

**York County
Chesapeake Bay Program
County Implementation Plan**



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A. York County Overview

York County is located in south-central Pennsylvania and lies completely within the Chesapeake Bay Watershed. The County encompasses 911 square miles, and is bordered on the north by the Yellow Breeches Creek and Cumberland County, on the east by the Susquehanna River and Lancaster County, on the west by Adams County, and on the south by Baltimore, Carroll and Harford Counties, Maryland.

Cropland takes in about 42 percent of the land area in the county, woodland 26 percent, and pasture 14 percent. About 18 percent are in urban, industrial, commercial, and other uses.

At the close of the American Revolution, the population of the county in the present limits was about 17,000. The County's population growth in 1910, 1960 and 1980 was 136,405, 238,336 and 312,963, respectively. By 2007, York County's population was approximately 421,049 (33% increase since 1980), with an average population density of 456 persons per square mile.

About 51 percent of the population is urban. Urbanization of farmland is a trend in all parts of the county. Much of the population growth is due to rural development in the northern and southern parts of the county, people moving in from the Baltimore and Harrisburg Metropolitan areas. Urban sprawl into rural areas contributes to the loss of farmlands, floodplains, and wetlands that recharge groundwater, provide wildlife habitat, protect soils, absorb storm water runoff, and filter excess water runoff.

Presently, York County and all 72 local municipalities have comprehensive plans, with various levels of land use zoning and development ordinances. Implementation of effective storm water planning and management, including design, construction and maintenance controls, is critical to minimizing accelerated erosion and sedimentation of lakes, streams and wetlands. Additionally, other non-point sources of pollution concerns include groundwater wells, septic systems, and urban runoff.

York County is mostly rural, with approximately 50 percent of its working population employed outside the county. Agriculture, mining, and manufacturing are important industries of the county.

Agriculture is a major industry in York County. According to Pennsylvania's Agricultural Statistics 2007 summary York has 2,550 farms totaling 282,000 acres. The majority of this acreage (190,000 ac.) is planted in corn, soybean, wheat and hay. Significant acres are also used for vegetable and orchard production. Examples of animal numbers are 9,500 dairy, 39,000 hogs, 5,000 sheep, 34,700 beef cattle and over 3.5 million broilers and layers. From the recently completed Future of Agriculture Survey in York County, it was determined the average farmer is 54 years of age and that 98 % of the farms are family run operations (individuals, partnerships or corporations).

B. Water Resources/Quality

Watersheds

Pennsylvania's State Water Plan divides York County into four major and two minor watersheds, as shown in Figure 1. Major watersheds are the Yellow Breeches, Conewago (West), Codorus, and Kreutz-Muddy, and minor watersheds include Deer Creek and Gunpowder Falls (PA-MD). All watersheds drain to the Susquehanna River and Chesapeake Bay. Below, Table 1 summarizes York County's watersheds by drainage area.

Table 1. Watershed Areas of York County

Waters of Interest	Total Drainage Area (mi. ²)	York County Drainage (mi. ²)	Outlet
Yellow Breeches	237	56	Susquehanna River
Conewago (West)	510	230	Susquehanna River
Codorus	278	278	Susquehanna River
Kreutz-Muddy	301	301	Susquehanna River
Deer	200	36	Susquehanna River
Gunpowder	478	10	Chesapeake Bay
TOTAL	2004	911	

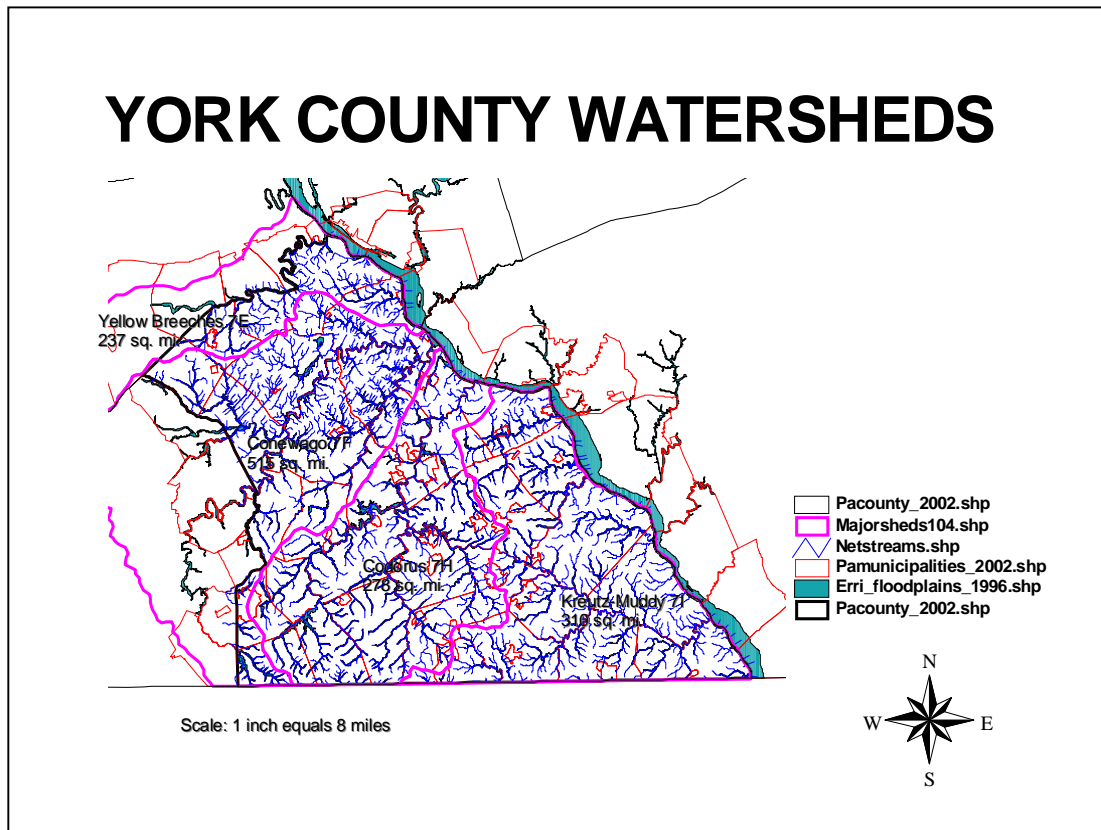


Figure 1. Watersheds of York County

Surface Waters

York County watersheds encompass 911 square miles (583,053 acres), and lie mostly in the Piedmont Province in Pennsylvania. The landscape is dominantly undulating to rolling terrain, commonly hilly, but has a few large, broad, flat valleys. Figure 1 (page 3) shows the watersheds are highly dissected by over 2,000 miles of streams. The Conewago, Codorus, and Muddy Creeks are major streams and have many tributaries. Elevation in York County ranges from 100 feet at the Susquehanna River in the southeastern corner of the county to 1,412 feet on South Mountain, in the northern corner.

