

## VII. MANAGEMENT OPTIONS

The following Management Options are contained within a matrix located at the end of this Chapter. This matrix provides for potential partners, potential funding sources and recommended beginning dates.

### *GENERAL*

#### **1. Institute an Upper Crooked Creek Watershed Coalition to oversee the implementation of this plan and act as a clearinghouse for the management of watershed resource data.**

Members of borough councils, township supervisors and county officials can create the Upper Crooked Creek Watershed Coalition (UCCWC) through the adoption of a formal resolution, which would bind the municipalities to work together to work to “insure the best quality development, maximum utilization of resources, and protection of environment” within the watershed. The Coalition would serve as an effective forum to bring together a variety of interest groups who share interest in the health and welfare of the watershed.

Together the members of the Coalition would develop primary objectives, reflective of the community goals, to direct decisions upon. Efforts could include sponsoring watershed-based activities, public education on the resources of the watershed, and actively seeking public support for watershed projects.

#### **2. Coordinate with other River Conservation Plans within the vicinity.**

Coordination between river conservation plans can lead to increased support, funding sources, and public awareness. Joining efforts with existing plans for the Clarion River and Kiski-Conemaugh River Basin can lead to more successful, common goals. Any groups that complete River Conservation Plans along the study corridor in the future should also be included.

### *A. CULTURAL AND HISTORICAL*

#### **1. Facilitate regional coordination between historical groups and municipalities through PHMC and CrCWA.**

Coordination between local historical societies, river communities, CrCWA, and PHMC is necessary to create a successful strategy for regional development.

In cooperation with PHMC, CrCWA could act as a clearinghouse for information and a regional organizing body. Through its system of consultants and contacts, PHMC could offer technical advice on how to properly rehabilitate or refurbish historic structures, where to go for potential grant money to engage in historic preservation at the community level, how to determine if a structure is historic, and how to nominate it for recognition. As the state commission overseeing historical sites and structures, PHMC should play an active role in facilitating coordination and communication among historical organizations in the Upper Crooked Creek watershed.

#### **2. Coordinate an exchange of historical literature between communities in order to market a regional experience and promote travel to the watershed communities.**

Transferring community literature on historical resources is important as a strategy to inspire tourism on a larger scale. Localities for the storage of historical information would include local and regional historical societies and CrCWA offices. Because CrCWA is developing this River Conservation Plan, they are the most appropriate entity to manage this information.

**3. Encourage communities to develop a local history book or pamphlet (such as a centennial tribute) to develop one.**

This would help document history from a local perspective and would spark interest within the community. It may also uncover items of historical importance that have been previously overlooked. In addition, for those communities that have not initiated any historic archives or documentation, contacting local newspapers is one place to begin assembling information in preparation for a pamphlet or book.

**4. Communities should selectively focus conservation efforts by identifying their historical resources, including those listed on the National Register of Historic Places and those which they would like to see listed.**

Identifying structures remaining from former industrial sites, commercial, and residential areas is a primary task for communities interested in historical and cultural preservation. However, selectively focusing the community's preservation efforts on significant structures is a better long-term strategy than either ignoring all structures or spreading resources too thinly over many structures. Selective preservation should be done in a coordinated manner with CrCWA, PHMC, and local groups.

**5. Implement a regional approach to signs so all historical structures or districts within the project study area communities have similar marking techniques to identify their historical and cultural resources.**

Signs are one way to unify the theme of history and culture in the watershed communities. Signs of a similar style or color scheme can be used to mark structures, trails, or historic districts. Signs can also be functional listings of the choices of attractions within each community.

Signs can also be used in a flag or tapestry fashion to add character to a commercial district. The designs for flags and tapestries could be developed through community art projects or contests

**6. Attempt to identify sites of exceptional interest for interpretive areas.**

Multiple historic and cultural resources depicting the watershed's past were identified during the development of this plan. Although many individual properties have been surveyed by ICOPD, few have been preserved or developed into interpretive areas. A review of these sites should take place in order to prioritize their potential development as interpretive areas for local communities and visitors to the area. Examples identified in the Indiana County Heritage Preservation Plan include Coal Town Tours, salt industry exhibits, and tours of operating Christmas tree farms.

**7. Preserve local churches as symbols of cultural and ethnic identity within the watershed.**

Churches are a significant part of the landscape in most rural communities because they represent the ethnic and religious variety of previous generations who lived, worked, and worshipped there. Today however, churches throughout southwestern Pennsylvania are in danger of being forgotten as congregational numbers decline and churches close. This trend is not expected to change, which means that more church structures will be put on the resale market as congregations merge. The threat of indiscriminate resale ranges from buyers who remove valuable stained glass from the churches to those that demolish the structures, or allow them to remain unprotected from vandals.

It is important to protect these ethnic and cultural symbols when appropriate. Local municipalities should take the lead in monitoring the resale and reuse of churches and communicate to prospective buyers and developers their concern for churches as ethnic and cultural artifacts. This can help assure that reuse is done with historical and cultural sensitivity. Community development corporations can also play a part in this by including suitable churches in their redevelopment plans.

Resale and reuse can be a positive and lucrative venture, such as the Church Brew Works in Lawrenceville and the Priory Bed and Breakfast on the City of Pittsburgh's North Side. Both of these redevelopment projects were done in the spirit of the original church structure.

