Upper Codorus Creek Watershed Conservation Plan

Prepared for:

Codorus Chapter of Trout Unlimited #558
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Executive Summary

A. Project Area Introduction

The upper reaches of Codorus Creek and its encompassing watershed closely resemble the divergent nature of York County through which it flows. Codorus Creek originates in a relatively undeveloped rural landscape; however, the most notable physical feature, its cold temperature, is the result of the recent development of a dam and lake in the headwaters of one of its major tributaries. Likewise, York County is also relatively undeveloped; but development and growth are rapidly changing the landscape and character of the area.

The small (approx. 74 sq. mi.) watershed that makes up this section of Codorus Creek has been altered substantially through history. From a forested hunting area of the Susquehannock and Conestoga Indians, through colonial settlement that cleared the land for farming, to today's residential and commercial growth that mirrors the development found throughout the region, the Upper Codorus Creek watershed continues to change.

Codorus State Park, located within the watershed, along with the 1,275-acre Lake Marburg, provides not only a source of outdoor recreation and undisturbed wildlife habitat, it also provides a cold water discharge to Codorus Creek below the dam breast of the lake. This discharge is the primary reason for a Class A wild brown trout fishery, one of the most unique features within the watershed, downstream from the lake.

The remainder of the watershed is primarily composed of mixed-use agricultural lands and small single-family residential developments. Commercial and industrial development within the watershed is mostly limited to the more urbanized communities including Hanover, Spring Grove, and Jefferson Boroughs as well as the western portion of Penn Township. These communities are generally located on the periphery of the watershed.

B. Project Background

The Codorus Chapter of Trout Unlimited (CCTU) initiated the idea for the Upper Codorus Creek watershed conservation plan. In June 1997, the CCTU received a grant from the Pennsylvania Department of Conservation and Natural Resources (DCNR) to complete a preliminary assessment on the Upper Codorus Creek watershed. The purpose of the assessment was to identify the primary attributes and threats to the watershed, and to determine if there was sufficient interest in the watershed to develop a watershed management plan. The preliminary assessment, completed and approved in August 1998, was the first completed in the state under its Coldwater Heritage Partnership (CHP) program. The preliminary assessment found that there was an interest in developing a conservation and management plan for the Upper Codorus Creek watershed; in fact, seventy percent of the municipalities within the watershed offered letters of support for the project.

Based upon the local community support, CCTU applied for a Rivers Conservation Planning Grant (RCP) in October, 1998. RCP Grant 5-8 was awarded to CCTU in June of 1999. This grant is funded through Dec. 31, 2002. The awarded grant required a 50% in-kind match. CCTU, York County Planning Commission, P.H. Glatfelter Paper Company, and the National Fish and Wildlife Foundation provided the matching funds and services for the project. Members of the Project Steering Committee and North Codorus Township provided donations of time and space for the completion of this management plan.

A public meeting to initiate the Upper Codorus Creek Watershed Conservation Plan project was held in November, 1999. This meeting presented the findings from the previously completed Preliminary Assessment Report and solicited input from the attendees about the attributes, threats, and issues facing the Upper Codorus Creek watershed. In addition, interested individuals were invited to become involved with the project by serving on the Project Steering Committee. All of the input received during the meeting was compiled for use in the Watershed Conservation Plan.

Mackin Engineering Company was contracted by CCTU in June 2000 to assist with the completion of the Upper Codorus Creek Watershed Conservation Plan. The following chapters present the findings and recommendations of the plan utilizing the input from the local stakeholders, conservation organizations and resource agencies, CCTU, and the Project Steering Committee. The "Draft" Rivers Conservation Plan was released for public review and comment in September, 2001 and a public meeting presenting the information in the report was held in October, 2001. This "Final" document incorporates all of the comments received on the "Draft" report.

C. Location

The Upper Codorus Creek watershed is situated in the southwestern section of York County, Pennsylvania (Figure 1) [Figures are located following Chapter 8]. The watershed extends from the Maryland/Pennsylvania Border (a small section of the watershed is actually located in Maryland) northward to the Borough of Spring Grove. Parts of ten Pennsylvania municipalities are located with the watershed including: Codorus, Heidelberg, Jackson, Manheim, North Codorus, Penn and West Manheim Townships as well as Hanover, Jefferson and Spring Grove Boroughs. Differing in both size and demographic make-up these municipalities consisted of nearly 16 percent of York County's population in 2000 and approximately 0.5 percent of the entire state. (2000 U.S. Census).

The Upper Codorus Creek watershed encompasses Codorus State Park, a major recreational destination in the area. Codorus Creek is a tributary to the Susquehanna River. It originates in Manheim Township near the Manheim Township Municipal Building and flows in a northwesterly direction through the villages of Glenville, Brodbecks, and Sinsheim. Just downstream from Sinsheim, the West Branch of Codorus Creek flows into Codorus Creek. The West Branch is discharged from Lake Marburg in Codorus State Park and is the largest tributary in the Upper Codorus Creek Watershed.

From its confluence with the West Branch, Codorus Creek continues in a northwesterly direction through the villages of Porters Sideling and Menges Mills. Porters Creek flows into Codorus Creek at Porters Sideling and Oil Creek flows into Codorus Creek at Menges Mills. Oil Creek is the last major tributary before Codorus Creek exits the study area in Spring Grove. The Codorus Creek watershed is referenced by U.S. Geologic Service's (USGS) Hydrologic Code (1974) 02050306 in the Mid-Atlantic Region (U.S. Department of the Interior, 1974), it is also designated as sub-basin 7 of the Susquehanna River Basin by the Susquehanna River Basin Commission (SRBC) and the Pennsylvania Department of Environmental Protection (PADEP). Figure 1 presents this information in a graphical format.

D. Size

The Upper Codorus Creek watershed drains approximately 74 square miles of the 278 square mile Codorus Creek Basin (PADEP, 1989). This River Conservation Plan covers this entire 73.4 square mile watershed, including the four (4) named tributaries (West Branch, Porters Creek, Oil Creek, and Bunch Creek) as well as other unnamed tributaries. The watershed is located almost entirely in York County and contains all or part of 10 municipalities. One small section of the watershed extends into Maryland.

E. Watershed Characteristics

Land Use

Land use throughout the Upper Codorus Creek watershed is variable, ranging from areas of mature evergreen and deciduous woodlands to urban commercial centers.

Within the watershed agricultural land was the most prevalent land use totaling over 44 percent of the watershed. Nearly all of the agricultural land was cropland/ pasture.

Most of the municipalities in the project area are large townships with small village centers and boroughs. These villages and boroughs provide small commercial centers sufficient to provide for the day-to-day needs of the residents. Residential land use makes up approximately 21 percent of the watershed.

Forestland comprised approximately 21 percent of the watershed. This area is primarily composed of scattered areas throughout the watershed. Tree farms owned by the P.H. Glatfelter Company made up a substantial portion of the forested land. The Pigeon Hills area and the Codorus State Park were the largest contiguous pieces of forested land within the watershed.

Other land uses do occur in the watershed, however, they are minimal in acreage when compared to agricultural and forestland.

Urban/ Built-Up land existed primarily within the boroughs of the watershed and in the industrial park developed in Penn Township. Additional development was noted along

the S.R. 116 corridor. The largest commercial area was located in the Borough of Hanover and the Penn Township Industrial Park. However, the majority of the commercial district in Hanover is outside of the project study area. Both Jefferson and Spring Grove contained a commercial district; but the Jefferson area was very small and the majority of the Spring Grove area is located outside of the watershed area.

F. Issues, Concern, Constraints and Opportunities

Project Area Characteristics

ISSUES AND CONCERNS

The rapid population growth occurring within the watershed, especially in the rural townships is the most important issue associated with the Project Area Characteristics. As presented in the population discussion, the watershed has seen a population increase of nearly 58% from 1960 through 2000. Some municipalities within the watershed experienced over 120% growth during this same time period. All indications suggest that this growth trend will continue through the year 2000 census and beyond. This population growth is occurring in locations that were traditionally in agricultural or forested land use, away from the traditional urban population center, which is actually losing residents.

This increasing population requires housing, transportation, water, sewage, and other amenities associated with residential development. Development of traditional rural/agricultural areas to accommodate the emigration from the urban areas threatens the aesthetics and quality of life that made these areas so appealing to live in. Increased development in close proximity to Codorus Creek and its tributaries will erode the aesthetics of the stream corridor in the watershed.

An increasing population further away from the urban population centers is also resulting in longer commutes and increased congestion on roadways in the watershed. Large-scale roadway upgrades to address congestion convert farmland, encourage further emigration, and contribute to the rapid expansion of highway related commercial areas throughout the watershed. The expansion of the highway related commercial areas again results in congestion and traffic delays.

Other land use issues of concern are the conversion of family farms to industrial farming operations as a way to remain profitable in the face of tighter profit margins in agriculture. Although these operations prevent the conversion of farmland there are issues concerning manure management, discharges, odors, and traffic that are significant and controversial.

OPPORTUNITIES

This project offers a unique opportunity for municipalities of the watershed to work together to look at the region on a watershed basis. By doing this, land use plans can be

developed on a watershed scale rather than a municipal scale. This would result in better allocation of the limited available land resources for the development necessary to continue economic growth in the region as well as protect the resources and aesthetics that make the area a unique and desirable place to live.

Land Resources

ISSUES AND CONCERNS

The loss of farmland and farmland soils is a primary concern with regard to land resources. The same features that contribute to land being well suited for agricultural production (slope, drainage, stability) also make these areas attractive for development. The increasing population, as discussed in the Project Area Characteristics, is settling in areas that were traditionally farmed. High land prices and reduced profits in agriculture are making it difficult for farmers to continue in the business. Programs in place to protect farmland have been successful in some instances; but in others, it is economically unfeasible to establish Agricultural Security Areas and Agricultural Conservation Easements.

The shifting industrial base of the watershed out of the traditional population centers is leaving abandoned commercial/industrial "Brownfield" sites in these communities. These sites may have environmental cleanup concerns associated with them.

Illegal unrestricted dumps were identified during a field view of the watershed area. The dumping of residential refuse is a serious threat to the watershed. Residential refuse can contain a host of toxic substances, and if left unchecked these substances could reach the stream or local groundwater supply.

OPPORTUNITIES

Economic incentives including conservation easements can be used to preserve farmland in the watershed.

Stream restoration programs can protect and/or enhance the natural features found in the landscape of the watershed.

The abandoned commercial/industrial buildings or "Brownfields" in the watershed offer a great opportunity for redevelopment. Utilizing PA Act 2 funding from the state, these areas can be assessed, remediated, and be put back into productive use. Often, these areas already have the necessary infrastructure for industry and are located near other industrial and commercial support enterprises. Reutilization of these sites would help to reduce some of the pressure to develop existing farmland and reduce urban sprawl.

Water Resources

ISSUES AND CONCERNS

Impacts to water quality and quantity are the predominant concern in the Upper Codorus Creek watershed. Much of the watershed contains stream reaches that are impaired to some degree. Today, most of the impairment to the waters of the watershed is a result of non-point source pollution (NPS). Agricultural, nutrient runoff, and sedimentation are the primary causes of impairment to the streams in the agricultural areas of the watershed. However, urban runoff from the rapidly developing areas is quickly becoming a major NPS cause of stream impairment in the watershed. Runoff from logging is also a concern.

Codorus Creek and private wells currently supply the water needs of most of the watershed; the remainder is supplied by the York Water Company, the Hanover Water Company, and P.H. Glatfelter. Increased population and development in the watershed has resulted and will continue to result in a higher demand for water. Increased surface water and groundwater withdrawals to meet this demand may result in lower base flows and higher summer and lower winter temperatures in streams in the watershed. This could be very important in the portions of the watershed that contain stocked and wild trout populations.

Increased development is reducing the amount of riparian buffers along the stream corridors in the watershed. This results in increased runoff, erosion and sedimentation, thermal increases, and loss of aesthetics along these streams. In the areas of the watershed that are experiencing increased development, the resulting increase in impervious surface is increasing runoff into the streams and raising peak runoff volumes in the streams. Residential areas will also see increased levels of nutrient and pesticides in runoff and groundwater as a result of lawn care. This same development is reducing the infiltration of precipitation for groundwater recharge.

Most residents of the Upper Codorus Creek watershed utilize an on-lot treatment system for sewage waste. Many of these systems are failing. Development has been halted in some areas as a result of sewage problems.

Industrial farming operations (concentrated animal operations (CAO's) and concentrated animal feeding operations (CAFO's)) are not currently a major issue in the watershed; however, the trend toward high volume production farms is likely to enter the watershed in the near future. If protections are not in place, CAO and CAFO practices are potentially a source of serious degradation to the streams and groundwater in the watershed.

The loss of beneficial floodplain values is a concern in the watershed. Development in and around the floodplains of the streams in the watershed can cause increased flooding problems downstream as well as reduce infiltration and groundwater recharge from rain/storm events.

Runoff from a mulch operation flowing into Codorus Creek is a concern.

Although summer discharges from Lake Marburg have been constant as a result of an internal memo at P.H. Glatfelter, there is no guarantee or legal requirement that this take place. Loss of the coldwater discharge would severely reduce or eliminate the wild trout population of the stream from the confluence of the West Branch of Codorus Creek downstream.

OPPORTUNITIES

This project offers the opportunity to develop and coordinate a comprehensive watershed-wide assessment of the streams within the watershed. Utilizing a group of trained volunteers to monitor and sample the waters, management decisions can be made regarding which streams need to have restoration/rehabilitation projects completed on them. The success and progress of implemented projects can be monitored and assessed in the same manner.

Developing and implementing stream restoration and enhancement plans that include riparian buffers and streambank stabilization, through co-operative agreements with local farmers and developers, provides the opportunity for improved water quality and aquatic habitat in the watershed.

Developing an agreement between P.H. Glatfelter, Codorus State Park, and local conservation groups will ensure sufficient flows to protect the wild trout population living in the stream, while still allowing for recreation on Lake Marburg and minimum flows into Spring Grove for the paper plant.

Biological Resources

ISSUES AND CONCERNS

Invasive species are the greatest concern with regard to biological resources in the watershed. These plant and animal species especially mile-a-minute weed *(Polygonum perfoliatum*), multiflora rose (*Rosa multiflora),* and Japanese honeysuckle (*Lonicera japonica*) reduce ecological diversity and habitat and can cause significant economic damage.

The loss of forested areas, wetlands, and riparian buffers in the watershed, as a result of increased development, eliminates habitat for sensitive species (neotropical migrant birds, wetland species, and forest interior species) and reduces the availability of travel corridors for movement of wildlife through the watershed.

Development within the watershed may impact habitat and species of special concern.

No old growth forest component exists within the watershed.

OPPORTUNITIES

There is an opportunity to develop a plan that will address invasive species infestation in the watershed.

Riparian and aquatic habitat can be developed as a result of implementing a streamside restoration/enhancement plan.

Cultural Resources

ISSUES AND CONCERNS

Continued growth of the population in the watershed will stretch the capacity of local parks and recreation facilities to provide for recreational needs.

Continued development in the watershed, especially around the stream corridors and the historic farmsteads of the region, threatens to impact numerous historic and prehistoric cultural features.

Access to the streams in the watershed for recreational activities is limited and can be further limited.

OPPORTUNITIES

Upgrades to Codorus State Park offer significant recreational opportunities year-round.

Expansion of the York County Heritage Trail through portions of the watershed will provide additional areas for hiking and recreation in the watershed. The expansion would also provide a link to the main trail for travel south into Maryland.

Development of local parks in the municipalities of the watershed as proposed by Manheim and Heidelberg Townships will increase the total recreational resources in the watershed.

Developing a mutually beneficial relationship between local landowners and organizations within the watershed could result in increased recreational opportunities for the public and improved understanding and assistance for the local landowner.

G. Management Options

Project Area Characteristics

Goals for this area include: Protecting the rural character of the watershed, while still allowing for beneficial and orderly growth needed to sustain the communities and protection of the environmental amenities and unique features of the watershed.

Raise the sensitivity and awareness of County and Municipal Planning Organizations (MPO's) to farmland and habitat loss.
Education of decision makers about the importance of the farmland and habitats of the watershed, along with available measures to protect these resources is essential to reducing their loss. Utilizing existing land control ordinances, in conjunction with modern design and open space planning can allow for continued development without the complete conversion of special habitat areas and agricultural settings.

Work with local and county planning organizations to develop and carry out plans for the protection of environmental amenities in the watershed.
Educating decision makers about important features in the watershed including, but not limited to wetlands, riparian buffers, and large forested tracts is the first step in protecting them. Support a tax break for conservation and innovative developments. Utilize transfer of development rights as a method of protecting important areas.

Complete a comprehensive examination of the traffic conditions of the watershed. Identify areas of congestion, its causes, and impacts. Develop a strategy to address these problem areas utilizing alternative forms of transportation (mass transit, car-pooling, bike lanes) where possible.
Continued population growth in the watershed is predicted for the foreseeable future. The resulting increase in traffic on rural and minor arterial roadways will continue to compound congestion problems that already exist within the watershed. Working together with PennDOT and local planning organizations to identify and prioritize existing and future problem areas is an important step to solving them. Developing and implementing potential solutions to congestion problems without major new construction and before the problems become unmanageable would be attractive to PennDOT and the local municipalities experiencing the growth and development.

Update comprehensive plans for the municipalities of the watershed that are over 10 years old. Include environmental resource inventories and protection of resources as part of the document. Complete multi-municipal plans where prudent and feasible.
Comprehensive plans are living documents that need periodic review before they become outdated and irrelevant to the current conditions of the community. Periodic review and update of the plan incorporates new issues and removes areas that are no longer relevant.

Support implementation of land conservation techniques in subdivision design.
Rural clustering and other modern design methods can greatly reduce the area of land utilized as part of a residential subdivision development. Utilizing incentives such as increased lot density can promote these conservation practices without the negative adversarial aspects associated with ordinances. Support initiatives to return residential development to traditional urban centers. Utilize in-fill development to reduce sprawl out from built up areas.

Update and implement Act 537 sewage management plans that are over 10 years old for the municipalities in the watershed. Replace on-lot septic systems in the established growth areas. Assist in upgrading older on lot systems in the established rural areas.
Increased population in the watershed increases demands for services including sewage. Proactive planning and development of management plans for sewage systems in the watershed is important to improve/maintain the quality of effluent discharged into the streams of the watershed. New technologies may improve effluent from existing on-lot systems.

Actively enforce land use controls for areas along waterways in the watershed, especially keeping development out of floodplains. Develop strategies to protect riparian zones.
Almost every municipality in the watershed has zoning ordinances and floodplain development regulations; however, increased development in the watersheds may be altering the historic floodplain limits. Encroachment on the stream corridors in the watershed has been noted. Protecting these riparian and floodplain zones is critically important to the future health of waterways in the watershed.

Partner with local universities to develop mutually beneficial programs for student education, and protection and enhancement of the watershed. Identify other volunteer and non-profit groups to coordinate activities and projects with to avoid duplication of effort.
A major difficulty associated with volunteer groups is a lack of personnel/assistance in completing everyday tasks associated with running the organization. Utilizing college students would allow more time for projects in the watershed as well as providing real world experience to the college students. Utilizing organizations such as the York County Watershed Alliance as a clearinghouse of information can make the groups working on the watershed more effective and efficient.

Utilize the Watershed Conservation Plan as a tool in protecting, managing, and preserving the Upper Codorus Creek watershed.
The Upper Codorus Creek Watershed Conservation Plan is meant to be a living and working document. The management options developed address issues identified as important during the course of the study. Changes in conditions and attitudes may also result in changes to the management options. This document should be periodically updated, especially the management options, to address changes in the watershed as well as changes in attitude concerning what issues are important.

Land Resources

Goals in this area are the protection of farmland from conversion to non-agricultural use, cleanup of the landscape in the watershed, and reuse of "Brownfield" sites in the watershed.

Establish a working partnership between the major stakeholders in the watershed and conservation organizations. Use this partnership to address major problems in the watershed as well as protect important resources.
By developing a working relationship among the stakeholders of the watershed a level of understanding and cooperation can be reached. Issues can be addressed in a non-confrontational manner prior to final decisions being made. Plans can be developed that address problems in the watershed in conjunction with necessary development.

Continue and expand watershed wide cleanup days.
Clean up days on all of Codorus Creek are annual events. Usually occurring on or near Earth Day, this activity assists in beautifying stream sections in the watershed while offering participants the ability to get a first hand look at the stream itself.

Identify "Brownfield" areas within the watershed for possible assessment, cleanup, and redevelopment. Identify other potential hazard areas within the watershed.
Pennsylvania ACT 2 legislation provides funding for communities to redevelop their abandoned industrial/commercial sites. By revitalizing these abandoned buildings, eyesores are removed from the community, local tax and employment bases are preserved, and undeveloped "Greenfields" are protected. Redevelopment of residential areas, like those completed by Habitat for Humanity in urban areas is equally as important in the preservation of "Greenfields".

Work to develop or expand recycling efforts in the watershed.

Encourage the use of responsible logging within the watershed. Encourage loggers to obtain "Master Logger" status.

Look into and if appropriate, establish a local chapter of PA Cleanways.
PA Cleanways is a Non-Profit Corporation helping people clean up their environment. The goal of the organization is to protect, restore, and maintain the environmental and scenic qualities of roadways, waterways and pathways from illegal dumping and littering. Utilizing this group to address littering/dumping problems along the roadways and trails of the watershed, in conjunction with the work already being completed by other organizations on the streams of the watershed, would enhance and protect the aesthetics of the region.

Develop an educational program for demonstrating and promoting riparian buffers, especially for use in FFA, 4H, scout groups, and secondary schools.
The majority of the watershed is still in agricultural use, and is controlled by farmers. By educating future farmers about the environmental benefits of buffers to the watershed, the

environment can be protected in two ways: 1) The children relaying the information to their parents and they in turn implementing it; or 2) educating the future owners and users of the land at an early age and having them implement the management options when they begin to run the operation.

Encourage local farmers to enroll their property in agricultural security areas, set aside programs and conservation easements.
As presented earlier, farmers control the majority of the land in the watershed. Although pressure to develop these farmlands is high there appears to be a desire for lands to stay in agriculture if economically possible. Assisting these farmers by informing them of tax advantages (property, inheritance) of conserving farmland as well the potential economic advantages associated with new set aside programs (Conservation Reserve Enhancement Program). ASA's need to be updated by municipalities at least every seven years.

Water Resources

Goals for this area are the protection and enhancement of the water quality, the enhancement of the fishery and aquatic habitat, and the protection groundwater resources in the watershed.

Develop rehabilitation plans for agricultural and urban runoff problems in each of the major drainages in the watershed.
Utilizing a comprehensive methodology to address NPS issues has been effective in prioritizing restoration and enhancement projects in other watersheds. This should be equally effective in developing a plan for the Upper Codorus Creek watershed.

Develop a comprehensive plan to protect and monitor water quality and the results of improvements to streams in the major drainages of the watershed. Tailor the monitoring programs to sources of potential degradation within each drainage. Utilize this information to develop a database of information for the entire watershed.
To utilize the limited restoration funds effectively and efficiently, a comprehensive system of determining baseline conditions, identifying locations for projects, and monitoring the success or failure of these projects should be developed. The Codorus Water Monitoring Network has collected chemical and biological data on the main stem of Codorus Creek for many years. More recently the Senior Corps in York County has also begun collecting data on Codorus Creek. Combining this data into a uniform database and expanding its scope to the tributaries in the watershed would allow a better understanding of the water quality issues in the watershed. In addition, it would assist groups in the watershed to prioritize areas for restoration projects.

Develop and implement streambank stabilization and habitat enhancement projects for the streams in the watershed.
Addressing NPS pollution often involves the stabilization and restoration of streambanks along the affected waterway. Likewise, stream habitat enhancement projects are utilized to increase the quality and quantity of habitat for fish and invertebrates.

Develop storm water management plans for developed areas in the major drainages of the watershed. Identify new technologies for enhancing infiltration and groundwater recharge, especially in areas of urban development.
As stated previously, development in sections of the watershed are growing at a rapid pace. Limiting the adverse effects caused by this development on peak flows (increased) and base flows (reduced) through implementation of an innovative storm water management plan would greatly improve the long term outlook for the receiving waters and Codorus Creek. New permeable pavement systems have been shown to be effective in reducing runoff in paved areas as well as increasing infiltration into the ground.

Continue work to enhance the fishery within the watershed. Expand these efforts to assist with reestablishing the migratory fish population in the watershed if feasible, and develop a stream habitat enhancement plan for other stream sections in the watershed.
The wild trout population in the Upper Codorus Creek watershed is one of its greatest attributes; however, the tributaries in the watershed have limited fisheries. Habitat enhancement and water quality improvement have the potential of greatly improving the fishery throughout the watershed. In addition attempts to reestablish a migratory shad population in the Susquehanna River may result in the return of the species to the watershed. Although many issues downstream from the project area would need be addressed prior to shad returning to the watershed, the potential is there.

Develop an educational program for elementary and secondary schools on water quality and the responsible use of the watershed.
Educating youth is the best chance for long-term protection and improvement in the watershed. The better our younger population understands the threats and needs of our streams, the more likely they are to work to protect them as they get older.

Inventory riparian buffers in the watershed. Identify areas that need to have riparian buffers established.
Riparian buffers serve a multitude of functions, from filtering runoff to providing thermal protection to streams, to providing travel corridors for wildlife. Identifying areas that need these buffers and developing buffers on them will provide all of these functions listed as well as stabilize the geomorphology of the stream channel.

Inventory NPS pollution problems in the major drainages of the watershed, develop a hierarchy and implementation plan for addressing these problem areas. Promote the development of conservation landscaping and management practices to reduce this sediment load.
NPS pollution has replaced point sources as the major impairment of waters in the Commonwealth as well as the watershed. Steps to prioritize and address these problems in the watershed must be initiated to efficiently obtain and utilize limited remediation funds.

Expand sewage capacity in the areas with the highest projected growth rates. Educate on-lot septic system users of new technologies available that can prevent failure of the systems.
Areas of high growth can overwhelm municipal treatment systems and on site septic systems have a limited life span. Therefore, expanded capacity in the sewage treatment plants is the most reasonable method of addressing potential degradation to local waterways.

Work to ensure that development does not occur in floodplain areas.
Municipalities within the watershed have regulations limiting development in floodplain.

Develop a working partnership with Codorus State Park and P.H. Glatfelter to ensure that a minimum discharge from the lake will continue to occur during the summer months to protect the wild trout population of Codorus Creek.

Biological Resources

The goals in this area are the inventory and protection of the native species, and habitats in the watershed as well as the control of noxious invasive species.

Preserve ecological and visual amenities in the watershed. Utilize both voluntary protection and market purchase for preservation. Develop funding sources and a regional land trust organization to facilitate these actions.
The steps of this option are already in motion. Several groups including agricultural preservation boards, conservation districts, and land conservancies are working to protect the features that increase the livability of the region from complete development. Other organizations, including a regional land trust, are in the process of being formed.

Identify areas of significant invasive species populations. Develop an integrative management plan to control these species.
Invasive species are a significant problem within the watershed. They reduce diversity, are of limited habitat value, and are limited in their ability to stabilize streambank soils.

Identify riparian buffers in the major drainages of the watershed. Identify areas for further riparian buffers creation to assist wildlife travel corridors.
As stated in the water resources section, reestablishing riparian buffers would have multiple benefits including a use for wildlife habitat and travel corridors.

Update the Natural Heritage Inventories for York County on a regular basis, (every 7 – 10 years). Assess the watershed for species of special concern. Develop and implement a plan for protection of these resources.
A Natural Heritage Inventories was completed for York County in 1996. Changing conditions both positive and negative will have an impact on identified species of special concern in and around the watershed. In addition, new species are being identified on a regular basis. Keeping the list of species of special concern up to date allows the best possible decision regarding preservation and conservation areas to be made.

Inventory wetlands in stream corridors for protection and possible enhancement.
NWI maps, hydric soils, and other secondary resources can be used to determine the major locations of wetlands in the watershed, especially along the stream corridors, and determine which would be the best candidates for restoration and enhancement.

Cultural Resources

Goals for this area include expansion and improvement to the recreational facilities and the inventory and protection of significant historic resources in the watershed.

Encourage and develop educational programs on the environment in the watershed and Codorus State Park.
Future protection of natural resources and amenities in the watershed is dependent upon educating the youth of the watershed to their value and importance. Utilizing Codorus State Park and other environmentally significant locations in the watershed gives students a hands-on look at the importance and needs of these features.

Develop better access to Codorus Creek and its tributaries for recreational use.
Limited access to Codorus Creek and some of the larger tributaries in the watershed increases pressure at the existing access points. Developing more access areas along the streams will more evenly distribute usage and pressure along the streams and protect the resource.

Develop the rail trail connector from Hanover through the watershed.
Completion of the connector trail would provide miles of recreational trail use and stream access; as well as provide corridors for alternate transportation in the watershed.

Increase recreational opportunities within the watershed, including park, recreational fields, stream accesses, etc.
Continued population growth in the watershed will tax and eventually overwhelm the park and recreation facilities of the area. Developing recreational areas (both passive and active), especially in floodplains, would address the recreational needs as well as floodplain protection.

Increase passive recreational opportunities in the watershed.
Not all recreation is active. Developing areas for quiet recreational pursuits including scenic views and nature areas will protect significant features in the watershed and provide recreational enjoyment without the substantial cost of developing active recreational facilities.

Complete proposed parks in Heidelberg, Manheim, and West Manheim Townships.

Complete a comprehensive park and recreation plan for the watershed. Address handicapped access as a portion of this report.

Maximize the recreational potential of the Codorus State park.
Development of facilities and amenities is essential to maximize the recreational potential of the park as well as increase attendance.

Support any development of the state park to increase tourism as an economic presence in the region.
Tourism is the fastest growing industry in the state. Codorus State Park has the potential to have a significant positive impact on the economy of the watershed by increasing the volume of visitors coming into the watershed.

Create an overlay zone for stream buffers in the watershed.
An overlay zoning district is a special-purpose zoning district that is superimposed over existing zoning jurisdictions. It is designed to provide additional standards and regulations for specific areas based on special conditions such as environmental factors, historical features or neighborhood preservation. It can be used to protect the natural and scenic qualities of Codorus Creek by restricting development within the overlay zone. This overlay zone can (and should) include the floodplain and other features that the steering committee and/or municipality wants to protect. When used correctly, overlay zoning is a good land use development tool.

Increase partnerships with public and private entities to foster land stewardship.
There are limited funds and resources available to complete all of the projects proposed. In order to obtain the greatest return for the effort and resources expended, partnering with other organizations that have the same goals and objectives is essential. Compiling a comprehensive list of all organizations in the watershed and their objectives is an important first step in this process.

1. Introduction

A. Project Area Introduction

The upper reaches of Codorus Creek and its encompassing watershed closely resemble the divergent nature of York County through which it flows. Codorus Creek originates in a relatively undeveloped rural landscape; however, the most notable physical feature, its cold temperature, is the result of the recent development of a dam and lake in the headwaters of one of its major tributaries. Likewise, York County is also relatively undeveloped; but development and growth are rapidly changing the landscape and character of the area.

The small (approx. 74 sq. mi.) watershed that makes up this section of Codorus Creek has been altered substantially through history. From a forested hunting area of the Susquehannock and Conestoga Indians, through colonial settlement that cleared the land for farming, to today's residential and commercial growth that mirrors the development found throughout the region, the Upper Codorus Creek watershed continues to change.

Codorus State Park, located within the watershed, along with the 1,275-acre Lake Marburg, provides not only a source of outdoor recreation and undisturbed wildlife habitat, it also provides a cold water discharge to Codorus Creek below the dam breast of the lake. This discharge is the primary reason for a Class A wild brown trout fishery, one of the most unique features within the watershed, downstream from the lake.

The remainder of the watershed is primarily composed of mixed-use agricultural lands and small single-family residential developments. Commercial and industrial development within the watershed is mostly limited to the more urbanized communities including Hanover, Spring Grove, and Jefferson Boroughs as well as the western portion of Penn Township. These communities are generally located on the periphery of the watershed.

B. Project Background

The Codorus Chapter of Trout Unlimited (CCTU) initiated the idea for the Upper Codorus Creek watershed conservation plan. In June 1997, the CCTU received a grant from the Pennsylvania Department of Conservation and Natural Resources (DCNR) to complete a preliminary assessment on the Upper Codorus Creek watershed. The purpose of the assessment was to identify the primary attributes and threats to the watershed, and to determine if there was sufficient interest in the watershed to develop a watershed management plan. The preliminary assessment, completed and approved in August 1998, was the first completed in the state under its Coldwater Heritage Partnership (CHP) program. The preliminary assessment found that there was an interest in developing a conservation and management plan for the Upper Codorus Creek watershed; in fact, seventy percent of the municipalities within the watershed offered letters of support for the project.

Based upon the local community support, CCTU applied for a Rivers Conservation Planning Grant (RCP) in October, 1998. RCP grant 5-8 was awarded to CCTU in June of 1999. This grant is funded through Dec. 31, 2002. The awarded grant required a 50% in-kind match.

CCTU, York County Planning Commission, P.H. Glatfelter Paper Company, and the National Fish and Wildlife Foundation provided the matching funds and services for the project. Members of the Project Steering Committee and North Codorus Township provided donations of time and space for the completion of this management plan.

A public meeting to initiate the Upper Codorus Creek Watershed Conservation Plan project was held in November, 1999. This meeting presented the findings from the previously completed Preliminary Assessment Report and solicited input from the attendees about the attributes, threats, and issues facing the Upper Codorus Creek watershed. In addition, interested individuals were invited to become involved with the project by serving on the Project Steering Committee. All of the input received during the meeting was compiled for use in the Watershed Conservation Plan.

Mackin Engineering Company was contracted by CCTU in June 2000 to assist with the completion of the Upper Codorus Creek Watershed Conservation Plan. The following chapters present the findings and recommendations of the plan utilizing the input from the local stakeholders, conservation organizations and resource agencies, CCTU, and the Project Steering Committee. The "Draft" Rivers Conservation Plan was released for public review and comment in September, 2001 and a public meeting presenting the information in the report was held in October, 2001. This "Final" document incorporates all of the comments received on the "Draft" report.

2. Project Area Characteristics

A. Location

The Upper Codorus Creek watershed is situated in the southwestern section of York County, Pennsylvania (Figure 1) [Figures are located following Chapter 8]. The watershed extends from the Maryland/Pennsylvania Border (a small section of the watershed is actually located in Maryland) northward to the Borough of Spring Grove. The Upper Codorus Creek watershed encompasses Codorus State Park, a major recreational destination in the area. Codorus Creek is a tributary to the Susquehanna River. It originates in Manheim Township near the Manheim Township Municipal Building and flows in a northwesterly direction through the villages of Glenville, Brodbecks, and Sinsheim. Just downstream from Sinsheim, the West Branch of Codorus Creek flows into Codorus Creek. The West Branch is discharged from Lake Marburg in Codorus State Park and is the largest tributary in the Upper Codorus Creek Watershed. From its confluence with the West Branch, Codorus Creek continues in a northwesterly direction through the villages of Porters Sideling and Menges Mills. Porters Creek flows into Codorus Creek at Porters Sideling and Oil Creek flows into Codorus Creek at Menges Mills. Oil Creek is the last major tributary before Codorus Creek exits the study area in Spring Grove. The Codorus Creek watershed is referenced by U.S. Geologic Service's (USGS) Hydrologic Code (1974) 02050306 in the Mid-Atlantic Region (U.S. Department of the Interior, 1974), it is also designated as sub-basin 7 of the Susquehanna River Basin by the Susquehanna River Basin Commission (SRBC) and the Pennsylvania Department of Environmental Protection (PADEP). Figure 1 presents this information in a graphical format.

Photo 2-1: View of Upper Codorus Creek landscape at the eastern end of the watershed facing west from Stambaugh Road.

B. Size

The Upper Codorus Creek watershed drains approximately 74 square miles of the 278 square mile Codorus Creek Basin (PADEP, 1989). This River Conservation Plan covers this entire 73.4 square mile watershed, including the four (4) named tributaries (West Branch, Porters Creek, Oil Creek, and Bunch Creek) as well as other unnamed tributaries. The watershed is located almost entirely in York County and contains all or part of 10 municipalities. One small section of the watershed extends into Maryland. Table 2-1 lists the Pennsylvania municipalities located within the watershed. Although Paradise Township containing a portion of the watershed, the area it contains is relatively forested land in the Pigeon Hills area; therefore, it is not specifically discussed through the remainder of this document.

C. Topography

The majority of the Upper Codorus Creek watershed is located within the Piedmont Upland Section of the Piedmont Physiographic Province. The northern and northwestern edges of the watershed are located within the Piedmont Lowland Section of the Piedmont Physiographic Province. This physiographic setting is the basis for the landforms found within the watershed.

Broad gently rolling hills and valleys generally characterize the Piedmont Upland Section of the watershed. Metamorphic rock (such as schist, gneiss, and quartzite) underlie the section. The vertical relief in this area is low to moderately steep. The elevation of Codorus Creek at its headwaters is approximately 1,000 feet above sea level and drops to approximately 440 feet above sea level when it exits the project study area. Over the approximately 14.2 mile length of this section, this would equate to a 0.6 percent slope.

Table 2-1
Summary of Municipalities That Make Up The Upper Codorus Creek Watershed

Municipality	Total Area (Sq. Mi.)	Area Within Watershed (Sq. Mi.)
Codorus Township	32.92	6.8
Hanover Borough	3.20	0.8
Heidelberg Township	14.97	14.7
Jackson Township	23.58	5.9
Jefferson Borough	0.44	0.4
Manheim Township	22.09	17.6
North Codorus Township	33.05	9.2
Penn Township	13.48	7.7
Paradise Township	18.90	0.5
Spring Grove Borough	0.28	0.1
West Manheim Township	19.49	9.7

D. Watershed Characteristics

1. Land Use

Land use information was collected through a combination of map review and field verification. The field investigation took place in December 2000.

Land use throughout the Upper Codorus Creek watershed is variable, ranging from areas of mature evergreen and deciduous woodlands to urban commercial centers. Figure 2, Land Use/Land Cover displays the relationship between these various land uses and the natural features found within the watershed.

The Anderson Land Use and Land Cover Classification System (Anderson, Hardy, Roach, and Witmer, 1976) was used to determine land use types for the watershed. The land use and land cover system presented in this report includes the more generalized first and second levels. The Anderson classification system utilizes a uniform numerical categorization system to classify major land use types.

Table 2-2, Land Use in the Upper Codorus Creek Watershed reveals the land use classifications as a percent of the total land within the watershed.

Within the watershed agricultural land was the most prevalent land use totaling over 20,700 acres (44 percent of the watershed). Nearly all of the agricultural land was cropland/ pasture.

Most of the municipalities in the project area are large townships with small village centers and boroughs. These villages and boroughs provide small commercial centers sufficient to provide for the day-to-day needs of the residents. Residential land use makes up approximately 21 percent of the watershed (10,020 acres).

Forestland comprised approximately 10,118 acres (21 percent of the watershed). This area is primarily composed of scattered areas throughout the watershed. Tree farms owned by the P.H. Glatfelter Company made up a substantial portion of the forested land. The Pigeon Hills area and the Codorus State Park were the largest contiguous pieces of forested land within the watershed.

Other land uses do occur in the watershed, however, they are minimal in acreage when compared to agricultural and forestland.

Urban/ Built-Up land existed primarily within the boroughs of the watershed and in the industrial park developed in Penn Township. Additional development was noted along the S.R. 116 corridor. The largest commercial area was located in the Borough of Hanover and the Penn Township Industrial Park. However, the majority of the commercial district in Hanover is outside of the project study area. Both Jefferson and Spring Grove contained a commercial district; but the Jefferson area was very small and the majority of the Spring Grove area is located outside of the watershed area.

TABLE 2-2
Land Use Categories And Acreages For The Upper Codorus Creek Watershed

Land Use		Acres	Percentage of Total Watershed
Urban/Built-Up			
	Residential	10,020	21%
	Commercial	1,021	2%
	Industrial	1,242	3%
Agricultural		20,700	44%
Forest		10,118	21%
Water			
	Lakes/Ponds/Wetlands	1,749	4%
Barren (Roads, R-O-W, Utilities)		2,547	5%
TOTAL		47,379	

Source: York County Planning Tax Assessment; USGS Mapping

2. Zoning

The Upper Codorus Creek watershed study area contains all or part of 11 municipalities. Each of these municipalities has enacted zoning ordinances. The York County Planning Office supplied zoning information for the municipalities of the watershed. Figure 3 provides an overview of the uses allowed in the watershed, however, this map presents the approved zoning in a general manner, without the specific conditions regarding the land use that may vary from municipality to municipality. Because of the potential for different specific requirements for the zoning classifications in each municipality, Figure 3 should not be used for detailed planning purposes.

The primary zoning in the watershed is agricultural. Potential conflicts could exist between agricultural land uses located directly next to the streams and conservation efforts. Many of the farms in these locations allow their livestock direct access to the streams. This presents the potential for stream contamination and increased Non Point Source (NPS) pollution.

Additional conflicts could arise from the increased residential development occurring in the watershed. New housing developments not only encroach on the streams of the watershed, but landscaping, the planting of new grass, and the associated large scale use of chemical herbicides and pesticides can create contamination problems within the watershed.

Pockets of commercial zoning are concentrated in the more developed urban areas, while agricultural zoning districts are found in the less developed rural areas. Land included in the 100-year floodplain is designated as conservation areas in many of the municipalities. In these conservation zones, development is usually restricted to uses that will not cause pollution or additional damage during flooding events.

