Sustainable Water Infrastructure Task Force
Legislative and Regulatory Needs Work Group

Draft Report
July 31, 2008

Workgroup Overview

Problem Statement

A significant portion of our nation's water and wastewater infrastructure is reaching the end of its useful life. There are thousands of miles of pipelines that were installed 50 to 100 years ago, which need to be replaced. Pennsylvania is ranked 7th with total drinking water system infrastructure financing needs of $10.990 billion, according to the 2003 U.S. Environmental Protection Agency Needs Survey.[1] Moreover, the U.S. Environmental Protection Agency's 2004 Clean Water Needs Survey[2] also ranks Pennsylvania 7th with total wastewater infrastructure financing needs of $7.196 billion. These figures do not include the critical need for ongoing investment in operation and maintenance of that capital and new additional federal requirements and regulations for the treatment of drinking water and wastewater will require a significant investment in the upgrade of Pennsylvania's water infrastructure to achieve compliance.[3]

In order to ensure the long-term sustainability of the state's water infrastructure, Pennsylvania needs a comprehensive strategy that considers not only the initial capital investment in construction, but also the long-term technical, managerial and financial capability of Pennsylvania's water infrastructure to operate in the most cost-effective manner to protect public health, safety and the environment.[4]

The Legislative and Regulatory Needs Work Group of the Sustainable Water Infrastructure Task Force was created to make recommendations based on the following questions:

- What are the statutory and regulatory barriers to enhancing our infrastructure improvement efforts within the Commonwealth while still protecting public health and the environment?

- Through the legislative or regulatory process, what can be done to encourage greater local investment in infrastructure and eliminate or lessen the cost of providing infrastructure improvements?

In addition, a number of recommendations made by the four other Work Groups and the public, at the Task Force's public hearings, were also discussed and considered by the Legislative and Regulatory Needs Work Group.

[1] Drinking Water Infrastructure Needs Survey and Assessment, Third Report to Congress, June 2005 http://www.epa.gov/safewater/needssurvey/pdfs/2003/report_needssurvey_2003.pdf
[2] Clean Watersheds Needs Survey 2004, Report to Congress http://www.epa.gov/cwns/2004rtc/cwns2004rtc.pdf
[3] Governor Rendell's Executive Order Number: 2008-02, April 3, 2008 http://www.depweb.state.pa.us/watersupply/lib/watersupply/municipalfinance/taskforce/eosustainablewaterinfrastructuretaskforce.pdf
[4] IBID

Finally, the Legislative and Regulatory Needs Work Group focused our discussion and recommendations around the U.S. Environmental Protection Agency's (EPA) *Sustainable Water Infrastructure (SI)* initiative[5] or "Four Pillars of Sustainability":

1. **Better Management**—to shift the utility management model beyond compliance to sustainability and improved performance by focusing on utility management systems, such as asset management and environmental management systems (EMS), capacity development for smaller utilities, and selection of innovative, cost-effective technologies.
2. **Full Cost Pricing**—to help utilities recognize their full costs for providing service over the long-term and to implement pricing structures that effectively recover costs and promote environmentally sound decisions by customers.
3. **Water Efficiency**—to promote water efficiency in the residential and commercial sector through WaterSense, a new market enhancement program for water efficient products and services. Under this pillar, EPA also is facilitating the establishment of an independent, national collaborative organization committed to improving water efficiency, promoting improved building and landscaping practices, and recognizing leadership in water efficiency. *For example, PA has emphasized the need to reduce leaks in drinking water systems (reducing "unaccounted-for water") and reducing infiltration/inflow in wastewater systems.*
4. **The Watershed Approach**—to encourage the adoption of watershed management principles and tools into utility planning and management practices, so that key decision makers consider watershed-based, cost effective alternatives along with traditional treatment technology investment choices. Watershed management approaches include, but are not limited to, source water protection, water quality trading, centralized management of decentralized systems, and smart growth approaches to stormwater and wastewater management.

Workgroup Membership

With 46 members, the Legislative and Regulatory Needs Work Group is the largest of the five work groups established by the Task Force. Its membership includes representatives of the General Assembly, state regulatory agencies, county and local government associations, water and wastewater associations, business and industry, and prominent environmental and utility lawyers. The work group's membership follows:

Erik Ross (Delta Development), Chairman
Pam Bishop (Department of Environmental Protection), DEP Support Staff
Erin Gannon (Office of Consumer Advocate)
Christine Hoover (Office of Consumer Advocate)
Brenda Reigle (PA Utility Contractors Association)
Elam Herr (PSATS)
Carol Kozloff (Public Utility Commission)
Jennifer Case (PA Municipal Authorities Association)
Grant Gulibon (PA Builders Association)
John Gigliotti (LTS Builders)
Annette Keener-Farley (Governor's Budget Office)
Jim Sanders (PA Association of Sewer Enforcement Officers)
Dan Hufton (PA American Water)
Susan Sims Marsh (PA American Water)

[5] "Sustaining Our Nation's Water Infrastructure," U.S. Environmental Protection Agency www.epa.gov/water/infrastructure

