition, this study examines land use issues for certain areas beyond these legal boundaries where there is evidence of potential impact upon the park. For example, regional highway planning projects, development within the regional watershed and regional utility projects all have potential impact upon the long-term mission of the park and accordingly should be considered.

Categories of Land Uses

A review of the township and county land use documents indicates a wide variety of terminology among the different jurisdictions. The specific zoning designations will be used when referring to a particular land use control (See Appendix I), but for this summary, similar land use designations will be grouped together into like categories to facilitate the discussion.

Residential - Most townships break residential districts down by density of development (number of dwelling units/acre). The most common breakdown is low, medium, and high densities, moving from detached single family units on acres of land to multi-family complexes of several units per acre. Some jurisdictions classify these densities as suburban or urban (E. Whiteland). Some specify particular types of housing units, e.g. mobile homes or apartments (Lower Providence, Upper Merion). Some townships classify agricultural districts in terms of the density of housing units as well.

Commercial - This category of land use includes retail and service businesses. Some jurisdictions further break this use down by service area or volume, e.g., Shopping Center or Regional Commercial as a separate district from Neighborhood Commercial zones (Schuylkill).

Industrial - Most townships provide for a hierarchy of development from Office to Limited Industrial to Heavy Industrial zones, based to a large extent upon impact on adjacent land uses.

Institutional - This category of land use is not always found, as some jurisdictions may include these uses within other districts. Essentially, it applies to public or quasi-public facilities that serve the community e.g., schools, cemeteries, and churches.

Open Space/Conservation/Environmental Constraints - These are some of the designations that apply to a range of areas which are all low-density, restricted development zones because of specific environmental limitations. These might include woodlands, wetlands, open space districts, floodplains, or steep slopes.

Agricultural - Active agricultural uses are fast disappearing in this region. Although there are still substantial areas of cultivated crop land and pasture land, many of the districts with this designation serve as buffer to development or as development reserves. In some cases they are part of the conservation district, serving as the base for an open space system.

Special Development Districts - This designation may apply to areas where particular development standards have been established. For example, the Special Paoli Development District in Tredyffrin Township has been established to promote the protection of a particular architectural character. Similar deviations in standards may be allowed in areas designated for mixed use development intended to achieve particular goals outlined in the Comprehensive Plan.

Inventory of Adjacent Land Use Zones

The following information summarizes the most recent zoning regulations available from each municipality. The dates of the latest revisions reflected in this report and the accompanying maps are indicated in Appendix I and on Maps Z-1 through Z-6. Refer to Maps Z-1 through Z-6 which graphically illustrate the relationships of the land use zones. Refer to Appendix I for a list of specific land use zone designations for each township. Since zoning changes may occur at any time, township offices should be consulted to see if the information presented has been revised.

Montgomery County

Upper Merion Township (See Maps Z-2 and Z-3 and Appendix I) - A major segment of VAFO is located within the northwest corner of Upper Merion Township. This area is zoned AG (Agricultural, Single Family Residential, 1 dwelling unit/acre), reflecting the heritage of this region. The area directly adjacent to the northeast corner of the park at the Schuylkill River is zoned HR (High-rise, Multi-family Residential). Next to this district, moving southward is a SM zone (Employment Center: Office and Restricted Light Manufacturing) with a building height limit of 50'. At the southeast corner of the park, the adjacent land is zoned AR (Administration and Research) for restricted business with a height limitation of 65'. Moving eastward from VAFO, the land is zoned HI (Heavy Industrial) directly along the river. This is followed in sequence to the south by an AG zone, a mixture of low to medium density residential zones, and a commercial zone which includes retail sales and regional shopping.

The current intensity of development is the result of the confluence of the highway network, including the Pennsylvania Turnpike (Rte 276), the Schuylkill Expressway (Rte.76), Rte. 202, and the Pottstown Expressway (Rte 422). Conrail also passes along the Schuylkill River into and through VAFO. This intensity as well as the potential for continued development pressures is of concern because of the visual encroachment and the traffic impact.

Lower Providence Township (See Maps Z-2 and Z-5 and Appendix I) - The portion of VAFO within Lower Providence Township is zoned R-2, but is also a Public Facilities and Open Space Overlay District. This means that it is a medium-low density residential zone (single family housing, at a maximum 1.7 d.u./acre). However, the overlay district provides for parks, open space, recreation, and educational uses, curtailing the already relatively low impact development potential of the area. Included in this particular district in addition to VAFO are the Audubon Wildlife Sanctuary, the Audubon Recreation Field and the General Washington Recreation Area.

Moving northward from VAFO the land is zoned R-1 (Single Family, .67 d.u./acre) and MHP (Mobile Home Park), portions of both zones of which are part of the Overlay District. North of these zones, the area is zoned for more R-2 and some R-3 and R-5

development (Medium-High Density Residential). The area north of the MHP is zoned LI (Limited Industrial) and is the site of the Valley Forge Corporate Center. The Pottstown Expressway (Rte 422) is the major highway that winds through this area although it has only a restricted interchange within Lower Providence. This minimizes the direct traffic impact upon the park, but still exposes VAFO to potential environmental impacts in terms of reduced air and water quality. There is also a Philadelphia Electric Company (PECO) transmission line which cuts through the northern boundary of the park, visually impacting the area. There is a Transcontinental Gas Company (TRANSCO) line running laterally through this portion of the park, restricting development and with potential for environmental impact from expansion or maintenance.

Upper Providence Township (See Maps Z-2, Z-5, and Z-6 and Appendix I) - Although no part of VAFO falls within Upper Providence Township, it is included in the study area because it is a high growth area which could potentially exert a significant impact. The construction of Rte. 422 has allowed development to expand northwestward. Growth is presently occurring in the form of residential and industrial development at the interchanges. The impact of this growth can already be felt at VAFO in terms of increased traffic. In addition, the potential environmental impact on water and air quality and the scenic character of the area intensifies as this expansion occurs.

West Norriton Township (See Maps Z-2, Z-3, Z-4, and Z-5 and Appendix I) - Only a very small pie-shaped wedge of the park falls within the boundary of West Norriton Township. This area is zoned R-A (Rural Residence, 1 d.u./acre) and the adjacent areas are zoned I (Industrial) and B-P (Business and Professional). The existing and potential environmental impact seems to be minimal because of its location relative to the park and its current degree of development. However, the township regulations and plans have been reviewed to identify any potential concerns that should be reflected in this study.

Chester County

Tredyffrin Township (See Maps Z-1, Z-2, and Z-3 and Appendix I) - A sizeable portion of VAFO falls within the Tredyffrin Township boundaries. The park area itself is zoned RC (Rural-Conservation) which provides for preservation of natural resource areas for conservation, recreation, open space, and historic purposes. Areas east and southeast of VAFO have been essentially developed as medium density single family housing (1 to 4 d.u./acre). The area south of the park and the Pennsylvania Turnpike is zoned UDA (Unified Development Area). This is the location of the Chesterbrook Complex which is almost completely developed. It includes a mixture of residential, office, and commercial uses developed with height limitations and open space requirements to minimize its impact upon adjacent land uses. West

of VAFO is zoned R 1/2 which is low density single family residential (less than 1 d.u./acre).

The highway system through Tredyffrin Township is particularly important to the resultant land use pattern. Abutting the southern boundary of the park, the Pennsylvania Turnpike runs east-west through the township. Essentially parallel to the Pennsylvania Turnpike and south of the Chesterbrook area is the Rte. 202 corridor, along which the major industrial, office, and service core is located. Significant portions of Tredyffrin Township have already been developed. Because of its geographic location and the major traffic routes outlined above, the potential for intensive redevelopment and in-fill exists and must be anticipated.

Schuylkill Township (See Maps Z-1, Z-2, Z-5, and Z-6 and Appendix I) - A portion of VAFO falls within the northeast corner of Schuylkill Township, south of Valley Creek. This area is zoned R-1, (Low-density Residential, .67 d.u./acre). In the Comprehensive Plan, it is part of the area designated as Public Use and Environmentally Sensitive Land. Aside from a small pocket zoned for neighborhood commercial along Rte. 23 adjacent to the park and an area currently zoned as Administrative and Research, most of this area is projected to stay in low-density residential development, woodlands, or institutional use. The township goal is to preserve the rural character while essentially increasing residential development. The major traffic pattern through Schuylkill Township is along Rte. 23 which channels traffic from Phoenixville and west directly through VAFO to King of Prussia employment centers.

East Whiteland Township (See Map Z-1 and Appendix I) -As in Montgomery County, the land use development patterns having a direct potential impact upon VAFO extend out beyond those townships that directly abut the park in Chester County. East Whiteland Township which lies west of Tredyffrin Township, falls within the Pennsylvania Turnpike, Rte. 202, and Rte. 30 corridors. Particularly because of the expansion of "high tech" industries westward along the Rte. 202 corridor, East Whiteland is experiencing a relatively high rate of development. This growth has potential environmental impact upon VAFO and the Valley Creek watershed in terms of traffic impact resulting from the new development. The patterns of industrial development and high density residential uses bear particular attention in this regard.

Land Use Controls

The following is a compilation of various laws, regulations, policies, and agencies that dictate or influence the patterns of development in the study area and consequently have a potential impact on the environmental quality of the park and adjacent lands and waters.

Township Regulations/Controls

Schuylkill Township

- a. Zoning Ordinance - 1975 (Rev. 1989)
- b. Comprehensive Plan - 1991
- c. Open Space, Recreation, & Environmental Resources Plan - 1992

Tredyffrin Township

- a. Zoning Ordinance - 1979 (Rev. 1993)
- b. Comprehensive Plan - 1987
- c. Open Space, Recreation, & Environmental Resources Plan - 1992

East Whiteland Township

- a. Zoning Ordinance - 1975 (Rev. 1988)
- b. Comprehensive Plan - 1987
- c. Parks, Recreation and Open Space Plan - 1991

Upper Merion Township

- a. Zoning Ordinance - 1987 (Rev. 1990)
- b. Comprehensive Plan - 1986 (Under Revision)

Lower Providence Township

- a. Zoning Ordinance - 1979 (Under Revision)
- b. Comprehensive Plan - 1981
- c. Township Recreation Plan - 1993

Upper Providence Township

- a. Zoning Ordinance - 1981 (Rev. 1992)
- b. Comprehensive Plan - 1993
- c. Open Space and Recreation Plan - 1993

West Norriton Township

- a. Zoning Ordinance - 1991
- b. Comprehensive Plan - n.d.