E. Socio-Economic Profile

1. Population

The Upper Codorus Creek Watershed encompasses approximately 74 square miles and drains the southwestern section of York County and a small portion of northern Maryland. Parts of ten Pennsylvania municipalities are located with the watershed including: Codorus, Heidelberg, Jackson, Manheim, North Codorus, Penn and West Manheim Townships as well as Hanover, Jefferson and Spring Grove Boroughs. Differing in both size and demographic make-up these municipalities consisted of nearly 16 percent of York County's population in 2000 and approximately 0.5 percent of the entire state. (2000 U.S. Census).

For the purpose of this watershed conservation plan, the community's entire population was included in this analysis; this includes sections of the municipality, outside the watershed.

Table 2-3 reveals that the watershed's population increased by 58 percent since 1960. York County's population increased by over 60 percent while the state's population only increased by 9 percent during this same time period. Between 1960 and 2000 five municipalities doubled their respective populations while two others increased by more than fifty percent. In fact, only one municipality decreased in population during this time period. All of the other communities have significantly, Hanover Borough, outpaced the state's growth rate.

Table 2-3
Summary of Population and Population Trends in The Upper Codorus Creek Watershed

	Population Totals					Percent Change				
	1960	1970	1980	1990	2000	60-70	70-80	80-90	90-00	60-00
Codorus Township	*2,394*	*2,762*	*3,591*	*3,653*	*3,646*	*15.37%*	*30.01%*	*1.73%*	*-0.19%*	*52.30%*
Hanover Borough	15,538	15,623	14,890	14,399	14,535	0.55%	-4.69%	-3.30%	0.94%	-6.46%
Heidelberg Township	*1,493*	*1,785*	*2,116*	*2,622*	*2,970*	*19.56%*	*18.54%*	*23.91%*	*13.27%*	*98.93%*
Jackson Township	2,749	3,931	5,347	6,244	6,095	43.00%	36.02%	16.78%	-2.39%	121.72%
Jefferson Borough	*447*	*540*	*685*	*675*	*631*	*20.81%*	*26.85%*	*-1.46%*	*-6.52%*	*41.16%*
Manheim Township	1,435	1,566	2,296	2,692	3,119	9.13%	46.62%	17.25%	15.86%	117.35%
North Codorus Township	*3,525*	*4,514*	*6,854*	*7,565*	*7,915*	*28.06%*	*51.84%*	*10.37%*	*4.63%*	*124.54%*
Penn Township	7,063	8,154	9,234	11,658	14,592	15.45%	13.25%	26.25%	25.17%	106.60%
Spring Grove Borough	*1,675*	*1,669*	*1,832*	*1,863*	*2,050*	*-0.36%*	*9.77%*	*1.69%*	*10.04%*	*22.39%*
West Manheim Township	1,776	2,246	3,688	4,590	4,865	26.46%	64.20%	24.46%	5.99%	173.93%
Watershed	*38,095*	*42,790*	*50,533*	*55,961*	*60,418*	*12.32%*	*18.10%*	*10.74%*	*7.96%*	*58.60%*
York County	238,336	272,603	313,024	339,574	381,751	14.38%	14.83%	8.48%	12.42%	60.17%
Pennsylvania	**11,248,665**	**11,766,412**	**11,864,720**	**11,881,961**	**12,281,054**	**4.60%**	**0.84%**	**0.15%**	**3.36%**	**9.18%**

Within the watershed Hanover Borough remained one of the largest in terms of population; but it was the only municipality that experienced a population decline during the forty-year period. West Manheim, Manheim, Jackson, Penn, and North Codorus Townships were the fastest growing, doubling their respective populations over this same period. In fact, these five municipalities accounted for 90 percent of the population growth within the watershed. As the population continues to grow so will the demand for additional residential areas, infrastructure improvements and community amenities.

Growth in rural areas is not only a regional trend but also a nationwide trend, as people continue to move from urban to rural areas. As indicated in Table 2-3, the boroughs are growing at a much slower rate than the rural townships. This is even more obvious when examining larger urban areas of the county. For example the City of York and the boroughs of North York and West York have lost over 22 percent of their populations since 1960.

Table 2-4 also presents more recent population changes, between 1990 and 2000; it indicates the population growth rate within the watershed maybe slowing. Penn Township was the fastest growing municipality during this period increasing its population by over 25 percent and Hanover Borough's population decline has begun to stabilize. All of the townships within the watershed, with the exception of Codorus Township, exceeded the state's growth rate during this period; however, only three municipalities have grown at a faster pace than York County.

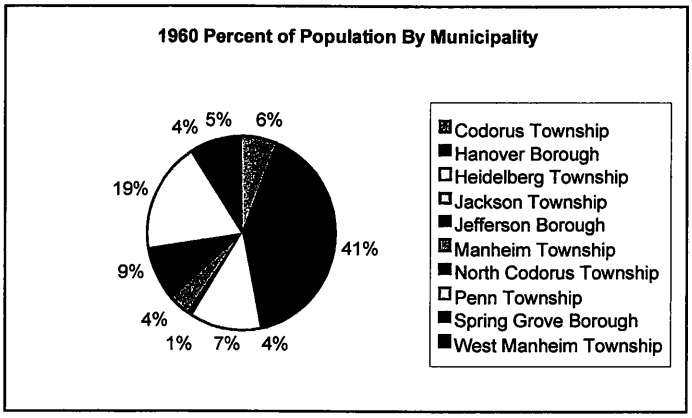
TABLE 2-4

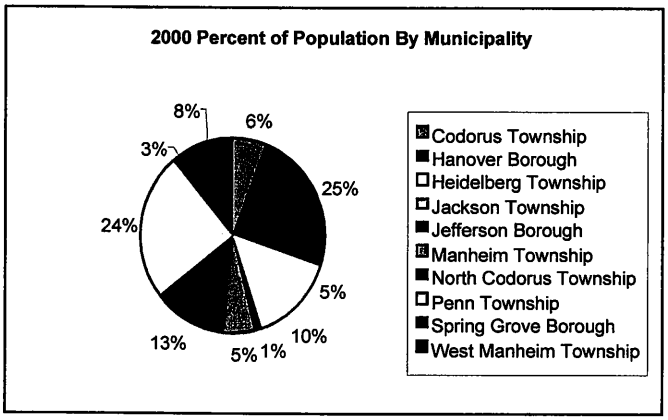
Recent Population Changes Within The Upper Codorus Creek Watershed

	Total Population 1990	Total Population 2000	Population Change 1990-2000 (%)
State of Pennsylvania	**11,881,643**	**12,281,054**	**3.36%**
York County	**339,574**	***381,751***	***12.42%***
Codorus Township	*3,653*	3,646	*-0.19%*
Hanover Borough	*14,399*	*14,535*	0.94%
Heidelberg Township	*2,622*	2,970	*13.27%*
Jackson Township	*6,244*	*6095*	-2.39%
Jefferson Borough	*675*	*631*	*-6.52%*
Manheim Township	*2,692*	3,119	*15.86%*
North Codorus Township	*7,565*	*7,915*	4.63%
Penn Township	*11,658*	14,592	*25.17%*
Spring Grove Borough	*1,863*	*2,050*	10.04%
West Manheim Township	*4,590*	*4,865*	*5.99%*
Population within watershed municipalities	*55,961*	60,418	*7.96%*

2000 U.S. Census Bureau

The following graphic helps to display the changing distribution of population patterns within the watershed. In 1960, nearly 50 percent of the population lived in the boroughs of the watershed (41% in Hanover), in 2000 only 29 percent of the population resided within the boroughs. This change can most likely be attributed to the limited space for residential development and the trend to develop in rural areas.





An important factor when evaluating population characteristics is the distribution of population by age group. Typically three major age groups are used, under 18, 18-64, and 65 and older. Each group has specialized needs that impose different demands upon various municipal and county services. For instance the "wage-earners" (ages 18-64) category should contain the majority of the population in order to support those persons unable to contribute to the tax base. Age groups such as the 65 and older group commonly include persons who require specialized services and housing needs. Similarly, those under the age of 18 also require particular services such as infant care, childcare, educational system, and dedicated recreational facilities. It is important that government leaders know the characteristics of their population to properly plan for services and facilities.

The age distribution of the population within the watershed was consistent with the distribution in York County. Hanover Borough had the oldest population and the greatest percentage of residents over the age of 65. Table 2-5 illustrates that the boroughs within the region are typically older then the surrounding townships. This can also be credited to the outward migration of people in urban areas to rural areas, in most cases the older residents are less likely to move because needed facilities and amenities are usually located in urban areas. The Population by Age Group statistics were taken from the 1990 Census, because the 2000 statistics for this category have not been calculated at this time.

Table 2-5
Population Distribution By Age Groups, 1990

	Total Population	Percent of Population <18	Percent of Population 18-64	Percent of Population 65+	Average Age
Pennsylvania	**11,881,643**	24.3	62.6	13.1	36.4
York County	339,574	23.5	61.1	15.4	37.5
Codorus Township	*3,653*	25.3	64.7	10.0	35.6
Hanover Borough	*14,399*	19.6	58.2	22.2	41.2
Heidelberg Township	*2,622*	25.2	63.4	11.4	35.2
Jackson Township	*6,244*	27.9	64.4	7.7	33.3
Jefferson Borough	*675*	27.7	58.8	13.5	35.3
Manheim Township	*2,692*	28.3	64.4	7.3	33.2
North Codorus Township	*7,565*	26.8	64.4	8.8	34.1
Penn Township	*11,658*	26.2	61.7	12.1	35.4
Spring Grove Borough	*1,863*	26.0	58.4	15.6	36.4
West Manheim Township	*4,590*	28.2	62.5	9.3	33.8
Watershed Municipalities	55,961	24.9	61.8	13.3	36.3

The Pennsylvania State Data Center, 1999

Overall, the Upper Codorus Creek Watershed is an area that is growing in terms of population. Trends indicate that the population is shifting from urban communities at the fringes of the watershed to the more rural townships. The population growth trend has occurred over the past Forty years and is expected to continue for the foreseeable future. The population forecast for the Upper Codorus Creek Watershed is one of growth as people continue to move to the area.

Table 2-6 displays economic characteristics of the watershed. Many of these characteristics were similar to the state and county averages. However, watershed average incomes were more than three thousand dollars higher than the county average, and only Hanover Borough had a lower median household income than the statewide average. Based upon the 1990 U.S. Census figures, the communities of the watershed also had a higher percentage of employed persons when compared to the average statewide employment levels.

The travel time to work numbers can help to reveal where people are working. The 1990 U.S. Census was used to determine that 73.1 percent of the working population within the watershed worked in York County. Table 2-7 also revealed that a high percentage of workers drove alone. In fact, only Spring Grove Borough had a smaller percentage of single occupant drivers than the statewide average. When this statistic is coupled with increasing population and the increasing number of two income families, a strain upon the transportation infrastructure can be expected.

Photo 2-2: An example of the growth occurring in the Upper Codorus Creek watershed. A single residential unit is being constructed in a formerly cultivated field.

Table 2-6
Median Income for Communities of The Upper Codorus Creek Watershed

	Percent of Population 16+ Employed	Median Income						
		Wage and Salary	Nonfarm Self-emp	Farm Self-emp	Social Security	Public Assistance	Retirement	MEDIAN HOUSEHOLD INCOME
Codorus Township	54.7	$40,984	$17,227	$13,300	$8,656	$5,774	$8,448	$38,693
Hanover Borough	50.0	$31,052	$23,528	$889	$7,870	$3,506	$5,431	$24,947
Heidelberg Township	53.5	$39,081	$22,493	$7,711	$8,492	$4,515	$6,255	$37,417
Jackson Township	53.8	$37,699	$17,610	$4,441	$7,640	$4,509	$8,547	$36,435
Jefferson Borough	48.1	$35,869	$24,335	N/A	$8,018	$4,835	$3,344	$32,875
Manheim Township	55.7	$41,408	$26,843	$3,926	$7,822	$2,349	$6,884	$41,142
North Codorus Township	52.3	$38,227	$16,236	$2,607	$8,185	$1,316	$8,227	$36,685
Penn Township	52.7	$37,590	$22,297	$1,009	$7,501	$3,259	$6,964	$33,653
Spring Grove Borough	51.7	$35,405	$7,601	$4,934	$8,365	$2,842	$6,413	$32,337
West Manheim Township	57.4	$41,119	$12,375	$1,123	$7,861	$653	$8,595	$41,094
Watershed	52.7	$36,576	$19,845	$5,166	$7,888	$3,565	$6,763	$35,627
York County	52.1	$36,897	$18,254	$6,599	$8,196	$3,986	$6,801	$32,605
Pennsylvania	45.7	$36,643	$21,202	$9,722	$8,107	$4,041	$7,615	$29,069

(1990 US Census)

Table 2-7
Upper Codorus Creek Watershed Community Travel Patterns

	Time Traveled				
	Drove alone	0-29 min.	30-60 min.	60+ min.	Mean travel time
Codorus Township	76.4	51.0	35.6	7.9	27.8
Hanover Borough	74.6	81.3	14.2	2.5	15.1
Heidelberg Township	81.9	70.0	21.2	4.5	21.5
Jackson Township	83.6	74.8	20.3	3.8	21.4
Jefferson Borough	77.5	61.7	30.1	3.5	24.1
Manheim Township	78.9	53.8	32.0	8.8	28.3
North Codorus Township	86.4	72.0	20.8	3.1	21.2
Penn Township	79.2	72.2	15.7	8.2	20.6
Spring Grove Borough	69.9	81.3	15.3	1.2	17.3
West Manheim Township	78.3	59.5	24.8	9.8	25.6
Watershed	79.1	71.1	19.9	5.3	20.7
York County	79.3	73.0	19.9	3.4	20.2
Pennsylvania	70.3	67.9	23.2	4.7	21.6

(1990 U.S. Census)

2. Transportation Facilities

The mobility of residents and travelers is central to the economic and social vitality of a community and region. From roads and bridges to railroads and airfields, the transportation infrastructure can lend itself to the economic revitalization and/or to the improvement of the quality of life of a region. Transportation facilities in the watershed area are presented in Figure 5.

Several modes of transportation are represented within the transportation network of the Upper Codorus Creek Watershed. The project area includes PA Highways, as well as municipal and private roads. In addition, the project area includes a rail system that can move goods across the region. Air transport is also available to the residents of the watershed, although no airports are located within the study area of the watershed.

Roadway

Increased traffic, resulting from the growth in the watershed, is causing a strain on the current roadway system. Within the Upper Codorus Creek Watershed there are currently 322.7 miles of roads that provide residents with vehicular access. This document utilizes 1996 data from the York County Transportation document, prepared by the York County Planning Commission. The document classifies roads as arterials, collectors, or local roadways. The document further classifies them as PA Highways, State Routes, Township Roads, and Other Roads.

Transportation facilities are classified by the relative importance of the movement and access function assigned to them. The access function detracts from the movement function and vise versa. In the hierarchy of highway facilities, freeways and major arterials constitute the major

highway system (most efficient), while collector and local roads comprise the local street system (most access). The classification of streets essentially is determined by the degree of efficiency and access that they provide. Each of the classifications is briefly described below.

Roadway Inventory

Based on function, roads within the watershed can be classified into one of the following categories.

Major Highway Network (function to efficiently move traffic)

Controlled Access Highway - A highway to which owners of abutting land have no easement or access. (Interstates)

Major Highway (Arterial) – A facility on which geometric design and/or traffic control measures are used to expedite through traffic, while access to abutting property may be restricted but not eliminated. (PA and U.S. Highways)

Local Street System (function to provide access to adjacent land)

Collector Street – A street that serves traffic movements within a neighborhood and connects this area with the major highway system. It is not intended to handle long through trips, but performs the same land service function as local roads.

Local Street – A facility having the sole function of providing access to immediately adjacent land.

Using Table 2-8 below, a comparison can be made between major and local roads within the watershed, giving a representation as to the amount of miles existing in the watershed.

Table 2-8
Summary Of Roadway Miles In The Upper Codorus Creek Watershed

Owner	Miles
State	98.7
Township	133.9
Borough	70.9
Private/Farm lanes	19.2
Total Miles of Roads =	**322.7**

(Source: York County Planning Commission, 1996)

The road network within the Upper Codorus Creek Watershed study area is comprised of PA Highways, State Routes, Township Roads and Other roads. All roadways are represented on the Upper Codorus Creek Watershed Transportation Map (Figure 5).

Within the watershed there are no fully controlled access highways, nor are there any U.S. Highways.

The state traffic routes can be classified as roadways that interconnect communities to Major Highways within the study area. PA State Traffic Routes include; PA 94, PA 194, PA 116, and S.R. 3068 (Grandview Rd.). Additionally, PA 516, PA 216, S.R. 3042 (Stoverstown Road), S.R. 3090 (Lehman Road), S.R. 3070 (Black Rock Road), S.R. 3058, S.R. 3041 (Sinsheim Road), S.R. 3047 (Iron Ridge Road), S.R. 3072 (Old Hanover Road) serve as collector roads for the project area.

Another important element of the roadway system in the Upper Codorus Creek watershed is the substantial number of dirt and gravel roads that exist throughout the area. Dirt and gravel roads and their impacts are discussed in further detail in the Water Resources Section (Chapter 4) of this document.

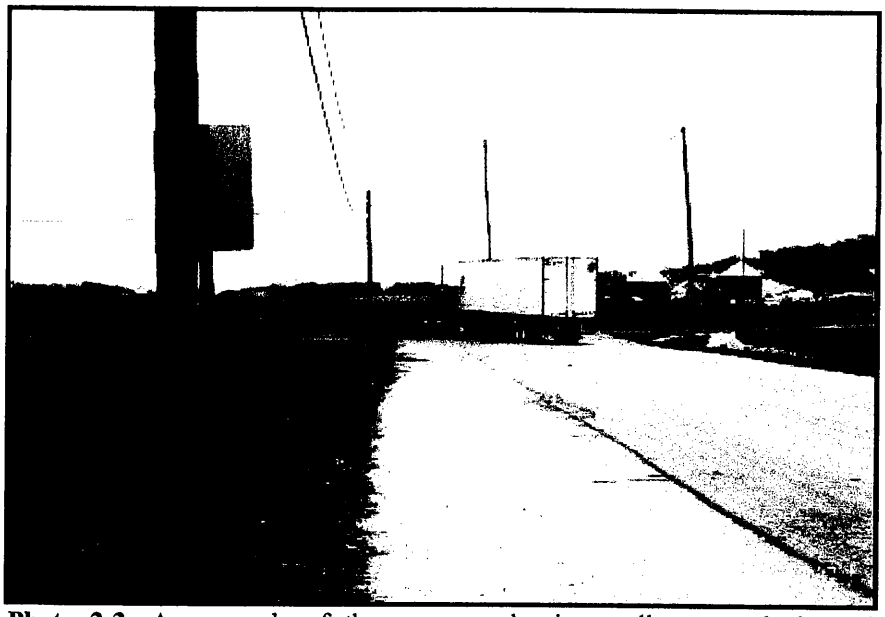


Photo 2-3: An example of the many rural minor collector roads located throughout the Upper Codorus Creek watershed. Increased truck traffic on these local roads, as a result of growth in the region, is becoming a concern.

Rail

Complimenting the extensive network of roads within the study area are two (2) freight rail system. Rail systems have historically moved large amounts of goods in and out of the watershed. There is no rail passenger service located in the Upper Codorus Creek Watershed.

The Upper Codorus Creek Watershed contains rails lines operated by the CSX and York Rail Companies provide freight service through the watershed. Approximately 2.5 miles of CSX line is located within the watershed. The CSX Rail Company provides freight service between the Borough of Hanover and the village of Porters Sideling. The CSX line continues west from Hanover into Adams County and south from Porters Sideling into Maryland. Approximately 2.2

The Upper Codorus Creek Watershed contains rails lines operated by the CSX and York Rail Companies provide freight service through the watershed. Approximately 2.5 miles of CSX line is located within the watershed. The CSX Rail Company provides freight service between the Borough of Hanover and the village of Porters Sideling. The CSX line continues west from Hanover into Adams County and south from Porters Sideling into Maryland. Approximately 2.2 miles of the York Rail Company line are located within the watershed. The York Rail Company is associated with the Emmons Transportation Company. The rail line provides freight service between Hanover and Spring Grove and Porters Sideling and Spring Grove within the watershed. At Hanover and Porters Sideling the rail line terminates at the CSX lines. From Spring Grove, the rail line continues along two (2) tracks into the City of York where it terminates at the Norfolk and Southern Railroad lines.

Rail Trail

Within York County there are several recreational walking and bicycling trail-ways. Some of these trail-ways have been converted from abandoned rail lines. This form of recreation has become increasingly popular as communities recognize the benefits to both economic and quality of life issues. Studies have shown increases in tourism and money spent in relation to the development of a trail system (Source Yr). In addition, property values and business support have been shown to increase with this form of recreation. If proposals to extend the trail are finalized, approximately 1.5 miles of multi-use trail will be located within the watershed between the Hanover and Spring Grove. A feasibility study for extending the trail has not yet been completed; but is scheduled to begin in the next year.

Air

Complimenting the movement of people and goods is a comprehensive system of air travel. Serving as a convenient and faster way to move items from one area to another, air travel is also used for medical emergencies and military transport. The Upper Codorus Creek watershed contains no public or private airports within the study area. However, two airports, one private and one public, are in operation near the study area for the project.

The privately owned facility is the Thomasville Airport. This facility is located in Jackson Township adjacent to U.S. Route 30 just north of the watershed. 1993 data showed the airport operating at 8.75% of capacity with approximately 17,500 flights per year. The majority of theses flights were recreational or corporate in nature rather than delivery of goods. (YCPC-1996).

The public facility is the Hanover Airport located in Adams County west of the watershed area. This airport had approximately 3,500 flights per year. No further information regarding the airport was identified (York County Planning Commission, 1996).

3. Major Sources of Employment

In the last decade, the communities that make up the Upper Codorus Creek watershed have experienced varying degrees of growth in employment. Data for this section was acquired from

York County

The study area is located entirely in York County and makes up approx. 8.3% of the entire county area. During the period from 1994-98, York County experienced a growth in the Agriculture, Forestry and Fishing; Construction; Manufacturing; Retail Trade; Finance, Insurance, Real Estate; and Services sectors. The county experienced decreases in the Mining, Transportation and other resources, Wholesale Trade, and Public Administration sectors.

Work force and employment figures show that the study area is located in an area that is generally experiencing good economic conditions and employment opportunities. According to the 1990 Census Figures and the Department of Labor and Industry, the median household income for York County ($32,605) was higher than the state average of $29,069. Per Capita Income in 1990 for York County was $14,544, which was lower than the state average of $22,471 and the national average of $21,696. These economic statistics show a region with a generally low unemployment rate. Within York County there were a total of 7,731 employers in 1998, this was the last year numbers were available.

The 1999 unemployment rate in York County was approximately 3.2%. This rate compared favorably with the statewide rate of 4%. The unemployment rate for York County has varied from a low of 2.9% in 1970 to a high in 1980 of 7.4%.

Major employers located within the Upper Codorus Creek Watershed were identified as those firms employing 250 or more persons. Table 2-9 lists the names of the major employers, their general location within the watershed, and their product or service.

Photo 2-4: View of ESAB Welding and Cutting Products, a major employer located in Penn Township.

TABLE 2-9
Major Employers Within The Upper Codorus Creek Watershed

NAME	LOCATION	PRODUCT OR SERVICE
P.H. Glatfelter Company	Spring Grove Borough	Paper Processing
Hanover Foods	Penn Township	Food Production
ESAB Welding and Cutting Products	Penn Township	Industrial Supplies
Snyders of Hanover	Penn Township	Snack Foods
Hanover Wire Cloth Division	Hanover Borough	Metal Fabrication
SKF USA Inc.	Penn Township	Anti-Friction Bearings
The Sherman Press	Penn Township	Publishing
Pillowtex Corp.	Penn Township	Quilted Mattress Pads and Comforters
Bookspan	Penn Township	Non Store Book Retailer
Spring Grove School District	Spring Grove	Education

As stated previously, the Upper Codorus Creek Watershed is an area that is experiencing economic growth as indicated by the increase in employees and corresponding low unemployment rates.

3. Land Resources

A. Soil Characteristics and Geology

There are certain factors that result in variations between all soil types; these include parent material, climate, topographic relief, flora and fauna in the soil, human influences, and time. These different factors have led to the creation of four (4) different soil associations within the Upper Codorus Creek watershed. These associations consist of: 1) Chester-Elioak-Glenelg Association, 2) Glenelg - Manor Association, 3) Conestoga – Duffield – Bedford - Lawrence Association, and 4) Edgemont-Highfield-Murril Association. The characteristics of these soil groups were collected from the York County Soil Survey (Hersh, 1959) and are presented in the following paragraphs. This information is consistent with the as yet unpublished update of the York County Soil Survey.

1) Chester-Elioak-Glenelg Association: These soils are deep and moderately deep, well drained, moderately sloping, soils, which are underlain by schist or phyllite. Within the watershed they are generally located south of Route 116 from Hanover to Spring Grove and between Oil Creek and the West Branch of Codorus Creek. Broad, gently rounded ridges characterize these soils. Overall they make up 20% of the County, mostly in the south and southeastern vicinity.

2) Glenelg-Manor Association: These are shallow to moderately deep, well drained to excessively drained, moderately sloping to moderately steep soils underlain by schist and phyllite. Within the watershed, these soils are generally found south of the Chester-Elioak-Glenlg Association, between the West Branch of Codorus Creek and the main stem of Codorus Creek. Soils of this association are well suited to agriculture with approximately 90% of them cleared for agricultural use. These soils make up approximately 13% of the County, generally in the south central vicinity.

3) Conestoga-Duffield-Bedford-Lawrence Association: These are moderately deep to deep, well drained, nearly level to moderately steep soils underlain by impure limestone or calcareous schist. Within the watershed the soils are located in the Oil Creek stream valley. They are well suited to agriculture; but much has been built up into urban and industrial areas. This soil association makes up approximately 5% of the County.

4) Edgemont-Highfield-Murril Association: These are deep upland soils underlain by quartzite, aporhyolite, quartz, or metabasalt and are deep colluvial soils underlain by limestone. The soils of this association are primarily forested because of their steep slopes; but less steep areas are well suited for agriculture. This association makes up a small section of Pigeon Hills and part of the northwestern edge of the watershed. This soil association makes up approximately 8% of the County.

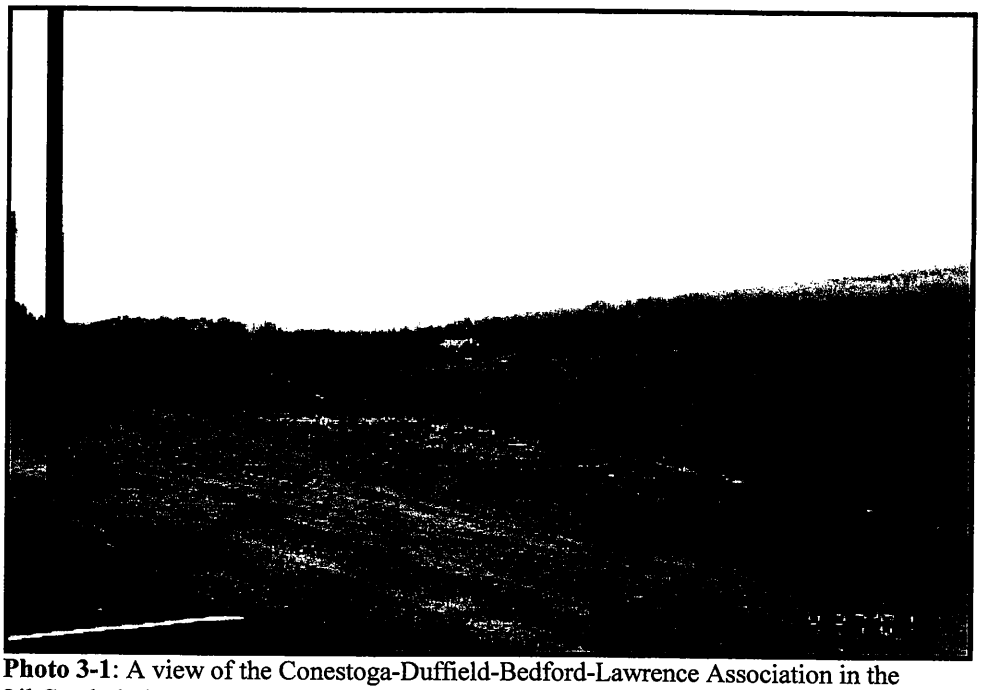


Photo 3-1: A view of the Conestoga-Duffield-Bedford-Lawrence Association in the Oil Creek drainage. The photo direction is facing northwest from Moulstown Road.

B. Prime Agricultural Soils, Agricultural Security Areas, and Farmland Preservation

1. Prime Agricultural Soils

The USDA, Natural Resources Conservation Service (NRCS) has designated prime agricultural soils in York County. These soils have been identified within the Upper Codorus Creek watershed. Prime agricultural soils contain soil factors and slope features that are extremely well suited for agricultural purposes. These soils are deep, well drained, and level to nearly level. The same factors that make these soil types ideal for agriculture also make them well suited for development. Therefore, the locations and acreage of prime agricultural soils are important tools that can be used to plan for future development without removing important agricultural resources.

Additional soils in York County are designated as being soils of statewide importance. These soils require a slightly higher level of management than prime agricultural soils due to slope, drainage, depth to water table, etc. However, these soils are still extremely well suited for agriculture and are highly productive. Like the prime agricultural soils, soils of statewide importance are also well suited for development. Where Figure 4 illustrates the locations of the prime and statewide important soils in the watershed. All Class 1 and some Class 2 soils are prime agricultural soils. The majority of the Class 2 soils, all of the Class 3 soils, and one of the Class 4 soils are listed as soils of statewide importance.

The prime agricultural soils are found almost exclusively in the northern third of the watershed, in the valley between Hanover and Spring Grove. The soils of statewide importance are spread throughout the remainder of the watershed.

2. Agricultural Security Areas

Agricultural Security Areas (ASA's) are actively farmed lands, which have been enrolled into a statewide program that restricts development options for the properties. In addition, ASA's protect the areas from indiscriminant condemnation, allow for farming of the area in the future, and prevent nuisance legislation detrimental to farming operations. Local municipalities and counties administer ASA's. The total acreage of ASA's in the municipalities of the watershed is presented in Table 3-1. Locations of the ASA's are presented on Figure 4. These totals are based upon February 2000 information received from the Pennsylvania Farm Preservation Bureau and from conversation with representatives from the York County Agricultural Preservation Board.

TABLE 3-1
Agricultural Security Areas Of The Upper Codorus Creek Watershed

Township	Number of Parcels	Acreage (Approx.)
Codorus	45	942
Heidelberg	49	1,118
Jackson	43	1,455
Manheim	49	1,672
West Manheim	2	44
Penn	5	157
North Codorus	104	3,156
Totals	297	8,545

(York County Planning Commission, 2001)

3. Farmland Preservation

In addition to ASA's, Pennsylvania and county governments are also purchasing development easements of prime agricultural lands, located within ASA's, for the purpose of preserving the areas in agricultural production, in perpetuity. In addition a non-profit trust (The York County Agricultural Lands Trust) also preserves farmland within the County. Each of the ASA's in the watershed has farmland that is available for the easement program; however, no acreage exists within the Upper Codorus Creek watershed that has been preserved at this time.

C. Ownership

The majority of the lands that make up the Upper Codorus Creek watershed are privately owned. Local farmers own much of the property, although in recent years large tracts of land have been purchased for residential development. Publicly owned lands are generally limited to local parks and recreational areas; however, the 3,324-acre Codorus State Park is located entirely within the Upper Codorus Creek watershed. Codorus State Park makes up approximately 6.8% of the watershed study area.

D. Landfills

Based upon a review of the PADEP records, two permitted waste facilities are located in York County, the Modern Landfill (Permitted Facility #100113) and the York County Resources Recovery Center (Permitted Facility #400561). Neither of these facilities is located in or near the Upper Codorus Creek watershed. However, one closed landfill was identified within the watershed. This facility is located in the vicinity of Bankert Road in Penn Township. This landfill began operation in the early 1950's and accepted municipal waste from Hanover Borough and Penn Township. The landfill was closed in the early 1960's when the property was purchased by the state as part of Codorus State Park. The landfill is located within Codorus State Park. No post closure reports were available for this facility.

Two other closed landfills were identified just outside of the project study area. One facility was located in Manheim Township near the Maryland State line. This facility was located north of Lineboro in the Gunpowder Falls watershed. Based upon its position in the watershed it is unlikely that it would have any impact on the Upper Codorus Creek watershed. The second facility was located in the Borough of Spring Grove just south of the study area boundary. Again, based upon its position in the watershed it is unlikely that it would have any impact on the Upper Codorus Creek watershed. Finally, several non-permitted dumping areas have been identified within the project study area. These dumps can result in a multitude of problems including rodents and insect infestation, groundwater contamination, and general unsightliness.

E. Hazard Areas

1. Waste Sites

An inventory of hazardous and toxic waste sites was conducted for the Upper Codorus Creek watershed using the Environmental Protection Agencies' (EPA) databases and the Right-To-Know Network. This query system identified waste management facilities listed within the following regulatory databases:

- Resource Conservation and Recovery Information System (RCRIS)
- Comprehensive Environmental Response, Cleanup, and Liability Information System (CERCLIS)
- Toxic Release Inventory (TRI)
- Permit Compliance System (PCS)

Summaries of information obtained through the search are contained in Appendix A of this document. Up to date and complete results of this database search, as well as descriptions of the federal environmental legislation regulating each of these facilities can be located by accessing the Right-To-Know Network on the Internet at www.rtk.net.

RCRIS LIST

The Right-To-Know Network Database was used to identify any Large Quantity Generators (LQG) located within the watershed. LQGs are operations that produce > 2,200 Lbs. of

hazardous waste in any given month of the year. No LQG were identified within the watershed study area. In addition, no RCRIS listed Storage, Treatment, and Disposal (STD) facilities or Waste Transporters (WT) were located within the watershed. The review of the RCRIS list was also used to quantify the number of Small Quantity Generators (SQG) within the watershed. A total of 5 SQGs were identified within the watershed. A SQG is a facility that produces between 220 and 2,200 pounds of hazardous material per month.

CERCLIS LIST

No Pennsylvania Superfund Sites (NPLs) were identified within the watershed. No active CERCLIS sites were identified within the Upper Codorus Creek watershed. Several locations have been investigated and classification projects have been completed.

TOXIC RELEASE INVENTORY

The Toxic Release Inventory (TRI) is a public information Right-To-Know report that presents information about chemical releases and discharges associated with manufacturing industries. Information from this database was obtained from the Right-To-Know Network.

The information obtained from the TRI is presented in Appendix A. A total of six (6) industries were identified as having releases within the watershed. No violations regarding these discharges were noted and all facilities are assumed to be in compliance with applicable regulations. Updated information from the TRI can be obtained from the Right-To-Know Network Internet site at **www.rtk.net**.

PERMIT COMPLIANCE SYSTEM

The Permit Compliance System (PCS) provides information on National Pollution Discharge Elimination System (NPDES) Permits for surface water discharges under the Clean Water Act. Utilizing the Right-To-Know Database, a total of eight (8) permitted facilities were identified in the watershed. There is insufficient data to determine compliance with permit parameters or the severity of any potential violations. Updated information for the PCS can be obtained from the Right-To-Know Network Internet site at **www.rtk.net**.

2. Abandoned Mines/Quarries

Based upon information received from Mr. Dan Koury from the PADEP's Pottsville mining office, and Mr. Mark Mathews, York County mining inspector, no permitted mining facilities previously existed within the Upper Codorus Creek watershed. However, numerous iron ore pits were dug throughout the watershed through the 1700's and into the early 1800's. These pits were generally shallow excavations that supplied the Mary Anne furnace and Spring Grove forge. The remnants of these mining operations can be seen in the watershed as water filled pits and ponds; or as vegetated wetland areas in the shallower ore holes.

Photo 3-2: A view of an ore pit located near the juncture of Hanover Road and Porters Road. The shallow excavation and high groundwater table have led to the area becoming vegetated with wetland species.

3. Active Mines/Quarries

Based upon information received from Mr. Dan Koury from the PADEP's Pottsville mining office, no currently active mining facilities exist within the Upper Codorus Creek watershed. One facility has completed reclamation in North Codorus Township, and two active facilities are located outside of the watershed in Jackson Township. The list of active mining permits for all of York County is presented in Appendix B.

4. Sinkholes

Based upon a review of the Bureau of Topographic and Geologic Survey website for sinkholes in Pennsylvania, no sinkholes nor karst topography have been identified within the Upper Codorus Creek watershed. This database can be reviewed at **www.dcnr.state.pa.us/sinkhole/default.asp**.

4. WATER RESOURCES

A. Major Tributaries

The main stem of Codorus Creek receives drainage from 15 tributaries within the study area (Table 4-1, Figure 6). Only four (4) of these streams (West Branch of Codorus Creek, Porters Creek, Oil Creek, and Bunch Creek) would be considered major tributaries. These four streams total 47.9 square miles (64.7%) of the entire 74.0 square mile drainage of the study area.

TABLE 4-1
Tributaries To Upper Codorus Creek

TRIBUTARY	DRAINAGE AREA (MI^2)	PADEP WATER USE[1]	RIVER MILE (APPROX.)
Bunch Creek	5.18	WWF	26.4
UNT @ Lehman Rd.	2.89	WWF	26.2
Oil Creek	16.8	WWF	27.7
UNT @ Menges Mills	1.55	WWF	27.8
UNT @ Senft Rd.	1.18	WWF	29.9
Porters Creek	1.85	WWF	30.7
UNT @ Kraft Mill Rd.	0.58	WWF	32.6
West Branch of Codorus Creek	23.56	WWF	32.7
UNT @ Park Rd.	1.39	TSF	33.0
UNT @ Hillclimb Rd.	1.39	TSF	34.0
UNT @ Tannery Rd.	0.79	TSF	35.8
UNT @ S.R. 216	1.25	TSF	36.6
UNT @ Stone Church Rd.	1.11	TSF	37.0
UNT @ Wool Mill Rd.	0.91	TSF	37.2

[1] PADEP Chapter 93 Water Quality Standards abbreviations are: WWF - Warm Water Fisheries, CWF - Cold Water Fisheries, TSF - Trout Stocked Fisheries, HQ - High Quality Waters, EV - Exceptional Value Waters, UNT – Unnamed Tributary

Source: Pennsylvania Gazetteer of Streams by Pennsylvania Department of Environmental Protection in cooperation with the United States Department of the Interior Geological Survey, 1989, Harrisburg: Author; and York County Planning Commission GIS Department

The major tributaries to Codorus Creek are the West Branch of Codorus Creek, Porters Creek, Oil Creek and Bunch Creek. Descriptions for each of these tributaries are given in the following paragraphs.

West Branch of Codorus Creek: The West Branch of Codorus Creek originates near Tracy Road (T-305) in West Manheim Township. It flows in a northerly direction into Lake Marburg, a 90± ft. deep lake located in Codorus State Park. No perennial tributaries feed in to the West Branch of Codorus Creek prior to entering Lake Marburg; however, Furnace Creek, Long Run, and two other unnamed tributaries flow into the lake along with the West Branch. None of these streams

have been evaluated by the PFBC. All of the streams are classified as Warm Water Fisheries (WWF) by the PADEP.

A middle water release, located 60 feet below the top of the dam, is used to discharge water from Lake Marburg. This discharge supplies a constant source of cold, sediment free water that makes up the last 3,300 feet of the West Branch of Codorus Creek before it flows into Codorus Creek.

Porters Creek: Porters Creek is the smallest of the major tributaries to Codorus Creek. It originates near Smith Station Road, southwest of the village of Porters Sideling. Porters Creek remains a first order stream until it flows into Codorus Creek northeast of Porters Sideling. Due to its relatively small size, the Pennsylvania Fish and Boat Commission has not evaluated Porters Creek as a fishery. Porters Creek is classified as a WWF by the PADEP.

Oil Creek: Oil Creek originates just east of the Borough of Hanover near Tri-Township Park. It flows in a northeasterly direction to its confluence with Codorus Creek at the village of Menges Mills. Oil Creek is currently the only stream within the study area that receives point source (NPDES) discharges. Based upon conversation with PADEP's Mr. Joseph Roth, all three (3) effluent discharges are within the limits established in their permits. Conversation with southeastern fisheries management division of the PFBC revealed that Oil Creek has been evaluated for trout stocking in the past; but limited parking and access to the stream has prevented any trout stocking. Oil Creek is classified as a WWF by the PADEP.

Oil Creek receives flow from Gitts Run and four (4) unnamed perennial tributaries before flowing into Codorus Creek. None of the tributaries have been evaluated by the PFBC. All of the tributaries are classified as WWF by the PADEP.

Bunch Creek: Bunch Creek originates near the village of Gnattstown, west of the Borough of Spring Grove. It flows in a northeasterly direction until its junction with the outflow from Lake Pahagaco. From that point Bunch Creek flows in a southeasterly direction to its confluence with Codorus Creek just upstream from Spring Grove. Bunch Creek has never been evaluated by the PFBC and is classified as a WWF by the PADEP.

Traver (1997) states that the upper portion of the Codorus Creek watershed contains a slightly to moderately impaired biological community. Upstream from the cold water inflow from the West Branch of Codorus Creek (sample point at River Mile (R.M.) 34.1) the aquatic community is classified as slightly impaired. This resulted from a lack of pollution sensitive species (mayflies, stoneflies, caddisflies) present within the sample sites. The sample below the confluence of Codorus Creek and the West Branch of Codorus Creek (R.M. 33.0) was classified as being moderately impaired in relation to the reference site for the physiographic region. The reason for the moderately impaired status was due to the high Hilsenhoff Biotic Index level and the low number and diversity of pollution sensitive organisms in the sample area. Aquatic habitat was rated excellent at both sample points on the stream.

