Petition to Upgrade the Upper Perkiomen Watershed

December 8, 2006

Submitted by Delaware Riverkeeper Network
in partnership with Perkiomen Valley Trout Unlimited,
Lehigh County Conservation District, Perkiomen Watershed Conservancy,
and Montgomery County Conservation District

December 8, 2006

To: The Honorable Kathleen McGinty, Chairperson
Environmental Quality Board
Rachel Carson State Office Building
15th Floor, PO Box 2063
400 Market St.
Harrisburg, PA 17105-2063

From: 84 businesses and landowners serving as co-petitioners/supporters of the petition

Delaware Riverkeeper Network, Perkiomen Valley Trout Unlimited, Lehigh County Conservation District, Montgomery County Conservation District, and Perkiomen Watershed Conservancy are jointly submitting this petition for upgrade of the Upper Perkiomen Creek. For administrative purposes, any correspondence about this petition can be directed to the Delaware Riverkeeper Network. Contact information for the five lead petitioners is as follows:

Delaware Riverkeeper Network
Maya van Rossum, the Delaware Riverkeeper
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Perkiomen Valley Trout Unlimited #332
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Lehigh County Conservation District
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4184 Dorney Park Road
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Perkiomen Watershed Conservancy
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Schwenksville, PA 19473
Tel: 610-287-9383

Montgomery County Conservation District
Richard Kadwill, District Manager
143 Level Road
Collegeville, PA 19426-3313
Tel: 610-489-4506

In addition to these five co-petitioners, there are 79 organizations, landowners, businesses, and local governments who are serving equally as co-petitioners/supporters for this petition to the Environmental Quality Board. They include the following entities and Appendix A provides letters from each of these co-petitioners.

Landowners

Lance Tittle
Chuck, Teri and Wyatt Brumm
Thomas & Elizabeth Graber
Donald Moyer
George van Rossum (water quality monitor), East Greenville PA
Ruth & Martha Voorhees
Michael Kutz
Marguerite & Philip Fadil
Colleen Bechtel
Claire and Howard Shelly
Ed & Denise Lounsberry
Al Rood
Dave Worthington
Alton & Linda Wimmer
Laurence & Susan Karper
Linda & Dennis Weidemoyer
Winifred & Edward Jensen
Brian Barger
Justin T Smith
Holly Delaco-Smith
Karen Wright
Martha Cawley
Robert & Martha Holby
Randall Romig
Val Bertoia
Henry Stauffer, Palm PA
William Bander Sr., East Greenville PA
Terry Schmoyer, Palm PA
Mike Bradford, East Greenville PA
James Haines, East Greenville PA
Paul Shellaway, East Greenville PA
Stan Krazek, East Greenville PA
Russel Burd, East Greenville PA
Sharon Kachmar, East Greenville PA
John McDonnell, East Greenville PA
C. Vermmsch, East Greenville PA

Farmers

James Longacre – Longmeadow Farm
John Cox
Glenn Hoffman

Richard & Elizabeth Hate
Lawrence Kahler
Terry Ferrence
Richard & Merris Ann Hoffman

Organizations

Delaware Riverkeeper Network
Morris Arboretum of the University of Pennsylvania
Trout Unlimited, Perkiomen Valley Chapter #332
PA Council of Trout Unlimited
Perkiomen Watershed Conservancy
Upper Perkiomen Watershed Coalition
Clean Water Action
Lehigh Valley Group of the Sierra Club
Lehigh Valley Audubon Society
Green Valley Coalition
Ducks Unlimited
Pine Creek Valley Watershed Association
Stroud Water Research Center
Montgomery County Land Trust
League of Women Voters, Lehigh County
Wildlands Conservancy
The Lorax Foundation
Berks County Conservancy

Townships and Government

Representative Karen Beyer, 131st Legislative District
Hereford Township
Lehigh County Conservation District
Montgomery County Conservation District

Businesses

Securities America, Inc.
Fabricated Alloy Products, East Greenville
Wright Wine Works
Landhaven – Ed and Donna Proprietors
Bertoia Studios

As you can see by this list, the support for upgrade of the Upper Perkiomen is genuine, strong and diverse. Representative Karen Beyer of the 131st Legislative District also supports this petition on behalf of her constituents and has hand delivered this petition to the Department. We have every expectation that support for the upgrade will continue to grow and expand throughout the public petition process.

Upgrading the Upper Perkiomen was first discussed by Stroud Water Research Center, an entity that has collected water quality data throughout the Schuylkill River Watershed and

that indicated to Delaware Riverkeeper Network and Perkiomen Valley Trout Unlimited the exceptional benthic community present in areas sampled in the Upper Perkiomen.

Petitioners gathered additional information and data which demonstrated a need for the waterway to be more appropriately designated and the region better protected in order to meet present water quality conditions. The Upper Perkiomen serves as drinking water supply and drains into Green Lane Reservoir, Montgomery County. There have been various reports, white papers, and studies done on this region because of its importance. A Watershed Conservation Plan was completed for the region in 2003, placing the Upper Perkiomen Creek Watershed on the Pennsylvania Rivers Conservation Registry administered by the Department of Conservation and Natural Resources.

Since 2000, there has been a heavy investment by the Commonwealth using Growing Greener funding and from other funding programs to implement at least 24 restoration projects in the Upper Perkiomen. These projects were made possible by state funding but also because of the local groups that work every day in this region to better restore and protect the watershed and the creek. Many of the restoration projects are being maintained on a regular basis. Benthic data being collected in proximity to these restoration projects show cleaner streams post-restoration. DEP investments in restoration are restoring streams and have helped protect and enhance the Upper Perkiomen. Upgrading the status of the Upper Perkiomen to its proper designation is an important recognition of the value of the Upper Perkiomen, of the region, of the residents, the DEP and the Commonwealth who have worked so hard to protect it, and it is the logical next step in protecting the investments we have all made in this watershed.

Our attached petition documents the data, the reasons and the rationales that support our request to upgrade the Upper Perkiomen to EV status. We look forward to working through this petition process and do not hesitate to contact me with any questions or concerns at 215-369-1188 ext. 102.

Respectfully Submitted,

Maya van Rossum
Delaware Riverkeeper
Delaware Riverkeeper Network

B1 Why is the petitioner requesting this action from the Board?

Problems Encountered Under Current Designation

The current designations of the Upper Perkiomen do not accurately depict the outstanding water quality of the Upper Perkiomen Watershed and greatly underestimates the natural resource values of this region. An upgrade to EV status for the Upper Perkiomen Watershed and HQ status for the Macoby Creek sub-watershed would offer greater protection from any future discharges that would adversely influence water quality and ensure the watershed's exceptional water quality is maintained and protected as outlined in the Chapter 93 anti-degradation regulations (25 Pa.Code § 93.4a(c)). There is also a problem with the fragmented nature of the West Branch Perkiomen Creek which currently has only a mid-section of the stream designated as EV with its headwaters and lower section designated CWF. In the PA DEP Stream Redesignation Evaluation Report Revised in July 2001, PA DEP states, "The [score of 80% of the reference station score] in the headwaters section [of the West Branch] is probably caused by degradation of the benthic habitat and lower gradient, not by poor water quality as evidenced by the significantly higher scores at the two stations farther downstream".

Threats to the Watershed

"Central and western Montgomery County experienced a 242 percent increase in developed acres between 1965 and 1990. Much more land is being used for each new house than in previous decades. In 1965 there were 0.8 acres of developed land per household. Between 1965 and 1990, land was developed at a rate of 1.4 acres per household.[i] The 2000 Census document that municipalities of the Upper Perkiomen Creek watershed have experienced slower growth (so far) than their surrounding municipalities over the last two decades. However, this area is projected to grow by 50% over the next fifteen years. The pattern and intensity of this land use that results from this growth will determine the future health and sustainability of the Upper Perkiomen. If the pattern is sprawling and converts open space areas into conventional suburban landscapes as seen surrounding the area, then stream quality will become drier and more degraded, just as it has in countless other "built-out" communities. In areas like the Hosensack watershed, where public sewer is not available, large-lot single-family subdivisions with onsite water and sewer facilities are a real threat. In addition, there are not sufficient riparian buffer ordinances within the watershed to protect the

remaining intact riparian buffers in the Upper Perkiomen Creek as this development threat is realized.

Changes being recommended to Address the Problems

EV/HQ designations will not stop new development but will provide better mechanisms to ensure the watershed is protected as changes take place. The most common ways EV and HQ status can change things include: 1) antidegradation review for proposed new discharges (such as expanding sewage facilities or stormwater discharges) and application of nondischarge alternatives for permits if possible, and 2) the need to apply for individual permits instead of general permits in many cases. Proposed developments must ensure that stormwater run-off during and after construction will not degrade water quality in the designated waterway. All earth disturbances, regardless of size, that may come to impact EV/HQ waterways must include an erosion and sedimentation plan and must implement "special protection" best management practices (BMPs) to minimize soil erosion and sedimentation to the receiving stream. Special Protection BMPs include:

- Special design requirements for sediment basins
- Lining all channels, collectors and diversions with permanent vegetation, rock, geotextile or other nonerosive materials
- Designing BMPs for peak discharge from 5-year frequency storm
- Immediate stabilization of the site upon completion or temporary cessation of earth disturbance
- Alternative BMPs to maintain and protect existing water quality if approved by DEP or County Conservation District.