### **8. Design regional history exhibits that can be displayed outside the watershed.**

Once the regional historical resources are identified and researched, and the information is managed by the PHMC or CrCWA, the next step would be to design exhibits based on the Upper Crooked Creek watershed's history for traveling displays. Displaying exhibits in neighboring Ohio, West Virginia and eastern Pennsylvania, would spur interest in tourism in southwestern Pennsylvania and the Upper Crooked Creek watershed. Accomplishing this would require approaching organizations such as the Senator John Heinz Regional History Center, which are in a position to develop and circulate such an exhibit.

### **9. Address regulatory problems that discourage reuse of historical sites.**

The main regulatory deterrents are floodplains, local zoning ordinances and building code ordinances. Other issues are Americans with Disabilities Act (ADA), and Occupational Safety Health Administration (OSHA) standards for elevators. Some of the problems of former mill sites and industrial river towns are unrealistic to overcome, notably frequently flooded areas. However, local zoning, ADA, and OSHA can often be resolved through innovative planning and cooperation between agencies.

## ***B. ECONOMIC DEVELOPMENT***

### **1. Complete an inventory of brownfields and prioritize their redevelopment potential under PA Act 2 and Act 4.**

Pennsylvania land recycling legislation provides valuable incentives to parties interested in adaptive reuse and/or redevelopment of brownfields. Study corridor municipalities may be eligible for grant funding to assess the environmental condition of brownfields under PA Act 4 (Industrial Sites Environmental Assessment Act) and to redevelop sites under PA Act 2 (Land Recycling and Environmental Remediation Standards Act).

Once an inventory of brownfield sites is completed for the watershed, sites should be prioritized based on their redevelopment potential, including road and utility access, and size. Once this prioritization is complete, the individual municipalities or other interested parties may apply to the state for funding to assess the sites' environmental condition, and in some cases to begin cleanup work.

This inventory should be prepared in conjunction with agencies involved with economic development opportunities such as Southwestern Pennsylvania Regional Planning Commission (SPRPC) or Penn South-west.

## **2. Create a Business Directory and map that highlights the commercial districts and other amenities within the project area.**

A directory that includes shops, eateries, transportation resources, parks and other points of interest could be developed. The directory and map would be a valuable resource in locating nearby businesses within local commercial districts. The directory could be updated seasonally to highlight municipal or regional events such as parades, festivals and cultural events. Funding could be provided through advertising space within the directory.

## **3. Promote fishing, hiking, and biking through events.**

Promoting the natural beauty and recreation opportunities of the watershed will help to bring new visitors to the river corridor. This will, in turn, help to spur new business development in the service sector and foster an appreciation for the valley's resources and their potential economic effect.

Fishing tournaments have been proven to provide for increased tourism and economic profit. Because of the Big Bass Regulations already in place, Keystone Lake might serve as an ideal location for such an event. PFBC provides for applications to hold these events and the BASS federation has expressed interest in promoting these events throughout Pennsylvania.

The Indiana County Tourist Bureau could enhance the visibility of hiking and biking in the area through marketing and promotional efforts. Tours could be based on themes in the watershed such as covered bridges, forest and farmland, or bed and breakfasts.

## **4. Promote water quality improvements with an emphasis on economic benefits.**

While a direct causal relationship between water quality and economic benefit cannot be accurately quantified, data relating to the economic importance of fishing and boating in Pennsylvania does demonstrate a connection. In 1996, direct trip and equipment revenues from fishing and boating activities totaled over \$2 billion statewide (Frey, 1996). Economic benefits are complemented by improved water quality, increased water recreation, improved aesthetics, and more viable fish, bird, and mammal populations. Though costly, continued improvements in water quality directly and indirectly support the betterment of river resources, the recreational experience, and the economy.

### ***C. EDUCATION***

#### **1. Develop a newsletter to inform the public of the value of the resources of the Upper Crooked Creek watershed.**

Publish a monthly newsletter discussing projects related to water quality monitoring, AMD reclamation projects, recreational activities, cultural activities, and areas of historical interest.

#### **2. Initiate educational programs on floods and floodplain development including "flood emergency response" educational materials and flood awareness seminars for residents.**

Flood awareness and prevention seminars should be presented in different formats to local residents, land owners, and municipal officials.

The National Weather Service provides free flood awareness seminars for communities located along rivers and streams in western Pennsylvania. Arranging these seminars will help make people in flood-prone

communities such as Plumville, Shelocta, and Creekside more aware of this problem and alert them of proper procedures in flood emergencies. Other education initiatives and information sessions may be provided by FEMA, NOAA, and ACOE.

**3. Promote an essay and/or photo contest throughout school districts within the watershed.**

An essay or photo contest would focus on stewardship of the watershed. Contests could be for elementary and high school age students. Themes such as “My view of Crooked Creek” and “How the creek has affected my life” would be considered, focusing attention on watershed conservation and stewardship. Prizes for elementary age students might include family passes to regional attractions such as river tours, history centers or science centers. Awards for high school students might include scholarships for continuing education.

**4. Develop educational programs to be used within local school districts**

Educational packages that relate to the Crooked Creek Watershed could be developed for nearly all grade levels. Topics could focus on the functions of a watershed, animals and habitat, water chemistry, and the specific problems facing the Crooked Creek Watershed. Special field trips could be planned to help with clean up activities, water sampling, or other related activities. Education programs may also be highlighted by essay contests, artwork, science competitions, or social studies projects.