A principal component analysis (PCA) of water samples at the sampling locations revealed that there were higher levels of certain metals identified in Codorus Creek above the confluence with

the West Branch of Codorus Creek; however, no levels in excess of water quality standards were detected. The report recommends management activities that address water quality restoration and protection through nutrient reduction efforts (Traver, 1997).

The water quality, aquatic habitat, and biological condition associated with each of these systems are discussed in greater detail under the Water Quality subsection.

B. Wetlands

Wetlands can be defined as transitional areas between terrestrial and aquatic environments where the water table often exists at or near the surface, or the land is inundated by water (Cowardin, Carter, Golet, LaRoe, 1979). As such, wetlands frequently exhibit a combination of physical and biological characteristics of each system. Three factors are recognized as criteria for wetland classification: the presence of hydric soils (soils characteristic of a reducing environment due to lack of oxygen); inundation or saturated conditions during part of the growing season; and a dominance of hydrophytic (water-loving) vegetation (Environmental Laboratory, 1987). Within this general framework, many different wetland ecosystems and classifications exist.

Many of the wetlands in the Upper Codorus Creek watershed have been historically impacted by agricultural practices. Today the majority of the wetlands in the watershed are small open water ponds, many of these are the result of farm pond excavation; or are the remnants of iron ore mining that previously occurred in the watershed.

Wetlands occupying the Upper Codorus Creek watershed study area were identified through a review of National Wetlands Inventory (NWI) and are depicted in Figure 6. A total of 272 (400 ac.) palustrine wetland systems and 25 (1,349 ac.) lacustrine systems were identified within the watershed. A total of 1,749 (1,349 lacustrine, 400 palustrine) acres of NWI listed wetland area were identified within the watershed.

Photo 4-1: View of a restored wetland system located adjacent to Codorus Creek near the Village of Menges Mills. Photo taken from Colonial Valley Road facing south.

C. Floodplains

Undisturbed floodplains and riparian zones serve a variety of ecological functions including: the retention and gradual release of surface and groundwater, the vegetative stabilization of stream banks, the filtering of sediments and toxicants from surrounding uplands, and supply food sources, cover, and thermal protection.

When encroachments occur, the buffering capacity of these regions is compromised. The result is increased pollutant runoff into streams, bank erosion and slips, inability to detain and gradually release floodwaters, and extreme alterations in channel morphology. Although an increase in runoff pollutants has a significant effect on the biological health of the stream ecosystem, it is the destruction of riparian habitat that has the greatest influence. Degradation of floodplain and riparian habitat by agricultural and urban land uses within the Upper Codorus Creek watershed appears to have the greatest influence on aquatic habitat and water quality in the streams of the watershed.

The greatest threat to floodplains within the Upper Codorus Creek watershed consists of encroachments by residential and urban development. Future development and land use plans should be coordinated with the local municipality, Federal Emergency Management Agency (FEMA) and the National Flood Insurance Program to determine floodplain and special flood hazard areas within any proposed development.

Flood management and insurance rates are coordinated through the National Flood Insurance Program. This program, which was established by the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973, was an effort to reduce the damage and hazards associated with flood events. To accomplish these goals, FEMA conducts routine flood

insurance studies that investigate the severity and existence of flood hazards throughout the country. The results of these studies are then used to develop risk data that can then be applied during land use planning and floodplain development. Each of the municipalities in the Upper Codorus Creek watershed has developed ordinances regulating development within floodplains.

D. Lakes and Ponds

"Significant" lakes and ponds within the Upper Codorus Creek watershed were identified through a review of the *Commonwealth of Pennsylvania 2000 Water Quality Assessment* (Frey, 2000). The only "significant lake" identified within the Upper Codorus Creek watershed was Lake Marburg located in Codorus State Park. Lake Marburg is a 1,275- acre lake that is designated as a (WWF) by PADEP Chapter 93. As defined in the water quality assessment, a "significant lake" is "a publicly-owned lake with a retention time of 14 days or greater". Pennsylvania's definition of a publicly-owned lake is consistent with the EPA definition set forth in 45 CFR Part 35, FR Volume 25, which is "A fresh water lake that offers public access to the lake through publicly-owned contiguous land so that any person has the same opportunity to enjoy non-consumptive privileges and benefits of the lake as any other person".

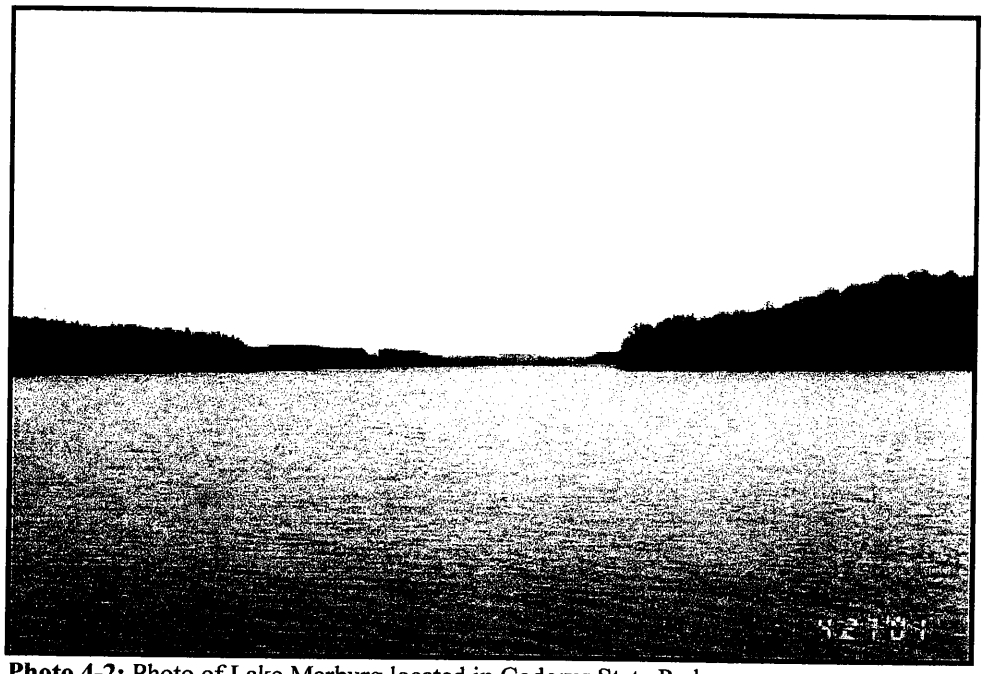


Photo 4-2: Photo of Lake Marburg located in Codorus State Park.

Additional lakes and ponds identified within the watershed are listed on Table 4-2. This list includes those listed by the Pennsylvania Fish and Boat Commission (PFBC) as Approved Trout Waters.

TABLE 4-2
Other Identified Lakes And Ponds Located Within The Upper Codorus Creek Watershed

LAKE OR POND	MUNICIPALITY	USE
Lake Pahagaco	Jackson Twp.	Private
Kessler Pond	North Codorus Twp.	Public
Lehman Lake	North Codorus Twp.	Private
Glat Co Lake	Heidelberg Twp.	TSF

Source: York County PA Street Map, 1995, Alexandria Drafting Company, Alexandria VA.

E. Water Quality

1. General Watershed Characteristics

The Upper Codorus Creek watershed encompasses an approximately 74 square mile area in York County (PADEP, 1989; Figure 4-1). At the point Codorus Creek exits the watershed study area it is a 4th order stream. (a stream with no tributaries is a 1st order stream, when two 1st order streams intersect they form a 2nd order stream, when two 2nd order streams intersect they from a 3rd order stream, and so forth). Codorus Creek originates near the intersection of Wool Mill Road (T-307) and Manheim Road in Manheim Township, near the Manheim Township Municipal Building. Codorus Creek originates in the primarily agricultural, sparsely developed southwestern corner of York County and generally stays in this type of terrain until it exits the study area entering the Borough of Spring Grove.

The Upper Codorus Creek watershed has been delineated into two (2) different ecoregions and physiographic provinces based on several key parameters. The generally recognized subunits are outlined in Table 4-3.

TABLE 4-3
Watershed Subunits And Physiographic Provinces

SUBUNIT	PHYSIOGRAPHIC PROVINCE	BEDROCK TYPE	LAND USE
Piedmont Crystalline	Piedmont (Piedmont Upland)	Igneous and Metamorphic (crystalline)	Agricultural
Piedmont Limestone Agricultural	Piedmont (Piedmont Lowland)	Limestone and Dolomite	Agricultural

Source: Water Quality in the Lower Susquehanna River Basin, Pennsylvania and Maryland, 1992-95 by B.D. Lindsey, K.J. Breen, M.D. Bilger, and R.A. Brightbill, 1998, Reston, VA: U.S. Geological Survey.

Situated within the Piedmont (Piedmont Upland Section) physiographic province in southern York County, the upper portion of the watershed is underlain by metamorphic schist, gneiss, and quartzite. The dominant land use within this region is agriculture. The lower portion of the watershed is situated in the Piedmont Lowland Section of the Piedmont physiographic province.

Carbonate rocks, phylitic shale and some sandstone underlie this area. Agricultural land use intensifies throughout most this region due to gentle topography and more fertile soils associated with the limestone parent material. This area also has a significant increase in residential and urban areas.

The underlying bedrock in the Lower Susquehanna River Basin including the Upper Codorus Creek watershed has a significant effect on the concentration of pollutants in surface and groundwater. According to Lindsey et al. (1998), land use and bedrock type accounted for most of the variation in nitrogen and pesticide concentrations found in ground and surface waters. When compared with other bedrock types in the basin, agricultural areas underlain by limestone had groundwater and surface water nitrate concentrations that frequently exceeded the Environmental Protection Agency's Maximum Contaminant Level (MCL). Conversely, urban areas underlain by limestone and forested and agricultural areas underlain by sandstone and shale had nitrate concentrations that rarely exceeded MCL's. Limestone regions were also more likely to have pesticide-contaminated wells than sandstone and shale regions. The aforementioned information is presented as a general; finding, the Upper Codorus Creek watershed has not been examined to determine if this is actually the case locally. No contamination to groundwater has been identified in any portion of the Upper Codorus Creek watershed.

There have been two non-point source pollution regimes identified within the lower end of the Upper Codorus Creek watershed: 1) nitrogen enrichment and sediment/siltation from agricultural runoff and 2) urban runoff from developed portions of the watershed.

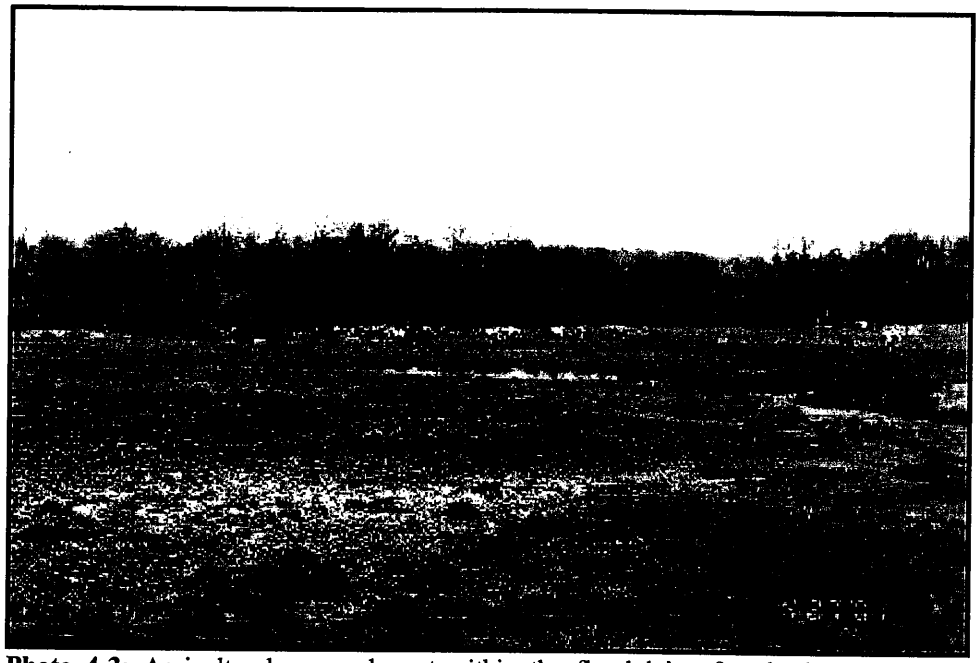


Photo 4-3: Agricultural encroachment within the floodplain often leads to increased erosion, turbidity, and pollutants within the stream.

The entire Codorus Creek watershed has been designated as a Category 1 priority watershed in the Lower Susquehanna Sub-basin according to DEP's 1999/2000 Unified Assessment Watershed Priorities. Codorus Creek is also on the Non-point Source (NPS) Priority Degraded

Watershed List (DWL) under the PADEP's Non-point Source Control Program (Frey, 1994, 2000). The NPS DWL identifies streams or stream segments impacted by non-point sources of pollution. PADEP uses information about the stream degradation level, in conjunction with interest from public and local groups, to determine the watersheds that would most likely benefit from remediation projects. The Upper Codorus Creek watershed is currently being evaluated to determine which sections are impaired. This investigation is being completed by PADEP. The number and cause of impaired river miles will be reported when sampling is completed in the fall of 2001. Once finalized, this information will be used to develop a restoration plan as well as Total Maximum Daily Loads (TMDL's) that may be discharged into the streams.

2. General Water Quality Trends

The ever increasing demands of urban and residential development, industry, resource extraction, and agriculture have fostered an exhaustive amount of research on the Chesapeake Bay ecosystem. One of the primary focuses of this research has been the Lower Susquehanna River Basin that provides more than half of the freshwater to the bay (Natural Lands Trust, 1997). As a significant part of this basin, the Codorus Creek watershed has been the focus of numerous investigations attempting to characterize the chemical, biological, and habitat parameters that affect the overall integrity of this ecosystem. These include Codorus Creek Priority Water Body Survey Report Water Quality Standards Review (Edwards, 1991) the Codorus Creek Biological Assessment (Snyder, Stribling, and Barbour, 1996); The Water Quality and Biological Assessment of the Lower Susquehanna Subbasin (Traver, 1997); the Long Term receiving Waters Study currently being conducted by P.H. Glatfelter and NCASI in association with Western Washington University; and the watershed assessment being conducted by the PADEP to determine if the streams in the watershed are impaired. Both of the last two studies mentioned are in the process of being completed. Extensive farming, urban development, and industrial discharge have historically been the primary threats to water quality over the entire Codorus Creek watershed. Generally, the Upper Codorus Creek watershed is more impacted by agricultural runoff than by urban and industrial discharge. (Snyder et al, 1996, Traver, 1997)

The United States Geological Survey (USGS) initiated one of the most ambitious, nationwide watershed studies in 1991. The USGS National Water Quality Assessment Program (NAWQA) was designed to collect consistent water quality data, report on the status and trends of water resources, and identify factors that affect water quality throughout the United States. To meet these objectives, the USGS established approximately 60 study units, or major watersheds, throughout the country. Information regarding the physical, chemical, and biological condition of the Lower Susquehanna watershed, which contains the Codorus Creek watershed, was collected between 1992 and 1995.

According to Lindsey et al. (1998), water quality data suggests several trends in chemical constituents throughout the Lower Susquehanna Basin. A basin-wide summary of the findings is as follows:

- Nutrient concentrations in streams are high, and often exceed drinking water standards in agricultural areas.

- Pesticide concentrations are near the national median and rarely exceed drinking water standards.
- Polychlorinated Biphenyls (PCB) and organohalide pesticides in fish tissue are among the highest in the nation (Testing conducted on fish in the vicinity of the P.H. Glatfelter Company found no evidence of PCB contamination in the fish in the vicinity of the company).
- Nitrate concentrations of water wells in areas underlain by limestone are among the highest nationwide and represent a human health concern.
- Detected pesticides were high compared to the national average.

None of the sample points for the USGS study were located within the Upper Codorus Creek watershed. However, the land use of the project area is representative of the sections of the study area that were sampled. No studies have been completed to verify if the findings from the USGS report are valid in the Upper Codorus Creek watershed.

On a more regional level, PADEP maintains hundreds of fixed Water Quality Network (WQN) stations throughout the state. Information obtained at each location is used in assessing the quality of surface water, identifying trends, and evaluating the effectiveness of the Water Quality Management Program (Shertzer & Schreffler, 1996).

Results from the WQN between 1988 and 1992 indicated that the majority of degradation reported in the Lower Susquehanna River sub-basin was attributable to agricultural sources. This appears to be the case in the Upper Codorus Creek watershed; however, there are no currently active WQN stations located in or near to the watershed.

Photo 4-4: A view of agricultural encroachment along an unnamed tributary to Codorus Creek. Note eroded stream banks and lack of riparian vegetation.

Section 303(b) of the Clean Water Act of 1972 requires that states adopt specific water quality standards that include uses designated for their water bodies. These standards specify maximum ambient levels of pollutants that will ensure that waters can be used for their designated purposes. Water uses and levels of specific chemical parameters are to be protected and maintained with the goal of eliminating and preventing water pollution. A synopsis of Pennsylvania's designated water uses includes fish and aquatic life; public, industrial, livestock, wildlife, and irrigational water supply; and boating, fishing, water contact sports, aesthetics, and recreational uses (Frey, 1996).

In accordance with Section 303(b), the major goal of Pennsylvania's Water Quality Assessment Program is to evaluate whether these water quality standards are being met. Data from the program is compiled and presented to Congress and the public in accordance with Section 305(b), which requires states to conduct biennial water quality assessments on the condition of their waterways and report on these findings. Section 303(d) of the Act further requires states to evaluate the impaired waters to determine which waters, even after an appropriate water pollution control measure had been taken, would not support the designated water use. These waters would then be listed on PADEP's Section 303(d) List of Impaired Waters. Table 4-4 lists the Section 303(d) listed streams within the Upper Codorus Creek watershed (PADEP, 1999b). The industrial point source is actually located immediately downstream from the study area; but its close proximity makes it relevant. In addition, with the exception of Oil Creek, the upstream stream sections have not yet been assessed for impairment. So this list should not be considered complete. Assessment of the watershed was not completed by the time this report was completed. The assessment should be completed in the near future and will be a valuable tool in identifying areas to complete stream improvement projects. A Total Maximum Daily Load (TMDL) study has been undertaken for Oil Creek. The TMDL will limit the level of discharge allowed into the stream, allowing it to recover and be removed from the impaired waters list. The study findings and limits have not been established yet.

TABLE 4-4
Summary Of Section 303(d) List Of Impaired Waters Within The Upper Codorus Creek Watershed

STREAM	SOURCE OF IMPAIRMENT	PRIORITY
Codorus Creek	Industrial Point Source	High
Oil Creek	Agriculture	High

Source: Section 303(d) List, 1999, Final by PADEP, 1999, Harrisburg, PA

3. Agricultural and Urban Non-Point Source (NPS) Pollution

The majority of the watershed that encompasses the Upper Codorus Creek is in agricultural production. Much of the land in agricultural production is intensely cultivated and is often located on moderate slopes. Agricultural runoff in the form of sedimentation and nutrients has been identified as having a significant impact on the water quality and aquatic habitat of the streams in the watershed. As a result the York County Natural Resources Conservation Services (NRCS), York County Conservation District (YCCD), and the Chesapeake Bay Foundation have

initiated several programs to improve water quality and aquatic habitat in the watershed. This is accomplished by implementing best management practices to farming operations throughout the Codorus Creek watershed. According the William Clifton of the York County NRCS, two programs to address agricultural NPS pollution, the Conservation Reserve Enhancement Program (CREP) and the Environmental Quality Incentives Program (EQIP) are currently being used. The CREP expands upon the Conservation Reserve program by paying up to 160% of the cost of management practices that improve water quality and wildlife habitat and reduce soil erosion into waterways in enrolled farms. In addition, the program will also pay rentals up to $140.00/ acre to contract the land out of production. Some parts of the program are limited to areas adjacent to waterways and soils listed as highly erodible. EQIP is a special program authorized under the 1996 Federal Farm Bill for priority watersheds, of which Codorus Creek is one. The program is essentially an attempt at implementing a conservation plan of best management options to address non-point source agricultural runoff from the farming operations. The program offers a 75% - 125% cost share match for implementing these best management practices.

Two additional NPS issues are also of concern in the Upper Codorus Creek watershed. They are combined urban/agricultural interface runoff and runoff from dirt and gravel roads in the project area. The urban/agricultural interface problems occur in developing areas adjacent to agricultural fields. Infrastructure developments including roadway storm drains and storm water detention basins often outlet directly onto agricultural fields. If effective precautions are not taken the outflows from these devices will cut severe gullies in the fields following storm events, washing huge amounts of sediment into adjacent streams. This occurs most often on the more steeply sloped fields and during the non-growing season when there is an absence of rooted plants and land cover to hold the soils in place. No specific program has been developed or implemented to address this problem; but with the projected growth within the watershed, this will become a more important issue in upcoming years.

Approximately 21 sections of public roadway in the Upper Codorus Creek watershed are comprised of dirt and gravel. An undetermined number of private roadways are also dirt and gravel. These roadways have been identified as being a significant source of sediment entering waterways during storm events. Utilizing proper roadway materials and construction practices can greatly reduce the level of sediment entering waterways from these dirt and gravel roads. In co-operation with the PennDOT, the Pennsylvania County Conservation Districts, and Pennsylvania Trout Unlimited, the Dirt and Gravel Roads Program was developed. This program provided reimbursement to municipalities that correct runoff problems from dirt and gravel roads by utilizing the designs and materials specified by the program. To date one section has had projects completed within the project watershed. 18 other sections are incomplete and require further projects. Unfortunately, many municipalities have not taken advantage of this program and private roadways are currently not eligible for the program.

Photo 4-5: View of Brown Road, one of numerous dirt and gravel roadways found throughout the watershed.

4. Aquatic Life and Habitat

Much of the research on the Upper Codorus Creek aquatic biota and habitat focuses on the correlation between non-point source pollution and the anthropogenic impacts to the stream resulting from the cold-water discharge from Lake Marburg and its effects on the aquatic ecosystem. Preliminary results from the Long Term Receiving Water Study identified agricultural non-point source pollution as the greatest source of impairment in the Upper Codorus Creek watershed.

The P.H. Glatfelter Company and the National Council of the Paper Industry for Air and Stream Improvement Inc. (NCASI) have undertaken a long-term study of the entire Codorus Creek watershed to determine the diversity and abundance of the communities in the stream. The company provided data from three sample points located within the project study area for use in this Watershed Conservation Plan. In addition, information from other previously completed studies on sections of Codorus Creek within the project area were also utilized to determine the make up of the aquatic life in the Upper Codorus Creek watershed.

In general, there are three (3) different community types found in the Upper Codorus Creek watershed. From the headwaters to the confluence with the West Branch of Codorus Creek the community exhibits characteristics typical of headwater streams in the region, with a predominance of warm water fish species, primarily minnow and sucker species; and a diverse invertebrate community dominated by midges (Chironomidae spp.) with substantial populations of mayflies (Ephemeroptera spp.), Caddisflies (Trichoptera spp.), and aquatic beetles (Coleoptera spp.). Below the confluence with the West Branch of Codorus Creek the stream takes on the characteristics of a coldwater fishery. A Class A wild trout fishery for brown trout exists down

to the streams confluence with Oil Creek at the village of Menges Mills. As the stream flows closer to Menges Mills, the temperature begins to moderate and a more diverse fishery begins to emerge. The benthic community is still dominated by midges, mayflies and caddisflies. Downstream from the confluence with Oil Creek, the temperature of Codorus Creek further moderates and the aquatic community again takes on the appearance of a moderate sized warm water fishery. Here the stream still retains the cold-water species in limited numbers, but many more warm water species including large mouth bass and sunfish are present. The benthic community is dominated by mayflies, with midges, beetles, and caddisflies making up the majority of the remaining population. These three (3) sections are similar in that their biotic communities are slightly to moderately impaired when compared to established reference sites in the region. The specific species composition of the invertebrate populations of the watershed is presented in the Biological Resources Section (Chapter 5) Table 5-1.

In a comprehensive study, Traver (1997) investigated the interrelationship of water quality, habitat, and biological condition in the Lower Susquehanna Basin. Four sample sites in the Codorus Creek watershed, from the headwaters to the mouth, were analyzed. Two of the sites were located within the Upper Codorus Creek watershed and are presented on Table 4-5. A third site presented on Table 4-5 is located just outside of the limits of the study watershed and is included for purposes of comparison.

TABLE 4-5
Summary Of Water Quality And Biological Assessment Of The Codorus Creek Watershed

SAMPLE SITE (r.m.)	PHYSIOGRAPHIC PROVINCE	BEDROCK	RESULTS
Codorus Cr. (34.1)	Piedmont (Piedmont Upland Section)	Metamorphic (Schist, Gneiss, Quartzite, etc.)	• Slightly impaired biological community • Good water chemistry values • Excellent habitat conditions
Codorus Cr. (33.0)	Piedmont (Piedmont Upland Section)	Metamorphic (Schist, Gneiss, Quartzite, etc.)	• Moderate biological impairment • Improved water chemistry due to clean inflow • Excellent habitat
Codorus Cr. (22.4)	Piedmont (Piedmont Upland Section)	Metamorphic (Schist, Gneiss, Quartzite, etc.)	• Stream is severely impaired • Located just outside of watershed • Substandard habitat

Source: Water Quality and Biological Assessment of the Lower Susquehanna Basin (Publication 190) by C.L. Traver, 1997, Harrisburg, Susquehanna River Basin Commission.

Within the Northern Piedmont Ecoregion, levels of dissolved ammonia and nutrients in the headwaters of Codorus Creek point to the upstream influence of agriculture and wastewater treatment in the watershed. The impacts from these sources contribute to the slight and moderate biological impairment found in these sample points in the upper watershed basin (Traver, 1997).

Assessments of fish populations in the Upper Codorus Creek watershed have revealed a diverse fishery. This diversity is the result of Lake Marburg and its coldwater discharge. The lake provides abundant still water and deepwater habitat, and the cold-water discharge from the dam

changes the make up of the West Branch and Codorus Creek by supplying a constant source of cold water to the streams. These situations combine to provide cold and cool water fisheries as well as the traditional warm water fishery found in the other similar sized streams in the watershed.

Codorus Creek from the headwater to its juncture with the West Branch is classified as a Trout Stocked Fishery (TSF) by the PADEP. A TSF is protected for the maintenance of stocked trout from February 15 to July 31, and the maintenance and propagation of fish species and additional flora and fauna that are indigenous to a warm water habitat. Below the confluence with the West Branch to its confluence with Oil Creek, Codorus Creek is classified as a Cold Water Fishery (CWF) by the PADEP. This classification defines the fishery as one that is to be maintained for the propagation of fish species, including the family Salmonidae, indigenous to a cold-water habitat. However, the section of Codorus Creek between the S.R. 3047 and S.R.0116 bridge crossings has an existing use classification that differs from its designated CWF use. An existing use is assigned when the actual conditions in a water body exceed those necessary for the waters designated use. In this section of Codorus Creek the existing use is as a High Quality Cold Water Fishery (HQ-CWF). A HQ-CWF is defined by the same criteria as a CWF; but it also contains excellent quality waters and environmental or other features that require special water quality protection. Below the confluence with Oil Creek to the point it exits the study area, Codorus Creek is classified as a warm water fishery (WWF) by PADEP. The WWF is protected for the maintenance and propagation of fish species and flora and fauna that are indigenous to a warm water habitat. The tributaries to Codorus Creek above the confluence with the West Branch are not classified by PADEP; but they are protected as TSF because tributaries retain the classification of the streams that they flow into. All of the other tributaries in the Upper Codorus Creek watershed are classified as WWF by the PADEP.

The Pennsylvania Fish and Boat Commission (PFBC), PADEP, and P.H. Glatfelter Paper Company have conducted fish community studies on the upper reaches of Codorus Creek. The PFBC considers sections of Codorus Creek an exceptional resource due to its large population of wild brown trout. These studies have identified a total of 49 different fish species. With few exceptions these species were typical of a warm water habitat. A complete listing of the finfish identified in the Upper Codorus Creek watershed is presented in Table 4-6.

In stream habitat for the fish and invertebrate populations is generally left to nature, with the exception of the section of Codorus Creek that makes up the special regulations portion of Codorus Creek. Within this section, the Codorus Chapter of Trout Unlimited in cooperation with the Pennsylvania Fish and Boat Commission's Adopt-A-Stream Program have completed numerous in stream projects to address stream bank erosion and to improve habitat for the local trout population.

Photo 4-6: View of one of numerous in stream habitat structures installed in the Special Regulations Section of Codorus Creek by the Codorus Chapter of Trout Unlimited

Table 4-6
Fish Species Composition for the Upper Codorus Creek Watershed

Common Name	Scientific Name
Rock bass	*Ambloplites rupestris*
Yellow bullhead	*Ameiurus natalis*
Brown Bullhead	*Ameiurus nebulosus*
Bowfin	*Amia calva*
American eel	*Anguilla rostrata*
Central stoneroller	*Campostoma anomalum*
Goldfish	*Carassius auratus*
White sucker	*Catostomus commersoni*
Rosyside dace	*Clinostomus fundukiudes*
Sculpin	*Cottus sp.*
Satinfin shiner	*Cyprinella analostana*
Common carp	*Cyprinus carpio*
Silverjaw minnow	*Ericymba buccata*
Tiger Muskellunge	*Esox hybrid*
Northern Pike	*Esox lucius*
Muskellunge	*Esox masquinongy*
Chain pickerel	*Esox niger*
Fantail Darter	*Etheostoma flabellare*
Tessellated darter	*Etheostoma olmstedi*
Cutlips minnow	*Exoglossum maxillingua*
Northern hog sucker	*Hypentelium nigricans*
Channel catfish	*Ictalurus punctatus*
Redbreast sunfish	*Lepomis auritus*
Green sunfish	*Lepomis cyanellus*
Pumpkinseed	*Lepomis gibbosus*
Bluegill	*Lepomis macrochirus*
White perch	*Marone Americana*
Smallmouth Bass	*Micropterus dolomieui*
Largemouth bass	*Micropterus salmoides*
River chub	*Nocomis micropogon*
Golden shiner	*Notemigonus crysoleucas*
Common shiner	*Notropis cornutus*
Spottail shiner	*Notropis hudsonius*
Swallowtail shiner	*Notropis procne*
Rosyface shiner	*Notropis rubellus*
Spotfin shiner	*Notropis spilopterus*
Marginated madtom	*Noturus insignis*
Yellow perch	*Perca flavescens*
Shield darter	*Percina peltata*

Table 4-6
Fish Species Composition for the Upper Codorus Creek Watershed

Common Name	Scientific Name
White crappie	*Pomoxis annularis*
Black crappie	*Pomoxis nigromaculatus*
Blacknose dace	*Rhinichthys atralatus*
Longnose dace	*Rhinichthys cataractae*
Rainbow trout	*Salmo gairdneri*
Brown trout	*Salmo trutta*
Creek chub	*Semotilis atromaculatus*
Fallfish	*Semotilis corporalis*
Walleye	*Stizostedion vitreum*

Sources: Codorus Creek Long Term Receiving Water Study, unpublished data, by P.H. Glatfelter and NCASI, 1998 and Codorus State Park Species List, unpublished data, Department of Conservation and Natural Resources.

F. Water Supply

1. Effluent Discharge

Section 402 of the Clean Water Act of 1972 establishes a national permit program, the National Pollution Discharge Elimination System (NPDES), that may be administered by the EPA or by individual states as delegated by the EPA. Essentially, the NPDES permit program translates general effluent limitations into specific obligations of a discharger. Thus, "...the discharge of any pollutant by any person shall be unlawful" except as specifically permitted by the regulatory agency (Percival, Miller, Schroeder, & Leape, 1996). Effluent dischargers in the Upper Codorus Creek watershed were identified through a review of PADEP NPDES databases (PADEP, 1999a). A total of three (3) active permits were identified and all of these permits were owned by industrial and municipal/sewage treatment facilities (Appendix C).

2. Water Use

There are three (3) public water facilities that serve parts of Upper Codorus Creek watershed population. They included the York Water Company that serves approximately 5,850 users in the municipalities of Codorus and North Codorus Townships and Jefferson Borough. The Hanover Water Company supplies 11,563 residents in Hanover Borough and West Manheim Township. The P.H. Glatfelter Water Company supplies approximately 1,025 residences in the Borough of Spring Grove. Each of these municipalities is located both inside and outside of the watershed; therefore, the actual number of residents served within the watershed is less than what is listed. The remainder of the watershed population is served by private wells. Water supplied by the York Water Company (YWC) and the Hanover Water Company comes from outside of the Upper Codorus Creek watershed. The YWC water comes from the South Branch of Codorus Creek watershed and the Hanover Water Company water comes from the Conewago watershed. According to PADEP (2000), surface water and groundwater withdrawal within the watershed totaled 100.61 million gallons per day (Mgal/d) in 1990. Table 4-7 lists these water withdrawals

by type of use. Data presented in Table 4-7 was obtained from compiling results of survey responses. Consequently, these values may or may not have changed since the date of the survey and cannot be assumed to be precise. As indicated in Table 4-7 the majority of consumptive water use was by the industrial sector.

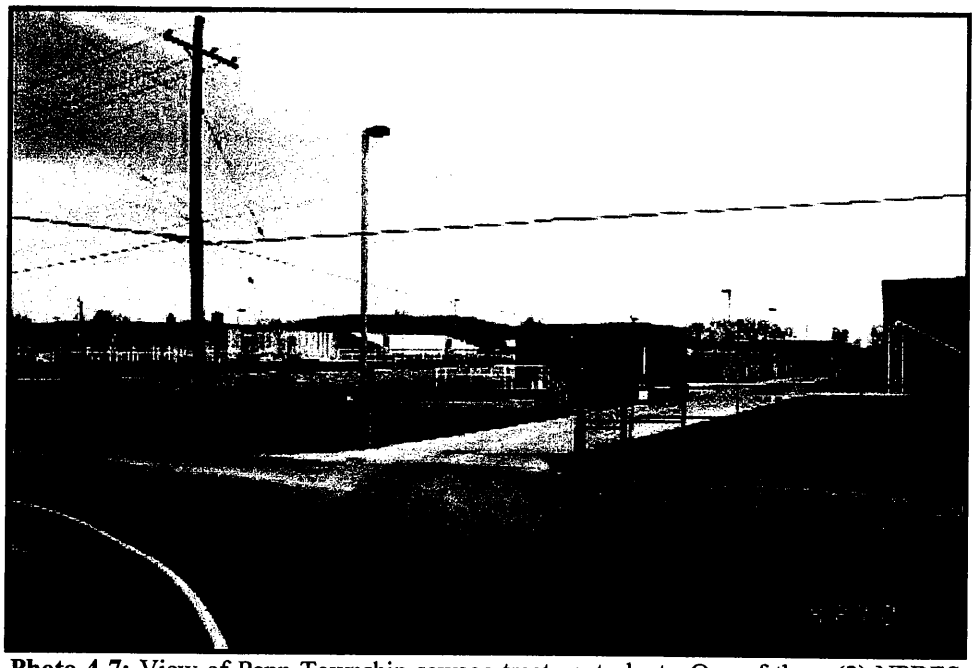


Photo 4-7: View of Penn Township sewage treatment plant. One of three (3) NPDES permitted dischargers in the watershed.

TABLE 4-7
Water Use Within The Lower Susquehanna- Upper Codorus Creek Watershed

Type	Groundwater (Mgal/d)	Surface Water (Mgal/d)
Public	unreported	0.50
Commercial	0.00	0.00
Industrial	0.76	35.25
Mining	0.00	0.00
Livestock	unreported	unreported
Irrigation	unreported	unreported
Wastewater[1]	0.76	32.75

[1] represents wastewater return

5. Biological Resources

A. Vegetation

1. Native Vegetation

The landscape of the Upper Codorus Creek watershed has been significantly altered since the arrival of the first settlers. Most of the watershed has been developed into active farmland; and recent development pressures have further altered the landscape by introducing residential and commercial developments. Despite these changes, much of the watershed continues to survive the intense commercial, industrial, and transportation development that much of southeastern Pennsylvania has experienced. The majority of the watershed has historically been and still is primarily used for agricultural purposes (Figure 2). Indications of the past still remain along the hillsides in the form of well-preserved farm complexes built by the German and Scots-Irish settlers of the 18th century, who set out to clear the land for farming. Prior to this time, this area of Pennsylvania was located within the original Oak-Chestnut Forest Region (Braun, 1950). In addition to the clearing of these lands by settlers, this forest region was virtually eliminated during the destruction of the American chestnut *(Castanea dentata)* by chestnut blight fungus (*Endothia parasitica*) in the early 1900's. Today the forested portion of the watershed could be described more accurately as Mixed Oak Forest (Monk, Imm, and Potter, 1990).

Currently, the old-growth forests in this area are non-existent and forestland is limited to steep unfarmed hillsides, tree farming operations, and Codorus State Park. The existing forest is dominated by numerous oak species (*Quercus spp.*), along with red maple (*Acer rubrum*), beech (*Fagus grandifolia*), sycamore (*Platanus occidentalis*), and tulip poplar (*Liriodendron tulipfera*). Because of the extensive clearing and logging that has taken place in the region, the tulip poplar is currently the dominant tree species found in the forested areas. The tulip poplar grows faster than the other species listed. The tulip poplar will close the canopy of the forest, and if left undisturbed, the shade tolerant species (oaks, hickories, hemlocks) will eventually begin to dominate (The Nature Conservancy, 1996). In the Pigeon Hills vicinity of the watershed the forested areas are located on rocky and shallow nutrient poor soils. These forests are dominated by chestnut oak (*Quercus montana*) and other oak species. The understory consists of blueberries (*Vaccinium sp.*), huckleberries (*Gaylussacia spp.*), and mountain laurel (*Kalmia latifolia*) (Nature Conservancy, 1996). In addition, a substantial portion of the forested acreage in the watershed is planted in loblolly pine (*Pinus taeda*) for harvest and use in the paper making industry. Currently, the P.H. Glatfelter Company controls 1,281 acres in the Upper Codorus Creek watershed for use in tree farming operations.

None of the watershed has been left undisturbed; however, portions of Codorus State Park may mature into an old growth forest now that development pressure has been eliminated in many portions of the park.

2. Invasive Vegetation

Plants growing where they are not wanted and having objectionable characteristics, such as aggressive growth or noxious properties that cause allergic reactions or poisoning are considered as invasive vegetation (Haber, 1996). The introduction of invasive species dates back to the earliest arrivals of explorers and settlers to the region. They were carriers of a wide variety of seeds and invasive animals. Seeds were present in hay bales, packing materials, and in food products. Even some of the seeds brought for cooking ended up being invasive weed species. Once established, clearing of the land for logging and agricultural purposes aided in the spread of these species.

When invasive species become established in forestlands, prairies, and wetlands, they tend to suffocate the native vegetation. This then leads to the reduction of the biological diversity of the area, decrease in wildlife habitat of the area, and in some situations, the degradation of water quality and reduction of the recreational value of an area. A good example of this situation is the introduction of the chestnut blight fungus (*Endothia parasitica*) that so greatly influenced the health and composition of the forests in the watershed.

There is a long list of plants considered invasive within the United States and occurring in the Upper Codorus Creek watershed including the Japanese honeysuckle (*Lonicera japonica*), tree-of-heaven (*Ailanthus altissma*), oriental bittersweet (*Celastrus orbiculatus*) garlic mustard (*Alliaria officinalis*), multiflora rose (*Rosa multiflora*), and mile-a-minute weed (*Polygonum perfoliatum*), (Nature Conservancy, 1996). Other invasive species including purple loosestrife (*Lythrum salicaria*) and kudzu vine (*Pueraria lobata*) have been identified within York County, but not within the Upper Codorus Creek watershed at this time.

Photo 5-1: View of mile-a-minute weed (*Polygonum perfoliatum*) overgrowing native and invasive species within Codorus State Park. This invasive species is generally considered the most problematic within the watershed.

Based upon conversation with the Codorus State Park manager and a representative from the P.H. Glatfelter Company tree farming operation, the mile-a-minute weed appears to be the most problematic in the watershed. Multiflora rose and Japanese honeysuckle are also considered significant problems.

The problem associated with these species is controlling the invasion. This is related to the biology of the species, especially its propagative characteristics. Species that reproduce both sexually, by seed, and vegetatively, by adventitious roots, require the traditional mechanical means of controlling such as hand pulling, tilling, cutting, and mowing. Special care needs to be taken with these measures, as there has to be great care in the timing of pulling. This usually works best prior to seed production. It is also important to pull the whole plant including all roots. This can be a very labor-intensive process with large well-established populations.

Chemical means of invasive species control bring their own concerns including polluting waterways, killing other desired species, and the potential harm to the user. Biological controls can be used to control the main mass of the population. A biological control works by using the plant's natural enemies against it. For example, the loosestrife beetle has recently been released within the property controlled by the Hershey Trust Company in the Swatara Creek watershed to try to control purple loosestrife. The inherent problem with this method of control is that in essence you are introducing another invasive species to the area. The predator of the invasive species may also adapt to become a predator on native species. These species would have no defense for these new invaders and biological diversity would again suffer.

Therefore, it has been suggested that the best solution for the control of invasive species is an integrated pest management strategy. This includes a combination of several methods including

mechanical, chemical, and biological controls. Mechanical and chemical efforts should be focused around the edge of the population to prevent further spreading but thorough and extensive care should be taken with these methods.