As with construction activities, associated with development, logging operations in HQ and EV watersheds must implement the "Special Protection" BMPs that are not usually required in watersheds that are not HQ or EV. If a proposed development in the Upper Perkiomen involves disturbance or encroachment into wetlands, streams, or surface water within the floodplain of the EV stream, an Encroachment Permit is required. Ford crossings would also require an Encroachment Permit in EV streams and individual permits for utility line stream crossings, minor road crossings and temporary road crossings are required in EV streams.

Proposed new dams in EV watersheds require an environmental assessment review. Low level radioactive waste disposal facilities and hazardous waste treatment and disposal

facilities cannot be sited in an EV watershed. Coal Refuse Disposal facilities cannot be sited in an EV watershed unless that watershed is a "preferred site" (roughly defined as a watershed affected by unreclaimed mining areas, including acid mine drainage).

Proposed areas (Macoby Creek) with HQ status would not have as stringent protections as mentioned above for EV streams. HQ and EV status can be of benefit and provide for funding for the Dirt and Gravel Road Maintenance Program. These measures required in EV and HQ watersheds help protect the resource while still allowing development to take place in a sustainable manner.

What will EV/HQ status not do?

As mentioned above, EV/HQ status will not stop development activities but provide better mechanisms to ensure the watershed is protected when development takes place. EV and HQ status will not affect agricultural plowing or tilling practices or pesticide use. Regardless of the stream designation, agricultural plowing that disturbs 5,000 square feet or more of land, must be preceded by an implemented E&S Plan to control erosion and sedimentation. Current Nutrient Management Regulations for CAOs and CAFOs remain the same for all streams, regardless of their designated use. In most cases, existing facilities, such as sewage facilities, are permitted to continue to operate under all existing applicable approvals and permits. Permits to these facilities may also be renewed without any additional requirements after HQ or EV designation. EV/HQ status does not affect winter maintenance on roads; and bridge and culvert maintenance, repair or replacement.

Justification for the Requested Redesignation for the Upper Perkiomen Watershed

This petition will summarize evidence that illustrates that the Upper Perkiomen is deserving of an upgrade for many reasons: from its current water quality conditions, the watershed's natural and historical importance, its existing land use, diverse recreational opportunities, and the grass-roots and governmental commitment in the region (Montgomery County Conservation District, Lehigh County Conservation District) for stronger protections and past research and planning, to name a few. It was critical to the four co-petitioners that we gathered strong evidence that supports this petition as well as garner local and regional support. Key justification to support this petition includes the following points:

- **Water Quality Data -** Delaware Riverkeeper Network met with Stroud Water Research Center (SWRC) to review benthic macroinvertebrate data collected and analyzed by Stroud Water Research Center over the past several years. SWRC data clearly illustrate the Upper Perkiomen scores as one of the most diverse streams in the Schuylkill Basin. SWRC scientist, John Jackson states in his letter regarding monitoring results, "Based on (SWRC) 2005 and 2006 data, the Upper Perkiomen and Hosensack Creeks support a wide variety of macroinvertebrates that are indicative of clean water and good habitat, and comparable to those found in the Exceptional Value section of the West Branch of Perkiomen Creek." In fact, the Hosensack sub-watershed of the Upper Perkiomen achieved the highest water quality scores for benthic invertebrates in the entire 2,000 square mile Schuylkill watershed. The Macoby Creek and an unnamed tributary of the Macoby sampled by SWRC and the Delaware River Basin Commission in 2004 and 2005, indicate benthic life likely indicative to High Quality streams. See Section E4 for more details as well as Appendix B and Disk 1 for summary data provided by Stroud, Delaware River Basin Commission and Delaware Riverkeeper Network.
- **Restoration Projects -** The Upper Perkiomen Watershed highlights the positive investments PA DEP's Growing Greener Program has made to this local watershed through stream restoration and support from local partnerships over the past nine years. PA DEP, working with effective local partners who are supporting this petition and including Perkiomen Valley Trout Unlimited, Wildlands Conservancy, Lehigh County Conservation District, Montgomery County Conservation District, and Delaware Riverkeeper Network (not comprehensive list) have invested heavily in stream restoration projects throughout this region. There have been at least 23 restoration projects in the Upper Perkiomen (see Appendix C for a list of restoration projects in the Upper Perkiomen watershed). An example project is one that was implemented by Delaware Riverkeeper Network and Perkiomen Trout Unlimited that included ¾ mile of an unnamed tributary in Hereford Township , Berks County. The restoration included stream bank fencing, bank stabilization, and two cattle crossings. Another project involved PP&L employees removing five man-made dams along the Hosensack Creek. Finally, Montgomery County Conservation District has been

involved with numerous stormwater retrofit projects and green swales projects to clean and slow runoff in more developed areas of the watershed. These restorations, largely made possible by Pennsylvania's Growing Greener Program and funding through the Fish and Wildlife Service, have been a success and have improved water quality, riparian habitat, and in-stream diversity as indicated by benthic data pre- and post-restoration collected by Delaware Riverkeeper Network at some of these stream restoration sites (see Appendix B). By upgrading the Upper Perkiomen Watershed, PA DEP is illustrating the effective work it is doing on-the-ground to improve and restore water quality.

- **Drinking Water Supply** - The Upper Perkiomen Watershed tributaries drain into Green Lane Reservoir, an 805-acre impoundment owned by Aqua America (formerly Philadelphia Suburban Water Company), which serves as a primary drinking water supply for residents of Montgomery County. Water from the Perkiomen Creek is also shipped out of the watershed to augment Aqua PA water supplies throughout the Delaware Valley. In a one-year 1995 study, the largest sources of water to Green Lane Reservoir were the Main Branch Perkiomen Creek and the West Branch Perkiomen Creek at 13,188 and 8,381 million gallons per year, respectively. On a percent basis, the Main Branch Perkiomen represented 52.8% of the net total input of water to the Green Lane Reservoir that year[ii]. The area completely surrounding Green Lane Reservoir is a Montgomery County park open to visitors who want to camp, hike, horseback ride, and fish. As a drinking water supply, the Commonwealth should afford streams flowing into this basin the highest protection available.
- **Land Use Statistics** - What happens on the land affects water quality. The Watershed Conservation Plan for the Upper Perkiomen developed in 2001 used aerial photographs to show that impervious cover of the Upper Perkiomen Watershed was very low (See Table 1).

Table 1: Impervious Cover by Sub-watershed (Upper Perkiomen WCP, 2001)

Sub-watershed	Impervious Cover Percentage
Main Branch (above Green Lane Reservoir)*	1.3%
Main Branch (below Green Lane Reservoir)	6.6%
Northwest Branch*	1.5%
Hosensack Creek*	0.9%
Macoby Creek*	2.5%
Unami Creek	2.1%
Deep Creek	0.4%

* Streams/areas in the proposed upgrade area

Furthermore, a 2001 riparian buffer analysis of southeastern Pennsylvania streams conducted by the Heritage Conservancy, concluded that 155 stream miles (69%) of the 226 miles of waterways in the Upper Perkiomen Creek watershed benefit from buffers of at least 50 feet of woodland on each side of the stream (a.k.a."Full Forest Buffer"). None of the sub-watersheds of the Upper Perkiomen had less than 50% "Full Forest Buffer". See highlighted sub-watersheds and their riparian buffer statistics within the proposed upgrade area below:

Table 2: Percent Forested Buffer in Upper Perkiomen Watershed

Subwatershed	% Total in Full Forest Buffer
West Branch	67%
Macoby Creek	60%
Hosensack Creek	78%
Perkiomen – Upper Main Branch	53%

Finally, forest land, the best land cover condition for sustaining the quality and quantity of ground and surface water, ranks as the most dominant land use type, accounting for over 55% of the land in the Upper Perkiomen Watershed. This forest coverage is significantly higher than the average 35% of forest for most of the Piedmont forests in southeastern Pennsylvania.

- **Regional Reports and Plans Support Upgrade** - A DCNR funded Watershed Conservation Plan was developed for the Upper Perkiomen Watershed in 2001 by The Upper Perkiomen Watershed Coalition, Pennsylvania Environmental Council, and Natural Lands Trust. This plan represented an effort by residents of the watershed, municipal officials, local watershed associations, local and regional land trusts, and county agencies to identify major issues affecting water quality and quantity, as well as the living environment for local residents. The plan also listed a series of Implementation Strategies, many of which have been implemented. Furthermore, the plan states, " Certain stream segments (in the Upper Perkiomen) are believed to be higher in quality than the current designations reflect." Municipal officials responding to questionnaires and interviews recognized water quality issues as important. Twelve of the 14 respondents to the municipal survey thought that stream water quality was important to their municipality and 10 indicated that improving water quality in their municipality as well as for the entire creek should be emphasized in the Conservation Plan.

  In 1994, Delaware Riverkeeper Network and Cahill Associates produced a report, "Upper Perkiomen Creek Watershed Management Study: Technical Report" and a compendium to this report, "Protecting the Future of the Upper Perkiomen Watershed – A Call for Action," for local citizens and community groups[iii]. One of the five recommendations for citizen action in the report listed, "Petition the PA DEP to upgrade streams in the Upper Perkiomen Watershed"[iv].

  The Schuylkill Watershed Conservation Plan lists the Upper Perkiomen as a "high priority site" for its high habitat value[v]. Natural Land Trust's *Smart Conservation* project combined 15 land cover classes and assigned them habitat potential ranging from very poor, poor, adequate to good for each of 6 taxa classes (i.e., mammals, birds, herpetofauna (i.e., reptiles and amphibians), invertebrates, plants and aquatics). The Upper Perkiomen was listed as a priority for conservation due to its habitat value and was one of twelve sub-watersheds listed in the Schuylkill Basin under this special value designation.

