

## 8 Implementation and Management

Consideration of what it takes to implement the RCP is as important as the plan's content. Two types of considerations are involved: First are the technical and administrative components such as design, construction, inspection, maintenance, finance, and project component installation sequence. Second are the strategy and tactics for shepherding the RCP through bureaucratic and political processes. Project implementation involves flexibility, effective communication, sensitive leadership, consensus building, and in-house training among other areas of expertise. Successful implementation requires partnership building, funding arrangements, ongoing monitoring, evaluation, aftercare, education, and community outreach.

### Partners and Stakeholders

The most important element in rehabilitating and enhancing the watershed is people. The RCP requires the integrated efforts of many partners and stakeholders. Partners are organizations or people that cooperate or share resources in pursuit of common goals or objectives. Stakeholders are all people who reside, work, or play in a watershed. They range from very strong partners and enthusiastic stakeholders to peripheral participants. Through a shared vision, stakeholders of all degrees can be advocates for Paxton Creek watershed.

Paxton Creek watershed improvements will involve dozens of partners and over 80,000 stakeholders. They are from the private and public sectors, profit and non-profit organizations, and municipal, state, and federal agencies. In regard to the RCP, they will provide resources, regulate activities, help plan and carry out actions, and extend consolation when things don't work out. They are at all levels. The groups are a mixture of nonprofit, service, governmental, business, and educational organizations. (Table 8.0)



Planting Rain Garden

### Partnership Expansion

As implementation proceeds, additional partners are needed to address watershed problems and enhancement opportunities. These partners can be of the following types: business and economic organizations, service organizations, educational institutions, churches and clubs, sports groups, trade groups, nongovernmental organizations, government agencies, and politicians. Every vocation and avocation can contribute to implementation of the RCP. (Table 8.0)

Many practices are necessary for reinforcing relationships with partners. These approaches include more frequent and targeted communications (interactions through a coordination steering committee), and creation of various kinds of honors and awards for recognizing partner contributions. Table 8.3 provides examples of strategies and tactics that contain these options.

***“For maximum benefit partners need to become stakeholders (if they aren’t), and participating stakeholders need to become partners!”***

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**Table 8.0 Stakeholder Participation Opportunities**

| Potential Activity  | Potential Area Partners   |
|---|---|
| Watershed awareness campaign  | Publicity & ad agencies, churches, bars, sportsmen, Scouts, schools, restaurants, media companies   |
| Fact sheets, BMP flyers   | Institutes, engineering associations, schools, accounting firms, printers   |
| Plan and project videos, oral history CDs   | Schools, photography clubs, historical societies, retirement centers, churches, libraries   |
| Headwaters hoe-down dance (featuring Wildwood Stomp) fund raisers                   | Dance groups, recreation associations, social clubs, musicians  |
| Adopt-a-stream reaches, and/or periodic creek cleanup/protection                    | Service & sportsman clubs, Alliance for the Chesapeake Bay (ACB), Scouts, trade associations, Susquehanna River Basin Commission (SRBC)   |
| Watershed Day, festivals, watershed driving tours                                   | Environmental agencies, American Automobile Association, auto dealers, driving schools, Olewine Nature Center (ONC), historical groups, environmental organizations                             |
| Better Site Design (conservation) ordinances  | ACB, municipalities, builders associations, Dauphin County Conservation District (DCCD), Department of Environmental Protection (DEP), engineering consultants                                  |
| Formal and nonformal education grants, initiatives                                  | School districts, home/charter/private schools, tradesmen, technical education institutes, colleges, National Science Foundation,   |
| Midwinter Macros & Creek Critter Safaris/other education                            | Environmental organizations, ONC, Harrisburg Area Community College (HACC), DEP, DCNR, Trout Unlimited, Dauphin County Conservation District (DCCD)   |
| Creek channel rehabilitation  | Excavators, engineering consultants, schools, sportsmen associations, nurseries, garden centers, garden clubs, Department of Environmental Protection (DEP), Canaan Valley Institute (CVI), ACB |
| Watershed monitoring & mentoring  | PA Senior Environment Corps, watershed associations, DEP, schools, US Geological Survey, PA Geological Survey, SRBC   |
| Riparian buffers, conservation easements, & transfer/purchase of development rights | Schools, garden clubs, lawyers, Central PA & Manada Conservancies, conservation groups, Chesapeake Bay Foundation, PA Land Trust Association, engineering consultants, CVI, DCCD                |
| Surprising watershed views, trails, & miniparks                                     | Garden clubs, schools, Harrisburg Civic Club, Department of Conservation and Natural Resources, governmental recreation departments, Capital View Commerce Center                               |
| Land & waters protection & pollution seminars, workshops, & tours                   | HACC, municipalities, DCCD, Pennsylvania Environmental Council, DEP, planning agencies  |

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Monitoring Partners

The point is there is something for just about everybody. If responsibilities can be shared, and people have common watershed goals, most will support the creek revitalization efforts. The next paragraphs describe the anticipated roles (3 each) of partners in helping implement the RCP.