**5. Educate land owners and municipalities on the importance of riparian buffers.**

Riparian buffers are vital to the natural process of filtering run-off and pollution and maintaining a healthy waterway. Educational courses, workshops, and literature concerning the importance of buffers should be made available to local land owners and municipalities. Riparian buffers are more likely to be valued and encouraged once their crucial role in the ecosystem is understood.

**6. Create a Crooked Creek theme summer camp program.**

Summer camps that relate to themes, such as space camps or science camps are growing in numbers. This program would be geared toward elementary school children and developed in conjunction with the Armstrong Educational Trust’s intent to lease the Environmental Learning Center at Crooked Creek. Curriculum would focus on the watershed and its environment. Students could enroll for one day or a week, with each day focusing on different aspects of the watershed. Educational activities would include environmental issues such as abandoned mines, aquatic life and forested riparian buffers; or historic events such as the implementation of the railroads, the salt industry, or coal mining.

**7. Develop an Upper Crooked Creek watershed Environmental Center to educate the public about the past and present conditions of the region’s rivers.**

This facility could be located at any of the communities along Crooked Creek and would focus on interpreting the natural environment of western Pennsylvania’s rivers and the changes brought about in that environment by human actions. Topics for display could include abandoned mine drainage and its effects on aquatic systems; the historic impacts of industrial effluent on the rivers; flooding and its effects, including how flooding patterns can change when fill is placed within floodplains; riparian forest buffers and how they function to protect water quality; subaquatic vegetation and its importance to the river ecosystem; fish and other aquatic animals that inhabit the watershed; threatened and endangered species that occur in and along area waterways; and the impact of non-native species on the ecology of the watershed. Many of these

items could be displayed through the use of a large aquarium that would recreate a stream bottom habitat and use native fish and plant species. This would allow visitors to enjoy a glimpse of what occurs below the surface of the waterways on which they will be traveling.

**8. Develop a series of citizen’s workshops to educate farmers and residents about available resources and funding for Best Management Practices.**

A significant portion of the Crooked Creek Watershed is used for agricultural production. Local farmers may not be aware of the benefits of cost-share programs available through various state and federal agencies. Therefore, information on cost-share programs for implementation of Best Management Practices (BMP) must be made available to local farmers. Many of these programs exist through County Conservation Districts, the U.S. Department of Agriculture (CRP Program), PADEP, PFBC, PGC, PADCNR, and the U.S. Fish and Wildlife Service; however, these programs are often underutilized. With the importance of agriculture within the study area comes imperative work to prevent streambank erosion, excess nutrients in the waterways, and sediment from entering the stream channel.

During local conservation district meetings or workshops, an experienced SCD representative would present cost-share options for programs explaining the benefits for agricultural production along with the ecological advantages. Another option would be having a representative from the respective agency sponsoring a specific BMP program discuss the program with meeting/workshop attendees. Through this discussion, a mechanism could be developed regarding outreach to other farmers and community members. The Indiana and Armstrong County Conservation Districts could collaboratively plan such programs for local farmers.

**9. Prepare an educational brochure for stakeholders outlining who to contact to report illegal dumping, point source discharge violations, and other critical environmental hazards.**

Mackin observed numerous sites of raw sewage discharge, AMD, and gaseous/sulfuric odors along main stem Crooked Creek. Quite often, community members are unsure who to contact when they discover environmental hazards including illegal dumping, straight-pipe discharges into waterways, streambank erosion, water obstructions, etc. A user-friendly brochure directing citizens to the appropriate agencies or organizations would increase the public’s knowledge and hopefully assist with documenting sources of water and overall environmental impairment. This brochure could be a collaborative effort among CrCWA, PA CleanWays, PADEP, and local businesses.

*D. NATURAL RESOURCES*

**1. Continue the development and implementation of preliminary restoration plans for two discharges at Ernest, including the construction of passive wetland treatment systems.**

Mine drainage from the Ernest Coal Mine Complex has incurred long-term water degradation in McKee Run and the Crooked Creek Watershed. According to a Preliminary Restoration Plan Report (PRP) (September 2000), the ACOE has proposed a conceptual plan, including all phases of development, for a passive wetland treatment system at McKee Run in an effort to reduce iron levels within the basin. Under the authority of Section 206 of the Water Resources Development Act of 1996, Aquatic Ecosystem Restoration, the ACOE can collaborate with a non-federal entity on a 65/35 cost-share basis for restoration projects.

The DEP has expressed interest in sponsoring the McKee Run project. However, the department has requested a copy of PRP with cost estimates before committing resources to the project. Final project costs would entail a total commitment of over \$4 million. A partnership agreement between DEP and ACOE for restoration implementation could remedy long-term degraded water quality conditions from the Ernest Mine Complex.

**2. Coordinate with PADEP’s Bureau of Abandoned Mine Reclamation to identify “Problem Area” abandoned mine sites within the study corridor for reclamation and funding prioritization.**

This option is needed to identify the location of priority sites within the study corridor and to accurately establish a reclamation hierarchy based upon the level of hazard at each site.

**3. Organize, perform, and maintain clean up of all dumpsites.**

Illegal dumpsites along stream banks are often tucked away from regular passersby and therefore left unnoticed. Following an illegal dump survey in Indiana County provided by PA CleanWays, an organized volunteer effort is needed to clean these sites and attempt to maintain their post-clean up appearance. Good examples of community clean up efforts often include a diverse group of stakeholders. Within the Crooked Creek Watershed, the Crooked Creek Watershed Association or a local business could take the lead in organizing a clean up with volunteers from Indiana University of Pennsylvania, municipal governments, other local businesses, and interested individuals. The Western Pennsylvania Conservancy could function as a resource for vegetative enhancement on clean up sites.