- **Municipal Support** – Municipal and other government efforts illustrate that practices taking place in the region are working to preserve the character of the region. The townships of the Upper Hosensack basin are currently in the process of updating and improving their natural resource ordinances and use of best management practices. This is being guided by a multi-municipal comprehensive plan which covers five adjacent municipalities. In Upper Milford Township, a complete natural resources ordinance review has just been completed, and the recommendations of that review are being implemented in the township's update of its Zoning Map and SALDO. Additional recommendations being implemented are significantly increased Erosion and Sedimentation control practices, a newly restrictive Act 167 ordinance which requires all stormwater to be treated by at least two best management practices, and a two-zone riparian buffer ordinance. In Lower Milford Township, a complete reworking of the Zoning Ordinance is being carried out presently by the Brandywine Conservancy; among the changes is expected to be significant riparian buffer protection. Additionally, Lower Milford Township is also carrying out a complete natural resource ordinance review, and is expected to adopt numerous protective measures later this winter and next spring, once the process is complete.

  A survey of municipal officials completed in 2001 as part of the Watershed Conservation Plan indicated that 12 of the 14 municipalities responding thought that stream quality was important to their municipality. It was noted that CWF designations should remain in portions of the streams where they are in affect and where applicable, these designations should be upgraded to EV status.

- **Protected Open Space & Recreation –** The Upper Perkiomen Watershed has an estimated 7,970 acres, or 8.6% of the watershed in protected open space lands in the form of agricultural easements (4.5% of watershed or 4,182 acres), privately preserved lands (.04% of watershed or 363 acres), and county parks (3.7% of watershed or 3,425 acres). Montgomery and Lehigh County portions of the watershed have the largest areas protected under agricultural easements. Sections of the West Branch Perkiomen Creek and the Upper Main Branch Perkiomen Creek are designated as Class A Wild Trout streams due to their high biomass of wild brown trout. The Indian Creek and

Hosensack Creek have also been identified as having stream sections that support natural reproduction of trout.

The area completely surrounding Green Lane Reservoir is a Montgomery County park (Green Lane Reservoir Park) open to visitors who want to camp, boat, ice skate, hike, horseback ride, and fish. Parts of this watershed are favorite spots for birding enthusiasts as well. Mensch Mill Camp on the West Branch Perkiomen holds summer camps and conferences year round and historic Mensch Mill dam runs directly through camp property. Upper Perkiomen Park on the outskirts of Green Lane also borders the Macoby Creek.

- **Other Unique Natural Features** The four counties within the Upper Perkiomen watershed have participated in the Natural Areas Inventory program sponsored by the Pennsylvania Science Office of the Nature Conservancy and funded in part through the PA Department of Conservation and Natural Resources. This 1995 Natural Areas Inventory lists an unusually rich array of Priority 1 Sites of Statewide Significance and Priority 2 Sites of Local Significance within the Upper Perkiomen as priorities for biodiversity conservation. The Upper Perkiomen Valley supports the highest concentration of Natural Areas Inventory priority sites in all of Montgomery County. Section E6 includes a description of each of the specific sites in the Natural Areas Inventories for Lehigh and Montgomery Counties.

- **Physiographic Region of National Recognition** The northern half of the Upper Perkiomen watershed including Blackhead Hill, Furnace Hill, Carl Hill, and South Mountain is also part of the Highlands area designated by Congress for special protections as a source water area for major east coast cities, including New York City and Philadelphia. This landform crosses through the watershed in a northeast to southwesterly direction, forming the ridges that constitute to the headwaters area of Green Lane Reservoir and is part of the larger New England Highlands province.

Cultural History

The Upper Perkiomen Creek watershed is an area of rich historical and cultural heritage. The region's first documented inhabitants were the Lenni Lenape, the oldest of the Algonquian tribes of the northeast. The Lenape lived off the native hardwood forest landscape and the pristine stream systems for thousands of years until they relinquished their environment to William Penn in 1685.

In the early 1700's, the Europeans began transforming the woodlands into fertile farmland. The first of the European settlers to the Upper Perkiomen Valley were of German origin; they coined the Valley as "Goschenhoppen". These settlers were predominantly Lutheran; the Schwenkfelder family established the New Goschenhoppen Reformed Church in 1727. Catholicism was established in the Valley with the construction of a Roman Catholic Chapel in Bally in 1741. Mennonites in Hereford and Upper Milford also constructed several meetinghouses. By the mid-18th century, European settlers instilled their way of life throughout the majority of the Upper Perkiomen Valley.

As communities became strongholds of production, a dependence upon the headwaters of the Upper Perkiomen Watershed was established. Economic and population growth would not have been possible without the stream systems, as they provided a steady source of power for numerous mills such as sawmills, gristmills, linseed oil mills, and powder mills that supplied the Continental Army with gunpowder during the Revolutionary War. The earliest mill location in the Valley was established on the Indian Creek in 1737; at least ten more mills were later built along the channel. Additionally, the Hosensack Creek harbored a considerable number of mills, as did the West Branch of the Perkiomen. The streams were also integral to the operation of blast furnaces in iron production. The region was ideal for iron production, as iron ore, limestone, and charcoal (from local oak, hickory and ash) were readily available.

In the 19th century, progress continued to escalate. The villages of East Greenville, Pennsburg, Red Hill and Green Lane became major manufacturing centers, boasting commercial hubs, general stores, hotels, railroad stations, school houses, blacksmith shops, breweries, and carriage works. The industrial boom, unrelenting in the early 20th century, spawned clothing and hosiery plants, broom factories, green houses, cigar factories, furniture

manufacturers, metal stampings and wire factories, and printers in the Upper Perkiomen Valley, all of which made use of the water resources in the area by some means. During the post World War II period, the Valley maintained its character by concentrating development in or near existing towns, unlike most areas in the Philadelphia region that shifted toward suburban development. Farmland and important woodlands are predominantly intact to this day, although current trends in commercial and residential development are pose a severe threat. It vital to ensue smarter growth practices to maintain this scenic landscape and way of life so that the Upper Perkiomen and its tributaries can continue to serve as a remnant of the past culture and pristine nature for future generations.

C. Describe the types of persons, businesses, and organizations likely to be impacted by this proposal.

The majority of entities within the watershed will benefit from this upgrade. Small and large landowners will see an increase in their property values because they live in a healthy ecosystem. With EV designation, these landowners will also have better protection from hazardous waste sites and other threats to their watershed. The many farmers of the region will benefit from clean water to irrigate their crops and livestock. Many of the farmers in the watershed already have their farms in conservation easements or have implemented stream restoration projects on their property to help preserve the character of the area and as noted above, nine farmers signed on in support of the upgrade as co-petitioners. Recreational opportunities in the Upper Perkiomen Creek will also be enhanced. For example, sections of the West Branch are already Class A Trout Streams and Indian Creek and Hosensack Creek are known to support natural reproduction of trout; both are favorite fishing spots for anglers. This region is highly prized by the Trout Unlimited, Perkiomen Valley Chapter #332 as evidenced by all of the restoration and protection efforts in the region they helped implement over the years. Businesses including, Fabricated Alloy Products, Wright Wine Works, Landhaven, and Bertoia Studios also signed on in support of the upgrade. Lower Milford Elementary School uses the Hosensack Creek, which runs through the school property, for educational purposes and will benefit from clean waters for the children who study and wade in this stream during the school year. The Mensch Camp along the West Branch Perkiomen holds summer camps and conferences and their property borders the stream. Upper Perkiomen Watershed Coalition, a grass-roots watershed group in the region that sponsors the annual AquaFair Festival every year that is held near Green Lane will also benefit from

cleaner waters and is a co-petitioner for this petition. The Aquafair focuses on watershed education and getting the community involved and engaged in watershed protection and restoration. East Greenville Municipal Water Authority and Aqua America (as well as the residents supplied with water from these companies) will also benefit from EV designation, as their water intakes are located further downstream. The 42-year old Perkiomen Watershed Conservancy, that operates downstream of Green Lane Reservoir, and provides environmental education opportunities for children and adults throughout the region, will benefit from cleaner water for their education programs. These diverse groups listed above are only a sampling of the citizens, businesses, non-profits, and utilities that will benefit positively from a stream upgrade of the Upper Perkiomen region.

EV designation will not limit economic growth and development plans but allow for development in a way that preserves the integrity of the watershed by requiring special Best Management Practices that foster better planning and implementation of development plans. The main change for new development will be that discharges are of high quality or modified to use land application of discharge water. As illustrated in DEP's Antidegradation Manual, there have been development plans approved in EV watersheds in the past. An example near this proposed upgrade area is a residential development, Penn's View in Lynn Township, approved in late 2005 by both the Lehigh County Conservation District and the PA DEP in a small EV watershed. There were no troubles getting the development plan through the approval process, but additional permitting requirements were put in place because of the EV designation to better protect the area.

D. Does the action requested in the petition concern a matter currently in litigation? If yes, please explain.

No

E. For stream redesignation petitions, the following information must be included for the petition to be considered complete. Attach supporting material as necessary.

E1. A clear delineation of the watershed or stream segment to be redesignated, both in narrative form and on a map.