County-Level Controls

The primary agency at this level is the county planning commission which functions in a state-mandated review capacity. The primary document is the county comprehensive plan, the major element of which is the county land use plan. This plan documents existing land use patterns, correlates future land use plans of the townships, evaluates future land use needs from a regional standpoint, and provides a regional context from which to consider municipal land use decisions.

Chester County Planning Commission

- a. Land Use Plan (1988) - Primary element of the County Comprehensive Plan
- b. Open Space and Recreation Study (1982)
- c. Highway Needs Study (1986)
- d. Master Sewer Plan (1970)
- e. Community Facilities Inventory (Sewer Facilities) (1985)
- f. Community Facilities Inventory (Water Facilities) (1991)

Eastern Chester County Regional Planning Commission - This is a loosely structured regional group of township officials who organize specifically to look at issues of common interest. A partial list of pertinent studies completed by this group include:

- a. Water Resources Study (1985)
- b. Analysis of Local Zoning Ordinances (n.d.)
- c. Route 30 Corridor Study (n.d.)
- d. Regional Goals and Objectives Study (1985)
- e. Impact Analysis of Vacant Parcels (1985)

Montgomery County Planning Commission *

- a. The County Plan (1978)
- b. Land Use Plan (1979)
- c. Resource Protection Plan (n.d.)
- d. Open Space Plan (n.d.)
- e. Transportation Corridor Studies (n.d.)
- f. Water Service Plan (n.d.)
- g. Sewage Facilities Plan (n.d.)
- h. Natural Environment Protection Area Study ((1973)
- i. Suburban Sprawl - Changing Development Patterns 1965-1990 (1993)
- j. Comprehensive Plan Map (1991)

*Note - Many of these studies are currently being up-dated. While they are not yet in a format for distribution, the current information is available by contacting the appropriate county planning department.

Regional-Level Controls

Delaware Valley Regional Planning Commission

- a. Transportation Planning Studies (1985)
- b. Population Studies (1980)
- c. Rte. 422 Corridor Study (1992)
- d. Open Space Study (1991-1992)

Delaware River Basin Commission

- a. Delaware River Basin Compact (1961)
- b. Flood Plain Regulations (1977)
- c. Ground Water Protected Area Regulations - SE Pa. (1986)
- d. Water Code (1989)
- e. Administrative Manual - Rules of Practice and Procedures (1991)
- f. Water Quality Regulations (1992)

Utilities

A variety of public and quasi-public utility services influence land use development patterns of inter-jurisdictional areas. The following list represents some of those for which regulations and policies need to be considered:

Valley Forge Sewer Authority
Chester County Sewer Authority
Montgomery County Sewer Authority
Philadelphia Suburban Water Company

Philadelphia Electric Company
Chester County Water Resources Authority
Southeastern Pennsylvania Transportation Authority
ConRail
Transcontinental Gas Company

State-Level Regulations and Agencies

There are many state laws, regulations, and controls that directly or indirectly affect land use development. The major ones that have been identified include:

Laws:

- a. Act 97 - The Pennsylvania Solid Waste Management Act, (35 PS Sec. 6001, et seq).
- b. Act 101 - The Pennsylvania Municipal Waste Planning, Recycling and Water Reduction Act, (53 PS Sec. 4000.101 et seq).
- c. Act 166 - The Pennsylvania Flood Plain Management Act, (32 PS Sec. 679.101 et seq).
- d. Act 167 - The Pennsylvania Stormwater Management Act, (32 PS Sec. 680.1 et seq).
- e. Act 247 - The Pennsylvania Municipalities Planning Code (Article III), (53 PS Sec. 10101 et seq).
- f. Act 319 - The Pennsylvania Farmland Assessment Act, (72 PS Sec. 5490).
- g. Act 537 - The Pennsylvania Sewage Facilities Act of 1966 (Amended), (35 PS Sec. 750.1 et seq).
- h. Act 554 - The Pennsylvania Surface Mining Conservation and Reclamation Act, (52 PS Sec. 1396.1).
- i. The Pennsylvania Clean Streams Law, (35 PS 691.1 et seq).
- j. The Pennsylvania Air Pollution Control Act, (35 PS Sec. 4001 et seq).

Agency Policies and Regulations:

- a. Pennsylvania Department of Transportation (Penn DOT) - Regulations and "Twelve-Year Highway Program" (1988-2000).
- b. Pennsylvania Department of Environmental Resources (DER) - Regulations and Policies
 - 1). Div. of Assessment and Standards - Ground Water Protection Withdrawals Policies.
 - 2). Bureau of Water Quality Management - Special Protection Waters Implementation Handbook.
 - 3). Soil Erosion and Sedimentation Control Manual, 1979.
 - 4). Chapter 102, Erosion Control, of Clean Streams Law, 1987.
 - 5). Chapter 92, NPDES, of Clean Streams Law.

Federal Regulations

The Clean Air Act, (42 USCA Sec. 7401 et seq).
The Clean Water Act, (33 USCA Sec. 1251 et seq).
The Clean Streams Act (Chap.92, National Pollutant
Discharge Elimination System -NPDES)
The Safe Drinking Water Act, (42 USCA Sec. 300f et
seq).
The Groundwater Protection Act, (33 Sec. 1329 et seq).
The Resource Conservation and Recovery Act (RCRA), (42
USCA Sec. 6901 et seq).
The Federal Water Pollution Control Act Amendments of
1972 (33 USC Sec. 1344).
The National Environmental Policy Act (NEPA), (42 USCA
Sec. 4321 et seq).
The Comprehensive Environmental Response, Compensation,
and Liability Act (CERCLA), (42 USC Sec. 9601 et seq).

Section 2 Laws, Regulations, and Policies

Organization and Methodology

The objective of this section is to describe the laws, regulations, and policies that are potentially relevant to the environmental quality of the park and its adjacent lands and waters. As noted in Section 1, the area of this study encompasses the five different townships within which VAFO lies (Tredyffrin, Schuylkill, Upper Merion, Lower Providence, and West Norriton townships), as well as East Whiteland and Upper Providence townships because of current activities and development trends. The involved municipalities are located within two counties (Chester and Montgomery counties) in the Commonwealth of Pennsylvania. While most areas of environmental concern are regulated by federal legislation, the actual enforcement and implementation of these controls occur on the state and/or local levels. Therefore, the fact that VAFO falls within several different jurisdictions is particularly significant. Even more important is the fact that, by nature, there is an overlap of the environmental issues that these regulations are addressing. That is, while the legal boundaries between counties or townships can be clearly delineated, the impact of development on natural resource systems does not stop at these arbitrary divisions.

Consequently, it seems appropriate to describe these controls on the basis of each natural or environmental resource/factor. The issue of concern will be defined and then the basis and level of control will be outlined. These will be organized by focussing upon the local level of control, with reference to the broader state, regional, or federal policy as applicable.

Resource Issues

Water Quantity and Quality - The issues of quantity and quality of water cannot be totally separated because of their causal relationships. Together they have a significant potential impact upon the environmental integrity of VAFO. In the first place, because watersheds or drainage areas extend beyond political boundaries, the water resources of any one entity can be impacted considerably by activities occurring beyond its borders. (Refer to Maps WS-1 through WS-6 for the delineation of the watersheds within the project study area). As development occurs in those areas adjacent to the upstream portions of those watersheds, both the surface and groundwater quantity and quality of downstream areas can be negatively affected. Therefore, controls have been

implemented which regulate both water withdrawals as well as wastewater discharges which might occur upstream. These measures are regional in scope and enforcement, but in many instances are primarily implemented at the local level.

Water Supply - The federal government is expanding its regulations under programs such as the Safe Drinking Water Act (42 USCA Sec. 300f et seq) and the Resource Recovery and Conservation Act (RCRA)(42 USCA Sec.6901 et seq), both of which apply to surface and ground water supplies and wetlands legislation. Pennsylvania has modified its Clean Streams Law (35 PS Sec. 691.1) and has adopted new legislation such as the Well Head Protection Act (53 PS Sec. 402) to provide better protection for local water resources and supplies. At the local level, a recent amendment to Act 247, the Pennsylvania Municipalities Planning Code (53 PS Sec. 10101 et seq), calls for a "Water Survey" which is a plan to project water needs as development occurs. This amendment allows site and density provisions in local zoning ordinances which are keyed directly to the protection of water supplies.

Groundwater Protection - Since many users receive their water from underground sources, groundwater protection is an important component closely related to water supply. On the state level, groundwater withdrawals are regulated by the Pennsylvania Department of Environmental Resources (DER), through the Division of Assessment and Standards. Regionally, it is regulated by entities such as the Delaware Valley River Basin Commission (DVRBC). Such agencies monitor both surface and groundwater withdrawals beyond certain limits to ensure that adequate supplies are available for existing users and to prevent degradation of the water quality. The DVRBC's policies and regulations are important to VAFO because of the Schuylkill River which is a major tributary of the Delaware River. These policies have strong implications for development in the study area as DVRBC meets its primary goal of trying to balance regional growth and development with environmental quality.

Water Quality - The issue of water quality may be broken down into several related categories:

a. The general focus of water quality is addressed federally under the Clean Water Act (33 USCA Sec.1251 et seq). The goals of this statute are broad, including the attainment of "fishable and swimmable" water quality and the elimination of pollution from the lakes, streams, and wetlands of the United States. The Clean Water Act provides for stringent federal standards, implemented through federal and state permit programs to assist states and local governments in improving water quality. The water quality standards are based upon use designations, water quality criteria, and a nondegradation requirement. Each state has to designate all of its surface waters for a specific use or uses, (e.g., drinking water, aquatic recreation, industrial withdrawal). The water quality criteria include concentrations for specific

pollutants that will allow the use designations. These criteria have been established by the U.S. Environmental Protection Agency (EPA), or individual states may devise their own with EPA approval. An important environmental benefit of the nondegradation policy is that it requires that the existing level of water quality be maintained even if it is superior to that required for the designated use.

b. In Pennsylvania, the primary water quality legislation is the Clean Streams Law (35 PS Sec.691.1), the purpose of which is to prevent further discharge of pollution into commonwealth streams. DER is charged with establishing policies for effective water quality control and management and for coordinating the development and implementation of comprehensive public water supply, waste management and other water quality plans. Discharging of sewage and other wastes into public waters is controlled by permits. Specific regulations addressing sedimentation and erosion control are located in Section 102 of the DER regulations, as authorized under the Clean Streams Law. These regulations are overseen by the Pennsylvania Bureau of Land and Water Conservation. Each county has a Conservation District Office that enforces Section 102.