Water Quality

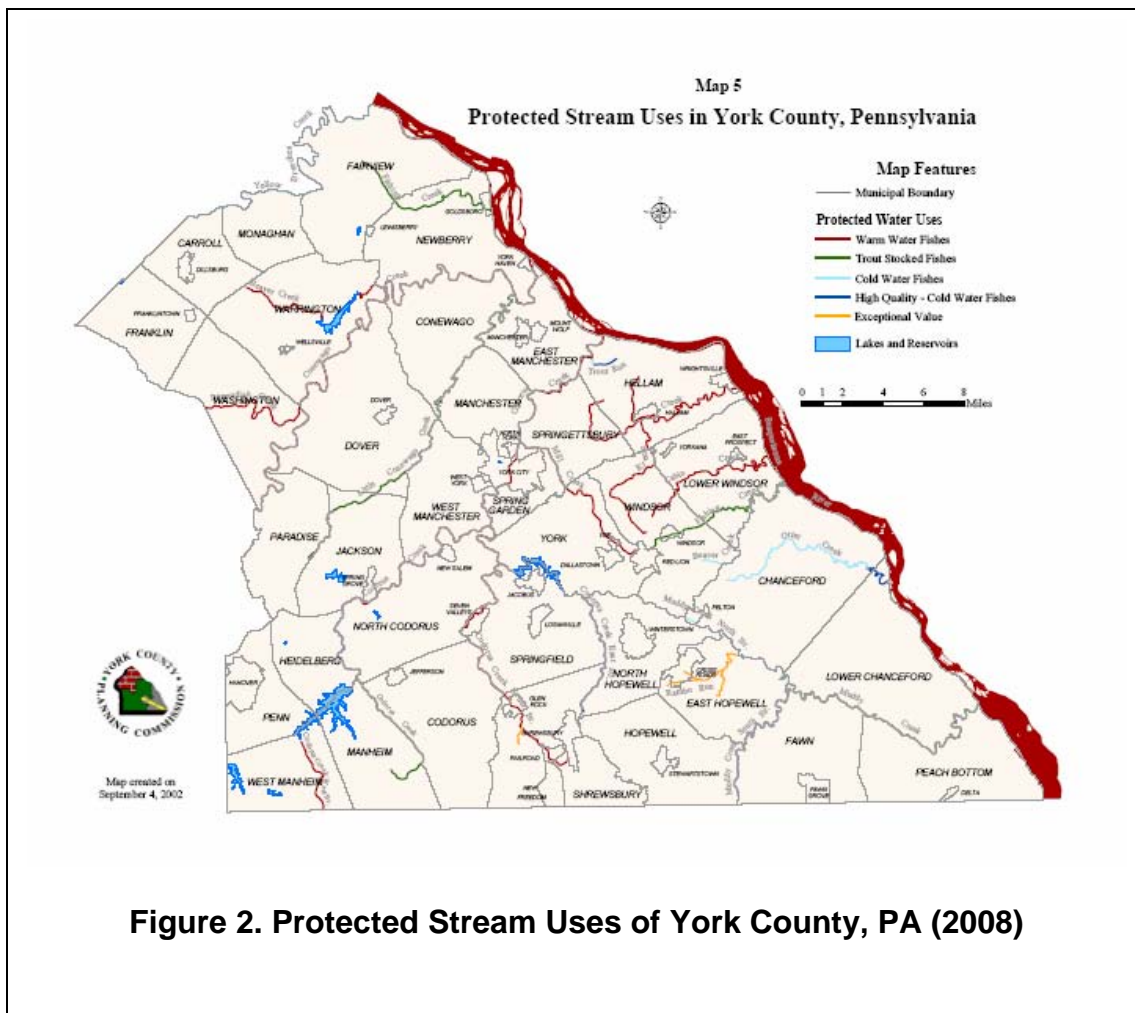
York County's drainage basins are listed in Section 93.9. Drainage List O. Figure 2 and Table 2 shows protected stream uses of York County.

The Title 25 Environmental Protection, Chapter 93 Water Quality Standards identify major streams and designate protected uses. Designated uses for protection of aquatic life, from lowest to highest levels, are as follows:

- Warm Water Fishes (WWF) – Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.
- Trout Stocked Fishes (TSF) – Maintenance of stocked trout from February 15 to July 31, and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.
- Cold Water Fishes (CWF) – Maintenance or propagation, or both, of fish species including the Salmonidae and additional flora and fauna which are indigenous to a cold water habitat.
- High Quality Cold Water Fishes (HQ-CWF) – High quality commands special protection as noted in Section 93.4b.
- Exceptional Value (EV) – Command special protection for ecological reasons.

Table 2. Protected Stream Uses of York County

WATERSHED	STREAM	PROTECTED USES
YELLOW BREECHES	Yellow Breeches	High Quality – Cold Water Fishery
CONEWAGO	Fishing Creek	Trout Stocked Fishery
CODORUS	UNT South Branch	Exceptional Value
CODORUS	East Branch	High Quality – Cold Water Fishery
CODORUS	Trout Run	High Quality – Cold Water Fishery
CODORUS	Centerville Creek	High Quality – Cold Water Fishery
CODORUS	West Branch	Trout Stocked Fishery
KREUTZ-MUDDY	Rambo Run	Exceptional Value
KREUTZ-MUDDY	South Branch Muddy Creek	High Quality – Cold Water Fishery
KREUTZ-MUDDY	Otter Creek	High Quality – Cold Water Fishery
KREUTZ-MUDDY	Fishing Creek (South)	High Quality – Cold Water Fishery
KREUTZ-MUDDY	Scott Creek	High Quality – Cold Water Fishery
KREUTZ-MUDDY	Fishing Creek (Central)	Trout Stocked Fishery
DEER CREEK	Deer Creek	High Quality – Cold Water Fishery
GUNPOWDER	Gunpowder Falls Tribs	High Quality – Cold Water Fishery



Water Quality Impairment

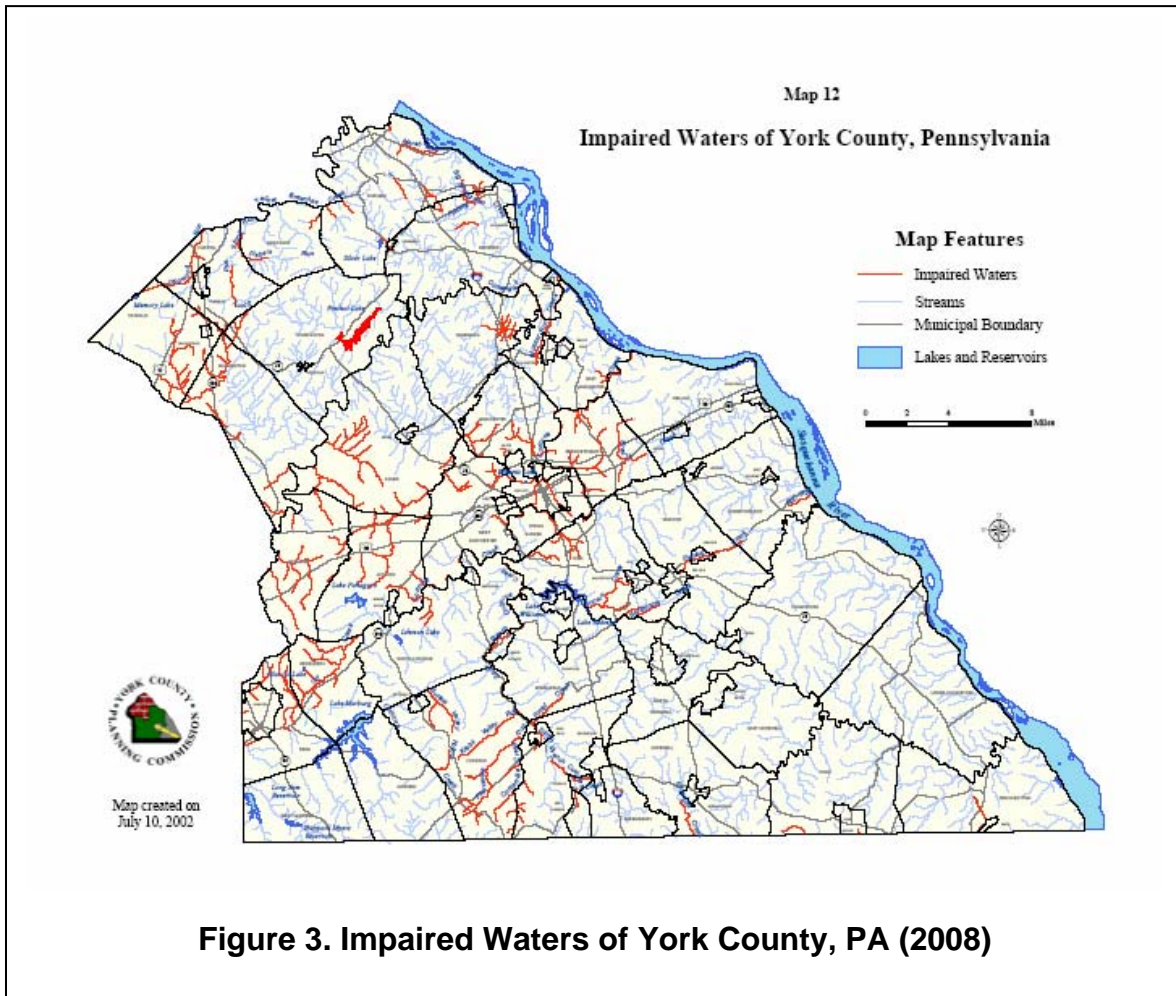
Under Section 303(d) of the federal Clean Water Act, Pennsylvania is required to assess and maintain a list of “impaired” waters that do not meet water quality standards for protecting aquatic life, human health, fish consumption, and other uses. In order for a water body to be included on this list, it must be determined that required technology-based treatment measures for pollution sources (point and nonpoint) will not be adequate to attain/maintain water quality standards. Once any water is identified as impaired, it is listed in PA’s Integrated Water Quality report, and the Department must determine conditions that would return the quality of the impaired waters to acceptable standards.