The co-petitioners are requesting consideration of EV status for the entire Upper Perkiomen Watershed above the Green Lane Reservoir and HQ status for the Macoby Creek, a tributary to the Perkiomen Creek. See Appendix D for a map of the proposed upgrade area.
The Perkiomen Creek headwaters begin in Hereford Township, Berks County on the south-facing slopes of a wooded ridge near Seisholtsville near SR1047. The major tributaries of the upper portion of the Perkiomen Creek, the West Branch, Indian Creek, and Hosensack Creek also have their sources along this ridge, which includes Blackhead Hill, Furnace Hill, and South Mountain. Major subwatersheds of the Upper Perkiomen include:

- All of the Hosensack Watershed and all of its tributaries from its headwaters near the Northeast Extension of the Turnpike in Lower Milford Township, Lehigh County to its confluence with the Perkiomen Creek in Upper Hanover Township, Montgomery County. The Hosensack Watershed is 7.4 miles in length and runs southwest as it drains 18 square miles. This subwatershed is predominantly rural, with woodland and agricultural land defining most of its land cover. Indian Creek, a tributary to the Hosensack covering 4.4 square miles, rises along the wooded ridge known as South Mountain in Upper Milford Township, Lehigh County and flows southeast, under Route 100/29 to its confluence with the Hosensack.
- All of the Upper Main Branch of the Perkiomen Creek and all of its tributaries, from its headwaters which originate near the hamlet of Seisholtsville and Harlem in Hereford Township, Berks County and flows to the southeast past Hereford and into the central valley past Palm and East Greenville before it reaches the Green Lane Reservoir in Upper Hanover Township. The headwaters of this subwatershed are dominated by forested ridges with a fairly complete forested riparian buffer, while the middle section is primarily farmland with scattered residential development.
- All portions of the West Branch Perkiomen not already designated as Exceptional Value, including the headwaters section from its source near Dogwood Drive in District Township, Berks County to SR1022 and the portion of the stream from SR2069 Bridge to the Mouth where the West Branch meets the Green Lane reservoir

in Upper Hanover Township. The West Branch is the third largest tributary system in the Upper Perkiomen watershed and it drains an area of 23 square miles with over 11.8 miles of stream. The headwaters portion of this watershed includes a mix of woodland and scattered residential development, with agricultural lands in the uppermost reaches. The stream has a fairly significant drop in gradient before reaching a more level central valley of agricultural lands adjacent to Green Lane Reservoir.

- All of the Macoby Creek and all of its tributaries, including Stony Run from its source near Krassdale in Lehigh County to just east of Rte 29 where the Macoby enters the Green Lane Reservoir.
- All of Molasses Creek from its headwaters just north of Kutztown Road near West Forty in Upper Hanover Township to its mouth with the Green Lane Reservoir near Church Road in Green Lane Reservoir Park.

E2 The current designated uses of the watershed or segment.

- The Hosensack Watershed including locally known tributaries of Indian Creek and Walters Creek and all of its unnamed tributaries are currently designated Cold Water Fishery(CWF) as outlined in Chapter 93.
- The Upper Main Branch, from SR 1010 Bridge to Green Lane Reservoir Dam is designated Trout Stocked Fishery (TSF)
- Portions of the West Branch proposed for an upgrade are currently designated Cold Water Fishery (CWF). Specifically, West Branch Source to SR 1022 Bridge is CWF and SR 2069 Bridge to Mouth is CWF. (The "middle" section of the West Branch Perkiomen from SR1022 to SR2069 bridge at RMI 12.9 is already Exceptional Value Status (as of 2001). From the PA DEP July 2001 Stream Redesignation Evaluation Report for the West Branch, PA DEP stated that, "The station in the headwaters of the basin had a score of 80% of the reference station score. This score was probably caused by degradation of the benthic habitat and lower gradient, not by poor water quality as evidenced by the significantly higher scores at the two stations farther downstream.")
- All of Macoby Creek is designated Trout Stocked Fishery (TSF).

E3. The requested designated uses of the watershed or segment.

The petitioners are requesting that all portions of the Upper Perkiomen listed above in section E2 be designated Exceptional Value (EV) with the exception of the Macoby Creek Watershed which petitioners request an upgrade to High Quality (HQ).

Specifically, petitioners request:

- The Hosensack Watershed including locally known tributaries of Indian Creek and Walters Creek and all of its unnamed tributaries be changed to EV status.
- The Upper Main Branch of the Perkiomen Creek from its source near Seisholtsville to SR 1010 Bridge at Hereford be designated EV. The Upper Main Branch, from SR 1010 Bridge to Green Lane Reservoir Dam be designated EV.
- West Branch Source to SR 1022 Bridge be designated EV and the West Branch SR 2069 Bridge to Mouth be designated EV
- All of Macoby Creek and Molasses Creek and tributaries be designated HQ.

E4. Available technical data on instream conditions for the following: water chemistry, the aquatic community, or instream habitat. If such data are not included, provide a description of the data sources investigated.

The petitioners have various technical data cited below from a variety of reports and data collectors that illustrate the water quality of the Upper Perkiomen. Appendix B and Disc 1 includes some of the datasets described below.

1) Stroud Water Research Center has been using stream macroinvertebrates to monitor stream conditions at over 116 locations in the Schuylkill River basin since 1996. This includes 40 sites in the Perkiomen Creek watershed. These are distributed across all of the major tributaries (i.e., Swamp, West Branch, Upper, Hosensack, Unami, East Branch, and Skippack). One site (on the West Branch just upstream of the Green Lane reservoir) is one of 19 sites that SWRC has sampled annually since 1996. This site is consistently one of the best sites sampled and clearly deserving of the Exceptional Value status awarded in 1997. SWRC uses this site as a reference as an unimpaired stream. Another nearby site that SWRC samples annually is on the mainstem of Perkiomen Creek just upstream of the Green Lane Reservoir. This is the 5th best site SWRC monitors annually for the entire Schuylkill Basin.

In 2005 and 2006, SWRC added a total of six additional sites (2 in 2005, 4 in 2006) on the tributaries of the mainstem of Perkiomen Creek upstream of the Green Lane Reservoir. The two sites sampled in 2005 were the 2nd (Hosensack Creek) and 4th (mainstem of Upper

Perkiomen Creek) best of the 38 sites SWRC examined that year - both had scores that were greater than scores at the Exceptional Value site on the West Branch in 2005. The four sites SWRC sampled in 2006 were the 1st (Indian Creek), 3rd (headwaters of Upper Perkiomen Creek), 4th (West Branch Hosensack Creek), and 9th (East Branch Hosensack Creek) best of the 40 sites SWRC examined in 2006. All had scores that ranked better than the Exceptional Value site on the West Branch in 2006. SWRC also collected data for the Macoby Creek in 2005 and reviewed DRBC data available for Macoby Creek. Dr. John Jackson stated that Macoby Creek can likely meet HQ designation based on the benthic macroinvertebrates collected. In SWRC's co-petitioner letter, Dr. John Jackson states, "These streams are excellent examples of healthy streams in southeastern Pennsylvania. Many streams in this region have been impacted by years of development and use, including in neighboring tributaries of Perkiomen Creek (e.g., Skippack Creek or Swamp Creek). Every effort should be made to protect Upper Perkiomen and Hosensack Creeks from this fate as they represent a wonderful natural resource that will be viewed as a tremendous cultural and environmental asset by future generations. Elevating the stream designation to Exceptional Value will provide local landowners and municipal officials with another planning tool needed to help protect the watershed." The details and data for these sites are available at www.stroudcenter.org/schuylkill and Appendix B also includes hard copies from the website.

2) Delaware Riverkeeper Network has water quality data collected by trained volunteer monitors for the Upper Perkiomen and Macoby Creek that include parameters for dissolved oxygen, nitrogen, pH, temperature and ortho-phosphate. There are three sites on the West Branch and two sites on the Macoby Creek. As part of this upgrade effort, more sites were established on Macoby Creek in August and September 2006. The three West Branch Perkiomen Creek stations, where monthly samples were taken between 1997-2001, were analyzed and indicated healthy average dissolved oxygen levels of 10.9 mg/l, 11.1 mg/l, and 11.5 mg/l for those five years. Average nitrate-nitrogen levels were also low and at healthy readings of 0.8, 0.8, and 0 .9 mg/l. Average pH readings were also at healthy levels at 7.4, 7.6, and 7.6. Macroinvertebrate monitoring at two stations in the West Branch were conducted by DRN in 2001 using a semi-quantitative method and ID streamside to Order level. Using EPA's metrics, both stations scored "good" in 2001 for having a variety of pollution sensitive species.

Water quality data was collected by a trained volunteer monitor for Macoby Creek at two sample stations from 2002-2005 (2006 data also available). The first sample station (MC001) was located near the headwaters of Macoby Creek while the second sample station was near the mouth in Green Lane. Both stations were sampled 20 times during the 2002 - 2005 time period and there was very little difference from the headwaters site and the mouth site, indicating healthy water quality measures throughout this stream, despite its high number of NPDES discharges. The headwaters site (MC001) had an average dissolved oxygen of 8.9 mg/l; average percent saturation of 81.8%; an average pH of 7.4; an average nitrate nitrogen of 0.3 mg/l and all ortho-phosphate readings were below the minimum detection limit (0.2 mg/l) except for one reading in September 2003. The site in Green Lane near the mouth (MC002) had an average dissolved oxygen of 9.9 mg/l; average percent saturation of 90.2%; an average pH of 7.6; an average nitrate nitrogen of 0.3 mg/l and all ortho-phosphate readings were below the minimum detection limit (0.2 mg/l). A special study was performed in July and August, 2006 to better supply data for the Macoby for this stream upgrade petition. During July and August, 2006 additional water quality results were collected from five additional stations on the Macoby Creek mainstem, tributaries, and Stoney Run tributary. These samples were taken the hottest and driest time of the year but results were still within an acceptable range. The average dissolved oxygen for all of these sites in July and August was 6.9 mg/l and 77.5% saturation. Nitrate-nitrogen and ortho-phosphate levels were non-detectable and below the minimum detection limits of 0.2 mg/l respectively; the pH was at a healthy level, ranging from 7.5 to 8 depending on the stream station.