One important direct implication of the Clean Streams Law is the provision for the classification of certain streams as "High Quality" and "Exceptional Value". Streams receiving these ratings, of which there are over 13,000 miles in the state, are protected from any degradation in water quality. The Pennsylvania Environmental Quality Board (EQB) recently approved upgrading the Valley Creek Watershed to the "Exceptional Value" classification. By definition, Exceptional Waters include a "watershed which constitutes an outstanding national, state, regional or local resource ... or waters of substantial recreational or ecological significance." This designation provides additional protection for the water quality of Valley Creek and its tributaries by requiring that the waters be maintained and protected at their existing quality and uses with no exceptions. The reclassification from a Cold Water Fishery Stream has a potentially positive impact upon the long-term environmental quality of VAFO through which Valley Creek flows (See Maps WS-1 and WS-2). At this time, the developer of the proposed "Valley Crossing" project in East Whiteland Township has filed a suit against DER and the EQB because compliance with the up-graded standards threaten the development. This action should be followed closely by VAFO. If it stands up in court, the additional protection of the water quality of Valley Creek should have a very positive impact upon the long-term environmental quality of VAFO.

c. The impact of mining operations upon water quality are regulated by the Pennsylvania Surface Mining Conservation and Reclamation Act (52 PS Sec.1396.3) and the Clean Streams Law. Mining is unsuitable where it: 1) is incompatible with land use plans, 2) will significantly damage historic, cultural, scientific and aesthetic values and natural systems, 3) could result in loss or reduction of water supply (aquifer or

aquifer recharge areas), or 4) could affect areas subject to flooding.

Flood Hazard Protection - Municipal regulations monitor construction within areas designated as "Flood Hazard Districts". The environmental basis for such regulations is to both preserve the alluvial soils and to prevent pollution of the streams. Development is restricted within 25' of the Flood Hazard District, which is typically 50' from any watercourse or from the 100-year flood limit. This restriction creates an effective minimum distance of development at 75' from the watercourse. Such regulations are controlled by requiring compliance with the Pennsylvania Sewage Facilities Act (Act 537), the Water Obstruction Act of 1913 (32 PS Sec.681-691), and the Federal Water Pollution Control Act Amendments of 1972, (Sec. 404, USC 1344) prior to the issuance of local building permits.

Sewage Disposal - Act 537, the Pennsylvania Sewage Facilities Act of 1966 (Amended), requires municipalities to establish a Sewage Facilities Plan which sets forth policies regarding use of wastewater disposal systems. The resultant 537 Plan must therefore reflect land use policies established in each municipality's Comprehensive Plan, Zoning Ordinance, and Subdivision and Land Development Ordinance. DER approves and orders implementation of these official plans. The EQB establishes standards for construction, maintenance, and operation of the sewage systems; adopts standards for enforcement programs; and establishes the requirements for the disbursement of state and federal funds for planning and construction of these systems. Individual on-site systems are permitted and regulated by the local county health department and DER. Community on-lot and package plant systems are permitted by DER in accordance with standards established in Chapter 92, National Pollutant Discharge Elimination System (NPDES) of the Clean Streams Act. Compliance is achieved by requiring permits for both individual sewage systems and community or regional sewage systems. Permits are issued locally by the county health departments. However, the state maintains overall control through the Department of Environmental Resources Regional Water Quality Management offices to ensure compliance with state and federal standards.

The provisions of Act 537 are intended to facilitate a coordinated expansion of public sewers and public water service by setting standards for administering and expanding local sewer facilities within a systematic framework. A complementary program, the Statewide Comprehensive Water Quality Program - COWAMP/208 comes into play if municipalities do not have an approved 537 plan. The underlying purpose of this planning concept is to stage and guide intensive development into areas with appropriate sewer and other community facilities. The important consideration is that there is an effort through all of these regulations and policies to coordinate development because of the overlapping impact from one jurisdiction to another. This is a

positive aspect which is not directed at preventing new development, but at insuring that as development takes place, its environmental impact upon adjacent jurisdictions is considered. It also has important economic implications, minimizing duplication and coordinating sewage expansion within designated growth patterns.

Storm Water Management - Accelerated run-off of storm water from development increases flood potential, contributes to soil erosion and the resultant sedimentation of streams, reduces ground water recharge, undermines flood plain management, and threatens the public health and safety. Act 167, the Pennsylvania Storm Water Management Act (32 PS Sec. 680.1) has provisions to address these concerns by requiring a watershed storm management plan, prepared on the county level in conjunction with each municipality. These plans would assess the potential impact of runoff on existing and projected land development patterns, particularly those in flood hazard areas. The act calls for a local review of existing systems and identification of a 10 year plan of storm water collection and control facilities. Under Act 167, the Department of Environmental Resources would approve the plan if it is consistent with municipal flood plain management plans and state and federal flood control programs. In theory this law encourages local administration and management of storm water in a manner consistent with the state's role as trustee of its natural resources, and the people's constitutional right to the preservation of natural, economic, scenic, aesthetic, recreational, and historic values of the environment. However, to this point there has been no enforcement of these provisions and no municipalities in either Montgomery or Chester counties have developed storm water management plans.

Air Quality - The issue of air quality is certainly one in which legal jurisdictions do not neatly coincide with the extent of impact. This applies to the visual quality of the air in terms of visibility as well as the physical impurities and their resultant impacts on human and natural environments.

The Clean Air Act, as amended in 1977 and 1990 (42 USC, Sec.7401 et seq), empowered the Environmental Protection Agency (EPA) to set National Ambient Air Quality (NAAQ) Standards for pollutants injurious to public health and welfare. Ranging in degree of potential danger, various pollutants have been categorized and are subject to air toxic emissions regulations. According to pre-determined standards, various categories of pollutants must utilize different levels of technology to reduce emission levels. To determine whether a given area is clean enough to meet these NAAQ Standards, states must establish non-attainment areas (areas which do not meet the standards) for each of the criteria pollutants. States have generally had a problem establishing these areas and to date the deadlines for meeting NAAQ Standards have been extended. VAFO is included in the Philadelphia

airshed which is classified as non-attainment for ozone and carbon monoxide.

Most of the standards are based on protection of public health. Of perhaps more significance to VAFO are those provisions to "preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic or historic value", which are included as Part C - Prevention of Significant Deterioration of Air Quality in the amendments to the Clean Air Act. The focus of these amendments include visibility, damage to natural and/or cultural resources, and visitor health. Although these currently apply only to Class I areas, which are large national parks and wilderness areas, there may be some longer term application to facilities such as VAFO which are designated as Class II (allowing for "moderate" economic growth).

On the state level, the Pennsylvania Air Pollution Control Act (35 P.S., Sec.4001 et seq) is rather broad in its goals. It is intended to protect the air resources of Pennsylvania for: a) public health, safety and well-being, b) prevention of injury to plant and animal life and to property, and c) protection of comfort and convenience of the public and protection of recreational resources of Pennsylvania. Air pollution control is regulated jointly among the DER (Bureau of Air Quality Control), the city of Philadelphia or Allegheny County, and the EPA's Region III office in Philadelphia. The local districts and the state receive and process permits for the construction and operation of new or modified major stationary sources in non-attainment areas. The regional EPA has the final say on issuing permits. The potential levels of air pollution are keyed to typical urban encroachments resulting from increased land use development and the resultant expansion of highways. There is perhaps more latitude in the interpretation of the state regulations to provide protection for VAFO.

Miscellaneous Physical Resources

Local Physical Conditions/Environmental Sensitivity - There are specific physical properties of any site that have direct implications on its development potential. For example, such characteristics as the steepness of the ground surface, the moisture content or the natural stability of the soil, the presence of vegetation (woodlands), and the potential for flooding determine how suitable a site may be to build on, and to what level of intensity development may occur. Although there are correlations to federal, state, and regional controls (e.g., the Clean Streams Law, Sedimentation and Erosion Control regulations), building restrictions based on these sorts of physical factors are most frequently regulated at the local level. Current and recommended municipal ordinances often single out environmentally sensitive areas and/or historic buildings and sites for protection from the negative impacts of development. These regulations may require a

potential developer to: a) identify site resources, b) assess the impacts of development upon those resources, and c) propose mitigating actions ranging from traffic management to provisions for landscaping. An example in the study area is Sec. IX-182 of the Tredyffrin Township Zoning Ordinance, "Steep Slope Regulations", which has potential implications for environmental quality in terms of water degradation, density of development, and visual impact. A summary of the controls in place in each of the municipalities within this study area are found in Figure 2-1.

Regional and State Controls for Environmental Sensitivity-

Areas designated as sensitive may be important environmentally, culturally, and/or for active recreation. The provision of linear green spaces - e.g., the Schuylkill River Greenway - can serve a number of important functions. The objective may be directed to preserve agricultural land and open space from more intensive development. Such goals are more far-reaching than visual impact, having significant impacts on land, water, and air resources. An example of the type of legislation which addresses these issues is Act 319, the Pennsylvania Farmland Assessment Act of 1974 (72 PS Sec.5490). It allows for use-value assessments. In other words, land is assessed on the basis of present use, not on its development potential. There are three categories of use: "Agricultural Use", "Agricultural Reserve", and "Forest Reserve". All three provide tax incentives for maintaining the land at its lower land use classification and a substantial disincentive if the land is later removed from the restrictions of the act.

Federal and state statutes which address wetland preservation are also examples of this type of control. The primary federal control of wetlands falls under Section 404 of the Clean Water Act which requires that all development proposals involving or impacting wetlands must obtain a permit (with the exception of agricultural or silvicultural projects). Compliance is achieved through municipal regulations which require that the precise wetlands boundaries must be approved by the U.S. Corps of Engineers as part of the permitting process for a development proposal. Wetlands preservation is closely related to water quantity/quality issues, but is in fact deals with a distinct resource with environmental implications of its own. Preservation of wetlands not only aids in natural processes of water purification and in maintaining natural water table levels, but also in retaining and creating natural plant and animal habitats and providing natural buffers to more intensive land use development.