B. Wildlife

1. Terrestrial

Wildlife species present within the watershed are common for the habitats of the area. Oak, maple, and beech woodlands as well as extensive agricultural lands provide food and cover for deer, foxes, raccoons, squirrels, chipmunks, mice, and other mammals (DCNR, 1993). In addition, numerous birds, reptiles, and amphibians also utilize these resources. Finally, Codorus State Park contains Lake Marburg, a 1,275-acre freshwater impoundment that serves as a habitat for many migrating shore birds, ducks, and geese. The species list for Codorus State Park is presented in Appendix D. It summarizes wildlife species located within the watershed.

2. Aquatic

Discussions of fauna and assessments of fish and macroinvertebrate species were first presented in the Water Resources section of this report. The finfish species list is found on Table 4-6 in the Water Resources section. The section of Codorus Creek between the confluence of the outflow from Lake Marburg and Codorus Creek to Menges Mills is classified as a Class A wild brown trout fishery. This classification signifies that there is at least 40 Kg/ HA (36 lbs/ac) of naturally reproducing trout in this section of water. In fact the most recent surveys of the fish in the stream found approximately 120 lbs/ac of wild trout within the selective harvest portion of the stream.

An abundance of invertebrate life was identified within the Upper Codorus Creek watershed. Although diversity is not as high as some other streams, there is a great abundance of the species identified. Table 5-1 presents the species list of macroinvertebrates identified within the Upper Codorus Creek watershed.

C. Species of Special Concern

Species of Special Concern have become an ever-increasing topic of discussion for development and natural resource projects. The authority for all of Pennsylvania's biological resources lies with four resource agencies. The U.S. Fish and Wildlife Service (USFWS) is responsible for federally listed, proposed and candidate species under the Federal Endangered Species Act. The Pennsylvania Department of Conservation and Natural Resources (DCNR) holds jurisdiction over the management of the plants and general information for the state, while the Pennsylvania Fish and Boat Commission (PFBC) is responsible for the management of the fish, reptiles, amphibians, and aquatic organisms within the state. Management of the state's wild birds and mammals is the responsibility of the Pennsylvania Game Commission (PGC).

TABLE 5-1
Macroinvertebrates Identified Within The Upper Codorus Creek Watershed

ORDER	FAMILY	GENUS	ORDER	FAMILY	GENUS
Amphipoda (Freshwater shrimp)	Gammaridae	*Gammarus*	**Ephemeroptera** (Mayflies)	Baetidae	*Baetis*
Bivalvia (Freshwater clams)	Sphaeriidae	*Sphaerium*		Caenidae	*Caenis*
Coleoptera (Aquatic beetle)	Elmidae	*Optioservus*		Ephemeridae	*Ephemera*
	Elmidae	*Ordobrevia*		Ephemerellidae	*Serratella*
	Elmidae	*Stenelmis*		Heptageniidae	*Heptagenia*
	Elmidae	*Dubiraphia*		Heptageniidae	*Stenonema*
	Elmidae	*Microcylloepus*		Isonychiidae	*Isonichia*
	Elmidae	*Ancyronyx*		Leptophlebiidae	
	Elmidae	*Macronychus*		Tricorythidae	*Tricorythodes*
	Psephenidae	*Psephenus*	**Gastropoda** (Freshwater snails)	Ancylidae	*Ferrissia*
Cladocera				Physidae	*Physella*
Decapoda (Crayfish)	Cambaridae	*Cambarus*	**Hemiptera** (Water bugs)	Corixidae	
Diptera (True flies)	Chironomidae		**Hydracarina** (Water mites)		
	Ceratopogonidae		**Isopoda** (Aquatic sowbugs)	Asellidae	*Caecidotea*
	Empididae	*Hemerodromia*	**Lepidoptera** (Aquatic moth)	Pyralidae	
	Tabanidae	*Chrysops*	**Odonata** (Dragonflies)	Aeschnidae	*Boyeria*
	Tipulidae	*Antocha*		Coenagrionidae	*Argia*
	Tipulidae	*Dicranota*		Coenagrionidae	*Enallagma*
		Tipulia	**Plecoptera** (Stoneflies)	Leuctridae	*Leuctra*
	Culicidae	*Anopheles*		Perlidae	*Acroneuria*
	Simuliidae	*Simulium*	**Trichoptera** (Caddisflies)	Glossosomatidae	*Glossosoma*
				Hydropsychidae	*Ceratopsyche*
				Hydropsychidae	*Cheumatopsyche*
				Hydropsychidae	*Hydropsyche*
				Hydroptilidae	*Hydroptila*
				Hydroptilidae	*Leucotrichia*
				Limnephilidae	*Goera*
				Psychomyiadae	*Psychomyia*
				Philopotamidae	*Chimarra*
			Tricladida (Planeria)	Planariidae	*Dugesia*

Sources: Long Term Receiving Waters Study results, provided by P.H. Glatfelter, 1999 ; Codorus Creek Biological Assessment, Snyder, Stribling, and Barbour, 1996; Water Quality and Biological Assessment of Lower Susquehanna Sub basin, Traver. 1997

Letters requesting information regarding species of special concern were prepared and sent to each of the previously listed agencies. Responses were received from each of these agencies and the following paragraphs summarize the information received. The agency response letters are located in Appendix E.

The response received from USFWS indicated only one federally listed species may reside within the Upper Codorus Creek watershed, the bog turtle *(Clemmys muhlenbergii)*. According to this response, the bog turtle, a federally threatened species, has had a decrease in its population by approximately 50% over the last 15-20 years. It is suggested that this decline is due to the loss of the turtle's wetland habitats to man made disturbances, fragmentation of existing habitat, and invasive native and exotic plant species. Bog turtles have also been known to be collected for illegal pet trade.

In addition to the bog turtle, the Bald Eagle (*Haliaeetus leucocephalus*), also a federally protected species, may also periodically inhabit the watershed; but does not nest or make its permanent home in the area.

The Pennsylvania Natural Diversity Inventory (PNDI) is a site-specific information system to identify and describe Pennsylvania's rarest and most significant ecological features. DCNR, the Nature Conservancy, and Western Pennsylvania Conservancy maintain PNDI. The system includes data on plant and animal species of special concern, exemplary natural communities, and unique geologic resources. DCNR stated that there were three (3) species of special concern reported to occur in the Upper Codorus Creek watershed (one (1) plant species, one (1) mammal species, and one (1) species of reptile.) Both the Dwarf Azalea (*Rhododendron atlanticum*) and the bog turtle (plant species and reptile) were on the PNDI list and both are classified as Endangered throughout Pennsylvania. The Northern long-eared bat (*Myotis septentrionalis)* was listed as a species of special concern.

The Pennsylvania Game Commission (PGC) indicated that the Indiana bat (*Myotis sodalis*) was historically found in an area adjacent to the watershed; however, there have been no recent sightings of the Indiana bat in the Upper Codorus Creek watershed. A follow-up conversation with Mr. Tony Ross of the PGC revealed that this information was in error and no Indiana bats inhabit York County.

The PFBC indicated that the Red-bellied turtle *(Pseudemys rubriventris)* was present within the Upper Codorus Creek watershed. The Red-bellied turtle is listed as a Pennsylvania threatened species. Within the watershed habitat enhancement devices have been designed and installed to provide for the requirements of the turtle.

D. Important Habitats

1. Important Bird Habitats

As defined by the National Audubon Society, an Important Bird Area (IBA) is a site of special significance to breeding or non-breeding birds that, on some basis, can be distinguished from the surrounding area. An IBA should exist as an actual or potential protected area, or it should have

the potential to be managed in some way for the benefit of birds and other wildlife. A site must meet one of the following five criteria to qualify as an IBA:

Sites where birds concentrate in significant numbers when breeding, in winter, or during migration
Sites for endangered or threatened species
Sites for Pennsylvania species of concern
Sites containing representative, rare or unique habitats, with characteristic birds
Sites for long-term avian research or monitoring

Within the state, 73 sites have been designated as IBAs. One of these IBAs, Codorus State Park, is located within the Upper Codorus Creek watershed and is shown on Figure 7.

Codorus State Park – This site is composed of the 3,326-acre park and immediately surrounding area. This site was selected as an IBA because it meets several of the selection criteria. These criteria included: 1) a location that supports greater than 100 shore birds during some part of the year; 2) supports a significant population of a species that is threatened or endangered; 3) supports a significant population of a species on special concern list, but not endangered or threatened; and 4) a site of long-term avian research and/or monitoring. Rare or unique species identified within the site include Osprey (*Pandion haliaetus*), Bald Eagle (*Haliaeetus leucocephalus*), Black Tern (*Chlidonias niger*), Great Egret (*Ardea alba*), Northern Harrier (*Circus cyaneus*), Black Crowned Night Heron (*Nycticorax nycticorax*), Pied Billed Grebe (*Podilymbus podiceps*), American Coot (*Fulica Americana*), Green-winged Teal (*Anas crecca*), and Common Snipe (*Gallinago gallinago*).

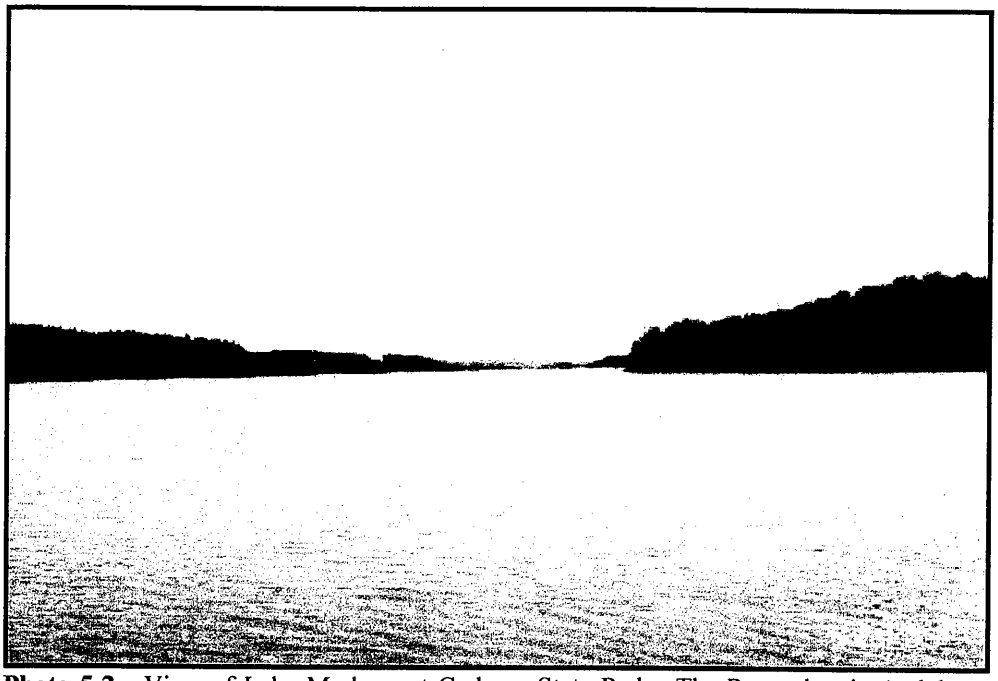


Photo 5-2: View of Lake Marburg at Codorus State Park. The Pennsylvania Audubon Society identifies the lake as an Important Bird Area (IBA).

2. Riparian Buffers

A riparian forest buffer is defined as an area of trees, usually accompanied by a scrub/shrub component and other vegetation that is adjacent to a body of water (Siesholtz, 1997). This buffer maintains the integrity of the stream channels and shorelines; reduces the impact of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals; and supplies food, cover and thermal protection to fish and wildlife. Riparian buffers are extremely beneficial in river conservation. Riparian buffers once protected most rivers and streams in North America; but due to deforestation and development, many of these buffers have been lost. The removal of riparian buffers results in adverse effects on water quality, wildlife and aquatic habitat, stream bank stabilization, and aesthetics of the waterway.

Riparian buffers are located along many of the reaches of Codorus Creek and its tributaries in the Upper Codorus Creek watershed. These riparian buffers range from wide (>200 feet) to non-existent located throughout the watershed. The more intensely farmed land from the Oil Creek valley in the northern portion of the watershed contains the least amount of riparian buffer. The less intensely cultivated southern end of the watershed, including Codorus State Park contains the greatest amount riparian buffers. No accurate calculation of the size and extent of riparian buffers has been completed at this time; however, computer software purchased by York County may make it feasible to complete such studies in the near future.

Photo 5-3: View of Oil Creek in northern portion of watershed. Riparian buffer is non-existent along many of the streams in this portion of the watershed.

Photo 5-4: Photo of riparian buffer along Codorus Creek downstream from bridge at Browns Road in the southern end of the watershed.

3. Farm Game & Forest Game Programs

The PGC offers two related programs, the cooperative Farm Game program and the Forest Game Co-op; both of these are designed to increase recreation opportunities for hunters while promoting management of the state's wildlife resources.

The cooperative Farm Game program represents a statewide network of private landowners who permit the use of their lands for public hunting. To enhance this use, the PGC may provide landowners with seedlings for creating or augmenting wildlife habitat, informational and directional signs, law enforcement patrols, technical assistance from the Commission's natural resource specialists, wildlife seed mixtures, and border cuttings around agricultural fields to provide edge and transitional habitat.

The Forest Game Co-op is comprised of forest, coal and gas companies, water authorities, and private individuals. To qualify for this program, a minimum of 1,000 acres is required. In return for permitting public access to their properties, cooperators receive the same incentives as participants in the Farm Game program. Only the P.H. Glatfelter Company has lands in the Upper Codorus Creek watershed enrolled in the Forest Game Co-op program. The paper company controls 1,281 acres in the watershed. All of this land is enrolled in the co-op programs for the state.

The agricultural land use prevalent throughout much of the Upper Codorus Creek watershed makes the Farm Game programs attractive mechanisms for improving both terrestrial habitats and recreational opportunities.

4. County Natural Heritage Inventories

County Natural Heritage Inventories typically identify and map the most significant natural areas of the study county. These inventories are lists of existing plant and animal species and natural communities that are unique or uncommon to the county. The inventory holds no legal authority or protection; it's intent is to be used as a planning tool for municipal decision-making, developers, utility companies, and government agencies. A Natural Heritage Inventory has been completed for York County.

The Nature Conservancy completed the York County Natural Areas Inventory in 1996. According to the report, York County contains four (4) areas of natural significance within the Upper Codorus Creek watershed (Figure 6). These sites were not given a priority listing for protection. This was due in part to the sites containing limited populations or significance of "priority elements", and in part due to the sites being located in areas that were not immediately threatened by alteration. Two of the sites were located in Codorus State Park. Due to the sensitive nature of the threatened and endangered species and concerns about illegal collection, the Natural Heritage Inventory does not supply both the species name and location. The York County Inventory only provides the locations and a general description of the species found in the area. Should further information regarding these species be needed, a request for additional information from the Nature Conservancy can be made.

- The Codorus State Park Site – This site contained a PA Threatened animal species. The animal was observed in Lake Marburg. The animal requires large bodies of fresh water for survival. Although once common in the Delaware and Lower Susquehanna drainages, habitat destruction and pollution have almost eliminated it from these areas.
- Marburg Flats – This site contained a species listed as extirpated from the state; although the species is considered stable globally. The extent and condition of the population has not yet been established. Further studies are suggested.
- High Rock – This site is an outcrop located on Pigeon Hills. The area is composed of xeric forest. It provides a view of the Piedmont Uplands and is well utilized by the public as a scenic overlook.
- Bandana Woods – This site contains a "Low Quality" occurrence of a Pennsylvania endangered plant species. The plant population is considered secure globally. The plant is found as part of the understory of a north facing oak-hickory forested hillside. The site has no immediate threats to its existence.

6. Cultural Resources

A. Recreation

The Upper Codorus Creek watershed provides a variety of recreational activities for the residents and visitors to southern York County.

1. Use

Areas utilized for recreational use are situated throughout the Upper Codorus Creek watershed. Fishing, hunting, hiking, camping, boating, swimming, etc. areas are common and are well utilized by the residents of, and visitors to the area.

Although many of the streams within the Upper Codorus Creek watershed are small, fishing is still an important recreational activity. The Pennsylvania Fish and Boat Commission (PFBC) lists several species of game fish as being present within the watershed. These species include Northern Pike, Largemouth Bass, Brown and Rainbow Trout, Yellow Perch, Bluegill, Crappie, Catfish, Muskellunge and Tiger Muskellunge.

Because of the inherent differences in the waters within the watershed, determining the quality and quantity of fishing associated with each is not possible. However, streams or ponds and lakes receiving special management or designation by the PFBC are presented in Table 6-1.

TABLE 6-1
Special Regulation Waters Located Within The Upper Codorus Creek Watershed

Water	Regulation	Limits	Other Information
Codorus Creek	Selective Harvest	3.3 Miles	Between S.R. 3047 and S.R. 116
Lake Marburg	Big Bass Regulations	NA	At Codorus State Park
Glatco Lake	Approved Trout Waters – Year Round Fishing	NA	Along Glatco Rd, Heidelberg Twp.

Canoeing and boating are popular recreational activities on Lake Marburg in Codorus State Park. Canoe and boat launch and take out points have been established at several areas on Lake Marburg. In addition, boat rentals and a marina are located on Lake Marburg. Other streams and publicly accessible waters within the watershed are too small to be reasonably navigated. Within the Upper Codorus Creek watershed, no waters have been listed as navigable waterways (Public Highway Declaration Act).

Hunting has been and continues to be a tradition within York County. However, only one (1) public hunting area, Codorus State Park, is located within the Upper Codorus Creek watershed. Hunting in the State Park is limited to regulated areas and no rifles are permitted. The majority of the watershed is privately owned farmland with limited access. The exception to this is tree farm properties owned by the P.H. Glatfelter Company, which are generally opened to the public for hunting. The company controls 1,281 acres within the watershed. All of this land is enrolled in the Pennsylvania Game Commission's Co-op programs, and is open for hunting and limited other outdoor recreation.

Camping, hiking, biking, and walking are popular recreational activities throughout the country as well as within York County and the Upper Codorus Creek watershed. Numerous public campsites are available at Codorus State Park. No other campgrounds, open to the public, are located within the watershed. Several hiking and equestrian trails and routes are currently available for use or are proposed for the future. In many instances, the hiking trails are located adjacent or in close proximity to the campgrounds.

2. Facilities

A total of 10 recreational facilities were identified during the field view and background information review of the project completed by Mackin Engineering. The information is detailed under the following subject headings. The information is broken down by municipality, and sub-watershed where appropriate.

a. Public Parks

STATE PARKS: Codorus State Park is the only state controlled park in the watershed. This park is located Manheim, Heidelberg, Penn, and West Manheim Townships. Codorus State Park is described in the following paragraph.

Codorus State Park: This 3,324 acre Park was developed as part of Project 70 in 1966. The centerpiece of the park is the 1,275-acre Lake Marburg. Lake Marburg was developed in cooperation with the P.H. Glatfelter paper company. P.H. Glatfelter constructed the 109-foot high dam, which began to store water in Lake Marburg in 1966. The facility was opened to the public in May 1970.

COUNTY PARKS: No York County Parks are located within the Upper Codorus Creek watershed. Adjacent to the watershed is the 70-acre John Rabb County Park. A portion of this park was one of the approximately 170 iron ore mines in York County. The area was later used as a landfill. The landfill was reclaimed in the late 1980's and donated to the county. The mines serve as habitat to four species of bats. Currently the park is undeveloped and closed to the public.

In addition to Rabb Park, the York County Rail Trail, which is controlled and maintained by the County Parks Department, also runs adjacent to the Upper Codorus Creek watershed. The Rail Trail is a 21-mile long trail that connects center city York with the

20-mile long Northern Central Railroad Trail in Maryland. There are studies underway to construct a connector trail from Hanover and Spring Grove to the existing trail. This trail section would be located within the Upper Codorus Creek watershed.

MUNICIPAL PARKS: Nine (9) municipal parks were identified within the Upper Codorus Creek watershed. Table 6-2 summarizes the parks and features for each of the municipalities within watershed. No parks or public playground areas were located within the watershed in the municipalities of Spring Grove Borough, Codorus Township, and Jackson Township. None of the identified municipal parks are located along or near streams of the watershed.

TABLE 6-2
Summary Of Municipal Parks Located Within The Upper Codorus Creek Watershed

Name	Municipality	Type
Tri Township Park	Penn Twp.	Multi Use
South Western High School	Penn Twp.	Athletic Fields/Playground
E.H. Markel Intermediate School	Penn Twp.	Athletic Fields/Playground
Borough Tot Lot/Playground	Jefferson Borough	Tot Lot/Playground
Jefferson Athletic Association Fields	Jefferson Borough	Athletic/Pavilion
Moul Avenue Park	Hanover Borough	Multi Use
Township Park/Playground	Heidelberg Twp.	Undeveloped
Township Park/Athletic Fields	Manheim Twp.	Proposed
Township Park	West Manheim Twp.	Proposed
Lions Club Pavilion	North Codorus Twp.	Pavilion Building

b. Public Forests/Gamelands

No Public Forests or gamelands are located within the Upper Codorus Creek Watershed. However, the P.H. Glatfelter Paper Company controls approximately 1,300 acres of land within the watershed for use as tree farms. Although these trees are periodically harvested for use in paper manufacturing at their Spring Grove production facility, all of the areas are currently enrolled into the Pennsylvania Game Commission's cooperative programs and are open for public recreation.

c. Boat Launches

As stated previously, canoeing and boating are extremely popular activities on Lake Marburg. Seven (7) boat launches are located at various areas along the lake. 586 spaces for boat mooring and storage are available, and two (2) boat rentals are also located along the lake.

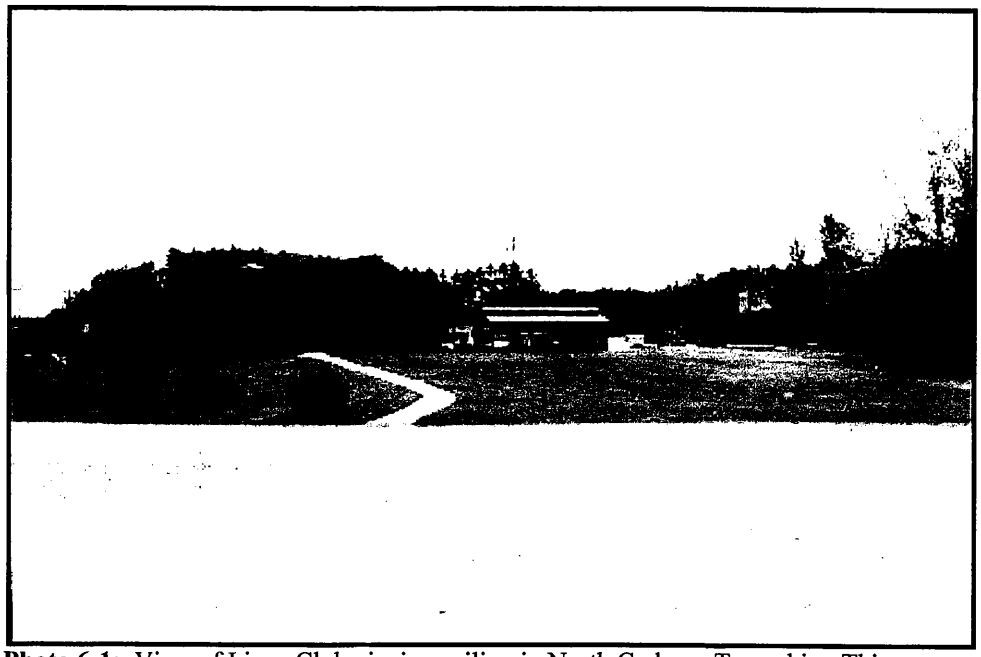


Photo 6-1: View of Lions Club picnic pavilion in North Codorus Township. This area is open for public use, and can be used to access Kessler Pond.

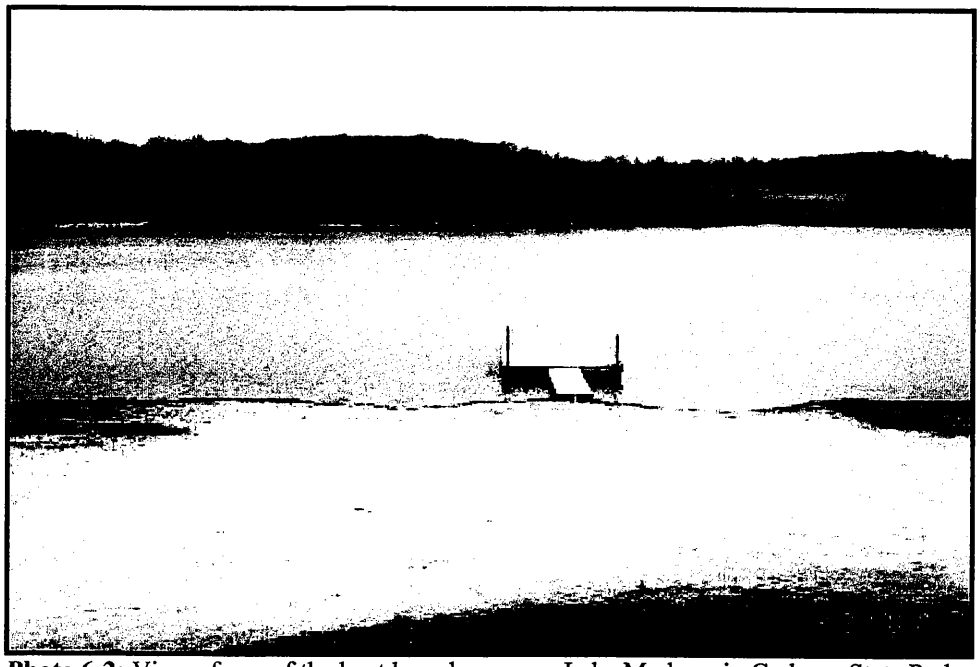


Photo 6-2: View of one of the boat launch areas on Lake Marburg in Codorus State Park.

d. Trails

There are numerous trails available for hiking, horseback riding, snowmobiling, etc. in the Upper Codorus Creek watershed. In addition a spur to the York County Rail-Trail is under consideration from West York to Hanover. This trail would follow an abandoned Trolley line for its length. The section of the proposed trail from Spring Grove to

Hanover is located within the watershed. Table 6-5 presents a summary of these identified trails in the watershed.

TABLE 6-3
Summary Of Trails Located Within The Upper Codorus Creek Watershed

Name	Length	Status
Mary Ann Furnace Trail	3.5 miles	Active
La Ho Trail	1.5 miles	Active
X Country Ski Trail	16.0 miles	Active
Codorus State Park Bridal Trails	7.0 miles	Active
Snowmobile Trails	10.0 miles	Active
York County Heritage Trail Extension	1.5 miles	Planned

e. Campgrounds

The only public camping available within the Upper Codorus Creek watershed is located at Codorus State Park. There are over 200 sites available for camping at the State Park. Two other private camping facilities were identified within the watershed, the Fellowship Camp Grove and Camp Gi-Scho-Ha. These camps are not open for public use, but are for church groups and Girl Scouts respectively.

f. Golf Courses

No public or private golf courses are located within the Upper Codorus Creek watershed. The Honey Run Golf Course, a public golf course in North Codorus Township, is located adjacent to the watershed along Lehman Road. In addition, South Hills Golf Course is located in Penn Township and the Hanover Golf Course in Paradise Township are also just outside the watershed.

g. Amusement Parks

No amusement parks or theme parks are identified within the Upper Codorus Creek watershed. However, a haunted mill is located in Menges Mills. This local attraction is in close proximity to the junction of Oil Creek and Codorus Creek. The "haunted" mill is a seasonal attraction that draws several thousand patrons during the Halloween season.

B. Archaeological and Historical

There is a diverse and unique history associated with the Upper Codorus Creek watershed. This area's history varies due to the unique physical, geological and cultural regions found throughout the watershed. The information in this section is presented within six (6) specific eras:

- Prehistory (<1600)
- Early Colonial Settlement (1600 ~ 1750)

- Community and Commercial Development (1750 ~ 1850)
- Industrial Development (1850 ~ 1950)
- Post Industrial (1950 ~ Present)

1. Prehistory

Archaeological findings in the region indicate that the Lower Susquehanna River Watershed, which included Codorus Creek, has been inhabited for over 11,000 years. Three periods of prehistory are discussed in this section; the Paleo Indian period, the Archaic period, and the Woodland period.

The Paleo Indian period according to Mayer-Oaks (1955) extends from before 8,000 BC to 3,000 BC. This period covers the earliest inhabitants of the North American continent. These were generally nomadic hunters of now extinct big game.

In the Susquehanna River Valley, the Archaic period lasted between approx. 7,000 BC and the time of Christ. It involved the evolution of the previously mentioned, Paleo Indians. This group of Native Americans evolved as the gradual changes in climate brought the Susquehanna River Valley climate into the conditions that we see today (Kent, 1984).

The Archaic period eventually evolved into the Woodland period. Within the Susquehanna River Valley, the period began around the time of Christ and lasted until approximately 1600 AD when the first European explorers and settlers began to move into the area. The Early Woodland period is identified by the use of pottery vessels in the cooking and storage of food for the first time. (Kent, 1984) As the Woodland period progressed, distinct changes in the culture of the Native Americans took place. This was facilitated by the introduction of horticulture to the native groups. The long-term results of the development of horticulture included the development of larger and more permanent villages. Eventually these tribes began to develop a unique or tribal identity; which eventually led to increased competition and conflict among the individual communities or tribes.

The dominant tribe in the Upper Codorus Creek watershed, as well as the entire Susquehanna River valley, at the time the first settlers arrived, was the Susquehannock Indians.

The Susquehannock Indians were closely related to the Iroquois Tribes. However, the two cultures split circa 1450 AD (Kent, 1984). Following the split, the Susquehannocks occupied the lands between the Susquehanna and the Delaware Rivers. It is believed that the Susquehannocks defeated many of the other tribes that inhabited this area including the Shenks Ferry People. However, the Susquehannock Nation was eliminated as a tribe by 1675 as a result of disease and a prolonged war with the Iroquois Nation.

By the time the first settlers were coming into the Upper Codorus Creek watershed the area was primarily a hunting grounds for the Conestoga Indian tribe. There were no large

Indian villages in the areas that make up York and Adams counties. The area appears to have served as a mutual or adjacent hunting ground located between the Conestoga and Piscataway tribes (Crowell, 1907).

The Monocacy Path, a major Indian trail from Wrightsville, PA to Frederick MD runs through the Upper Codorus Creek watershed. Within the watershed the path generally parallels PA Route 116 from Hanover to York (Wallace, 1998).

Review of Pennsylvania Historical Museum Commission (PHMC) files and discussion with PHMC personnel revealed 17 prehistoric sites located in the Upper Codorus Creek watershed. Information as to which time period each site is associated with is not currently available; however it should be accessible in the near future (Funk personal communication, 2000). Two (2) areas within the Upper Codorus Creek watershed are listed on the Natural Register of Historic Places. One is a residence in Brodbecks, and the other is the Spring Grove Historic District, which is partially located within the watershed. Although only two sights are actually listed on the National Register, numerous historically eligible structures and locations exist within the watershed. Many structures, especially farmsteads and churches date back to the earliest settlement of the region.

Photo 6-3: View of Mennonite Meeting House along York Road between Hanover and Spring Grove. An example of the numerous historic structures located throughout the watershed, although only two sites are listed on the National Register of Historic Places.

2. Early Colonial Settlement

The first colonists settled in Pennsylvania in 1643. From that point a steady western progression of settlements began to spring up. However, it was not until 1736, following completion of a treaty with the local Indian tribes, that settlement officially expanded

west of the Susquehanna River. York County was formed in 1749 as a result of a petition to the provincial council. (In 1800, Adams County was founded to the west of York county and thus establishing York's western boundary)

The early settlers to the region were composed of 3 major nationalities of people; the Quakers, the Germans, and the Scotch-Irish. Within the Upper Codorus Creek watershed these were predominantly German immigrants. Much of the land in the early settlements was purchased in 100 – 400 acre tracts. The land was initially sold rather cheaply and was resold at a great profit in later years. These early settlers initially cut out homesteads in the large tracts of forestland that made up the frontier in York and Adams Counties. The forests of the area were composed of virgin stands of Oak, Chestnut, Hickory, Poplar, and Ash. There was also a great deal of swampland associated with the streams in the region. These were generally in the form of natural meadows adjacent to the streams.

When openings in the forest were cleared, the early settlers found the soils in the area to initially be very productive with cereal crops. However, over time they came to be less successful. Switching to rye and then buckwheat temporarily addressed the problem; but eventually the lands became sterile/barren and new land was cleared and cultivated. Because of these demanding soil conditions most agricultural plant species were introduced to the watershed prior to the Revolutionary War. Shortly after the settlers began to produce grain, mills were built along the streams in the region to grind the grain for flour and to facilitate easier transport to the markets in Philadelphia and Baltimore.

The location of the Upper Codorus Creek watershed in the vicinity of the Pennsylvania/Maryland border made it part of one of the larger colonial disputes prior to the American Revolution. Both Maryland and Pennsylvania professed claims to the land on both sides of today's boundary. As a result more than one person often had title to the same lands. This led to serious disputes; and in some cases armed conflict. Several attempts at addressing the dispute through temporary boundaries and surveying were unsuccessful. The conflict was ultimately resolved in 1768 when the now famous Mason-Dixon line was surveyed as the boundary between Pennsylvania, Maryland and Delaware.

Although it is a significant part of history of Pennsylvania, the French and Indian war was not a significant factor in the Upper Codorus Creek watershed. Most of the conflict occurred to the west or north of the watershed. The primary reason for the area's lack of disturbance was the lack of any significant Indian encampments in the area that was settled. Settlement of the western sections of York County began in earnest following the close of the French and Indian War in 1763. Despite the absence of battles, the region served as the breadbasket in supplying provisions for the armies during the war (JMA/Watson, 1999).

3. Communities and Commercial Development

The period between the end of the French and Indian War and the beginning of the Civil War brought great changes to the nation, county, and watershed. During this time period the Revolutionary War had the greatest impact on the development and progress of the county and region. No revolutionary battles were fought in or near the Upper Codorus Creek watershed. However, the first capital of the United States of America was located in the City of York just outside of the watershed.

The Municipalities that now make up the Upper Codorus Creek watershed were originally parts of Codorus, Manheim, and Paradise townships. These townships were laid out in 1747. By 1750 Heidelberg Township was formed from Manheim Township. In 1838 North Codorus Township was formed from Codorus Township. Jackson Township was formed from Paradise Township in 1853. The borough of Hanover was laid out in 1763 and incorporated in 1815 from Heidelberg and Manheim townships. The borough of Spring Grove was laid out in 1747 as part of Paradise Township; but it was not incorporated until 1882 when it was formed from Jackson Township. Three other communities in the watershed were formed at later dates (West Manheim Township in 1858 from Manheim, Jefferson Borough in 1866 from Codorus, and Penn Township in 1880 from Manheim and Heidelberg).

During this time period settlers were able to begin selling their crops to the urban centers in Pennsylvania and Maryland. Sale of their goods helped the settlers to improve their homesteads and actually possess currency to purchase goods and services. Prior to this each farm needed to be self-sustaining, and mere survival was the primary focus. The development and expansion of these communities was the result of residents becoming more affluent and having more time to devote to community issues and institutions. (JMA/Watson, 1999)

The first roads or turnpikes were developed in the watershed around 1741 when a road from York towards the watershed was laid out; the next major road in the watershed was the Hanover to Baltimore road for the delivery of goods to the port of Baltimore on the Chesapeake Bay (Prowell, 1907).

The primary industry in the watershed was agriculture and agricultural support services (mills, blacksmith, etc.). However, other industries were developed in the watershed during this time. Foremost among these was iron manufacturing. Extensive iron ore deposits were discovered in the municipalities of the watershed. Two forges, the Spring Grove Forge and Mary Anne furnace were prominent within the watershed. Peter Dicks who had discovered the ore deposits in the area established the Spring Grove Forge in 1755. Robert Coleman, owner of the Cornwall iron mines and furnace, purchased the forge in 1807 and it continued in operation until 1851. The Mary Ann Furnace, located within the boundaries of what is today Codorus State Park, was established in 1762. It continued in operation until 1800 predominantly using iron ore mined from Manheim and Heidelberg townships.

4. Industrial Development

The Civil War, the Industrial Revolution, the Great Depression, and World Wars I and II all occurred during this time period. Each of these events altered the development of the nation and had an impact on the Upper Codorus Creek watershed. However, only the Civil War and the Industrial Revolution directly affected the communities of the watershed.

Arguably the most important battle of the Civil War was fought in Gettysburg, Pennsylvania, approximately 15 miles from the western-most portion of the Upper Codorus watershed. However, the Battle of Hanover, which took place in Penn Township within the watershed may have contributed to the confederate defeat at Gettysburg which is considered the turning point of the Civil War.

The Battle of Hanover delayed Confederate General Jeb Stuart from joining up with the main confederate force in Gettysburg until the evening of the second day of the Battle of Gettysburg. Without his forces, the confederate army was unable to dislodge the union army from the high ground on the second day of the battle. The union forces were able to reinforce these positions prior to the third day's fighting. This is considered one of the primary reasons for the Union victory.

The Industrial Revolution resulted in a change in the industrial practices throughout the country. Within the watershed this move towards mechanization initially occurred in the traditional industries including iron production and cigar, shoe, paper, etc manufacturing.

The agricultural industry of the watershed also became more mechanized as a result of the Industrial Revolution. Tractors and mechanized equipment replaced traditional hand labor and allowed farmers to cultivate more crops and products with less manpower. The introduction of commercial fertilizer and soil additives raised the productivity of the land to new heights. In some instances, the industrial revolution combined with the agricultural nature of the watershed to help produce several food processing companies. Some of these companies developed into leaders in the industry.

Unlike the primitive roads initially developed through the watershed, the continued growth in the region resulted in better roads for travel. Railroads and railroad lines were developed in the watershed to facilitate the movement of people and goods. From the mid 1800's through the early 1900's they were the primary source of mechanized transportation in the region. The heyday of the railroad passed after the development of the mass-produced automobile by Henry Ford in 1908. Despite its fall from prominence, railroads still served an important role in the region as well as the watershed for delivery of goods to and from the area. With the growth of the automobile in the early 1900's, transportation within the Upper Codorus Creek watershed continued to change and improve. The former "pikes" were becoming major travel routes and relatively smooth strait asphalt roads began to replace the dirt roads and paths of the watershed and travel into and out of the watershed was easier than ever.

Agriculture remained the largest industry within the watershed through this time period; however many additional industries also developed in the watershed at this time. Some of these ventures did not last through the time period. These industries included the iron forges, which ceased operations circa 1850 because of improvements in the iron making process, higher quality ores in other locations, and better transportation delivering the products from other locations. The Hanover area was an industry leader in carriage building; however, changing demands led to the demise of the industry circa 1880. Likewise, brick making was also successful initially, but later failed.

In some instances, the end of one industry led to the formation of another. When the Spring Grove Iron Forge was shut down in 1851, Jacob Hauer established a paper mill on the same location as the forge. The paper mill was successful and was purchased by the P.H. Glatfelter Company in 1863. The company continues to produce paper today and has established several "tree farms" within the Upper Codorus Creek watershed to help provide pulpwood for paper production.

When a variety of tobacco that thrived in the southeastern Pennsylvania climate was introduced from Cuba, around 1840, the industry flourished. By the 1850's the region led the nation in tobacco production. (JMA/Watson, 1999) The cigar rolling business flourished in the borough of Hanover during this time period. Cigar manufacturing started in the area around 1800 and by 1907 there were 30 different cigar factories in the Hanover area (Prowell, 1907). Cigar manufacturing also resulted in the spin-off business of cigar box production, which also occurred in the Hanover area.

Because of the proximity to agricultural resources, food processing and snack food production industries were also developed in and adjacent to the watershed during this time period. Originally developed to process locally grown produce, several of these businesses, including Hanover Foods, Martin's and Utz's potato chips, developed into significant forces in the food industry.

Numerous other industries developed in close proximity to the Upper Codorus Creek watershed during this time period. These include shoe manufacturing, steel fabricating and machining, and clothing manufacturing/retail.

5. Post Industrial

The last fifty years have again provided a multitude of changes within the Upper Codorus Creek watershed. Automobiles have become commonplace and are the dominant form of transportation in the watershed. The area is growing at one of the fastest rates in the state. New roadways have been developed for the numerous new residential developments. The railroads located in the area are strictly used to transport freight with no passenger service available. The York County Transportation Authority (YCTA) provides the only public transportation available within the watershed, with two (2) routes from the Hanover area extending into the western end of the watershed. As stated previously, no airports are located within the watershed boundary; however, two airports

are located just outside of the watershed and can be utilized to facilitate the movement of goods through the watershed.

Agriculture is still the primary industry within the watershed; but two industrial facilities provide substantial employment within the watershed. Hanover Foods provides jobs for 1,300 and the P.H. Glatfelter paper company employs approximately 1,100 individuals. Numerous other industries exist in and around the watershed.

All indications are for the population growth in the watershed to continue. This growth will have a profound effect on the development patterns in the watershed. Changes to the labor force in the watershed will also occur; however predictions beyond a gradual shift from industrial to service industries would be purely speculative.

7. Issues, Concern, Constraints and Opportunities

A. Project Area Characteristics

ISSUES AND CONCERNS

The rapid population growth occurring within the watershed, especially in the rural townships is the most important issue associated with the Project Area Characteristics. As presented in the population discussion, the watershed has seen a population increase of nearly 58% from 1960 through 2000. Some municipalities within the watershed experienced over 120% growth during this same time period. All indications suggest that this growth trend will continue through the year 2000 census and beyond. This population growth is occurring in locations that were traditionally in agricultural or forested land use, away from the traditional urban population center, which is actually losing residents.

