Chapter 7: Stewardship Goals and Recommendations

The goals listed in this section were developed based on the feedback given by watershed residents at the public meetings. Strategies to address these goals were developed through a planning workshop, which was attended by representatives of government and non-government organizations and members of the community who had specific expertise in addressing watershed issues. The strategies for each goal have been divided into four categories based on the approach used for implementation. The first category, Education, focuses on specific issues and concepts that the community and municipal officials should become familiar with in order to improve the quality of the watershed. The second category, Municipal or Agency Action, lists strategies that address ordinances, local policies, and programs that can be implemented by local government and regulatory or non-regulatory agencies. The third category, Program Participation, lists programs that landowners can become involved in to achieve the identified goals. The final category, Opportunities for Public Involvement, lists activities that can be carried out by any individual or group that would like to be more involved in their watershed community.
GOAL:
Protect and maintain existing riparian buffers and restore degraded riparian areas to reduce the impacts of surface water runoff to streams.

RATIONALE:
Riparian buffers are vegetated areas along stream banks that protect the stream from non-point source pollution (Figure 7.1). Agriculture, development and other disruptive activities lead to increased runoff, which carries higher concentrations of sediments and nutrients to surface water. Riparian buffers act as a filter for runoff waters and limit the amount of sediments and nutrients that reach the stream.

Overall benefits of riparian buffers are:

a) **Runoff filtration** - Vegetation provides resistance to runoff waters. As the water slows, sediments and nutrients settle to the soil. This results in cleaner runoff into the streams and reduces habitat degradation from sedimentation and eutrophication from nutrients.

b) **Nutrient uptake** - Nutrients that are removed from the runoff water are available for uptake by plants and other organisms.

c) **Habitat for aquatic and terrestrial organisms** - Root masses provide instream habitat and cover for aquatic organisms. Vegetation on banks provides habitat for birds and other terrestrial animals.

d) **Temperature control** - Stream bank trees provide shade for streams, which maintains the natural conditions of the environment. Increased temperatures result in low levels of oxygen in the water that can lower reproductive success and ultimately kill aquatic life.

e) **Flood control** - Buffer areas can help protect developed and agricultural lands from stream flooding by providing a barrier that reduces floodwater energy.

f) **Improved herd health** - Streams with riparian buffers help to provide a safe, uncontaminated drinking water source for livestock. For example, nitrates from fertilizers have been associated with reproductive problems in herds. Riparian buffers capture this chemical before it reaches the drinking water sources.

The water quality assessment of the Spruce Creek watershed indicated that sedimentation is a widespread problem in most of the watershed. It also showed isolated areas of nutrient inputs above acceptable levels. In order to address these issues before they become more severe problems, we recommend that existing riparian buffers be protected and maintained, and that degraded areas be restored.
STRATEGIES:
1) Education

- Promote education and outreach activities to teach about the benefits of riparian buffers including livestock herd health, reduction in sediment and nutrient loading, stream temperature and aquatic habitat maintenance.

- Educate the public about what a healthy, functioning riparian buffer looks like.

Resources

**The Chesapeake Bay Program** – Contains a wealth of information on riparian buffers.
**Website**: www.chesapeakebay.net/info/forestbuff.cfm

**Interstate Commission on the Potomac River Basin** – Offers publications on stream bank protection and riparian buffers.
**Website**: www.potomacriver.org/get_involved/buffer-pubs.htm

**National Agroforestry Resource Center** – Contains riparian buffer information specifically geared to farmers.
**Website**: www.unl.edu/nac/riparian.html

**Chester County Pennsylvania, Water Resources Authority** – Resource library contains information on riparian buffers.
**Website**: www.chesco.org/water/Resource_Library/resource_library.html
2) Municipal or Agency Action

- Investigate the potential to incorporate and protect riparian buffers in municipal ordinances as environmentally sensitive areas.
  - Some studies suggest a 100-foot buffer to provide the full extent of riparian buffer benefits. Others recommend up to a 300-foot buffer to protect streams. This may be unrealistic in some areas, but as a general rule the wider a buffer is, the greater the benefit. It may be more realistic to create buffers that address the specific issues in the watershed. This would require buffers to be wide enough to minimize the problems of sedimentation, nutrient inputs, and increasing temperatures. It may be necessary to investigate what this width might be based on the normal slope, soil types and land uses in the Spruce Creek watershed.
  - Establish restrictions on appropriate uses for riparian buffer areas. For example, “no-mowing, no dumping areas.”

- Develop an inventory of riparian buffers in the watershed and use it to prioritize sites for protection and restoration.
  - For example, higher priority should be granted for protection of existing buffers in and around the impaired reaches of streams. Priority for site restoration should go to degraded areas in the headwater reaches first, because the conditions in these areas affect the entire watershed.

- Develop a publicly funded program for riparian buffer and stream bank fencing maintenance.
  - A common problem with riparian buffers and similar projects, such as stream bank fencing, is the cost of maintenance. For ideal upkeep, this should not fall completely to the individual landowner, because the benefits of the project can be observed across the watershed. Therefore, a publicly funded program to provide assistance to landowners for maintenance costs would be helpful to keep these areas functioning on a long-term basis. Potential money sources include municipal funds that already exist for the preservation of open space or similar areas of public funding that are already allotted in local taxes. This can also be achieved through independent fund raising activities or a Growing Greener grant.

3) Program Participation

- Encourage landowner participation in conservation programs that protect, maintain and establish riparian buffers.

Resources

Conservation Reserve Enhancement Program (CREP) – This program is sponsored by the USDA and provides landowners with annual rental payments in exchange for the implementation of conservation practices such as riparian buffers. The CREP program is known to be one of the best paying programs available to landowners to support better land conservation activities.

Huntingdon County Contact: Huntingdon County Farm Service Agency
Phone: (814) 627-1624

Centre County Contact: Clinton County Farm Service Agency (which services Centre County as well)
Phone: (570) 726-3196 ext 4
Website: www.fsa.usda.gov/dafp/cepd/crep.htm.
**Conservation Reserve Program (CRP)** – CRP provides landowners with a cost-sharing opportunity for growing permanent vegetation on highly erodable agricultural land. Contracts can be from 10-15 years.

**Huntingdon County Contact:** Huntingdon County Farm Service Agency  
**Phone:** (814) 627-1624  
**Centre County Contact:** Clinton County Farm Service Agency (which services Centre County as well)  
**Phone:** (570) 726-3196 ext 4  
**Website:** www.fsa.usda.gov/dafp/cepd/crep.htm.

**Environmental Quality Incentives Program (EQIP)** – EQIP is a program that provides financial incentives and cost-sharing opportunities to farmers and ranchers to install or implement management practices on agricultural land. Contracts for this program can extend to 10 years.

**Huntingdon County Contact:** Huntingdon County Conservation District  
**Phone:** (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
**Phone:** (814) 355-6817  
**Website:** http://www.nrcs.usda.gov/programs/eqip/

**Chesapeake Bay Foundation’s Farm Stewardship Program (FSP)** – This program provides financial assistance to farmers for planting forested riparian buffers and constructing stream bank fences.

**Contact:** Chesapeake Bay Foundation, Pennsylvania office, Harrisburg  
**Phone:** (717) 234-5550.

**PA DEP Fencing Program** – This program offers opportunities to farmers for the installation of stream bank fences and stabilized stream crossings. The DEP usually covers 100% of project costs.

**Huntingdon County Contact:** Huntingdon County Conservation District  
**Phone:** (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
**Phone:** (814) 355-6817  
**PA DEP Southcentral Regional Office Contact:** Mark Durbin  
**Phone:** (717) 705-4700

**Agricultural Management Assistance (AMA)** – This program is administered by the Natural Resources Conservation Service and provides cost sharing assistance to farm owners to implement land management practices. These practices may include windbreaks, water management structures, and riparian buffers.

**Contact:** Pennsylvania Natural Resource Conservation Service  
**Phone:** (717) 237-2100  
**Huntingdon County Contact:** Huntingdon County Conservation District  
**Phone:** (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
**Phone:** (814) 355-6817

**Western Pennsylvania Conservancy** – This private organization works with various agencies (some of which are listed above) in providing stream bank fencing projects that help protect riparian buffers.

**Contact:** Ben Wright, Watershed Assistance Center  
**Phone:** (724) 459-0953  
**E-mail:** bwright@paconserve.org

**Duck’s Unlimited Conservation Easement Program** – This program provides financial easements to landowners for the protection of natural habitats on their property. Qualified habitats may include wetlands and riparian areas that are important for waterfowl use. It provides a strategy to protect existing buffer areas and other sensitive habitats from degradation.