### *Local Government: Municipalities and Dauphin County Officials*

- 1 Incorporate creek use and rehabilitation in municipal decision making (stormwater runoff, water quality improvement, creek-based recreation)
- 2 Revise municipal comprehensive plans and ordinances to reflect Paxton Creek Roundtable principles (required buffers, stormwater infiltration)
- 3 Encourage land owners and developers to implement the conservation design principles of the Roundtable

### *Regional Organizations: Susquehanna River Basin Commission, Canaan Valley Institute*

- 1 Promote intermunicipal actions in integrated water resource planning and management
- 2 Provide technical, administrative, and funding assistance for RCP programs such as stormwater infiltration and education outreach
- 3 Use the Paxton Creek watershed for urban BMP applications

### *Dauphin County Conservation District*

- 1 Encourage and actively promote administration of Roundtable principles by municipalities and land developers

- 2 Help accelerate BMP techniques associated with Roundtable principles
- 3 Continue guidance on stormwater management, water quality improvement and related topics for the watershed municipalities & county  
*Builders and Trade Professionals: Home Builders Association of Metropolitan Harrisburg, Construction Contractors, Consultants*

- 1 Adopt and implement Roundtable principles in construction practices
- 2 Encourage municipalities and their advisors of the need for new development approaches incorporating BMPs and Roundtable principles
- 3 Assist and participate in the community RCP projects

### *State and Federal Agencies: PA Departments of Environmental Protection and Conservation and Natural Resources; US Environmental Protection Agency, US Geological Survey*

- 1 Provide technical guidance, funding assistance, and permit facilitation for RCP projects and programs
- 2 Promote and provide resources to assist municipalities in adopting integrative, effective land and water management ordinances
- 3 Assist in equipment, finance, and training for water quality monitoring and BMP evaluation

### *Environmental and Education Advocates: Alliance for the Chesapeake Bay, Harrisburg Area Community College, Central Penn Conservancy, School Districts*

- 1 Participate in joint projects and funding proposals for watershed improvement initiatives, education, mentoring and stewardship
- 2 Serve as supporting organizations in RCP projects involving watershed protection and enhancement, various BMPs, and education initiatives
- 3 Assist watershed municipalities in integrating watershed resources, concerns, and issues with those of the communities

### *Land Owners and Managers: Private Property Owners, Home Owner Associations*

- 1 Facilitate the installation of BMPs that are beneficial to both the property owners and the community
- 2 Participate with labor, money or in-kind resources on RCP projects
- 3 Increase awareness and understanding of watershed workings: the first step in watershed stewardship.

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## Current

### RCP Organizational

**Partners: local** - schools (Harrisburg Area Community College, Londonderry School, Harrisburg and Central Dauphin School Districts), Boy and Cub Scouts (Pack and Troop 360), businesses (Hornung's Ace Hardware, Smith Paint Products; KUTCO Printing and Products), consultants (Skelly and Loy; Herbert, Rowland and Grubic), Dauphin County Conservation District, Dauphin County Parks and Recreation, municipal and county staff and officials (Dauphin County, Penbrook Borough, City of Harrisburg, Lower Paxton and Susquehanna Townships), The Harrisburg Authority, the Home Builders Association for Metropolitan Harrisburg, PPL Electric Utilities, Retired Seniors Volunteer Program, Trout Unlimited, Tri-County Regional Planning Commission, United Water, other organizations;

**state** - governmental politicians (Reps Ron Marsico and Sen. Jeffrey Piccola), Pennsylvania Department of Environmental Protection, Pennsylvania Department of Conservation and Natural Resources, Entomological Society of Pennsylvania, Pennsylvania Environmental Council, Pennsylvania Environmental Foundation (Greenworks); **region** - Canaan Valley Institute, Chesapeake Bay Foundation, Susquehanna River Basin Commission, Alliance for the Chesapeake Bay;

**nation** - U.S. Representative Tim Holden, Center for Watershed Protection, National Fish and Wildlife Foundation, United States Geological Survey (USGS), United State Environmental Protection Agency (EPA), The Nature Conservancy, The American Clean Water Foundation.