This increasing population requires housing, transportation, water, sewage, and other amenities associated with residential development. Development of traditional rural/agricultural areas to accommodate the emigration from the urban areas threatens the aesthetics and quality of life that made these areas so appealing to live in. Increased development in close proximity to Codorus Creek and its tributaries will erode the aesthetics of the stream corridor in the watershed.

An increasing population further away from the urban population centers is also resulting in longer commutes and increased congestion on roadways in the watershed. Large-scale roadway upgrades to address congestion convert farmland, encourage further emigration, and contribute to the rapid expansion of highway related commercial areas throughout the watershed. The expansion of the highway related commercial areas again results in congestion and traffic delays.

Other land use issues of concern are the conversion of family farms to industrial farming operations as a way to remain profitable in the face of tighter profit margins in agriculture. Although these operations prevent the conversion of farmland there are issues concerning manure management, discharges, odors, and traffic that are significant and controversial.

OPPORTUNITIES

This project offers a unique opportunity for municipalities of the watershed to work together to look at the region on a watershed basis. By doing this, land use plans can be developed on a watershed scale rather than a municipal scale. This would result in better allocation of the limited available land resources for the development necessary to continue economic growth in the region as well as protect the resources and aesthetics that make the area a unique and desirable place to live.

B. Land Resources

ISSUES AND CONCERNS

The loss of farmland and farmland soils is a primary concern with regard to land resources. The same features that contribute to land being well suited for agricultural production (slope, drainage, stability) also make these areas attractive for development. The increasing population, as discussed in the Project Area Characteristics, is settling in areas that were traditionally farmed. High land prices and reduced profits in agriculture are making it difficult for farmers to continue in the business. Programs in place to protect farmland have been successful in some instances; but in others, it is economically unfeasible to establish Agricultural Security Areas and Agricultural Conservation Easements.

The shifting industrial base of the watershed out of the traditional population centers is leaving abandoned commercial/industrial "Brownfield" sites in these communities. These sites may have environmental cleanup concerns associated with them.

Illegal unrestricted dumps were identified during a field view of the watershed area. The dumping of residential refuse is a serious threat to the watershed. Residential refuse can contain a host of toxic substances, and if left unchecked these substances could reach the stream or local groundwater supply.

OPPORTUNITIES

Economic incentives including conservation easements can be used to preserve farmland in the watershed.

Stream restoration programs can protect and/or enhance the natural features found in the landscape of the watershed.

The abandoned commercial/industrial buildings or "Brownfields" in the watershed offer a great opportunity for redevelopment. Utilizing PA Act 2 funding from the state, these areas can be assessed, remediated, and be put back into productive use. Often, these areas already have the necessary infrastructure for industry and are located near other industrial and commercial support enterprises. Reutilization of these sites would help to reduce some of the pressure to develop existing farmland and reduce urban sprawl.

C. Water Resources

ISSUES AND CONCERNS

Impacts to water quality and quantity are the predominant concern in the Upper Codorus Creek watershed. Much of the watershed contains stream reaches that are impaired to some degree. Today, most of the impairment to the waters of the watershed is a result of non-point source pollution (NPS). Agricultural, nutrient runoff, and sedimentation are the primary causes of impairment to the streams in the agricultural areas of the watershed. However, urban runoff from the rapidly developing areas is quickly becoming a major NPS cause of stream impairment in the watershed. Runoff from logging is also a concern.

Codorus Creek and private wells currently supply the water needs of most of the watershed; the remainder is supplied by the York Water Company, the Hanover Water Company, and P.H. Glatfelter. Increased population and development in the watershed has resulted and will continue to result in a higher demand for water. Increased surface water and groundwater withdrawals to meet this demand may result in lower base flows and higher summer and lower winter temperatures in streams in the watershed. This could be very important in the portions of the watershed that contain stocked and wild trout populations.

Increased development is reducing the amount of riparian buffers along the stream corridors in the watershed. This results in increased runoff, erosion and sedimentation, thermal increases, and loss of aesthetics along these streams. In the areas of the watershed that are experiencing increased development, the resulting increase in impervious surface is increasing runoff into the streams and raising peak runoff volumes in the streams. Residential areas will also see increased levels of nutrient and pesticides in runoff and groundwater as a result of lawn care. This same development is reducing the infiltration of precipitation for groundwater recharge.

Most residents of the Upper Codorus Creek watershed utilize an on-lot treatment system for sewage waste. Many of these systems are failing. Development has been halted in some areas as a result of sewage problems.

Industrial farming operations (concentrated animal operations (CAO's) and concentrated animal feeding operations (CAFO's)) are not currently a major issue in the watershed; however, the trend toward high volume production farms is likely to enter the watershed in the near future. If protections are not in place, CAO and CAFO practices are potentially a source of serious degradation to the streams and groundwater in the watershed.

The loss of beneficial floodplain values is a concern in the watershed. Development in and around the floodplains of the streams in the watershed can cause increased flooding problems downstream as well as reduce infiltration and groundwater recharge from rain/storm events.

Runoff from a mulch operation flowing into Codorus Creek is a concern.

Although summer discharges from Lake Marburg have been constant as a result of an internal memo at P.H. Glatfelter, there is no guarantee or legal requirement that this take place. Loss of the coldwater discharge would severely reduce or eliminate the wild trout population of the stream from the confluence of the West Branch of Codorus Creek downstream.

OPPORTUNITIES

This project offers the opportunity to develop and coordinate a comprehensive watershed-wide assessment of the streams within the watershed. Utilizing a group of trained volunteers to monitor and sample the waters, management decisions can be made regarding which streams need to have restoration/rehabilitation projects completed on them. The success and progress of implemented projects can be monitored and assessed in the same manner.

Developing and implementing stream restoration and enhancement plans that include riparian buffers and streambank stabilization, through co-operative agreements with local farmers and developers, provides the opportunity for improved water quality and aquatic habitat in the watershed.

Developing an agreement between P.H. Glatfelter, Codorus State Park, and local conservation groups will ensure sufficient flows to protect the wild trout population living in the stream, while still allowing for recreation on Lake Marburg and minimum flows into Spring Grove for the paper plant.

D. Biological Resources

ISSUES AND CONCERNS

Invasive species are the greatest concern with regard to biological resources in the watershed. These plant and animal species especially mile-a-minute weed *(Polygonum perfoliatum*), multiflora rose (*Rosa multiflora),* and Japanese honeysuckle (*Lonicera japonica*) reduce ecological diversity and habitat and can cause significant economic damage.

The loss of forested areas, wetlands, and riparian buffers in the watershed, as a result of increased development, eliminates habitat for sensitive species (neotropical migrant birds, wetland species, and forest interior species) and reduces the availability of travel corridors for movement of wildlife through the watershed.

Development within the watershed may impact habitat and species of special concern.

No old growth forest component exists within the watershed.

OPPORTUNITIES

There is an opportunity to develop a plan that will address invasive species infestation in the watershed.

Riparian and aquatic habitat can be developed as a result of implementing a streamside restoration/enhancement plan.

E. Cultural Resources

ISSUES AND CONCERNS

Continued growth of the population in the watershed will stretch the capacity of local parks and recreation facilities to provide for recreational needs.

Continued development in the watershed, especially around the stream corridors and the historic farmsteads of the region, threatens to impact numerous historic and prehistoric cultural features.

Access to the streams in the watershed for recreational activities is limited and can be further limited.

OPPORTUNITIES

Upgrades to Codorus State Park offer significant recreational opportunities year-round.

Expansion of the York County Heritage Trail through portions of the watershed will provide additional areas for hiking and recreation in the watershed. The expansion would also provide a link to the main trail for travel south into Maryland.

Development of local parks in the municipalities of the watershed as proposed by Manheim and Heidelberg Townships will increase the total recreational resources in the watershed.

Developing a mutually beneficial relationship between local landowners and organizations within the watershed could result in increased recreational opportunities for the public and improved understanding and assistance for the local landowner.

8. Management Options

The following Management Options were developed to address the issues, concerns, constraints, and opportunities presented in Chapter 7. Specific projects will also be included with these management options in Appendix F. This matrix will list potential partners, potential funding sources, and recommended beginning dates.

A. Project Area Characteristics

Goals for this area include: Protecting the rural character of the watershed, while still allowing for beneficial and orderly growth needed to sustain the communities and protection of the environmental amenities and unique features of the watershed.

Raise the sensitivity and awareness of County and Municipal Planning Organizations (MPO's) to farmland and habitat loss.
Education of decision makers about the importance of the farmland and habitats of the watershed, along with available measures to protect these resources is essential to reducing their loss. Utilizing existing land control ordinances, in conjunction with modern design and open space planning can allow for continued development without the complete conversion of special habitat areas and agricultural settings.

Work with local and county planning organizations to develop and carry out plans for the protection of environmental amenities in the watershed.
Educating decision makers about important features in the watershed including, but not limited to wetlands, riparian buffers, and large forested tracts is the first step in protecting them. Support tax breaks for conservation and innovative developments. Utilize transfer of development rights as a method of protecting important areas.

Complete a comprehensive examination of the traffic conditions of the watershed. Identify areas of congestion, its causes, and impacts. Develop a strategy to address these problem areas utilizing alternative forms of transportation (mass transit, car-pooling, bike lanes) where possible.
Continued population growth in the watershed is predicted for the foreseeable future. The resulting increase in traffic on rural and minor arterial roadways will continue to compound congestion problems that already exist within the watershed. Working together with PennDOT and local planning organizations to identify and prioritize existing and future problem areas is an important step to solving them. Developing and implementing potential solutions to congestion problems without major new construction and before the problems become unmanageable would be attractive to PennDOT and the local municipalities experiencing the growth and development.

Update comprehensive plans for the municipalities of the watershed that are over 10 years old. Include environmental resource inventories and protection of resources as part of the document. Complete multi-municipal plans where prudent and feasible.
Comprehensive plans are living documents that need periodic review before they become outdated and irrelevant to the current conditions of the community. Periodic review and update of the plan incorporates new issues and removes areas that are no longer relevant.

Support implementation of land conservation techniques in subdivision design.
Rural clustering and other modern design methods can greatly reduce the area of land utilized as part of a residential subdivision development. Utilizing incentives such as increased lot density can promote these conservation practices without the negative adversarial aspects associated with ordinances. Support initiatives to return residential development to traditional urban centers. Utilize in-fill development to reduce sprawl out from built up areas.

Update and implement Act 537 sewage management plans that are over 10 years old for the municipalities in the watershed. Replace on-lot septic systems in the established growth areas. Assist in upgrading older on lot systems in the established rural areas.
Increased population in the watershed increases demands for services including sewage. Proactive planning and development of management plans for sewage systems in the watershed is important to improve/maintain the quality of effluent discharged into the streams of the watershed. New technologies may improve effluent from existing on-lot systems.

Actively enforce land use controls for areas along waterways in the watershed, especially keeping development out of floodplains. Develop strategies to protect riparian zones.
Almost every municipality in the watershed has zoning ordinances and floodplain development regulations; however, increased development in the watersheds may be altering the historic floodplain limits. Encroachment on the stream corridors in the watershed has been noted. Protecting these riparian and floodplain zones is critically important to the future health of waterways in the watershed.

Partner with local universities to develop mutually beneficial programs for student education, and protection and enhancement of the watershed. Identify other volunteer and non-profit groups to coordinate activities and projects with to avoid duplication of effort.
A major difficulty associated with volunteer groups is a lack of personnel/assistance in completing everyday tasks associated with running the organization. Utilizing college students would allow more time for projects in the watershed as well as providing real world experience to the college students. Utilizing organizations such as the York County Watershed Alliance as a clearinghouse of information can make the groups working on the watershed more effective and efficient.

Utilize the Watershed Conservation Plan as a tool in protecting, managing, and preserving the Upper Codorus Creek watershed.
The Upper Codorus Creek Watershed Conservation Plan is meant to be a living and working document. The management options developed address issues identified as important during the course of the study. Changes in conditions and attitudes may also result in changes to the management options. This document should be periodically updated, especially the management options, to address changes in the watershed as well as changes in attitude concerning what issues are important.

B. Land Resources

Goals in this area are the protection of farmland from conversion to non-agricultural use, cleanup of the landscape in the watershed, and reuse of "Brownfield" sites in the watershed.

Establish a working partnership between the major stakeholders in the watershed and conservation organizations. Use this partnership to address major problems in the watershed as well as protect important resources.
By developing a working relationship among the stakeholders of the watershed a level of understanding and cooperation can be reached. Issues can be addressed in a non-confrontational manner prior to final decisions being made. Plans can be developed that address problems in the watershed in conjunction with necessary development.

Continue and expand watershed wide cleanup days.
Clean up days on all of Codorus Creek are annual events. Usually occurring on or near Earth Day, this activity assists in beautifying stream sections in the watershed while offering participants the ability to get a first hand look at the stream itself.

Identify "Brownfield" areas within the watershed for possible assessment, cleanup, and redevelopment. Identify other potential hazard areas within the watershed.
Pennsylvania ACT 2 legislation provides funding for communities to redevelop their abandoned industrial/commercial sites. By revitalizing these abandoned buildings, eyesores are removed from the community, local tax and employment bases are preserved, and undeveloped "Greenfields" are protected. Redevelopment of residential areas, like those completed by Habitat for Humanity in urban areas is equally as important in the preservation of "Greenfields".

Work to develop or expand recycling efforts in the watershed.

Encourage the use of responsible logging within the watershed. Encourage loggers to obtain "Master Logger" status.

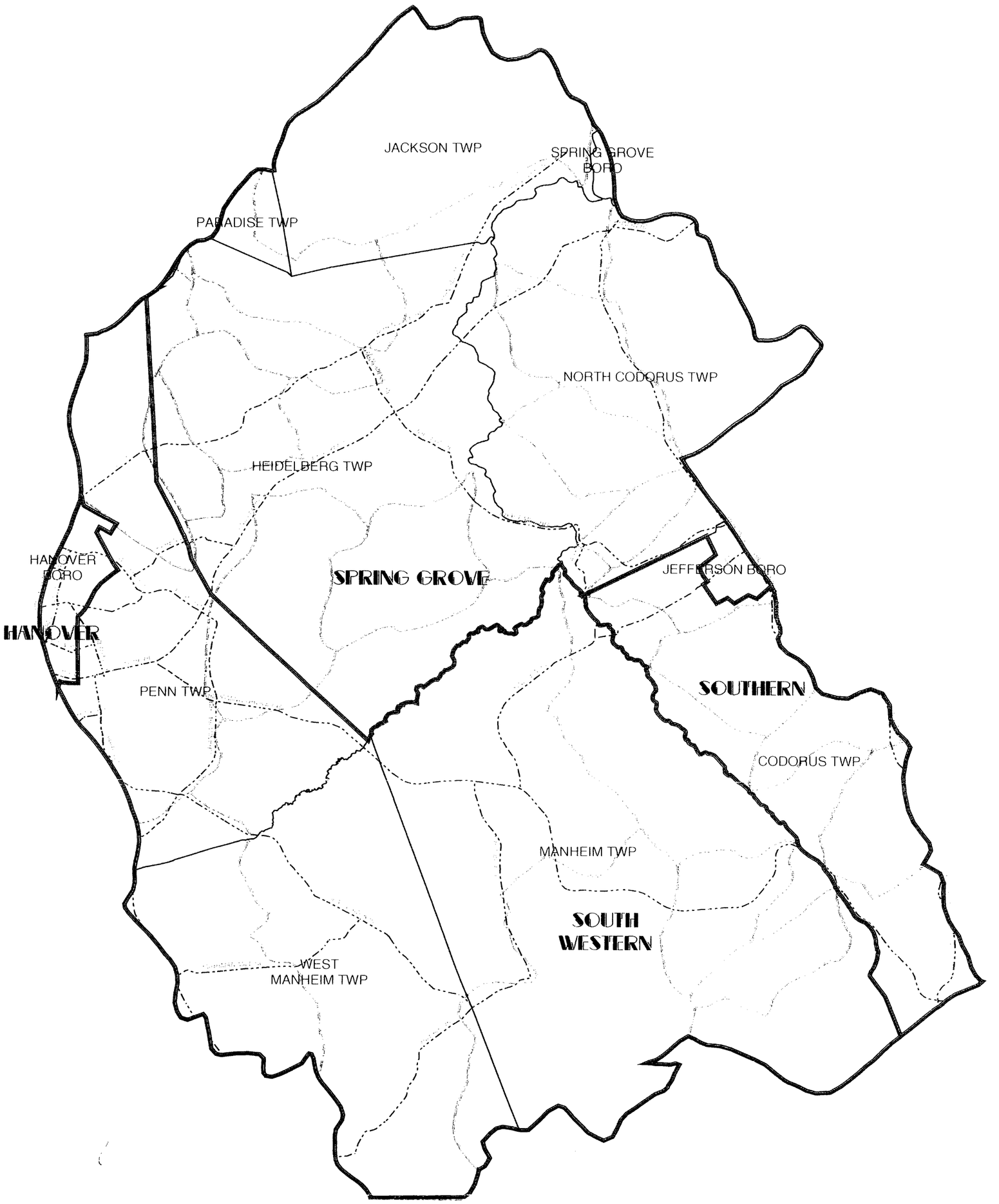
Look into and if appropriate, establish a local chapter of PA Cleanways.
PA Cleanways is a Non-Profit Corporation helping people clean up their environment. The goal of the organization is to protect, restore, and maintain the environmental and scenic qualities of roadways, waterways and pathways from illegal dumping and littering. Utilizing this group to address littering/dumping problems along the roadways and trails of the watershed, in conjunction with the work already being completed by other organizations on the streams of the watershed, would enhance and protect the aesthetics of the region.

Develop an educational program for demonstrating and promoting riparian buffers, especially for use in FFA, 4H, scout groups, and secondary schools.
The majority of the watershed is still in agricultural use, and is controlled by farmers. By educating future farmers about the environmental benefits of buffers to the watershed, the environment can be protected in two ways: 1) The children relaying the information to their parents and they in turn implementing it; or 2) educating the future owners and users of the land

Support any development of the state park to increase tourism as an economic presence in the region.
Tourism is the fastest growing industry in the state. Codorus State Park has the potential to have a significant positive impact on the economy of the watershed by increasing the volume of visitors coming into the watershed.

Create an overlay zone for stream buffers in the watershed.
An overlay zoning district is a special-purpose zoning district that is superimposed over existing zoning jurisdictions. It is designed to provide additional standards and regulations for specific areas based on special conditions such as environmental factors, historical features or neighborhood preservation. It can be used to protect the natural and scenic qualities of Codorus Creek by restricting development within the overlay zone. This overlay zone can (and should) include the floodplain and other features that the steering committee and/or municipality wants to protect. When used correctly, overlay zoning is a good land use development tool.

Increase partnerships with public and private entities to foster land stewardship.
There are limited funds and resources available to complete all of the projects proposed. In order to obtain the greatest return for the effort and resources expended, partnering with other organizations that have the same goals and objectives is essential. Compiling a comprehensive list of all organizations in the watershed and their objectives is an important first step in this process.



Sub-Watershed Boundaries

School Districts

Municipal Boundaries

Major Roads

1 Inch = 1 Mile (approx)

N

0 2,950 5,900 11,800 17,700 23,600 Feet

Figure 1

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

School District Map

prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

York County Planning Commission

Land Use Categories

- Apartment
- Commercial
- Exempt
- Farming
- Industrial
- Residential
- Utility

- Municipal Boundaries
- Streams

1 Inch = 1 Mile (approx)

0 2,950 5,900 11,800 17,700 23,600 Feet

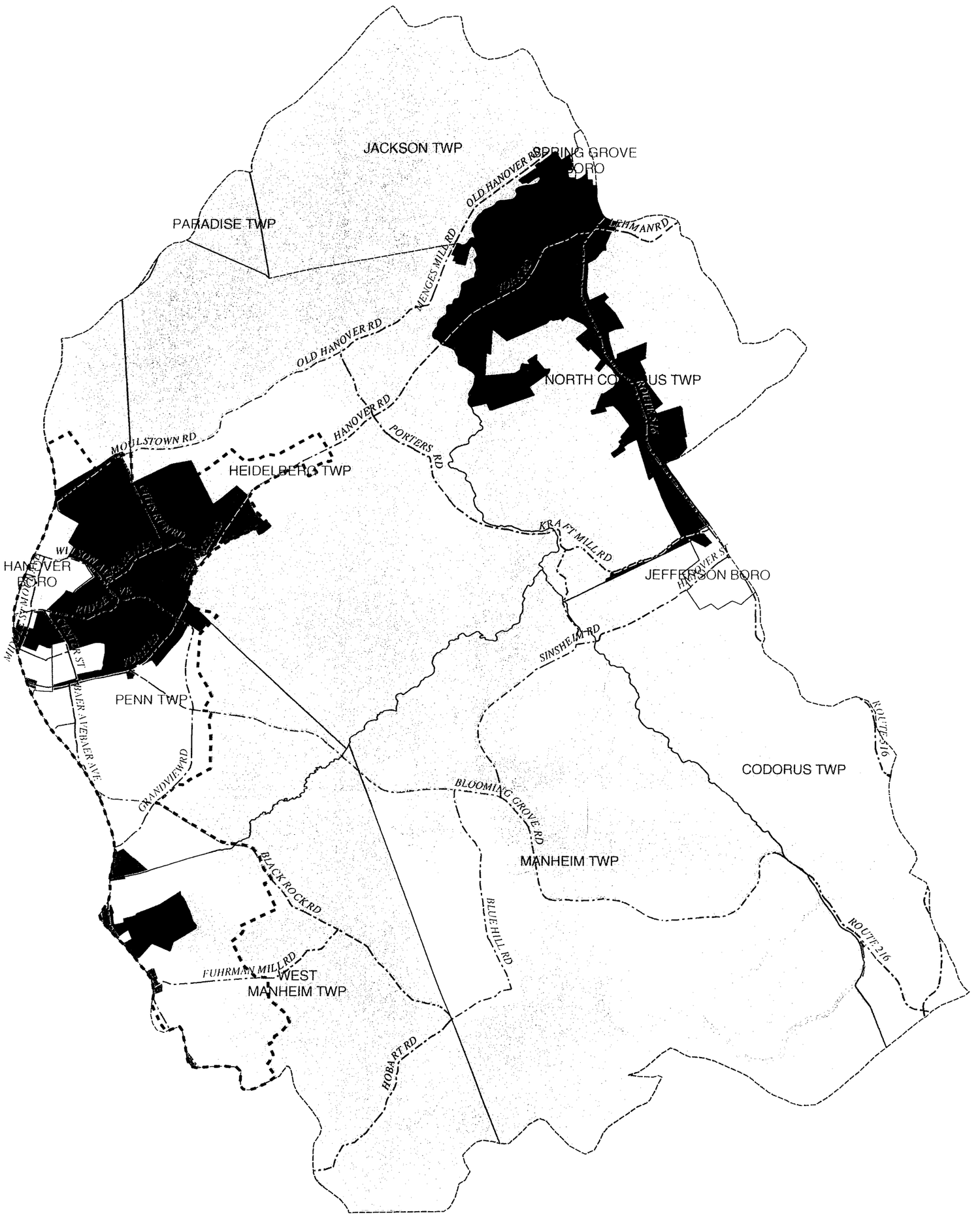
Figure 2

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Land Use Map

prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

York County Planning Commission



Generalized Zoning Categories

- Agricultural
- Commercial
- Conservation
- Industrial
- Residential

- Municipal Boundaries
- Major Roads
- Projected Growth Area

1 Inch = 1 Mile (approx)

N

0 2,950 5,900 11,800 17,700 23,600 Feet

Figure 3

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Zoning Map

prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

York County Planning Commission

Prime Agricultural Soils Classification

- Class 1
- Class 2
- Class 3
- Agricultural Land Use
- Agricultural Security Area
- Agricultural Security Area & Agricultural Land Use
- Municipal Boundaries
- Major Roads

1 Inch = 1 Mile (approx)

0 2,950 5,900 11,800 17,700 23,600 Feet

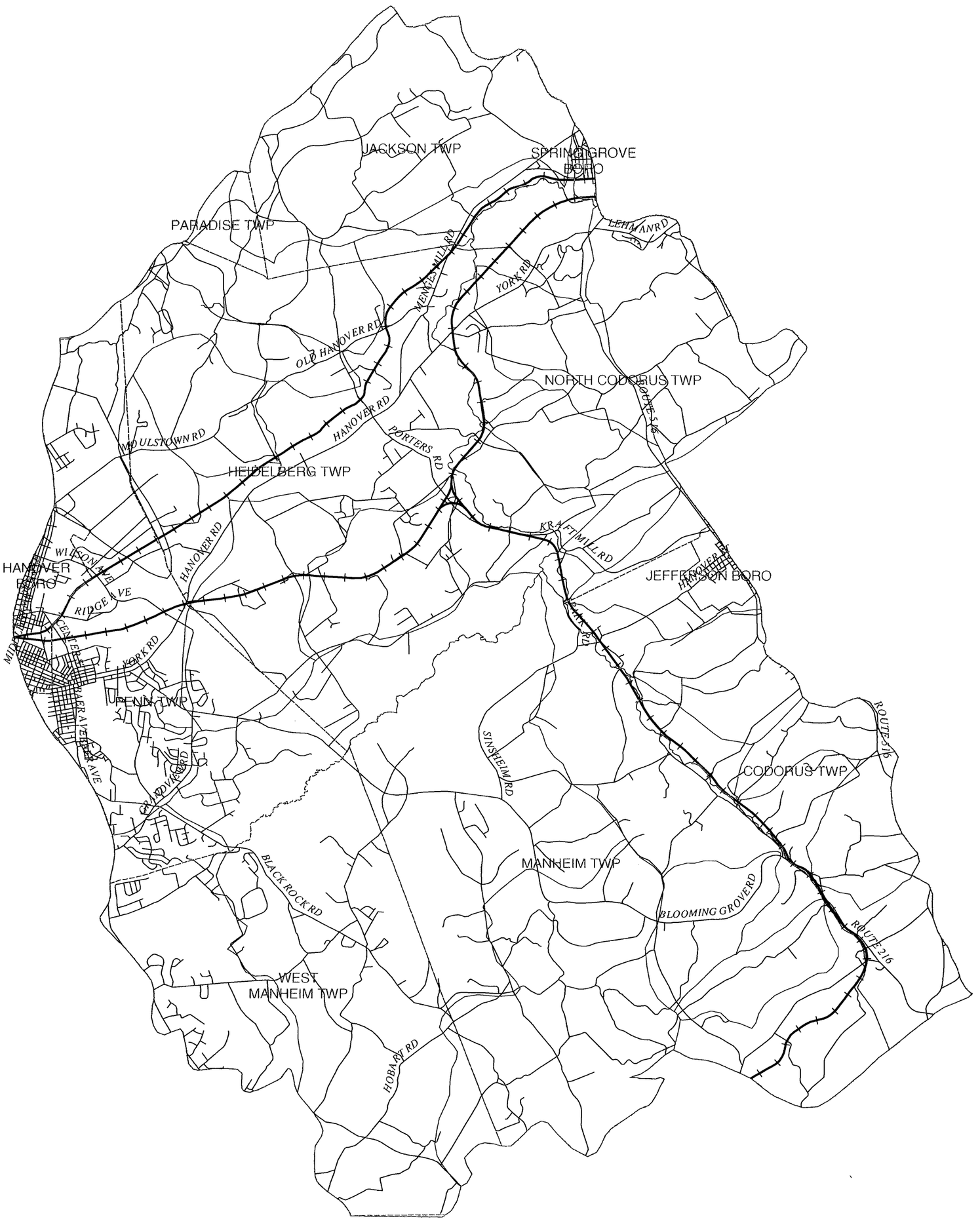
Figure 4

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Soils and Agriculture Map

prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

York County Planning Commission



Sub-Watershed Boundaries

Municipal Boundaries

Roads

Railroads

Figure 5

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Transportation Map

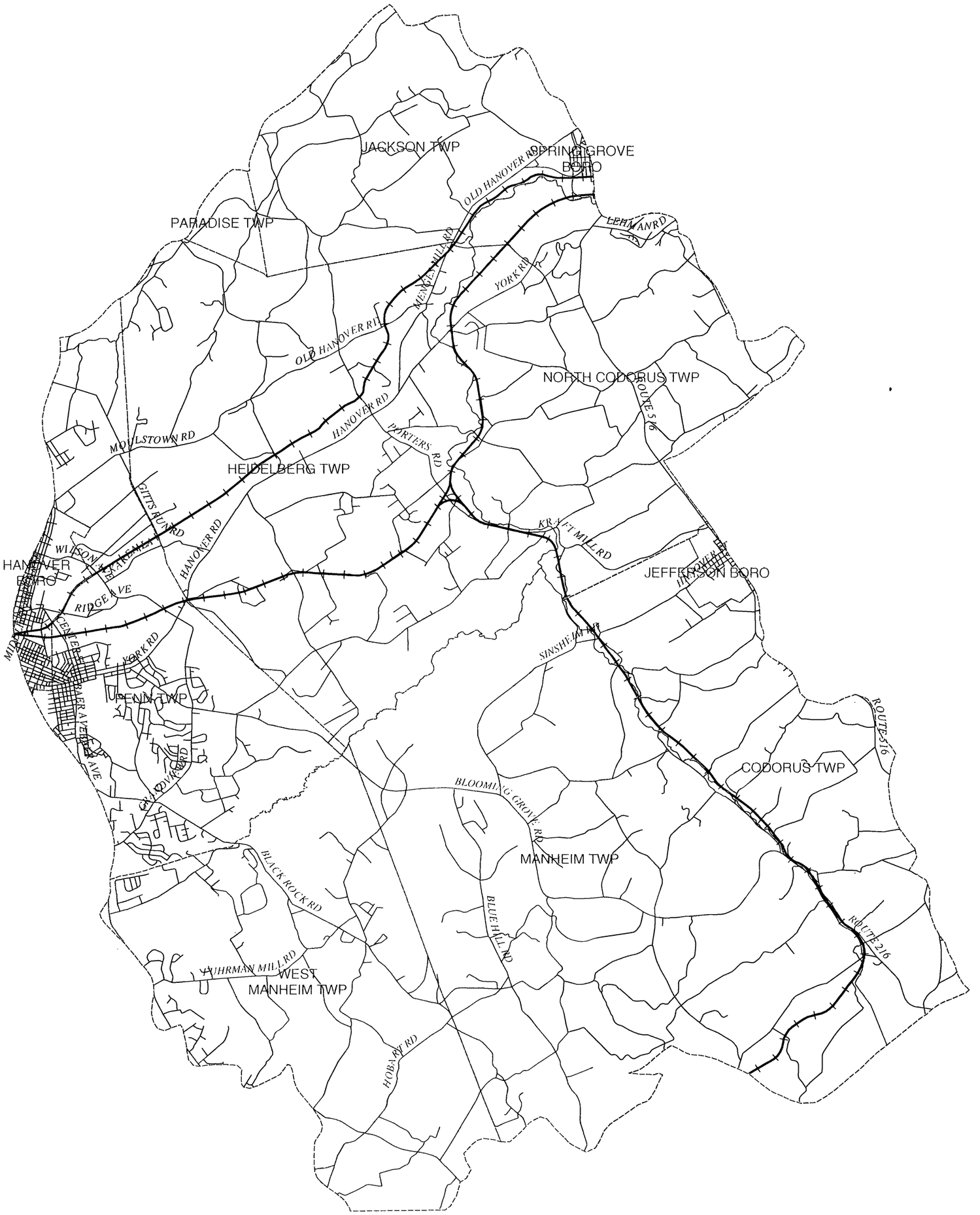
prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

1 Inch = 1 Mile (approx)

N

0 3,000 6,000 12,000 18,000 24,000 Feet

YORK COUNTY PLANNING COMMISSION



Municipal Boundaries

Roads

Railroads

Figure 5

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Transportation Map

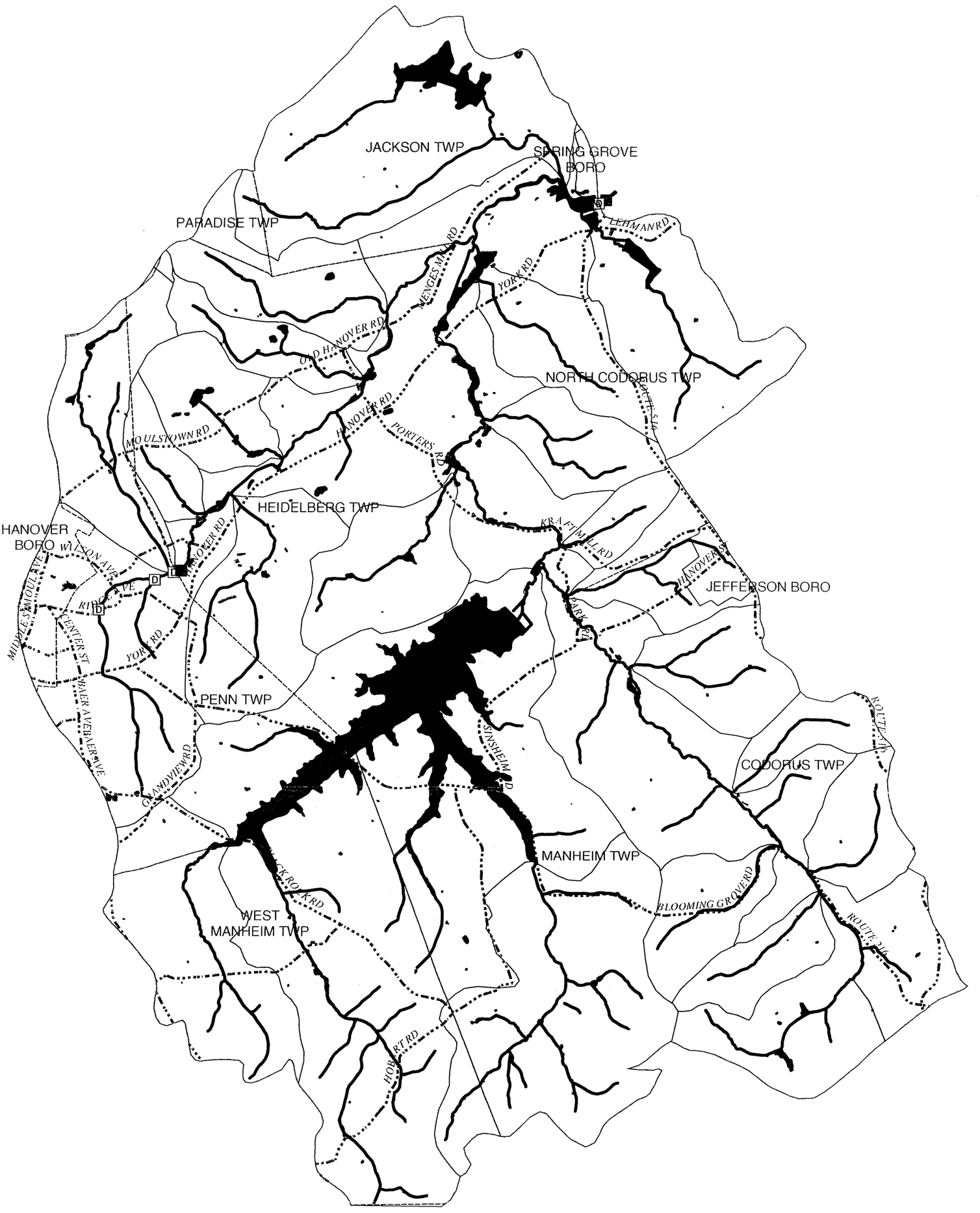
prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

1 Inch = 1 Mile (approx)

N

0 3,000 6,000 12,000 18,000 24,000 Feet

YORK COUNTY PLANNING COMMISSION



- Sub-Watershed Boundaries
- Municipal Boundaries
- Wetlands
- Streams
- Major Roads
- Water Withdraws from watershed (major)
- D Discharges to stream (Permitted)

1 Inch = 1 Mile (approx)

N

0 3,000 6,000 12,000 18,000 24,000 Feet

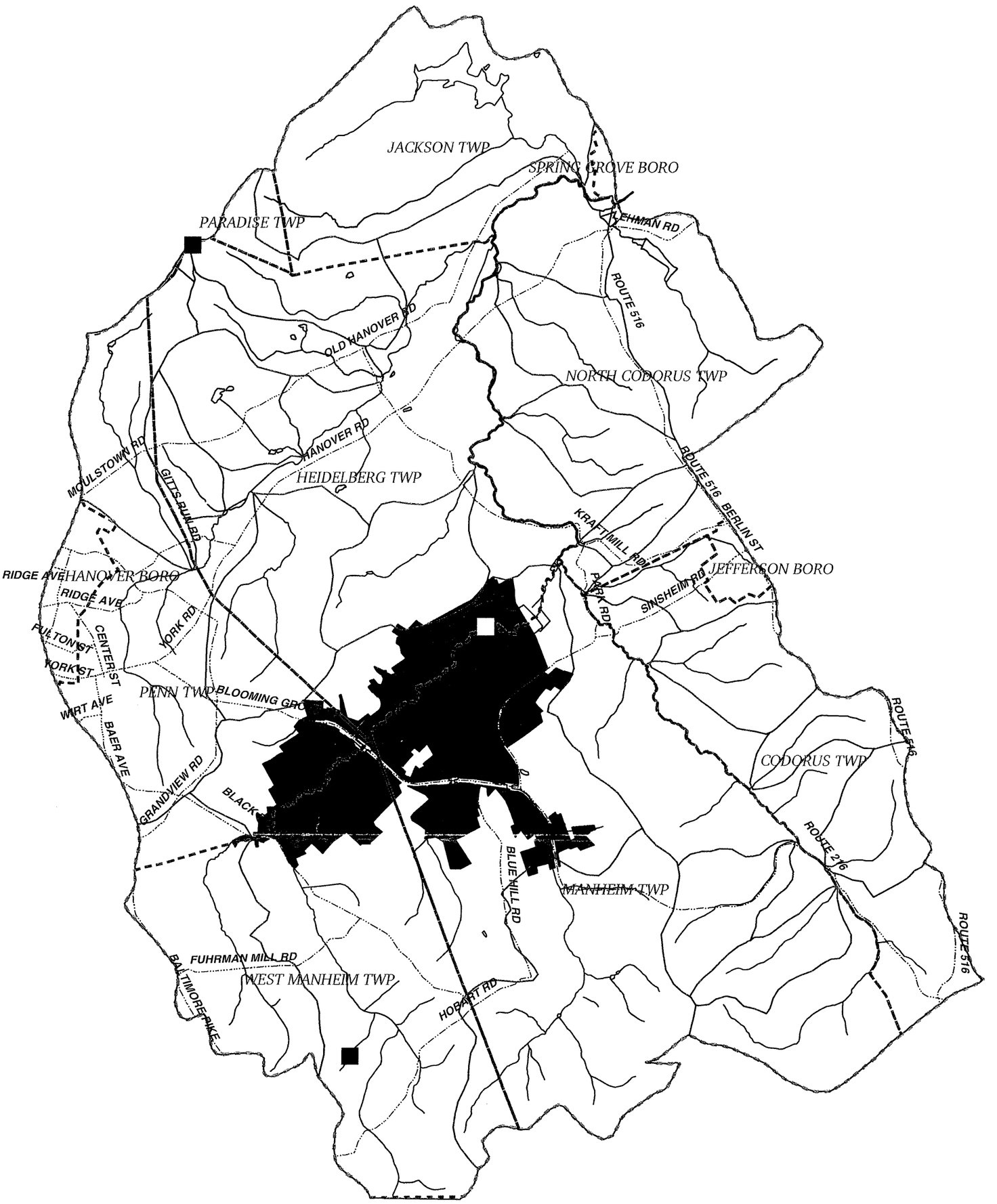
Figure 6

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Surface Water Withdraws and Discharges Map

prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

York County Planning Commission



Sub-Watershed Boundaries

Municipal Boundaries

Parks

Major Roads

Streams

Area of Natural Significance

Important Bird Area

1 Inch = 1 Mile (approx)

N

0 3,400 6,800 13,600 20,400 27,200 Feet

Figure 7

UPPER CODORUS CREEK WATERSHED CONSERVATION PLAN

Biological/Natural Features Map

prepared for the
Codorus Chapter of Trout Unlimited
August, 2001

YORK COUNTY PLANNING COMMISSION

AREA REPORT (CERCLIS DATA)

search used- Zip : 17362
City : ALL
County : YORK
State : PA
NPL Status : ALL
Level of Detail: HIGH

Results:

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's CERCLIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave. NW, Washington DC 20009 Phone: 202-234-8494
The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

Site Name: CHEMTRON INC
Street: RD # 3
City: SPRING GROVE State: PA Zip: 17362
County: YORK EPA ID: PAD980693485
MSA: 9280 Congressional District: 19
Lat/Long : 3949000/07655000 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 06/01/1979
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

Completed

List of alias names for site follows-
Alias Name: CHEMTRON INC PARKERS FARM
Street:
City: State: Zip:
Description:

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 06/01/1979
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Date : 11/01/1979
Event Qualifier: LOWER PRIORITY
Lead Agency : EPA FUND-FINANCED

Event: SCREENING SITE INSPECTION Area: PRE-REMEDIAL
Start: 02/01/1980 Complete: 02/01/1980
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : EPA FUND-FINANCED

Completed

Site Name: HOOVER KURVIN C FARM
Street: RD #3
City: SPRING GROVE State: PA Zip: 17362
County: YORK EPA ID: PAD980538524

MSA: 9280 Congressional District: 19
Lat/Long : 3952300/07651540 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 06/01/1981
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 06/01/1981
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 06/01/1984 Complete: 08/01/1984
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : STATE, FUND FINANCED

Site Name: LIQWACON SECURE RESIDUE FILL
Street: PANTHER HILL RD T444
City: NORTH CODORUS State: PA Zip: 17362
County: YORK EPA ID: PAD000647768
MSA: 9280 Congressional District: 19
Lat/Long : 3951030/07647560 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 08/01/1980
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

outside of watershed

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 08/01/1980
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 10/01/1983 Complete: 11/01/1983
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : STATE, FUND FINANCED

Site Name: PH GLATFELTER HSCA
Street: 228 MAIN STREET
City: N CORDUS TWP State: PA Zip: 17362
County: YORK EPA ID: PAD003003407
MSA: 9280 Congressional District: 19
Lat/Long : 3952300/07651540 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 03/01/1985
Ownership: OTHER
This is not a Federal facility.