**Contact:** Chris Clouser  
**Phone:** (814) 832-4676  
**Website:** www.ducks.org
Other programs that provide technical assistance to farmers about how to implement these land management practices can be found at [http://www.nrcs.usda.gov/programs/](http://www.nrcs.usda.gov/programs/).

- Encourage local residents who have enrolled in riparian buffer programs to communicate the benefits of participation in the program, and to encourage others in the watershed to enroll.

- Encourage landowners to install stream bank fencing to help reduce non-point source pollution.
  - Fences help to maintain the vegetated areas around streams and can reduce inputs of sediment and nutrient to streams from grazing animals. In addition, this measure will help to improve herd health

**Resources**

- **Pennsylvania Association of Conservation Districts** – Provides information on stream bank fencing.
  - Website: [www.pacd.org/resources/downstream/downstream_fencings.htm](http://www.pacd.org/resources/downstream/downstream_fencings.htm)

- **PA DEP Fencing Program** – (See description above)
  - **Huntingdon County Contact:** Huntingdon County Conservation District
  - **Phone:** (814) 627-1627
  - **Centre County Contact:** Centre County Conservation District
  - **Phone:** (814) 355-6817
  - **PA DEP Southcentral Regional Office Contact:** Mark Durbin
  - **Phone:** (717) 705-4700

**4) Opportunities for Public Involvement**

- Development of watershed-based riparian buffer protection program.
  - Work with government and environmental groups (e.g. the County Conservation Districts and Juniata Clean Water Partnership) to apply for a Growing Greener Grant for watershed protection activities. This can provide funds for a locally based riparian buffer protection program in the watershed.

**Resources**

- **Huntingdon County Conservation District**
  - **Phone:** (814) 627-1627

- **Centre County Conservation District**
  - **Phone:** (814) 355-6817

- **Juniata Clean Water Partnership**
  - **Phone:** (814) 506-1190
  - **E-mail:** JCWP@jcwp.org

- Use riparian buffer demonstration sites as a model for future riparian buffer projects (e.g. Center for Watershed Stewardship site on Halfmoon Creek, currently in planning).
  - Sites will be available to raise awareness about benefits and installation techniques. Also, they provide an opportunity to educate local youth groups, environmental science classes, and other similar groups on the benefits of buffers, environmental processes, and land management techniques through field trips to these locations.
• Develop programs to provide necessary maintenance for riparian buffers and stream bank fences that integrate educational and work opportunities.
  o Tailor these programs to existing groups including; community service groups, school groups, FFA, 4-H, Boy Scouts and Girl Scouts, other community volunteer organizations, individuals seeking community service hours, prison populations, or other interested constituents.
GOAL:
Protect and enhance the quality of surface water as habitat for aquatic biological resources.

RATIONALE:
Recreation and the economy of the Spruce Creek watershed are directly linked with stream water quality. The assessment shows that non-point source pollutants such as sediments and nutrients threaten the surface waters. Non-point source pollutants are those that enter the stream through surface water runoff. In order to protect the integrity of the watershed and its trout fishery, measures must be taken to reduce the non-point source pollution inputs into streams. The high quality streams of the Spruce Creek watershed can be protected through education, monitoring, better planning practices, and the implementation of best management practices (BMPs). BMPs are conservation practices or management measures that control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxics, and sediment. BMPs provide many benefits such as limiting erosion of valuable soils, protecting wildlife habitat, and reducing nutrient inputs to streams.

STRATEGIES:
1) Education
   • Develop educational programs to teach landowners about the benefits of establishing best management practices, or BMPs, on their property and about the programs available to help them implement these practices.

   **Resource**
   Website: www.pacd.org/products/bmp/bmp_toc.htm

   • Develop educational programs to teach interested parties how to conduct surface water quality and habitat monitoring. (see Opportunities for Public Involvement section below)

2) Municipal or Agency Action
   • Create and maintain a database that includes all of the water quality data collected in the watershed and make it available to interested parties. Public availability of data is critical for making environmentally conscious decisions at any regulatory level from local planning boards to state agencies. Coordinating monitoring efforts will limit redundancy and reduce costs.

   • Seek assistance from the Susquehanna River Basin Commission, Penn State, or some other entity, to conduct a water budget for the watershed to better understand the hydrologic dynamics. Understanding where your water comes from, where it goes, and what happens to it everywhere in between is important for planning purposes. It is necessary to gather this information so that it can be incorporated into planning documents, ordinances and other land use regulations.

**Resources**
Susquehanna River Basin Commission (SRBC) – Coordinates efforts over the entire Susquehanna River Basin and provides technical assistance in the watershed to address watershed issues.
Website: www.srbc.net
Penn State Institutes of the Environment (PSIE) – Supports research, education, and outreach on a variety of environmental issues.
Website: www.environment.psu.edu

- Encourage all municipalities to adopt stormwater management plans that include stormwater BMPs. BMPs prevent, control, remove, reduce, or treat runoff from impervious surfaces before the pollution reaches stream waters. Examples of stormwater BMPs include:
  
a) **Infiltration systems** capture a volume of runoff and allow it to infiltrate it into the ground.

b) **Detention systems** capture a volume of runoff and temporarily retain that volume for subsequent release. Detention systems do not retain a significant permanent pool of water between runoff events.

c) **Retention systems** capture a volume of runoff and retain that volume until it is displaced in part or in total by the next runoff event. Retention systems therefore maintain a significant permanent pool volume of water between runoff events.

d) **Constructed wetland systems** are similar to retention and detention systems, except that a major portion of the BMP water surface area (in pond systems) or bottom (in meadow-type systems) contains wetland vegetation. This group also includes wetland channels.

e) **Filtration systems** use some combination of a granular filtration media such as sand, soil, organic material, carbon or a membrane to remove constituents found in runoff.

f) **Vegetated systems (biofilters)** such as swales and filter strips are designed to convey and treat either shallow flow (swales) or sheet flow (filter strips) runoff.

g) **Minimizing directly connected impervious surfaces** describes a variety of practices that can be used to reduce the amount of surface area directly connected to the storm drainage system by minimizing or eliminating traditional curb and gutter. This is considered by some to be a non-structural practice, but it has been included under the structural heading in this report due to the need to design and construct alternative conveyance and treatment options.

h) **Split-Flow Infiltration System** is a new methodology that divides runoff to duplicate the rate, quality, frequency, duration, and volume of predevelopment hydrology (Echols 2002).

i) **Miscellaneous and vendor-supplied systems** include a variety of proprietary and miscellaneous systems that do not fit under any of the above categories. These include catch basin inserts, hydrodynamic devices, and filtration devices.

**Resource**

The Stormwater Manager’s Resource Center (SMRC) – Provides information to municipal leaders and stormwater managers about BMPs, stormwater issues and management techniques.
Website: www.stormwatercenter.net/
3) Program Participation
   • Refer to the section on riparian buffers for information on specific programs for landowners that will help to improve water quality.

4) Opportunities for Public Involvement
   • Implement regular surface water quality monitoring in the watershed that includes macroinvertebrate sampling and habitat assessment.