**4. Coordinate efforts between CrCWA and PADEP Bureau of Abandoned Mine Reclamation to prioritize smaller AMD discharges and develop reclamation strategies.**

Crooked Creek Watershed Association has been instrumental in developing partnerships among state and federal agencies to remedy several AMD sites within the Crooked Creek Watershed. Along with this, large, significant sites of mine discharge, such as the Ernest Mine Complex, Tanoma Bore Hole site, and the Kintersburg Drift Mine have been or are currently being addressed. However, smaller, less recognized source areas of mine drainage have yet to be evaluated and/or addressed and remain insidious sources of stream impairment. Field evaluations during chemical monitoring would uncover sites of AMD impairment. This information would be discussed with DEP and District Mining Representatives for appropriate next steps and options for reclamation.

**5. Develop a QA/QC plan for, and conduct comprehensive biological and chemical monitoring, of main stem Crooked Creek and Plum Creek.**

Both Crooked Creek and Plum Creek lack up to date, comprehensive chemical and biological assessments along their main stem. The most recent report from the University of Pittsburgh, Johnstown, assessed summer (June – August) chemical conditions along Crooked Creek and Plum Creek from 1985 to 1992. It is recommended that the Crooked Creek Watershed Association organize a chemical and biological stream monitoring team trained through the PA Citizens Volunteer Monitoring Program, develop a QA/QC Plan, and conduct regular chemical assessments at various points along the two streams. Funds are available through PADEP and the Canaan Valley Institute for monitoring efforts by volunteer citizens groups.

**6. Build Partnerships between CrCWA and local businesses to develop a consensus on community watershed goals and visions, foster volunteer participation, and secure financial assistance.**

A healthy component of all community watershed organizations is the open involvement among all stakeholders within the watershed. Many businesses are searching for a mechanism to become involved in their community. A key component is finding a local business or businesses with similar goals for the watershed, such as education. Combining both the interests of CrCWA and local businesses would generate a stronger base of volunteers and financial assistance along with a more cohesive means of building community environmental and economic sustainability.

**7. Develop a watershed database to coordinate conservation activities among governmental agencies, private organizations, and the general public.**

As local and regional governments and communities become increasingly cognizant of the condition of their surface waters, the centralization of information and resources will become an effective vehicle for coordinating restoration and preservation efforts, pooling technical resources, conducting educational programs, and providing resource contacts and solutions for various problems related to watershed conservation.

CrCWA could function as a resource center and/or clearing-house for the archiving and distribution of water quality data and information. This option could be modeled after groups such as Pennsylvania Environmental Council's Allegheny Watershed Network which deals with issues such as public involvement, watershed economics, government roles, water quality, and aquatic ecosystems.

**8. Evaluate public interest in completing Natural Heritage Inventories for Indiana and Armstrong Counties through the Western Pennsylvania Conservancy.**

By completing these inventories, the counties within the watershed will have an inventory of the unique and high diversity areas. This will help to define areas open for development without impacting these natural environments. It will also foster knowledge and appreciation of the existing resources. These inventories may also identify interesting areas to be used as educational classrooms.

**9. Implement a volunteer trash removal and land stewardship program to clean and preserve the watershed.**

Unauthorized dumping and litter was observed throughout the study corridor. Although not a significant source of water pollution, it did severely degrade the visual quality of the watershed. A simple, cost effective solution is to implement a program like the Youghiogheny River Sweep, which is an annual, volunteer event to remove discarded debris. Another solution is to institute a river corridor steward program whereby property owners and interested conservation groups could adopt a river section, with the goal of managing cleanup efforts and conservation. Local municipalities, PA Cleanways, and groups such as the Boy and Girl Scouts of America, or Rotary and Lions Clubs could be approached for their assistance.

### **10. Investigate habitats within the watershed for potential nomination as Important Bird Areas.**

Inventories conducted by officials with Blue Spruce County Park indicated that 129 avian species inhabit the park alone. Within the largely rural, wooded character of the watershed sites of special significance to breeding or non-breeding birds should be investigated for potential nomination. If designated, the IBA could then exist as a protected area and be used for recreational purposes such as wildlife viewing or as an outdoor educational classroom for local schools and universities.

### **11. Encourage landowners and local businesses to participate in the PGC's Cooperative Farm Game and Forest Game Coop programs.**

These programs are designed to increase recreational opportunities on private lands for hunters while promoting management of the state's wildlife and habitat resources. The prevalence of agricultural land throughout much of the Crooked Creek watershed makes both of these programs attractive mechanisms for improving both terrestrial habitat and recreational opportunities. In addition, these programs promote better relationships and stewardship between landowners and sportsmen.

### **12. Encourage citizen monitoring and reporting of industrial and residential effluent violations.**

As described throughout this plan, water pollution is managed by a complicated network of environmental agencies and regulations. Cumulatively, this framework attempts to provide protection from further degradation and continued improvements in water quality. Nonetheless, it is impossible for regulatory bodies to oversee every individual resident and industry within the study corridor. Citizen monitoring and policing is one of the most efficient, cost effective means of identifying environmental violations. In fact, a substantial amount of environmental legislation (including the Clean Water Act) contains provisions authorizing citizen suits against individual violators, as well as the DEP and EPA "for failure to perform a nondiscretionary duty" (Percival et al., 1996).

