

STATE WATER PLAN SURVEY
Perry County Responses
October 5, 2005

Question 1.: Please provide an overview of your county including the status of your comprehensive plan and how it addresses water resources.

Perry County comprises of thirty (30) municipalities. This municipal breakdown equates to nine boroughs (9) and twenty-one (21) townships. The following bullet points highlight several items worth mentioning in response to the requested overview of our County.

- (a) The total land area for Perry County is 554 square miles. The County is entirely located within the Appalachian Mountain chain's Ridge and Valley Province.
- (b) Perry County's 2000 population figure (US Census Bureau) was listed at 43,602 persons. In the TCRPC Regional Growth Management Plan, The 2005 population estimate lists the County as having a population of 50,582 persons.
- (c) Perry County's 2000 population density figure was 78.8 persons per square mile.
- (d) Perry County's last Comprehensive Plan was adopted in 1992. The County is presently working to complete an update to this plan.
- (e) PA Municipalities Planning Code (MPC) noteworthy items: Twenty-one (21) of the County's municipalities have adopted local comprehensive plans. Currently seventeen (17) of the County's municipalities have adopted zoning ordinances. Twenty-one (21) of the County's municipalities have adopted local subdivision and land development ordinances. Presently the County recognizes twenty-two of its municipalities as having established planning commissions.
- (f) Median household income was reported as being \$41,909 according to the 2000 US Census.

Overview of water resources (General):

Two major river water bodies influence the tendencies of groundwater in Perry County. They are the Juniata River and the Susquehanna River.

The largest surface water impoundment is Holman Lake at the Little Buffalo State Park.

The main water supply entities are: the Blain Water Company, the Bloomfield Borough Water Authority, the Duncannon Municipal Water Authority, the Liverpool Municipal Authority, the Millerstown Borough Water Authority, the

Newport Borough Water Authority, the Penn Township Municipal Authority, and United Water of Pennsylvania – Harrisburg System.

The service areas are as follows:

- (a) Blain Water Company- Blain Borough and part of Jackson Township.
1998 Average Rate: 63,000 gal./day
Safe Yield: 60,000 gal./day
1998 Customers: 315
- (b) Bloomfield Borough Water Authority- Bloomfield Borough.
1998 Average Rate: 86,600 gal./day
Safe Yield: 152,000 gal./day
1998 Customers: 400
- (c) Duncannon Municipal Water Authority- Duncannon Borough and Reed Township, Dauphin County.
2000 Average Rate: 197,970 gal./day
Safe Yield: 194,000 gal./day
2000 Customers: 690
- (d) Liverpool Municipal Authority- Liverpool Borough.
1998 Average Rate: 67,000 gal./day
Safe Yield: 105,000 gal./day
1998 Customers: 300
- (e) Millerstown Borough Water Authority- Millerstown Borough.
1998 Average Rate: 62,000 gal./day
Safe Yield: 70,000 gal./day
1998 Customers: 300
- (f) Newport Borough Water Authority- Newport Borough, and parts of Howe Township and Oliver Township.
2000 Average Rate: 232,063 gal./day
Safe Yield: 205,000 gal./day
2000 Customers: 1,000
- (g) Penn Township Municipal Authority- Parts of Penn Township.
1997 Average Rate: 14,421 gal./day
Safe Yield: 136,800 gal./day
1997 Customers: 85 domestic
- (h) United Water of Pennsylvania – Harrisburg System- Marysville Borough and part of Rye Township.
2000 Average Rate: 361,958 gal./day
Safe Yield: gal./day N/A

2000 Customers: 1,100

Some noteworthy community water supply systems are: the Arbor Manor Apartments, the Bailey Run Mobile Home Park, the Country Meadows Apartments, the Countryside Mobile Home Park, the Fox Hollow Mobile Home Park, the Hillside Manor Apartments, the Kinkora Pythian Home, the Loysville Youth Development Center, the Paradise Mobile Home Park, the Pfautz Apartments, the Pfautz Heights, the Perlo Ridge Apartments, the Perry Manor Apartments, and the Stone Bridge Health and Rehabilitation Center

1992 Perry County Comprehensive Plan

There are presently nine public water systems in Perry County serving approximately 35 percent of the total county population. The remaining residents rely on individual wells, springs, or cisterns for their water.

Question 2.: What other county, subcounty or watershed level water resources plans or studies (by name) are currently underway or completed in the last five years for your county?

In February, 2001 The Perry County Water Supply Plan was developed. Gannett Fleming of Harrisburg Pennsylvania assisted the County in this pursuit. The previous Water Supply Plan was adopted by the County in 1971.

In 2004, the Pennsylvania Chesapeake Bay tributary strategy was completed.

The Juniata Watershed Management Plan is posted on the Juniata Clean Water Partnership's website.

Question 3.: What is the status of stormwater management plans (Act 167) for watersheds in your county?

Response:

There has been no Act 167 Stormwater Management Plan Adopted in Perry County for any of its watersheds. The 2005 Draft Update to the Perry County Comprehensive plan encourages the development of the County's first watershed-based stormwater management plan.

Question 4.: What are the critical water resource issues in your county?

Our geology makes it difficult in areas to drill individual wells to supply water to individual residents.

Some of our community systems are operating very near or even exceed their safe yield rates.

Flooding and development in and around the floodplain are worthy of mention.

Question 5.: What technical reports or model ordinances has your county developed that address local water resource issues?

The Shermans Creek Conservation Association with assistance from the Alliance for Aquatic Resource Monitoring(ALLARM)and financial assistance from the Pennsylvania Department of Environmental Protection (Growing Greener)developed the following report: Shermans Creek: Portrait of a Watershed Technical Status Report

Question 6.: What needs and priorities are identified in county/municipal/multi-municipal comprehensive plans and ordinances that are related to water resources?

Response:

The 2005 Draft Update to the Perry County Comprehensive plan encourages the development of the County's first watershed-based stormwater management plan.

The Draft Plan also takes a proactive approach to meeting the needs of anticipated growth by incorporating Planned Growth Areas (PGAs) into its Future Land Use Plan. The plan will further encourage local municipalities to recognize these areas and include the concept with their local planning efforts. As a result it is our hope that municipalities work to get ahead of growth and address water supply demands.

The 1992 Perry County Comprehensive Plan listed the following in its Community Facilities and Housing Plan:

It is imperative that local officials and local water suppliers cooperatively develop workable programs to upgrade existing water supply systems and expand services throughout the region. Such provisions should be implemented into new subdivision

Question 7.: Would you recommend any changes to the regional priorities to adequately address the county/local needs and priorities?