Resources
   Environmental Alliance for Senior Involvement (EASI) – A coalition of groups that focus on involving retired residents in community activities and volunteer opportunities. Some of these activities include water quality monitoring, watershed assessment, stream corridor restoration, and environmental education.
   Website: www.easi.org
   Phone: (540) 788-3274

   Western Pennsylvania Conservancy, Technical Assistance Program – Provides funding and technical assistance to volunteers to initiate watershed improvement projects, including stream water monitoring. This program can assist with details such as the establishment of monitoring points and choosing appropriate sampling protocols.
   Website: www.paconserve.org
   Phone: (724) 459-0953

   Pennsylvania Volunteer Monitoring Handbook – Supported by DEP, the handbook is a document designed to help volunteer watershed monitoring groups determine how to monitor their waters.
   Website: www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/cvmp/initiatives/cvmp_HdBook.htm

   Citizens' Volunteer Monitoring Program (CVMP) – CVMP is a statewide program through the Department of Environmental Protection, which educates the public on ways they can help monitor waterways. It has been initiated to help both organizations and individuals concerned about water quality reach agreement on the nature of water quality issues and begin to share resources and plan for the future.
   Website: www.dep.state.pa.us/dep/deputate/watermgt/wc/factsheets/ws/fs2129.htm

   Susquehanna River Basin Commission (SRBC) – Provides funding for organizations to conduct projects that will enhance stream quality.
   Website: www.srbc.net/
   Phone: (717) 238-0423

   Pennsylvania DEP Growing Greener Program – Provides grants to local watershed organizations and municipalities for activities such as public education and environmental monitoring and assessment.
   Website: www.dep.state.pa.us/
   Phone: (717) 787-9637

   Pennsylvania Department of Conservation and Natural Resources – Manages a variety of grants and technical assistance programs concerned with community recreation, heritage regions, river conservation projects, greenways, trails, natural areas, and open spaces.
   Website: www.dcnr.state.pa.us/

   U.S. Environmental Protection Agency (EPA) – Provides grant support for volunteer monitoring programs to people who want to learn more about water quality issues within their communities. The data collected by volunteers is used to identify water quality issues, establish trends, and make planning decisions.
   Website: www.epa.gov/reg3wapd/monitor/volunteer.htm
• Share water monitoring data with interested agencies and parties. Provide data to a collective
database that includes information collected from various agencies and projects. (see Municipal
or Agency Actions above)

• Farm owners should explore appropriate agricultural BMPs to control soil erosion and to prevent
further sedimentation to streams. Such BMPs include no-till, crop rotation, contour stripping,
and nutrient plans.

Resources

**Nutrient Management Plan Implementation Program** – A cost share program that provides assistance to
Pennsylvania farmers to implement practices that limit nutrient inputs to streams.

**Huntingdon County Contact:** Huntingdon County Conservation District  
Phone: (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
Phone: (814) 355-6817

**Project Grass** – This project promotes the use of such practices as rotational grazing to reduce non-point
source pollution from agricultural lands. Landowners are provided with a nutrient management plan,
technical assistance and cost sharing. For more information contact your County Conservation District.

**Huntingdon County Contact:** Huntingdon County Conservation District  
Phone: (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
Phone: (814) 355-6817

**Environmental Quality Incentives Program (EQIP)** – Provides a voluntary conservation program for
farmers that promote agricultural production and environmental quality as compatible national goals.
EQIP offers financial and technical help to assist eligible participants install or implement structural
and management practices on eligible agricultural land. Contact your County Conservation District for
assistance.

**Huntingdon County Contact:** Huntingdon County Conservation District  
Phone: (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
Phone: (814) 355-6817

**Agricultural Management Assistance (AMA)** – Cost share assistance is provided to agricultural
producers that voluntarily address issues such as water management, water quality, and erosion control
by incorporating conservation into their farming operations. Producers may construct or improve water
management structures or irrigation structures; plant trees for windbreaks or to improve water quality; and
mitigate risk through production diversification or resource conservation practices, including soil erosion
control, integrated pest management, or transition to organic farming.

**Contact:** Natural Resource Conservation Service  
**Website:** www.pa.nrcs.usda.gov/programs/ama.html  
**Phone:** (717) 237-2216  
**Huntingdon County Contact:** Huntingdon County Conservation District  
Phone: (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
Phone: (814) 355-6817
**Pennsylvania Crop Management Association** – Established in 1984, it is a statewide committee composed of elected officers and directors who represent local Crop Management Associations. Associations are nonprofit organizations run by member farmers for the purpose of promoting sound crop management practices. They hire personnel to scout fields, sample soils, calibrate equipment, establish record keeping and assist with pest, nutrient and crop management decision-making.

**Website:**  http://agmap.psu.edu  
**Phone:**  (814) 863-1020  

- Explore appropriate non-agricultural BMPs to protect surface water quality. Some examples include; properly maintaining septic systems to reduce polluted runoff, installation of permeable surfaces for driveways and patios, and limiting the use of fertilizers, especially before rain.

**Resources**

**County Conservation Districts** - Offer technical assistance and suggestions for the implementation of other BMPs.

**Huntingdon County Contact:** Huntingdon County Conservation District  
**Phone:**  (814) 627-1627  
**Centre County Contact:** Centre County Conservation District  
**Phone:**  (814) 355-6817
GOAL:
Protect groundwater and drinking water resources in the watershed.

RATIONALE:
After our initial community meetings, a great deal of concern was expressed about both the quantity and quality of groundwater, specifically drinking water. Based on our assessment, the majority of watershed residents rely on private wells, not on municipal water systems, and utilize onlot septic systems. Private homeowner wells, unlike municipal or public supplies, are not tested by any regulatory agency. It is up to individual homeowners to test and maintain their wells. An overall concern of watershed residents is the need for education on a variety of levels for the public on community-wide issues that affect each of them. The following strategies relating to groundwater resources in the watershed focus on education of community residents, opportunities for municipal action, participation in existing programs, and opportunities for public involvement. Residents also expressed concern about the potential for contamination events that may adversely affect private drinking wells. There is a potential for contamination of groundwater resources within the watershed and the strategies list several ways of combating and preventing the potential problems.

STRATEGIES:
1) Education
- Develop drinking water education programs that combine testing with education regarding safe drinking water standards, where contaminants may come from, and to ensure that residents understand contaminant identification in private wells is not subject to enforcement actions by municipal or state regulations.

- Encourage residents to routinely test water wells in order to monitor the potential for well contamination from a variety of sources. The local cooperative extension office can help residents to determine which water tests are appropriate for individual water systems and can help to interpret water test results.

Resources
Penn State Cooperative Extension – Has specialists and agents trained in water quality issues.
Website: wqext.psu.edu

Master Well Owner Network - A program designed to provide landowners with education about construction and maintenance of private wells.
Contact: Stephanie Odenwald
Phone: (814) 865-2250
Email: mwon@psu.edu
Website: mwon.cas.psu.edu/

US EPA – Mandates federal drinking water standards. Safe Drinking Water Hotline
Phone: 1-800-426-4791
Websites: www.epa.gov/ogwdw/
www.epa.gov/safewater/dwhealth.html.
• Increase public awareness and education about the importance of proper onlot septic system maintenance. Lack of proper onlot septic system maintenance can lead to water pollution and health hazards for homeowners and their neighbors.

  Resources
  American Home Inspection Service – Septic information website.
  Website: www.inspect-ny.com/septbook.htm

  The National Small Flows Clearinghouse – Supplies septic maintenance information and brochures.
  Phone: 1-800-624-8301.
  Website: www.nesc.wvu.edu/nsfc/

• Educate residents on the availability of low interest loans and grant programs to help homeowners and municipalities with onlot septic system remediation. (See Program Participation section below).

• Promote education of on-site recharge options, including best management practices (BMPs) for infiltration and stormwater management for future development areas. (See Surface Water Quality Goal)

• Provide education to landowners and well-drillers about drinking water contamination prevention strategies such as grouting and new well casing designs.
  o For example, Halfmoon Township has proposed a water well ordinance, including well casing requirements, grouting, baseline well testing for all new shared and private wells, and decommissioning of old wells according to DEP standards.

  2) Municipal or Agency Action
  • Seek assistance from the Susquehanna River Basin Commission, Penn State University, or other entities, to conduct a water budget for the Spruce Creek watershed to fully understand the hydrologic dynamics.

  Resources
  Susquehanna River Basin Commission (SRBC) – Coordinates efforts over the entire Susquehanna River Basin and provides technical assistance in the watershed to address watershed issues.
  Website: www.srbc.net

  Penn State Institutes of the Environment (PSIE) – Supports research, education, and outreach on a variety of environmental issues.
  Website: www.environment.psu.edu

• Maintain important groundwater recharge areas to be identified by a water budget.
  o Protect existing State Game Lands 176, an identified important recharge area.
• Those public water supplies that have not already done so should conduct a cooperative source water protection assessment. Municipal regulations can be utilized to ensure that public water providers are in compliance with existing US EPA regulations.
  o All public water providers should focus on developing wellhead protection zones as suggested by the US EPA.
  o All public water providers should conduct a source water assessment as required by US EPA regulations.

Resources
US EPA – Environmental regulatory agency that provides safe drinking water standards and information on protecting water sources.
Website: www.epa.gov/safewater/protect.html.

Growing Greener Program – Provides some funding for source water assessments.
Phone: 877-PAGREEN.
Website: www.dep.state.pa.us/growgreen

• Investigate possibilities to use regulatory measures to protect drinking water wells.
  o A water well ordinance is currently under consideration in Halfmoon Township and is an example of a regulatory measure to protect private and shared water wells.

