

# **Regional and Collaborative Approaches to Water, Sewer, and Stormwater Management in Pennsylvania**



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# Regional and Collaborative Approaches to Water, Sewer, and Stormwater Management in Pennsylvania

Lessons from Pennsylvania Communities  
Presented by the Environmental Law Institute and  
10,000 Friends of Pennsylvania

## INTRODUCTION

On May 22, 2008, experts and citizens from across Pennsylvania gathered in Harrisburg to examine working examples of collaborative municipal and regional approaches to water resources and infrastructure management.<sup>1</sup> Although Pennsylvania laws and policies could further support smart use and management of the Commonwealth's water resources, there are already many positive experiences arising from cooperation across municipal boundaries.

10,000 Friends of Pennsylvania's vice president Ed Wilson highlighted a number of the key considerations for the conference, noting that "few factors influence development patterns more than the way we invest in transportation and water-related infrastructure." Wilson referenced two studies by 10,000 Friends – *Sewage Facilities and Land Development* (2005), and *Water and Growth* (2008) to highlight the importance of water-related resource investments to the growth and health of Pennsylvania communities.<sup>2</sup> "When it comes to the policies and practices that govern water infrastructure, business as usual is not an option. The costs we're facing are too great, and our resources too limited, to be content with the status quo."

Wilson suggested four principles to guide water-related infrastructure reinvestment:

- First, our investments should be **efficient**. That includes taking full advantage of past investments by focusing on repairing and upgrading existing infrastructure, and limiting the need for costly infrastructure extensions.
- Second, our reinvestment policies should be **equitable**. Older communities typically have the oldest infrastructure and the greatest need for upgrades, and many of them are facing expensive government mandates. These same communities typically have poorer populations and mounting fiscal problems. Care must be taken to ensure that the costs of infrastructure improvements don't fall disproportionately on those least able to bear them.
- Third, our investments should be **financially sustainable**. To avert future funding crises like the one we're facing now, we must budget for the eventual replacement of worn out assets and adopt full-cost pricing policies that build future maintenance costs into current rate structures.
- And fourth, our reinvestment policies should be **environmentally sustainable**. To ensure that water remains clean and plentiful, we need to recognize that water infrastructure operates within natural hydrological systems,

and should be managed so as to respect and protect those systems.

These principles will become increasingly important as the Commonwealth considers the forthcoming report of the governor's Sustainable Water Infrastructure Task Force, and begins to implement the new State Water Plan prepared over a six-year process under Pennsylvania's Act 220. In order to apply these principles, it will be necessary to break down the traditional approaches that "for the most part, treat drinking water, wastewater, stormwater and surface water as separate domains, none of which are well integrated with land use," Wilson noted. State-level policy reforms will be needed, but all around Pennsylvania "communities are reaching across boundaries, both geographic and institutional, to develop innovative ways to meet their water, sewer and stormwater challenges."

This brief report identifies highlights of many of these efforts, and lessons that they offer Pennsylvania policymakers.

## COOPERATING ON WATER RESOURCES MANAGEMENT

Experiments in cooperation and connecting water and sewer decisions with watersheds and land use decisions offer some useful lessons and opportunities.

Cory Miller, Executive Director of the University Area Joint Authority in **Centre County**, described a regional approach to infrastructure involving the authority, six municipalities, and other partners. He contrasted the "traditional approach" where you determine service needs, meet DEP

requirements, and do whatever you need to do to meet design requirements at least cost, with a new approach that instead examines "greatest benefit." This approach takes into account a longer planning horizon and larger geographic area, and avoids the need for repeated upgrades and unpleasant surprises as regulatory and watershed requirements change. The Centre Region municipalities designated areas for sewer service and zoning across the region by a regional comprehensive plan;<sup>3</sup> and then the Act 537 Sewage Facilities Plan adheres to that plan. The municipalities follow the plan; so does the Authority and DEP. The municipalities agreed to decide sewer service by unanimous consent of the participants, and also mutually not to rezone land outside the growth area without such consent.<sup>4</sup> This has provided predictability, stability to infrastructure planning, and prediction of rates. It has supported the ability to plan for water reuse and avoid dewatering stretches of Spring Creek – the waterway that provides drinking water and for discharge of treated wastewater. The approach relies heavily on an active Council of Governments and brings the environmental groups into the process so that everyone is inside the process rather than looking on from the outside. The process includes monthly infrastructure coordinating meetings. The economic benefits have included unanimous approval by the COG of a more expensive upfront investment that has avoided long-term costs, and has already met Chesapeake Bay tributary requirements.