List of alias names for site follows-
  Alias Name: PH GLATFELTER
      Street:
        City: YORK   State: PA   Zip:
    Lat/Long: 3952300/07651540
  Description:

List of operable units and events follows-
  Operable Unit: SITE EVALUATION/DISPOSITION
  Event(s)-
    Event:
    Date :
    Lead Agency   : EPA FUND-FINANCED

    Event: DISCOVERY   Area: PRE-REMEDIAL
    Date : 03/01/1985
    Lead Agency   : EPA FUND-FINANCED

    Event: PRELIMINARY ASSESSMENT   Area: PRE-REMEDIAL
    Date : 11/19/1987
    Event Qualifier: LOWER PRIORITY
    Lead Agency   : EPA FUND-FINANCED

    Event: SCREENING SITE INSPECTION   Area: PRE-REMEDIAL
    Start: 03/31/1989   Complete: 06/06/1989
    Event Qualifier: HIGHER PRIORITY
    Lead Agency   : EPA FUND-FINANCED

    Event: SCREENING SITE INSPECTION   Area: PRE-REMEDIAL
    Start: 02/04/1995   Complete: 02/04/1995
    Event Qualifier: DEFERRED TO RCRA (SUBTITLE C) OR NRC
    Lead Agency   : STATE, FUND FINANCED

Site Name: SPRING GROVE BORO LANDFILL completed. 1987
   Street: E RAILROAD ST
     City: SPRING GROVE State: PA   Zip: 17362
   County: YORK   EPA ID: PAD981042088
      MSA: 9280   Congressional District: 19
Lat/Long : 3952210/07651490   USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 08/13/1985
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

List of operable units and events follows-
  Operable Unit: SITE EVALUATION/DISPOSITION
  Event(s)-
    Event: DISCOVERY   Area: PRE-REMEDIAL
    Date : 08/13/1985
    Lead Agency   : EPA FUND-FINANCED

    Event: PRELIMINARY ASSESSMENT   Area: PRE-REMEDIAL
    Start: 03/19/1987   Complete: 06/08/1987
    Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
    Lead Agency   : EPA FUND-FINANCED

Site Name: WHITE ROSE MTORCYCLE CLUB DEMO
Street: HILL CLIMB RD
City: SPRING GROVE State: PA Zip: 17362
County: YORK EPA ID: PAD981041908
MSA: 9280 Congressional District: 19
Lat/Long : 3948070/07651340 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 08/13/1985
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 08/13/1985
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 03/13/1987 Complete: 06/11/1987
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : EPA FUND-FINANCED

Completed 1987

END OF REPORT

AREA REPORT (CERCLIS DATA)

search used- Zip : 17331
City : ALL
County : YORK
State : PA
NPL Status : ALL
Level of Detail: HIGH

Results:

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's CERCLIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave. NW, Washington DC 20009 Phone: 202-234-8494
The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

Site Name: ALLOY RODS DIV
Street: KAREN LN & WILSON AVE
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD003026655
MSA: 9280 Congressional District: 19
Lat/Long : 3948060/07659060 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 08/01/1980
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

Completed 1984

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 08/01/1980
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 03/01/1984 Complete: 05/01/1984
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : STATE, FUND FINANCED

Site Name: BETHLEHEM MINES QUARRY HSCA
Street: RD #1
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD039116074
MSA: 9280 Congressional District: 19
Lat/Long : 3948060/07659060 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 10/22/1986
Ownership: OTHER
This is not a Federal facility.

Completed 1990

Description: 000000

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION

Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 10/22/1986
Lead Agency : STATE, FUND FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Date : 01/13/1987
Event Qualifier: LOWER PRIORITY
Lead Agency : STATE, FUND FINANCED

Event: SCREENING SITE INSPECTION Area: PRE-REMEDIAL
Start: 07/25/1990 Complete: 11/14/1990
Event Qualifier: DEFERRED TO RCRA (SUBTITLE C) OR NRC
Lead Agency : EPA FUND-FINANCED

Site Name: CONTINENTAL COPPER & STEEL IND ?. Completed 1987
Street: E MIDDLE ST
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD981034044
MSA: 9280 Congressional District: 19
Lat/Long : 3948060/07659060 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 03/01/1985
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 03/01/1985
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 04/10/1987 Complete: 06/09/1987
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : EPA FUND-FINANCED

Site Name: HANOVER BOROUGH SANITARY LANDFILL ?. Complete & 1988
Street: 108 RAILROAD ST
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD981104532
MSA: 9280 Congressional District: 19
Lat/Long : 3948060/07659060 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 12/09/1985
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-

Event: DISCOVERY Area: PRE-REMEDIAL
Date : 12/09/1985
Lead Agency : STATE, FUND FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 01/20/1987 Complete: 01/20/1987
Event Qualifier: LOWER PRIORITY
Lead Agency : STATE, FUND FINANCED

Event: SCREENING SITE INSPECTION Area: PRE-REMEDIAL
Start: 09/29/1988 Complete: 12/16/1988
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : EPA FUND-FINANCED

Site Name: HANOVER SCRAP QUARRY HSCA outside watershed
Street: 213 POPLAR ST
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD014170203
MSA: 9280 Congressional District: 19
Lat/Long : 3946350/07700200 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 07/29/1985
Ownership: OTHER
This is not a Federal facility.

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 07/29/1985
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 07/29/1985 Complete: 07/29/1985
Event Qualifier: LOWER PRIORITY
Lead Agency : STATE, FUND FINANCED

Event: SCREENING SITE INSPECTION Area: PRE-REMEDIAL
Date : 01/03/1989
Event Qualifier: LOWER PRIORITY
Lead Agency : STATE, FUND FINANCED

Event: SCREENING SITE INSPECTION Area: PRE-REMEDIAL
Start: 09/19/1995 Complete: 09/19/1995
Event Qualifier: DEFERRED TO RCRA (SUBTITLE C) OR NRC
Lead Agency : STATE, FUND FINANCED

Site Name: JIFFY MANUFACTURING CO outside watershed
Street: BLETTNER AVE
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD048546469
MSA: 9280 Congressional District: 19
Lat/Long : 3948060/07659060 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 03/01/1985

Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 03/01/1985
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 04/10/1987 Complete: 06/08/1987
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : EPA FUND-FINANCED

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* Site Name: KEYSTONE SANITATION LANDFILL
Street: RD #1
City: HANOVER State: PA Zip: 17331
County: YORK EPA ID: PAD054142781
MSA: 0 Congressional District: 19
Lat/Long : 3943280/07702100 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: CURRENTLY ON THE FINAL NPL
Discovery Date (of earliest operable unit): 02/01/1984
Incident Category: LANDFILL
Ownership: OTHER
This is not a Federal facility.
This site has had 9 enforcement activities

Outside watershed

List of alias names for site follows-
Alias Name: KEYSTONE SANITATION LANDFILL
Street:
City: ADAMS State: PA Zip:
Lat/Long: 3945300/07702180
Description:

List of enforcement activities follows-
NPL RP SEARCH
Complete Date: 08/15/1986 Lead agency: Federal

NPL RP SEARCH
Start Date: 02/22/1990 Complete Date: 02/14/1991 Lead agency: Federal

NPL RP SEARCH
Start Date: 03/23/1992 Complete Date: 06/05/1992 Lead agency: Federal

RI/FS NEGOTIATION
Start Date: 05/06/1988 Complete Date: 10/06/1988 Lead agency: Federal

RD/RA NEGOTIATIONS
Start Date: 12/05/1990 Complete Date: 06/28/1991 Lead agency: Federal

UNILATERAL ADMIN ORDER
Complete Date: 06/28/1991 Lead agency: Federal

SECTION 107 LITIGATION
Start Date: 07/30/1993 (no complete date) Lead agency: Federal

CONSENT DECREE
Start Date: 03/29/1993 Complete Date: 11/17/1994 Lead agency: Federal

ALTERNATIVE DISPUTE RESOLUTION
Start Date: 08/31/1995 (no complete date) Lead agency: Federal

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: FIVE YEAR REMEDY ASSESSMENT Area: REMEDIAL
Date :
Lead Agency : FEDERAL ENFORCEMENT

Event: NPL DELETION PROCESS Area: REMEDIAL
Date :
Lead Agency : EPA FUND-FINANCED

Event: DISCOVERY Area: PRE-REMEDIAL
Date : 02/01/1984
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 03/01/1984 Complete: 04/01/1984
Event Qualifier: LOWER PRIORITY
Lead Agency : STATE, FUND FINANCED

Event: SCREENING SITE INSPECTION Area: PRE-REMEDIAL
Start: 04/01/1984 Complete: 10/01/1984
Event Qualifier: HIGHER PRIORITY
Lead Agency : EPA FUND-FINANCED

Event: PROPOSAL TO NPL Area: PRE-REMEDIAL
Date : 04/10/1985
Lead Agency : EPA FUND-FINANCED

Event: FINAL LISTING ON NPL Area: PRE-REMEDIAL
Date : 07/22/1987
Lead Agency : EPA FUND-FINANCED

Event: TECHNICAL ASSISTANCE Area: GENERIC EVENTS
Date : 09/30/1987
Lead Agency : EPA FUND-FINANCED
Financial Type : ACTUAL OBLIGATION
Financial Date : 09/30/1987 Amount: $32,348

Event: REMOVAL INVESTIGATION Area: REMOVAL
Start: 03/02/1990 Complete: 03/02/1990
Lead Agency : EPA FUND-FINANCED

Event: REMOVAL INVESTIGATION Area: REMOVAL
Start: 07/23/1992 Complete: 07/23/1992
Lead Agency : EPA FUND-FINANCED

Event: COMM RELATIONS TA GRANT Area: REMEDIAL
Date : 03/01/1995
Lead Agency : EPA FUND-FINANCED
Financial Type : ACTUAL OBLIGATION
Financial Date : 03/16/1995 Amount: $50,000

Event: REMOVAL INVESTIGATION Area: REMOVAL
Start: 07/24/1995 Complete: 07/24/1995
Planning Target: PRIMARY

```
  Lead Agency    : EPA FUND-FINANCED

  Event: REMOVAL ACTION                    Area: REMOVAL
  Start: 07/24/1995   Complete: 07/09/1996
  Event Qualifier: STABILIZATION
  Planning Target: PRIMARY
  Lead Agency    : EPA FUND-FINANCED
  Event Category : EMERGENCY
  Financial Type : ACTUAL OBLIGATION
  Financial Date : 07/31/1995   Amount:     $50,000


Operable Unit:
Event(s)-
  Event: RECORD OF DECISION                Area: REMEDIAL
  Date :
  Lead Agency    : EPA FUND-FINANCED

  Event: COMBINED RI/FS                    Area: REMEDIAL
  Start: 06/30/1987   Complete: 09/30/1990
  Planning Target: PRIMARY
  Lead Agency    : EPA FUND-FINANCED
  Financial Type : ACTUAL OBLIGATION
  Financial Date : 06/30/1987   Amount:    $100,000
  Financial Type : ACTUAL OBLIGATION
  Financial Date : 01/13/1989   Amount:    $700,000
  Financial Type : ACTUAL OBLIGATION
  Financial Date : 06/19/1990   Amount:    $150,000

  Event: REMEDIAL COMMUNITY RELATIONS      Area: REMEDIAL
  Date : 02/15/1990
  Planning Target: PRIMARY
  Lead Agency    : RESPONSIBLE PARTY
  Financial Type : TES/ESS TASKING
  Financial Date : 02/15/1990   Amount:     $13,800
  Financial Type : TES/ESS TASKING
  Financial Date : 05/17/1990   Amount:      $4,524
  Financial Type : TES/ESS TASKING
  Financial Date : 07/25/1990   Amount:      $2,300
  Financial Type : TES/ESS TASKING
  Financial Date : 10/24/1990   Amount:      $8,199
  Financial Type : TES/ESS TASKING
  Financial Date : 11/01/1991   Amount:     $16,468
  Financial Type : TES/ESS TASKING
  Financial Date : 01/30/1992   Amount:      $4,687

  Event: ADMINISTRATIVE RECORD             Area: GENERIC EVENTS
  Date : 08/20/1990
  Event Qualifier: ADMIN RECORD COMPILATION/REMEDIAL EVENT
  Planning Target: PRIMARY
  Lead Agency    : EPA FUND-FINANCED

  Event: RECORD OF DECISION                Area: REMEDIAL
  Date : 09/30/1990
  Planning Target: PRIMARY
  Lead Agency    : EPA FUND-FINANCED


Operable Unit:
Event(s)-
  Event: COMBINED RI/FS                    Area: REMEDIAL
  Date : 04/21/1994
  Planning Target: PRIMARY
  Lead Agency    : EPA FUND-FINANCED
```

```
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 09/30/1993   Amount:     $85,340
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 04/22/1994   Amount:    $171,848
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 09/07/1994   Amount:    $725,000
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 09/25/1995   Amount:     $55,966
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 08/28/1996   Amount:     $48,418
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 04/01/1996   Amount:     $47,392
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 04/08/1997   Amount:     $52,741


  Operable Unit:
  Event(s)-
    Event: REMEDIAL ACTION                  Area: REMEDIAL
    Date :
    Lead Agency    : EPA FUND-FINANCED

    Event: REMEDIAL DESIGN                  Area: REMEDIAL
    Start: 03/11/1992   Complete: 08/22/1997
    Planning Target: PRIMARY
    Lead Agency    : RESPONSIBLE PARTY


  Operable Unit:
  Event(s)-
    Event: REMEDIAL DESIGN                  Area: REMEDIAL
    Start: 03/11/1992   Complete: 08/22/1997
    Planning Target: PRIMARY
    Lead Agency    : RESPONSIBLE PARTY
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 04/08/1997   Amount:     $12,200

    Event: TECHNICAL ASSISTANCE             Area: GENERIC EVENTS
    Date : 10/01/1996
    Planning Target: PRIMARY
    Lead Agency    : EPA FUND-FINANCED
    Financial Type : ACTUAL OBLIGATION
    Financial Date : 02/07/1997   Amount:      $2,410

    Event: REMEDIAL ACTION                  Area: REMEDIAL
    Date : 08/22/1997
    Planning Target: PRIMARY
    Lead Agency    : RESPONSIBLE PARTY



--------------------------------------------------------------------------
Site Name: PENN TWP WASTE WTR TRTMT PLT
   Street: RIDGE AVE
     City: HANOVER  State: PA   Zip: 17331
   County: YORK                          EPA ID: PAD980538466
      MSA: 9280    Congressional District: 19
Lat/Long : 3948060/07659060      USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 05/01/1981
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site
```

List of operable units and events follows-
  Operable Unit: SITE EVALUATION/DISPOSITION
  Event(s)-
    Event: DISCOVERY   Area: PRE-REMEDIAL
    Date : 05/01/1981
    Lead Agency   : EPA FUND-FINANCED

    Event: PRELIMINARY ASSESSMENT   Area: PRE-REMEDIAL
    Start: 03/01/1984   Complete: 05/01/1984
    Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
    Lead Agency   : STATE, FUND FINANCED

END OF REPORT

AREA REPORT (CERCLIS DATA)

search used- Zip : 17346
City : ALL
County : YORK
State : PA
NPL Status : ALL
Level of Detail: HIGH

Results:

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's CERCLIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave. NW, Washington DC 20009 Phone: 202-234-8494
The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

Site Name: CHEMTRON CORP-HILTY FARM
Street: KAREN LN & WILSON AVE
City: HEIDELBURG State: PA Zip: 17346
County: YORK EPA ID: PAD981033368
MSA: 9280 Congressional District: 19
Lat/Long : 3951540/07652420 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 03/29/1985
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

Completed 1987

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 03/29/1985
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Start: 01/20/1987 Complete: 01/20/1987
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : STATE, FUND FINANCED

END OF REPORT

AREA REPORT (CERCLIS DATA)

search used- Zip : 17329
City : ALL
County : YORK
State : PA
NPL Status : ALL
Level of Detail: HIGH

Results:

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's CERCLIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave. NW, Washington DC 20009 Phone: 202-234-8494
The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

Site Name: AMP INC
Street: RTE 516
City: BRODBECKS State: PA Zip: 17329
County: YORK EPA ID: PAD980693048
MSA: 9280 Congressional District: 19
Lat/Long : 3946240/07649240 USGS Hydro Unit: 02050306
National Priority List (Superfund) Status: NOT ON NPL
Discovery Date: 10/01/1980
Ownership: OTHER
This is not a Federal facility.
This is a "No Further Remedial Action Planned" site

Completed 1982

List of alias names for site follows-
Alias Name: AMP INC BRODBECKS PLANT
Street:
City: State: Zip:
Description:

List of operable units and events follows-
Operable Unit: SITE EVALUATION/DISPOSITION
Event(s)-
Event: DISCOVERY Area: PRE-REMEDIAL
Date : 10/01/1980
Lead Agency : EPA FUND-FINANCED

Event: PRELIMINARY ASSESSMENT Area: PRE-REMEDIAL
Date : 08/01/1982
Event Qualifier: NO FURTHER REMEDIAL ACTION PLANNED
Lead Agency : EPA FUND-FINANCED

END OF REPORT

AREA REPORT (RCRIS DATA)

search used- Zip : 17362*
City : ALL
County : YORK
State : PA
Violations : Handlers with and without violations
Handler Type: Large Quantity Generators
All Treatment/Storage/Disposal facilities
Transporters
Level of Detail: LOW

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's RCRIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494
The search was done on 12/08/2000.
This copy of the database was last updated on 04/28/2000.

If you don't see the words *END OF REPORT* at the end of your search, then your Web search didn't complete -- back up and try it again.

Results:

Handler Name : SHIPLEY OIL COMPANY
Street : 502 NORTH MAIN ST
City : SPRING GROVE State: PA Zip: 17362
County : YORK Handler ID: PAD987358132
Mailing Addr.: 550 E KING ST PO BOX 946
Mailing City : YORK State: PA Zip: 17405
SIC Code(s) :
1st Contact : PAUL DRAWBAUGH Phone: 7177711825 Title: MGR
1st Current Owner: SHIPLEY OIL COMPANY Phone: 7177711825
Owner Street : 550 E KING ST PO BOX 946
Owner City : YORK State: PA Zip: 17405
Generator Status : Conditionally Exempt SQG
TSD Status : None
This handler is a hazardous waste transporter.
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 11/19/1991 Last date: 11/19/1991

---

outside watershed

END OF REPORT

AREA REPORT (RCRIS DATA)

search used- Zip : 17329*
City : ALL
County : YORK
State : PA
Violations : Handlers with and without violations
Handler Type: All Generators
All Treatment/Storage/Disposal facilities
Transporters
Level of Detail: LOW

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's RCRIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494
The search was done on 12/08/2000.
This copy of the database was last updated on 04/28/2000.

If you don't see the words *END OF REPORT* at the end of your search, then your Web search didn't complete -- back up and try it again.

Results:

Handler Name : A M P INC *
Street : ROUTE 516 RD2
City : BRODBECKS State: PA Zip: 17329
County : YORK Handler ID: PAD981935562
Mailing Addr.: PO BOX 3608 (81-01)
Mailing City : HARRISBURG State: PA Zip: 17105
SIC Code(s) :
1st Contact : TOM LYNCH Phone: 7175585804 Title: ENV PROG
1st Current Owner: A M P INC Phone: 2155551212
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Latitude: 3944530 Longitude: 07649150
Number of permits : 0 Number of recorded violations to date: 1
Number of penalties: 2 Total Dollars: $25,000
Enforcement actions to date: 1
First date information received for handler: 02/26/1987 Last date: 02/26/1987

Handler Name : HECKERTS, KEN AUTO PAINTING *
Street : RT 216
City : GLENVILLE State: PA Zip: 17329
County : YORK Handler ID: PAD097885982
Mailing Addr.: PO BOX 97
Mailing City : GLENVILLE State: PA Zip: 17329
SIC Code(s) :
1st Contact : SUSAN HECKERT Phone: 7172355300 Title: MGR
1st Current Owner: HECKERT, KEN Phone: 2155551212
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Latitude: 3944530 Longitude: 07649150
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 05/14/1986 Last date: 05/14/1986

END OF REPORT

AREA REPORT (RCRIS DATA)

search used- Zip : 17311*
City : ALL
County : YORK
State : PA
Violations : Handlers with and without violations
Handler Type: All Generators
All Treatment/Storage/Disposal facilities
Transporters
Level of Detail: LOW

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's RCRIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494
The search was done on 12/08/2000.
This copy of the database was last updated on 04/28/2000.

If you don't see the words *END OF REPORT* at the end of your search, then your Web search didn't complete -- back up and try it again.

Results:

Handler Name : BAUGHER MOTORS INC *
Street : 37-39 BERLIN ST
City : CODORUS State: PA Zip: 17311
County : YORK Handler ID: PAD093038735
Mailing Addr.: PO BOX 187
Mailing City : CODORUS State: PA Zip: 17311
SIC Code(s) :
1st Contact : GARY LEHR Phone: 7172292167 Title: MGR
1st Current Owner: BAUGHER MOTORS INC Phone: 2155551212
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Latitude: 3949010 Longitude: 07650120
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 05/02/1986 Last date: 05/02/1986

END OF REPORT

AREA REPORT (RCRIS DATA)

search used- Zip : 17362*
City : ALL
County : YORK
State : PA
Violations : Handlers with and without violations
Handler Type: All Generators
All Treatment/Storage/Disposal facilities
Transporters
Level of Detail: LOW

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's RCRIS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494
The search was done on 12/08/2000.
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If you don't see the words *END OF REPORT* at the end of your search, then your Web search didn't complete -- back up and try it again.

Results:

Handler Name : BEST CHEVROLET
Street : 245 N MAIN ST
City : SPRING GROVE State: PA Zip: 17362
County : YORK Handler ID: PAD014595375
Mailing Addr.: 245 N MAIN ST
Mailing City : SPRING GROVE State: PA Zip: 17362
SIC Code(s) :
1st Contact : STERLING LEESE Phone: 7172254700 Title:
1st Current Owner: WANTZ RUSS Phone: 7172254700
Owner Street : 245 N MAIN ST
Owner City : SPRING GROVE State: PA Zip: 17362
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Type of Land Disposal: PRIVATE
Latitude: 3952420 Longitude: 07650390
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 08/18/1980 Last date: 08/18/1980

outside watershed

Handler Name : GLATFELTER, PH CO SPRING GROVE MILL
Street : 228 S MAIN ST
City : SPRING GROVE State: PA Zip: 17362
County : YORK Handler ID: PAD003003407
Mailing Addr.: 228 S MAIN ST
Mailing City : SPRING GROVE State: PA Zip: 17362
SIC Code(s) : 2625 2648
1st Contact : C. CARTER Phone: 7172254711 Title: N. TECHNICAL MG
1st Current Owner: P H GLATFELTER CO Phone: 7172254711
Owner Street : 228 S MAIN ST
Owner City : SPRING GROVE State: PA Zip: 17362
1st Operator : P. H. GLATFELTER CO. Phone: 7172254711
Operator Street : 228 S. MAIN STREET
Operator City : SPRING GROVE State: PA Zip: 17362
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Latitude: 3952100 Longitude: 07651500
Number of permits : 3 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0

* edge of watershed

First date information received for handler: 08/18/1980 Last date: 11/19/1980

Handler Name : GROSS, MARLEY FORD INC
Street : 96 N MAIN ST
City : SPRING GROVE State: PA Zip: 17362
County : YORK Handler ID: PAD056768930
Mailing Addr.: 96 N MAIN ST
Mailing City : SPRING GROVE State: PA Zip: 17362
SIC Code(s) :
1st Contact : MARLEY GROSS Phone: 7172254765 Title:
1st Current Owner: GROSS, MARLEY Phone: 2155551212
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Latitude: 3952420 Longitude: 07650390
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 12/01/1986 Last date: 12/01/1986

* edge of watershed

Handler Name : RITE AID 1902
Street : RT 116 & SPRENKLE RD BOX 4622A RR4
City : SPRING GROVE State: PA Zip: 17362
County : YORK Handler ID: PAR000035113
Mailing Addr.: BOX 4622A RR4
Mailing City : SPRING GROVE State: PA Zip: 17362
SIC Code(s) :
1st Contact : MIKE FETCH Phone: 7172255227 Title: STORE MGR
1st Current Owner: RITE AID Phone: 800RITEAID
Owner Street : 30 HUNTER LN
Owner City : CAMP HILL State: PA Zip: 17011
Generator Status : Small Quantity Generator (SQG)
TSD Status : None
Type of Land Disposal: PRIVATE
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 06/23/1998 Last date: 06/23/1998

outside watershed

Handler Name : SHIPLEY OIL COMPANY
Street : 502 NORTH MAIN ST
City : SPRING GROVE State: PA Zip: 17362
County : YORK Handler ID: PAD987358132
Mailing Addr.: 550 E KING ST PO BOX 946
Mailing City : YORK State: PA Zip: 17405
SIC Code(s) :
1st Contact : PAUL DRAWBAUGH Phone: 7177711825 Title: MGR
1st Current Owner: SHIPLEY OIL COMPANY Phone: 7177711825
Owner Street : 550 E KING ST PO BOX 946
Owner City : YORK State: PA Zip: 17405
Generator Status : Conditionally Exempt SQG
TSD Status : None
This handler is a hazardous waste transporter.
Number of permits : 0 Number of recorded violations to date: 0
Number of penalties: 0 Total Dollars: $0
First date information received for handler: 11/19/1991 Last date: 11/19/1991

outside watershed

END OF REPORT

AREA REPORT (PCS DATA)

search used- City : SPRING GROVE
County : YORK
State : PA
Facility Type : ALL
Major/Minor status : Both major and minor facilities
Active/Inactive : Both active and inactive facilities
Level of Detail : LOW

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's PCS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494
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Results:

Facility name: PH GLATFELTER CO-WASTE TREAT
228 SOUTH MAIN STREET SPRI NG GROVE PA17362
City: SPRING GROVE State: PA County: YORK
NPDES ID: PA0008869 Permit Type: STANDARD
This is a major facility with 105 rating points.
SIC Code: 2678 STATIONERY,TABLETS & REL PROD EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE App. Type: RAPP
This discharger is in a major estuary or estuary drainage area.
No physical address for the facility was listed.
Mailing address for facility-
Facility name: P.H. GLATFELTER COMPANY
Street : SPRING GROVE BOROUGH
288 S. MAIN STREET
City : YORK COUNTY State: PA Zip: 17362
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: CODORUS CREEK
The first permit for this facility was issued on 07/29/1974.
Contact Name: R.E. CALLAHAN - ENV MANAGER Phone: 7172254711
This permit has been re-issued 2 times.
The facility is on final effluent limits.
Latitude/longitude: +3952350/-07650570
USGS Hydrologic Basin Code: 02050306
Number of outfalls for this permit: 4
Number of parameter limits in this permit: 35
Number of enforcement actions for this permit: 2
Number of inspections for this permit: 46
Number of quarter years in non-compliance (out of 21 possible): 0
Number of single event violations: 1
Number of compliance schedule violations: 3
Number of DMR effluent or non-receipt violations: 26

END OF REPORT

AREA REPORT (PCS DATA)

search used- City : HANOVER
County : YORK
State : PA
Facility Type : ALL
Major/Minor status : Both major and minor facilities
Active/Inactive : Both active and inactive facilities
Level of Detail : LOW

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's PCS database. RTK NET is run by OMB Watch and Unison Institute at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494
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If you don't see the words *END OF REPORT* at the end of your search, then your Web search didn't complete -- back up and try it again.

Results:

Facility name: EISENHART CORP
City: HANOVER State: PA County: YORK
NPDES ID: PAR143510 Permit Type: STORM WATER GENERAL
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 2621 PAPER MILLS EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE
No physical address for the facility was listed.
Mailling address for facility-
Facility name: EISENHART CORP
Street : PO BOX 464
City : HANOVER State: PA Zip: 173310464
Receiving waters: UNT TO SOUTH BRANCH CONEWAGO CREEK
Industrial Category (2-digit SIC): TRANSPORTATION
Number of quarter years in non-compliance (out of 13 possible): 0

outside watershed

Facility name: GDC/KEYSTONE WIRE CLOTH
City: HANOVER State: PA County: YORK
NPDES ID: PAR203550 Permit Type: STORM WATER GENERAL
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 3315 STEEL WIRE DRAW & STEEL NAILS EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE
No physical address for the facility was listed.
Mailling address for facility-
Facility name: GDC/KEYSTONE WIRE CLOTH
Street : PO BOX 521
150 FACTORY STREET
City : HANOVER State: PA Zip: 17331
Receiving waters: OIL CREEK
Industrial Category (2-digit SIC): PLASTICS & RUBBER
Number of quarter years in non-compliance (out of 13 possible): 0

*

Facility name: HANOVER AREA REGIONAL WWTF
City: HANOVER State: PA County: YORK
NPDES ID: PAP026875 Permit Type: PRETREATER
This is a "minor" facility; PCS data may be incomplete.
SIC Code: EPA Region: 03
Facility Type: OTHER Owner Type: PUBLIC App. Type: STANDARD A
No physical address for the facility was listed.

outside watershed

River Basin: NA/SUSQUEHANNA R Segment: 00
Average design flow: 3.6500 (million gallons per day)
Contact Name: EDWARD REED, ENV. CONTROL Phone: 7176374112
This permit has been re-issued 2 times.
Industrial Category (2-digit SIC): ASPHALT SCRUBBERS
Number of outfalls for this permit: 3
Number of parameter limits in this permit: 279
Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: HANOVER AREA REGIONAL WWTF outside watershed.
City: HANOVER State: PA County: YORK
NPDES ID: PAL026875 Permit Type: SLUDGE NON-NPDES
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 4952 SEWERAGE SYSTEMS EPA Region: 03
Facility Type: MUNICIPAL Owner Type: PUBLIC
No physical address for the facility was listed.
Mailing address for facility-
Facility name: HANOVER BOROUGH
Street : 44 FREDRICK ST.
City : YORK COUNTY State: PA Zip: 17331
Contact Name: BRUCE REBERT Phone: 7176374112
Pretreatment program status: APPROVED PRET PGM
NPDES ID for control authority enforcing pretreatment regs: PAL026875
Industrial Category (2-digit SIC): ASPHALT SCRUBBERS
Number of outfalls for this permit: 3
Number of parameter limits in this permit: 27
Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: HANOVER KLONDIKE CO DIV OF CLA BIR CORP
877 YORK ST HANO VER PA17331 *
City: HANOVER State: PA County: YORK
NPDES ID: PA0080152 Permit Type: STANDARD
This facility became inactive on 04/25/1984.
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 2024 ICE CREAM AND FROZEN DESSERTS EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE App. Type: SHORT C
No physical address for the facility was listed.
Mailling address for facility-
Facility name: HANOVER KLONDIKE CO DIV OF CLA
Street : 877 YORK ST
City : HANOVER State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: OIL CREEK
The first permit for this facility was issued on 06/29/1979.
Industrial Category (2-digit SIC): FUEL SPILL CLEANUP
Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: HANOVER WWTF CONEWAGO TOWNSHIP outside watershed
ADAMS COUNTY
City: HANOVER State: PA County: YORK
NPDES ID: PA0026875 Permit Type: STANDARD
This is a major facility with no rating points.
SIC Code: 4952 SEWERAGE SYSTEMS EPA Region: 03
Facility Type: MUNICIPAL Owner Type: PUBLIC App. Type: STANDARD A
This discharger is in a major estuary or estuary drainage area.
No physical address for the facility was listed.
Mailling address for facility-
Facility name: HANOVER BOROUGH

Street : 44 FREDRICK ST.
City : YORK COUNTY State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: SOUTH BRANCH CONEWAGO CREEK
Average design flow: 3.6500 (million gallons per day)
The first permit for this facility was issued on 06/25/1974.
Contact Name: BRUCE REBERT/BORO MANAGER Phone: 7176373877
This permit has been re-issued 2 times.
Latitude/longitude: +3948150/-07701490
Pretreatment program status: APPROVED PRET PGM
Delay of Municipal Compliance Plan Schedule: ACHIEVED COMPLIANCE
Financial fitness of POTWs for Municipal Comp. Plan: QTR ENDING 9/30/86
Fiscal quarter when Munic. Compl. Plan schedule established: QTR ENDING 9/30/86
NPDES ID for control authority enforcing pretreatment regs: PA0026875
Industrial Category (2-digit SIC): ASPHALT SCRUBBERS
USGS Hydrologic Basin Code: 02050306
Number of outfalls for this permit: 3
Number of parameter limits in this permit: 17
Number of enforcement actions for this permit: 4
Number of inspections for this permit: 59
Number of quarter years in non-compliance (out of 21 possible): 6
Number of single event violations: 2
Number of compliance schedule violations: 1
Number of DMR effluent or non-receipt violations: 34

Facility name: JIFFY MANUFACTURING CO
237 RIDGE AVE HANO VER PA17331
City: HANOVER State: PA County: YORK
NPDES ID: PA0045918 Permit Type: STANDARD
This facility became inactive on 01/01/1992.
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 3081 UNSUPPORTED PLSTICS FILM/SHEET EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE App. Type: SHORT C
This discharger is in a major estuary or estuary drainage area.
No physical address for the facility was listed.
Mailling address for facility-
Facility name: JIFFY MANUFACTURING CO
Street : 237 RIDGE AVE
City : HANOVER State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: PLUM CREEK
Industrial Category (2-digit SIC): COAL MINING
Number of inspections for this permit: 2
Number of quarter years in non-compliance (out of 13 possible): 0

outside watershed

Facility name: KEYSTONE SENECA WIRE CLOTH CO
FACTORY STREET PO BOX 521 HANO VER PA17331
City: HANOVER State: PA County: YORK
NPDES ID: PA0007544 Permit Type: STANDARD
This facility became inactive on 04/25/1984.
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 3496 MISC. FABRICATED WIRE PRODUCTS EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE App. Type: RAPP
No physical address for the facility was listed.
Mailling address for facility-
Facility name: KEYSTONE SENECA WIRE CLOTH CO
Street : FACTORY STREET PO BOX 521
City : HANOVER State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: OIL CREEK

Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: PENN-MAR CASTINGS INC.
City: HANOVER State: PA County: YORK
NPDES ID: PAR203555 Permit Type: STORM WATER GENERAL
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 3321 GRAY IRON FOUNDRIES EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE
No physical address for the facility was listed.
Mailling address for facility-
Facility name: PENN-MAR CASTINGS INC
Street : 500 BROADWAY
City : HANOVER State: PA Zip: 17331
Receiving waters: OIL CREEK
Industrial Category (2-digit SIC): PLASTICS & RUBBER
Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: R H SHEPPARD COMPANY INC
City: HANOVER State: PA County: YORK
NPDES ID: PA0083526 Permit Type: STANDARD
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 3714 MOTOR VEHICLE PARTS & ACCESSOR EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE
No physical address for the facility was listed.
Mailling address for facility-
Facility name: R.H. SHEPPARD COMPANY, INC.
Street : 101 PHILADELPHIA STREET
P.O. BOX 459
City : HANOVER State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: UNT TO OIL CREEK
Average design flow: .0355 (million gallons per day)
The first permit for this facility was issued on 11/27/1989.
Contact Name: JAMES ROTH/V.P. MANUFACTURING Phone: 7176373751
Latitude/longitude: +3948200/-07758210
Industrial Category (2-digit SIC): FUEL SPILL CLEANUP
USGS Hydrologic Basin Code: 02070004
Number of inspections for this permit: 14
Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: REVONAH SPINNING MILLS
447 E MIDDLE ST PA17331
City: HANOVER State: PA County: YORK
NPDES ID: PA0043851 Permit Type: STANDARD
This facility became inactive on 04/25/1984.
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 2281 YARN SPIN MILLS:COTTON, MM FIB EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE App. Type: SHORT C
No physical address for the facility was listed.
Mailling address for facility-
Facility name: REVONAH SPINNING MILLS
Street : 447 E MIDDLE ST
City : State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: TRIB TO OIL CREEK
Industrial Category (2-digit SIC): COAL MINING
Number of quarter years in non-compliance (out of 13 possible): 0

Facility name: SKF INDUSTRIES INC
R D 3 HANO VER PA17331
City: HANOVER State: PA County: YORK
NPDES ID: PA0043117 Permit Type: STANDARD
This facility became inactive on 04/25/1984.
This is a "minor" facility; PCS data may be incomplete.
SIC Code: 3562 BALL AND ROLLER BEARINGS EPA Region: 03
Facility Type: INDUSTRIAL Owner Type: PRIVATE App. Type: SHORT C
No physical address for the facility was listed.
Mailling address for facility-
Facility name: SKF INDUSTRIES INC
Street : R D 3
City : HANOVER State: PA Zip: 17331
River Basin: NA/SUSQUEHANNA R Segment: 00
Receiving waters: UNNAMED TRIBUTARY OF OIL CREEK
Industrial Category (2-digit SIC): COAL MINING
Number of quarter years in non-compliance (out of 13 possible): 0

END OF REPORT

Area Report (TRI data)

About the Data

About RTK NET

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search used-

Zip Code:	17331
City:	ALL
County:	YORK
State:	PA
Chemical:	ALL
CAS:	ALL
Year:	1998
Database type: Current (last updated 5/10/2000)	
Level of Detail:	Summary
Output Type:	Text
Sort Order:	Facility name

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds.

This is a summary detail report -- a list of hits. If, instead, you would rather have all of the TRI data in your search in one file so that you can download it easily, choose this High detail link.

Facility Name	City	State	Total Releases	Total Waste

CROWN CORK & SEAL CO. INC.	HANOVER	PA	38,511	38,000
ESAB GROUP INC.	HANOVER	PA	1,350	123,930
FRAMATOME CONNECTORS USA INC.	HANOVER	PA	0	689,270
LEONHARDT MFG. CO.	HANOVER	PA	280	1,983
MCCLARIN PLASTICS INC.	HANOVER	PA	10,130	13,430
MCCLARIN PLASTICS INC.	HANOVER	PA	2,680	9,240
PACKING CORP. OF AMERICA	HANOVER	PA	5	231
PENN-MAR CASTINGS INC.	HANOVER	PA	6,700	6,700
R.H. SHEPPARD CO. INC.	HANOVER	PA	0	29,940
R.H. SHEPPARD CO. INC. FNDY. DIV.	HANOVER	PA	0	698,035
Total			59,656	1,610,759

END OF REPORT

Facility Report (TRI data)

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search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331CRWNC1650B
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

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If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	CROWN CORK & SEAL CO. INC.		
Address:	1650 BROADWAY HANOVER, PA 17331		
Mailing Name:	CROWN CORK & SEAL CO. INC.		
Mailing Address:	1650 BROADWAY HANOVER, PA 17331		
County:	YORK	EPA Region:	3
Lat/Long:	39.822251 / 76.973594	(decimal degrees)	
Parent Company:	CROWN CORK & SEAL CO. INC.	Parent D&B #:	002282341

Year:	1998	EPA ID:	PAD003018058
TRI ID:	17331CRWNC1650B	D&B Number:	002282341
Primary SIC:	3411 -- Metal Cans		

Breakdown of releases and waste (by chemical) follows:

Chemical Name: CERTAIN GLYCOL ETHERS
CAS Number: N230 (Name: CROWN CORK & SEAL CO. INC.)
SIC Code(s) for this chemical: 3411
Public contact for this chemical: RON VAN SANT Phone: 7176331163
Technical contact for this chemical: JEFF HAHN Phone: 7176331163
Maximum Amount On Site: 1,000 - 9,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	Yes
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	6,259	
Stack Air	22,013	
Total:	28,272	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	23,000	28,000	26,000	26,000
Total	23,000	28,000	26,000	26,000

Non-production-related waste: 0 (accidental or remedial)
Total waste : 28,000 (Production & Non-Production)
Production Ratio: 0.82

Methods of source reduction used-
NA

Chemical Name: N-BUTYL ALCOHOL
CAS Number: 000071363 (Name: CROWN CORK & SEAL CO. INC.)
SIC Code(s) for this chemical: 3411
Public contact for this chemical: RON VAN SANT Phone: 7176331163
Technical contact for this chemical: JEFF HAHN Phone: 7176331163
Maximum Amount On Site: 100 - 999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	Yes
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	2,340	
Stack Air	7,899	
Total:	10,239	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	0	10,000	10,000	10,000
Total	0	10,000	10,000	10,000

Non-production-related waste: 0 (accidental or remedial)
Total waste : 10,000 (Production & Non-Production)
Production Ratio: 0.82

Methods of source reduction used-
NA

Totals for all chemicals for CROWN CORK & SEAL CO. INC.