• Require developers to conduct well water quality and quantity testing prior to site development so that baseline data are available in the event of future site contamination.

• Municipalities in the Huntingdon County portion of the watershed should update their Act 537 Sewage Facilities plans.

• Promote on-site recharge areas on development areas.
  o For example, see land use planning recommendations, municipal action section.

• Encourage all municipalities to adopt effective and environmentally sound stormwater management plans.
  o Management should focus on stormwater BMPs, such as increased onsite infiltration of stormwater. For additional information see land use planning recommendations municipal action section.

• Promote the protection of unique karst terrain features in the landscape such as sinkholes and springs for improving groundwater quality.
  o Use fencing and other measures to protect sinkholes and other sensitive carbonate features. (See Riparian Buffer Goal for other examples).
3) Program Participation

- Encourage reporting of drinking water test results to the Pennsylvania Groundwater Information System (PAGWIS) through the Susquehanna River Basin Commission (SRBC).

**Resources**

- **Contact:** Gary Fleeger  
- **Phone:** (717) 702-2024  
- **Email:** gfleeger@dcnr.state.pa.us

- Promote the Master Well Owner Network in the watershed.
  - Encourage the Master Well Owner participants to speak at community and watershed events.

**Resources**

- **Contact:** Stephanie Odenwald  
- **Phone:** (814) 865-2250  
- **Email:** mwon@psu.edu  
- **Website:** mwon.cas.psu.edu/

- Encourage homeowners to participate in low interest loan and grant programs to help homeowners and municipalities with onlot septic system remediation. An example of a municipality that has participated in such a program exists in Broad Top Township, PA.

**Resources**

- **Pennsylvania Infrastructure Investment Authority (PennVest)** – Partners with the PA Housing and Finance Agency (PHFA) and the PA DEP to provide funding to improve, repair, or replace aging septic systems.  
  - **Website:** www.phfa.org/programs/singlefamily/pennvest.htm

- **DEP Non-Point Source Management Program** – Provides grants and planning for non-point source control projects.  
  - **Phone:** (717) 787-5859  
  - **Website:** www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/nonpoint

- **Pennsylvania Association of Conservation Districts (PACD)** – Provides non-point source pollution prevention mini-project grants to community organizations.  
  - **Phone:** (717) 545-8878.  
  - **Website:** www.pacd.org/products/mini_programs.htm
4) **Opportunities for Public Involvement**

- Encourage drinking water/well water testing.
  - Obtain a Growing Greener grant to provide low cost or free testing to watershed residents.
  - Work with a professional testing lab to establish a reduced rate for water testing of samples provided by watershed residents.
  - Assure residents that testing is not to be used as an enforcement tool requiring residents to pay fines or out of pocket well clean up costs.

**Resources**

- **Phone:** 877-PAGREEN
- **Website:** www.dep.state.pa.us/growgreen

- Encourage private citizens to implement best management practices (BMPs) on their properties for the protection of recharge areas, sinkholes, and riparian buffers.
  - Implementation of small scale and non-agricultural BMPs around residents homes and properties can help to minimize contamination and improve groundwater quality on a local scale.
  - Promote the implementation of nutrient and pesticide best management practices for lawns, landscaping, and farming to eliminate excessive application of chemicals and nutrients, potential groundwater pollutants.
  - Encourage individual citizens to reduce the amounts of non-point source pollution leaving their property.

- Encourage private citizens to better maintain their onlot septic systems (*See Program Participation section above*).
GOAL:
Maintain rural character and open space in the watershed.

RATIONALE:
Throughout the assessment process, residents in the watershed have expressed concern about the future pattern of development in their community. The increasing population of the Centre Region, as well as the construction of the Interstate 99 corridor, pose a threat of increasing suburban development, and the potential to change the rural character of the area as a result of the loss of existing open space and agricultural areas. Residents are also concerned that this threat may be compounded in areas that lack appropriate land use planning and regulatory efforts. Overall, maintaining rural character and open space in the watershed is a goal that is directly related to the rate of growth and development in the watershed. As a result, many of the strategies to address this goal are those that can be implemented through municipal policies and actions. Despite this, there are a variety of other steps that individual residents can take on their own, such as participating in public open-space programs or educational workshops and the local government planning process, and understanding and supporting appropriate municipal actions taken to maintain and protect rural character and existing open space.

Since Ferguson and Halfmoon townships are a part of the Centre Region, the Centre Regional Planning Agency (CRPA) has been an important source of information. This agency developed the Centre Region’s Comprehensive Plan (2000), as a policy plan for the region. Many of the policies, initiatives and actions recommended by this agency align directly with the goals for the larger Spruce Creek watershed, including the goal of maintaining rural character and open space. As a result, some of the recommendations listed in that policy plan have been included in this section and are cited below.

STRATEGIES:
1) Education
   • Develop landowner educational programs to highlight the benefits of maintaining open space.
   • Increase landowner awareness of programs that can help to protect and preserve rural and open areas. (See Program Participation section below).
   • Organize and sponsor workshops to provide a forum for municipal officials to hear ideas and policies to protect and maintain rural character and open space that have worked in other municipalities, and to provide them with information about the benefits of incorporating Growing Greener and rural preservation design standards into their ordinances.

2) Municipal or Agency Action
   • Encourage inter-municipal cooperation when developing land use plans and ordinances in the watershed. These plans should incorporate protection of open space and agricultural land use.
     o Municipalities are given the authority to plan and pass regulations by the Pennsylvania Municipalities Planning Code (MPC). Recent amendments, passed in 2000, provide financial incentives and technical assistance to encourage municipalities to work together to plan for development and resource conservation and to implement these plans through cooperative ordinances and agreements. State programs are granted the authority to give funding priority to multi-municipal planning and implementation efforts.
Resources

10,000 Friends of Pennsylvania – This organization promotes policy that encourages the responsible use of land and the conservation of natural and historical resources. Their website has information on a variety of related topics including information on the benefits of multi-municipal planning.
Website: www.10000friends.org/

Governor’s Center for Local Government Services – This center is involved with the Pennsylvania Growing Smarter initiative and is responsible for providing land use planning assistance to municipalities, including the Land Use Planning and Technical Assistance Program (LUPTAP) which provide grants for multi-municipal planning efforts that further sound land use initiatives.
Website: www.inventpa.com/default.aspx?id=136

Pennsylvania’s Growing Smarter Initiative – This goal of this initiative is to plan for the future of communities through the combined efforts of the state, local governments and interested citizens.
Websites: www.landuseinpa.com
www.landuseinpa.com/docs/M.P.C/MPC.pdf

• Establish a watershed Environmental Advisory Council (EAC) to serve as a liaison to municipality decision makers.

Resource

Environmental Advisory Council (EAC) Network – This network supports existing EACs and encourages the development of new EACs.
Website: www.greenworks.tv/eac/index.asp

• Develop a watershed-wide open space and greenways plan that identifies open space and rural areas currently protected and areas that should be maintained if possible. This plan can be used to prioritize areas for enrollment into existing programs, for lease or purchase of development rights, or to decide future areas for acquisition. Sites listed on the Natural Heritage Inventory for both counties, and other important natural features and open space areas, as identified in the watershed-wide plan, should be prioritized for protection strategies. Municipalities should work together to develop ordinances to maintain and establish linkages between the areas identified in the plan. One strategy to develop a system of interconnected space is through incorporation of rural preservation and Growing Greener design strategies into ordinances.

Resources

10,000 Friends of Pennsylvania – (See description above)
Website: www.10000friends.org/

Governor’s Center for Local Government Services – (See description above)
Website: www.inventpa.com/default.aspx?id=136

Pennsylvania’s Growing Smarter Initiative – (See description above)
Websites: www.landuseinpa.com
www.landuseinpa.com/docs/M.P.C/MPC.pdf

Natural Lands Trust – This organization promotes the incorporation of conservation measures into municipal ordinances and offers information on Growing Greener guidelines.
Website: www.natlands.org/planning/growgreen.html
- Develop innovative strategies, programs, and ordinances to maintain open space and agricultural land.
  - Encourage the development of a Transfer of Development Rights (TDR) program between cooperating municipalities in the watershed and focus the program on protection of rural and open space areas that are under development pressure.
  - Maintain the Regional Growth Boundary to indicate intention to continue agricultural uses, particularly on parcels in Agricultural Security Districts and parcels in the Agricultural Preservation Easement Program (Centre Regional Planning Agency 2000).
  - Encourage the lease or purchase of development rights on parcels to provide for the long-term protection of open space or agricultural land use.
  - Incorporate development limitations on prime agricultural soils in municipal ordinances to prevent the conversion of these lands to uses other than agriculture.
  - Amend current regulations to contain standards that support the preservation of open space and rural agricultural land uses. These standards could include the implementation of rural preservation zoning, or the Growing Greener design guidelines.