If implemented, this option could have a two pronged effect. First, residents within the study corridor would be assisting regulatory bodies in the identification of suspected violations. This heightened public awareness towards effluent violations would serve to deter future illegal discharges. Second, by taking an active role in the regulation of water pollution within their respective communities, citizens would be in a better position to lobby regulatory agencies to take a harder line towards violations.

### **13. Encourage the preservation of the ecological and visual quality of the river corridor by planting a vegetative barrier along the river's edge where feasible.**

Although riparian buffers generally require 100 feet of wooded area to work effectively, they provide aesthetic value as well. Therefore, the areas that already have a riparian buffer should be maintained and protected. New developments along streams should consider the addition of a smaller scale vegetative buffer to give the appearance that the river is still completely forested. Mitigation requirements for developments along waterways should include riparian buffers as a basic course of action. In addition, trails or small openings in these corridors can be made to permit river access without reducing the buffers' function.

**14. Identify or create a regional land trust to preserve and protect sensitive ecological habitats or historical properties.**

A land trust is a non-profit organization whose primary purpose is the conservation and preservation of open space, park lands or natural areas for public benefit. Although industrial land use occupies significant portions of the study corridor, undeveloped areas do exist. Land trusts, such as the Allegheny River Land Trust, provide a vehicle for acquiring undeveloped land with the goal of maintaining forested viewsheds and conserving riparian zones along the river. A regional land trust would also afford the opportunity to preserve sensitive historic features and reuse them as interpretive areas.

There is a Land Trust Grant Program through DCNR's Keystone Recreation, Park and Conservation Fund that allows for 50% matching funds for the acquisition and management of land trust projects. In order to receive this grant, a land trust organization must be prequalified through DCNR. To prequalify for Keystone Funding, a land trust must fill out a prequalification form; be tax exempt under section 501(c)(3) of the Internal Revenue Code of 1986; be registered with the Bureau of Charitable Organizations, PA Department of State; and be in existence for at least 5 consecutive years.

**15. Coordinate with local officials and private industry to educate the public and adopt stormwater management regulations and erosion control methods.**

Although not a significant concern during the preparation of this plan, water pollution via overland flows can become a problem as development occurs. Sparsely vegetated, impervious lands adjacent to surface waters prohibit effective filtering of runoff pollutants.

One effective solution is the conservation or reestablishment of riparian buffer zones. The benefits of riparian buffers as filters for surface runoff pollutants and streambank stabilization is widely accepted. In addition, riparian buffers enhance in-stream habitat by providing cooler, shaded river margins and introducing detrital material as a source of organic nutrients.

**16. Continue to monitor the Keystone Lake Passive Wetland Treatment System remediation efforts.**

During the preparation of this plan, the Crooked Creek Watershed Association was administering a Growing Greener grant to perform water quality monitoring and characterization of the inflow water quality to the existing passive wetland treatment system at the northeastern end of Keystone Lake. Water quality results will then be interpreted and recommendations for design changes to improve treatment efficiency will be developed. Future possibilities under this management option include the funding of any design changes identified.

**17. Pursue Keystone Lake under the Adopt a Lake Project**

The Crooked Creek Watershed Association is proposing to partner with the PFBC to adopt Keystone Lake for the purposes of improving fish habitat and water quality at Keystone Lake. While improving the ecological integrity of Keystone Lake, this management option would enhance the quality of recreational opportunities available to fisherman and boaters.

**18. Complete the Plum Creek Bank Stabilization, Riparian Corridor Restoration, and Fish Habitat Improvement Project.**

The Armstrong County Conservation District, in cooperation with the Crooked Creek Watershed Association, has received a Growing Greener Grant to stabilize an approximately 0.5-mile reach of the most severe erosion problems within the 4.5-mile corridor of Plum Creek from its confluence with Millers Run downstream to its confluence with Crooked Creek. Remaining work within the project corridor is proposed in two phases and will include restoration of the riparian habitat and fish habitat improvements along the entire 4.5 mile reach.

**19. Restrict the granting of logging permits to only those loggers that participate in Pennsylvania's Sustainable Forest Initiative (SFI).**

The Sustainable Forest Initiative is one of two initiatives begun in Pennsylvania to increase the number of Forestry Management Practices. SFI is a program introduced by the American Forest and Paper Association to persuade sawmills and pulp mills to only purchase logs that are harvested in a sustainable fashion. The program has already resulted in training hundreds of loggers, landowners, and other forest industry personnel to use best management practices for logging. By restricting the granting of permits to loggers that are participating in the SFI program, there is some assurance that best management practices are being followed. This will lead to optimum forest regeneration and renewal; residual stand protection; management of insects, disease and fire; and protection of site and water resource quality.

**20. Further the development of a Dirt and Gravel Roads Program throughout the watershed.**

Sediment loading into tributary waters throughout the watershed from borough and township dirt and gravel roads has a negative effect on water quality. This option would help to further develop the preliminary Dirt and Gravel Road program through education and providing resources to implement Best Management Practices (BMP). Specific BMP's could include drainage system improvements, upgrading existing stream culverts and erosion control structures, and improving road surfaces through the use of properly sized and more durable road aggregates.