A “Total Maximum Daily Load (TMDL)” is required to be established for each impaired water body to identify the total allowable pollutant load, from both point and nonpoint sources, of the water that will prevent violation of the existing water quality standard.

Pennsylvania's Integrated Report (2006) is divided into five sections according to major sources of impairments and protected uses. Table 2 (page 7) and Figure 3 (page 8) show the impaired waters of York County.

Table 2. Impaired Waters of York County

Water body	Impaired Use	Source	Cause
Dogwood Run (7E)	Aquatic Life Recreation	Unknown Municipal Source Agriculture	Pathogens, Organic Enrichment, Low DO, Suspended Solids, Siltation
Fishers Run (7E)	Aquatic Life	Agriculture Construction	Organic Enrichment, Low DO, Siltation
Fishing Creek (7E)	Aquatic Life	Agriculture Construction Habitat Modification Hydromodification	Siltation, Nutrients, Unknown Toxics,
Stony Run (7E)	Aquatic Life	Agriculture Unknown Source	Siltation, Organic Enrichment, Low DO
Yellow Breeches (7E)	Aquatic Life	Agriculture Construction Industrial Source Urban Runoff	Pathogens, PCB, Siltation, Organic Enrichment, Low DO, Nutrients
Bennett Run (7H)	Aquatic Life	Impoundment	Siltation
Conewago Creek	Human Health	Unknown	Mercury
Musser Run (7F)	Aquatic Life	Agriculture Other	Suspended Solids
North Branch Bermudian Creek (7F)	Aquatic Life	Agriculture	Siltation, Nutrients
Plum Creek (7F)	Aquatic Life	Agriculture Urban Runoff	Siltation
South Branch Conewago Creek (7F)	Aquatic Life	Agriculture	Siltation
Codorus Creek (7H)	Aquatic Life	Agriculture Construction Industrial Source Storm Sewers Urban Runoff	Algae, Siltation, Suspended Solids, Temperature, DO, BOD, Color, Unknown Toxicity
Gitts Run (7H)	Aquatic Life	Agriculture	Siltation
Mill Creek (7H)	Aquatic Life	Urban Runoff	Siltation
Oil Creek (7H)	Aquatic Life	Agriculture Storm Sewers Urban Runoff	Siltation
Big Branch (7I)	Aquatic Life	Unknown	Unknown
Bull Run (7I)	Aquatic Life	Habitat Modification	Siltation
Deer Creek (7I)	Aquatic Life	Agriculture	Suspended Solids, Siltation
Ebaughs Creek (7I)	Aquatic Life	Municipal Source	Chlorine
Falling Branch (7I)	Aquatic Life	Agriculture	Suspended Solids
Fishing Creek (7I)	Aquatic Life	Storm Sewers Urban Runoff	Channelization, Siltation
Kreutz Creek (7I)	Aquatic Life	Habitat Modification Road Runoff Urban Runoff	Siltation
Scott Creek (7I)	Aquatic Life	Municipal Source Storm Sewers Urban Runoff	Chlorine Nutrients Siltation



In June 2000, the Chesapeake Bay Program partners adopted the Chesapeake 2000 agreement, a strategic plan to achieve a vision for the future of the Chesapeake Bay. A vision that includes abundant, diverse populations of living resources, fed by healthy streams and rivers, sustaining strong local and regional economies, and our unique quality of life.

To restore an ecosystem as complex as the Chesapeake Bay (figure 4) will require everyone to address numerous and extremely unique issues. The agreement details nearly one hundred commitments important to Bay restoration, organized into five strategic focus areas:

- *Protecting and Restoring Living Resources* - Chesapeake 2000 aims to restore, enhance and protect the finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem.
- *Protecting and Restoring Vital Habitats* - The Bay Program aims to preserve, protect and restore those habitats and natural areas that are vital to the survival and diversity of the living resources of the Bay and its rivers.

- *Improving Water Quality* - Improving water quality in the Bay and its rivers is the most critical element in ensuring the future health of Chesapeake Bay.
- *Managing Lands Soundly* - Because pollutants on land are easily washed into streams and rivers, our actions on land ultimately affect the Bay.

Engaging Individuals and Local Communities - To contribute to Bay restoration, we have to first be concerned about resource stewardship in our own communities, homes and backyards.

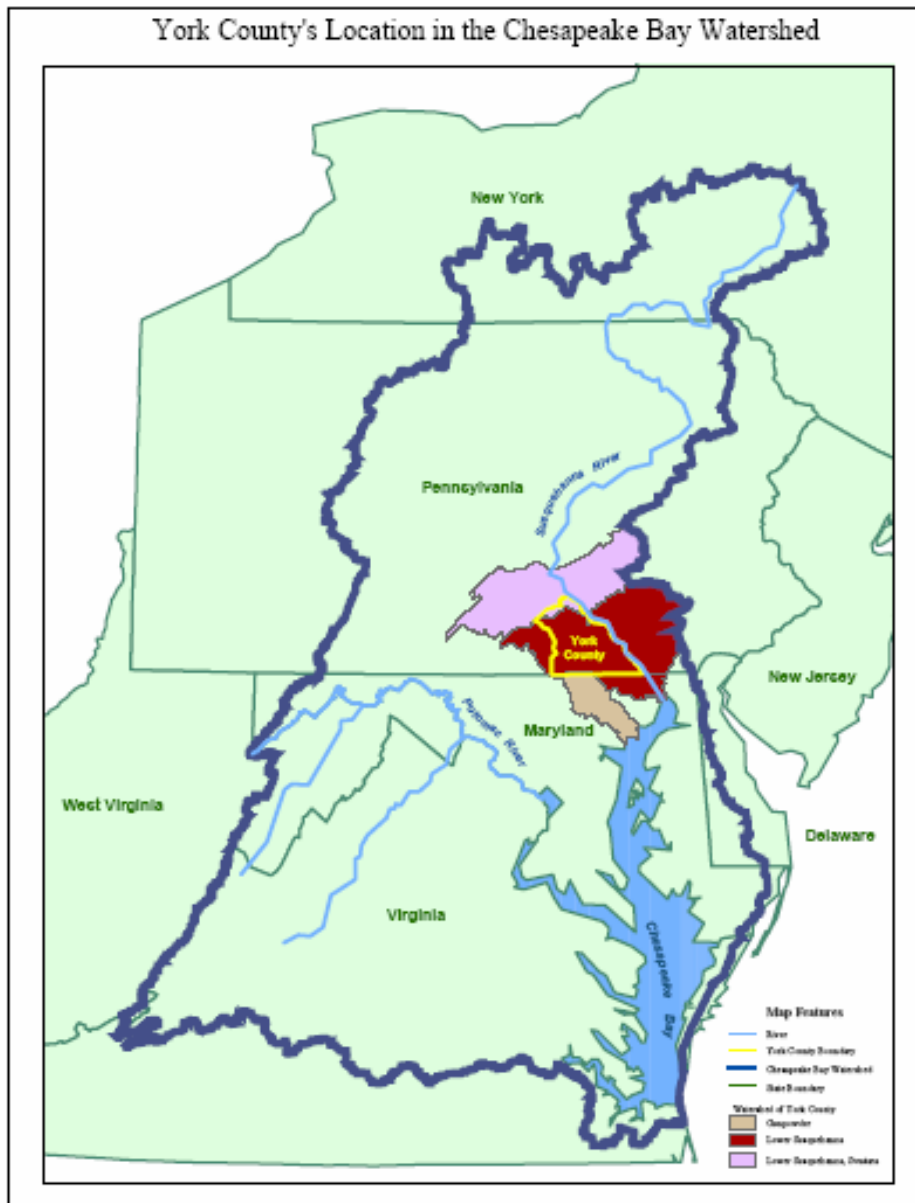


Figure 4. York County's Location in Chesapeake Bay Basin

C. Water Quality Trends

Agriculture

Agriculturally related land uses have had a significant effect on water quality in York County. Sediment from erosion of cropland, pastures, stream corridors and nutrient runoff from barnlots and animal concentration areas are the main nonpoint sources of pollutants.