Of course there are a significant amount of individual wells being placed throughout our rural landscape. Presently the Pennsylvania Department of Environmental Protection pays particularly close attention to on-lot sewage facilities. Staff finds it remarkable that the same interest isn't being focused on individual wells. The permitting of private wells demands as much if not more of the Departments attention. It is time for the Department to face the facts in this area. If permitting of wells were to be initiated, hard numbers on water

consumption could be obtained instead of relying upon population estimates and average consumptive rates.

Significant funding of community water facility projects should be instituted to correct and eliminate problems for municipalities. In Perry County water supply problems have plagued four Boroughs in 2005 They are: Blain, Newport, Bloomfield, and Millerstown.

Land Use issues in particular flood-prone areas and development within those particular areas continues to be an issue.

Lastly we recommend that the demographic figures that were provided for the Tri-county region be utilized to base decisions for our County. These estimates will be utilized in Perry County's 2005 Update to its Comprehensive Plan as the numbers have already been used by Cumberland County and Dauphin County.

**STATE WATER PLAN SURVEY
Cumberland County Responses
October 5, 2005**

Question 1.: Please provide an overview of your county including the status of your Comprehensive Plan and how it addresses water resources.

- a. Cumberland County is primarily part of the Ridge and Valley physiographic province. A major portion of the county is recognized as part of the Great Valley with limestone soils that are prime agricultural soils.
- b. Blue Mountain defines the northern boundary of the county, while South Mountain forms the southern boundary of the county.
- c. The Conodoguinet and Yellow Breeches creeks are the major tributaries of the county and flow to the Susquehanna River.
- d. Cumberland County had a population of 213,674 as recorded by the 2000 Census.
- e. With low rates of unemployment, 150,730 persons were employed in the County as of 2000.
- f. The population density was 388 persons per square mile in 2000.
- g. The median household income reported by the 2000 Census was \$46,707.
- h. The County has 33 municipalities.
- i. All 33 municipalities have Subdivision and Land Development Ordinances and all but 5 have Zoning Ordinances.
- j. The land area for the County is 550 square miles.
- k. The *Cumberland County Comprehensive Plan* was adopted in December of 2003. The plan components will be updated as needed in 2006.
- l. The Comprehensive Plan addresses water resources by discussing and providing recommendations for the protection of floodplains, wetlands, groundwater, and the mitigation of stormwater, as well as the recommendation that a water supply study be undertaken.

Question 2.: What other county, subcounty or watershed level water resources plans or studies are currently underway or completed in the last 5 years?

- a. Small Water Systems Regionalization Study for Cumberland County – 2000
- b. Cumberland County Greenway Study - 2000
- c. Cedar Run Watershed Stormwater Management Plan (Act 167) – 2001
- d. Upper Yellow Breeches Watershed Stormwater Management Plan (Act 167) – 2002
- e. Cedar Run Watershed Coldwater Conservation Plan – 2005
- f. Land Partnerships – Cumberland County Open Space Plan – underway

Question 3.: What is the status of stormwater management plans (Act 167) for watersheds in your county?

Cumberland County has adopted three Act 167 stormwater plans.

- a. Hogestown / Trindle Spring Run Plan - 1994
- b. Cedar Run Plan – 2001
- c. Upper Yellow Breeches Plan – 2002

The County is scheduled to receive funding from DEP in 2007 to update the Hogestown / Trindle Spring Run Plan.

Question 4.: What are the critical water resources issues in your county?

- a. Groundwater contamination due to a large portion of the County composed of limestone geology.
- b. Stormwater runoff from increased development impacting high quality streams.

Question 5.: What technical reports or model ordinances has the county developed that address local water resources issues?

- a. Cumberland County Water Supply Plan - 1969
- b. Harrisburg Metropolitan Area Regional Water Supply Study - 1992
- c. Hogestown / Trindle Spring Run Act 167 Plan – 1994
- d. Shippensburg Area Water Systems Regionalization Study – 1997
- e. Small Water Systems Regionalization Study for Cumberland County – 2000
- f. Cumberland County Greenway Study - 2000
- g. Cedar Run Act 167 Plan – 2001
- h. Upper Yellow Breeches Creek Act 167 Plan – 2002
- i. Land Partnerships - Cumberland County Open Space Plan - underway

Question 6.: What needs and priorities are identified in county / municipal / multi-municipal comprehensive plans and ordinances that are related to water resources?

The County Comprehensive Plan recommends the following:

- a. Update the County's Water Supply Plan.
- b. Require developers to determine water needs generated by development.
- c. Encourage adoption of wellhead protection provisions.
- d. Encourage a coordinated water supply system.
- e. Complete Act 167 Plans for all designated watersheds in the County.
- f. Severely regulate or prohibit development in floodplains.
- g. Protect existing wetlands through buffers or easements.
- h. Utilize Best Management Practices for stormwater control.
- i. Provide and preserve vegetative buffers along stream corridors.
- j. Establish a water trail along the Conodoguinet Creek.

Question 7.: Would you recommend any changes to the regional priorities to adequately address the county/local needs and priorities?

- a. Floodplain development and its impacts – Consider regulations to severely restrict or prohibit floodplain development.
- b. Address criteria for permitting of individual wells based on available groundwater while maintaining the aquifer.
- c. Provide funding for regional or county water supply plans.

STATE WATER PLAN SURVEY
Dauphin County Responses
October 5, 2005

Question 1.: Please provide an overview of your county including the status of your comprehensive plan and how it addresses water resources.

Overview:

- (a) Dauphin County is located in two physiographic provinces – the Ridge and Valley Province and the Piedmont. The Ridge and Valley Province is categorized with large ridges and a valley that extended from New York to Alabama. This Province is composed of mostly sandstones and shales and constitutes most of Dauphin County. The Piedmont Province is characterized by flat areas located in Lower Dauphin County, specifically in the municipalities of Conewago and Lower Paxton. This Province is composed of silty mudstone and diabase.
- (b) The Susquehanna River and the existing network of streams and tributaries provide an abundant supply of surface water. It is imperative that this supply of water remains free of pollution: Dauphin County obtains 88% of its drinking water from surface water.
- (c) The 2000 Census population of Dauphin County was 251,798.
- (d) At the time of the 2000 Census, 122,805 civilian persons 16 years and over were employed.
- (e) Dauphin County comprises 525.3 square miles and has a population density of 479 persons per square mile.
- (f) The median household income reported by the 2000 Census was \$41,507.
- (g) The County has 40 municipalities.
- (h) 24 municipalities in Dauphin County have zoning ordinances, 14 do not. 33 municipalities have subdivision and land development ordinances, 7 do not.
- (i) Public water services are provided throughout Dauphin County by fourteen public water systems. These systems are owned by various entities, including municipalities, authorities, investors and the state government. In addition to the large public systems, there are small private systems provided for some mobile home parks. These systems are self-contained and allow for minimal expansion to surrounding areas. The larger municipal/community systems re described on the attached Table 30 and their service areas are depicted on the attached Map 9-6.
- (j) At this time there is ample water available through public systems and private on-lot wells. However, future growth will require system expansions and upgrades to assure public water availability. The City of Harrisburg water system at one time relied on a single source, the DeHart Dam Reservoir. In 1994 a secondary intake was established from the Susquehanna River. A new state-of-the-art water treatment was also established in 1994.