Aurel Arndt, General Manager and CEO of the **Lehigh County**

Authority,<sup>5</sup> described an approach to providing water and wastewater services in 15 municipalities in parts of Lehigh and Northampton Counties. Acquisitions of smaller and nonviable water suppliers, and expansion of services to adjacent municipalities have improved efficiencies and have obviated the need of rural municipalities to create their own new service entities. Particularly interesting is the development of a multi-municipal land use plan under the year 2000 amendments to Pennsylvania's Municipalities Planning Code. The multi-municipal plan established areas in which public services are to be provided. The Northern Lehigh Sewer Study Area plan then identified cost savings alternatives based on serving areas in the land use plan. Water supply planning takes into account alternative scenarios for growth. This analysis shows substantially less expensive household rates for strategies that use sub-regional service consolidation or regional consolidation than for straight projection of growth in services from the status quo. Optimizing treatment capacity costs, controlling business risks, achieving economies of scale in rehabilitation and replacement of facilities, and realizing efficiencies in the labor force can all be projected.

John Schombert, Executive Director of Three Rivers Wet Weather, Inc., a nonprofit manager of cooperative municipal responses to combined sewer overflows in **Allegheny County**, described how 83 municipalities including the City of Pittsburgh achieved economies of scale and a common understanding of system needs for 4000 miles of municipally-owned collector

sewers.<sup>6</sup> The collaborative approach made it possible to negotiate consent decrees, to develop and submit required plans, to map facilities in a common way, to conduct regional flow monitoring, and to save tens of millions of dollars as a result of acting regionally and as part of a networked system, rather than each municipality going it alone and imposing higher costs on its own taxpayers and ratepayers. Regional flow monitoring design and operation alone saved more than \$15 million due to more sensitive placement of monitors and avoidance of duplication.

#### COOPERATIVE STORMWATER PLANNING AND MANAGEMENT INITIATIVES

Timothy Rogers, Manager of Shaler Township, discussed a cooperative stormwater planning project of the North Hills Council of Governments, which serves 19 municipalities in **Allegheny and Butler Counties**, north of Pittsburgh. Previous approaches to stormwater management, which focused on "getting stormwater to the river as soon as possible," have helped render this area prone to flooding. Working with DEP, municipalities in the region jointly developed an Act 167 stormwater management plan. The plan has resulted in adoption of a uniform stormwater management ordinance by participating municipalities which, in addition to reducing flood hazards, helps developers by clarifying expectations. Intergovernmental cooperation agreements have facilitated shared services.

Dale Kratzer, Vice President of Spotts, Stevens and McCoy, Inc., spoke about a collaborative approach to developing and implementing a municipal separate storm sewer system (MS4) management program in **Berks County**. With leadership from the county, a steering committee was formed to explore opportunities for regional cooperation in stormwater management. The committee found that a cooperative MS4 program would not only provide a unified technical and ordinance approach to stormwater management, but would also eliminate redundancies that would occur if each municipality developed its own program independently. Analysis revealed preparation and implementation of MS4 programs by individual municipalities would cost each \$39,800, compared to just \$16,500 under a county-wide program. Forty-five of the county's 47 municipalities have chosen to participate in the cooperative MS4 program.

Andrew Gavin, Chief of the Restoration and Protection Section, Susquehanna River Basin Commission, described a model stormwater management project for the Paxton Creek Watershed in **Dauphin County**.<sup>7</sup> This 27 square-mile watershed, which includes portions of Harrisburg and two nearby townships, is a major source of pollution, producing some of the highest phosphorus and sediment yields in the Susquehanna Basin. Funded by EPA through June 2009, the Paxton Creek project is exploring the use of innovative stormwater management practices that are cost-effective, sustainable and transferable. It involves a wide range of public and private sector partners and includes three

components: an education and outreach campaign, on-the-ground demonstration projects to improve water quality, and a management study to assess lessons learned and disseminate the results to promote inter-governmental cooperation.