Agriculture's contribution to water quality has changed in the last 30 years. We have less farmers and acreage in farmland. The number of animal operations has decreased and the acreage in cash grain farming has increased. Many of these grain farmers have converted to or in the process of converting to no-till and conservation tillage systems. This is mainly for economical reasons (the ability to farm more acreage in a shorter time frame) but also to reduce soil erosion and nutrient loss.

Since 2000 cropland acres have decreased significantly (> 20,000 ac.) as more development has taken place. Soybeans have stayed steady, hay acreage slightly increased with more grass and less alfalfa hay being grown. We are seeing an increase in acreages of vegetables as more people look to local sources of produce. With animals we are seeing less dairy and beef cattle, more sheep, goats and horses, less chickens, more turkeys and a slight increase in the number of hogs. New and revised state and federal regulations and negative perceptions in the local community of large animal operations will continue to keep animal numbers from increasing significantly.

York County has seen an increase in farms operated by part-time farmers/landowners with small sheep, goat and horse operations. These farms tend to use older facilities, which are renovated for housing but not manure controls. These barns also tend to be sited near streams and water sources. These farms tend to have overgrazed pasture, no manure handling practices and animals in or near the streams. Many new horse facilities are in place with high numbers of horses on small acres. They also tend to have manure with no place to spread when they convert these farms to all pasture and hay.

The Amish community has moved to southeastern York County in the last 30 years and has grown to over 70 families. They tend to use conventional tillage practices and have manure runoff and handling problems. They tend to stay within their own community and have had limited interaction with the District and NRCS. We have had some success with a few individuals, but not the community as a whole. Some have started using no-till and reduced tillage as time and labor are also important for the Amish. Stream corridors are changing with the land use changes. Many old pastures have been abandoned and natural riparian areas are returning, especially on our major streams.

However, with increased development pressures the streams are eroding from higher flows of storm water runoff. We are losing tremendous amounts of stream bank adding to the sediment load in the stream. The buffers help treat surface flow to the streams but not within the stream itself. Tree roots where forested buffers exist also help to stabilize stream banks.

Other Sources

York County has seen a tremendous increase in population, and loss of land to housing, commercial and business interests. The biggest growth is in the southern half of the County with people moving north from Maryland. The northeast section of the County has seen substantial growth in housing, and the I-83 corridor shows increasing growth in commercial properties and businesses that want access to highways and roads.

The District is convinced through numerous studies, field observation and workload volume related to development pressure on the Erosion & Sediment (E&S) Pollution Control program, that non-Ag related non-point source pollution is a significant contributor to degraded water quality and sediment load in our watersheds.



Typical Streambank Erosion

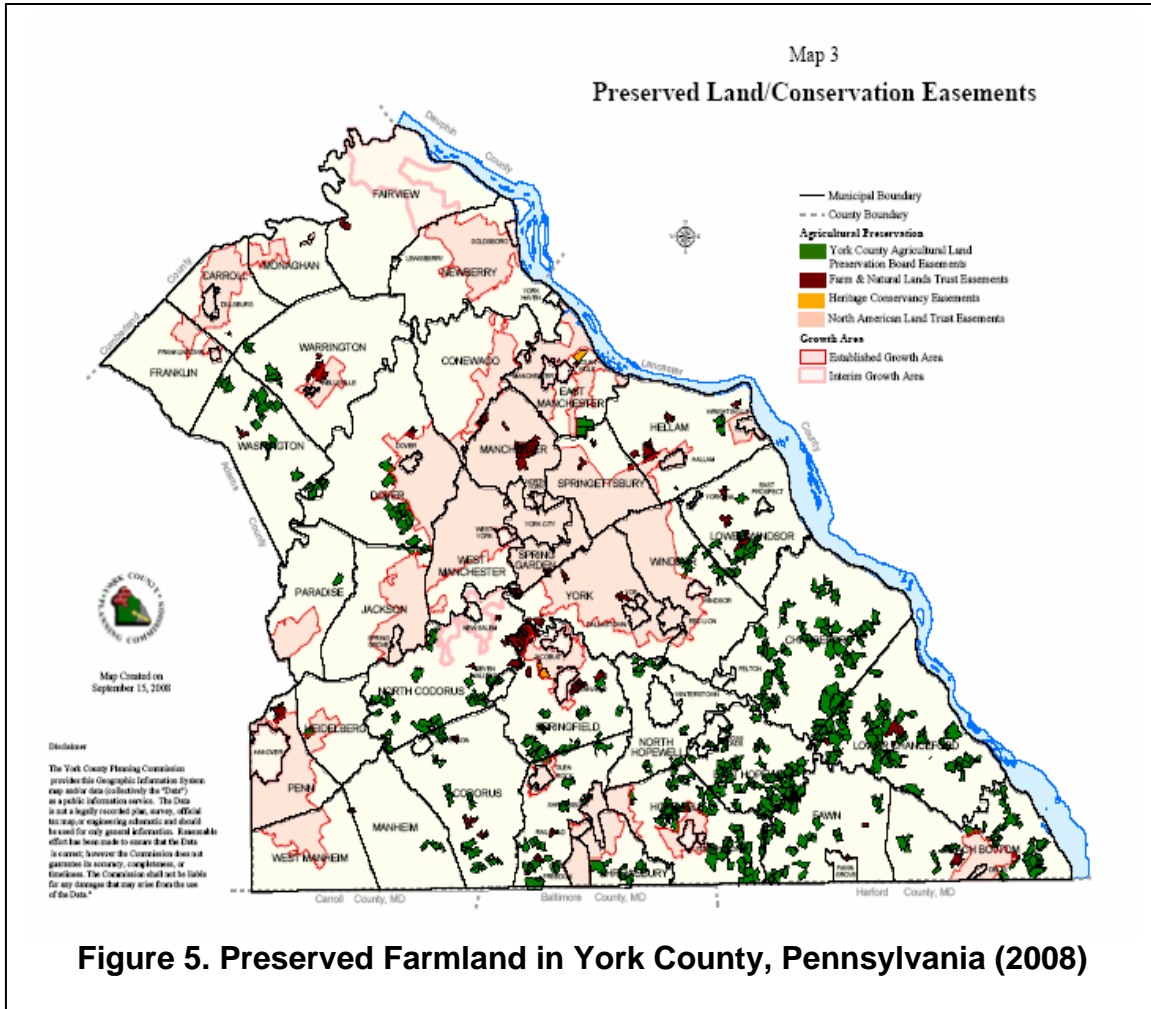
Storm water runoff tops the list of causes related to impacts from non-Ag non-point source pollution. The impact to our watercourses is evident in nearly every watershed where development has been occurring. With our rolling topography compounding the impact of poorly managed runoff, the sediment load being generated within the riparian system is a significant contributor to our overall sediment and nutrient load.