**Resources**

**Natural Lands Trust** – (See description above)
Website: www.natlands.org/planning/growgreen.html

**Halfmoon Township** – The township has an Open Space Preservation Program which may serve as a model for other communities.
Phone: (814) 692-9800
E-mail: halfmoontwp@aol.com

**Governor’s Center for Local Government Services** – (See description above)
Website: www.inventpa.com/default.aspx?id=136

**Center for Rural Pennsylvania** – The Center is an arm of the Pennsylvania State Legislature that provides grants and technical assistance to rural communities.
Phone: (717) 787-9555
Website: www.ruralpa.org

- Develop better definitions of open space in municipal zoning and subdivision ordinances as a way to avoid legal challenges that may threaten these areas.
• Provide additional financial incentives or opportunities to farmers to enable them to continue farming. These could include preferential tax reduction programs, or other sources of additional income.

Resources

Farm Service Agency, United States Department of Agriculture – This agency has a variety of programs that may help to support the goal of rural and open space protection and preservation by providing other sources of financial assistance.
Contact: Jann Chapman, Centre County Executive Director
Phone: (570) 726-3196 or (814) 355-2447, Ext. 2
Websites: www.fsa.usda.gov/pa/offices.htm
www.fsa.usda.gov/dafl/default.htm (Farm Loan Programs)
www.fsa.usda.gov/dafp/psd/fsfl.htm (Price Support Programs)

Natural Resources Conservation Service, United States Department of Agriculture – This agency administers programs, such as Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP), for protecting land by encouraging the installation of conservation practices through a system of rental payments to farmers.
Websites: www.fsa.usda.gov/dafp/cepd/crp.htm (Conservation Reserve Program)
www.fsa.usda.gov/dafp/cepd/crep.htm (Conservation Reserve Enhancement Program)

Farm and Ranch Lands Protection Program - Provides matching funds for purchase of conservation easements to states and counties with farmland protection programs.
Contact: Burell Whitworth, Jr., Supervisory District Conservationist
Phone: (814) 355-2447, Ext. 3
Contact: Beth Hirt, Chesapeake Bay Program Technician
Phone: (814) 355-6817
Website: www.nrcs.usda.gov/programs/frpp/

Pennsylvania Department of Agriculture - The agency has a variety of programs that could help to meet the goal of protecting rural character and open space, including the Next Generation Farmer Loan, Crop Insurance, Small Business First (SBF), and Machinery and Equipment Loan Fund (MELF).
Websites: www.agriculture.state.pa.us/agriculture/cwp/browse.asp?A=3 (Next Generation Farmer Loan)
www.agriculture.state.pa.us/market/cwp/view.asp?A=3&Q=115937 (Crop Insurance)
www.inventpa.com/default.aspx?id=277 (Small Business First - SBF)
Contact for Machinery and Equipment Loan Fund Contact (MELF): Ken Mowry, Regional Director
Phone: (814) 946-7315
Website: www.inventpa.com

• Set up a funding mechanism to take better advantage of the agricultural land conservation easement program administered by the Centre County Agricultural Land Preservation Board (Centre Regional Planning Agency 2000).

Resource:
Center for Rural Pennsylvania – (See description above)
Website: www.ruralpa.org
Phone: 717-787-9555
3) **Program Participation**

- Enroll land in the Agricultural Security Areas (ASA) program.

- Encourage landowner participation in programs that are available to protect and preserve existing open space and agricultural areas.

**Resources**

Farm Service Agency, United States Department of Agriculture – (See description above)
Contact: Jann Chapman, Centre County Executive Director
Phone: (570) 726-3196 or (814) 355-2447, Ext. 2
Website: http://www.fsa.usda.gov/pa/offices.htm

Natural Resources Conservation Service, United States Department of Agriculture – (See description above)
Contact: Burell Whitworth, Jr., Supervisory District Conservationist
Phone: (814) 355-2447, Ext. 3
Contact: Beth Hirt, Chesapeake Bay Program Technician
Phone: (814) 355-6817
Website: www.nrcs.usda.gov/programs/frpp/

Pennsylvania Department of Agriculture
Contact: Ken Mowry, Regional Director
Phone: (814) 946-7315
Website: www.inventpa.com/default

- Participate in the county Farmland Preservation Program and sell development rights to either the county or state through the Purchase Agricultural Easements Program.

**Resources**

Centre County Agricultural Land Preservation Board
Website: http://county.centreconnect.org/planning/farmland.htm
Contact: Norm Lathbury
Phone: (814) 355-6791

Huntingdon County Agricultural Land Preservation Board
Contact: Andy Patterson
Phone: (814) 627-1627

Pennsylvania Bureau of Farmland Preservation - This Bureau has a host of programs with the goal of preserving and protecting agricultural land and rural character including the Agricultural Security Areas (ASA) program, the Easement Purchase Program, and the Clean and Green Program.
Websites: www.agriculture.state.pa.us/farmland/cwp, (Agricultural Security Areas - ASA)
www.pacode.com/secure/data/007/chapter138e/007_0138e.pdf, (Easement Purchase)
www.agriculture.state.pa.us/farmland/cwp/, (Clean and Green)
4) **Opportunities for Public Involvement**

- Consider selling development rights to non-profits and municipalities, or other entities who will help to maintain the character of the land.

- Attend planning commission meetings as a way to learn about the planning ideas, to have the opportunity to comment on municipal, county, or regional plans, and to be a part of the planning and decision-making process.

- Enroll land in the Agriculture Security Areas (ASA) program.

- Encourage landowner participation in programs that are available to protect and preserve existing open space and agricultural areas.
GOAL:
Promote the importance of maintaining and restoring wildlife habitat.

RATIONALE:
The watershed encompasses a wide variety of wildlife and habitat types. Controlling the sprawl of residential development, as well as instituting management oriented to maintenance and restoration of the larger natural communities present in the area is of vital importance in protecting the wildlife of the area. Because agricultural cultivation is extensive in the valleys of the watershed, few examples remain of the diverse forest communities that once occupied these valleys. The fragments of these communities that still exist are facing new challenges from development and expanding infrastructure. Maintaining the contiguity and connectivity of natural lands is of utmost importance. For many species it is critical that natural corridors are maintained that span between forest patches and that connect forests, wetlands, and waterways. For example, the forested ridgelines are regionally significant migration routes for raptors and neotropical migrant bird species because they form corridors of unbroken forest (Pennsylvania Audubon Society 2003). In fact, Bald Eagle Mountain is part of the last remaining stronghold in the eastern United States for birds requiring large blocks of unfragmented habitat, being home to many avian species that are declining nationwide due to disturbance and development. The Audubon Society thus advocates that all these ridgeline forests be protected and linked as one long wildlands corridor (Hoffman 2003). Likewise, many unique species of the Barrens require large tracts of habitat. Another threat to wildlife habitat in the watershed is the encroachment of non-native invasive species. These species can dominate habitat and disrupt the integrity of the ecosystems involved, and measures should be undertaken to control their spread

STRATEGIES:
1) Education
   • Develop programs to promote awareness of wildlife and wildlife habitat in the watershed, such as bird viewing walks, bird counts, and nature walks. One approach could be to encourage local scouting or school groups to develop such programs to be presented to the community.

   • Enlist local groups or Penn State University to conduct inventories of flora and fauna. In particular, native plant species, amphibians and invertebrates of vernal pools and non-game birds should be inventoried more intensely.

   • Educate community about threats of non-native invasive species (See Public Involvement section).