## EFFICIENCIES THROUGH AUTHORITIES/INTEGRATED PLANS

Curt Fontaine of the Municipal Authority of **Westmoreland County** (MAWC) discussed how regional consolidation has helped this organization provide quality water service at relatively low rates in a thousand square mile service area.<sup>8</sup> Established in 1942, MAWC has gradually expanded its service territory by acquiring small municipal systems, so that it now provides water to more than 119,000 customers in 76 municipalities in parts of 5 counties, offers fire protection services, and has begun to acquire and operate wastewater systems. MAWC's residential water rates, which have remained fairly stable, are less than those of other major water providers in Pennsylvania. Consolidated operations have helped the authority provide reliable service and reinvest in the system while eliminating redundancy and achieving economies of scale.

Drew Shaw, Chief of Environmental Planning at the **Montgomery County** Planning Commission, discussed an integrated resource plan (IRP) for the Swamp Creek/Scioto Creek watershed, a small sub-basin of the Perkiomen Creek. The watershed is within an area that has experienced groundwater supply problems which the Delaware River Basin

Commission (DRBC) has addressed by establishing groundwater withdrawal limits. The IRP was designed to test those withdrawal limits and develop recommendations for ensuring sufficient water resources in the future. Phase I, funded by DRBC, focused on data collection. Phase II, funded by DRBC and the William Penn Foundation, has involved development of the plan, working with local municipalities to implement the plan's recommendation, and preparation of a "how-to" manual providing guidance to other communities interested in developing integrated water resource plans.<sup>9</sup> The municipalities are adopting the Swamp Scioto Integrated Water Resources Plan.

Jan Bowers, Executive Director of the **Chester County** Water Resources Authority (CCWRA), described the role of this unusual agency.<sup>10</sup> Established in 1961, CCWRA is structured as a "municipal authority"; but unlike most water authorities, it does not provide water or sewer services and does not collect customer fees. Instead, it manages four regional flood control facilities, a regional water supply reservoir, and more than 400 acres of riparian land. In addition, CCWRA acts as a scientific and technical "authority" on water resources issues, thanks to a strong partnership with the US Geological Survey. The CCWRA views water as an integral part of the landscape of decision-making. It led the development of *Watersheds*, a county-wide integrated water resources plan completed in 2002, and has recently initiated an Act 167 stormwater management plan for Chester County.

## COLLABORATIVE EFFORTS TO ENGAGE THE PUBLIC

Managing water resources and solving water problems is difficult without public awareness and support. Pennsylvania groups and communities have pioneered some innovative ways to engage citizens in responsibility for their waters.

Lebanon County Commissioner Jo Ellen Litz described the benefits of building public support in the Swatara Creek watershed in **Lebanon, Schuylkill, Berks, and Dauphin Counties**. The 570 square mile watershed is tributary to the Susquehanna.<sup>11</sup> Swatara Creek's 1999 River Conservation Plan, supported by a Growing Greener grant, serves as a basis for citizen information, activities, and coordination with local governments. The Plan provides information for 50 municipalities, who can take its geographically defined goals into account when doing their own comprehensive planning and making zoning decisions. The Swatara Sojourn, an annual river float and cleanup, now in its 20<sup>th</sup> year, established awareness of the waterway and enthusiasm for activities protecting it. Farmland preservation, streambank fencing and planting of riparian buffers, limestone diversion wells to treat acid mine drainage, and recreational identification and use of the Swatara Water Trail are all tangible benefits of this public engagement.