Comprehensive Plan:

We have an existing 1992 Dauphin County Comprehensive Plan and are in the final stages of adopting a 2005 new Plan. In the new Plan, water service is addressed in the Community

Facilities, Services and Utilities Chapter. Some of the information from that Chapter is included in the Overview below. In preparation for the 2005 Plan, in 2001/2002 we conducted a survey of existing public water systems. A copy of Table 9-30 from the draft Plan is attached and provides information on each system at that time. Also enclosed is Map 9-6 from the draft plan which depicts the water service areas of the various public systems in Dauphin County. Dauphin county has an existing 1969 Water Supply Plan. The new 2005 Comprehensive Plan addresses the need for a new Water Supply Plan to comply with the Pennsylvania Municipalities Planning Code requirement to have one. It is noted that the new Water Plan should include the following: (1) Conduct initial data collection; (2) Inventory Existing Systems; (3) Estimate Water Demands; (4) Evaluate Existing Systems; (5) Formulate Water Supply Alternatives; (6) Evaluate Water Supply Alternatives; (7) Prepare a Detailed Recommended Plan. The Dauphin County Planning Commission is considering how to fund the preparation of this plan.

One of the Goals of the new 2005 Comprehensive Plan is to meet to provide utility facilities and services to meet the needs of Dauphin County to 2020. The Objective of this goal is development that is consistent with the adequacy and accessibility of existing services and phased in accordance with the provision of new facilities and services. Four strategies were developed to implement this Goal and Objective: (1) Determine the adequacy and capacity of existing utility services to meet the needs of Dauphin County to 2020; (2) Encourage only development that does not exceed the capacity of existing and planned water systems; (3) Encourage coordination of services across municipal boundaries; and (4) Encourage the continued existence and adequate funding of federal and state programs which subsidize construction and maintenance of water supply facilities.

Question 2.: What other county, subcounty, or watershed level water resource plans or studies (by name) are currently underway or completed in the last five years in your county?

Groundwater Management Plan for the Susquehanna river Basin: published by the Susquehanna River Basin commission, Publication #236, June 2005.

Watershed Assessment Studies for Dauphin County Watersheds were done in 2003 by the Department of Environmental Protection. These Source Water Assessments include Rattling Creek/Greenland Run, for the City of Harrisburg, Swatara Creek, and Stoney Creek (a high quality watershed).

Only one plan has been completed in the last five years. This is the Swatara Creek Watershed Water Supply Plan. The Swatata Creek Watershed lies in portions of Berks, Dauphin, Lebanon and Schuylkill Counties. It is the eastern portion of Dauphin County that is in the watershed. The U.S. Army Corps of Engineers initiated the Water Supply Plan in 2001 in partnership with the Susquehanna River Basin Commission, the Capital Region Water Board and the Pennsylvania Department of Environmental Protection. The study considered the needs of the watershed through 2030. Based on the analysis of existing data and extensive public feedback, it was determined that water supply needs are generally adequately met in the Watershed. However, the study predicted that if projected population growth and water demand increases to the year 2020,

the Lebanon Water Authority System (outside Dauphin County) will experience stress during severe droughts. Upon making that determination, the study partners developed a set of alternatives (not recommendations) for the watershed's policy makers, planners and other entities to reference and consider when they are ready to take on the challenge of securing adequate water supplies. The alternatives included developing additional ground water or surface water supplies as well as considering water conservation and infrastructure upgrades or regulatory changes.

Question 3: What is the status of stormwater management plans (Act 167) for watersheds in your county?

Four Act 167 plans have been approved in Dauphin County: (1) Paxton Creek; (2) Spring Creek; and (3) Beaver, Manada and Bow Creeks and Kellock Run; and (4) Wiconisco Creek; (5) Gurdy / Armstrong / Powells / Clark / Stony / Fishing Creek. It is unknown if the affected municipalities have adopted local ordinances to implement the plans. Many municipalities that have older Act 167 plans and want to update them and include NPDES requirements. Act 167 plans are currently being worked on for two areas:

- (1) Paxton Creek Watershed (submitted for approval)
- (2) The Beaver, Manada and Bow Creeks and Kellock Run Watersheds are being incorporated into one plan and is only in Draft form

Question 4: What are the critical water resource issues in your county?

Drought has been a local issue in recent years. This needs to be addressed in a new Dauphin County Water Supply Plan. The plan will need to support the Dauphin County Emergency Management Agency as it works with water purveyors to establish local drought contingency plans and emergency operation plans.

Two potential groundwater stressed areas are described briefly by the SRBC in the plan indicated in Question 2's answer. Excerpts from the plan addressing these areas follow (note that diabase bedrock formations occur in southern Dauphin County).

Hershey Area (Spring Creek Basin). This area is undergoing rapid commercial, institutional, recreational, industrial, and residential development. A water budget, submitted by a project applicant to the SRBC, indicates that virtually 100% of the 1-in-10-year drought recharge is already being utilized, even though most of the area's municipal public water needs are being supplied by a stream intake on Swatara Creek. Interestingly, while the Hershey area has reached PSA status through recent growth and increased water use, this area was the scene of a large-scale, mid-20th century dispute over issues of groundwater withdrawal and artificial recharge to groundwater between two large neighboring water users: a key industry in the basin and a nearby mining company.

Diabase. Diabase is widely known as one of the lowest yielding aquifers in the Susquehanna River Basin. It is a massive, poorly fractured igneous rock formation and

occurs in bands, typically ½ to 2 miles wide and 10's of miles long, as as narrower belts, with irregular patches covering several square miles. Areas underlain by diabase are characterized with thin soils and abundant boulder fields, a relatively high percentage of wetland area and wetland springs, and a relatively high density of small springs. There is a high percentage of low yielding wells in the diabase, and many diabase wells rely on shallow water-bearing zones. Locally, large quantities of water may be obtainable by drilling through the diabase where it is not deep rooted (often several hundred to more than 1,000 feet thick) into the underlying strata. However, this deep groundwater is often not potable, exceeding safe drinking water standards for hardness, total dissolved solids, sulfate, iron, and manganese.