**Figure 8.0 Current PCWEA Partners**

## Creek Supporters Lead Wave

It would take a huge earthquake, asteroid impact, or whatever to make a big wave in usually shallow Paxton Creek. One of a different kind—people is expected to implement the RCP. The current supporters will lead this wave. These people are at all levels: local, state, regional, and national organizations. (Figure 8.0) They range from Cub Scouts and middle school pupils, to professionals and agency officials. Several changes in the support base are likely to occur: broader PCWEA membership and additional participant groups (churches, sportsmen, politicians, government officials) currently under-represented, and those of local focus (residents, professional businesses persons in project subwatersheds).



Clearing Creek Debris

# Implementation and Management



Installing Flow Level Gauge

## Community Outreach and Stewardship

People across the watershed community in all four municipalities need to share the common vision portrayed in the RCP. This will be promoted through various types of outreach activities. The plan will be launched following municipal approvals, but full support will come later as people see projects unfold on the landscape and develop an increased awareness of the watershed. Stewardship is the key word. It means taking responsibility for maintaining a healthy balance between human activities and watershed resources. Paxton Creek needs more stewards like the late Ralph Kinter of Lower Paxton Township:

*Ralph maintained 3 miles of the Appalachian Trail on his own for nearly a quarter century. When his health no longer allowed him to remove fallen trees and perform other physically arduous tasks, he adopted responsibility for wetlands as in Wildwood Lake Sanctuary. He taught himself wetland botany, and became so proficient that no experts would challenge his assessments. (Dollard, 2002)*

## Education

Education has been a focus of PCWEA from the outset, as is shown in the Association's name, web site (teachers' database), and this RCP (Watershed Basics 101). The RCP envisions three types of education: messages to build further awareness about watershed issues; technical training of PCWEA members and others; integration of formal and nonformal educational programs.

Educational awareness activities and events were conducted almost monthly for the three calendar years by PCWEA. These included workshops, tours, library displays, conference presentations, creek cleanups, buffer plantings, quarterly newsletters, web site postings, teaching database, brochures, booklets and flyers on the RCP and Best Management Practices. The brochure *Are You Loving Paxton Creek to Death?*, slide shows, and flyers were prepared for this RCP. Similar efforts are likely to be done during the RCP implementation. Various technical training will have additional emphases. Some training will occur through workshops sponsored by other organizations, while other training will be in-house, or assisted by/conducted with organizations such as Canaan Valley Institute, the Department of Environmental Protection, Dauphin County Conservation District, and the United States Geological Survey. During the latter part of Phase I, formal (school curriculum) and nonformal education resources (trade skills) will be integrated into the RCP.



Studying Detention Pond

# Implementation and Management

## Plan Evaluation and Indicators

Ongoing evaluation of the RCP is crucial to its success. The RCP is a dynamic document and will be adjusted as its progress is monitored and new information is acquired. The evaluation process documents achievements, establishes a basis for future financial support, increases credibility of the plan, strengthens PCWEA partnerships, and provides accountability to the public and participants. It measures short and long-term success, while also revealing weaknesses that need to be addressed. Performance assessment and adaptive management will be used to answer a series of questions. What worked? Were crucial issues and areas addressed? Were there unanticipated results, occurrences, or obstacles? Was the allocation/reallocation of RCP resources the wisest use?

Indicators constitute the basis upon which plan actions are evaluated. They can be both quantitative (numbers) and qualitative (sensory perceptions). A set of proposed indicators for Paxton Creek watershed rehabilitation and enhancement are organized along the themes of the RCP goals. (Table 8.1) During the initial RCP implementation period, these indicators will be assessed for their usefulness and continued inclusion in the evaluation process.

An immediate shortcoming is lack of numbers. Until certain information is known (creek flows, pollution loads of each subwatershed), indicators such as amount of impervious surface to remove, and areas of infiltration to prepare can not be determined, making performance objectives little more than guesses.