Crystal Gilchrist, executive director of the Perkiomen Watershed Conservancy in **Montgomery, Bucks, Berks, and Lehigh Counties**, demonstrated how watershed organizations could create public awareness across municipal boundaries by taking

advantage of opportunities in the federal municipal separate storm sewers (MS4) program and state law (Act 167) requiring public education and outreach. The Conservancy, a voluntary watershed organization founded in 1964, realized that it could handle public education obligations of municipalities and do so in a cost-efficient, watershed-oriented way, giving rise to a common message.<sup>12</sup> The Conservancy sent questionnaires to all 52 municipalities in the watershed asking if they needed help in meeting the public education and involvement requirements of the MS4 program. Many of them did, and were pleased not to have to use generic EPA information, nor to create duplicative information and outreach programs, which would have involved many of the same media outlets. Similarly, the engineering firms and consultants handling the technical aspects of these stormwater programs were happy not to have to handle public information and outreach. The Conservancy signed up about 20 municipalities on a year-by-year fee-for-service basis, and developed outreach materials and advertisements, press releases, and newsletter articles that addressed the watershed as a whole in a very cost-effective manner for the municipalities.

The **Schuylkill Action Network** offers a collaborative approach that engages multiple constituencies to deal with issues in a large 2,000 square mile watershed in six counties – dealing with a major tributary to the Delaware River and the source of drinking water for over 1.5 million people.<sup>13</sup> Jennifer Adkins, Executive Director of the Partnership for the Delaware Estuary, described how this multi-

partner network engages the public to achieve results. The group is led by an Executive Steering Committee, supported by a Planning Committee, and has five work groups – Agriculture, Abandoned Mine Drainage, Watershed Protection Land Collaborative, Pathogens & Compliance, and Storm Water, supported by an Education and Outreach Team and a Data Team. The planning committee engages the public through demonstration projects, outreach materials, website, an annual workshop, accomplishments report, the “Connections” newsletter, support for grant funding, and a strategic plan, while the work groups do activities aimed at their particular constituencies. The land protection workgroup, for example, has mapped priority conservation lands with priority water protection lands and with areas of anticipated future development to identify areas of friction where land conservation should be focused. Results are being used in a number of townships for planning. The agriculture work group has used demonstration projects on farms to promote farmers adopting practices that other farmers have shown in action. It is a peer-to-peer approach based on actions.

## LARGE-SCALE REGIONAL COOPERATION

Pennsylvania has the Delaware River Basin Commission in the east and the Susquehanna River Basin Commission in the central part of the state to provide a regional view of water resources and to facilitate planning and decisions in sub-watersheds. In the Ohio basin, there has not been a basin-level water



resources body or forum looking at regional water issues.

Understanding water resources at the large watershed level helps manage competing uses of water, and promotes cooperation among political entities affecting land use and water management decisions.

Ty Gourley, from the University of Pittsburgh's Institute of Politics, presented the progress and recommendations of the **Regional Water Management Task Force**, a body representing 11 southwestern Pennsylvania counties, and chaired by Dr. Jared Cohon, president of Carnegie Mellon University in Pittsburgh.<sup>14</sup> Building on a decade-long effort of regional studies, including the Environmental Law Institute's *Plumbing the Future*<sup>15</sup> and the National Academy of Sciences' *Regional Cooperation for Water Quality Improvement in Southwestern Pennsylvania*,<sup>16</sup> the Task Force is addressing the huge infrastructure challenges posed by aging sewer systems, flooding, and acid mine drainage. Numerous public meetings, and input from successful approaches used in other metropolitan areas in other parts of the US, and public polling have informed a report placing models forth for consideration. Four models were evaluated – regional planning, regional planning and financing, county or watershed-based operations and planning, or incentives for decentralized collaboration (more of the same). The last was unacceptable, while regional financing and forced consolidation were controversial. But strong support for region-wide planning and technical assistance, and stronger support for county involvement in planning and management informed planned recommendations. The Task Force

unanimously adopted recommendations that will be fleshed out into a proposal for a southwestern Pennsylvania water resources district, with representations from each county, the city of Pittsburgh, state legislators and governor, with a staff housed at the Southwestern Pennsylvania Commission (the regional metropolitan planning organization), and funding and an implementation strategy.