Utilities

The state requires utilities to forecast their power transmission expansion projections for five year periods. The regulation of utilities in regards to transmission and distribution facility siting relates to all of the previously mentioned controls

Figure 2-1
Municipal Physical Resource Regulations

Upper Merion Township

- *Steep Slope Development; Zoning Ordinance, Art.XXXII-A
- *Floodplain Conservation District; Z.O., Art. XXXII, Sec. 165-220
- *Natural Areas Overlay District; Recommendation of Park & Recreation Master Plan

Lower Providence Township

- *No current regulations

Upper Providence Township

- *Steep Slope Conservation District; Z.O., Art.XVIII, Sec. 182-128 et seq
- *Floodplain Conservation District; Z.O., Art.III, Sec.182-25 et seq

West Norriton Township

- *Floodplain Regulations; Z.O., Sec. 2201 et seq

Tredyffrin Township

- *Steep Slope Development; Z.O., Art. 18, Sec. 1820
- *Flood Hazard District; Z.O., Art. 5, Sec. 501
- *Performance Standards for Sensitive Lands and Natural Features; Z.O., Art. 18, Sec.1822 (Incl. Steep Slopes, Woodlands, Geologic Formations, Ponds, Lakes, Streams, Wetlands, & Floodplains)

Schuylkill Township

- *Steep Slope Regulations, Z.O., Art. XVI, Sec. 1624
- *Flood Hazard District, Z.O., Art. X, Sec. 1000
- *Sensitive Lands/Natural Features Regulations; Recommendation of Comprehensive Plan

East Whiteland Township

- *Flood Hazard District, Z.O., Art. IV, Sec. 1

where appropriate. Any question of environmental impact of a utility expansion would involve the Pennsylvania Department of Environmental Resources. In addition, the Pennsylvania Public Utilities Commission (PPUC) is involved in the economic and legal aspects of such expansion. For any major expansion, such as an electric transmission line, a utility is required to file an environmental impact statement and be issued a Certificate of Public Convenience and Necessity. The PPUC does not forecast any major expansion of power transmission lines in the vicinity of VAFO at this time. Smaller distribution line rights-of-way are subject to less stringent standards. Many of the clearance requirements are established by the utility companies themselves. For example, power companies establish a three to five year maintenance schedule to clear vegetation within the rights-of-way. The policies and projected expansion schedule of all applicable utility companies (e.g., Transcontinental Gas Company) will be reviewed and included as affecting policy under this study.

Solid Waste

The federal statute, the Resource Conservation and Recovery Act (RCRA) (42 U.S.C.A. Sec 6900 et seq), establishes the overriding objectives and requirements for solid waste management. However, the incentives for compliance are largely a matter of federal economic assistance. Therefore, Act 97, the Pennsylvania Solid Waste Management Act (35 P.S., Sec.6001 et seq) is the primary legislation charged with providing for the planning and regulation of solid waste storage, collection, transportation, processing, and disposal systems. The Department of Environmental Resources has set stringent standards, particularly for municipal waste facilities which exceed those required under Part D of RCRA. Municipalities are required to submit plans for solid waste management systems. This official plan delineates areas where systems are in place and where they are planned for a ten year period. The plan outlines the manner in which a system will be expanded without polluting the air or waters of Pennsylvania, and which considers official planning and zoning documents in place. A proposed plan is reviewed by the county planning agency and then forwarded to DER with an endorsement. The actual permit is then issued by DER.

Hazardous waste management falls under the additional jurisdiction of EPA in regard to storage, treatment, and disposal. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Sec. 9601 et seq), was enacted to address conditions created prior to the implementation of RCRA or where other regulations have been ineffective in cleaning up hazardous waste disposal sites. More commonly referred to as the Superfund Act, this statute provides for the identification of hazardous waste disposal sites, the development of priority lists for clean up of such sites, and the creation of a Hazardous Substances Trust Fund to pay for removal and remedial action. The fund is generally considered inadequate to deal with the magnitude of the problem. For example, from a national priority list of 1200

sites designated for Superfund cleanup, only 60 have been completely mitigated to date according to EPA statistics. There are two sites within the study area, the Paoli Rail Yard in Tredyffrin Township and the Foote Mineral Company site in East Whiteland Township. The status of clean up at these sites, along with the Malvern T.C.E. site in Charlestown Township, bears monitoring by VAFO because of they are in the Valley Creek watershed. While primarily under the jurisdiction of EPA, DER is involved because of the designation of Valley Creek as Exceptional Value waters.

Land Use Planning and Regulations

The primary statute regulating land use development is Act 247, the Pennsylvania Municipalities Planning Code (53 P.S., Sec.10101 et seq). This is the enabling authority, providing the basis for municipalities and townships to plan their development and then to control it by zoning, subdivision and land development ordinances, and other regulations such as steep slope and floodplain restrictions.

Article II of Act 247 authorizes the municipalities to create a planning commission and/or department whose duties include: 1) preparation of a comprehensive plan for the development of the municipality, 2) recommendations regarding adoption of an official map, and 3) preparation of the following documents: a) zoning ordinance, b) subdivision and land development and planned residential development regulations, c) building and housing codes, d) environmental study, and e) water survey consistent with the State Water Plan.

Article III authorizes the municipalities to prepare a Comprehensive Plan on which the zoning ordinance will be based. This plan includes: 1) a statement of objectives regarding future development, 2) a plan for land use, including amount, intensity, character, and timing for each use, 3) a plan to meet existing and projected housing needs, 4) a plan for transportation needs, including vehicular, pedestrian and bikeways, public transit, and air, rail, and port services, 5) a plan for community facilities and utilities, 6) a statement of environmental, economic, and social interrelationships among plan components, 7) short- and long-term plan implementation strategies, 8) a statement of the relationship of existing and proposed development to adjacent municipalities, the county, and to the region and 9) a plan for water supply reflecting existing needs and future availability which must be consistent with the State Water Plan. The municipal comprehensive plan must be submitted to the county planning agency for review. The county may develop a plan as well and the two should be generally consistent. The municipal plan has legal compulsory status, while the county plan is advisory.

Under Article V of Act 247, a municipality may enact a Subdivision and Land Development Ordinance which requires that a developer submit a plan for approval. Approval is based upon the layout conforming to the comprehensive plan, coordinating public access for safety and convenience. It must also provide necessary

easements or rights-of-way for drainage and utility lines and must meet necessary state and local standards and conditions for water and sewage.

Article VI authorizes municipalities to enact a zoning ordinance to implement the comprehensive plan. This ordinance should reflect the policy goals and community development objectives. The basic purposes of the zoning are to protect or control public systems such as transportation, water, and sewerage and to preserve natural, cultural, scenic, and historic values in the environment. Among the elements which the zoning ordinance may permit or regulate are uses of land and water, physical characteristics of structures, areas of a site which can be occupied, the density of the population and the intensity of use, and considerations addressing protection and preservation of forests, wetlands, aquifers, and flood plains.

While the implementation of land use development is centered on the local level, the enabling legislation is at the state level. In this way, all of the environmental issues which have been addressed throughout this report are regulated. This is crucial because of the larger impact that many of these issues have beyond each local jurisdiction.

Section 3 Impact Analysis

Introduction

The purpose of this section is to present a brief analysis of the impacts of adjacent land uses and affecting controls upon the environmental quality, visitor use, and management of the park. It is organized according to the designated townships within the study area. The general evolution of land use patterns are outlined. The impacts of these patterns, as well as the townships' affecting land use controls are discussed briefly in the context of the issues to which they relate.

As previously noted, there is an overlap of environmental impact from one jurisdiction to another. Specific policies or regulations often have a far-reaching, even unexpected, impact because they relate to interconnected natural systems. Likewise, there is no consistent impact of land use patterns and controls in terms of how they relate to the environmental quality, visitor use, and management of VAFO. While some regulations may be directed at reducing environmental degradation, they may in turn create other potentially negative effects. For example, upgrading the classification of Valley Creek will improve and better protect its water quality while at the same time, there may be an increased demand for fishing within the park boundaries. This may conflict with the primary mission of VAFO which is to emphasize historic interpretation, in part by downplaying and reducing opportunities for active recreation, including fishing. Conversely, certain VAFO management objectives may be established in response to particular environmental impacts while others may be implemented to encourage or discourage certain forms of visitor use. The impact of these particular management practices may be perceived as negative to the surrounding community.

Adjacent Land Use Impacts

The following information summarizes current land use development patterns within each of the municipalities in the study area. Refer to Maps ELU-1 through ELU-6 which graphically illustrate the actual areas of development. This delineation of development is based upon 1990 data compiled by the Delaware Valley Regional Planning Commission. Aerial photographs were visually analyzed for evidence of physical development (buildings, structures, pavement, etc.). This information was then digitized

and can be computer generated to overlay directly on U.S.G.S. quad sheets of the area. For this land use study the resultant areas of existing development were overlaid on the zoning maps (Z-1 through Z-6) to identify specific land uses where development occurs.

Montgomery County

Upper Merion Township (See Maps ELU-2 and ELU-3) - Upper Merion Township is in the southeastern corner of the study area. It is located only 15 miles from center city Philadelphia and is a major transportation center because it is the site of the intersection of four major highways. While it began as an agricultural and residential community, Upper Merion Township has changed dramatically in character in a relatively short time span. According to the 1986 Comprehensive Plan, 64% of the total land area of 16.8 square miles was vacant or undeveloped in 1952. By 1965, this had decreased to 33% and in 1988 only 8% of the total land area remained vacant or undeveloped. In 1988, the township, in conjunction with the Montgomery County Planning Commission, redefined vacant land to better indicate development potential. They identified 2773 acres of land which included vacant and partially developed parcels of land. Together this represents 26.5% of the total land area.

During this same time span, the population has grown from 6404 in 1950 to 26138 in 1980. The 1990 Census indicated a 2% decrease from 1980 to 25722 residents. Population forecasts for the next 20 years are modest, projected to increase to 27300 residents by 2010. Interestingly, Upper Merion Township has developed into a regional employment center. According to Delaware Valley Regional Planning Commission figures, 52,500 people were employed in the township in 1990, an increase of almost 35% over the number of jobs in 1980. This represents 10.5% of the total jobs in Montgomery County. As with the resident population, the rate of employment growth is projected to moderate considerably in the township over the next 20 years. There will be an estimated increase of about 7% to 56,100 jobs by the year 2010.