Given these *currently* stressed areas, groundwater recharge is certainly a critical water resource issue in Dauphin County. More specifically, reductions in groundwater recharge as land is developed should be addressed. Common but detrimental stormwater control practices which do not permit groundwater recharge need to be replaced with practices (e.g. Low-Impact Design approaches) which maintain the pre-development recharge as closely as possible. This will protect future groundwater supplies and sufficient water to sustain Dauphin County streams during droughts.

In addition, groundwater quality is a critical water resource issue. Bacteria, high nitrate levels, or other pollutants resulting from poor agriculture practices, failing on-lot sewage systems and other sources must be addressed to insure that future water supplies are potable, especially where on-lot private wells provide drinking water. This issue is particularly important in areas underlain by limestone, as the geology of these areas allow rapid movement of surface pollutants into the groundwater.

Additionally, educational efforts related to water conservation need to be expanded to both the municipalities as well as individual homeowners. Water conservation education and practical application of conservation practices year round will help to maintain water resources through periods of drought.

Question 5: What technical reports or model ordinances has your county developed that address local water resource issues?

Various technical reports have been developed for the county that address local water resources issues:

- (1) Harrisburg Metropolitan Water Study (1992) written by the Department of Agriculture.
- (2) Wiconisco Creek Watershed Study Plan (1999) written by the Dauphin County Conservation District.
- (3) Wiconisco Creek Watershed Assessment and Plan (1999) written by the Susquehanna River Basin Commission.

Question 6: What needs and priorities are identified in county/municipal/multi-municipal comprehensive plans and ordinances that are related to water resources?

The primary need and priority is for municipalities to only approve development plans where an adequate water supply is available or additional capacity is planned and timed with a proposed development. The Tri-County Regional Growth Management Plan and the Dauphin County Comprehensive Plan (2005) identify Community Service Areas where infrastructure exists and Planned Growth Areas where development should be targeted through 2020.

Question 7: Would you recommend any changes to the regional priorities to adequately address the county/local needs and priorities?

- (a) May want to go into more detail about relationship between land use planning and water resource Planning
- (b) May want to address building in floodplains: be more restrictive in order to protect environmentally sensitive lands
- (c) Section I. Water Quality: need to address pollution mitigation; maybe add statement "Continue to mitigate existing surface water pollution caused by non-point sources".
- (d) Section II. Water Demand: in order to understand the future water needs, we'll need to understand what is going on now ... maybe add statement "Examine the factors and programs that affect sprawl and their role in determining future water resource infrastructure needs".
- (e) Municipalities Planning Code requires municipalities to have a water plan, but no funding is available to implement this provision. Municipalities need grants / matching funds to prepare these costly plans.

LANCASTER COUNTY ACT 220 ISSUES RESPONSE

1. Please provide an overview of your county including the status of your Comprehensive Plan and how it addresses water resources.

The Lancaster County Planning Commission is completing an update to the 1993 Lancaster County Growth Management Plan. The plan is a component of the County Comprehensive Plan. The 1993 plan established a framework to promote growth in Designated Growth Areas and preserve farmland and natural resources outside the Designated Growth Areas. Limiting the provision of water supply infrastructure to growth areas only was a key provision of this plan. The draft update to the plan proposes to increase the density and intensity of growth in current Designated Growth Areas. The draft includes new proposals for the establishment of Designated Rural Areas. Provision of water supply infrastructure in the draft update is again limited to Designated Growth Areas.

Lancaster County is located in southeastern Pennsylvania approximately 40 miles west of Philadelphia. It is approximately 950 square miles in size and had an estimated population of 482,775 in 2003.

Lancaster County is served by 34 large and 73 small public water suppliers with combined service areas covering approximately 99,000 acres or 16% of Lancaster County. Water supply sources include the Susquehanna River and other waterways located in the County, several reservoirs, and groundwater wells. The water supply service areas center on and extend outward from existing communities, but do not entirely coincide with designated Growth Areas. In some cases, service areas extend outside of Growth Areas and in others portions of Growth Areas are located outside of designated coverage areas. In addition, public water infrastructure has not been uniformly extended throughout the service areas. Approximately 13,000 acres of Buildable Land within existing Urban Growth Areas are not included in sewer and/or water service areas. Areas of the County in which public water infrastructure is not available are served by on-lot wells.

According to the 1996 Water Resources Element of the Lancaster County Comprehensive Plan, the most recent comprehensive assessment of the County's water supply, one-third of the large community water suppliers had sufficient water to meet future demands, one-third may have lacked sufficient water, and the remaining suppliers had excess supply. One-half of the systems with insufficient water could connect with another system having excess capacity.

Approximately 64% of Lancaster County's households are served by public water suppliers. Private on lot water wells serve the remaining 36%. Total average daily water consumption for all uses in the County is approximately 66 million gallons per day (MGD). The average daily water use by our population is anticipated to increase by more than 18 MGD by 2010. Agricultural water use is also increasing due to highly intensive animal operations in the County.

Most residents of the County receive their water from one of 34 large community water suppliers. Between 1986 and 1993 water supplied by these systems increased by 12%. Although these larger systems draw from both ground and surface waters, they are increasingly dependent

on groundwater to meet growing public demand. To meet these increasing demands, large community water suppliers have completed major system improvements, drilled new wells and extended service lines. In some cases, new authorities have been created and water systems have merged.

Many mobile home parks and retirement homes are served by one of the County's 73 small water suppliers. In 1993 these systems supplied water to approximately 2.2% of the County's population (9,251 residents). These smaller systems often encounter problems with water quality as a result of nearby failing on lot septic systems, high groundwater nitrate levels, leaking underground storage tanks and landfills, and threats from development in water recharge areas.

2. What other county, subcounty or watershed level water resources plans or studies (by name) are currently underway or completed in the last five years for your county?

Lititz Run Watershed Conservation Management Plan -- The Department of Conservation and Natural Resources (Department), Bureau of Recreation and Conservation, has approved the Lititz Run Watershed Conservation Management Plan (Plan) and is placing Lititz Run, the watershed and all tributaries covered in the Plan in Lancaster County on the Pennsylvania Rivers Conservation Registry (Registry).