Releases and Transfers-	
Fugitive air:	8,599
Stack Air:	29,912
Total Releases:	38,511
Total releases and transfers:	38,511

Total Production-Related Waste :	38,000
Total Non-Production-Related Waste :	0
Production-related waste managed by-	
Release On-site or Disposal Off-site:	38,000

END OF REPORT

About the Data

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Facility Report (TRI data)

search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331LLYRDKAREN
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	ESAB GROUP INC.		
Address:	1500 KAREN LN. HANOVER, PA 17331		
Mailing Name:	ESAB GROUP INC.		
Mailing Address:	1500 KAREN LN. HANOVER, PA 17331		
County:	YORK	EPA Region:	3
Lat/Long:	39.813611 / 76.958611	(decimal degrees)	
Parent Company:	CHARTER PLC	Parent D&B #:	NA
Year:	1998	EPA ID:	PAD003026655
TRI ID:	17331LLYRDKAREN	D&B Number:	130418346

Primary SIC: 3548 -- Welding Apparatus

Breakdown of releases and waste (by chemical) follows:

Chemical Name: BARIUM COMPOUNDS
CAS Number: N040 (Name: ESAB GROUP INC.)
SIC Code(s) for this chemical: 3548
Public contact for this chemical: KATHY DUERR Phone: 7176378911
Technical contact for this chemical: JAMES BISHOFF Phone: 7176303227
Maximum Amount On Site: 10,000 - 99,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	Yes
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	30	
POTW Transfer	37	To: PENN TOWNSHIP WWTP, HANOVER, PA
POTW Transfer	37	To: PENN TOWNSHIP WWTP, HANOVER, PA
Offsite Trans.	440	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	130	To: L. LAVETAN & SONS, INC., YORK, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	20	To: ENVIRITE CORPORATION, YORK, PA Using: Wastewater Treatment (Excluding POTW)
Total:	693	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	680	600	1,000	1,000
Recycling Offsite	110	130	200	200
Treatment Offsite	25	0	0	0
Total	815	730	1,200	1,200

Non-production-related waste: 0 (accidental or remedial)
Total waste : 730 (Production & Non-Production)
Production Ratio: 1.09

Methods of source reduction used-
NA

Chemical Name: CHROMIUM
CAS Number: 007440473 (Name: ESAB GROUP INC.)
SIC Code(s) for this chemical: 3548
Public contact for this chemical: KATHY DUERR Phone: 7176378911
Technical contact for this chemical: JAMES BISHOFF Phone: 7176303227
Maximum Amount On Site: 100,000 - 999,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	Yes
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	200	
POTW Transfer	25	To: PENN TOWNSHIP WWTP, HANOVER, PA
Offsite Trans.	4,400	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	18,500	To: L. LAVETAN & SONS, INC., YORK, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	220	To: ENVIRITE CORPORATION, YORK, PA Using: Wastewater Treatment (Excluding POTW)
Total:	23,345	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	6,700	4,800	8,000	8,000
Recycling Onsite	4,000	1,700	4,000	4,000
Recycling Offsite	12,000	18,500	17,000	17,000
Treatment Offsite	270	0	0	0
Total	22,970	25,000	29,000	29,000

Non-production-related waste: 0 (accidental or remedial)
Total waste : 25,000 (Production & Non-Production)
Production Ratio: 1.09

Methods of source reduction used-
INSTITUTED BETTER CONTROLS ON OPERATING BULK CONTAINERS TO MINIMIZE DISCARDING

Chemical Name: MANGANESE COMPOUNDS
CAS Number: N450 (Name: ESAB GROUP INC.)
SIC Code(s) for this chemical: 3548
Public contact for this chemical: KATHY DUERR Phone: 7176378911
Technical contact for this chemical: JAMES BISHOFF Phone: 7176303227
Maximum Amount On Site: 100,000 - 999,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	Yes
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	1,000	
POTW Transfer	3	To: PENN TOWNSHIP WWTP, HANOVER, PA
Offsite Trans.	36,000	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	12,900	To: L. LAVETAN & SONS, INC., YORK, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	1,800	To: ENVIRITE CORPORATION, YORK, PA Using: Wastewater Treatment (Excluding POTW)
Total:	51,703	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	54,000	38,800	60,000	60,000
Recycling Onsite	13,000	29,300	20,000	20,000
Recycling Offsite	11,000	12,900	15,000	15,000
Treatment Offsite	2,200	0	0	0
Total	80,200	81,000	95,000	95,000

Non-production-related waste: 0 (accidental or remedial)

Total waste : 81,000 (Production & Non-Production)
Production Ratio: 1.09

Methods of source reduction used-
INSTITUTED BETTER CONTROLS ON OPERATING BULK CONTAINERS TO MINIMIZE DISCARDING

Chemical Name: NICKEL
CAS Number: 007440020 (Name: ESAB GROUP INC.)
SIC Code(s) for this chemical: 3548
Public contact for this chemical: KATHY DUERR Phone: 7176378911
Technical contact for this chemical: JAMES BISHOFF Phone: 7176303227
Maximum Amount On Site: 10,000 - 99,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	Yes
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	90	
POTW Transfer	3	To: PENN TOWNSHIP WWTP, HANOVER, PA
Offsite Trans.	2,400	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	8,300	To: L. LAVETAN & SONS, INC., YORK, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	110	To: ENVIRITE CORPORATION, YORK, PA Using: Wastewater Treatment (Excluding POTW)
Total:	10,903	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	3,500	2,600	5,000	5,000
Recycling Onsite	1,800	800	2,000	2,000
Recycling Offsite	7,000	8,300	8,000	8,000
Treatment Offsite	140	0	0	0
Total	12,440	11,700	15,000	15,000

Non-production-related waste: 0 (accidental or remedial)
Total waste : 11,700 (Production & Non-Production)
Production Ratio: 1.09

Methods of source reduction used-
INSTITUTED BETTER CONTROLS ON OPERATING BULK CONTAINERS TO MINIMIZE DISCARDING

Chemical Name: ZINC COMPOUNDS
CAS Number: N982 (Name: ESAB GROUP INC.)
SIC Code(s) for this chemical: 3548
Public contact for this chemical: KATHY DUERR Phone: 7176378911
Technical contact for this chemical: JAMES BISHOFF Phone: 7176303227
Maximum Amount On Site: 10,000 - 99,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	Yes
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	30	
POTW Transfer	33	To: PENN TOWNSHIP WWTP, HANOVER, PA
Offsite Trans.	1,500	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	720	To: L. LAVETAN & SONS, INC., YORK, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	120	To: ENVIRITE CORPORATION, YORK, PA Using: Wastewater Treatment (Excluding POTW)
Total:	2,403	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	2,700	1,700	5,000	5,000
Recycling Onsite	1,300	3,100	2,000	2,000
Recycling Offsite	1,100	700	2,000	2,000
Treatment Offsite	230	0	0	0
Total	5,330	5,500	9,000	9,000

Non-production-related waste: 0 (accidental or remedial)
Total waste : 5,500 (Production & Non-Production)
Production Ratio: 1.09

Methods of source reduction used-
INSTITUTED BETTER CONTROLS ON OPERATING BULK CONTAINERS TO MINIMIZE DISCARDING

Totals for all chemicals for ESAB GROUP INC.

Releases and Transfers-	
Fugitive air:	1,350
Total Releases:	1,350
POTW Transfer:	137
Recycling Transfer:	40,550
Treatment Transfer:	2,270

Disposal Transfer:	44,740
Total Transfers:	87,697
Total releases and transfers:	89,047

Total Production-Related Waste :	123,930
Total Non-Production-Related Waste :	0
Production-related waste managed by-	
Recycling On-site:	34,900
Recycling Off-site:	40,530
Release On-site or Disposal Off-site:	48,500

END OF REPORT

Facility Report (TRI data)

About the Data

About RTK NET

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search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331BRNDY504FA
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	FRAMATOME CONNECTORS USA INC.	
Address:	504 FAME AVE. HANOVER, PA 17331	
Mailing Name:	FRAMATOME CONNECTORS USA INC.	
Mailing Address:	504 FAME AVE. HANOVER, PA 17331	
County:	YORK	EPA Region: 3
Lat/Long:	39.812778 / 76.954722	(decimal degrees)

Parent Company:	FCI	Parent D&B #:	NA
Year:	1998	EPA ID:	PAD134752583
TRI ID:	17331BRNDY504FA	D&B Number:	001184167
Primary SIC:	3678 -- Electronic Connectors		

Breakdown of releases and waste (by chemical) follows:

Chemical Name: COPPER
CAS Number: 007440508 (Name: FRAMATOME CONNECTORS USA INC.)
SIC Code(s) for this chemical: 3678
Public contact for this chemical: GARY L. HORNING Phone: 7176303713
Technical contact for this chemical: GARY L. HORNING Phone: 7176303713
Maximum Amount On Site: 100,000 - 999,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	Yes
Manufacture the chemical for on-site use/processing:	Yes
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
POTW Transfer	5	To: PENN TOWNSHIP, HANOVER, PA
Offsite Trans.	160	To: WORLD RESOURCES CO., POTTSVILLE, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	689,108	To: DULIN METALS, SCHILLER PARK, IL Using: Metals Recovery
Total:	689,273	

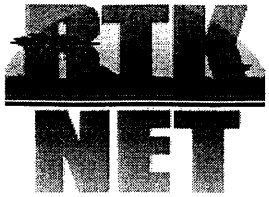
Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Recycling Offsite	785,114	689,268	634,126	583,395
Treatment Offsite	2	2	2	2
Total	785,116	689,270	634,128	583,397

Non-production-related waste: 0 (accidental or remedial)
Total waste : 689,270 (Production & Non-Production)
Production Ratio: 1.34

Methods of source reduction used-
OTHER CHANGES IN OPERATING PRACTICES

END OF REPORT



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About RTK NET

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Facility Report (TRI data)

search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331PCKNG435GI
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

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All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	PACKING CORP. OF AMERICA		
Address:	435 GITTS RUN RD. HANOVER, PA 17331		
Mailing Name:	PACKING CORP. OF AMERICA		
Mailing Address:	435 GITTS RUN RD. HANOVER, PA 17331		
County:	YORK	EPA Region:	3
Lat/Long:	0394911 / 0794813	(degrees, minutes, seconds)	
Parent Company:	PACKAGING CORP. OF AMERICA	Parent D&B #:	060047151
Year:	1998	EPA ID:	PAD987338233

TRI ID: 17331PCKNG435GI D&B Number: 060047151
Primary SIC: 2653 -- Corrugated and Solid Fiber Boxes

Breakdown of releases and waste (by chemical) follows:

Chemical Name: NITRATE COMPOUNDS
CAS Number: N511 (Name: PACKING CORP. OF AMERICA)
SIC Code(s) for this chemical: 2653
Public contact for this chemical: WARREN HAZELTON Phone: 8474822304
Technical contact for this chemical: PETER M. SHOVLIN Phone: 7176301500
Maximum Amount On Site: 1,000 - 9,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Stack Air	5	
POTW Transfer	250	To: PENN TOWNSHIP WASTE WATER TREATMENT PLT., HANOVER, PA
Offsite Trans.	250	To: H.B. FULLER CO., EDISON, NJ Using: Other Reuse or Recovery
Total:	505	

Management of production-related waste-

Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	0	1	1	1
Recycling Offsite	0	153	153	153
Treatment Offsite	0	77	77	77
Total	0	231	231	231

Non-production-related waste: 0 (accidental or remedial)
Total waste : 231 (Production & Non-Production)
Production Ratio:

Methods of source reduction used-
NA

END OF REPORT

Facility Report (TRI data)

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search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331PNNMR500BR
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	PENN-MAR CASTINGS INC.		
Address:	500 BROADWAY HANOVER, PA 17331		
Mailing Name:	PENN-MAR CASTINGS INC.		
Mailing Address:	500 BROADWAY HANOVER, PA 17331		
County:	YORK	EPA Region:	3
Lat/Long:	39.805000 / 76.980000	(decimal degrees)	
Parent Company:	NA	Parent D&B #:	NA
Year:	1998	EPA ID:	PAR000008789
TRI ID:	17331PNNMR500BR	D&B Number:	184562635

Primary SIC: 3321 -- Gray and Ductile Iron Foundries

Breakdown of releases and waste (by chemical) follows:

Chemical Name: CHROMIUM COMPOUNDS
CAS Number: N090 (Name: PENN-MAR CASTINGS INC.)
SIC Code(s) for this chemical: 3321
Public contact for this chemical: Phone:
Technical contact for this chemical: ROBERT W. NAGLE Phone: 7176324165
A Certification Statement (that releases and waste for this chemical were less than 500 pounds) was filed. No other information is available.
Chemical Name: METHANOL
CAS Number: 000067561 (Name: PENN-MAR CASTINGS INC.)
SIC Code(s) for this chemical: 3321
Public contact for this chemical: JOHN LEMMERMAN Phone: 7176324165
Technical contact for this chemical: ROBERT W. NAGLE Phone: 7176324165
Maximum Amount On Site: 1,000 - 9,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	No
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	Yes
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Fugitive Air	6,700	
Total:	6,700	

Management of production-related waste-

Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	8,600	6,700	7,500	7,500
Total	8,600	6,700	7,500	7,500

Non-production-related waste: 0 (accidental or remedial)
Total waste : 6,700 (Production & Non-Production)
Production Ratio: 0.93

Methods of source reduction used-
NA

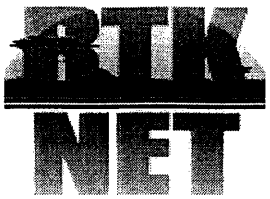
Chemical Name: PHENOL
CAS Number: 000108952 (Name: PENN-MAR CASTINGS INC.)
SIC Code(s) for this chemical: 3321
Public contact for this chemical: Phone:
Technical contact for this chemical: ROBERT W. NAGLE Phone: 7176324165
A Certification Statement (that releases and waste for this chemical were less than 500 pounds) was filed. No other information is available.

Totals for all chemicals for PENN-MAR CASTINGS INC.

Releases and Transfers-	
Fugitive air:	6,700
Total Releases:	6,700
Total releases and transfers:	6,700

Total Production-Related Waste :	6,700
Total Non-Production-Related Waste :	0
Production-related waste managed by-	
Release On-site or Disposal Off-site:	6,700

END OF REPORT



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Facility Report (TRI data)

search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331RHSHP101PH
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	R.H. SHEPPARD CO. INC.		
Address:	101 PHILADELPHIA ST. HANOVER, PA 17331		
Mailing Name:	R.H. SHEPPARD CO. INC.		
Mailing Address:	101 PHILADELPHIA ST. HANOVER, PA 17331		
County:	YORK	EPA Region:	3
Lat/Long:	39.806944 / 76.976389	(decimal degrees)	
Parent Company:	R.H. SHEPPARD CO. INC.	Parent D&B #:	NA
Year:	1998	EPA ID:	PAD003008521
TRI ID:	17331RHSHP101PH	D&B Number:	003008521

Primary SIC: 3714 -- Motor Vehicle Parts and Accessories

Breakdown of releases and waste (by chemical) follows:

Chemical Name: MANGANESE
CAS Number: 007439965 (Name: R.H. SHEPPARD CO. INC.)
SIC Code(s) for this chemical: 3714
Public contact for this chemical: JULIE L. SMITH Phone: 7176373751
Technical contact for this chemical: JULIE L. SMITH Phone: 7176373751
Maximum Amount On Site: 1,000 - 9,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Offsite Trans.	24,940	To: STAIMAN BROTHERS, INC., WILLIAMSPORT, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	5,000	To: WAGAMAN IRON & METAL, GETTYSBURG, PA Using: Transfer to Waste Broker-Recycling
Total:	29,940	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Recycling Offsite	31,410	29,940	36,600	36,600
Total	31,410	29,940	36,600	36,600

Non-production-related waste: 0 (accidental or remedial)
Total waste : 29,940 (Production & Non-Production)
Production Ratio: 1.19

Methods of source reduction used-
NA

Chemical Name: METHANOL
CAS Number: 000067561 (Name: R.H. SHEPPARD CO. INC.)
SIC Code(s) for this chemical: 3714
Public contact for this chemical: Phone:
Technical contact for this chemical: JULIE L. SMITH Phone: 7176373751
A Certification Statement (that releases and waste for this chemical were less than 500 pounds) was filed. No other information is available.

Totals for all chemicals for R.H. SHEPPARD CO. INC.

Releases and Transfers-	
Recycling Transfer:	29,940
Total Transfers:	29,940
Total releases and transfers:	29,940

Total Production-Related Waste :	29,940
Total Non-Production-Related Waste :	0
Production-related waste managed by-	
Recycling Off-site:	29,940

END OF REPORT

Facility Report (TRI data)

About the Data

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Resources

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search used-

Facility name:	ALL
City:	ALL
State:	ALL
TRI Facility ID:	17331RHSHP247EM
Year:	1998
Database type:	Current (last updated 5/10/2000)
Level of Detail:	High
Output Type:	Text
Sort Order:	

This search was taken from RTK NET's (the Right-To-Know Network)'s copy of EPA's TRIS database. RTK NET is run by OMB Watch at 1742 Connecticut Ave., NW, Washington DC, 20009 - Phone: 202-234-8494 (hours 9:00 AM -- 6:00 PM EST) The search was done on 12/08/2000.

If you don't see the words *END OF REPORT* at the end of this search, then this Web search didn't complete -- back up and try it again.

All release, transfer, and waste quantities in TRI are in pounds. On the Web, data from the TRI database appear in this report colored like this.

This is a high detail report. You can see it, instead, as a list of hits by choosing this Summary detail link.

Facility Name:	R.H. SHEPPARD CO. INC. FNDY. DIV.		
Address:	REAR 447 E. MIDDLE ST. HANOVER, PA 17331		
Mailing Name:	R.H. SHEPPARD CO. INC.		
Mailing Address:	101 PHILADELPHIA ST. HANOVER, PA 17331		
County:	YORK	EPA Region:	3
Lat/Long:	39.805556 / 76.972500	(decimal degrees)	
Parent Company:	R.H. SHEPPARD CO. INC.	Parent D&B #:	NA
Year:	1998	EPA ID:	PAD000820670
TRI ID:	17331RHSHP247EM	D&B Number:	003008521

Primary SIC: 3321 -- Gray and Ductile Iron Foundries

Breakdown of releases and waste (by chemical) follows:

Chemical Name: CHROMIUM
CAS Number: 007440473 (Name: R.H. SHEPPARD CO. INC. FNDY. D)
SIC Code(s) for this chemical: 3321
Public contact for this chemical: JULIE L. SMITH Phone: 7176373751
Technical contact for this chemical: JULIE L. SMITH Phone: 7176373751
Maximum Amount On Site: 10,000 - 99,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Offsite Trans.	5	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	2,830	To: STAIMAN BROTHERS, INC., WILLIAMSPORT, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	60	To: LANCASTER CO. SOLID WASTE MGMT FREY FARM LANDFILL, CONESTOGA, PA Using: Other Reuse or Recovery
Offsite Trans.	10	To: D.M. STOLTZFUS, LEOLA, PA Using: Other Reuse or Recovery

Offsite Trans.	30	To: CLEAN ROCK INDUSTRIES, HAGERSTOWN, MD Using: Other Reuse or Recovery
Offsite Trans.	230	To: WAGAMAN IRON & METAL, GETTYSBURG, PA Using: Transfer to Waste Broker-Recycling
Total:	3,165	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	80	5	20	15
Recycling Onsite	31,900	37,895	46,880	42,190
Recycling Offsite	2,580	3,160	3,895	3,510
Total	34,560	41,060	50,795	45,715

Non-production-related waste: 0 (accidental or remedial)
Total waste : 41,060 (Production & Non-Production)
Production Ratio: 1.06

Methods of source reduction used-
NA

Chemical Name: COPPER
CAS Number: 007440508 (Name: R.H. SHEPPARD CO. INC. FNDY. D)
SIC Code(s) for this chemical: 3321
Public contact for this chemical: JULIE L. SMITH Phone: 7176373751
Technical contact for this chemical: JULIE L. SMITH Phone: 7176373751
Maximum Amount On Site: 100,000 - 999,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No

Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Offsite Trans.	15	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	19,830	To: STAIMAN BROTHERS, INC., WILLIAMSPORT, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	245	To: LANCASTER CO. SOLID WASTE MGMT FREY FARM LANDFILL, CONESTOGA, PA Using: Other Reuse or Recovery
Offsite Trans.	50	To: D.M. STOLTZFUS, LEOLA, PA Using: Other Reuse or Recovery
Offsite Trans.	120	To: CLEAN ROCK INDUSTRIES, HAGERSTOWN, MD Using: Other Reuse or Recovery
Offsite Trans.	1,620	To: WAGAMAN IRON & METAL, GETTYSBURG, PA Using: Transfer to Waste Broker-Recycling
Total:	21,880	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	420	15	75	65
Recycling Onsite	289,090	265,550	328,570	295,650
Recycling Offsite	16,700	21,865	26,980	24,280
Total	306,210	287,430	355,625	319,995

Non-production-related waste: 0 (accidental or remedial)
Total waste : 287,430 (Production & Non-Production)
Production Ratio: 1.06

Methods of source reduction used-
NA

Chemical Name: MANGANESE
CAS Number: 007439965 (Name: R.H. SHEPPARD CO. INC. FNDY. D)

SIC Code(s) for this chemical: 3321
Public contact for this chemical: JULIE L. SMITH Phone: 7176373751
Technical contact for this chemical: JULIE L. SMITH Phone: 7176373751
Maximum Amount On Site: 100,000 - 999,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Offsite Trans.	185	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	14,160	To: STAIMAN BROTHERS, INC., WILLIAMSPORT, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	3,010	To: LANCASTER CO. SOLID WASTE MGMT FREY FARM LANDFILL, CONESTOGA, PA Using: Other Reuse or Recovery
Offsite Trans.	640	To: D.M. STOLTZFUS, LEOLA, PA Using: Other Reuse or Recovery
Offsite Trans.	1,440	To: CLEAN ROCK INDUSTRIES, HAGERSTOWN, MD Using: Other Reuse or Recovery
Offsite Trans.	1,160	To: WAGAMAN IRON & METAL, GETTYSBURG, PA Using: Transfer to Waste Broker-Recycling
Total:	20,595	

Management of production-related waste-

Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	2,540	185	900	810
Recycling Onsite	155,400	184,700	228,760	205,885
Recycling Offsite	14,850	20,410	24,310	21,880
Total	172,790	205,295	253,970	228,575

Non-production-related waste: 0 (accidental or remedial)
Total waste : 205,295 (Production & Non-Production)
Production Ratio: 1.06

Methods of source reduction used-
NA

Chemical Name: NICKEL
CAS Number: 007440020 (Name: R.H. SHEPPARD CO. INC. FNDY. D)
SIC Code(s) for this chemical: 3321
Public contact for this chemical: JULIE L. SMITH Phone: 7176373751
Technical contact for this chemical: JULIE L. SMITH Phone: 7176373751
Maximum Amount On Site: 100,000 - 999,999 lbs (Year: 1998)

Activities and Uses of the toxic chemical at the facility-

Produce (manufacture) the chemical:	No
Import (manufacture) the chemical:	No
Manufacture the chemical for on-site use/processing:	No
Manufacture the chemical for sale/distribution:	No
Manufacture the chemical as a byproduct:	No
Manufacture the chemical as an impurity:	No
Process the chemical as a reactant:	No
Process the chemical as a formulation component:	No
Process the chemical as an article component:	Yes
Process the chemical for repackaging:	No
Otherwise use the chemical as a chemical processing aid:	No
Otherwise use the chemical as a manufacturing aid:	No
Otherwise use the chemical for ancillary or other use:	No

Individual releases and transfers-

Medium	Release (lbs)	Destination or Method Used
Offsite Trans.	5	To: MODERN LANDFILL, YORK, PA Using: Landfill/Disposal Surface Impoundment
Offsite Trans.	11,330	To: STAIMAN BROTHERS, INC., WILLIAMSPORT, PA Using: Transfer to Waste Broker-Recycling
Offsite Trans.	60	To: LANCASTER CO. SOLID WASTE MGMT FREY FARM LANDFILL, CONESTOGA, PA Using: Other Reuse or Recovery
Offsite Trans.	10	To: D.M. STOLTZFUS, LEOLA, PA Using: Other Reuse or Recovery
Offsite Trans.	30	To: CLEAN ROCK INDUSTRIES, HAGERSTOWN, MD Using: Other Reuse or Recovery
Offsite Trans.	930	To: WAGAMAN IRON & METAL, GETTYSBURG, PA Using: Transfer to Waste Broker-Recycling
Total:	12,365	

Management of production-related waste-
Quantities for 1999 and 2000 years below are estimates for future years.

Quantity	1997 amount	1998 amount	1999 amount	2000 amount
Release Onsite or Disposal Offsite	110	5	20	15
Recycling Onsite	127,290	151,885	187,885	169,095
Recycling Offsite	10,910	12,360	15,275	13,750
Total	138,310	164,250	203,180	182,860

Non-production-related waste: 0 (accidental or remedial)
Total waste : 164,250 (Production & Non-Production)
Production Ratio: 1.06

Methods of source reduction used-
NA

Totals for all chemicals for R.H. SHEPPARD CO. INC. FNDY. DIV.

Releases and Transfers-	
Recycling Transfer:	57,795
Disposal Transfer:	210
Total Transfers:	58,005
Total releases and transfers:	58,005

Total Production-Related Waste :	698,035
Total Non-Production-Related Waste :	0
Production-related waste managed by-	
Recycling On-site:	640,030
Recycling Off-site:	57,795
Release On-site or Disposal Off-site:	210

END OF REPORT

# of permits	Company Name	Permit Name	Permit Number	PRIMARY_FACILITY TYPE	PRIMARY_FACILITY KIND	Municipality Name	County Name	Permit Status
1	LIVINGSTON FRED	LIVINGSTON QUARRY	67880801	Industrial Minerals	Surface Small <2,000 Tons	CARROLL	YORK	Active
2	LIVINGSTON FRED	LIVINGSTON CARROLL QUARRY	67880803	Industrial Minerals	Surface Small <2,000 Tons	CARROLL	YORK	Reclamation Complete
3	OHRUM DONALD R	DONALD R. OHRUM	67870802	Industrial Minerals	Surface Small <2,000 Tons	CARROLL	YORK	Reclamation Complete
4	GLEN GERY CORP	GLEN-GERY CORP./YORK-REHM QUARRY	67830301	Industrial Minerals	Surface Large	CONEWAGO	YORK	Active
5	GLEN GERY CORP	GLEN GERY CORP/YORK-DOVER	4875SM2	Industrial Minerals	Surface Large	DOVER	YORK	Active
6	GLEN GERY CORP	GLEN GERY YORK BINDER QUARRY	67990301	Industrial Minerals	Surface Large	DOVER	YORK	Not started
7	CODORUS STONE & SUPPLY CO INC	CODORUS EMIGSVILLE QUARRY	67910301	Industrial Minerals	Surface Large	EAST MANCHESTER	YORK	Active
8	CODORUS STONE & SUPPLY CO INC	CODORUS EMIGSVILLE 2 QUARRY	67960301	Industrial Minerals	Surface Large	EAST MANCHESTER	YORK	Active
9	WASTE MGMT DISP SVCS PA INC	WASTE MGMT DISP SVCS OF PA SAGINAW QUARRY	67860302	Industrial Minerals	Surface Large	EAST MANCHESTER	YORK	Reclamation Complete
10	HEMPT BROS INC	HEMPT BROS/HEMPT LIMESTONE QUARRY	4873SM11	Industrial Minerals	Surface Large	FAIRVIEW	YORK	Reclamation Complete
11	HEMPT BROS INC	HEMPT BROS INC./HEMPT SHALE PIT	67860301	Industrial Minerals	Surface Large	FAIRVIEW	YORK	Active
12	CNTY LINE QUARRY INC	CNTY LINE WRIGHTSVILLE QUARRY	4874SM1	Industrial Minerals	Surface Large	HELLAM	YORK	Active
13	CNTY LINE QUARRY INC	CNTY LINE WRIGHTSVILLE QUARRY	67930301	Industrial Minerals	Surface Large	HELLAM	YORK	Active
14	OMYA INC	OMYA INC/THOMSVILLE QUARRY	4873SM7	Industrial Minerals	Surface Large	JACKSON	YORK	Reclamation Complete
15	SOUTHDOWN INC	SOUTHDOWN THOMASVILLE QUARRY	4874SM2	Industrial Minerals	Surface Large	JACKSON	YORK	Active
16	SOUTHDOWN INC	SOUTHDOWN THOMASVILLE QUARRY	67000301	Industrial Minerals	Surface Large	JACKSON	YORK	Proposed_Awaiting auth decision
17	YORK BLDG PROD CO INC	YORK BLDG PROD THOMASVILLE QUARRY	6376SM2	Industrial Minerals	Surface Large	JACKSON	YORK	Active
18	YORK BLDG PROD CO INC	YORK BLDG PROD LINCOLN STONE QUARRY	67920301	Industrial Minerals	Surface Large	JACKSON	YORK	Active
19	CODORUS STONE & SUPPLY CO INC	CODORUS STONE & SUPPLY EMIGSVILLE QUARRY	4873SM10	Industrial Minerals	Surface Large	MANCHESTER	YORK	Active
20	RE FINK & SONS	RE FINK & SONS/FINK QUARRY	67950801	Industrial Minerals	Surface Small <2,000 Tons	NEWBERRY	YORK	Active
21	H & H GEN EXCAVATING INC	H & H GENERAL EXCAV INC/N CODORUS QUARRY	67870801	Industrial Minerals	Surface Small <2,000 Tons	NORTH CODORUS	YORK	Reclamation Complete
22	YORK SILICA SAND INC	YORK SILICA SAND QUARRY	4873SM3	Industrial Minerals	Surface Large	SPRINGETTSBURY	YORK	Active
23	BESTONE CORP	BESTONE LIMESTONE QUARRY	4873SM4	Industrial Minerals	Surface Large	WEST MANCHESTER	YORK	Reclamation Complete
24	GLOBAL STONE PENROC INC	GLOBAL STONE PENROC ENSMINGER QUARRY	4873SM5	Industrial Minerals	Surface Large	WEST MANCHESTER	YORK	Active
25	GLOBAL STONE PENROC INC	GLOBAL STONE PENROC CONSOLIDATED QUARRY	4873SM6	Industrial Minerals	Surface Large	WEST MANCHESTER	YORK	Active
26	GLOBAL STONE PENROC INC	GLOLAB STONE PENROC WILLIAMS QUARRY	4873SM8	Industrial Minerals	Surface Large	WEST MANCHESTER	YORK	Active
27	JE BAKER CO	BAKER YORK QUARRY	4873SM1	Industrial Minerals	Surface Large	WEST MANCHESTER	YORK	Active
28	YORK BLDG PROD CO INC	YORK BLDG PROD WEST GATE QUARRY	67730402	Industrial Minerals	Surface Large	WEST MANCHESTER	YORK	Active
29	GLEN GERY CORP	GLEN GERY CORP/YORK-YORK	4875SM1	Industrial Minerals	Surface Large	YORK	YORK	Active
30	YORK BLDG PROD CO INC	YORK BLDG PROD ROOSEVELT QUARRY	67870301	Industrial Minerals	Surface Large	YORK	YORK	Active
31	PENNSY SUPPLY INC	PENNSY SUPPLY/YORK HAVEN	4875SM3	Industrial Minerals	Surface Large	YORK HAVEN	YORK	Reclamation Complete

NPDES Dischargers Located in the Upper Codorus Creek Watershed

Permit #	Permitee	Expiration Date	Receiving Water	Volume (MGD)
PA 0044741	Hanover Foods Corporation	4/1/05	Oil Creek	0.7
37150	Penn Township Waste Water Treatment	7/12/05	Oil Creek	4.2
PA0083526	R.H. Sheppard Co.	11/1/05	Oil Creek	0.1
PA0008869	P.H. Glatfelter Company	10/1/05	Codorus Creek	19.9

AQUATIC PLANTS

Common Names	Scientific Names
Sweet flag	Acorus calamus
	Anacharis canadensis
Blue-green algae	Anacystis sp.
Yellow-green algae	Asterionella sp.
Coontail	Ceratophyllum demersum
Stonewort	Chara sp.
Red-osier dogwood	Cornus sp.
Spike rush	Elecharis obtusa
Waterweed	Elodea canadensis
Yellow-green algae	Fragilaria sp.
Blue-green algae	Gomphospaeria sp.
Quillwort	Isoetes sp.
Rush	Juncus sp.
False loosestrife	Ludwigia sp.
Water milfoil	Myriophyllum exalbescens
Bushy pondweed	Najas flexilis
Bushy pondweed	Najas minor
Pondweed	Potamogeton sp.
Willow	Salix sp.
Cattail	Typha sp.

TERRESTRIAL PLANTS

Ferns

Common Names	Scientific Names
Northern maidenhair	Adiantum pedatum
Ebony spleenwort	Asplenium platyneuron
Marginal shield fern	Dryopteris marginalis
Sensitive fern	Onoclea sensibilis
Southern beech fern	Phegopteris hexagonoptera
Christmas fern	Polystichum acrostichoides

Grasses

Common Names	Scientific Names
Upland bent	Agrostis perennans
Little blue stem	Andropogon scoparius
Long-awned wood grass	Brachyelytrum erectum
Wood reedgrass	Cinna arundinacea
Poverty grass	Danthonia spicata
Wild rye	Elymus riparius
Terrell grass	Elymus virginicus
Lace grass	Eragrostis capillaris
Love grass	Eragrostis pectinacea
Purple love grass	Eragrostis spectabilis
Fowl meadow grass	Glyceria striata
Bottle-brush-grass	Hystrix patula
Rice cut grass	Leersia oryzoides
Whitegrass	Leersia virginica
Nimblewill	Muhlenbergia schreberi
	Muhlenbergia sylvatica
	Panicum Anceps
Old witch grass	Panicum capillare + var. occiden
Fall panicum	Panicum dichotomiflorum
Knot grass	Paspalum laeve
Red canary grass	Phalaris arindinacea
Indian grass	Sorghastrum nutans
Purple-top	Triodia flava "forma cuorea"

Mushrooms

Common Names	Scientific Names
Rodman's mushroom	Agaricus rodmani
Fly agaric	Amaninta muscaria
Puffball	Lycoperdon sp.
Esculent morel	Morchella esculenta
	Polyporus frondosus

Sedges

Common Names	Scientific Names
	Carex annectens var. xanthocarpa
	Carex artitecta
	Carex blanda
	Carex bromoides
	Carex cephalophora
	Carex communis
	Carex crinita
	Carex emmonsii
	Carex gracillima
	Carex grayii var. hispidula
	Carex hirsutella
	Carex lupulina
	Carex lurida
	Carex normalis
	Carex pensylvanica
	Carex platyphylla
	Carex rosea
	Carex squarrosa
	Cyperus flavescens
	Cyperus strigosus
	Eleocharis acicularis
	Eleocharis obtusa
	Eleocharis tenuis
	Scirpus pendulus
	Scirpus validus "var. creber"

Trees & Shrubs

Common Names	Scientific Names
Red maple	Acer rubrum
Smooth alder	Alnus serrulata
Gray birch	Betula populifolia
Ironwood	Carpinus caroliniana
Shagbark hickory	Carya ovata
Chestnut	Castanea dentata

Hackberry	Celtis occidentalis
Redbud	Cercis canadensis
Silky dogwood	Cornus amomum
Flowering dogwood	Cornus florida
Gray dogwood	Cornus racemosa
American beech	Fagus grandifolia
White ash	Fraxinus americana
Black ash	Fraximus nigra
Butternut	Juglans cinerea
Black walnut	Juglans nigra
Eastern red cedar	Juniperus virginiana
Larch	Larix sp.
Spicebush	Lindera benzoin
Yellow poplar	Liriodendron tulipifera
Norway spruce	Picea abies
Blue spruce	Picea pungens
Pitch pine	Pinus rigida
White pine	Pinus strobus
Scotch pine	Pinus sylvestris
Sycamore	Platanus occidentalis
Bigtooth aspen	Populus grandidentata
Quaking aspen	Populus tremuloides
Black cherry	Prunus serotina
White oak	Quercus alba
Swamp white oak	Quercus bicolor
Scarlet oak	Quercus coccinea
Pin oak	Quercus palustris
Chestnut oak	Quercus prinus
Red oak	Quercus rubra
Post oak	Quercus stellata
Black oak	Quercus velutina
Staghorn sumac	Rhus typhina
American black currant	Ribes americana
Black locust	Robinia pseudoacacia
Weeping willow	Salix babylonica
Black willow	Salix nigra
Sassafras	Sassafras albidum
Eastern hemlock	Tsuga canadensis
American elm	Ulmus americana

Wildflowers

Common Names	Scientific Names
Three-seeded mercury	Acalypha virginica
Yarrow	Achillea millefolium
Sweetflag	Acorus calamus
Crown-beard	Actinomeris alternifolia
Swamp agrimony	Agrimonia parviflora
Woods agrimony	Agrimonia pubescens
Corn-cockle	Agrostemma githago
Water plantain	Alisma subcordatum
Garlic mustard	Alliaria officinalis
Lesser ragweed	Ambrosia artemisiifolia
Greater ragweed	Ambrosia trifida
Juneberry	Amelanchier arborea
Hog-peanut	Amphicarpa bracteata
Thimble-anemone	Anemone virginiana
Rue-anemone	Anemonella thalictroides
Greater pussytoes	Antennaria fallax
Field pussytoes	Antennaria neglecta
Leafy-shoot pussytoes	Antennaria neodioica
Plantain-leaved pussytoes	Antennaria plantaginifolia
Spreading dogbane	Apocynum androsaemifolium
Indian hemp	Apocynum cannabinum
Columbine	Aquilegia canadensis
Mouse-ear cress	Arabidopsis thaliana
Sicklepod	Arabis canadensis
Sarsaparilla	Aralia nudicaulis
Burdock	Arctium minus
Thyme-leaved sandwort	Arenaria serpyllifolia
Small/Swamp jack-in-the-pulpit	Arisaema triphyllum
Wild ginger	Asarum canadense
White wood aster	Aster divaricatus
Smooth aster	Aster laevis
Calico aster	Aster lateriflorus
Downy aster	Aster pilosus
Field aster	Aster pilosus var. demous
Winter cress	Barbarea vulgaris
Spanish needles	Bidens bipinnata
Nodding tick-marigold	Bidens cernua
Marsh-marigold	Caltha palustris
Pennsylvania bittercress	Cardamine pensylvanica
Blue cohosh	Caulophyllum thalictroides
Spotted knapweed	Centaurea maculosa
Field chickweed	Cerastium arvense
Mouse-ear chickweed	Cerastium vulgatum
Snapdragon-weed	Chaenorrhinum minus

Wild chervil	Chaerophyllum procumbens
Turtlehead	Chelone glabra
Lamb's-quarters	Chenopodium album
Spotted wintergreen	Chimaphila maculata
Ox-eye daisy	Chrysanthemum leucanthemum
Chicory	Cichorium intybus
Water-hemlock	Cicuta maculata
Black cohosh	Cimicifuga racemosa
Field thistle	Cirsium discolor
Bull thistle	Cirsium vulgare
Spring-beauty	Claytonia virginica
Virgin's-bower	Clematis virginiana
Squawroot	Conopholis americana
Hedge bindweed	Convolvulus sepium
Yellow corydalis	Corydalis flavula
Honewort	Cryptotaenia canadensis
Dodder	Cuscuta gronovii
Wild comfrey	Cynoglossum virginianum
Queen Anne's lace	Daucus carota
Cut-leaved toothwort	Dentaria laciniata
Deptford pink	Dianthus armeria
Whitlow-grass	Draba verna
Viper's bugloss	Echium vulgare
Yerba-de-tago	Eclipta alba
Mudstar	Ellisia nyctelea
Fireweed	Erechtites hieracifolia
Daisy fleabane	Erigeron Annuus
Horseweed	Erigeron canadensis
Philadelphia fleabane	Erigeron philadelphicus
Robin-plantain	Erigeron pulchellus
Field fleabane	Erigeron strigosus
Hollow Joe-pye-weed	Eupatorium fistulosum
Boneset	Eupatorium perfoliatum
White snakeroot	Eupatorium rugosum
Wartweed	Euphorbia maculata
Common strawberry	Fragaria virginiana
Biennial gaura	Gaura biennis
Black huckleberry	Gaylussacia baccata
Closed-gentian	Gentiana andrewsii
Carolina cranesbill	Geranium carolinianum
Dove's foot	Geranium columbinum
Wild geranium	Geranium maculatum
White avens	Geum canadense
Yellow avens	Geum laciniatum
Sweet cudweed	Gnaphalium obtusifolium
Tubercled orchid	Habenaria flava
Stickseed	Hackelia virginiana

American pennyroyal	Hedeoma pulegioides
Thin-leaved sunflower	Helianthus decapetalus
Tall or giant sunflower	Helianthus giganteus
Hepatica	Hepatica americana
Alumroot	Heuchera americana
King devil	Hieracium pratense
Rattlesnake-weed	Hieracium venosum
Golden seal	Hydrastis canadensis
Common St. Johnswort	Hypericum perforatum
Shrubby St. Johnswort	Hypericum spathulatum
Stargrass	Hypoxis hirsuta
Winterberry holly	Ilex verticillata
Jewel weed	Impatiens pallida
Giant lettuce	Lactuca biennis
Slender wild lettuce	Lactuca saligna
Henbit	Lamium amplexicaule
Wood nettle	LaPortea canadensis
Motherwort	Leonurus cardiaca
Cow-cress	Lepidium campestre
Creeping bush-clover	Lespedeza repens
Butter-and-eggs	Linaria vulgaris
Large twayblade	Liparis lilifolia
Cardinal-flower	Lobelia cardinalis
Indian-tobacco	Lobelia inflata
Pale-spike lobelia	Lobelia spicata
Japanese honeysuckle	Lonicera japonica
Seedbox	Ludwigia alternifolia
Cut-leaved water-horehound	Lycopus americanus
Fringed loosestrife	Lysimachia ciliata
Moneywort	Lysimachia nummularia
Whorled Loosestrife	Lysimachia quadrifolia
White sweet clover	Melilotus alba
Yellow sweet clover	Melilotus officinalis
Canada moonseed	Menisperum canadense
Wild mint	Mentha arvensis
Peppermint	Mentha piperita
Virginia bluebell	Mertensia virginica
Square-stemmed monkey-flower	Mimulus ringens
Forget-me-not	Myosotis verna
Catnip	Nepeta cataria
Pennywort	Obolaria virginica
Common evening-primrose	Oenothera biennis
Sundrops	Oenothera fruticosa
Yellow wood-sorrel	Oxalis europaea
Yellow wood-sorrel	Oxalis stricta
Peony	Paeonia lactiflora
Dwarf ginseng	Panax trifolius