We have one of the most aggressive and active E&S programs in the state. With the addition of (2) positions for the E&S program team in 2005, we have (5) Field positions and (2) support staff dedicating nearly all of their time to soil erosion control related to earth disturbance activities. We emphasize both a thorough plan review before construction begins as well as an active field presence to ensure that controls are not only on paper but implemented in the field. Further, the district watershed specialist spends a great deal of his time dealing with impacts relating to stormwater runoff.

It is our opinion that previously completed TMDL's for watersheds in York County have been in error in defining the major cause of degradation as agricultural activities. We find it interesting to note that the streams defined by DEP (using the York County Designated Use Assessments & TMDL Status map) to have impaired waters, coincides with the areas under heaviest development pressure. Conversely, the water courses mapped as attaining water quality goals appear to be found in our areas where land use is predominantly

agriculture and will most likely be our last areas to stave off development and hang on to agriculture as a primary land use (Figure 5).

Further, many of our Ag related erosion control complaints are a result of increased runoff from development and or concentrated flows from state and local highway culverts, that outlet onto a farm field and cause excessive erosion.



Water Quality

Water quality baseline information collected in 2003 suggests that York County’s watersheds are generally in good condition. Water quality varies both spatially between and among watersheds and temporally, seasonally. Land use affected water quality the most, especially in the Codus Watershed.

Significantly high concentrations of sediment and nutrients (nitrate-nitrogen and ortho-phosphate) were found in rural watersheds where agriculture was the predominant land use. However, urbanizing upland areas also contributed significantly to increasing stormwater runoff and stream bank/channel erosion and sedimentation downstream, in all watersheds.

Point sources affect water quality for nutrients in the Codorus Watershed. Specifically, higher levels of nutrients and lower levels of dissolved oxygen were positively correlated with reduced water quality downstream of existing point sources.

Geology influences water quality in the Codorus Watershed also. Specifically, total alkalinity is higher in the West Branch and Main Stem of Codorus Creek which flows through a limestone valley. Higher alkalinity of the West Branch improves its natural buffering capacity.

Figure 6 is a graph showing the raw water turbidity in the South Branch at the location of York Water Company’s Brillhart Pumping Station. The number representing each year is an average of the daily raw water turbidity measurements for that year. This trend shows the positive effects of the Conservation District’s implementation of Best Management Practices in agriculture and improvements in the South Branch and East Branch of the Codorus Creek. The annual average turbidity is greatly affected by the amount and timing of rainfall for each year.

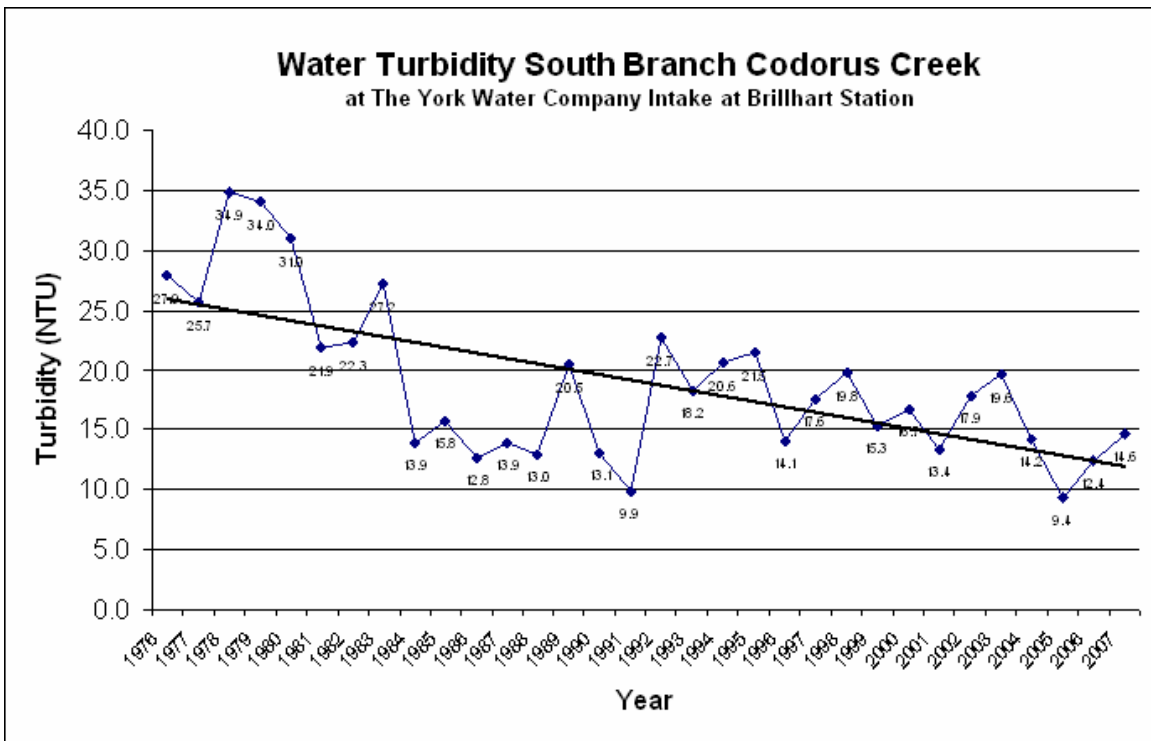


Figure 6. Water Turbidity South Branch Codorus Creek

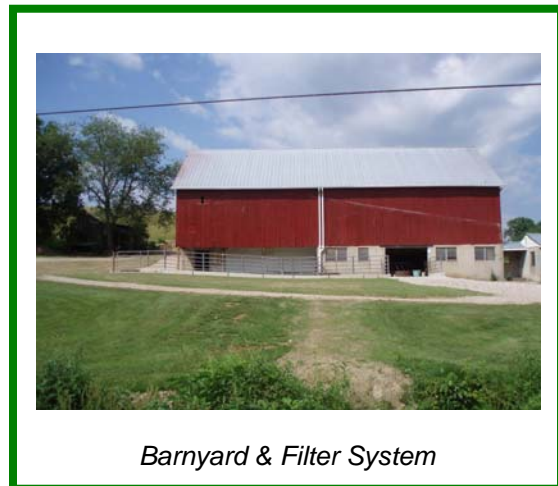
D. Nutrient and Sediment Reduction Efforts

The York County Conservation District has a long history of assisting cooperators with implementing conservation practices. A scenic ride around the county will show contour farming and strips, grass waterways, manure management facilities, stream fencing and pasture management systems that have been installed and maintained. This would not have been accomplished without the cooperation of many partners and agencies including the NRCS, the Farm Services Agency, Cooperative Extension, Ag Preservation, local watershed groups and organizations, Ducks Unlimited, the Chesapeake Bay Foundation, PA-DEP and the State Conservation Commission.

Conservation District Programs

Chesapeake Bay Program- From 1985 to 2007 the District assisted 99 cooperators through contracts on over 14,000 acres of land, to install various practices to control soil erosion, manage and collect manure and implement nutrient management plans. We allocated and spent nearly 2.2 million cost share dollars with nearly another 1 million dollars spent by the cooperators. Practices installed include grass waterways, diversions, terraces and contours on cropland, manure storages and manure runoff controls at the buildings and stream fencing, crossings and watering systems in the pastures. All contracts have a nutrient management plan developed and later updated after the manure systems are installed.

In 2005 the Bay Program changed to a Special Project funding system, whereby Districts could do projects in addition to BMP's. The York District decided to continue funding BMP's but went away from a total farm funding system. Cooperators could apply for limited practices at a time as long as part of an overall conservation plan. The District has received funding from the National Fish and Wildlife Foundation as well as the Bay program. We have assisted nineteen cooperators with funds through the end of 2008.



Nutrient Management Act – The District is currently administering the State Nutrient Management regulations on 25 CAO's (Concentrated Animal Operations) with 903 acres and 11,465 AEU's. There are 4 voluntary plans with 1,719 acres and 920 AEU's. The CAO's are inspected annually and plans are updated every three years. The Act 38 regulations went into effect in October 2006.