**21. Initiate a Wellhead Protection Area study.**

This option would consist of conducting a study for the delineation of a Wellhead Protection Area(s) throughout the watershed. During the preparation of this plan, only one Wellhead Protection Area was delineated by the Eastern Armstrong County Municipal Authority (EACMA) for 3 wells located approximately 0.65 miles northeast of Elderton Borough along Route 210 in Plumcreek Township Armstrong County. In 2000, Indiana County completed a Water Supply Plan (WSP) and a Wellhead Protection Area study is a logical next step to complement the WSP.

***E. PLANNING***

**1. Form the Upper Crooked Creek Watershed Council of Governments (UCCWCOG).**

A Council of Governments (COG) is a voluntary association of local governments. The members regularly meet to exchange ideas and develop a common strategy to address regional problems. Any number of objectives can be accomplished through the formation of a COG, including multi-municipal comprehensive planning, code enforcement, equipment sharing, and cooperative purchasing to name a few.

## **2. Encourage municipalities to enact a timber harvest ordinance.**

As of 1992, approximately 135 municipalities in Pennsylvania had timber-harvesting ordinances. A timber-harvesting ordinance can be an extremely effective way of managing timbering in a municipality. However, as with all ordinances, the ordinance is only as good as its enforcement. Model ordinances can be obtained by contacting the Pennsylvania Township's Association or the internet. Timber harvesting ordinances are recommended as long as the Right to Practice Forestry Act is not violated and the municipality has the resources to properly enforce the ordinance.

## **3. Encourage private landowners to develop forest management plans.**

The goal of Pennsylvania's Forest Stewardship Program is to encourage more private forest landowners to have written forest management plans. While a large percentage of private forestland owners do not intend to use their land for timbering, private land it is often the first resource that is tapped during times of financial trouble. While the land is theirs to use, it is important for landowners to understand forest management and incorporate best management practices into their forest management.

## **4. Adopt most current and applicable Floodplain Management Ordinances.**

Violations of floodplain development ordinances are prevalent with the study area. Often, community officials and the public are not aware of the importance of protecting floodplains from encroachments. However, simple outreach efforts, such as introducing a one-half hour program on the importance of floodplain integrity during a municipal council meeting, would increase awareness of the need for floodplain preservation. Following this option, a municipal council member would contact an ACOE, FEMA, or Crooked Creek Watershed Association representative to discuss floodplain functions and values at the meeting.

To control development in the floodplain, as required if a municipality wants to participate in the National Flood Insurance Program, an up-to-date ordinance should be adopted. The provisions could be included in a zoning ordinance; however, because none of the municipalities in the watershed have zoning, a stand alone a Floodplain Management Ordinance should be adopted. The state provides several model ordinances to choose from depending on which situation best suits the municipality. Because none of the municipalities have zoning, the model found in Appendix B is best suited for the municipalities in the watershed.

## **5. Educate the public on the connection between land use and planning by holding public workshops on the county comprehensive planning process.**

Due to the economic status of many corridor communities, planning often does not work as efficiently as it should. In many southwestern Pennsylvania communities, ordinances are frequently changed to accommodate developers and businesses, which conflict with published future land use plans. This pattern has left many of these communities with ordinances which do not consider future regional plans or trends. Future developments within the project area should adhere to a municipality's future land use plans, or to the future land use plan of the appropriate county.

## **6. Encourage municipalities that do not adopt zoning to develop an Official Map.**

For communities that do not wish to implement zoning, an Official Map can be used as a basis to designate land for future public use, but with less enforceable power than a zoning ordinance. Municipalities wishing to adopt an Official Map should follow the guidelines prescribed in Article IV of the Pennsylvania

Municipalities Planning Code. Developing an Official Map as a land use technique can enhance planning by aiding local municipalities in highlighting development opportunities, planning for the overall use of the riverfront, planning for the land acquisitions, and identifying significant cultural and environmental resources for enhancements. Due to the intent of the riverfront overlay district, there would be little liability and enforcement issues normally associated with typical zoning.

### **7. Develop Multi-Municipal Comprehensive Plans for communities in the watershed.**

Comprehensive plans provide an information base that can be used as a tool for guiding future development and land use. Relevant issues such as housing, land use, economic development, community facilities and services, transportation facilities and recreational amenities are typically reviewed to formulate future plans. Multi-municipal comprehensive plans lay the groundwork for regional development strategies. In recent years, the Pennsylvania Department of Community and Economic Development has actively supported regional comprehensive plans, which combine multi-municipal resources.

### **8. Institute municipal solid waste co-composting.**

Composting of municipal solid waste has been identified by the U.S. Environmental Protection Agency as preferential to land filling and waste-to-energy. This project would provide an opportunity to demonstrate that municipal waste composting is both technically and economically feasible for many municipalities.

The goal is to develop a centrally located, in-county, municipal waste co-composting facility to achieve the following benefits:

- to provide waste processing technology that is well-suited to the highly degradable municipal and agricultural organic waste;
- to provide a long term disposal system for the disposal of municipal wastewater treatment plant sludge and septic tank pumpings;
- to provide a strategy for increasing the rate of recycling while minimizing the cost, and at the same time, reducing the county's reliance on landfilling;
- to provide a strategy for collecting hazardous household waste materials;
- to reduce the transportation costs incurred by county residents in hauling waste to out of county disposal sites;
- to provide a long-term waste management strategy that will respond and serve county needs and reduce projected wastes system costs.