Upper Merion Township has predominantly urban characteristics, functioning more like a city than a suburban community in many ways. In 1991, it began a comprehensive reexamination of its existing conditions as part of the planning process for its future growth. This process, which is called "Upper Merion Horizons", included an up-date of the 1988 developable lands inventory. As part of this up-date, additional considerations such as environmental constraints and zoning impacts were made. This in essence subtracted lands which were affected by wetlands, steep slope, and floodplain regulations from the potentially developable category to provide a more accurate picture of prospective growth patterns. The results indicated 1801 acres, 17% of the total township area, as potentially available for development or redevelopment. The actual development potential was then analyzed based upon physical capability of the land, environmental regulations, and market constraints. The findings were that most of the development potential was in the areas zoned for commercial

and corporate/research/industrial uses, not in residential uses. The specific statistics cited in the Horizons study are shown in Figure 3-1.

The catalyst for the existing and future development has been the extensive highway network which intersects in King of Prussia. This road system is a mixed blessing for the park. While providing easy access to the township, including VAFO, the traffic generated by this network presents problems of congestion and diminished air quality. The Horizons study recognizes that successful growth requires a better integration between land use and transportation issues. Accordingly, the township proposes the creation of a "mixed use development overlay district". This concept would: a) combine compatible land uses in terms of activities as well as traffic and parking requirements, b) promote transportation alternatives which would reduce traffic impacts, and c) promote integrated and aesthetically compatible relationships with adjoining parcels.

This approach is very positive and if implemented could help to minimize the adverse impacts of more intensive development upon the park. There is no question that the current level of development has had an impact upon the park. One has only to look to the east from the Visitors' Center to see the visual encroachment that is surely to continue. One way to minimize future negative visual impact is for the park to be an active participant in the planning process. While the pattern for land use development may be set, with some minor variations proposed by the Horizons study, the physical design character is not. It is possible for the park to adopt a pro-active stance and, for example, propose standards which will minimize the negative impacts and work with the local authorities to get them adopted.

Other issues which arise as a result of increased development pressures include environmental concerns for water quality/quantity, air quality, loss of open space/green space, impact upon wildlife habitats, and loss of rural character/aesthetic quality. Each of these are addressed through a series of controls/regulations at different jurisdictional levels which have been previously outlined. It is important for the park to examine the impacts on each environmental concern as part of a regularly scheduled review process to be in a position to protect the quality of the park and consequently the quality of the surrounding area in whatever manner it deems appropriate.

Lower Providence Township (See Maps ELU-2 and ELU-5) - Lower Providence Township is located north of the Schuylkill River and is bordered on the west by Perkiomen Creek. It comprises an area of 14.8 square miles. Lower Providence Township is one of the more densely populated municipalities with this project study area. The major population expansion occurred between 1950 and 1980. The number of residents increased by 69%, from 5889 in 1950 to 9955 in 1960. The population increased again by over 50% to 15,169 by 1970 and by 25% to 18,945 residents by 1980. (Schuylkill Township Comprehensive Plan, 1991).

Figure 3-1
Land Use Development Projections
For Upper Merion Township

<u>LAND USE</u>	<u>1993</u> <u>Existing</u>	<u>2012</u> <u>Proposed</u>	<u>%</u> <u>Incr.</u>
Residential	11,200 units	13,740 units	23%
Commercial/Retail	3.3 million s.f.	4.9 million s.f.	48%
Office/R&D/Industrial	13 million s.f.	19.2 million s.f.	48%

Source: Upper Merion Horizons - Project Summary Report, 1993.

Lower Providence Township has not up-dated its Comprehensive Plan of 1981. Until recently the philosophy of the township administration has been that Lower Providence is essentially developed and therefore has little need for long-term planning. This perception seems to be changing however. The 1993 Lower Providence Township Recreation Plan states, "A significant portion of the township is already developed or protected as permanent open space, however, there are vacant and underutilized lands that have the potential to support a substantial amount of new development." The majority of current development and projected future development seems to be in residential land use. The 1990 Census indicated a modest population increase from 1980 to 19,351 people. This growth occurred after the sewer moratorium was lifted in 1989. Interviews with township officials indicate that there are over 900 residential units in various stages of approval or construction since 1987. The Montgomery County Planning Commission (MCPC) has projected population increases to 21,200 by 2000 and to 22,350 by 2020. The MCPC's Future Growth Index Study of 1992 has also identified Lower Providence as one of the areas in the county likely to be under great development pressure.

The Recreation Plan breaks the township into park zones from which it projects growth areas. These zones are based upon population figures, circulation patterns, and topographic and natural boundaries. The scenario presented in this study assumes maximum population expansion, resulting in over a 50% increase from 1990 by 2020. Zone E, in which VAFO is located, is projected to increase its population by approximately 56%. Zone D, the adjacent area, has the lowest projected change in population, an increase on only 9%. Thus, most of the growth is anticipated in other portions of the township which may limit its impact upon the park. Similar to residential construction, there is limited projected industrial and commercial development as well. The proposed expansion of the Trooper Road interchange of Rte. 422 would increase traffic activity near the north side of the park. Also, the proposal to widen the Rte. 422 bridge will increase traffic near the park entrance. Replacement of the old Betzwood Bridge is key to proposed activities on the north side of the park.

Lower Providence Township is currently preparing an Open Space Preservation Plan which is focussing on issues of environmental protection rather than just recreational facilities. The draft of this document is scheduled to be completed by October 1994, with adoption expected by the end of the year. There is also some discussion of beginning a new comprehensive plan in 1995. These planning efforts should be studied because of the township's physical relationship to VAFO.

Potential environmental impacts include degradation of air quality from increased traffic generated by improvements to Rte. 422. Expansion of any development-related land uses will impact the water quantity/quality in the Perkiomen Creek and Schuylkill River watersheds. More intensive development adjacent to the park will have a visual impact on the rural character of the landscape

along the Schuylkill River as seen from the park on both sides of the river and an impact on existing wildlife habitats in the park.

Upper Providence Township (See Maps ELU-2, ELU-5, and ELU-6) -

Upper Providence Township is the northwestern most of the townships included in this study, located at the confluence of the Perkiomen Creek and the Schuylkill River. Up until the 1970's it was essentially rural in character, with agricultural uses encompassing 60% of its 17.8 square mile land area. Considering agricultural lands in conjunction with the vacant and wooded lands, a total of 82% of the township was classified as undeveloped at that time (See Figure 3-2).

Upper Providence Township's population has more than doubled since 1950, from 4486 to 9682 residents according to the 1990 Census figures. The major increases occurred in the 1960's and 1970's, with the population jumping to 6212 by 1970 and to 9551 people by 1980. The rate of growth then slowed considerably in the 1980's, increasing only by 1.4% during the decade.

These growth patterns can be correlated to specific influences. For example, the Upper Providence Township sewer system was completed in 1967, stimulating growth through the 1970's. The Oaks Sewage Treatment Plant was placed under a moratorium in 1977, due to an overload, which virtually stopped new development by 1983. The plant was expanded and the moratorium lifted in 1989, opening the way for new development. A second major catalyst for new growth has been the completion of Rte. 422, the Pottstown Expressway in 1985 which has opened the township to commuters working in the Philadelphia metropolitan area. This limited access highway, with the Rte. 29 and Oaks interchanges within the township, has also encouraged the influx of corporate centers, primarily pharmaceutical headquarters to date.

The rural and agricultural character of the township still predominates, but open spaces and agricultural uses are increasingly isolated from one another by new residential, industrial, commercial and office development. The changes in land use patterns are summarized in Figure 3-2 .

A new comprehensive plan was adopted in Fall 1993 to address changes in land use and zoning since the previous plan of 1983. The objective of the 1993 comprehensive plan is to maintain the existing character of Upper Providence Township by retaining as much low density development as possible and by preserving environmental resources. Because of this environmental concern, major natural features are overlain onto the land use plan and must be considered regardless of the proposed land use. Environmental preservation will be achieved essentially by concentrating development in suitable areas and by building out from existing development.

To retain its existing rural character, much of the future expansion of Upper Providence Township is still planned for low density residential development (average one d.u./acre). However, the 1993 comprehensive plan proposes zoning techniques which maximize this character by increasing the density where it is

Figure 3-2
Upper Providence Township Land Use Areas

<u>LAND USE</u>	<u>1970</u>	<u>1990</u>
Residential	10 %	11.2 %
Institutional	2 %	4.4 %
Commercial	0.5 %	4.8 %
Industrial	2 %	5 %
Recreational	1.3 %	2 %
Vacant or Agricultural	82 %	72.5 %
Utility	2.2 %	*

* Undefined

Source: Upper Providence Township Comprehensive Plan, 1983 and 1993

appropriate, balancing overall density by increasing the open space elsewhere. Medium and high density residential areas are planned where environmental conditions permit and where they are more consistent with existing land use patterns. While the 1990 Census indicated an increase of only 131 residents over the 1980 population, there were an additional 552 new housing units added in that same period. In addition, the 1993 comprehensive plan indicates a total of 1785 units under construction or "pending" (having at least been granted preliminary plan approval) as of the end of January 1993. Approximately 150-175 housing units are currently in "active" stages of development as of this writing.

The interchanges of the Rte. 422 Expressway have had and will continue to have a significant impact on the township's development. The comprehensive plan designates the Oaks Interchange as a mixed use area. Specific proposals include expansion of the office development at the Oaks Corporate Center and regional commercial use for the Oaks Mill site (the former B.F. Goodrich tire plant). High density residential areas will complement the resultant local employment opportunities and the easy access afforded by the expressway. The intensity of development will be balanced by the open space of the Lower Perkiomen Valley Park and the restricted floodplain of Perkiomen Creek found in this area. Since the previous comprehensive plan the major development activity in the township has been the three pharmaceutical projects, including the world headquarters for both Sterling Winthrop and Rhone-Poulenc Rorer, and the administrative offices and clinical laboratories of Smith Kline-Beecham. These are concentrated at the Rte. 29 interchange. This area was previously designated for low density residential development, but was rezoned in 1990 to Interchange Office. Directly adjacent is the proposed Providence Corporate Center in the Interchange Office Support District which is estimated to add 1.2 million square feet of office and commercial space upon completion. Low and medium density residential development is proposed for the areas ringing this support district, again as a complementary land use.