Project Grass – With funding from the Mid State Resource Conservation & Development council grazing practices were implemented on five farms in the county. The funding (\$ 33,640 from three different grant phases) was used to install interior and exterior fencing for conversion to pasture, watering systems, stable cattle walkways, stream fencing and stable access to streams. All funds were allocated and final projects installed in June 2008. There is currently no funding for this program.

Conservation Planning and Technical Assistance – The District and NRCS provide assistance to any landowner who becomes a District cooperator. We currently have approximately 1,120 cooperators in the system. Assistance includes developing conservation plans and then implementing the planned practices. We assist the Ag Preservation program and NRCS with writing and implementing conservation plans on all program applicants and preserved farms. Ag Preserve currently has 219 preserved farms with about 35,060 acres and 61 pending applications for 2008.

Biosolids Land Application – The District assists the DEP and the York County Solid Waste and Refuse Authority to manage the land application of biosolids program. The District monitors the implementation of conservation plans on all permitted acres and provides conservation planning and technical assistance as needed. Currently there are 49 permitted farms with 4,273 acres of land in the county.

Chapter 102 – The District administers the 102 program. With the tremendous growth there is a substantial workload in reviewing plans, performing site inspections and addressing complaints. In 2008 the staff reviewed 348 plans on 6,814 acres, performed 1,439 site inspections and handled 317 complaints related to erosion and other activities. They also implement the National Pollution Discharge Elimination Program permit program for DEP.

Dirt and Gravel Roads – Since 1999, the District has assisted local municipalities to improve 23 roads of approximately 18.1 miles in length, while using \$870,157 of cost share funds.

Watershed Program – The District's Watershed Specialist provides technical assistance which will improve watershed organization development and the quality and quantity of the County's surface and groundwater resources. The focus of this work relates to watershed assessment, procurement of funding, technical assistance, and the creation of work plans and strategies to restore and protect groundwater and surface water resources. The Watershed Specialist is a resource to both the public and private sectors.



Watershed restoration and protection planning have been completed in several major watersheds. Rivers Conservation Plans have been completed for the Codorus Creek (2005), Yellow Breeches (2005), and Conewago (2008) Watersheds. Rivers Conservation Planning has started and is ongoing in the Kreutz Creek Watershed, including all Susquehanna River, Deer Creek and Gunpowder Falls subwatersheds, and Muddy Creek Watershed. Additionally, the Codorus Creek Nonpoint Source Management Watershed Implementation Plan (2007) is being implemented through various partners. All of these plans are currently awaiting funding for implementation.

The Watershed Alliance of York (WAY) is a coalition of stakeholders committed to being innovative leaders encouraging watershed planning, restoration and protection. The Alliance consists of 35 local watershed organizations that collectively have leveraged over \$5.7 million dollars to fund locally led watershed conservation initiatives including 6 watershed assessments, 6 watershed management plans, 1 watershed implementation plan, and 27 major restoration projects, since 2001. Numerous other environmental stewardship and watershed protection projects including educational programs, stream cleanups, riparian buffer plantings, Sustainability conference, water quality monitoring network, Codorus Restoration Efficacy Program, Rivers Conservation Planning, Recapture the Riverfront, and the annual Watershed Weekend, across York County. To date, over 75,000 linear feet of stream corridors have been restored and protected including riparian buffers. Additionally, WAY effectively provides education and outreach to over 500,000 stakeholders locally and regionally, annually.

In 2003, the District initiated a new program titled HELP-Streams (Headwaters Environmental Legacy Program for Small Streams) with a \$5,000 grant from the York Foundation which allowed 3 demonstration site projects to be completed. The purpose of the HELP-Streams Program is to educate landowners about environmental Stewardship and Watershed Protection and provide financial and technical assistance on a cost-share basis. Since then, the District has installed eight projects for private, nonagricultural landowners, for a total expenditure of \$33,000.

In 2003 the U.S. Army Corps of Engineers-Baltimore District initiated two feasibility studies under Sections 206 and 1135 of the Water Resources Development Act to assess the Codorus watershed for ecological and flood mitigation improvements. The Section 206 Watershed Restoration Study was completed in 2006 by the Corps. The Section 1135 study has been discontinued because of lack of funding to the Corps.



*Headwater Stream (HELP-Streams)
Rehabilitation & Protection Project*

USDA Programs

Environmental Quality Incentives Program (EQIP) – EQIP offers an incentive payment to install BMP's to solve resource concerns. Since 1997 the NRCS has been managing the EQIP cost share program. There have been 117 contracts written on 13,301 acres with \$1,597,763 obligated and being spent. Many of these contracts were in the Codorus watershed when it was considered a priority area. Since 2003 the funding has been on a countywide basis. The 2008 Farm Bill has established additional funding for the Chesapeake Bay watershed. EQIP assists farmers with solving resource concerns related to sediment and nutrient loss, improve manure handling and application, and implement grazing systems. Improving wildlife habitat is also an important goal of the program. Major practices installed include grass waterways, ag waste systems, stream fencing and crossings, riparian buffers, roof water controls, filter strips, upland wildlife habitat and watering systems for livestock. In recent years funding for nutrient management plan, cover crops and transition to no-till farming practices have been added to the program.

Conservation Reserve Enhancement Program (CREP) – NRCS has completed 336 contracts with 4,202 acres of practices planned. As of 3/16/07 2,817 acres of practices have been installed. Applications are still being accepted to install Riparian Buffers. The major practices include seeding of cool and warm season grasses, installing riparian buffers and establishing permanent wildlife habitat.

Conservation Compliance – All farmers and operators that receive federal government funds must be using an approved conservation systems on all cropland. The NRCS and District workload includes planning new and revising old plans for these operators.

State and Private Organizations

DEP Stream Fencing Program – DEP has installed stream bank fencing systems on 6 farms in York County. All the systems included two strand fencing and stable crossings or access for cattle. Practices were installed on dairy and beef farms.

Chesapeake Bay Foundation and Ducks Unlimited – Five streambank fencing and buffer projects have been installed with the CBF Farm Stewardship Program and one with Ducks Unlimited program since 1997.

2008 Accomplishments

The District had another successful year implementing conservation plans and installing Best Management Practices (BMPs). The District Ag staff developed 2,433 acres of conservation and grazing plans, implemented conservation practices and plans on 1,671 acres and wrote nutrient management plans for 290 acres of cropland and pasture.

In 2008 we received \$10,000 in additional Chesapeake Bay Special Project funds for agricultural BMPs in the Muddy Creek watershed, which will be spent by June 2009 and also were awarded \$ 23,415 for implementing practices on two farms in the Codorus watershed. We also completed two CBP Special Project grants.

PPL Brunner Island settlement funds were used to install streambank fencing and a stream crossing on a sheep and horse farm in the Codorus watershed. We still have additional funds to use and hope to complete more projects in 2009. Total cost share funds dispersed equaled \$ 44,688.29. BMPs installed included six grass waterways and five diversions on cropland, one barnyard runoff and filter system, underground outlet pipe, water control structures, one stone lined waterway and seeding of these practices. Also assisted one landowner with converting 18 acres from cropland to pasture, system included new fencing, seeding pastures and installing stable animal walkways.

Wendy Kindig, Resource Conservation Specialist continued to promote the use of chlorophyll meters in nitrogen management. We advertised the meter availability in the local papers and Extension newsletters. One York County farmer used a meter to sample their corn to determine if adequate nitrogen was available or if an additional side dress of nitrogen was needed. The farmers used the meters on 100 acres of corn. The District plans to continue this program in 2009.

The District continued working with the Capital Resource Conservation and Development (RC&D) Council to implement the Park the Plow program. The program will assist farmers during the transition and implementation of a no-till farming system. The program provides funds for a transition plan to be developed and then plan implementation for three years. The District has signed two contracts on 231 acres for implementation.