**Table 8.1 Evaluation Indicators: Partial List**

| Goal  | Indicators  |
|---|---|
| Improve Water Quality                                       | Pollutants reduction (mg/L, pounds), CSOs separated (no.), stormwater facilities retrofitted (no.).   |
| Reduce Runoff & Flooding                                    | Stream flows altered (cu ft/sec), reduced peak flows, (feet), Impervious cover reduced (acres).       |
| Reduce Erosion/Sedimentation & Creek Channel Rehabilitation | Erosion reduced (tons, inches, %), Reaches Rehabilitated (feet).                                      |
| Conserve Riparian Habitat & Forest                          | Amount buffer planted (feet, acres), Easements and development rights transferred or purchased (no.). |
| Protect Open (Green) Space & Mountain Lands                 | Land area protected (acres), Municipalities with adequate protection ordinances (no.).                |
| Support Urban Revelopment                                   | Miniparks, buffers, trails, conservation landscaping areas Installed (no., area, length).             |
| Enhance Creek-based Recreation                              | Day lighting, minipark, trail projects, special facilities (no., area).                               |
| Promote Watershed Awareness, Understanding & Stewardship    | Flyers, fact sheets, booklets (no.). Talks/workshops/training (no., hrs).                             |
| Conduct Creek-based Education                               | Private-public partnerships (no.), instruction session per educational mode (no., hrs).               |

Note: CSOs, combined sewer outlets

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Testing Habitat Assessment Protocol

## Monitoring

Through RCP monitoring, changes to the watershed and RCP impacts will become evident. Anticipated are five monitoring approaches: project tracking and assessment, long-term sentinel stations, performance monitoring, special studies, and site and incident checking.

The tracking system will chronicle the progress of specific projects, record the fates of their components, and point toward problems and opportunities for future projects. In sentinel monitoring, selected indicators are measured at fixed stations for long time periods. Data from these stations should show the extent of changed watershed conditions and, perhaps, the aggregate impacts of multiple projects. Most of these stations are located where 17 staff gauges are installed throughout the watershed. Performance monitoring will be used to assess how well specific rehabilitative practices work. Besides BMP effectiveness, additional considerations are involved (design certification, construction quality, agency permits). Site and incident checking is preliminary, ballpark monitoring. It is needed from time to time to check environmental conditions,

and to respond to reported problems such as spills and seepages. Usually it is performed by volunteers with testing kits. Special monitoring studies (flows, sediment, chemical pollutants) are efforts apart from regular monitoring that require different equipment, personnel, procedures, schedules, and even scope (perhaps, the whole watershed at once!).

The RCP looks at overall watershed health, with initial emphasis upon the Paxton Creek North subwatersheds. Continuing monitoring and assessments during Phase 1 will be needed for the additional nine subwatersheds using the riparian (USA) and upland (USSR) protocols, similar to work done in Upper and Lower Paxton Creek North subwatersheds.

## Plan Aftercare and Maintenance

The RCP will not succeed simply because it's been adopted and approved. Things done after the plan is adopted, a phase called *aftercare* is necessary to carry out the plan's action agenda, build the public's acceptance of the RCP, and refine the plan far into the future. Aftercare activities may also include ancillary actions that complement the RCP, such as providing assistance to municipal planning groups, promoting better site design principles for new development, and getting the RCP on the Pennsylvania Rivers Registry (which enhances funding opportunities).

A particular concern is maintenance of the on-the-ground projects. Stormwater facilities can degrade with age, and vegetated areas can become susceptible to invasive species, damage by browsing deer, and suffer other fates. Depending on the type of project, regular maintenance may be required, and may be extensive. Requiring maintenance provisions at the design stage, and establishing memoranda of understanding for maintenance responsibilities are two options to ensure the long term integrity of facilities and natural areas. Maintenance would also be enhanced by a stormwater utility. This inter-municipal utility could function similar to wastewater management authorities, have responsibility for most, if not all, of the entire watershed, and involve additional municipalities because of artificial, but minor, stormwater exchanges occurring between Paxton Creek and an adjacent watershed.

