Why is Water and Stormwater Management Essential to a Sustainable Community?

Water is universally essential to life. In addition, in the southwestern Pennsylvania region:

- Sufficient water of good quality is a key requirement for economic development.
- Our older water systems are subject to extensive loss of treated water resulting in wasted dollars and the expense of driving the systems toward capacity.
- Our streams and rivers are fouled when wet weather causes waste water systems to flow into them directly instead of being treated prior to discharge. Fouled waterways can be a health problem and are a disincentive to people and business evaluating a location.
- Flooding due to poor stormwater management can cause loss of life and property.
- Efficient, least-cost provision of water is hampered by the large number of providers and managers. The efficient management of drinking water, waste water and stormwater are inter-related and require a unified approach. However, due to various laws and tradition this is rarely the case. Cost-efficient management of the entire spectrum of water issues cannot be best achieved by municipalities acting alone but requires a much broader multi-municipal approach.
- The provision of water related services at a price that fully covers costs is a requirement for an equitable system although some assistance will be needed for low-income users.
- The recreation value of clean streams and rivers is a powerful incentive to live in the region. This is especially important to young, professional but footloose persons who are attracted to an active, outdoor life.

Resources for Communities

Citizens for Pennsylvania’s Future
www.pennfuture.org
412/258-6680

Clean Water Action
www.cleanwateraction.org
412/765-3053

Institute of Politics, University of Pittsburgh
www.iop.pitt.edu
412/624.1837

Pennsylvania Department of Environmental Protection
www.depweb.state.pa.us
412/442-4000

Pittsburgh Region Clean Cities
www.pgh-cleancities.org
412/241-4323

Southwestern Pennsylvania Commission
www.spcregion.org
412/391-5590

3 Rivers Wet Weather Demonstration Program
www.3riverswetweather.org
412/578-8375

USDA Rural Development Division
www.rurdev.usda.gov/pa

SUSTAINABILITY CASE STUDY–
North Hills COG Stormwater Management

Eighteen municipalities within the North Hills Council of Governments (COG) entered into an agreement resulting in an Act 167 update and adoption of a common stormwater management ordinance. The local 25 percent cost share was provided by the COG members. In addition an inventory was prepared of the stormwater retention/detention facilities in the area as well as a documentation of their condition.

This remarkable multi-municipal effort was motivated by several factors including strong COG leadership, familiarity with each others’ municipalities and, perhaps most importantly, Hurricane Ivan in 2004.

The success was not assured. In addition to the usual inter-municipal politics, there were fears that stronger stormwater management may prevent development in the newer suburbs as well as redevelopment in the older downstream communities. These potential impediments were overcome by a commitment to the goal by the participants. This entailed many meetings and discussions by the communities as well as assistance from the regulatory agencies.

Perhaps the most important success factor was the persistence by the participants and the commitment to include everyone in the discussion leading to the subsequent consensus.

Case courtesy of the North Hills Council of Governments
**Actions for Implementation**

- Commitment by elected officials to create a system that protects public health and safety and promotes development at the lowest price that fully covers costs.

- Municipal support for a multi-municipal approach. The geography of this approach would be defined by economic, engineering and political factors. Leadership of such an approach has been provided by the 3 Rivers Wet Weather Project and the Regional Water Task force project sponsored by the University of Pittsburgh and Carnegie Mellon University and housed at the University of Pittsburgh’s Institute of Politics. The former was instrumental in uniting the 83 municipalities around a consistent consent order with the Allegheny County Health Department and state DEP. Responding to recent recommendations from the Regional Water Task Force the Southwestern Pennsylvania Commission is now taking the first steps in multi-county watershed based planning and technical assistance.

- Create a comprehensive plan – preferably a multi-municipal plan – implemented by zoning and subdivision/land development ordinances that are consistent with the plan. Such plans and ordinances would support in-fill and brownfield development to make maximum use of existing infrastructure and conserve green spaces – as well as fulfill the equity goal of access to jobs and the economic and environmental goal of not supporting greenfield sprawl.

- Create a 20 year water budget to ensure sustainability of the program with sufficient investments in the water system per real costs and keeping pace with maintenance. This is an asset management approach requiring long-term thinking about supply, distribution, collection, maintenance, and replacement. Part of this approach requires an aggressive program to eliminate inflow and infiltration into the sewer system. Asset management also requires an energy audit of the systems’ operations.