The Watershed Program's accomplishments are summarized below:

- Stormwater Management
 - Assisted 72 local municipalities and 12 citizens with resolving stormwater problems upon request, and referred complaints to appropriate state or local agency.
 - Assisted the York County Planning Commission, Watershed Alliance of York and 42 local Municipal Separate Storm Sewer Systems with stormwater management planning projects regulated under their National Pollutant Discharge Elimination System Phase II Stormwater General Permit, as time and resources allowed.
 - Referenced the new DEP Stormwater Best Management Practices Manual in training sessions and complaint handling.
- Water Quality
 - Published three District education and outreach booklets titled, "This OLDS House: Managing Your On-Lot Subsurface Disposal System", one volume each for homeowners, municipal officials, and real estate agents.
 - Continued to co-sponsor a workshop on soils and septic systems for homeowners, municipal officials and others, with appropriate partners from state and local agencies.

- Continued to educate homeowners on their contributions and impacts to water quality, effective education and outreach 350,000 total.
- Continued to assist the public with understanding applicable Chapter 105 regulations for stream encroachments and wetlands protection, of the Pennsylvania Department of Environmental Protection, as time allowed. Referred individual landowners to appropriate state agency for applicability determinations, General permits, and other technical assistance.
- Administered the Dirt & Gravel Roads (DGR) program. Continued to promote program and received two (2) applications for projects. Assessed approximately 292 miles of dirt and gravel roads throughout the county for ranking and prioritization. Sponsored DGR training and encouraged municipalities to attend the for project eligibility, 24 attended. Assisted the Chairperson of the DGR Quality Assurance Board with the appointment members, as necessary.
- Provided the public with pond management packet and assisted individuals through onsite assessments, information and referrals.
- Advised and assisted 35 existing conservation, environmental and watershed organizations and encouraged development of additional watershed groups where grass roots interest exists, as resources allow.
- Continued supporting the Watershed Alliance of York (WAY), via the approved Memorandum of Understanding.
- Continued developing and implementing the Headwaters Environmental Legacy Program for small streams (HELP-Streams) by providing financial incentives and technical assistance to landowners encouraging them to rehabilitate and protect 1st and 2nd order headwater streams, as time and resources allowed. Thirty-six (36) headwater streams were assessed, 8 General Permit for Stream Bank Rehabilitation and Protection applications were prepared and submitted to DEP for approval, four (4) projects were approved for cost-sharing, and two (2) projects were completed.
- Water Resources Management
 - Provided assistance and support, as time and resources allowed, to the Lower Susquehanna Regional Water Planning Board and assisted with educating the public about the Water Resources Planning Act.
 - Continued supporting York County's Drought and Health Department Task Forces, as necessary.
 - Provided technical assistance to local Source Water Assessment and Protection Planning efforts, as requested. Source Water Protection Plans developed and completed included the municipal authorities of Wrightsville and Red Lion Boroughs, respectively.
 - Implemented fee menu for Watershed Program products and services.
- Special Projects
 - As time allowed, serve as sponsor for projects to improve/protect water resources where adequately funded.
 - Supported the Codorus Watershed Endowment and U.S. Army Corps of Engineers – Baltimore District's projects in the Codorus Watershed.

- Completed design and installation of five Mid-Atlantic Ecological Landscapes interpretive signs in the York County ANNEX's demonstration gardens for public educational purposes

Current Status of Workloads and Concerns

Looking at the listed numbers and accomplishments it would seem that we have done a significant amount of work to improve water quality with landowners and farmers in York County. However, we still have a lot of farms and acreage that have not either developed and/or implemented conservation plans. From the 2007 Ag Statistics survey there are 282,000 acres of farmland in York County. Our best estimate is that 65% (183,000) of this farm acreage has some type of conservation plan written but only 30% (85,000) of the acreage has an implemented conservation system that would meet current standards.

The ability to develop and implement plans and practices is limited by many factors but is mainly related to funding and economic issues. Conservation District and NRCS staffs are stretched to the limit handling current programs and initiatives. In York we currently have a backlog of conservation plan requests of 16,500 acres. These requests include District cooperators, Ag Preserve, conservation compliance, Biosolids application, grazing systems, erosion complaints and conservation for nutrient plans.

The District staff continues to administer contracts with the original Bay program, including the completion of outstanding contracts and to monitor and spot check these contracts for ten years until they meet obligations of the program. Nutrient Management workloads have decreased slightly with the loss of some CAO and CAFO's in our county. We are still working on educating horse operations about the nutrient management regulations. Other issues we are monitoring are the new Odor regulations and animal mortality concerns.

We also have our continuing obligation to assist the Ag Preservation and Biosolids programs with conservation planning and implementation. The District Ag staff are also handling erosion and manure complaints on agricultural operations.

Funding options for landowners and farmers have not kept pace with the demand and need to install practices. Our requests for assistance far exceed the funds we receive and the District and NRCS staff ability to implement. Without cost share dollars landowners will usually delay installing practices as they do not have the funds to fully pay for the practice. One bright spot on the horizon is additional federal funds through EQIP and the 2008 Farm Bill.

The major issues with agriculture are soil erosion from cropland and pastures, manure runoff and nutrient loss from barnyards and animal concentration areas and streambank and stream corridor erosion from stormwater runoff and animal access. Horse operations are also a growing concern because of high stocking rates contributing to erosion and runoff from bare pastures.

Erosion and nutrient runoff from non agricultural sources are also a major concern of the District. These include erosion from construction sites, storm water runoff, non agricultural fertilizer uses and erosion from improper logging practices.

Dirt & Gravel Road Program demand in 2009 is projected to equal 2008 interest and number of applications (4). However, the program's workload is expected not to increase in 2009 because of funding allocation limitations. York County's dirt and gravel roads were re-assessed in 2008 (image below). Highlights:

- 331 worksites
- 25 projects completed
- \$1,036,437.82 project commitments
- \$846,464 project expenditures
- \$416,682.52 in-kind contributions
- 1,347,317 SF road stabilized
- 18.29 miles ESM

The HELP-Streams Program's workload continues to increase steadily since 2003, from a low of 3 projects per year to a high of 16 projects in 2008. Presently, the District has 16 projects designed and ready to build, costing \$95,000 total, waiting for funding. In 2009, the workload is projected to soften due to the weak economy.

Resource Needs, Options and Alternatives

- We need to maintain current trained and experienced staff to provide planning and technical services. Current funding sources need to be maintained and new dedicated sources found to fund technicians. With the fragmented systems Districts work under, it is hard to pay staff adequate salaries and avoid constant turnover. It takes 2-3 years to develop a fully independent planner or technician. We did hire an additional agricultural staff person in April 2008 but unfortunately they left in October. We refilled the position the end of January and hope to increase the amount of plans written and implemented.
- Dedicated funding sources for practice installation and plan implementation need to be developed. Districts must be allocated funding up front to have funds on hand, when the landowner is ready to do the work. The approach of writing plans and requesting funds does not work in the real world. Our best opportunity for getting practices implemented is to do it as soon as possible after the plan is completed. When working with those in agriculture we are assisting the one business that does not set the price they receive for their products. When a farmer needs to install practices he cannot pass the cost on to the buyers of his grain, cattle or crops. If society declares agriculture must do its part then society must assist with part of the cost. Without cost share funding, we can write, plan and develop all the plans we want but not many will be implemented.