Resources
   Junata Valley Audubon Society – The Audubon Society is a national organization dedicated to conservation and restoration of bird habitats.
   Website: www.juniatavalleyaudubon.org

   State College Bird Club – Local organization dedicated to bird appreciation.
   Website: www.scbirdcl.org
Tussey Mountain Hawk Watch – Site located along the migration path of the Golden Eagle, which attracts many bird enthusiasts.
Website: www.user.fast.net/~aquilac/tussey/

Pennsylvania Native Plant Society – Local group dedicated to the education and enjoyment of Pennsylvania’s native vegetation.
Website: www.pawildflower.org

Shaver’s Creek Environmental Center – While not in the watershed, close-by Shaver’s Creek is one of only a few facilities in central Pennsylvania licensed to conduct educational programs with permanently injured (non-releasable) birds of prey. With approximately twenty birds of over a dozen species, Shaver’s Creek’s Raptor Center offers visitors an up-close view of vultures, falcons, owls, hawks, and eagles, and would be a valuable resource to educate the community about raptor species. The Center also hosts “vernal pool walks,” a program which could be used as inspiration for similar walks in the Scotia Barrens.
Website: www.shaverscreek.org

2) Municipal or Agency Action

- Incorporate the protection of large tracts of contiguous wildlife habitat, Biological Diversity Areas (as recognized by the Centre and Huntingdon County Natural Heritage Inventories), and sites with rare, threatened or endangered species into municipal ordinances/open-space programs.

- Use inter-municipal land use planning and regulation to minimize disturbance to special habitats such as vernal pools, minimize habitat fragmentation (particularly forested land) and maintain connectivity.
  - Encourage municipal regulations to minimize the inappropriate clearing of wooded sites prior to land development activities.
  - Preserve forested steep slopes during planning and development processes. As noted above, mountain ridge locations are an important habitat for wildlife and must be protected to preserve their forested condition.
    - As these slopes are generally not conducive to onlot sewage disposal, these areas can be earmarked for permanent open space areas within rural-preservation programs as recommended above.
    - Prohibit development activities in areas that have slopes in excess of 25%.
    - Mountain and ridge woodlands must be protected from clear-cutting activities. One approach could be to set a “forest boundary” based on current forest edges. Beyond this line, standards for the reduction of tree clearing could be set. This would encourage residential development to occur in valley land more suited to it (Centre Regional Planning Agency 2000).
  - Protect vernal pools. Regulate activities that remove forest canopy or result in earth disturbance within one half mile of the ponds, in order to avoid disrupting natural hydrological patterns and to avoid impacts to potential amphibian populations. In areas of disturbance, construct ditching and other drainage to minimize disturbance of drainage patterns (Western Pennsylvania Conservancy 2002).

- Change zoning district classification for State Gameland 176 from “State Gamelands” to one that is natural resource based or specifies protection as open space.
3) Program participation

- Encourage participation in available programs to create/restore valuable wildlife habitat on private lands.

**Resources**

**Wildlife Habitat Incentives Program (WHIP)** – The Wildlife Habitat Incentives Program (WHIP) is a voluntary program for people who want to develop and improve wildlife habitat primarily on private land. Through WHIP, USDA's Natural Resources Conservation Service provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements between NRCS and the participant generally last from 5 to 10 years from the date the agreement is signed.  
**Website:** [www.nrcs.usda.gov/programs/whip](http://www.nrcs.usda.gov/programs/whip)

**Ducks Unlimited Habitat Stewardship Program** – Provides financial and technical assistance to create and restore wetlands (as well as stream buffers and stream bank fencing). The 15 year contract pays the full cost of wetlands restoration/creation.  
**Contact:** Chris Clouser  
**Phone:** (814) 832-4676  
**Website:** [www.ducks.org](http://www.ducks.org)  
**E-mail:** cclouser@ducks.org

**Partners for Fish and Wildlife Program** – Supports habitat restoration on private lands by providing technical and financial support to land owners. The 10-year cooperative agreements work to restore riparian areas, streams, degraded wetlands, native grasslands, and other habitats to conditions as close to natural as possible.  
**Contact:** Dave Putman  
**Phone:** (814) 234-4090  
**Website:** [partners.fws.gov](http://partners.fws.gov)

- Encourage wise forest stewardship oriented towards wildlife habitat management by landowners.

**Resources**

**The Pennsylvania Forest Stewardship Program** – A voluntary program that assists forest landowners in managing their forestlands by providing information, education, and technical assistance. Participation in the program is open to private landowners who own between 5 and 1,000 acres of forestland.  
**Contact:** Jim Finley  
**Phone:** (814) 863-0401  
**E-mail:** fj4@psu.edu  
**Website:** [www.cas.psu.edu/docs/CASDEPT/FOREST/Stewardship/Ipage.html](http://www.cas.psu.edu/docs/CASDEPT/FOREST/Stewardship/Ipage.html)

**The Forest Land Enhancement Program** – Complements the Forest Stewardship Program by providing landowners with cost-share dollars to implement their management plans and provides technical assistance to reach long-term management goals.  
**Contact:** Jim Stiehler, Forest Stewardship Coordinator, DCNR.  
**Phone:** (717) 787-47777

**Forest Legacy Program** – This program serves to foster protection and continued use of forested lands that are threatened with conversion to non-forest use. They will purchase conservation easements or titles from private landowners. Emphasis is given to lands of regional or national significance.  
**Contact:** Gene Odato, Chief, Rural and Community Forestry Station, DCNR  
**Phone:** (717) 787-6460  
**E-mail:** godato@state.pa.us  
**Website:** [www.fs.fed.us/spf/coop/programs/loa/flep.shtml](http://www.fs.fed.us/spf/coop/programs/loa/flep.shtml)
4) Opportunities for Public Involvement

- Encourage the public to notify the Pennsylvania Game Commission of their support for preserving the State Gameland 176 as public land.

- Encourage private landowners to develop wildlife habitat on their property either in conjunction with the above programs or on their own.

- Control the spread of non-native invasive species by discouraging the use of potentially weedy exotics and encouraging the use of native tree, shrub and herbaceous species. Prevention is the best avenue of defense against invasive species, therefore land managers should be vigilant inspectors of the landscape to spot new outbreaks of species harmful to communities.

**Resources**

- **Penn State Centre/Huntingdon County Cooperative Extension Agencies** – Provide technical support for maintenance of wildlife habitat.
  - **Centre County**
    - Website: [www.centre.extension.psu.edu](http://www.centre.extension.psu.edu)
    - Phone: (814) 355-4897
  - **Huntingdon County**
    - Website: [www.huntingdon.extension.psu.edu](http://www.huntingdon.extension.psu.edu)
    - Phone: (814) 643-1660

The following documents are available at: [www.pubs.cas.psu.edu/PubSubject](http://www.pubs.cas.psu.edu/PubSubject)
- Management Practices for Enhancing Wildlife Habitat
- Wildlife–Habitat Relationships
- Neighborly Natural Landscaping: Creating Natural Environments in Residential Areas
- Warm-Season Grasses and Wildlife
- Winter Bird Feeding: The Basics
- Managing Habitat for American Kestrels
- Attracting Wildlife: Sources of Assistance
- Managing Habitat for Eastern Bluebirds
- Landscaping for Wildlife: Trees, Shrubs, and Vines
- Managing Habitat for Eastern Cottontails

The following web pages provide information about invasive exotic species, including ecological impact, geographic distribution, and evaluation of possible control techniques:


- **The Virginia Natural Heritage Program**’s invasive plant page – [www.dcr.state.va.us/dnh/invinfo.htm](http://www.dcr.state.va.us/dnh/invinfo.htm)

- **Pennsylvania Department of Conservation and Natural Resources** Invasive plant species information - [www.dcnr.state.pa.us/forestry11404/wildplant/invplants.htm](http://www.dcnr.state.pa.us/forestry11404/wildplant/invplants.htm)
GOAL:
Promote watershed based land use planning and land use practices.

RATIONALE:
The top two issues of concern prioritized at the public meeting held on February 5 2004, were increased suburban development and lack of land use planning. Several of the other top issues involved protection of resources, open land and wildlife habitat. Watershed based land use planning and land use practices using the geographic watershed boundary as a planning unit are critical to address all of these concerns.

There are a variety of plans and ordinances in place within the watershed that address land use (See Planning Tools and Regulatory Controls section of Chapter Five of this document). However, there are significant differences in the number, type, and specific provisions among the Townships that have jurisdiction over the watershed. In order to address the concerns of the community effectively, it is critical that the Townships and other governing agencies within the watershed collaborate on matters of land use and land use planning. Only with an inter-municipal approach can the issues of urbanization and resource protection be effectively managed throughout the entire watershed.

STRATEGIES:
1) Education
   • Develop educational outreach programs to address issues related to development, including habitat loss, effects on water quality and quantity, and impacts on existing infrastructure.
   • Provide education to municipal officials so that they are able to better manage growth.