- Require that the Act 537 Sewage Facilities Plan be consistent with the comprehensive plan.

- Municipalities in a watershed should ask their county to create a stormwater management plan per state law for their area.

- Create a comprehensive database identifying the quantity and quality of the existing water, waste water and stormwater management systems for every municipality throughout the region.

- Recognize and protect the value of woods and other green spaces in retaining stormwater. This is a fairly new concept that challenges us to acknowledge the cost savings of having natural areas absorb water that will not have to be collected or cause harm downstream. This is a strong argument for conserving green open spaces. Conservation also recommends the use of gray, recycled water for uses such as parks and golf courses.

- Create plans and ordinances that promote on-site infiltration of stormwater.

- Create a rate structure by which users would pay full cost for water and waste water utilities plus the newer concept of recognizing that stormwater management should be seen as a utility which requires financial support. A fair and responsible rate was discussed previously. Revenues collected should be used solely for the maintenance of systems and not diverted to the general fund or other use. A reserve should be created to fund the inevitable need for replacement.

- Create an Environmental Advisory Committee and provide support for active citizen stewards such as watershed associations.

- Cooperate with schools to introduce water conservation into the curriculum and establish hands-on demonstration projects on school grounds.

- Education of rate-payers and on-going training of system managers and operators will help ensure sufficient funding and an efficient operation.

**Low Impact Development**

- Promote a rain barrel program.

- Assess opportunities for best practice in use of pervious pavement and bio-infiltration basins.

- Disconnect downspouts from the sewer and redirect, for example, into the lawn or garden.

- Pursue rain gardens.

- Support these green initiatives with plans and ordinances.
How Can This Essential be Measured?

- **Drinking water**
  - Consumer satisfaction and water quality measures, some of which are reported by water authorities.
  - The amount of treated water lost in the transmission pipes.
  - Biological measures such as bacteria or total dissolved solids that can cause illness.

- **Waste water**
  - The frequency and amount of waste water diverted to rivers and streams in a wet weather event is indicative of a poorly performing system.

- **Stormwater**
  - The requirement for on-site disposal of stormwater in contrast to piping it off-site is a measure of good management.
  - Stream flooding is also a measure of the insufficiency of stormwater management.
  - A utility-based approach to stormwater is another good management technique. This requires that the full cost of providing drinking water, disposing of wastewater and managing storm water should be calculated and made known to the users of these systems. Ideally, beneficiaries/users of these systems should pay full cost for the use of the resources. However, assistance may be needed for low-income households. In addition, good stewardship by the utility provider indicates that they should take advantage of any assistance provided by the federal or state government. The Governor's Infrastructure Task Force calls for a household to pay one and one-half percent of median household regional income each for water and wastewater management. A local study indicated that stormwater can be managed as a utility with home owners paying one dollar a month for the service. Sustainability requires that fees be used only for water management and not be used to subsidize other municipal activities.

SUSTAINABILITY CASE STUDY– Milton Regional Sewer Authority

The Milton Regional Sewer Authority (MRSA) has undergone two very effective changes recently. They have re-evaluated their rate structure and have been working on a “wastewater-to-energy” project. MRSA recently had to implement a sewer rate increase. The increase will pay for the raising operation and maintenance costs as well as establish a capital reserve fund for future capital improvements. However, MRSA was faced with a choice when it was restructuring its rates. They could establish the capital reserve fund or wait and see if they would receive federal funding down the road. There are three significant problems with the latter of the two options. First, the amount of federal funding available is decreasing significantly. Second, the cost of water and wastewater projects is increasing. Lastly, there are more municipalities than ever vying for the federal funding that is available. It is obvious why MRSA chose to establish its own capital reserve fund.

The second change MRSA has been working through is the wastewater-to-energy process. Once in place, MRSA will become the world’s first Publicly Owned Treatment Works to be a net generator of electrical energy. The process will use anaerobic treatment to break down a significant amount of high strength wastewater from a large local manufacturing customer and will result in the production of a significant amount of biogas that will be used by a GenSet engine (similar to those used by Caterpillar machines) to produce electricity. The plant will only use half of the electricity it will produce and will therefore be able to sell the remainder to the local grid.

Testimony by George Myers, before the Pennsylvania Sustainable Water Infrastructure Task Force, May 2008

Photo: Jason Cohn