3) Delaware River Basin Commission (DRBC) sampled an unnamed tributary to Macoby Creek in 2005. Eighteen benthic groups were collected at the sample station and over 246 individual specimens were counted. SWRC reviewed this data and indicated that based on this sample, the Macoby Creek could likely meet HQ water quality standards. (See Disk 1)

4) Hammell, in the working draft of "Planning for Water Quality Monitoring and Riparian Restoration in the Schuylkill Watershed", referenced a 1986 PA DEP study that found the main branch of the Perkiomen upstream of the Green Lane Reservoir exhibits fairly good water quality and aquatic habitat.

5) In a more recent study by Boyer entitled, "Aquatic Biology Investigation for the Perkiomen Creek in Berks and Lehigh Counties" in 1998, physical characteristics, field parameters (pH, dissolved oxygen, temperature, specific conductance), samples for lab analysis (SAC 035), qualitative invertebrate data and fish community information were collected at two stations in the Upper Perkiomen Creek headwaters in Hereford Township, Berks County. The water quality was reported "very good" at one station and "excellent" at the other. The report concluded that the Perkiomen Creek headwaters support a well-established trout fishery as well as an extremely diverse benthic community. It recommended consideration of the Perkiomen Creek north of SR 1010 bridge for redesignation to EV status.

6) A 1937 National Youth Administration sanitary survey documented "good" water quality with some agricultural runoff impacts for the West Branch Perkiomen (Cahill, 1994)

7) In January 1994, Cahill Associates prepared a report for Delaware Riverkeeper Network, "Upper Perkiomen Creek Watershed Management Study: Technical Report." This report summarized various data sources in the region. (A copy of this report can be obtained by contacting Delaware Riverkeeper Network.)

8) USGS Data – Two gaging stations measure flow levels, volumes, and velocities in the Upper Perkiomen watershed, just above Green Lane Reservoir –Station #01472198 is located on the main stem Perkiomen upstream from the bridge on Church Road, 0.9 miles upstream from Molasses Creek. It measures flow from the upper portion of the main stem Perkiomen Creek, Hosensack Creek, and Indian Creek. Station #01472199 is located on the West Branch Perkiomen Creek at Hillegass, 0.3 miles downstream from a bridge on private road.

9) The Heritage Conservancy conducted a regional riparian buffer analysis program (RBAP) of southeastern Pennsylvania streams in 2001. The RBAP concluded that 155 stream miles (69%) of the 226 miles of waterways in the Upper Perkiomen Creek watershed benefit from buffers of at least 50 feet of woodland on each side of the stream (a.k.a."Full Forest Buffer"). None of the sub-watersheds of the Upper Perkiomen had less than 50% "Full Forest Buffer".

See highlighted sub-watersheds and their riparian buffer statistics within the proposed upgrade area below:

Table 2: Percent Forested Buffer in Upper Perkiomen Watershed

Subwatershed	**% Total in Full Forest Buffer**
West Branch	67%
Macoby Creek	60%
Hosensack Creek	78%
Perkiomen – Upper Main Branch	53%

10) **Healthy Fish Populations and Presence of Wild Brook Trout** - Hosensack Creek was sampled by the PA Fish and Boat Commission in 1983 and 2000 and Tom Shervinskie of the Commission stated the following in an email dated 3/29/05:

"Hosensack Creek supports a wild brown trout population in addition to a moderately diverse warmwater/coolwater fish community. Fish species found in the Hosensack included: small mouth bass, blacknose dace, bluegill, common shiner, cutlips minnow, fallfish, largemouth bass, longnose dace, rock bass, shield darter, swallowtail shiner, tesselated darter, white sucker, pumpkinseed, redbreast sunfish, creek chub, green sunfish, and the occasional stocked rainbow trout. The fish species require a variety of habitats to reproduce and would therefore indicate a very good physical stream habitat must be present to support this fish community. Water chemistry analysis was indicative of a limestone influenced stream. The total alkalinity was 80 ppm, total harness was 116 ppm and the pH was 7.7 standard units. This type of water chemistry generally supports a very good fish community and this is the case for the Hosensack Creek." A search was completed on the PA Fish and Boat Commission website and no other data or biologists reports were available for the proposed upgrade area on-line.

The West Branch Perkiomen was also sampled for fish as part of the 2001 PA DEP water quality standards review. A total of 11 species of fish were collected at two stations. Wild brown trout were common at both stations and the presence of young of the year brown trout proves natural reproduction of this species in the basin. The PA Fish and Boat Commission has designated the main stem West Branch Perkiomen Creek from SR1022 downstream to SR2069 and unnamed tributary 01455 as Class "A" Wild Trout Waters. Other species beyond the brown trout found during this PA DEP survey included common shiner, cutlips minnow, blacknose dace, longnose dace, fall fish, creek chub, white sucker, redbreast sunfish, rock bass, and tessellated darter.

E5. A description of existing or proposed point and nonpoint source discharges and their impact on water quality and/or the aquatic community. The names, locations, and permit numbers of point source discharges and a description of the types and locations of nonpoint source discharges should be listed.

Point Source Discharges

According to the 2001 Upper Perkiomen Creek Watershed Conservation Plan, the Upper Perkiomen has 42-point source discharges and at least seven of these were described as "land application" systems (6 spray irrigation/1 drip irrigation) that discharge to soil rather than the stream (see Map in Appendix D). The 2001 WCP cites that Upper Perkiomen Creek has 14 discharges; Hosensack Creek has 0 discharges; West Branch has 6 discharges; and Macoby Creek has 12 discharges. Macoby Creek is categorized as handling a high amount of wastewater and industrial treatment plants relative to its size. The petitioners performed a search of NPDES permits in the proposed upgrade area only and generated 40 current discharges with NPDES permits and 10 discharges that may no longer be active. The list was generated in October 2006 using PA DEP eMap as well as the EPA website and past reports.

The Hosensack Creek remains the last major tributary to the Upper Perkiomen Watershed with no impacts from point-source pollution sources, according to our recent search and communications with township officials.

At least 14 industrial wastewater treatment plant discharge points are documented for the Upper Perkiomen Creek watershed. Many of these are concentrated along the Route 29 and Route 663 corridors in the Macoby Creek and main stem Perkiomen Creek watersheds. Knoll Furniture and Brown Printing each have plants just north of East Greenville. The Hershey chocolate company and Entrance Systems, Inc. each have plants east of Pennsburg. The table below lists the point source discharger, NPDES permit number, and nature of the discharge if available for known NPDES permits within the proposed upgrade area. See the table on the next page with a comprehensive list of NPDES discharges in the proposed upgrade area.

Point Source Discharge	Recent NPDES #	Nature of Discharge
Bally Boro. Well 3	PA0055123 (2005)	Ground Water Clean Up Discharge Point
Bally Boro. Well 3 Air Stripper System WTP	PAR903511 (2003)	Ground Water Clean Up Discharge Point
Bally Borough	PA0022543 (2005)	Sewerage Systems
Blommer Chocolate	PA0058866 (2005)	NCCW Cool Towers 1&3, Boiler, On Basin B near Railroad SWRO; and Retention Basin A NCWW Outfall
Brown Printing Co.	PA0051802 (2004)	Industrial Waste
Cherrydale Farms- IWTP	PAR120024	Stormwater-Industrial/producer of candy
David Bosico	PA0058718 (2003)	Single Residence Treatment Plant
Doug Jones	PA0058106	Single Residence Treatment Plant
Dwayne & Beth Sierver	PAG042211 (2004)	Operators of dwellings other than apartment buildings
Glenn & Patricia Snyder	PAG042208 (2002)	Operators of dwellings other than apartment buildings
Green Lane Auto Sales & Parts, Inc.	PAR600061 (2005)	Stormwater/Industrial Waste
Hereford Estates WWTP	PA0041505 (2003)	Residential Mobile Homes
Hershey Foods Corporation - IWWTP	PA0057967 (2005)	Industrial Waste
HPE Extrusion Solutions	PA0247961 (2006)	Industrial Waste
Jason & Cheryl Kulp	PA0054500 (2003)	Single Residence Treatment Plant
Jay & Debbie Delp	PAG040020 (2005)	Operators of dwellings other than apartment buildings
Joseph Kuroski	PA0058661	private household
Knoll Inc.	PA0011070 (2004)	SEW/IW/NCCW Outfall; Stormwater, Internal STP, and NCCW/SWRO Outfalls
Knoll Inc. - Batch Treatment Pits, STP Extended Aeration	PA0011070 (2004)	Industrial Waste (furniture manufacturing plant)
Longacres Modern Dairy Inc.	UNPA4	Stabilization Lagoon Treatment Plant, Industrial Waste
Lower Milford Elementary School		
Macoby Creek STP	PA0055875 (2006)	Industrial Waste
McGuire Residence	PAG043604 (2004)	Operators of dwellings other than apartment buildings
Michael Cleary	PAG040027 (2005)	Operators of dwellings other than apartment buildings
Mountain Village Mobile Home Park		
Plummer Precision Optics	PA0053864	Industrial Waste
Poor Richards Historic Inn	PA0086371 (2004)	Hotel
Ramalingam SRSTP	PA0054259 (2003)	Sewage Systems
Red Hill Water Authority	PA0053872 (2002)	Industrial Waste