Pellitory	Parietaria pensylvanica
Wood-betony	Pedicularis canadensis
Foxglove beardtongue	Penstemon digitalis
Beardtongue	Penstemon hirsutus
Ditch stonecrop	Penthorum sedoides
Wild sweet-William	Phlox maculata
Smooth ground-cherry	Physalis subglabrata
Pokeweed	Phytolacca americana
Clearweed	Pilea pumila
English plantain	Plantago lanceolata
Plantain	Plantago rugelii
Virginia plantain	Plantago virginica
May-apple	Podophyllum peltatum
Common smartweed	Polygonum hydropiper
Pennsylvania smartweed	Polygonum pensylvanicum
Arrow-leaved tearthumb	Polygonum sagittatum
Dwarf cinquefoil	Potentilla canadensis
Rough cinquefoil	Potentilla norvegica
Rough-fruited cinquefoil	Potentilla recta
Common cinquefoil	Potentilla simplex
Heal-all	Prunella vulgaris
Hoary mountain-mint	Pycnanthemum incanum
Kidneyleaf buttercup	Ranunculus abortivus
Hispid buttercup	Ranunculus hispidus
Hairy crow-foot	Ranunculus recurvatus
Swamp buttercup	Ranunculus septentrionalis
Pasture rose	Rosa carolina
Hedge rose	Rosa multiflora
Black-eye-Susan	Rudbeckia hirta
Green-headed coneflower	Rudbeckia laciniata
Sheep or Common sorrel	Rumex acetosella
Stiff - arrowhead	Sagittaria rigida
Bloodroot	Sanguinaria canadensis
Black snakeroot	Sanicula marilandica
Soapwort	Saponaria officinalis
Basil	Satureja vulgaris
Pennsylvania saxifrage	Saxifrage pensylvanica
Early saxifrage	Saxifrage virginiensis
Mad-dog skullcap	Scutellaria lateriflora
Golden ragwort	Senecio aureus
Long-leaf groundsel	Senecio pauperculus
Wild pink	Silene caroliniana v.pensylvanica
Star silene	Silene stellata
Whorled rosinweed	Silphium trifoliatum
Tumble mustard	Sisymbium altissinum
Black nightshade	Solanum americanum
Horse-nettle	Solanum carolinense

Bittersweet nightshade	Solanum dulcamara
Tall goldenrod	Solidago altissima
Blue-stemmed goldenrod	Solidago caesia
Late goldenrod	Solidago gigantea
Lance-leafed goldenrod	Solidago graminifolia
Early goldenrod	Solidago juncea
Stiff goldenrod	Solidago rigida
Rough-stemmed goldenrod	Solidago rugosa
Woodland goldenrod	Solidago ulmifolia
Showy orchid	Spectabalis orchis
Mirrorweed	Specularia perfoliata
Green-eyed ladies'-tresses	Spiranthes gracilis
Crane fly orchid	Spiranthes gracilis
Grassleaf chickweed	Stellaria graminea
Common chickweed	Stellaria media
Large-flower chickweed	Stellaria pubera
Skunk cabbage	Symplocarpus foetidus
Common dandelion	Taraxacum officinale
Tall meadow-rue	Thalictrum polyganum
Crane fly orchid	Tipularia discolor
Virginia knotweed	Tovara virginiana
Spiderwort	Tradescantia virginiana
Hop clover	Trifolium agrarium
Alsike clover	Trifolium hybridium
Rabbit's-foot clover	Trifolium arvense
Red clover	Trifolium pratense
White clover	Trifolium repens
Horse-gentian	Triosteum angustifolium
Black highbush blueberry	Vaccinium atrococcum
Deerberry	Vaccinium stamineum
Lowbush blueberry	Vaccinium vacillans
Moth mullein	Verbascum blattaria
Common mullein	Verbascum thapsus
Blue vervain	Verbena hastata
White vervain	Verbena urticifolia
New York ironweed	Vernonia noveboracensis
Corn speedwell	Veronica arvensis
Affiliated violet	Viola affinis
Marsh blue violet	Viola cucullata
Smooth yellow violet	Viola pensylvanica
Downy yellow violet	Viola pubescens
Annual violet	Viola rafinesquii
Common violet	Viola sororia
Cream violet	Viola striata
Three-lobed Violet	Viola triloba
Round-leaf-alexander	Zizia aptera
Golden alexander	Zizia aurea

PLANT SPECIES OF SPECIAL CONCERN

Common Names	Scientific Names
None	

FISH INVENTORY

Common Names	Scientific Names
Rock bass	Ambloplites rupestris
Yellow bullhead	Ameiurus natalis
Brown bullhead	Ameiurus nebulosus
Bowfin	Amia calva
American eel	Anguilla rostrata
Stoneroller	Campostoma anomalum
Goldfish	Carassius auratus
White sucker	Catostomus commersoni
Rosyside dace	Clinostomus fundukiudes
Carp	Cyprinus carpio
Silverjaw minnow	Ericymba buccata
Northern pike	Esox lucius
Tiger muskellunge	Esox lucius X E. masquinongy (hybrid)
Chain pickerel	Esox niger
Fantail darter	Etheostoma flabellare
Tessellated darter	Etheostoma olmstedi
Cutlips minnow	Exoglossum maxillingua
Northern hogsucker	Hypentelium nigricans
Channel catfish	Ictalurus punctatus
Redbreast sunfish	Lepomis auritus
Green sunfish	Lepomis cyanellus
Pumpkinseed	Lepomis gibbosus
Bluegill	Leponis macrochirus
Common shiner	Luxillus cornutus
White perch	Marone americana
Smallmouth bass	Micropterus dolomieui
Largemouth bass	Micropterus salmoides
Shorthead redhorse	Moxostoma macrolepidotum
River chub	Nocomis microposon
Golden shiner	Notemigonus crysoleucas
Satinfin shiner	Notropis analostanus
Spottail shiner	Notropis callistius
Swallowtail shiner	Notropis procne
Rosyface shiner	Notropis rubellus
Spotfin shiner	Notropis spilopterus
Margined madtom	Noturus insignis
Rainbow trout	Oncorhynchus mykiss
Yellow perch	Perca flavescens
Shield darter	Percina peltata
Bluntnose minnow	Pimephales notatus
White crappie	Pomoxis annularis

Common Names	Scientific Names
Black crappie	Pomoxis nigromaculatus
Blacknose dace	Rhinichthys atratulus
Longnose dace	Rhinichthys cataractae
Brown trout	Salmo trutta
Creek chub	Semotilus atromaculatus
Fallfish	Semotilus corporalis
Walleye	Stizostedion vitreum

INVERTEBRATE INVENTORY

Common Names	Scientific Names
Two-spotted lady beetle	Adalia bipunctata
Black cutworm	Agrotis ipsilon
Squash bug	Anasa tristis
Dragonfly	Anax longipes
Bee fly	Anthrax tigrinus
Honey bee	Apis mellifera
Clover mite	Bryobia praetiosa
Spotted lady beetle	Ceratomagilla maculata
Sycamore lace bug	Corythucha ciliate
Monarch butterfly	Danaus plexippus
Potato leafhopper	Empoasca fabae
Black blister beetle	Epicauta pennsylvania
Fall webworm	Hyphantria cunea
Gypsy moth	Lymantria dispar
Red-legged grasshopper	Melanoplus femurrubrum
Jumping spider	Metaphidippus proteruus
Large milkweed bug	Oncopeltus fasciatus
Black swallowtail	Papilio polyxenes asterius
Golden paper wasp	Polistes fuscatus pallipes
Japanese beetle	Popillia japonica
Bald-faced hornet	Vespula maculata

MAMMAL INVENTORY

Common Names	Scientfic Names
Shorttailed shrew	Blarina brevicauda
Redback vole	Clethrionomys gapperi
Starnosed mole	Condylura cristata
Virginia opossum	Didelphis virginiana
Big brown bat	Eptesicus fuscus
Southern flying squirrel	Glaucomys volans
Silver-haired bat	Lasionycteris noctivagans
Red bat	Lasiurus borealis
Hoary bat	Lasiurus cinereus
Woodchuck	Marmota monax
Striped skunk	Mephitis mephitis
Meadow Vole	Microtus pennsylvanicus
Woodland Vole	Microtus pinetorum
House mouse	Mus musculus
Longtail weasel	Mustela frenata
Mink	Mustela vison
Keen myotis	Myotis keeni
Small-footed myothis	Myotis llebii
Little brown myotis	Myotis lucifugus
Eastern woodrat	Neotoma floridana
Whitetailed deer	Odocoileus virginianus
Muskrat	Ondatra zibethicus
White-footed mouse	Peromyscus leucopus
Deer mouse	Peromyscus maniculatus
Eastern pipistrelle	Pipistrellus subflavus
Raccoon	Procyon lotor
Norway rat	Rattus norvegicus
Eastern mole	Scalopus aquaticus
Gray squirrel	Sciurus carolinensis
Fox squirrel	Sciurus niger
Masked shrew	Sorex civereus
Smoky shrew	Sorex fumeus
Eastern cottontail	Sylvilagus floridanus
New England cottontail	Sylvilagus transitionalis
Eastern chipmunk	Tamias striatus
Red squirrel	Tamiasciurus hudsonicus
Gray fox	Urocyon cinereoargenteus
Red fox	Vulpes fulva
Meadow jumping mouse	Zapus hudsonius

REPTILE INVENTORY

Common Names	Scientific Names
Northern copperhead	Agkistrodon contortrix mokasen
Eastern worm snake	Carpophis amoenus amoenus
Northern snapping turtle	Chelydra serpentina serpentina
Midland painted turtle	Chrysemys picta marginata
Eastern painted turtle	Chrysemys picta picta
Spotted turtle	Clemmys guttata
Wood turtle	Clemmys insculpta
Northern black racer	Coluber constrictor constrictor
Northern ringneck snake	Diadophis punctatus edwardsi
Black rat snake	Elapha obsoleta obsoleta
Five-lined skink	Eumeces fasciatus
Map turtle	Graptemys geographica
Eastern hognose snake	Heterodon platyrhinos
Eastern milk snake	Lampropeltis triangulum triangulum
Northern water snake	Nerodia sipedon sipedon
Queen snake	Regina septemvittata
Northern fence lizard	Sceloporus undulatus hyacinthinus
Stinkpot	Sternotherus odoratus
Northern brown snake	Storeria dekayi dekayi
Northern redbellied snake	Storeria o. occipitomaculata
Eastern box turtle	Terrapene carolina carolina
Eastern ribbon snake	Thamnophis sauritus sauritus
Eastern garter snake	Thamnophis sirtalis sirtalis

AMPHIBIAN INVENTORY

Common Names	Scientific Names
Northern cricket frog	Acris crepitans crepitans
Jefferson salamander	Ambystoma jeffersonianum
Spotted salamander	Ambystoma maculatum
Marbled salamander	Ambystoma opacum
American toad	Bufo americanus americanus
Fowler's toad	Bufo woodhousei fowleri
Hellbender	Cryptobranchus a. alleganiensis
Northern dusky salamander	Desmognathus fuscus fuscus
Northern two-lined salamander	Eurycea bislineata bislineata
Long-tailed salamander	Eurycea longicauda longicauda
Northern spring salamande	Gyrinophilus porphyriticus
Four-toed salamander	Hemidactylium scutatum
Northern spring peeper	Hyla crucifer crucifer
Gray tree frog	Hyla versicolor

AMPHIBIAN INVENTORY

Red-spotted newt	Notophihalmus viridescens virdecens
Red-backed salamander	Plethodon cinereus
Slimy salamander	Plethodon glutinosus glutinosus
Upland chorus frog	Pseudacris triseriata feriarum
Northern red salamander	Pseudotriton ruber ruber
Bull frog	Rana catesbeiana
Green frog	Rana clamitans melanota
Pickerel frog	Rana palustris
Wood frog	Rana sylvatica
Eastern spadefoot	Scaphiopus holbrooki holbrooki

AVIAN INVENTORY

Common Names	Scientific Names
Cooper's hawk	Accipiter cooperii
Northern goshawk	Accipiter gentilis
Sharp-shinned hawk	Accipter striatus
Spotted sandpiper	Actitis macularia
Saw-whet owl	Aegolius acadicus
Red-winged blackbird	Agelaius phoeniceus
Wood duck	Aix sponsa
Henslow's sparrow	Ammodramus henslowii
Grasshopper sparrow	Ammodramus savannarum
Northern pintail	Anas acuta
American wigeon	Anas americana
Northern shoveler	Anas clypeata
Green-winged teal	Anas crecca
Blue-winged teal	Anas discors
Mallard	Anas platyrhynchos
American black duck	Anas rubripes
Gadwall	Anas strepera
Water pipit	Anthus spinolet
Bald eagle	Aquila
Golden eagle	Aquila chrysaetos
Ruby-throated hummingbird	Archildchus colubris
Great blue heron	Ardea herodias
Ruddy turnstone	Arenaria interpres
Short-eared owl	Asio flammeus
Long-eared owl	Asio otus
Lesser scaup	Aythya affinis
Redhead	Aythya americana
Ring-necked duck	Aythya collaris
Greater scaup	Aythya marila
Canvasback	Aythya valisineria
Upland sandpiper	Bartramia longicauda
Cedar waxwing	Bombycilla cedrorum
Ruffed grouse	Bonasa umbellus
American bittern	Botarus lentiginosus
Brant	Branta bernicla
Canada goose	Branta canadensis
Great horned owl	Bubo virginianus
Cattle egret	Bubulcus ibis
Bufflehead	Bucephala albeola
Common goldeneye	Bucephala clangula
Red-tailed hawk	Buteo jamacensis
Rough-legged hawk	Buteo lasopus

Red-shouldered hawk	Buteo lineatus
Broad-winged hawk	Buteo platypierus
Green heron	Butorides yirescens
Lapland longspur	Calcarius lapponicus
Dunlin	Calidris alpina
Pectoral sandpiper	Calidris melanotos
Least sandpiper	Calidris minutilla
Semipalmated sandpiper	Calidris pusilla
Common snipe	Capella gallinago
Whip-poor-will	Caprimulgus vociferus
Northern cardinal	Cardinalis cardinalis
American goldfinch	Carduelis tristis
House finch	Carpodacus mexicanus
Purple finch	Carpodacus purpureus
Great egret	Casmerodius albus
Turkey vulture	Cathartes aura
Veery	Catharus fuscescens
Hermit thrush	Catharus guttatus
Swainson's thrush	Catharus ustulatus
Brown creeper	Certhia familiaris
Chimney swift	Chaetura pelagica
Killdeer	Charadrius vociferus
Semipalmated plover	Charadrius semipalmatus
Black tern	Chlidonias niger
Common nighthawk	Chordeiles minor
Marsh hawk	Circus cyaneus
Marsh wren	Cistothorus palustris
Sedge wren	Cistothorus platensis
Oldsquaw	Clangula hyemalis
Yellow-billed cuckoo	Coccyzus americanus
Black-billed cuckoo	Coccyzus erythropthalmus
Common flicker	Colaptes auratus
Bobwhite	Colinus virginianus
Rock dover	Columba livia
Eastern peewee	Contopus virens
Black vulture	Coragyps atratus
American crow	Corvus brachyrhynchos
Northern raven	Corvus corax
Fish crow	Corvus ossifragus
Blue jay	Cyanocitta cristata
Mute swan	Cygnus olor
Black-throated blue warbler	Dendroica caerulescens
Bay breasted warbler	Dendroica castanea
Cerulean warbler	Dendroica cerulea

Yellow-rumped warbler	Dendroica coronata
Prairie warbler	Dendroica discolor
Blackburnian warbler	Dendroica fusca
Magnolia warbler	Dendroica magnolia
Chestnut-sided warbler	Dendroica pensylvanica
Yellow warbler	Dendroica petechia
Pine warbler	Dendroica pinus
Blackpoll warbler	Dendroica striata
Cape may warbler	Dendroica tigrina
Black-throated green warbler	Dendroica virens
Bobolink	Dolichonyx oryzivorus
Pileated woodpecker	Dryocopus pileatus
Gray catbird	Dumetella carolinensis
Yellow-bellied flycatcher	Empidonax flaviventris
Least flycatcher	Empidonax minimus
Willow flycatcher	Empidonax traillii
Acadian flycatcher	Empidonax virescens
Horned lark	Eremophila alpestris
Rusty blackbird	Euphagus carolinus
Merlin	Falco columbarius
American kestrel	Falco sparvertus
American coot	Fulica americana
Common gallinule	Gallinula chloropus
Common yellowthroat	Geothlypis trichas
Worm-eating warbler	Helmitheros vermivorus
Evening grosbeak	Hesperiphona vespertina
Barn swallow	Hirundo rustica
Wood thrush	Hylocichla mustelina
Yellow-breasted chat	Icteria virens
Northern oriole	Icterus galbula
Orchard oriole	Icterus spurius
American tree swallow	Iridoprocne bicolor
Least bittern	Ixobrychus exilis
Dark-eyed junco	Junco hyemalis
Loggerhead shrike	Lanius ludovicianus
Herring gull	Larus argentatus
Ring-billed gull	Larus delawarensis
Bonaparte's gull	Larus philadelphia
Snowy egret	Egretta thula
Short-billed dowitcher	Limnodromus griseus
Belted kingfisher	Megaceryle alcyon
Red-bellied woodpecker	Melanerpes carolinus
Red-headed woodpecker	Melanerpes erythrocephalus
White-winged scoter	Melanitta deglandi

Black scoter	Melanitta nigra
Surf scoter	Melanitta perspicillata
Wild turkey	Meleagris gallopavo
Swamp sparrow	Melospiza georgiana
Lincoln's sparrow	Melospiza lincolnii
Song sparrow	Melospiza melodia
Hooded merganser	Lophodytes cucullatus
Common merganser	Mergus merganser
Red-breasted merganser	Mergus serrator
Northern mockingbird	Mimus polyglottos
Black and White warbler	Mniottita varia
Brown-headed cowbird	Molothrus ater
Great crested flycatcher	Myiarchus crinitus
Olive-sided flycatcher	Nuttallornis borealis
Yellow-crowned night heron	Nyctanassa violacea
Snowy owl	Nyctea scandiaca
Black-crowned night heron	Nycticorax nycticorax
Whistling swam	Olor columbianus
Kentucky warbler	Oporornis formosus
Mourning warbler	Oporornis philadelphia
Northern screech owl	Otus Alo
Ruddy duck	Oxyura jamaicensis
Osprey	Pandion haliaetus
Northern parula warbler	Parula americana
Black-capped chickadee	Parus atricapillus
Tufted titmouse	Parus bicolor
Carolina chickadee	Parus carolinensis
English or house sparrow	Passer domesticus
Savannah sparrow	Passerculus sandwichensis
Indigo bunting	Passerina cyanea
Hairy woodpecker	Picoides villosus
Cliff swallow	Petrochelidon pyrrhonota
Ring-necked pheasant	Phasianus, colchicus
Rose-breasted grosbeak	Pheucticus ludovicianus
American woodcock	Philohela minor
Downy woodpecker	Picoides pubescens
Rufous-sided towhee	Pipilo erythrophthalmus
Scarlet tanager	Piranga olivacea
Summer tanager	Piranga rubra
Snow bunting	Plectrophenax nivalis
Black-bellied plover	Pluvialis squatarola
Horned grebe	Podiceps auritus
Red-necked grebe	Podiceps grisegena
Pied-billed grebe	Podilymbus podiceps

Blue-gray gnatcatcher	Polioptila caerulea
Vesper sparrow	Pooecetes gramineus
Purple martin	Progne subis
Sora	Porzana carolina
Prothonotary warbler	Protonotaria citrea
Common grackle	Quiscalus quiscula
King rail	Rallus elegans
Virginia rail	Rallus limicola
Ruby-crowned kinglet	Regulus calendula
Golden-crowned kinglet	Regulus satrapa
Bank swallow	Riparia riparia
Eastern phoebe	Sayornis phoebe
Ovenbird	Seiurus aurocapillus
Louisiana waterthrush	Seiurus motacilla
Northern waterthrush	Seiurus noveboracensis
American redstart	Setophaga ruticilla
Eastern bluebird	Sialia sialis
Red-breasted nuthatch	Sitta canadensis
White-breasted nuthatch	Sitta carolinensis
Yellow-bellied sapsucker	Sphyrapicus varius
Pine siskin	Carduelis pinus
Tree sparrow	Spizella arborea
Chipping sparrow	Spizella passerina
Field sparrow	Spizella pusilla
Rough-winged swallow	Stelgidopteryx ruficollis
Least tern	Sterna albifrons
Caspian tern	Sterna caspia
Common tern	Sterna hirundo
Barred owl	Strix varia
Eastern meadowlark	Sturnella magna
European starling	Sturnus vulgaris
Bewick's wren	Thryomanes bewickii
Carolina wren	Thryothorus ludovicianus
Brown thrasher	Toxostoma rufum
Lesser yellowlegs	Tringa flavipes
Greater yellowlegs	Tringa melanoleucus
Solitary sandpiper	Tringa solitaria
House wren	Troglodytes aedon
Winter wren	Troglodytes troglodytes
American robin	Turdus migratorius
Eastern kingbird	Tyrannus tyrannus
Barn owl	Tyto alba
Golden-winged warbler	Vermivora chrysoptera
Tennessee warbler	Vermivora peregrina

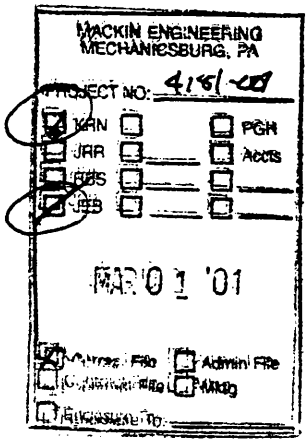
Blue-winged warbler	Vermivora pinus
Nashville warbler	Vermivora ruficapilla
Yellow-throated vireo	Vireo flavifrons
Warbling vireo	Vireo gilvus
White-eyed vireo	Vireo griseus
Red-eyed vireo	Vireo olivaceus
Solitary vireo	Vireo solitarius
Canada warbler	Wilsonia canadensis
Hooded warbler	Wilsonia citrina
Wilson's warbler	Wilsonia pusilla
Mourning dove	Zenaida macroura
White-throated sparrow	Zonotrichia albicollis
White crowned sparrow	Zonotrichia leucophrys

WILDLIFE SPECIES OF SPECIAL CONCERN

Common Names	Scientific Names
Bog Turtle	Endangered

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
2001 ELMERTON AVENUE, HARRISBURG, PA 17110-9797

February 27, 2001



Mr. James Boyer
Mackin Engineering
2000 Technology Parkway
Mechanicsburg, PA 17055

In re: Upper Codorus Creek
Watershed Conversation Plan
York County, PA

Dear Mr. Boyer:

This is in response to your letter dated February 7, 2001, requesting our review for potential impacts to state endangered or threatened species of birds or mammals, and State Game Lands.

Our office review has determined that the below listed Pennsylvania Endangered species has historically occurred within the project area.

Quadrangle	Species	Habitat
Seven Valleys	Indiana Bat (*Myotis sodalis*) (PA Endangered)	Caves and mine tunnels in boulder piles

Please review the project to determine whether there might be a significant impact upon the above species and its habitat. We must reserve final comments on wildlife impacts until this agency is provided with this information.

No State Game Lands are expected to be impacted by the proposed project. Should project plans extend beyond the present study area, or if additional information becomes available on State Game Lands, this review may be reconsidered.

This reply relates only to endangered and threatened species of birds or mammals and State Game Lands, but does not address other concerns of the Pennsylvania Game Commission. If an on-site field investigation determines a project may impact critical and unique wildlife habitat such as wetlands, you may be requested to conduct additional surveys.

If you have any questions, please contact me directly at (717) 783-5957.

Very truly yours,

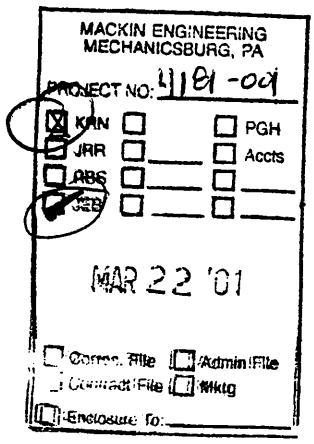
Anthony S. Ross
Environmental Review Coordinator
Division of Environmental
Planning and Habitat Protection
Bureau of Land Management

ASR/pfb

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850

March 20, 2001



James Boyer
Environmental Manager
Mackin Engineering Company
2000 Technology Parkway
Suite 100
Mechanicsburg, PA 17055

Dear Mr. Boyer:

This responds to your letter of February 14, 2001, requesting information about federally listed and proposed endangered and threatened species within the area affected by the proposed bridge replacement project (SR 0028-Upper Codorus Creek Watershed Conservation Plan) located in Jackson, Codorus, North Codorus, Penn, Heidelberg, Manheim, West Manheim Townships, and the Boroughs of Spring Grove, Jefferson, and Hanover, Armstrong County, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

The proposed project is within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened. The northern population of the bog turtle occurs in the States of Connecticut, New York, Pennsylvania, Maryland, New Jersey, Delaware and Massachusetts. Bog turtles inhabit shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows, and pastures characterized by soft, muddy bottoms; clear, cool, slow-flowing water, often forming a network of rivulets; high humidity; and an open canopy. Bog turtles usually occur in small, discrete populations occupying suitable wetland habitat dispersed along a watershed. The occupied "intermediate successional stage" wetland habitat is usually a mosaic of micro-habitats ranging from dry pockets, to areas that are saturated with water, to areas that are periodically flooded. Some wetlands occupied by bog turtles are located in agricultural areas and are subject to grazing by livestock.

If any wetlands occur within or near the project area, their potential suitability as bog turtle habitat should be assessed, as described under "*Bog Turtle Habitat Survey*" (Phase 1 survey) of the enclosed *Guidelines for Bog Turtle Surveys*. This habitat survey could easily be conducted by a wetland biologist concurrent with a routine wetland identification and delineation. If any wetlands are identified as potential bog turtle habitat, efforts should be made to avoid any direct or indirect impacts to those wetlands. If adverse effects to these wetlands cannot be avoided, a more detailed and thorough survey will be necessary, as described under "*Bog Turtle Survey*" (Phase 2 survey) of the *Guidelines for Bog Turtle Surveys*. The Phase 2 survey should be conducted by a qualified biologist with bog turtle field survey experience (see enclosed list of

qualified surveyors). Survey results should be submitted to the Fish and Wildlife Service for review and concurrence. If project activities might adversely affect bog turtles, additional consultation with the Service will be required, pursuant to section 7 of the Endangered Species Act.

This response relates only to endangered and threatened species under our jurisdiction based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities. A compilation of certain federal status species in Pennsylvania is enclosed for your information.

Please contact Michael McCarthy of my staff at 814-234-4090 if you have any questions or require further assistance regarding this matter.

Sincerely,

for David Densmore
Supervisor

Enclosures

FEDERALLY LISTED AND PROPOSED SPECIES THAT NO LONGER OCCUR IN PENNSYLVANIA

COMMON NAME	SCIENTIFIC NAME	STATUS**	FORMER DISTRIBUTION
MAMMALS			
Canada lynx	*Lynx canadensis*	PT	north-central PA (Tioga Co.)
Delmarva Peninsula fox squirrel	*Sciurus niger cinereus*	E	mature forests of southeastern PA (Delaware and Chester Co.)
Eastern cougar	*Felis concolor couguar*	E	state-wide
Grey wolf	*Canis lupus*	E	state-wide
MOLLUSKS			
Fanshell*	*Cyprogenia stegaria*	E	Ohio River drainage
Orange pimpleback*	*Plethobasus striatus*	E	Ohio River drainage
Pink mucket pearly mussel*	*Lampsilis abrupta*	E	Ohio River drainage
Ring pink mussel*	*Obovaria retusa*	E	Ohio River drainage
Rough pigtoe*	*Pleurobema plenum*	E	Ohio River drainage
INSECTS			
American burying beetle	*Nicrophorus americanus*	E	state-wide
Karner blue butterfly	*Lycaeides melissa samuelis*	E	pine barrens, oak savannas (wild lupine habitat) (Wayne Co.)
Northeastern beach tiger beetle	*Cicindela dorsalis dorsalis*	T	along large rivers in southeastern PA
PLANTS			
Eastern prairie fringed orchid	*Platanthera leucophaea*	T	wet prairies, bogs (Crawford Co.)
Sensitive joint-vetch	*Aeschynomene virginica*	T	freshwater tidal marshes of Delaware river (Delaware and Philadelphia Co.)
Virginia spiraea*	*Spiraea virginiana*	T	along Youghiogheny River (Fayette Co.)
Smooth coneflower	*Echinacea laevigata*	E	serpentine barrens (Lancaster Co.)

Revised 10/19/00

* *It is possible that remnant populations of some of these species (indicated with an *) may still occur in Pennsylvania, however, there have been no confirmed sightings of these species for over 70 years.*

** *E = Endangered, T = Threatened, PT = Proposed Threatened*

The following is a partial list of additional species that no longer occur in Pennsylvania: moose, bison, wolverine, passenger pigeon, Bachman's sparrow, greater prairie-chicken, olive-sided flycatcher, Bewick's wren, eastern tiger salamander, blue pike, butterfly mussel, Diana fritillary butterfly, precious underwing moth, deertoe mussel, marbled underwing moth, cobblestone tiger beetle, mountain clubmoss, crested yellow orchid, red milkweed, American barberry, small white lady's-slipper, etc, etc.

U.S. FISH AND WILDLIFE SERVICE
315 SOUTH ALLEN ST., SUITE 322, STATE COLLEGE, PA 16801

BUREAU OF FISHERIES

Delano R. Graff, Director
(814) 359-5154
FAX: (814) 359-5153

IN REPLY REFER TO
SIR #6042

DIVISION OF FISHERIES MANAGEMENT

Richard A. Snyder, Chief
(814) 359-5110
FAX: (814) 359-5153

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH & BOAT COMMISSION
450 Robinson Lane
Bellefonte, PA 16823-9620

March 26, 2001

MACKIN ENGINEERING COMPANY
James Boyer
2000 Technology Parkway, Suite 100
Mechanicsburg, Pennsylvania 17055

Dear Mr. Boyer:

RE: Species Impact Review - Rare, Candidate, Threatened, and Endangered Species
Upper Codorus Creek Watershed Conservation Plan – Mackin Project 481-001
York County, Pennsylvania

I have examined the map accompanying your recent correspondence which shows the location for the above-referenced project. Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, the following rare or protected species are known from the Upper Codorus Creek Watershed:

Common Name	Scientific Name	PA Status
Red-bellied turtle	*Pseudemys rubriventris*	threatened

The red-bellied turtle is one of Pennsylvania's largest native aquatic turtles. This turtle species is known to inhabit relatively large, deep streams, rivers, ponds, lakes, and marshes with permanent water and ample basking sites. Red-bellied turtles are restricted to the southcentral and southeastern regions of the Commonwealth. The existence of this turtle species is threatened by habitat destruction, poor water quality, and competition with aggressive non-native turtle species that share its range and habitat (e.g., red-eared slider, *Trachemys scripta elegans*).

Please contact my office at (814) 359-5113 or my Assistant, Chris Urban at (814) 359-5186 if you have questions regarding this response. Thank you for your cooperation and attention to this matter of nongame species conservation.

Sincerely,

Andrew L. Shiels

Andrew L. Shiels, Leader
Nongame and Endangered Species Unit

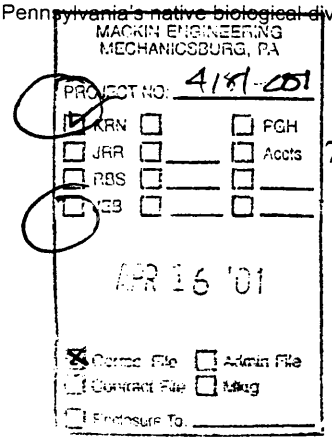
CU/ta

cc: R. Snyder, PFBC
R. Tibbott, PFBC

Pennsylvania Natural Diversity Inventory

Scientific information and expertise for the conservation of Pennsylvania's native biological diversity

April 11, 2001



Bureau of Forestry 717-787-3444

James Boyer
Mackin Engineering Company
2000 Technology Parkway
Suite 100
Mechanicsburg, PA 17055

Re: PNDI Review Request for Species of Special Concern Reported to Occur in Upper Codorus Creek, York County, PA. **PER NO: 10814**

Dear Mr. Boyer:

In response to your data request of February 6, 2001, I have enclosed a printout listing all species of special concern tracked by the PNDI program reported to occur in or near the above area. Please contact this office when the scope and boundaries of the project are more clearly defined. A more exact plan may reveal that these species will not be impacted and eliminate the need for a field examination of the site.

PNDI is a site specific information system that describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is good for one year. An absence of recorded information does not necessarily imply actual conditions on-site. A field survey of any site may reveal previously unreported populations.

If you have any further questions or problems feel free to contact our office at the above number, and please refer to the P.E.R. Reference Number in future correspondence related to this project.

Sincerely,

Jeanne Harris

Jeanne Harris
Environmental Review Specialist

Western Pennsylvania Conservancy
209 Fourth Ave.
Pittsburgh, PA 15222
(412)288-2777
www.paconserve.org

Pennsylvania Dept. of Conservation and Natural Resources
Bureau of Forestry
P. O. Box 8552
Harrisburg, PA 17105-8552
(717)787-3444
www.dcnr.state.pa.us

The Nature Conservancy
208 Airport Drive
Middletown, PA 17057
(717)948-3962
www.tnc.org

Species and Ecological Communities Tracked by PNDI within the Upper Codurus Creek Watershed

SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	STATE STATUS	FEDERAL STATUS	PROPOSED STATE STATUS
RHODODENDRON ATLANTICUM	DWARF AZALEA	G4G5	S1	PE		PE
CLEMMYS MUHLENBERGII	BOG TURTLE	G3	S2	PE	(LT-T(S/A))	PE
MYOTIS SEPTENTRIONALIS	NORTHERN MYOTIS	G4	S3B,S3N			CR

Appendix F
Management Options Summary Table

Management Option	Specific Projects	Potential Funding Sources
A. Project Area Characteristics		
Raise the sensitivity and awareness of County and Municipal Planning Organizations (MPO's) to farmland and habitat loss.		LUPTAP
Work with local and county planning organizations to develop and carry out plans for the protection of environmental amenities in the watershed.		LUPTAP, Growing Greener, CDBG
Complete a comprehensive examination of the traffic conditions of the watershed. Identify areas of congestion, its causes, and impacts. Develop a strategy to address these problem areas utilizing alternative forms of transportation (mass transit, car-pooling, bike lanes) where possible.		PennDOT Congestion Management Program and Land Use/Transportation
Update comprehensive plans for the municipalities of the watershed that are over 10 years old. Include environmental resource inventories and protection of resources as part of the document. Complete multi-municipal plans where prudent and feasible.		LUPTAP
Support implementation of land conservation techniques in subdivision design.		
Update and implement Act 537 sewage management plans that are over 10 years old for the municipalities in the watershed. Replace on-lot septic systems in the established growth areas. Assist in upgrading older on lot systems in the established rural areas.		Act 537, Growing Greener
Actively enforce land use controls for areas along waterways in the watershed, especially keeping development out of floodplains. Develop strategies to protect riparian zones.		
Partner with local universities to develop mutually beneficial programs for student education, and protection and enhancement of the watershed. Identify other volunteer and non-profit groups to coordinate activities and projects with to avoid duplication of effort.		
Utilize the Watershed Conservation Plan as a tool in protecting, managing, and preserving the Upper Codorus Creek watershed.		

B. Land Resources		
Establish a working partnership between the major stakeholders in the watershed and conservation organizations. Use this partnership to address major problems in the watershed as well as protect important resources.		
Continue and expand watershed wide cleanup days.		
Identify "Brownfield" areas within the watershed for possible assessment, cleanup, and redevelopment. Identify other potential hazard areas within the watershed.		Act 2, Growing Greener
Work to develop or expand recycling efforts in the watershed.		Recycling Development and Implementation Grants
Encourage the use of responsible logging within the watershed. Encourage loggers to obtain "Master Logger" status.		
Look into and if appropriate, establish a local chapter of PA Cleanways.		
Develop an educational program for demonstrating and promoting riparian buffers, especially for use in FFA, 4H, scout groups, and secondary schools.		League of Women Voter WREN Program, Growing Greener, NFWF Small Watersheds Program
Encourage local farmers to enroll their property in agricultural security areas, set aside programs and conservation easements.		County Farmland Preservation Programs
C. Water Resources		
Develop rehabilitation plans for agricultural and urban runoff problems in each of the major drainages in the watershed.		EPA 319 Grants, Growing Greener
Develop a comprehensive plan to protect and monitor water quality and the results of improvements to streams in the major drainages of the watershed. Tailor the monitoring programs to sources of potential degradation within each drainage. Utilize this information to develop a database of information for the entire watershed.		Growing Greener, PFBC

Develop and implement streambank stabilization and habitat enhancement projects for the streams in the watershed.		Growing Greener, PFBC
Develop storm water management plans for developed areas in the major drainages of the watershed. Identify new technologies for enhancing infiltration and groundwater recharge, especially in areas of urban development.		LUPTAP, Growing Greener
Continue work to enhance the fishery within the watershed. Expand these efforts to assist with reestablishing the migratory fish population in the watershed if feasible, and develop a stream habitat enhancement plan for other stream sections in the watershed.		PFBC, DCNR Community Partnerships Program, Growing Greener
Develop an educational program for elementary and secondary schools on water quality and the responsible use of the watershed.		League of Women Voter WREN Program, NFWF Small Watersheds Grants
Inventory riparian buffers in the watershed. Identify areas that need to have riparian buffers established.		Growing Greener, DCNR Community Partnership
Inventory NPS pollution problems in the major drainages of the watershed, develop a hierarchy and implementation plan for addressing these problem areas. Promote the development of conservation landscaping and management practices to reduce this sediment load.		EPA 319 Grants, Growing Greener, NFWF Small Watersheds Grants
Expand sewage capacity in the areas with the highest projected growth rates. Educate on-lot septic system users of new technologies available that can prevent failure of the systems.		Act 537 Grants
Work to ensure that development does not occur in floodplain areas.		Floodplain Land Use Assistance Program
Develop a working partnership with Codorus State Park and P.H. Glatfelter to ensure that a minimum discharge from the lake will continue to occur during the summer months to protect the wild trout population of Codorus Creek.		

D. Biological Resources		
Preserve ecological and visual amenities in the watershed. Utilize both voluntary protection and market purchase for preservation. Develop funding sources and a regional land trust organization to facilitate these actions.	Protect important birding and identified natjural resource areas within the watershed	DCNR Conservation Partnerships, Growing Greener
Identify areas of significant invasive species populations. Develop an integrative management plan to control these species.		National Fish and Wildlife foundation grants, Growing Greener, Dept. of Agriculture, Private Foundations
Identify riparian buffers in the major drainages of the watershed. Identify areas for further riparian buffers creation to assist wildlife travel corridors.		Growing Greener and Private Foundations
Update the Natural Heritage Inventories for York County on a regular basis, (every 7 – 10 years). Assess the watershed for species of special concern. Develop and implement a plan for protection of these resources.		Growing Greener, LUPTAP, and Private Foundations
Inventory wetlands in stream corridors for protection and possible enhancement.	Create wetland(s) for stormwater treatments along Oil Creek	Stormwater Planning and Management Program, Growing Greener
E. Cultural Resources		
Encourage and develop educational programs on the environment in the watershed and Codorus State Park.		Growing Greener DCNR and DEP
Develop better access to Codorus Creek and its tributaries for recreational use.		DCNR Community Partnership funds, CDBG
Develop the rail trail connector from Hanover through the watershed.	Complete feasibility stud for the completion of the the project from Hanover to the existing Rail Trail in York	DCNR Community Partnership funds, CDBG
Increase recreational opportunities within the watershed, including park, recreational fields, stream accesses, etc.		Local Government Capital Project Loan Program, TEA 21 Enhancement Program

Increase passive recreational opportunities in the watershed.	Rail Trails Heritage/recreational areas Important bird areas	Local Government Capital Project Loan Program, TEA 21 Enhancement Program
Complete proposed parks in Heidelberg, Manheim, and West Manheim Townships.		Local Government Capital Project Loan Program, TEA 21 Enhancement Program
Complete a comprehensive park and recreation plan for the watershed. Address handicapped access as a portion of this report.		DCNR Community Partnership funds, LUPTAP
Maximize the recreational potential of the Codorus State park.		Growing Greener DCNR and DEP
Support any development of the state park to increase tourism as an economic presence in the region.		Heritage Parks Program
Create an overlay zone for stream buffers in the watershed.		
Increase partnerships with public and private entities to foster land stewardship.		Heritage Parks Program

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