A far more established regional body, the **Delaware River Basin Commission**, offers planning, management, and regulatory authority in the 13,000 square mile multi-state Delaware River watershed.<sup>17</sup> It provides a way to deal with competing resource demands from 15 million people reliant on the watershed's waters, and to allow states a forum to manage water when there is not enough to go around, including equitable allocations and a flexible flow management plan. It also provides a way to address area-wide management in subwatersheds, and to support specific planning for critical water planning areas under Pennsylvania's Act 220 Water Resources Planning Act. Ken Najjar, DRBC's Manager of Planning and Information Technology, described work in the Pocono Creek area of **Monroe County**, a growing area whose important assets are high quality streams. Municipalities developed goals to improve water quality, preserve stream corridors and floodplains, and coordinate watershed planning processes with land use and other governmental decisions, with trout as the indicator species for the health of the watershed and thus decisions about land use, base flow and runoff. In the Upper Wissahickon

watershed of **Montgomery County**, DRBC was able to assist municipalities in sorting out priority needs in four water management areas within a critical water area, in a project funded by DEP and supported as a coastal management effort. The expertise and watershed-wide capacity of DRBC offers a framework within which focused planning can occur.

## CHALLENGES & OPPORTUNITIES

Pennsylvania's 2500 municipalities, 67 counties, and thousands of authorities are confronted with great challenges in the management of Pennsylvania's most important asset – its water resources. Pennsylvania's 83,000 miles of rivers and streams, its groundwater and lakes, provide it with a basis for prosperity and sustainability for decades to come.

The experiments and creative efforts at collaboration or regional solutions explored in this 2008 conference show that there is no shortage of ingenuity or energy among the Commonwealth's best-informed citizens.

The challenge is to make these collaborations easier – to reward the recognition of water as a geographically-relevant resource; and not just as a commodity for sale, a hazard to be disposed of as rapidly as possible, or a subject of conflict in drought conditions.

Department of Environmental Protection Deputy Secretary Cathy Myers<sup>18</sup> told the workshop conferees that the State Water Plan, to be released this year, creates a tool to move decision makers in the right direction on coordination. The Plan creates a registry, and will have a database that can be used by all

decision makers and be made accessible to the public. And the needs assessment will use a consistent method for demographic projections, and will also include having sufficient water for the fish, aquatic and recreational resources. Regional hearings and meetings on the Plan will be held in September 2008.

In addition, there are billions of dollars of known water and sewer infrastructure needs. The Sustainable Water Infrastructure Task Force, appointed by the Governor, will identify what the needs are, gaps between needs and available resources, possible savings from non-structural alternatives, funding sources, and legislative options.<sup>19</sup> If the need is \$20 billion, we must look at sustainable infrastructure, which consists of two components: sustainable investment and sustainable service. This includes concepts such as better management of assets, full cost pricing, water use efficiency, and especially a watershed approach.

An integrated approach to water resources would include connecting the planning among stormwater (Act 167), sewage facilities (Act 537), source water assessments and implementation, critical water area plans for quantity problems, and upgrades to meet water quality goals. A single plan could improve efficiencies and foster a comprehensive understanding of water resources, rather than focusing on component pieces one at a time. Pilot projects offer a way of doing this.

Secretary Myers also called attention to HB 2266, a bill that suggests an approach to *integrated water management* using a model that builds on Act 167 stormwater planning.

Paul Marchetti, Executive Director of PENNVEST, and a member of the Sustainable Water Infrastructure Task Force, summarized PENNVEST's loan and grant funding for projects across Pennsylvania.<sup>20</sup> He noted a number of recent trends, including that wastewater funding demands are increasing as less funding is available and as project costs rise. PENNVEST currently includes sound land use and priorities for community revitalization in its funding criteria, and also offers financial scoring incentives for consolidation of systems. Marchetti also floated a new idea, holistic cost funding accounts, which might allow PENNVEST to support nutrient credit purchases, non-structural solutions, and certain costs currently not eligible because they are operating and maintenance costs. Such approaches might lead to superior cost-effective outcomes, thus reducing the existing bias toward capital-intensive solutions.

Conference participants commented on the value of having positive examples of collaboration and innovation, but noted that under current conditions it can take a long time to put the relationships in place to make collaboration possible. Others commented on the apparently wide diversity in rates for water and sewer services in different areas, sometimes even adjacent areas. Others highlighted competing demands on water resources, such as the current boom in natural gas drilling and exploration.