NPDES Discharge (cont'd)	Recent NPDES #	Nature of Discharge
Richard O'Leary	PA0053139 (2003)	Single Residence Treatment Plant
Scott Heilman	PA0084557	0.0005 mgd permitted
Steven and Joann Glueck	PAG040016	Palm - operators of dwellings other than apartment buidlig
Strawberry Family Restaurant	PA0053376 (2004)	Industrial Waste
Texas Eastern Gas Pipeline Co.	PAG103513	Bernville Hydrostatic Discharge
Texas Eastern Transmission LP	PAG1035	Hydrostatic Test Site Industrial Waste
Todd Ferrence	PA0054178 (2001)	Sewerage Systems
Upper Montgomery Joint Authority (Upper Hanover)	PA0020532 (2005)	Stormwater/Industrial Waste
Washington Township WWTP	PA0086142 (2005)	Industrial Waste
William McPhillips	PA0056499 (2002)	private household
William Stoneback	PA0057151 (2002)	Single Residence Treatment Plant
Woodland MHP WWTP	PA0055352 (2003)	Operators of dwellings other than apartment buildings; permitted 0.014 mgd
Woodrow Heilman	PAG043547 (2006)	Operators of dwellings other than apartment buildings
Upper Perkiomen YMCA	PA0056812	Swimming Pool Filter Backwash
No New Approvals on Record		
Bally Block Co. Laminated Hardwood Manufaturing	PAR223510 (2000)	Stormwater-Industrial
Bally Engineered Structure	PAR113501 (1995)	Industrial Waste
East Greenville Boro. Water Dept.	PA0050644 (1999)	Water Filtration Plant Outfall
Fluid Energy Processing	PAR210016 (1996)	Minerals and earths, ground or otherwise treated
Genes Used Auto Parts	PAR600067 (2000)	Stormwater-Industrial
George Phillips Estate	PAR600059 (2000)	Used Motor Vehicle Parts
John Betz STP	PA0063916 (1999)	
Nesters Auto Sales	PAR113503 (2000)	Stormwater-Industrial
Patrick O'Neill	PA0058254 (2001)	Aerobic treatment plant
Pratt Residence	PA0058084 (2000)	Single Residence Treatment Plant

Non Point Source Discharges in the Upper Perkiomen

Nonpoint source pollution is often carried as stormwater runoff from the following sources:

- roads and parking lots (i.e. hydrocarbons, heavy metals, sediment, road salt);
- lawns (fertilizers, pesticides, dog waste);
- cultivated fields (soil erosion/sedimentation)
- construction sites (soil erosion/sedimentation)
- livestock pastures (manure, soil erosion/sedimentation)
- stormwater management facilities
- on-lot septic systems

The Cahill study estimated that nonpoint sources accounted for 84 percent of the pollutant loadings in the three reservoirs in the Upper Perkiomen watershed (Cahill, 1994). Browne estimated that nonpoint sources contribute 93 percent of annual phosphorus loads and 100 percent of annual sediment loads to Green Lane Reservoir (Browne, 1998). Cahill further quantified that 47 percent of nonpoint phosphorus loadings occur during dry weather. The probable sources are malfunctioning or poorly maintained septic systems and livestock encroachment directly into streams. Browne found that agricultural runoff contributes 84 percent of total phosphorus loads to Green Lane Reservoir. Conversely, Cahill quantified that 53 percent of nonpoint phosphorus loadings occur during wet weather. The probable sources are agricultural and existing suburban development runoff. Agricultural runoff sources include sediment laden with fertilizers on cultivated crops or livestock waste from pastures and feedlots or manure applied on cropland. The primary suburban runoff sources are lawn areas where fertilizers are applied.

It is important to note that since these studies, there have been at least 24 restoration projects in the Upper Perkiomen that have restored buffers along grazing areas with streambank fencing and buffer planting projects and infiltrated stormwater runoff through bioretention swales, filter strips and naturalized basins. Data collected pre- and post- restoration by Delaware Riverkeeper Network and the Academy for Natural Sciences, Patrick Center at some of these projects show the return of diversity in the benthic community as the buffers filter out pollution from the agricultural runoff. It is also important to note that though non-point sources are present, riparian buffers in this region are rather intact (Heritage Conservancy study). Impervious Cover of the Subwatersheds (see Section E7) in this region is low (so far) compared to other watersheds in the surrounding regions and helps filter out pollution from non-point sources.

E6. Information regarding any of the qualifiers for designation as high quality waters (HQ) or exceptional value waters (EV) in 93.4b (relating to qualifying as High Quality or Exceptional Value waters) used as a basis for the requested designation.

Section 93.4b "Qualifying as High Quality waters"

Some sections of the proposed upgrade area of the Upper Perkiomen Watershed are already designated High Quality Water, therefore meeting the requirement of subsection (a) of Section 93.4b. These HQ sections include:

- The Upper Main Branch of the Perkiomen Creek from its source near Seisholtsville to SR 1010 Bridge at Hereford is designated High Quality Cold Water Fishery (HQ-CWF).

- The "middle" section of the West Branch Perkiomen from SR1022 to SR2069 bridge at RMI 12.9 is already Exceptional Value Status (as of 2001). From the PA DEP July 2001 Stream Redesignation Evaluation Report for the West Branch, PA DEP stated that, "The station in the headwaters of the basin had a score of 80% of the reference station score. This score was probably caused by degradation of the benthic habitat and lower gradient, not by poor water quality as evidenced by the significantly higher scores at the two stations farther downstream."

Other sections not already HQ, have benthic and water chemistry data collected by Stroud Water Research Center, Delaware Riverkeeper Network, and Delaware River Basin Commission that show a robust community of macroinvertebrates and pollution sensitive species and healthy water quality measures. See Appendix B and Section E4 for more information.

Section 93.4b "Qualifying as Exceptional Value waters"

The water meets the requirements of subsection (a) and one or more of the following:

(i) The water is located in a National wildlife refuge or a State game propagation and protection area. - **NO**

(ii) The water is located in a designated State park natural area or State forest natural area, National natural landmark, Federal or State Wild River, Federal wilderness area or National recreational area. - **NO**

(iii) The water is an outstanding National, State, regional or local resource water. -**YES**

(iv) The water is a surface water of exceptional recreational significance. – **YES**

(v) The water achieves a score of at least 92% (or its equivalent) using the methods and procedures described in subsections (a)(2)(i)(A) or (B). **YES**

(vi) The water is designated as a "wilderness trout stream" by the Fish and Boat Commission following public notice and comment. – **NO**, but there is a presence of wild brook trout within the proposed upgrade area

E6.(iii) The water is an outstanding National, State, regional or local resource water.

The Upper Perkiomen Watershed has many significant resources that provide benefit to the community and the environment that must be protected. They include:

Drinking Water Supply

Many residents in the Upper Perkiomen rely on groundwater and private wells and municipal water supply systems.

Municipal Water Supply Systems (From 2001 Upper Perkiomen WCP)

System	Number of Connections	Service Area	Avg Daily Use (gpd)	Capacity (gpd)
Upper Hanover Water Authority	1,023	Pennsburg, U. Hanover, Hereford	3 wells	726,000 gpd
Milford Water Authority	1,080	Milford, Trumbauersville	5 wells in Milford	220,000 gpd
Red Hill Water Authority	705	Red Hill, Hereford, U.Hanover, U. Milford	2 wells and spring fed reservoir	400,000 gpd
East Greenville Borough	1,082	E. Greenville	1 well & Perkiomen Crk withdrawal	242,000 gpd
Bally Borough		Bally Borough	1 well	100,000 gpd

The Upper Perkiomen feeds the Green Lane Reservoir, which is a primary drinking water supply that services a half million people in Montgomery and Chester counties. Green Lane Reservoir is an 805-acre impoundment owned by Philadelphia Suburban Water Company, now known as Aqua America. Note that many restoration projects in the Upper Perkiomen were done in partnership with the water company who recognized the value of protecting the streams flowing into the reservoir. In a one-year 1995 study, the largest sources of water to Green Lane Reservoir were the Main Branch Perkiomen Creek and the West Branch Perkiomen Creek at 13,188 and 8,381 million gallons per year, respectively. On a percent basis, the Main Branch Perkiomen represented 52.8% of the net total input of water to the Green Lane Reservoir that year[vi]. All of the land surrounding Green Lane Reservoir is public park and open space managed by Montgomery County. As a drinking water supply, the

Commonwealth should afford streams flowing into this basin the highest protection available.

Rivers Conservation Registry

The Upper Perkiomen Creek Watershed is on the Pennsylvania Rivers Conservation Registry (as of June 2003) administered by the Department of Conservation and Natural Resources Bureau of Recreation and Conservation. There is a 2001 Upper Perkiomen Watershed Conservation Plan in place for this area. Projects identified in the Plan become eligible for implementation, development or acquisition grant funding through the Program.