### **9. Develop additional Agricultural Security Areas (ASA) designations.**

A way to conserve agricultural land within the watershed is to develop Agricultural Security Areas (ASA). PA Act 43, Agricultural Area Security Law, has authorized these areas. A landowner or a group of landowners whose land comprises at least 250 acres may apply to their local government for the designation of an ASA. The parcels must be viable agricultural land and may be comprised of non-contiguous tracts at least 10 acres in size.

The ASA designation encourages the preservation of agricultural land by giving the landowner protection from local ordinances that restrict farm practices unless a public safety hazard exists. The ASA also protects the area from nuisance ordinances. Additionally, the designation limits condemnation procedures and eminent domain by state and local agencies unless approved by the Agricultural Condemnation Ap-

proval Board. The ASA designation is not a permanent designation but rather land with an ASA designation is reviewed every seven years, which may be desirable for some municipalities and landowners. As of October 1999, there were 824 ASAs in PA totalling over 3.2 million acres.

#### **10. Develop and enroll farms in agricultural assessment tax incentives.**

Differential assessment laws direct local governments to assess agricultural land for its agricultural value rather than its full market value, which is generally higher. Differential assessment laws are enacted at the state level and implemented at the local level.

The benefit of this program is that it decreases tax burden on farmers and allows agricultural operations to continue in the face of development, thus helping to ensure the economic viability of agriculture. These taxes align agricultural property taxes with what it actually costs local governments to provide services to the land.

This tax incentive is known as PA Act 319, as amended in 1998 as “Clean and Green”, designed to provide incentives to landowners for preserving land in agricultural use, agriculture reserve or forest reserve. This is a voluntary program that provides a financial disincentive to participating landowners who convert land to other than agricultural uses by making the land subject to rollback taxes and penalties. Currently, there are over five million acres enrolled in 48 counties.

#### **11. Encourage farms to register in PA’s Farm Link Program**

Pennsylvania’s Farm Link Program was initiated in 1994 through collaboration with the Rodale Institute, the Center of Local Government Services and Pennsylvania Farmer Magazine. The program was established to help reduce the rapid decline of farms throughout the state. The concept is to link prospective farmers with landowners who are interested in ensuring that their land remains in agricultural production.

The program helps the new farmers with start-up costs through creative agreements designed through the Farm Link Program. Options are made available to farmers wishing to enter or retire from the farming industry. Each link is different, but the end result is to increase the number of new family farmers in Pennsylvania.

In 1995, the Farm Link database, which is regularly reviewed and updated, had over 450 entering and retiring farmers. Workshops are held throughout the state to facilitate meeting of perspective matches.

#### **12. Prepare educational materials on the management of large scale animal operations.**

Although state and federal regulations provide a level of oversight that the Commonwealth greatly needs; they clearly do not address some of the concerns local communities have about industrial agriculture. These regulations do not address odor, dust, noise or other nuisances, water use, property value issues, long-term maintenance of operations, and the host of related concerns local communities most often express.

Other major regulatory programs such as air quality regulations and waste management regulations have generally not been applied to; or may have exemptions for agriculture uses. The protection of a community from these and other impacts of industrial agricultural businesses fall upon the local municipality.

The ability of local governments to regulate these operations is not without limitations. Townships who have created local ordinances most commonly encompass the following:

- specifically define the nature of the agricultural operation they wish to manage (so as not to punish family farmers) and clearly define characteristics of such operations;
- adopt a version of the PA CAFO regulations and the Nutrient Management Act at the municipal level to allow for local enforcement of the regulations;
- adopt more powerful enforcement tools including bonds and permit fees, as well as inspections;
- establish set-back requirements such as restrictions and building permit limitations;
- require water use and hydrology reports before facilities are constructed;
- require that operators obtain all relevant state and federal permits before building permits are issued.

**13. Encourage municipalities to establish compliance with existing sewage treatment regulations by preparing and updating formal Act 537 sewage facilities plans and prioritizing construction of sewage treatment facilities.**

Untreated and undertreated sewage effluent is a growing concern throughout the watershed. Many small communities in these rural areas simply cannot afford the development and implementation of Act 537 sewage facility plans. However, the development of a treatment plan is the first step towards regulatory compliance.

Funding is available through grants and reimbursements from PADEP. In addition, municipalities with official plans, as well as private landowners, may be eligible for funds through programs such as the Pennsylvania Infrastructure Investment Authority (PIIA) established by ACT 16. PIIA provides funding for community construction of new or upgraded water and sewer systems.

**14. Develop and implement a Dry Hydrant Program**

In any area without water mains and domestic fire hydrants, the dry hydrant concept can provide a simple, cost effective solution to the need for access to water sources without delay. A dry hydrant consists of an arrangement of piping with one end in the water and the other end extending to land and available for connection to a pump. Installation of dry hydrants into numerous nearby and developed water supplies eliminates the inefficiency and complexity of long-distance water shuttle operations. This arrangement also allows access to water sources from a roadway instead of having to work on soft ground immediately adjacent to the pond or stream.

***F. RECREATION***

**1. Develop directional and interpretive signs for display along the existing and proposed trails.**

This recommendation would consist of developing multiple types of signs, directing trail users to important locations within local communities, or identifying major regional cultural or natural attractions. For example, upon entering Indiana County from the north, a bicyclist on the Baker Trail would see one information display showing locations within Shelocta that might be of interest and are bike/pedestrian accessible (i.e., parks, historic sites, churches, restaurants, or bike shops). A second information display would show the distance to the other attractions, such as downtown Indiana. This second information display would also show highlights of the facilities within downtown Indiana. A third category of interpretive signs would

display significant cultural or natural resource sites, such as Blue Spruce County Park or Keystone Lake, identifying plant and animal species at each.