Northern Lancaster County Groundwater Study: A Resource Evaluation of the Manheim-Lititz and Ephrata Area Groundwater Basins -- The Susquehanna River Basin Commission (SRBC) held a public meeting today to release its findings and recommendations from a 3-year groundwater quantity study, *Northern Lancaster County Groundwater Study: A Resource Evaluation of the Manheim-Lititz and Ephrata Area Groundwater Basins*. In the study, SRBC concluded that with proper planning and management, the area's water supplies can sustain projected growth and development, based on currently approved allocations. In those findings, however, the agency emphasized that due to the unique geology combined with the increasing water demands in that area, water supplies are potentially stressed, requiring good and vigilant water resources management to ensure sustainable supplies. The public meeting was held at the Warwick Township Municipal Building, Lititz. The 70-square-mile study area includes parts of 8 townships and 5 boroughs, whose water supply needs are met almost entirely by groundwater.

Little Conestoga Creek Watershed Act 167 Plan -- The Little Conestoga Creek Watershed is located in the central portion of Lancaster County, adjacent to the Conestoga River. Little Conestoga Creek drains a total surface area of approximately 64 square miles. The major tributaries to the Little Conestoga Creek are the West Branch, Brubaker Run, Millers Run and Swarr Run.

Cocalico Creek Watershed Act 167 Plan -- June 2001 is located in the Northern portion of Lancaster County and parts of Berks and Lebanon Counties. The Cocalico Creek drains into the Conestoga River. The Cocalico Creek drains a watershed area of approximately 140 total square miles (110 square miles are in Lancaster County, 25 square miles are in Lebanon County and 5

square miles are in Berks County). The major tributaries to the Cocalico Creek are Hammer Creek, Middle Creek, Indian Run, and Little Cocalico Creek.

Conestoga River Watershed Act 167 Plan – June, 2005 The Conestoga River Watershed is located in the central portion of Lancaster County and parts of Berks and Chester Counties. The Conestoga River drains three other State designated watersheds - Mill, Little Conestoga, and Cocalico Creeks.

Fishing Creek Watershed Assessment – In progress. Lancaster County Conservancy is leading this effort.

3. What is the status of stormwater management plans (Act 167) for watersheds in your county?

There are 12 watersheds designated by PA DEP for study as part of PA Act 167. The staff of the Lancaster County Engineer's Office has completed work on four watersheds, The Mill Creek , the Little Conestoga Creek, the Cocalico Creek , and the Conestoga River Watershed.

4. What are the critical water resources issues in your county?

Ensuring public water supply infrastructure supports and is consistent with county and municipal comprehensive plans in a critical issue in Lancaster County. The draft Growth Management Element Update to the County Comprehensive Plan proposes a significant increase in the density and intensity of development with in existing Designated Growth Areas. Planning for adequate water supply for these areas is a critical issue. The draft Growth Management Element Update also proposes establishment of Designated Rural Areas. Proposed Rural Designations include:

- **Designated Agricultural Areas** contain concentrations of high value agricultural resource factors.
- **Designated Agricultural with Natural Areas** contain a mixture of high value agricultural and natural resource factors.
- **Designated Natural Resource Areas** contain concentrations of high value natural resource factors.

Areas with any of the above three rural designations are to remain rural for the foreseeable future with no provision of public water supply infrastructure.

Rural Centers is a fourth Rural Designation. Rural Centers include existing villages, crossroads communities, rural business areas and rural neighborhoods. Limiting the expansion of public water service within Rural Centers is critical to the rural strategy of the draft Growth Management Element Update.

Water quality risks are a concern both for private wells and public water providers. Potential sources of contamination include nutrient and chemical pollution from agriculture, on-lot disposal systems, and home landscaping; erosion and sedimentation of surface water;

concentrated point sources such as spills, outfalls, and dumps; and new development that increases impervious coverage within recharge areas. This is of particular concern in the central region of the County where the geological characteristics of limestone sedimentary rocks that promote rapid groundwater recharge (solution channels and sinkholes) also make groundwater highly vulnerable to contamination.

5. What technical reports or model ordinances has the county developed that address local water resources issues?

The Lancaster County Water Resources Plan: Water Supply Plan and Wellhead Protection Program – This plan is the most recent document that addresses water resources on a county-wide basis. It includes a Model Wellhead Protection Overlay Zone, Model Remediation of Potential Hazards Ordinance, and a Sample On-Lot Disposal System Ordinance.

6. What needs and priorities are identified in county/municipal/multi-municipal comprehensive plans and ordinances that are related to water resources?

The two main goals of the 1996 Lancaster County Water Resources Plan:

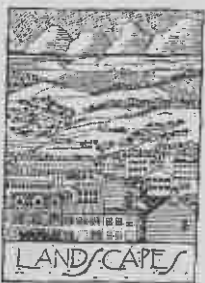
- (1) Protect the quality and quantity of public water supply sources.
- (2) Coordinate water supply planning with County, regional and local growth management efforts.

The 1996 Lancaster County Water Resources Plan reviewed the needs of each public water supplier and identified specific priorities for each supplier. For details see:

<http://www.co.lancaster.pa.us/planning/cwp/view.asp?a=476&Q=387355>

7. Would you recommend any changes to the regional priorities to adequately address the county/local needs and priorities?

The recommendation “Coordinate land use planning with water resources planning” should be revised. Water resources planning should be coordinated and consistent with county and municipal comprehensive planning. Identifying or proposing protocols to insure the water supply planning and decisions to expand service areas and franchise areas by water authorities, private purveyors and the Public Utilities Commission are consistent with comprehensive planning should be a regional priority.