The new comprehensive plan provides a current framework for guiding new development which is forecast as a result of the expanded sewer capacity and the Rte. 422 Expressway. The township wants to facilitate additional growth to its tax base, particularly by attracting more corporate office development at the Rte. 29 interchange. At the same time, there is concern that such growth, as well as new residential expansion, occur in a manner which respects the rural heritage of the township and is sensitive to its environmental resources. There is potential for negative impact upon VAFO by virtue of the intensity of development. This impact may come in the form of reduced water quality of both the Perkiomen Creek and the Schuylkill River. The expanded capacity of the Oaks Sewage Treatment Plant should take care of this for the near future. Additional safeguards, in the form of local floodplain and steep slope restrictions, should minimize construction impacts upon the water quality. There is also concern that the resultant traffic increase already has and will continue to have an important

impact upon VAFO in terms of threats to the air quality and restricted accessibility when the highways are congested with commuter traffic. The visual impact of the traffic and the highway is also a concern from various vantage points in the park.

West Norriton Township (See Maps ELU-2, ELU-3, ELU-4, and ELU-5) - West Norriton Township, the northeastern most municipality in this project study area, is included because a very small portion of the park at the Betzwood Picnic Area falls within its boundaries. It is a relatively small township, comprising an area of 5.5 square miles. West Norriton has no current working comprehensive plan nor are there any plans to produce one. The administration considers the township virtually developed to capacity. The park area in the township falls into a Rural Residence Zone. The areas abutting the park are zoned "Industrial" along the Schuylkill River and "Business and Professional" along Trooper Road. There are no current plans for development in this area, although there was some earlier discussion of building high rise apartments along the river. However, such a development would require a zoning change.

The 1990 Census indicated a stable population of 15,209, virtually unchanged from 1980. There is little on-going development activity. The Mews is a 145 unit housing project currently under construction. There is another six-lot project on Stinson Lane currently under review.

The lack of development activity, plus its physical relationship, minimize West Norriton's impact upon the park. The township officials endorse the park's proposed upgrading of facilities on the north side and consider it to be a positive influence on the abutting areas. There is some concern about traffic backup when the Betzwood Bridge is replaced. The township would like to see some intersection improvements in conjunction with that project to alleviate this problem.

Chester County

1. Tredyffrin Township (See Maps ELU-1, ELU-2, and ELU-3) - Tredyffrin Township is located approximately 15 miles west of Philadelphia, in the southern portion of the project study area. Until 1970, 39% of the 20 square mile land area was still rural farmland, woodlands, or open space. Following the growth patterns of the region, Tredyffrin Township increased significantly in population from 1950 to 1970. The increases of approximately 15,000 people during the 1950's and 1960's essentially doubled the population during each of those decades. The number of residents remained relatively stable at 23,000 during the 1970's. Between 1980 and 1990 the township experienced another surge to 28,028 people, an increase of 21.8% according to the 1990 Census. The Chester County Planning Commission projections for the future are modest increases to 28,950 residents for 2000 and 29,370 for 2010.

Although there was a wide variety of land uses, in 1970 the township was essentially still a suburban residential community.

Since 1970 there has been considerable growth, with some significant changes in the land use patterns, evolving to the current combined residential community and employment center. Much of the development has been in professional and corporate office land use because of the Route 30 and Route 202 corridors.

The Tredyffrin Township Open Space, Recreation, and Environmental Resources Plan of 1992 in essence is an up-dated part of the comprehensive plan, serving as the open space and environmental resource elements of the plan. As such, it provides the basis for the development of important standards and guidelines for the preservation of wetlands, floodplains, slopes, woodlands, and views. The land use patterns existing in the township in 1992 as reported in this document are summarized in Figure 3-3.

In both the 1970 and 1986 Comprehensive Plans, the township was subdivided into four planning areas which run horizontally across the extent of the township. Area 1 includes the portion south of the Trenton Cutoff rail line; Area 2 runs from the rail line north to Rte. 202;; Area 3 is defined by Rte. 202 to the south and the Pennsylvania Turnpike to the north; and Area 4 is that portion north of the Pennsylvania Turnpike.

Between 1970 and 1985, there was a considerable increase in housing development, a large portion of which was for multi-family units. The area of residential land use increased from 4,000 acres to over 5,500 acres during this time period. Area 1, which was the most developed in 1970, has continued to in-fill with residential units. There has been significant commercial and office development along Rte. 30. Area 2 encompasses most of the transportation and utilities for the township. In addition, since 1970 there has been some residential development and significant commercial and office development along the Rte. 30 corridor. Area 3, which is directly south of the park, was dominated by the mixed use development of Chesterbrook. This complex includes 2500 new residential units, office development, and a shopping center. There have been several other office complexes built in the eastern portion of this area as well as some expansion to the west. There has also been an extensive addition made to private and public open space, totalling more than 500 acres.

Area 4, within which VAFO lies, was primarily residential and has remained essentially the same. Single-family development has filled in the remaining vacant land northeast of the park. Large-lot residential development has occurred to the west. Some of this area is limited to development because of the carbonate geology and the steep slopes. VAFO has extended its holdings in this area by an additional 150 acres.

The land uses adjacent to the park are generally compatible. The majority of Area 4 consists of residential development, most of which consists of single family lots. The more recent higher density housing is of some concern, primarily from the standpoint of visual impact. For example, the Chesterbrook complex is visible as one moves west along the Outer Line Drive, affecting the setting of the park as visitors experience it.

The primary potentially negative environmental impact from surrounding land uses is within the Valley Creek watershed which extends through East Whiteland Township and Tredyffrin Township and then through the park. In Tredyffrin Township, the land use adjacent to Valley Creek and Little Valley Creek is residential or open space. Providing that regulations to minimize soil erosion and sedimentation are followed as development occurs, there is minimal danger of stream pollution. However, the impact of excess run-off is currently evident after a storm in terms of bank erosion along the creek through the park. This indicates that regulations and/or enforcement are not as stringent as needed. As long as the township is operating under an approved 537 plan and adhering to sewer regulations, the impact on water quality is within acceptable limits. However, as any development occurs, there is less permeable surface remaining for groundwater to return to the water table.

Another potentially significant water quality impact is caused by the extensive road network. The Pennsylvania Turnpike and Rte. 202 are major east-west roads which can contribute significant amounts of pollution to Valley Creek through sheet run-off. Existing regulations do not deal with this issue directly.

Visitor use of VAFO may be affected by land use in a number of ways. The access to the park is a factor of the road systems. In Tredyffrin Township the Pennsylvania Turnpike borders the park to the south, but the closest exit lies in Upper Merion Township. The turnpike visually impacts the park, particularly the view to the service area. Noise and air pollution from road traffic are also factors which may negatively affect visitor use. Rte. 202 also traverses the township from west to east. Some of the proposed improvements (widening and upgraded intersections) will facilitate increased traffic. This can also create increased air pollution problems. Additionally, while some of the interchanges may facilitate movement to the park, they may also increase disruptive through-traffic, negatively affecting visitor use.

Park use and management issues come together in terms of the activities the park chooses to accommodate. Tredyffrin Township does identify VAFO as one of the recreation areas for use by township residents. In fact, most of the adjacent townships recognize that VAFO is nominally not a substitute for local recreation facilities. Practically however, many residents consider and use it as such. Regionally, the park is part of a developing system of trails, bikeways, and greenways. This in some ways may be contrary to the NPS' mission of historic interpretation at VAFO. Demands placed on the park by the townships may have negative impacts on how well the park can meet this primary mission. This is an important issue for VAFO to consider.

Other aspects of park management relate to the visual character of VAFO. Decisions relating to maintenance practices, the establishment of landscape screens and buffers, and natural resource programs in the park all have an impact on use in the park. Such practices are both a response to and have an impact on adjacent land uses.

FIGURE 3-3
Tredyffrin Township Existing Land Use, 1992

<u>LAND USE</u>	<u>ACRES</u>	<u>% AREA</u>
Residential	5522	43.1%
Institutional	460	3.6%
Commercial	995	7.8%
Industrial	211	1.6%
Recreation/Open Space	1825	14.2%
Transportation/Utilities	1741	13.6%
Agricultural/Vacant Land	2066	16.1%

Source: Tredyffrin Township Open Space, Recreation, and Environmental Resources Plan, 1992.

Schuylkill Township (See Maps ELU-1, ELU-2, ELU-5, and ELU-6) - Schuylkill Township is one of the most rural of the townships in this study. The 1960 population was only 3,461 residents. There was a dramatic increase of 67% between 1960 and 1970 to 5779 people. The population increased by only 3.7% during the following decade, reaching 5993 residents by 1980. According to the 1990 Census the population declined to 5538 people. Future projections range from lows of 5710 for 2000 and 5870 for 2010 by the Chester County Planning Commission to more significant increases to 7780 for 2000 and 8735 for 2010 according to the Schuylkill Township Comprehensive Plan of 1991. (Schuylkill Township Comprehensive Plan, 1991).

By the late 1960's agriculture was still the largest land use, encompassing 40% of the total nine square mile land area. At this time almost one-third of the township remained as open area. Industrial uses were small and of a manufacturing nature. There were few commercial uses, primarily scattered local businesses. Residential land use was predominantly older, single family dwellings.

The Comprehensive Plan of 1978 noted few changes in the land uses of Schuylkill Township. Most significant was a 20% increase in residential land use, including both single family and mobile home units. There was minimal change in commercial and industrial development. There was however, an increase in institutional land use, with the addition of the Northern Chester County Technical School and the YMCA. The increase in residential and institutional uses resulted in a concurrent decrease in agricultural and open lands.

The 1991 Comprehensive Plan identified land use changes since 1978. These included:

- An increase in commercial land use as a result of office development, particularly Valley Forge Commons on Rte.23,
- A slight increase in industrial land use,
- A significant increase in institutional and recreational uses due to the inclusion of Valley Forge Christian College (90 acres) and the Pickering Valley Golf Course (116 acres),
- A 20% decrease in the amount of agricultural land, woodlands, and open land as a result of other development, and
- A 23% increase in land for residential uses (an additional 290 acres).

A comparison of the major land use breakdown in Schuylkill Township as recorded in the 1991 Comprehensive Plan with that of 1965 is summarized in Figure 3-4.