By using this approach to informational signing, CrCWA would enhance the trail experience for users and enable them to maximize their enjoyment during a given trip. In addition, this approach would allow trail users to venture off of the main trail and travel into the communities along it, enjoying what these towns have to offer and contributing to their local economy. It will also encourage trail users to plan future trips to the area by making them aware of the resources along the trail and within the watershed.

**2. Conduct feasibility studies, inventory, investigate, and acquire abandoned railroad right-of-way for new recreational trails and connections between existing or proposed trails, and investigate the possibility of rail-with-trail connections.**

By completing feasibility studies for future trail links, this recommendation would allow for the reuse of abandoned rail lines, an enjoyable sight-seeing tour of the towns and communities surrounding the area, and an increase in the quality of life for people living along; and using, the trail. Bicyclists, hikers, and walkers using the trail network would bring in more tourism and new economic opportunities. Residents within the study corridor would benefit from trail development through increased recreational opportunities and tourism revenues.

**3. Develop a comprehensive trail and greenway plan for the entire watershed.**

A greenway is a corridor of open space. There are many types of greenways ranging in size, environmental amenities, location and function. Types of greenways include conservation greenways, recreational greenways, riparian buffers, landscaped corridors, greenbelts, and natural areas. Linear greenways can provide conduits for wildlife mobility along corridors and suitable habitat.

A conservation greenway would be a beneficial option for the Crooked Creek Watershed. The primary function of a Conservation Greenway is to protect and enhance ecological values and functions of an open space, such as providing habitat for wildlife. A greenway along a stream corridor provides ecological benefits such as food, shelter, and cover to numerous species.

The county planning departments, along with the local municipal officials, citizens, and private property owners, should determine the greenway boundaries.

**4. Develop new or enhance existing fishing access areas in public areas.**

This could be accomplished through utilizing existing structures or providing new fishing access. Fishing groups and municipalities could partner to enhance or develop access areas.

**5. Repair the infrastructure of Cummings Dam.**

Indiana County has been requested by PADEP to develop a plan for repairing the intake/outtake valves on Cummings Dam. The existing valves date from the dam's original construction (1908) and are currently not operable.

To accomplish this, the County retained Gibson-Thomas Engineering to conduct a preliminary cost analysis. The results of this analysis indicated that the repair project would cost in excess of \$200,000. In addition to the valve replacement, there is a need to repair concrete spalling on the dam's surface. The

PADEP has not given an order to have the repairs done, but it is expected the County will eventually be issued a deadline to have the work completed.

At the time of this report, Cummings Dam was classified as a high hazard dam by PADEP due to its age. Annual inspections are conducted by the County engineer and the dam is currently considered to be structurally sound. An Emergency Action Plan has also been developed for the dam and is reviewed and updated every 2 years, as required by the PADEP.

An additional need for Cummings Dam is to consider removing silt from the upper portion of the lake. When the County acquired the park in 1966, the dam was drained and the accumulated silt was dredged. Since that time silt has been gradually filling in the upper portion of the lake, resulting in a loss of aquatic habitat and reducing the size of the lake. Erosion from gas well roads, township roads and the stream banks along Getty Run are all contributing factors to the siltation. A photo (taken around 1913) indicates the lake was approximately 15 acres (the current size is 12 acres), and since 1966 it has been estimated that about 1/2 acre of the lake has been lost to siltation.

#### **6. Acquire additional land surrounding Blue Spruce County Park.**

Blue Spruce Park is currently 413 acres in size. A strategy to acquire additional land surrounding the park has been recommended by the County Parks staff and Park Board to protect the park from encroachment and development. Acquiring additional property would allow the park to be sustained for future generations of park visitors and allow the park to function more effectively as a viable wildlife and natural habitat area.

It is anticipated that an offer to purchase 230 acres of additional parkland will be made by the County in the near future. This property is currently owned by Consol Energy (formerly R&P Coal Company). This additional property is significant because it contains a major portion of the park watershed and viewshed, and it is located immediately upstream within the park valley.

Additional property along the entrance road to the park (owned by Amerikohl) is also considered important for protecting the park. This property is comprised of five parcels totaling 176 acres. An additional property owned by Kreibal Resources (75 acres) is significant for protecting the park's western boundary.

#### **7. Initiate and implement efforts to enhance the Crooked Creek Watershed area as a destination for recreational and touring cyclists by promoting road improvements, signage and marketing, as well as the annual Indiana Five Points Bicycle Race.**

The Crooked Creek Watershed has long been one of the most popular regions within Indiana County for bicycling. The scenic landscape and gentle terrain, as well as the proximity to Indiana Borough have been conducive to attracting cyclists. Bicycling entities may work cooperatively to identify the more popular bicycling routes in the watershed. These designated routes can then be coordinated with PENNDOT's road maintenance schedule and improvement to these routes through projects such as paving, widening of shoulders and line painting. In addition, funding can be sought to develop and implement signs that would highlight these roads as bicycle routes.

The Indiana County Tourist Bureau's involvement would include enhancing the visibility of cycling in this area through marketing and promotional efforts. Tours could be based on themes in the Watershed such as covered bridges, farmland, bed and breakfasts, etc.