TRENDS

Chester County Trends

www.chesco.org/planning

LAND USE

Land Use

- New Residential Units 1990-2000: 24,176 (Census 2000) – 18,747 added in last five years (2000 – 2004)
- Commercial/Office/Industrial/Institutional Development: 34 million sq. ft. proposed in past five years (2000 through 2004)
- New Development consistent with *LANDSCAPES*: 2004: Residential – 50%; Non-residential – 84%
- Median Value of Owner Occupied Housing: \$182,500 (Census 2000) #1 in Pennsylvania
- Median Sale Price - 2001: \$200,000; 2002: \$224,900; 2003: \$245,000; 2004: \$265,000
- Land Development Pattern – Route 1 and Route 30 corridors; southern Chester County; new development in Phoenixville and Coatesville

ENVIRONMENT

Environment

- 168,165 acres of farmland, 1,918 farms (2002 Census of Agriculture)
- 18,739 acres permanently preserved for agriculture
- Over 100,000 acres in Agriculture Security Areas
- *LANDSCAPES*, Comprehensive Plan Policy Element (1996)
- Chester County Open Space Plan, *LINKING LANDSCAPES* (2002)
- Water Resources Authority prepared *WATERSHEDS*, first County-wide water resources management plan (2002)
- *A Land Stewardship Guidebook for Landowners* (2000)
- Over 90,000 acres of open space protected, covering nearly 19% of the County
- Over 27,000 acres of open space protected since 2000
- Over 35,000 acres of open space protected by land trust easements
- Over 4,000 acres in state parks and over 4,800 acres in County parks
- An estimated 54% of the County is developed (approximately 262,500 acres)

November 2005

ECONOMY

Economy

- Population Growth Rate in Region - 1990 thru 2000 (U.S. Census)
 - Chester County: 15.2% (57,105 increase) (#1 in Region)
 - Bucks County: 10.4%
 - Montgomery County: 10.6%
 - Delaware County: 0.6%
 - Philadelphia: -4.3%
- Five County Region: 3.2% gain
- County Population: 433,501 (Census 2000); 465,795 (July 1, 2004 estimate)
- Population increase 2000-2004: Pennsylvania – 125,238 (1%); Chester County – 32,294 (7.4%)
- Chester County #1 in Pennsylvania in percent of High School and College graduates
- Chester County #7 Nation – Best Educated (NACO) (42.5% College graduates)
- Chester County Population Projection: 483,500 (2010)

EMPLOYMENT

Employment

- Per Capita Income (\$31,627): Chester Co. #1 in PA (Census 2000)
- Median Household Income \$65,295 (2000); \$72,288 (2004); Chester Co. #1 in PA
- Unemployment Rate: October 2004: 3.0%, 2nd lowest in PA
- New Jobs Created (1990-2000): 69,944
- Daily Work Trips into Chester County
 - 1990 - 57,542 2000 – 77,787
 - 35% Increase
- Chester County Total Employment (Jobs): 238,641 (2000)
 - 248,187 (2005 Estimate)
 - 270,500 (Projected 2010)

TRANSPORTATION

Transportation

- Passenger Vehicle registration, last 20 years (1980-2000), increased:
 - 54% Chester County
 - 31% Pennsylvania
- Licensed Drivers, last 15 years (1986-2001), increased:
 - 43% Chester County
 - 19% Pennsylvania

Transportation Needs in Chester County: \$6 billion

Current funding commitment for Highway Capital Projects for 2003-2006 - \$218,254,000

2.0 Resources Goal

Sustain and enhance natural, scenic, and historic resources for the benefit of current and future generations while accommodating planned growth.

Objectives

2.1. Natural Resources

Achieve and sustain a high quality natural resource system to protect public health and safety, and support and protect a diversity of ecosystems.