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Rehabilitation, Riparian Reforestation and Flood Control Site

## Finance and Funding Sources

A finance strategy is necessary to tackle the enormous cost of watershed recovery (\$12.4 million, a partial estimate). This strategy starts with actions that will build the PCWEA capacity to raise funds and resources necessary to get the job done. It comes back to the main element of implementation: partnerships. Public-private partnerships are the key to financing RCP implementation. All watershed resources are needed for creek rehabilitation, protection, and enhancement, from support by restaurants to schools, trades, and professions. RCP finance will be achieved under the following guidelines:

- ☑ Market-based solutions will be sought for the watershed problems.
- ☑ Watershed protection and enhancement will be compatible, and consistent with community goals;
- ☑ Funding resources will be coordinated and leveraged so as to insure long-term financial sustainability;
- ☑ Close cooperation with agencies and partners will be developed so as to avoid duplication of efforts and waste;
- ☑ Watershed rehabilitation will support Pennsylvania priorities in regards to allowable pollution levels (Total Maximum Daily Loads) determined for Paxton Creek, and Tributary Strategies for the Chesapeake Bay;
- ☑ Public-private partnerships will be a focus.
- ☑ Partners will be approached to contribute money and in-kind resources on a *rotational* basis, so partners are not contacted unduly or too often an approach implemented in the initial 3 years of the RCP.

For the near future, project support will depend on monetary grants and local resources, the latter mainly in the form of in-kind labor and equipment. The medium and long-term viability of the RCP anticipates a strategic shift of funding resources to the private sector, with grants serving only seed purposes. The Appendix contains annotated lists of potential partners at all levels.

In time, perhaps, Phase II stormwater management for Paxton Creek may be conducted by an authority or intermunicipal utility with tax-based funding. The stakeholder and landowner survey respondents indicated support for this funding option. If the utility is established, effectively reduces stormwater flows, enhances surface water quality, and reduces flooding, major stormwater efforts by PCWEA may no longer be necessary. Other watershed protection and enhancement activities (recreation, development, education) will be needed in work that likely will require decades.

## Integration

Table 8.2 brings together summary details on the initial projects to get the RCP underway (project names, subwatersheds, activity/project types, goals, objectives, costs, participants). Attachment RCP-3 contains similar information on another 21 priority projects, together with a long list of strategies and tactics for implementing them. Table 8.3 presents a sample of these strategies and tactics—all to create the watershed of promise: Paxton Creek!



Ancient Paxton Creek *Ichthystickungus* fish?



**Table 8.3 Illustrative Strategies and Tactics**

### *Partners and Stakeholders*

**Form an RCP implementation steering committee** through invitations to leaders of organizations to attend PCWEA events, or participate in their meetings to discuss the benefits of plan implementation for them, together with the PCWEA mission and activities.

**Design an award program for major businesses participating** in stormwater management or other watershed achievements, perhaps involving plaques and certificates, coupled to publicity for cooperative businesses.

### *Community Outreach and Stewardship*

**Distribute the RCP** to municipalities, state agencies, libraries, major private implementation partners, and other interested stakeholders.

**Prepare communication modules introducing the RCP to service clubs, schools, and community organizations** at their meetings and other activities.

### *Education and Training*

**Make programs on RCP and BMP implementation** geared to specific categories of stakeholders (levels of awareness, interest, understanding) and specific subwatersheds

**Sponsor a compilation CD** featuring music, oral histories, stories and other pieces to promote watershed awareness through education.

**Train PCWEA teams for recruiting potential partners for various initiatives** (projects, conservation easements) illustrating participant benefits and watershed needs.

### *Plan Evaluation*

**Form a core group to conduct annual performance assessments** by persons involved for multiple years to achieve evaluation continuity.

**Compile an annual State of the Watershed Report** on plan progress, review of the previous year's activities, and projected future

### *Monitoring*

**Create databases for monitoring results** which typically involve compilation of computer spreadsheets, with procedures for timely data reporting and posting.

**Develop data quality management and quality assurance project plans** to make data consistent, reliable, and well documented.

### *Plan Aftercare*

**Inform agency contacts about the RCP release, contents, and needs, while expressing** future interactions and opportunities.

**Prepare key generic proposal components** in anticipation of rapid response to grant opportunities

### *Maintenance*

**Make maintenance provisions part of the design and installation process** of the RCP, so maintenance is considered from the outset.

**Arrange routine maintenance** by community organizations (service clubs, schools, sports Clubs) so as to spread responsibilities among partners and build community ownership.

### *Finance*

**Make arrangements with a major partner to administer a large grant** that will complete watershed data needs and assist in establishing the financial approach of the RCP.

**Enhance relationships with funding organizations** through frequent up-to-date advisements and progress briefings, tours, and invitations to activities and events such as annual State of the Watershed Reports.