All of these challenges are met with **opportunities**. The most immediate opportunities for public policy responses are:

1. The State Water Plan rollout in fall 2008 and its capacity to influence land use decision making, sewage facilities planning, water planning, and other activities.
2. The Sustainable Water Infrastructure Task Force's fall 2008 conclusions, and real responses to its conclusions.
3. Legislative and DEP support for authorizing and funding integrated water management opportunities.
4. The pending revisions to Chapter 71 of the Sewage Facilities Act regulations to better connect the planning to land use decisions and the State Water Plan.
5. Continued municipal actions to implement federal stormwater regulations and Act 167.
6. The Chesapeake Bay water quality standards and effect on decisions across the vast Susquehanna watershed; the progress of the 11-county southwestern Pennsylvania water resource management proposal; and the efforts of DRBC, the Philadelphia Water Department, and others to support collaboration on Delaware River watersheds

Pennsylvania can build its water asset management base on –

- watershed and ecological integrity;
- water-use efficiency and conservation;
- sustainable economic growth;
- consistency between land-use and water-resource planning policies; and
- intergovernmental coordination.<sup>21</sup>

## NOTES

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<sup>1</sup> The conference, *Saving \$ - Managing Water: Regional and collaborative approaches to water, sewer, and stormwater management in Pennsylvania*, was supported by the William Penn Foundation and the Heinz Endowments. For more information contact James McElfish, Environmental Law Institute, [mcelfish@eli.org](mailto:mcelfish@eli.org).

<sup>2</sup> 10,000 Friends of Pennsylvania, *Sewage Facilities and Land Development: An Analysis of Sewage Facilities Planning and Permitting in Relation to Land Use Planning and Development in Southeastern Pennsylvania* (2005); 10,000 Friends of Pennsylvania, *Water and Growth: Toward a Stronger Connection Between Water Supply and Land Use in Southeastern Pennsylvania* (2008), available at <http://www.10000friends.org/resources/publications/>

<sup>3</sup> <http://uaja.com/planning/plan.htm>

<sup>4</sup> <http://uaja.com/planning/growth.htm>

<sup>5</sup> <http://www.lehighcountyauthority.org/index.cfm>

<sup>6</sup> <http://www.3riverswetweather.org/index.stm>

<sup>7</sup> <http://www.srbc.net/programs/paxton/index.asp>

<sup>8</sup> <http://www.mawc.org>

<sup>9</sup> Integrated Resource Planning: A “How To” Workbook, available at <http://planning.montcopa.org/planning/cwp/files/erver,Path,PLANNING/Admin%20-%20Swamp%20Scioto%20Integrated%20Resource%20Plan/Appendices/How%20To%20Manual.pdf,assetguid,c8235856-c4f1-4732-a6992b2a4960406f.pdf>

<sup>10</sup> <http://dsf.chesco.org/water/site/default.asp>

<sup>11</sup> <http://www.mbcomp.com/swatara/>

<sup>12</sup> <http://www.perkiomenwatershed.org/>

<sup>13</sup> <http://www.schuylkillactionnetwork.org/>

<sup>14</sup> <http://www.iop.pitt.edu/water/>

<sup>15</sup> Plumbing the Future: Sewage Infrastructure Sustainability in Western Pennsylvania. [http://www.elistore.org/reports\\_detail.asp?ID=491](http://www.elistore.org/reports_detail.asp?ID=491)

<sup>16</sup> <http://www.nap.edu/catalog/11196.html>

<sup>17</sup> <http://www.state.nj.us/drbc/>

<sup>18</sup> Secretary Myers presented not just her own observations, but materials prepared by John Hines, Executive Director of DEP’s Water Planning Office, for the conference.

<sup>19</sup> <http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1263&Q=536847>

<sup>20</sup> <http://www.pennest.state.pa.us>

<sup>21</sup> [http://www.eli.org/pdf/research/new\\_paths\\_pennsylvania\\_law.pdf](http://www.eli.org/pdf/research/new_paths_pennsylvania_law.pdf)



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## **Environmental Law Institute**

**2000 L Street, N.W., Suite 620**

**Washington, D.C. 20036**

**Telephone: (202) 939-3800**

**Fax: (202) 939-3868**

**[www.eli.org](http://www.eli.org)**