Current development activities continue the pattern identified in the 1991 Comprehensive Plan. Residential uses predominate among projects at various stages of approval or construction. Although Schuylkill Township is not anti-development, it wishes to retain its rural character. This position is reflected in the Comprehensive Plan Update of 1991 and even more so in the Open

Space, Recreation and Environmental Resources Plan of 1992. This plan recommends strengthening the zoning ordinance and the subdivision and land development ordinance to more stringently regulate development impacts on all environmental and cultural resources, particularly wetlands, woodlands, floodplains, steep slopes, and surface and ground water quality and quantity. As long as this is the philosophy of the township, which the development patterns outlined above seem to substantiate, there is little danger of significant adverse environmental impact. There is potential danger however in designating major areas as open or undeveloped zones, should the philosophy toward development change. Rigorous zoning based on sound comprehensive planning precludes succumbing to economic pressures without thoughtful public consideration.

The major potential environmental impacts include development in the Schuylkill River and Valley Creek watersheds. The majority of the township is in the Schuylkill River watershed which is monitored by the Delaware River Basin Commission and the Pennsylvania DER. The river has been designated a part of the State Scenic Rivers System. This gives the township the option of developing management tools to control future development and maintain the environmental quality of the area. The small portion of the township in the Valley Creek watershed is either designated for single family residential use, undeveloped, or part of VAFO. As such there is minimal danger of degradation of the water quality to Valley Creek within the township.

The traffic along Rte.23 remains a potentially significant negative impact on the park. As long as Route 23 provides a through connection, linking Schuylkill Township and Phoenixville to King of Prussia, there is a potential conflict with the park visitor traffic as well as maintenance operations. Commuter traffic and park use are simply not compatible. As VAFO defines or redefines its mission, it should consider the potential conflict that this traffic poses. Increased land use impact from the township is not an issue under the current development trends. It could become so however if these trends change and other traffic routes are not improved and, as such, should be carefully watched by the park.

Figure 3-4
Schuylkill Township Land Use Areas

<u>LAND USE</u>	<u>1965</u> *	<u>1990</u>
Residential	17%	29%
Institutional	8%	4.8%
Commercial/Office	0.5%	1.1%
Industrial	0.4%	1%
Recreation		7.8%
Utilities/Transportation	3.7%	8.5%
Agricultural	40.3%	13.9%
Woodlands		19.8%
Open/Undeveloped	30.1%	14.1%

* Recreation was grouped with institutional uses in 1965 and woodlands were grouped with agricultural uses in 1965.

Sources: Schuylkill Township Comprehensive Plan, 1991 and Schuylkill Township Open Space, Recreation, and Environmental Resources Plan, 1992.

East Whiteland Township (See Map ELU-1) - East Whiteland Township is the westernmost township in this study, located in the Valley Creek watershed. It comprises an area of 10.8 square miles and, as early as the 1970's, was characterized as one of the most industrial townships in Chester County. The industrial development was due to the many small local quarries, most of which are now abandoned. Residential land uses dominated during this period however, and there were sizable portions of wooded and open lands. The township had seen a fairly steady growth in population until recently. In 1960 there were 5078 residents. This increased by over 40 % to 7242 people by 1970, and by an additional 16.9% to 8468 residents by 1980. The 1990 Census figures indicated a slight loss of population to 8398. The Delaware Valley Regional Planning Commission projects an increase of approximately 10% to a population of 10,300 by 2000 (East Whiteland Township Open Space Plan, 1991).

The 1987 Comprehensive Plan characterized the land use patterns of East Whiteland Township in the early 1970's by the following features:

- Predominantly strip commercial uses along Rte.30,
- A prevalence of industrial land uses (second largest to residential in 1975), especially quarrying,
- U.S. Rte. 30 and rail corridors (east-west) virtually segmented the township with inadequate north-south traffic access, resulting in a lack of orderly development,
- A shortage of recreation and open space, and
- An unusually large proportion of institutional land (In part due to the inclusion of total ownership, not strictly developed institutional use. This interpretation was modified in the 1987 Comprehensive Plan).

The 1987 East Whiteland Township Comprehensive Plan indicated existing land use zones and actual land use development as of 1985. These patterns are summarized in Figure 3-5.

These figures reflect recent land use trends which include: a substantial influx of limited industrial or corporate/business parks, a continued attraction of commercial uses to the Rte. 30 corridor, a steady pattern of residential development, but with a shift away from single family to multi-family housing units, and some reduction in the public open space/recreation deficit because of Valley Creek Park. Future projections based on these trends, as indicated in the Comprehensive Plan of 1987 are summarized in Figure 3-6.

Current projects are in keeping with the comprehensive plan. There are several small residential projects which have been approved, totalling approximately 100 single family and 100 multi-family units. There are also several corporate projects in various stages of approval. The status of development of these projects

currently hinges on economic conditions. One project of particular significance is the Valley Crossing development which proposes 1400 housing units and which has received preliminary approval by the township. As noted in Section II, the recent upgrading of Valley Creek by the DER Environmental Quality Board to Exceptional Value status has been challenged by the developer.

Although East Whiteland Township does not directly abut VAFO, there are several land use issues which may have an impact on the park. The primary areas of concern to the park in the Valley Crossing project are those relating to the environmental quality of Valley Creek which flows through East Whiteland and Tredyffrin townships and then through the park. Since 86% of East Whiteland Township is in the Valley Creek watershed, virtually any development may have an environmental impact upon the water quality and consequently the park. New projects, whatever the land use, may affect water quality during construction and may increase the quantity of surface run-off depending upon the amount of impervious surfacing included in the development. The more stringent restrictions of the reclassification may prevent new construction. Therefore the outcome of the Valley Crossing court challenge bears particular environmental significance on the park.

East Whiteland Township does not have an Act 167 Storm Water Management Plan. However, sedimentation and erosion control measures are included in the subdivision and land development regulations which follow standards imposed by the Pennsylvania DER. The sewage treatment option for proposed development is another concern for water quality. Any development project must be approved for on-site or off-site disposal in accordance with local and state regulations as previously outlined. The East Whiteland Township 1987 Comprehensive Plan confirms its public responsibility to preserve natural resources for the public benefit. It further acknowledges that it is responsible for adhering to federal legislation protecting wetlands and environmentally sensitive areas. It remains however, that more formal local practices, regulations, and enforcement are critical for effective preservation. Open space is specifically addressed in both the zoning ordinance and the subdivision regulations. Flood hazard areas are defined and the zoning ordinance prohibits building within 50' of all streams. At this point, there are no regulations for woodland preservation or restricting steep slope development, although there is a steep slope ordinance currently under review.

Figure 3-5
East Whiteland Township Land Use Development Patterns

<u>LAND USE</u>	<u>1985 ZONES</u>	<u>1985 DEVELOPMENT*</u>
Residential	21.9%	18.7%
Institutional	3.3%	3.1%
Commercial	3.4%	4.2%
Industrial	16.7%	13.8%
Recreational	4.8%	2.2%
Utilities/Transportation	9.8%	6.9%
Agricultural	6.4%	
Woodlands	16.0%	
Open/Undeveloped	17.6%	48.9%

* The Comprehensive Plan includes agricultural, woodlands, and open/ undeveloped land uses together when discussing actual development patterns.

Source: East Whiteland Township Comprehensive Plan, 1987.

Figure 3-6
East Whiteland Township Land Use Development Patterns

<u>LAND USE</u>	<u>FUTURE AREA PROJECTION</u>
Residential	31.1%
Institutional	7.0%
Commercial	6.2%
Industrial	24.6%
Recreational	2.2%
Utilities/Transportation	6.9%
Environmental Constraints	21.9%

Source: East Whiteland Township Comprehensive Plan, 1987.

Conclusion

This report is an informational document which is intended to facilitate Valley Forge National Historical Park in carrying out its mission by identifying the major influences which may affect that task. This information is in the form of written summaries of laws, regulations, controls, and development patterns in the study area, and graphic summaries of legal and actual development patterns and environmental influences.

The preceding sections of this report have attempted to place VAFO within the context of environmental impacts to which it is exposed. These impacts are the result of development activities and pressures present in the study area which are in turn directed by various legal controls. In accordance with the initial project guidelines, these impacts can be evaluated on the basis of environmental quality, visitor use, and management of the park.

As discussed in this report, environmental quality is very comprehensive, covering a range of factors such as water quality, air quality, and visual impact. The specific impacts of development upon natural resources are regulated by the various laws and controls previously outlined. It is important for VAFO to understand these controls in order to ensure compliance and thus prevent negative impacts from occurring, or to address the impacts through park management practices. By understanding the extent of such potential impacts and the mechanisms available to control them, the park will be in a position to respond appropriately or to adopt a pro-active stance to preclude the environmental degradation from occurring. As an example, overlaying Maps WS-1 through WS-6, which outline the watersheds within the study area, with the zoning maps (Maps Z-1 through Z-6) or the existing land use maps (Maps LU-1 through LU-6) will indicate potential impact of proposed development on water quality.

A further illustration relates to the visual impact of surrounding development. The attraction of the park to visitors is based upon how well it meets their needs. If, for instance, the primary function of VAFO is to provide an interpretive historic experience of Valley Forge at the time of the Revolution, the impact of continued growth will affect visitors' perceptions. Visual character is manifested by density, building characteristics, set-backs, etc. Plotting areas of proposed development, reviewing the zoning, subdivision, building code, and other municipal regulations; and then overlaying critical viewsheds may pinpoint potential negative problems. Coordinating the character of adjacent land uses with local jurisdictions may allow the park to address this function more effectively. Likewise, if the recreational needs of local residents conflict with the historic programs, cooperative efforts can help to redirect some of the demand to other more appropriate facilities.

Another example which relates to both environmental quality and visitor use is the preservation of the rural character of the area. This can be an asset to the surrounding jurisdictions as well as provide an appropriate setting for the park programs.

This interrelationship applies in cases of interpretive programming, maintenance operations and practices and physical planning for the location of park facilities or use areas. By cooperating with local and regional open space planning efforts, the objectives of all parties can be better met and conflicts avoided.

The value of the report and the supporting maps is to provide a consolidated listing and brief description of legal impacts within the study area. Compiling all this within one document may facilitate planning by providing a comprehensive overview and serving as a reminder of some of the influences which should be reviewed on a regular basis.