Policies

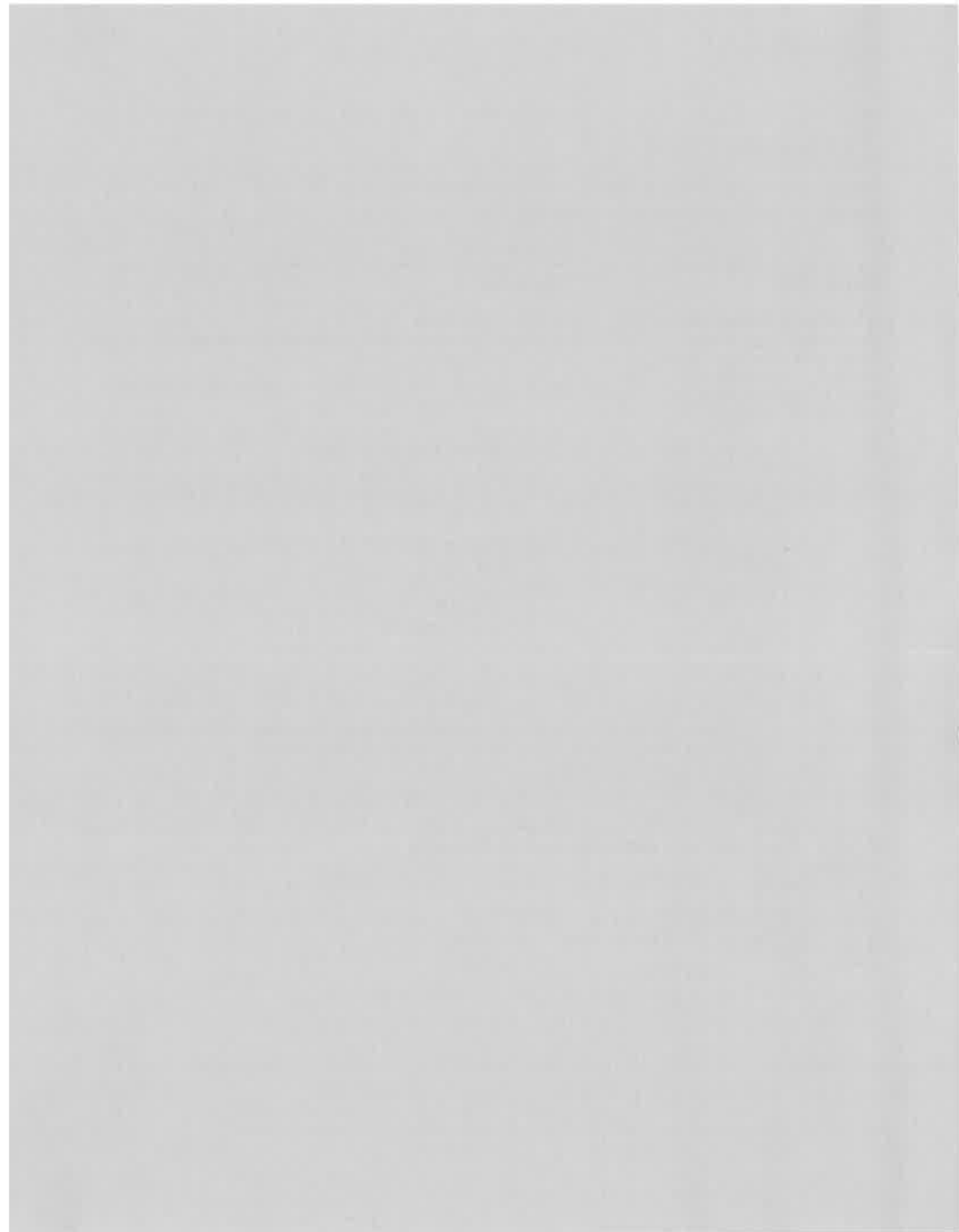
Water Resources

- 2.1.1** Protect a safe, long-term supply of water which is adequate for all uses.
- 2.1.2** Support water conservation and encourage measures to reduce water supply demands.
- 2.1.3** Preserve and enhance the existing network of stream valleys and their aquatic habitats.
- 2.1.4** Prevent development in floodplains to protect public safety and water quality, and reduce public costs from flood damage.
- 2.1.5** Preserve wetlands for their ecological and hydrological functions.
- 2.1.6** Preserve and enhance buffer areas around water bodies to mitigate environmental and visual impacts from adjacent uses and activities.
- 2.1.7** Protect and enhance the quality and quantity of groundwater.
- 2.1.8** Support upgrades of stream quality designations by the Pennsylvania Department of Environmental Protection.
- 2.1.9** Encourage a sustainable water cycle balance within watersheds as development occurs.



Goals, Objectives, and Policies

Land use	Utilities
Resources	Housing
Economic Development	Human Services
Transportation	Public Health
Community Facilities	Planning & Coordination



Municipal Population: 1990, 2000, 2004

Municipality	1990	2000	1990-2000 Change		July 2004 Estimate	Change 1990-2004	Percent Change 1990-2004
			Number	Percent			
Chester County	376,396	433,501	57,105	15%	465,795	89,399	23.8%
Central Total	95,913	108,683	12,770	13%	117,747	21,834	22.8%
<i>Coatesville Area Total</i>	<i>47,701</i>	<i>51,423</i>	<i>3,722</i>	<i>8%</i>	<i>55,744</i>	<i>8,043</i>	<i>16.9%</i>
Caln	11,997	11,916	-81	-1%	12,175	178	1.5%
Coatesville	11,038	10,838	-200	-2%	11,386	348	3.2%
East Fallowfield	4,433	5,157	724	16%	6,519	2,086	47.1%
Modena	563	610	47	8%	605	42	7.5%
Sadsbury	2,510	2,582	72	3%	3,067	557	22.2%
South Coatesville	1,026	997	-29	-3%	1,009	-17	-1.7%
Valley	4,007	5,116	1,109	28%	5,749	1,742	43.5%
West Brandywine	5,984	7,153	1,169	20%	7,650	1,666	27.8%
West Caln	6,143	7,054	911	15%	7,584	1,441	23.5%
<i>Downingtown Area Total</i>	<i>48,212</i>	<i>57,260</i>	<i>9,048</i>	<i>19%</i>	<i>62,003</i>	<i>13,791</i>	<i>28.6%</i>
Downingtown	7,749	7,589	-160	-2%	7,859	110	1.4%
East Brandywine	5,179	5,822	643	12%	6,278	1,099	21.2%
East Caln	2,619	2,857	238	9%	3,166	547	20.9%
Upper Uwchlan	4,396	6,850	2,454	56%	7,634	3,238	73.7%
Uwchlan	12,999	16,576	3,577	28%	18,277	5,278	40.6%
Wallace	2,541	3,240	699	28%	3,367	826	32.5%
West Bradford	10,406	10,775	369	4%	11,510	1,104	10.6%
West Pikeland	2,323	3,551	1,228	53%	3,912	1,589	68.4%
Eastern Total	87,503	94,085	6,582	8%	98,575	11,072	12.7%
<i>Great Valley Total</i>	<i>23,476</i>	<i>26,454</i>	<i>2,978</i>	<i>13%</i>	<i>29,537</i>	<i>6,061</i>	<i>25.8%</i>
Charlestown	2,754	4,051	1,297	47%	5,488	2,734	99.3%
East Whiteland	8,398	9,333	935	11%	10,204	1,806	21.5%
Malvern	2,944	3,059	115	4%	3,099	155	5.3%
Willistown	9,380	10,011	631	7%	10,746	1,366	14.6%
<i>Phoenixville Area Total</i>	<i>26,429</i>	<i>28,299</i>	<i>1,870</i>	<i>7%</i>	<i>29,595</i>	<i>3,166</i>	<i>12.0%</i>
East Pikeland	5,825	6,551	726	12%	6,833	1,008	17.3%
Phoenixville	15,066	14,788	-278	-2%	14,976	-90	-0.6%
Schuylkill	5,538	6,960	1,422	26%	7,786	2,248	40.6%
<i>Tredyffrin-Easttown Total</i>	<i>37,598</i>	<i>39,332</i>	<i>1,734</i>	<i>5%</i>	<i>39,443</i>	<i>1,845</i>	<i>4.9%</i>
Easttown	9,570	10,270	700	7%	10,383	813	8.5%
Tredyffrin	28,028	29,062	1,034	4%	29,060	1,032	3.7%
Northern Total	36,578	40,708	4,130	11%	43,978	7,400	20.2%
<i>Owen J. Roberts Total</i>	<i>24,084</i>	<i>26,848</i>	<i>2,764</i>	<i>11%</i>	<i>29,332</i>	<i>5,248</i>	<i>21.8%</i>
East Coventry	4,450	4,566	116	3%	4,883	433	9.7%
East Nantmeal	1,448	1,787	339	23%	1,856	408	28.2%
East Vincent	4,161	5,493	1,332	32%	6,355	2,194	52.7%
North Coventry	7,506	7,381	-125	-2%	7,603	97	1.3%
South Coventry	1,682	1,895	213	13%	2,284	602	35.8%
Warwick	2,575	2,556	-19	-1%	2,682	107	4.2%
West Vincent	2,262	3,170	908	40%	3,669	1,407	62.2%
<i>Spring Ford Total</i>	<i>3,433</i>	<i>3,305</i>	<i>-128</i>	<i>-4%</i>	<i>3,288</i>	<i>-145</i>	<i>-4.2%</i>
Spring City	3,433	3,305	-128	-4%	3,288	-145	-4.2%
<i>Twin Valley Total</i>	<i>9,061</i>	<i>10,555</i>	<i>1,494</i>	<i>16%</i>	<i>11,358</i>	<i>2,297</i>	<i>25.4%</i>
Elverson	470	959	489	104%	1,126	656	139.6%
Honey Brook Borough	1,184	1,287	103	9%	1,353	169	14.3%
Honey Brook Township	5,449	6,278	829	15%	6,711	1,262	23.2%
West Nantmeal	1,958	2,031	73	4%	2,168	210	10.7%