Sites Listed on the Natural Areas Inventory

The counties within the Upper Perkiomen watershed have participated in the Natural Areas Inventory program sponsored by the Pennsylvania Science Office of the Nature Conservancy and funded in part through the PA Dept of Conservation and Natural Resources. This 1995 Natural Areas Inventory lists an unusually rich array of Priority 1 Sites of Statewide Significance and Priority 2 Sites of Local Significance within the Upper Perkiomen as priorities for biodiversity conservation. The Upper Perkiomen Valley supports the highest concentration of Natural Areas Inventory priority sites in all of Montgomery County and it is known to have populations of the smallest flowering plant in the world – watermeal, a member of the Duckweed Family. Watermeal is free-floating like duckweed (Lemna) but smaller. Two species of Wolffia (Wolffia brasiliensis and Wolffia columbiana) are part of our regional flora in Montgomery County. Below is a description of each of the areas highlighted in the National Resources Inventory within the proposed Upper Perkiomen Watershed as outlined in the Upper Perkiomen Watershed Conservation Plan.

- ***Indian Creek Floodplain –*** located in Upper Milford Township (Lehigh County)
- ***Hosensack Marsh –***This Priority 1 site in Lehigh County is one of the highest-ranking wetlands in the Upper Perkiomen watershed. The marsh is noted for its combination of marsh and shrub swamp habitat, supporting a wide array of animal species of special concern (i.e. bog turtles).
- ***Lower Milford Marsh*** – This Lehigh County site supports a "Basin Graminoid-Forb Fen Natural Community" along the floodplain of Hosensack Creek. The northern section of this wetland includes seeps and springs, a marsh, and then a forested swamp. The southern portion gradually becomes marshy, and is densely

vegetated by grasses and sedges. Tree species noted in the Inventory include black walnut, willow, and ash, with herbaceous plants including sweetflag iris, sensitive fern and skunk cabbage. Several species of special concern are suspected at this site, both plants and animals.

- ***Big Beech Woods*** – This site, in Lower Milford Township, Lehigh County, is a southeast-facing slope along Hosensack Creek with a maturing second-growth forest of beech, tulip poplar, sugar maple, hickory, oak and birch. Some of the trees are measured at over 2 feet in diameter. Hemlock is also present in the understory along with a diversity of shrubs and a rich herbaceous layer. The Inventory also notes the importance of protecting this area to support the quality of Hosensack Marsh.
- ***Macoby Creek Ravine*** – A Priority 2 site in Montgomery County containing a large population of a state-listed rare plant species. Sugar maple, flowering dogwood and a variety of wildflowers are noted at this site adjacent to the quarry.
- ***Mill Hill Woods*** - A Priority 2 site in Montgomery County that consists of a large contiguous tract of woodland on the diabase ridge known as Mill Hill just north of Pennsburg in Upper Hanover and Lower Milford Townships. There may be seepage wetlands and at least two plant species of special concern at this site. At 600 feet, Mill Hill is the highest point in Montgomery County.
- ***Mill Hill*** – This wooded diabase ridge in the Hosensack Creek watershed in Lehigh County supports an extensive forested area with possible plant species of special concern. Beech, tulip poplar, sugar maple, basswood, ash, hickory, and oak are dominant species on lower slopes. Herbaceous plants are diverse, with numerous species of woodland wildflowers and ferns. The upper slopes are dominated by chestnut oak, sweet birch, tulip poplar, and red oak, with witch hazel, dogwood, choke-cherry and maple-leaved viburnum common in the shrub layer. A rich herbaceous plant community is present in the upper slopes. Upper Hanover Township has acquired the majority of the Montgomery County portion of the site as a protected area.
- ***New Goshenhoppen Meadows*** – A Priority 1 site of Montgomery County located on the northwest end of Green Lane reservoir supports a graminoid marsh with breeding habitat for rare wildlife species, and is frequented by a diversity of birds

and other animals. New Goshenhoppen Meadows adjoins the Perkiomen Creek just upstream from the Green Lane Reservoir, and also supports rare wildlife species and uncommon grassland nesting birds such as savannah sparrow, meadowlark and bobolink. The wet meadows contain a diversity of sedges and native wildflowers with good butterfly habitat.

- ***Church Road Floodplain*** – A Priority 2 locally significant floodplain forest with species such as silver maple, ash, and spicebush, with an adjoining upland woods supporting sugar maple, beech and hemlock along the Perkiomen Creek. This site adjoins the New Goshenhoppen Meadows. (This site is also part of the Audubon Important Bird Area)

Priority Habitat Zone in Schuylkill Watershed Conservation Plan

Natural Land Trust's *Smart Conservation* project combined 15 land cover classes and assigned them habitat potential ranging from very poor, poor, adequate to good for each of six taxa classes (i.e., mammals, birds, herpetofauna (i.e., reptiles and amphibians), invertebrates, plants and aquatics). A panel of regional experts and scientists assigned the habitat values. Each land cover class was weighted according to its assigned habitat value and the cumulative average habitat score for each taxa group was generated by subwatershed. A generalized habitat value map was produced, which incorporates the habitat values from each of the contributing taxa maps. The Upper Perkiomen was listed as a priority for conservation due to its habitat value and was one of twelve subwatersheds listed in the Schuylkill under this special value designation (see Appendix D for map).

Important Bird Areas –Global Significance for the Upper Perkiomen

Two designated Important Bird Areas adjoin the proposed upgrade area, Green Lane Reservoir and Unami Creek IBA. Green Lane Reservoir is designated an "Important Bird Area" by the National Audubon Society and its Ornithological Technical Committee made up of scientific advisors, which makes it one of only eighty sites throughout the entire Commonwealth (see Appendix D). These areas include migratory staging areas, winter roost sites and prime breeding areas for songbirds, wading birds, shorebirds, and other species. Birds documented using extensive mud flats in this area include twenty-seven shorebird species that are regular fall migrants. This is a major stop over for these birds traveling long distances during their migration. Bird species include: herons, egrets, gulls, terns, ducks,

osprey, American pipit, snowy egret, northern shoveler, eastern meadowlark. Savanna and grasshopper sparrows are known to nest in these areas. Bobolinks nest in similar habitat nearby in the Upper Perkiomen. Other species including mink, river otter, meadow vole, beaver, red-bellied turtle, and muskrat have also been documented in this area. Residents of Lower Milford Township have also observed bald eagles nesting and foraging in the Hosensack Watershed.

Government Protection

The majority of the Upper Perkiomen Watershed within all of Montgomery County, Douglass and Hereford in Berks County, Milford in Bucks County, and Lower Milford in Lehigh County, is designated a "Groundwater Protected Area" by the Delaware River Basin Commission.

The townships of the Upper Hosensack basin are currently in the process of updating and improving their natural resource ordinances and use of best management practices. This is being guided by a multi-municipal comprehensive plan which covers five adjacent municipalities. In Upper Milford Township, a complete natural resources ordinance review has just been completed, and the recommendations of that review are being implemented in the township's update of its Zoning Map and SALDO. Additional recommendations being implemented are significantly increased Erosion and Sedimentation control practices, a newly restrictive Act 167 ordinance which requires all stormwater to be treated by at least two best management practices, and a two-zone riparian buffer ordinance. In Lower Milford Township, a complete reworking of the Zoning Ordinance is being carried out presently by the Brandywine Conservancy; among the changes is expected to be significant riparian buffer protection. Additionally, Lower Milford Township is also carrying out a complete natural resource ordinance review, and is expected to adopt numerous protective measures later this winter and next spring, once the process is complete.

The Montgomery County Planning Commission is currently working with the Morris Arboretum in completing an update of the Montgomery County Natural Areas Inventory. Dr. Ann Rhoads, Morris Arboretum senior botanist stated in her letter of support for the petition, "These riparian areas and wetlands not only provide natural connections between

larger natural areas, they also are habitat for additional species of special concern including plants, birds, reptiles, and amphibians."

Conservation Easements and Open Space

As of the 2001 WCP, The Upper Perkiomen Watershed has an estimated 7,970 acres, or 8.6% of the watershed in protected open space lands in the form of agricultural easements (4.5% of watershed or 4,182 acres), privately preserved lands (.04% of watershed or 363 acres), and county parks (3.7% of watershed or 3,425 acres) (See Map in Appendix D). Montgomery and Lehigh County portions of the watershed have the largest areas protected under agricultural easements. These agricultural lands are designated as "Prime Agricultural Soils" which are rated by the Soil Surveys as being productive for a variety of row crops, hay grass, and pasture (See Appendix D).

A recent example, the Mill Hill Preservation Area, illustrates collaboration among the county, municipalities, the conservation community, and a local real estate broker that understood that preserved land enhances both quality of life and property values. Mill Hill Preservation Area consists of 516 acres of a steep rocky ridge in the northwestern corner of Montgomery County and Berks County. The approach to the high point in the County is through forest glades and the "surprisingly pristine Hosensack Creek corridor" and was preserved with a collaboration from Red Hill and East Greenville Boroughs, Upper Hanover Township, state farmland program funds, Montgomery County and Montgomery County Land Trust. Eight adjoining property owners also participated in this preservation effort (www.mclt.org/openspaces/millhill).