- We need to review our system of providing engineering assistance to Districts. We currently have three sources; Chesapeake Bay engineers, PACD TAG technicians, and NRCS engineering staff. District technicians currently can do technical work under the Job Approval system provided by NRCS. This gives us technical oversight and protection in the field. If Districts ever lose NRCS engineering support and job approval authority, we will have no protection in the field when problems occur. However, the availability of these sources is threatened by current funding situations. We strongly recommend a state funded and supported system of engineers to assist Districts.
- Nutrient Trading programs should continue to be explored. There is an opportunity for industries or businesses to fund implementation of practices on farms and with landowners. It seems like a great fit. A business (with the ability to pass on costs) that needs to implement pollution controls could assist a farmer (without that ability to pass on the costs) to put in practices, thereby helping him get into compliance and improving water quality for everyone. We need to proceed with caution so we develop the best program possible. Our primary concern with trading is that at the end of the day we can demonstrate measurable results to improving water quality. No opportunities for trading have presented themselves in York County.
- Sustainable funding is needed for the Headwaters Environmental Legacy Program for Small Streams (HELP-Streams). The purpose of HELP-Streams is to provide non-agricultural, private landowners with environmental stewardship and watershed protection education and financial and technical assistance to rehabilitate and protect headwater streams, locally. Landowners of private lands are not eligible for publicly funded grants at the local, state or federal levels. Rehabilitating and protecting our smaller headwater streams (1st and 2nd order) is significantly more cost-effective and efficient than restoring larger (3rd order and 4th order) impacted reaches of our watersheds. Small headwater streams, of the 1st and 2nd order, make up to 75% of our watersheds. Educating landowners about the importance of rehabilitating and protecting headwater streams will give them a better understanding about their watershed and steps to improve and protect the health of the Chesapeake Bay. HELP-Streams rehabilitation and protection techniques improve both the appearance and vitality of our watersheds and the bay. Specifically, the stream rehabilitation and protection techniques used will improve water quality and stream hydrology and are protective of the water supply and habitat for fish and wildlife in the Chesapeake Bay Watershed. The result will be a new appreciation of watersheds as a treasured York County asset – a resource for residents and visitors to enjoy and protect.

E. York County Implementation Plan

The York County Conservation District's plan will be to implement the following items which are listed in order of priority. These items will be completed in all watersheds as the entire county is part of the Chesapeake Bay watershed. A summary table listing District accomplishments and current Tributary strategy numerical goals is attached as part of the Tributary Strategy.

Conservation Planning

The Ag staff will continue to write new and update existing conservation plans for farmers and cooperators. These plans will include erosion control for cropland, grazing plans for pastures, agricultural waste management systems for handling manure and stream corridor systems. All plans will be written to the current standards of Chapter 102, and the Pa Technical Guide. All planners will get certified by NRCS to meet their planning standards. Conservation plans are the basis for all other work we do. Implementation cannot occur without a good plan and design process.

Installing Planned Conservation Practices

The District will continue to assist landowners with the design, layout and installation of planned practices. District staff will have Engineering Job approval from NRCS for this work. All practices will be done to Pa Tech Guide specifications. Most practices will be installed with cost share funds received but will also include non cost shared practices.

Funding Requests for 2009-2010 – Installation of Best Management Practices

The District will continue to promote the installation of Best Management Practices on farms with sediment and nutrient resource concerns and with approved conservation plans. We will continue to look at various sources of dollars to assist landowners. All funding will be through our York Cost Share Program. The funding would apply to any farm in the county as the whole county is in the Bay watershed. Some fund sources may be watershed or practice specific but we are trying to be as flexible as possible with our funds. Practices will be installed to Pa Tech Guide standards and specifications. Cooperators can apply for single or multiple practice installation. All cost-share funding will be at 75% not to exceed table rates approved by the District.

We are requesting funding from the Chesapeake Bay Special Project program to support our initiative to assist landowners in implementing conservation plans and practices. We will also work with the USDA-NRCS to promote funding opportunities from the federal sources as state funding gets less. We will also be applying for CBP Special project funds for Riparian and streambank stabilization systems.

Promotion of No-Till, Conservation Tillage and Use of Cover Crops

The District will continue educational efforts to foster acceptance and implementation of no-till, conservation tillage and cover crop practices to reduce sediment and nutrient losses. We will do this in partnership with NRCS, Extension and the No-Till Alliance organization. Most of our effort will be one on one with landowners as we develop plans, but will also use newsletter articles and fact sheets at various educational events. We will also support the efforts of the Capital RC&D Park the Plow initiative.

The District has not considered applying for funding to promote no-till and cover crops. Many farmers in York County have been implementing no-till, especially for corn for over 30 yrs. The only limitation to more no-till farming is many have been slower to purchase new drills for planting soybeans and small grain. Farm economics are having a larger effect on no-till growth than any funding the District would have. NRCS has also seen very few applications for no-till and cover crop programs.

The District will continue to assist with REAP program conservation plan verification. Many farmers in York County have used this program to purchase no-till planters and drills to enable them to improve or convert to no-till.

Nutrient Management Planning

The District staff will write nutrient management plans for existing Bay contracts and those seeking voluntary plans with the Nutrient management act regulations. All planners will be certified to Act 38 standards.

Erosion Control and Manure Management Compliance

The District will continue to address erosion and manure complaints as we receive them. We will follow our current procedures for handling erosion complaints which include working with the landowner and operator to achieve voluntary compliance. We will assist in developing and implementing the needed conservation practices. If voluntary compliance cannot be achieved the District Board will then decide on referral to DEP for enforcement.

Manure complaints will also be handled with the goal of voluntary compliance. If the farm is a CAFO or CAO we will follow the appropriate procedures. If not we will assist the operator in reaching voluntary compliance with the Manure Management Manual. If voluntary compliance cannot be achieved the District Board will then decide on referral to DEP for enforcement.

The District will continue educational efforts to inform the agricultural community about Chapter 102 and 91 compliance through newsletter articles, partnering in other educational events and one on one education of farmers and landowners.

Stream Rehabilitation & Protection

The District continued developing and implementing the Headwaters Environmental Legacy Program for small streams (HELP-Streams) by providing financial incentives and technical assistance to landowners encouraging them to rehabilitate and protect 1st and 2nd order headwater streams, as time and resources allowed. Thirty-six (36) headwater streams were assessed, 8 General Permit for Stream Bank Rehabilitation and Protection applications were prepared and submitted to DEP for approval, four (4) projects were approved for cost-sharing, and two (2) projects were completed.

In 2008, the District implemented innovative sources of sustainable funding for HELP-Streams by purchasing 250 rain barrels for retail sales, with the goal of raising \$50,000. The total number of private landowners who may potential benefit from this program is estimated to be large, demand is steadily increasing as word of financial and technical assistance spreads.

Table 1. HELP-Streams Projects Requesting Financial and Technical Assistance (2008)

WATERSHED	Estimated Cost	Estimated Landowner Share	Estimated District Share
CONEWAGO			
Weber	\$10,000.00	\$2,500.00	\$7,500.00
Miller	\$5,000.00	\$1,250.00	\$3,750.00
Sweigart	\$5,000.00	\$1,250.00	\$3,750.00
<u>Elliot</u>	<u>\$10,000.00</u>	<u>\$2,500.00</u>	<u>\$7,500.00</u>
	\$30,000.00	\$7,500.00	\$22,500.00
CODORUS			
Lutz	\$7,500.00	\$1,875.00	\$5,625.00
Kraut	\$1,600.00	\$400.00	\$1,200.00
Mabon	\$12,500.00	\$3,125.00	\$9,375.00
Caldwallder	\$10,000.00	\$2,500.00	\$7,500.00
<u>Kemper</u>	<u>\$2,500.00</u>	<u>\$625.00</u>	<u>\$1,875.00</u>
	\$34,100.00	\$8,525.00	\$25,575.00
KREUTZ-MUDDY			
Greenwood	\$12,500.00	\$3,125.00	\$9,375.00
Fake	\$2,000.00	\$500.00	\$1,500.00
Pazden	\$1,700.00	\$425.00	\$1,275.00
Lewis	\$2,500.00	\$625.00	\$1,875.00
<u>Gable</u>	<u>\$5,000.00</u>	<u>\$1,250.00</u>	<u>\$3,750.00</u>
	\$23,700.00	\$5,925.00	\$17,775.00
GUNPOWDER			
Isennock	\$12,500.00	\$3,125.00	\$9,375.00
Web D	<u>\$12,500.00</u>	<u>\$3,125.00</u>	<u>\$9,375.00</u>
	\$25,000.00	\$6,250.00	\$18,750.00

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- York County Dirt & Gravel Road Assessment (2000), York County Conservation District