Municipal Population: 1990, 2000, 2004

Municipality	1990	2000	1990-2000 Change		July 2004 Estimate	Change 1990-2004	Percent Change 1990-2004
			Number	Percent			
Southeastern Total	31,247	40,204	8,957	29%	44,021	12,774	40.9%
<i>Kennett Consolidated Total</i>	<i>15,272</i>	<i>20,807</i>	<i>5,535</i>	<i>36%</i>	<i>23,046</i>	<i>7,774</i>	<i>50.9%</i>
Kennett	4,624	6,451	1,827	40%	7,052	2,428	52.5%
Kennett Square	5,218	5,273	55	1%	5,300	82	1.6%
New Garden	5,430	9,083	3,653	67%	10,694	5,264	96.9%
<i>Unionville-Chadds Ford Total</i>	<i>15,975</i>	<i>19,397</i>	<i>3,422</i>	<i>21%</i>	<i>20,975</i>	<i>5,000</i>	<i>31.3%</i>
Birmingham	2,636	4,221	1,585	60%	4,266	1,630	61.8%
East Marlborough	4,781	6,317	1,536	32%	7,469	2,688	56.2%
Newlin	1,092	1,150	58	5%	1,205	113	10.3%
Pennsbury	3,326	3,500	174	5%	3,789	463	13.9%
Pocopson	3,266	3,350	84	3%	3,377	111	3.4%
West Marlborough	874	859	-15	-2%	869	-5	-0.6%
Southwestern Total	43,983	55,707	11,724	27%	63,033	19,050	43.3%
<i>Avon Grove Total</i>	<i>17,432</i>	<i>23,067</i>	<i>5,635</i>	<i>32%</i>	<i>26,211</i>	<i>8,779</i>	<i>50.4%</i>
Avondale	954	1,108	154	16%	1,099	145	15.2%
Franklin	2,779	3,850	1,071	39%	4,194	1,415	50.9%
London Britain	2,671	2,797	126	5%	2,970	299	11.2%
London Grove	3,922	5,265	1,343	34%	5,750	1,828	46.6%
New London	2,721	4,583	1,862	68%	5,392	2,671	98.2%
Penn	2,257	2,812	555	25%	4,161	1,904	84.4%
West Grove	2,128	2,652	524	25%	2,645	517	24.3%
<i>Octorara Area Total</i>	<i>10,750</i>	<i>12,276</i>	<i>1,526</i>	<i>14%</i>	<i>12,897</i>	<i>2,147</i>	<i>20.0%</i>
Atglen	825	1,217	392	48%	1,355	530	64.2%
Highland	1,199	1,125	-74	-6%	1,182	-17	-1.4%
Londonderry	1,243	1,632	389	31%	1,851	608	48.9%
Parkesburg	2,981	3,373	392	13%	3,435	454	15.2%
West Fallowfield	2,342	2,485	143	6%	2,580	238	10.2%
West Sadsbury	2,160	2,444	284	13%	2,494	334	15.5%
<i>Oxford Area Total</i>	<i>15,801</i>	<i>20,364</i>	<i>4,563</i>	<i>29%</i>	<i>23,925</i>	<i>8,124</i>	<i>51.4%</i>
East Nottingham	3,841	5,516	1,675	44%	7,771	3,930	102.3%
Elk	1,129	1,485	356	32%	1,479	350	31.0%
Lower Oxford	3,264	4,319	1,055	32%	4,890	1,626	49.8%
Oxford	3,769	4,315	546	14%	4,701	932	24.7%
Upper Oxford	1,615	2,095	480	30%	2,341	726	45.0%
West Nottingham	2,183	2,634	451	21%	2,743	560	25.7%
West Chester Total	81,172	94,114	12,942	16%	98,441	17,269	21.3%
<i>West Chester Area Total</i>	<i>81,172</i>	<i>94,114</i>	<i>12,942</i>	<i>16%</i>	<i>98,441</i>	<i>17,269</i>	<i>21.3%</i>
East Bradford	6,440	9,405	2,965	46%	10,075	3,635	56.4%
East Goshen	15,138	16,824	1,686	11%	17,751	2,613	17.3%
Thornbury	1,131	2,678	1,547	137%	2,938	1,807	159.8%
West Chester	18,041	17,861	-180	-1%	17,701	-340	-1.9%
West Goshen	18,082	20,495	2,413	13%	21,174	3,092	17.1%
West Whiteland	12,403	16,499	4,096	33%	18,218	5,815	46.9%
Westtown	9,937	10,352	415	4%	10,584	647	6.5%

Source: U.S. Census Bureau, 1990, 2000, 2004

Municipal Population: 1990, 2000, 2004

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New Garden	5,430	9,083	3,653	67%	10,694	5,264	96.9%
<i>Unionville-Chadds Ford Total</i>	15,975	19,397	3,422	21%	20,975	5,000	31.3%
Birmingham	2,636	4,221	1,585	60%	4,266	1,630	61.8%
East Marlborough	4,781	6,317	1,536	32%	7,469	2,688	56.2%
Newlin	1,092	1,150	58	5%	1,205	113	10.3%
Pennsbury	3,326	3,500	174	5%	3,789	463	13.9%
Pocopson	3,266	3,350	84	3%	3,377	111	3.4%
West Marlborough	874	859	-15	-2%	869	-5	-0.6%
<i>Avon Grove Total</i>	17,432	23,067	5,635	32%	26,211	8,779	50.4%
Avondale	954	1,108	154	16%	1,099	145	15.2%
Franklin	2,779	3,850	1,071	39%	4,194	1,415	50.9%
London Britain	2,671	2,797	126	5%	2,970	299	11.2%
London Grove	3,922	5,265	1,343	34%	5,750	1,828	46.6%
New London	2,721	4,583	1,862	68%	5,392	2,671	98.2%
Penn	2,257	2,812	555	25%	4,161	1,904	84.4%
West Grove	2,128	2,652	524	25%	2,645	517	24.3%
<i>Oxford Area Total</i>	15,801	20,364	4,563	29%	23,925	8,124	51.4%
East Nottingham	3,841	5,516	1,675	44%	7,771	3,930	102.3%
Elk	1,129	1,485	356	32%	1,479	350	31.0%
Lower Oxford	3,264	4,319	1,055	32%	4,890	1,626	49.8%
Oxford	3,769	4,315	546	14%	4,701	932	24.7%
Upper Oxford	1,615	2,095	480	30%	2,341	726	45.0%
West Nottingham	2,183	2,634	451	21%	2,743	560	25.7%

Source: U.S. Census Bureau, 1990, 2000, 2004