Restoration Projects

Since 2000, there have been at least 24 restoration projects implemented in the Upper Perkiomen by grass roots groups, landowners, and Montgomery County Conservation District with help from funding from Pennsylvania DEP Growing Greener Program and the Fish and Wildlife Service. Many of these restorations have been implemented in agricultural areas in the form of stream-fencing and buffer plantings while others in more developed areas focus on groundwater infiltration and better management of stormwater. Philadelphia Suburban Company (now Aqua America) also sponsored several restoration projects to help improve drinking water supply as they recognized the importance of these streams to the Green Lane Reservoir.

E6 (iv) The water is a surface water of exceptional recreational significance.

The West Branch Perkiomen Creek from SR1022 downstream to SR2069 and Unnamed Tributary 01455 (basin) are designated as Class "A" Wild Trout streams due to its high biomass of wild brown trout. The Hosensack Creek and Indian Creek also have populations of reproducing wild brook trout.

E6.b1.(v.) The water achieves a score of at least 92% (or its equivalent) using the methods and procedures described in subsection (a)(2)(i)(A) or (B) (listed below).

The water quality data for this region is one of the major backbones of this petition and petitioners were solicited by scientific data collectors including Stroud Water Research Center to submit a petition based on this water quality data for the area. Water quality and benthic macroinvertebrate studies performed by Stroud Water Research Center (See Appendix B and Disc 1 or visit www.stroudcenter.org) point to the very high water quality level and biotic diversity of the Upper Perkiomen Watershed. There was no single report available to the petitioners that calculated the integrated benthic macroinvertebrate score as expected under the above-listed qualifying criteria but data from Stroud can be obtained through John Jackson and on-line to be able to determine if the streams sampled meet a reference stream.

E6.b2. The water is a surface water of exceptional ecological significance.

Portions of the Upper Perkiomen have fish data available that shows the presence of wild trout populations in both the Hosensack and West Branch Perkiomen. The PA Fish and Boat Commission has designated the main stem West Branch Perkiomen Creek from SR1022 downstream to SR2069 and unnamed tributary 01455 as Class "A" Wild Trout Waters. See section E4 (bullet 10) for more details on fish populations.

Regions in the proposed upgrade area also have species of special concern including plants, birds, reptiles, and amphibians as indicated by Dr. Ann Rhoads senior botanist of Morris Arboretum and co-petitioner. Dr Rhoads is presently updating the Montgomery County Natural Areas Inventory and is strongly supporting this redesignation.

E7. A general description of the land use and development patterns in the watershed. Examples include the amount or percentage of public lands and the amount or percentage of various land use types.

Activities occurring on the land will have an impact on water quality. The Watershed Conservation Plan for the Upper Perkiomen Watershed developed in 2001 used aerial photographs to show that impervious cover of the Upper Perkiomen Watershed was very low (see below table). The work of the Center for Watershed Protection (CWP) in Ellicott City, MD, produced a widely recognized guide for managing urbanizing watersheds called "Rapid Watershed Planning Handbook" that includes the development of threshold amounts of imperviousness and subsequent stream impacts. It is generally thought that a stream is able to maintain biodiversity and channel stability when the surrounding watershed has less than a 10% impervious cover[vii].

Table 1: Impervious Cover by Sub-watershed (Upper Perkiomen WCP, 2001)

Sub-watershed of Upper Perkiomen	Impervious Cover Percentage
**Main Branch (above Green Lane Reservoir)	1.3%
Main Branch (below Green Lane Reservoir)	6.6%
**Northwest Branch	1.5%
**Hosensack Creek	0.9%
**Macoby Creek	2.5%
Unami Creek	2.1%
Deep Creek	0.4%

** areas within the proposed upgrade area. Others kept for comparison reasons

Furthermore, a 2001 riparian buffer analysis of southeastern Pennsylvania streams conducted by the Heritage Conservancy, concluded that 155 stream miles (69%) of the 226 miles of waterways in the Upper Perkiomen Creek watershed benefit from buffers of at least 50 feet of woodland on each side of the stream (a.k.a."Full Forest Buffer"). None of the sub-watersheds of the Upper Perkiomen had less than 50% "Full Forest Buffer". See highlighted sub-watersheds and their riparian buffer statistics within the proposed upgrade area below:

Table 2: Percent Forested Buffer in Upper Perkiomen Watershed

Sub-watershed	% Total in Full Forest Buffer
West Branch	67%
Macoby Creek	60%
Hosensack Creek	78%
Perkiomen – Upper Main Branch	53%

Finally, forest land, the best land cover condition for sustaining the quality and quantity of ground and surface water, ranks as the most dominant land use type, accounting for over 55% of the land in the Upper Perkiomen Watershed. This forest coverage is significantly higher than the average 35% of forest for most of the Piedmont forests in southeastern Pennsylvania. This is followed by agriculture, which makes up 35% of the land[viii]. See the table below from the 2001 WCP for more details:

Table 3: Land use based on land use mapping by EPA Regions 3 (WCD, 2001)

Land Use	Area (acres)	Percentage of Watershed
Deciduous Forest	40, 729	51.1%
Row crops	20,292	25.5%
Hay/pasture	8,226	10.3%
Mixed Forest	3,304	4.2%
Evergreen Forest	2,444	3.1%
Low-intensity developed	1,516	1.9%
Water	965	1.2%
Woody wetland	833	1.1%
High intensity commercial/industrial	587	0.7%
Emergent herbaceous wetland	265	0.3%
Other grass (lawns, parks, golf)	230	0.3%
High intensity residential	224	0.3%
Bare: quarries, strip mines, sand pits	60	0.1%

Streams throughout the Upper Perkiomen watershed are significantly less impacted by development than streams in the lower portions of the Perkiomen watershed and the majority of streams in southeastern Pennsylvania. The following section summarizes the surface water quality conditions of each stream in the Upper Perkiomen Valley.

E8. The names of all municipalities through which the watershed or segment flows, including an official contact name and address.

There are seventeen, townships, municipalities, and boroughs that are within or part of the proposed upgrade area. They include:

Lehigh County

Lee Lichtenwalner
Lower Macungie Twp.
3400 Brookside Road
Macungie, PA 18062
610-965-4343

Ellen Koplin
Lower Milford Twp.
7607 Chestnut Hill Road
Coopersburg, PA 18036
610-967-4949

Daniel DeLong
Upper Milford Twp.
5831 Kings Hwy South
P.O. Box 210
Old Zionsville, PA
18068
610-966-3223

Montgomery County
Stanley W. Seitzinger, Jr.
Upper Hanover Twp.
1704 Pillsbury Road
P.O. Box 27
East Greenville, PA
18041
215-679-4401

East Greenville Boro
206 Main Street
East Greenville, PA
18041
215-679-5194

Jeanne Hopkins
Pennsburg Boro
76 West 6th Street
Pennsburg, PA 18073
215-679-4546

Darlene Stoudt, Borough Secretary
Red Hill Boro
Graver Ally & 4th Street
Red Hill, PA 18076
215-679-2040

Douglass Township
Peter J. Hiryak, Township Manager
1320 E. Philadelphia Ave
Gilbertsville, PA 19525

Green Lane Borough
Midge Fulcher, Borough Secretary
PO Box 514 Main Street
Green Lane, PA 18054

Marlborough Township
Paul Williams, Township Manager
6040 Upper Ridge Road
Green Lane, PA 18054

Berks County
Douglass Township
Jennifer Bolognese, Secretary/Treasurer
1068 Douglass Drive
Boyertown, PA 19512

Hereford Township
Patricia White, Manager/Secretary
P.O. Box 225
Hereford, PA 18056

Washington Township
Sandra S. Moser, Township Manager
PO Box 52 Barto Road
Barto, PA 19504

District Township
Susan Manwiller, Secretary
202 Weil Rd
Boyertown, PA 19514

Bally Borough
Robert Moll, Secretary/Manager
PO Box 217
425 Chestnut Street
Bally, PA 19503

Longswamp Township
Peter Evans, Township Manager
PO Box 37 1112 State St.
Mertztown, PA 19539

Bucks County
Milford Township
Jeffrey A. Vey, Township Manager
PO Box 86
Spinnerstown, PA 18968

E9. Locational information relevant to items 4-8 (except for contact names and addresses) displayed on a map or maps, if possible.

See Appendix D for Maps

Appendices

Appendix A: Co-Petitioner Letters of Support

Appendix B: Water Quality Data (including Disk 1)

Appendix C: Restoration Project List

Appendix D: Maps

Disk 1: Water Quality Data

References

[i] Montgomery County Open Space Plan, Montgomery County Planning Commission 1996.
[ii] Green Lane Reservoir and Deep Creek Lake Water Quality Management Study, County of Montgomery Department of Parks, FX Browne, November 1998.
[iii] Protecting the Future of the Upper Perkiomen Watershed, A Call for Action, Delaware Riverkeeper Network, December 1993.
[iv] Upper Perkiomen Creek Watershed Management Study: Technical Report, Cahill Associates, West Chester, PA, January 1994.
[v] Schuylkill Conservation Plan, The Conservation Fund, Natural Lands Trust, and Patrick Center for Environmental Research, www.schuylkillplan.org , May 31, 2001
[vi] Green Lane Reservoir and Deep Creek Lake Water Quality Management Study, County of Montgomery Department of Parks, FX Browne, November 1998.
[vii] Upper Perkiomen Creek Watershed Conservation Plan, Upper Perkiomen Watershed Coalition, Pennsylvania Environmental Council, and Natural Lands Trust, December, 2001.
[viii] Upper Perkiomen Creek Watershed Conservation Plan