Appendix I
Zoning Map Legends

- I-A UPPER MERION TOWNSHIP**
- I-B LOWER PROVIDENCE TOWNSHIP**
- I-C UPPER PROVIDENCE TOWNSHIP**
- I-D WEST NORRITON TOWNSHIP**
- I-E TREDYFFRIN TOWNSHIP**
- I-F SCHUYLKILL TOWNSHIP**
- I-G EAST WHITELAND TOWNSHIP**

I - A
Upper Merion Township
Zoning Map Legend
(See Maps Z-2 and Z-3)

RA	RECREATIONAL AREA
AG	AGRICULTURAL
A-R	ADMINISTRATIVE & RESEARCH
AR-1	ADMINISTRATIVE & RESEARCH
R-1A	RESIDENTIAL
R-1	RESIDENTIAL
R-2	RESIDENTIAL
R-2A	RESIDENTIAL
R-3	RESIDENTIAL
R-3A	RESIDENTIAL
G	RESIDENTIAL
HR	RESIDENTIAL
U-R	UNIT RESIDENTIAL
C-O	COMMERCIAL OFFICE
C-1	COMMERCIAL
C-2	COMMERCIAL
C-3	COMMERCIAL
SC	SHOPPING CENTER
SM	SUBURBAN METROPOLITAN
SM-1	SUBURBAN METROPOLITAN
LI	LIMITED INDUSTRIAL
HI	HEAVY INDUSTRIAL

Sources: Upper Merion Township Zoning Ordinance, Chap. 65 U.M.T. Code, Amended 1992; and Official Zoning Map, Revised 1990.

I - B
Lower Providence Township
Zoning Map Legend
(See Maps Z-2 and Z-5)

R-1	RESIDENTIAL
R-2	RESIDENTIAL
R-3	RESIDENTIAL
R-4	RESIDENTIAL TOWNHOUSES
R-5	RESIDENTIAL MULTIPLE DWELLING UNIT
C	COMMERCIAL
IND	INDUSTRIAL
IP	INDUSTRIAL PARK
MHP	MOBILE HOME PARK
PBO	PROFESSIONAL BUSINESS OFFICE
SC	SHIPPING CENTER
VC	VILLAGE COMMERCIAL
INO	INSTITUTIONAL OVERLAY
HC	HIGHWAY COMMERCIAL
GC	GENERAL COMMERCIAL

Sources: 1979 Lower Providence Township Zoning Ordinance, (Revised 1992); and Montgomery County Planning Commission Growth Study Map, (reflecting revisions through August, 1992).

I - C
Upper Providence Township
Zoning Map Legend
(See Maps Z-2, Z-5, and Z-6)

R-1	RESIDENTIAL-AGRICULTURAL
R-2	RESIDENTIAL
R-3	RESIDENTIAL
R-4	RESIDENTIAL
VP	VILLAGE PRESERVATION
IN	INSTITUTIONAL
NC	NEIGHBORHOOD CONVENIENCE COMMERCIAL
CRSC	COMMUNITY & REGIONAL SHOPPING CENTER
M-1	OFFICE & LIMITED INDUSTRIAL
M-2	MANUFACTURING INDUSTRIAL
PBO	PROFESSIONAL BUSINESS OFFICE
IO	INTERCHANGE OFFICE

Sources: 1981 Upper Providence Township Zoning Ordinance, (Revised 1992); and Upper Providence Township Zoning Map, (Revised July, 1989).

I - D
West Norriton Township
Zoning Map Legend
(See Maps Z-2, Z-3, Z-4, and Z-5)

R-A	RURAL RESIDENCE
R-1	RESIDENCE
R-2	RESIDENCE
R-3	RESIDENCE
A	APARTMENT
C	COMMERCIAL
LC	LIMITED COMMERCIAL
LC-1	LIMITED INDUSTRIAL
I	INDUSTRIAL
RE	RECREATIONAL
BP	BUSINESS & PROFESSIONAL

Source: West Norriton Township Zoning Ordinance, (Revised 1991);
and West Norriton Township Zoning Map, 1986.

I - E
Tredyffrin Township
Zoning Map Legend
(See Maps Z-1, Z-2, & Z-3)

RC	RURAL CONSERVATION
R-1/2	RESIDENCE
R-1	RESIDENCE
R-2	RESIDENCE
R-3	RESIDENCE
R-4	RESIDENCE
PA	PLANNED APARTMENT
OA	OFFICE - APARTMENTS
IO	INSTITUTIONAL OVERLAY
P	PROFESSIONAL
C-1	COMMERCIAL
SPDD	SPECIAL PAOLI DISTRICT
C-2	COMMERCIAL
C-3	COMMERCIAL
SC	SHOPPING CENTER
LI	LIMITED INDUSTRIAL
LO	LIMITED OFFICE
PIP	PLANNED INDUSTRIAL
HO	HOTEL - OFFICE

Sources: Tredyffrin Township Zoning Ordinance, (Amended 1993); and
Tredyffrin Township Zoning Map, (Revised 1991).

I - F
Schuylkill Township
Zoning Map Legend
(See Maps Z-1, Z-2, Z-5, and Z-6)

FR	RURAL DENSITY RESIDENTIAL
R-1	LOW DENSITY RESIDENTIAL
R-2	MEDIUM DENSITY RESIDENTIAL
APO-1	APARTMENT/PROFESSIONAL OFFICE
APO-2	APARTMENT/PROFESSIONAL OFFICE
A-R	ADMINISTRATIVE & RESEARCH
NC	NEIGHBORHOOD COMMERCIAL
C	COMMERCIAL
LI	LIMITED INDUSTRIAL
I	INDUSTRIAL
I/LI	INDUSTRIAL
NO	NEIGHBORHOOD OFFICE

Sources: Schuylkill Township Zoning Ordinance, (Revised 1989, Amended 1991); and Schuylkill Township Zoning Map, Revised 1989).

I - G
East Whiteland Township
Zoning Map Legend
(See Map Z-1)

R-1	RESIDENTIAL
R-2	RESIDENTIAL
R-3	RESIDENTIAL
R-4	RESIDENTIAL
PO-1	PROFESSIONAL & OFFICE
PO-2	PROFESSIONAL & OFFICE
PO-3	PROFESSIONAL & OFFICE
C-1	COMMERCIAL
C-2	COMMERCIAL
C-3	COMMERCIAL
C-4	COMMERCIAL
LI	LIMITED INDUSTRIAL
GI	GENERAL INDUSTRIAL
RIC	RESTRICTED INDUSTRIAL COMMERCIAL
GI-M	GENERAL INDUSTRIAL - MINING

Sources: East Whiteland Township Zoning Ordinance, (Revised 1988, Amended 1992); and East Whiteland Township Zoning Map (Revised 1991).

Appendix II
List of Reference Contacts

Chester County Parks & Recreation Director
Bill Mineo (215) 344-6415

Chester County Planning Commission
Government Services Center - Suite 270,
601 Westtown Road
W. Chester, PA 19382-4537
General Telephone Number - (215) 344-6285
Open Space Planning - Tricia Nillson
Environmental Planning - Rob Ihlein
Highway Planning - Lee Whitmore

Chester County Water Resources Authority
David Yeack, Director (215) 692-7878

Delaware Valley Regional Planning Commission
Clean Air Act Planning
Ron Roggenburk
(215) 592-1800

Director of Data Services (GIS)
Mike Ontko
(215) 592-1800 Ext. 123

Delaware River Basin Commission
PO Box 7360
West Trenton, NJ 08628
Richard C. Albert
Water Quality Planning and Analysis
(609) 883-9500 ext.256

Department of Environmental Resources (DER)
Regional Office
Lee Park
Suite 6010
555 North Lane
Conshohocken, PA 19428

Joe Feola - (215) 832-6130
Regional Water Quality Manager

Charlie Rehm - (215) 832-6065
Planning Chief (Same office as J.Feola)

Lou Bercheni
Bureau of Water Quality
(Harrisburg)
(717) 787-4317

Ed Brezina
Chief, Division of Assessments and Standards
(717) 787-9637

Act 167 - Storm Water Management
Durla Lathia, Chief
Harrisburg, Pa.
(717) 514-7903
or
David Jostenski
(717) 787-4317

NPDES (National Pollution Discharge Elimination System)
Chief of Permits - Jim Newbold
(215) 832-6130

East Whiteland Township
209 Conestoga Road
Frazer, PA 19355
(215) 648-0600
J. Donald Reimenschneider, Township Manager
648-0608

Freedoms Foundation at Valley Forge
Valley Forge, PA 19481
Jacqueline Roddy
Senior Vice President for Development

Lower Providence Township
100 Parkland Drive
Eagleville, PA 19403
(215) 539-8020
Zoning Officer - Ted Locker
Director of Parks - Lindsay Taylor
(David Babbitt - See Montgomery County Planning)

Montgomery County Planning Commission
Court House
Norristown, PA
(215) 278-3722
Deputy Director, Ken Hughes
Open Space Planner - John Wood 278-3736
- Curt Bish 278-3742
Lower Providence Twp. Planner - David Babbitt - 278-3748
Upper Providence Township - Watson Olszewski
Utilities (San. Sewers) - Andrew Shaw - 278-3733
Transportation Planner - Leo Bagley

Pennsylvania Dept. of Transportation (PennDOT)
Randy Wanger, Project Manager
(215) 964-6548

Schuylkill Township
801 Valley Park Road
Phoenixville, PA
(215) 933-5843

Soil Conservation Service (SCS)
Chester County Conservation District
Ralph Fegeley, Resource Conservationist
235 W. Market Street
W. Chester, PA 19832
(215) 696-5126

TransContinental Gas Co.
Gary Randall, Land & Water R.O.W. Representative
(609) 951-0990 (Princeton Office)

Tredyffrin Township
973 Old Lancaster Road
Berwyn, PA 19312
Terry Woodman, Assistant Township Manager
(215) 644-1400

Upper Merion Township
175 West Valley Forge Road
King of Prussia, PA 19406
Manager - Ronald G. Wagenmann - (215) 265-2600
Planner - Robert M. (Rob) Loeper - 265-2606

Upper Providence Township Municipal Office
1286 Black Rock Road, Box 406
Oaks, PA 19456
John Hughes, Vice Chairman, Planning Commission
(215) 933-9179

Valley Forge Sewer Authority
Joseph Bateman, General Manager
(215) 935-1553

West Norriton Township
1630 West Marshall
Jeffersonville, Pa 19403
Zoning Officer - Joseph J. Hein
(215) 631-0450