Resources
Pennsylvania Growing Smarter – Provides technical and financial planning assistance to Pennsylvania communities.
Website: www.landuseinpa.com

The Pennsylvania Municipal Training Partnership (PMTP) – The Partnership is a full-service training organization created to provide training for local government officials. Courses are offered in local government structure and operations, municipal finance, municipal management, and community planning and development at state-wide locations or at a time and place of your choice.
Website: www.montcopa.org/plancom/about_pmtp.htm
Phone: (717) 236-9526 or (800) 232-7722.

Governor’s Center for Local Government Services – The principal state entity responsible for land use planning assistance in Pennsylvania.
Contact: Sharon Grau, Local Government Policy Specialist
Website: www.inventpa.com/default.aspx?id=136
Phone: 1-888-2-CENTER (888-223-6837)

Pennsylvania State Association of Township Supervisors (PSATS) – Assists and coordinates programs among township governments.
Contact: Amy Lehman Bobb, Director of Education
Phone: (717) 763-0930
Website: www.psats.org/seo.html
Local groups should continue to inform planning commissions and other municipal officials of current watershed-wide issues by getting on their meeting agendas and presenting watershed issues at public meetings.

2) Municipal or Agency Action

- Inter-municipality coordination in the creation and updating of land use planning ordinances and regulations. This may include a watershed-wide master land use plan that is approved and enforced by all municipalities within the watershed boundaries. Local planning entities, planning commissions and zoning boards within the watershed should coordinate their efforts to create such a plan.

- Integrate performance standards into land use ordinances. Whereas zoning districts focus on the type of land use, performance standards are based on the intensity of land use in a given area. Performance standards can address issues of impacts to environmentally sensitive areas such as floodplains, wetlands, steep slopes and forests.

- Research and integrate new tools to address watershed land use issues:
  - **Transfer of Development Rights (TDR):** Allows valuable land to be protected in its current state by transferring its development rights and associated value to another property. The development rights may be sold to a developer in another area of the watershed for land that is more suitable for development.
  - **Low Impact Design (LID):** Design methods and tools that reduce the physical impacts of land development on the physical environment.
    Websites: [www.lid-stormwater.net](http://www.lid-stormwater.net)  
    [www.lowimpactdevelopment.org](http://www.lowimpactdevelopment.org)
  - **Best Management Practices (BMP’s):** There are many alternative practices related to land development, agriculture, construction, effluent treatment, sedimentation and erosion control and stormwater management, that reduce the negative impact of these activities on the physical environment.

**Resources**

- **US EPA** – Provides a wealth of information about practices to protect water quality.
  Websites: [www.epa.gov/watertrain/agmodule/](http://www.epa.gov/watertrain/agmodule/) (agriculture focused)  
  [cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm](http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm) (stormwater BMPs)  
  [www.epa.gov/waterscience/guide/](http://www.epa.gov/waterscience/guide/) (effluent guidelines)

- **BMP Database** – Provides a database of stormwater management practices and information.
  Website: [www.bmpdatabase.org](http://www.bmpdatabase.org)

- **Pennsylvania Groundwater Association** – Provides information on erosion and sedimentation control BMPs for water well drilling and aquifer testing.
  Website: [www.pgwa.org/images/ESC%20Fact%20Sheet.pdf](http://www.pgwa.org/images/ESC%20Fact%20Sheet.pdf)
• Cooperate with professional planning organizations to develop plans that will prevent suburban sprawl and preserve the quality of the land.

Resources

American Planning Association (APA) – National association of city and regional planning professionals, which facilitates land use planning on all scales.
Website: www.planning.org

Website: www.planningpa.org

Pennsylvania Growing Smarter – Provides technical and financial planning assistance to Pennsylvania communities.
Website: www.landuseinpa.com

Smart Communities Network – Department of Energy planning resource that focuses on sustainable development.
Website: www.sustainable.doe.gov/landuse/luintro.shtml

Urban Land Institute (ULI) – A think tank providing leadership in the responsible use of land to enhance the total environment.
Website: www.uli.org

3) Program Participation

• Encourage landowner participation in programs that promote land management practices.

Resources:

Pennsylvania Bureau of Farmland Preservation – Pennsylvania’s program to purchase agricultural easements. The Bureau administers legislative programs designed to preserve farmland through the State Agricultural Preservation Board. Agricultural Security Areas (ASAs) are a tool for strengthening and protecting quality farmland from the urbanization of rural areas.
Website: www.agriculture.state.pa.us/farmland/site/default.asp

Pennsylvania Greenways Program – Citizens and non-profit organizations in partnerships with local government can create a strategy for establishing an interconnected system of greenways within the watershed.
Website: www.pagreenways.org/
4) Opportunities for Public Involvement

- Attend regional and local planning and zoning meetings that address land use issues within the Spruce Creek watershed.

- Participate in local groups that promote public participation in improving the quality and health of the watershed.

**Resources:**

**Pennsylvania Land Trust Association (PALTA)** – The Pennsylvania Land Trust Association promotes voluntary land conservation by supporting the missions of land trusts and building a positive climate for conservation in Pennsylvania.

**Website:** [www.conserveland.org/](http://www.conserveland.org/)

**Clearwater Conservancy** – The Clearwater Conservancy is a member of PALTA. Its mission is to promote conservation and the responsible stewardship of the natural and historical resources of Central Pennsylvania.

**Website:** [www.clearwaterconservancy.org](http://www.clearwaterconservancy.org)
GOAL:
Increase awareness of the cultural and historical resources in the watershed.

RATIONALE:
The Spruce Creek watershed has a rich cultural and historical heritage. Throughout the assessment process, residents have expressed interest in preserving this heritage. One key to achieving this goal is to increase awareness of the history that has made the watershed what it is today. While long-time residents may be aware of this heritage, many new residents, as well as the younger generation, may not be as familiar with the history. In addition, many remnants of the watershed’s historic iron mining industry can still be found throughout the watershed on both private and public land. Many of these historic structures and buildings, however, are in danger of disappearing as a result of the natural process of decay. Increasing awareness of the cultural and historical resources in the watershed is one important way to protect and preserve its history.

STRATEGIES:
1) Education
   • Create educational tools to teach school children, as well as new and existing residents, about the historical significance of the Spruce Creek watershed.
     o Create a pocket history book or publication to highlight the watershed’s history and historical sites.
     o Develop a driving tour of significant historic sites in the watershed.
     o Take advantage of regional events, such as Penn State football games and the Central Pennsylvania Festival of the Arts, to provide information about watershed history. Use available media tools including radio, newspaper and websites.
     o Place signs throughout the watershed to identify and teach about local historic sites.
     o Have local history experts host tours of historic sites.
     o Use the website created by CWS to display the cultural and historical heritage of the Spruce Creek watershed, to increase people’s awareness of the local history and to offer residents a forum to express their opinions on historical preservation.
     o Get support from Centre County and Huntingdon County Historical Societies, and local historic museums, to help highlight the history of the region and the watershed with respect to iron mining. Use their exhibitions, classrooms and tours to educate the public.

2) Municipal or Agency Action
   • Focus efforts for historic preservation on sites located on public land such as the Scotia artifacts. It could be a two-stage process of dealing with historic remnants within public land first and exploring issues on private preservation later.

   • Identify and protect historic houses, neighborhoods and other historic structures through the implementation of planning and regulatory actions that favor historic preservation.

   • Develop design strategies to preserve the historic artifacts of the Scotia and Tow Hill iron mining sites in State Game Lands 176.
3) **Program Participation**

- Investigate the potential for acquiring historic locations in the watershed.

**Resources**

**Central Pennsylvania Conservancy** – A non-profit land trust dedicated to the preservation of lands with natural, scenic, cultural, and agricultural value.

**Contact:** Central Pennsylvania Conservancy  
**Phone:** (717) 233-0221  
**E-mail:** info@centralpaconservancy.org  
**Website:** www.centralpaconservancy.org/

**Eden Hill Conservancy** – A local land trust organization that is a member of the Pennsylvania Land Trust Association.

**Contact:** Eden Hill Conservancy  
**Phone:** (814) 684-3360  
**E-mail:** davistj@concentric.net

**Clearwater Conservancy** – A Centre County based land trust and environmental conservation organization, a leading organization in promoting conservation of natural resources through land protection, watershed stewardship, and environmental outreach.

**Contact:** ClearWater Conservancy  
**Phone:** (814) 237-0400  
**E-mail:** contactus@clearwaterconservancy.org  
**Website:** www.clearwaterconservancy.org/

**Western Pennsylvania Conservancy** – Creates conservation strategies linking water, land and life.

**Contact:** Western Pennsylvania Conservancy  
**Website:** www.paconserve.org/  
**Phone:** (412) 288-2777  
**E-mail:** jrowley@paconserve.org

**Pennsylvania Historical and Museum Commission (PHMC), Bureau of Historical Preservation** – An independent administrative board that preserves the Commonwealth’s past through leadership, stewardship, and service.

**Contact:** Jean Cutler, Director  
**Website:** www.phmc.state.pa.us/  
**Phone:** (717) 783-8946  
**E-mail:** jecutler@state.pa.us

**Preservation Pennsylvania** – Assists Pennsylvania communities to protect and utilize the historic resources through creative partnerships, targeted educational and advocacy programs, advisory assistance, and special projects.

**Contact:** Susan K. Shearer, Executive Director  
**Phone:** (717) 234-2310  
**E-mail:** PPA@preservationpa.org  
**Website:** www.preservationpa.org/  
**E-mail:** SShearer@preservationpa.org
4) **Opportunities for Public Involvement**

- Collect oral histories from local residents in the watershed by interviewing family and other members of the community. Make these documents available to the public by donating them to historical societies.

- Encourage private landowners who have historic structures on their properties to notify historical societies. Landowners could also consider working with the societies and school district to grant access to allow tours and groups to view these historic structures.
GOAL: Improve access to public space.

RATIONALE: The lack of access to, and the availability of, public space are key issues of concern to watershed residents. In addition, some of the existing recreational places, such as the Colerain Picnic Area, are in need of restoration. Although many watershed residents expressed interest in increasing access to public space, not everyone has the same idea of what type of recreational areas should be made available. Some residents prefer to see spaces that are natural, allowing for more passive recreational activities, while others would like to see more developed parks that offer places for active activities.

STRATEGIES:

1) Education
   - Use public spaces as educational tools to teach about the natural history, cultural history, and ecological health of the area.

2) Municipal or Agency Action
   - Highlight the existing connectivity between public spaces in the watershed. One example is the connection between the Colerain Picnic Area and Rothrock State Forest.
   - Explore opportunities to use bond funding for community enhancement projects, such as open space, conservation areas, or recreation areas. Governor Rendell has recently proposed one such program.

   Resource
   **Governor Rendell’s Open Space Preservation Bond Funding** – Under Governor Rendell’s proposed 2004-05 budget, funds from a bond issue would be used to stabilize and expand two key programs: Growing Greener, an initiative begun under Governor Tom Ridge that improves the environment; and the Hazardous Sites Cleanup Fund, signed into law by Governor Robert P. Casey to clean up the worst hazardous sites.

   Website: [www.state.pa.us/papower/cwp/view.asp?A=11&Q=436257](http://www.state.pa.us/papower/cwp/view.asp?A=11&Q=436257)

   - Develop multi-purpose public spaces (please refer to the section on Historic Preservation and Access to Public Land in Chapter 5 for detailed information) as a comprehensive solution that addresses multiple concerns, including the need for open space, with the desire for historic preservation, wildlife protection and so on. One example is the proposal for Pennsylvania Furnace Park on the State College Borough Water Authority site.

   - Protect the State Game Lands 176 through zoning code modification, and cooperate with the Pennsylvania Game Commission to ensure that those lands will remain in their protected state.

   Resource
   **Pennsylvania Game Commission**
   Phone: 1-877-877-9107
   Email: pgccomments@state.pa.us
   Website: [www.pgc.state.pa.us/](http://www.pgc.state.pa.us/)
• Require the development of recreational places in newly constructed neighborhoods in the watershed.

3) Program Participation

• Develop a master plan to create a Spruce Creek Watershed Greenway. This Greenway could provide a multi-purpose space that links riparian buffers, stream corridors and recreational areas.

• Develop a Rails-to-Trails program through the watershed using existing railroad beds. This trail could be used to highlight the history of the region as well as to teach about important natural features of the watershed.
  o Explore funding options offered through the Rails to Trails Conservancy, the Headwaters Resource Conservation and Development Council, Transportation Equity Act for the 21st Century.

Resources

Rails-to-Trails Conservancy – a non-profit organization dictated to enriching America’s communities and countryside by creating a nationwide network of public trails from former rail lines and connecting corridors.
Contact: Tom Sexton, Director, Pennsylvania Chapter
Phone: (717) 238-1717
Website: www.railtrails.org/

Transportation Equity Act for the 21st Century - enacted in 1998 and authorizes the federal surface transportation programs.
Website: www.fhwa.dot.gov/tea21/index.htm

Headwaters Resource Conservation and Development Council – a non-profit organization that works to coordinate both public and private agencies for projects developed to address the concerns of resource areas in agriculture, forest resources, community development, environmental, education, water and recreation.
Contact: Headwaters Resource Conservation and Development Council
Phone: (814) 375-1372
Website: www.parcd.org/Headwaters/headwaters%20home.htm
E-mail: Headwatr@penn.com

Pennsylvania Heritage Parks Program – A division of PHMC (Pennsylvania Historical and Museum Commission) that provides financial and technical assistance to communities and promotes public-private partnership development.
Phone: (717) 783-0988
Website: www.dcnr.state.pa.us/brc/heritageparks/
4) **Opportunities for Public Involvement**

- Revitalize the Colerain Picnic Area as a community gathering place by sponsoring a spring clean-up and fix-up.
GOAL: Establish a community-based watershed organization to address issues of concern and raise public awareness and education of watershed scale issues.

RATIONALE: The only long-term way to solve or even address any issue in the watershed is through the involvement and participation of those who live, work and recreate there. Local government can provide standards and guidelines for environmental quality, but such standards are often a reflection of the desires and priorities of the community. A community-based watershed organization can serve to provide a “voice” for the watershed and the community in local government and future land use decisions that affect the quality of life in the area. Such an organization can also serve as an educational vehicle for promoting awareness and increasing the knowledge of watershed-scale issues, as well providing a forum for community involvement.

STRATEGIES:

• Establish a steering committee of several community members to provide leadership in coordinating the diverse private and public entities in the watershed to build a consensus of community priorities and objectives.

• Engage all aspects of the watershed community representing the entire range of interests and concerns, including, but not limited to, private residents, small businesses, major employers, the hospitality and tourism industry, farmers, land developers and local government officials.

• Utilize a project such as the clean-up of the Colerain Picnic area as a catalyst to build community support and awareness of watershed-wide issues and the difference that community involvement can make.

• Use available resources (i.e. Conservation District Watershed Specialists) to provide assistance in developing conservation strategies, educational materials or watershed events.

• Develop a vision for the watershed community to define future goals, objectives and initiatives.

• Develop a strategy to obtain funding for watershed-based projects. There are numerous competitive grant opportunities available from programs of the Commonwealth of Pennsylvania and non-profit organizations that may cover start up costs, administrative work or specific projects. Funding may be required to accomplish broader or more involved goals (although it is important to realize that much can be done to raise awareness of watershed issues using little to no resources).

Resources

Western Pennsylvania Watershed Protection Program - The purpose of the Western Pennsylvania Watershed Protection Program is to protect or restore Pennsylvania’s unique water resources on an ecosystem basis and to foster separate technologies used to preserve and reclaim watersheds. Organization “start-up” grants are provided to form new watershed groups. Application by a one-page letter are accepted at any time.

Contact: John Dawes, Administrator
Phone: (814) 669-4847
Website: www.pawatersheds.org/kwn/funding/WPWPP
Growing Greener Grants – Growing Greener Grants provide funds for watershed restoration and protection. These are yearly, competitive awards.

DEP Grants Center
Phone: 877-PAGREEN
Website: www.dep.state.pa.us/growgreen/defaultdep

Canaan Valley Institute – CVI has a grant program for eligible groups in the Mid-Atlantic Highlands. To be eligible, a group must be inclusive, and watershed or community based. Priority will be given to applications that will promote local capacity building and problem solutions.
Contact: Janie French
Phone: 1-888-549-7640
Website: canaanvi.org/news/grants

Chesapeake Bay Foundation – The Chesapeake Bay Foundation is dedicated to conservation and education throughout the entire Chesapeake Bay watershed, which reaches through Pennsylvania up to New York, and includes the Spruce Creek watershed.
Phone: (717) 234-5550
Website: www.cbf.org/site/PageServer?pagename=about_index
References


Western Pennsylvania Conservancy. 2002. Centre County Natural Heritage Inventory.