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John Ashton (Municipal Authority of Westmoreland County)
Colleen Arnold (Aqua America)
John Klinedinst (C.S. Davidson, Inc.)
Rob Cavett (Merck & Co.)
Les Houck (PSATS)
Ginnie Anderson Kane (PA State Assn of Township Commissioners)
Doug Bowen (Whitehall Township Authority)
Melissa Grimm (Aqua America)
Patrick Henderson (Senate Environmental Resources and Energy Committee)
Jayne Blake (PENNVEST)
Shawn Weis (PENNVEST)
Marel Raub (Chesapeake Bay Commission)
Kevin Garber (Babst, Calland, Clements & Zomnir, P.C.)
Ed Troxell (PA State Association of Boroughs)
David Zambito (Roger, Rizzo and Darnall Law)
Tim Weston (K&L Gates)
Michael Killion (Buchanon, Ingersoll and Rooney PC)
Richard Sans (URS)
Steve Hann (Hamburg, Rubin, Mullin, Maxwell & Lupin)
Kristen Goshorn (County Commissioners Association of PA)
Paul Szostak (LTS Builders)
Joe Deklinski (House Environmental Resources and Energy Committee)
Randy Hurst (Mette, Evans and Woodside)
John Hood (PA Rural Water Association)
Richard Fox (Senate Environmental Resources and Energy Committee)
Representative Joe Preston (Chair, House Consumer Affairs Committee)
Representative Bob Godshall (Chair, House Consumer Affairs Committee)
Colin Fitzsimmons (House Consumer Affairs Committee)
Gail Davis (House Consumer Affairs Committee)
Paul Diskin (Public Utility Commission)
Stan Brown (Public Utility Commission)
Ty Gourley (Regional Water Management Task Force)

The Work Group identified issue areas to study and created subgroups to review and make recommendations to the full Work Group for consideration:

- Procurement: Elam Herr, Brenda Reigle, Jennifer Case and Tim Weston
- Public Utility Issues: Carol Kozloff, Erin Gannon, Susan Sims Marsh and David Zambito
- Capacity Enhancement Program: Tim Weston and Michael Killion
- Regionalization/Consolidation: Carol Kozloff, Ty Gourley and Dan Hufton
- Land Use Planning: John Klinedinst and Ty Gourley
- Workforce Development: Jim Sanders and Colleen Arnold
- Work Group Integration: Erik Ross and Pam Bishop

The subgroups issue papers/recommendations are contained in the Appendix section.

Action Agenda

Short Term Recommendations

The following are recommendations that the Work Group believes can be achieved within the next one to two years with existing resources:

Better Management

- Asset Management Requirement: Require publicly-owned water and wastewater systems to prepare long-term (5-10 year) estimated plans/budget supported by analyses of all major assets. Those analyses would consider asset condition, risk of failure, and expected costs and dates of renewal and ultimate replacement. The plans/budget would include sources and amounts of revenues sufficient to finance operations, maintenance and capital needs required by the asset analyses. The plan/budget would include adequate reserves for emergencies. The long-term plan/budgets would be updated each year. The long-term plan/budget would be used to develop a short-term plan/budget which implements the long-term plan.

  - The General Assembly should adopt legislation amending Title 66 (Public Utilities) § 1706 (Applicability to municipal corporations) to reference § 1705 (Budgets of public utilities) and require municipal corporations (authority and municipally-owned water and wastewater systems) to file such an asset management plan/budget with the Pennsylvania Public Utility Commission (PAPUC) and Office of Consumer Advocate (OCA) for review and recommendation (not regulation). PAPUC and OCA shall jointly make public recommendations to the municipal corporation and submit a copy to the PADEP. The PADEP may provide technical assistance through their Capability Enhancement Program.
  - An additional annual state appropriation should be made to the PAPUC and OCA budgets for additional staff to perform this function.
  - A phase-in process should be used in which systems are required to first assess the adequacy of their asset management and budgeting processes, with implementation occurring first at the larger systems.
  - Municipal corporation "budgets" should be precluded from using water and wastewater system revenues as a cash source for non-water and wastewater system cash needs, but would allow payment for use of municipally-owned facilities, such as rent for the use of office space.
  - The Environmental Quality Board (EQB) shall promulgate regulations for the Pennsylvania Department of Environmental Protection (PADEP) and the PAPUC shall promulgate a rulemaking to implement this asset management requirement. PADEP and PAPUC should work jointly to address the financial and managerial components of this asset management requirement.

  ❑ **Alternative Option**: The General Assembly should adopt legislation amending the Pennsylvania Infrastructure Investment Authority Act of 1988, requiring publicly-owned water and wastewater systems to file such an asset management plan/budget with PENNVEST. PENNVEST shall make public recommendations to the publicly-owned water and wastewater system and submit a copy to the PADEP. The PADEP may provide technical assistance through their Capability Enhancement Program. A phase-in process should be used in which systems are required to first assess the adequacy of their asset management and budgeting processes, with implementation occurring first at the larger systems. An additional annual state appropriation should be made to PENNVEST's budget for additional staff to perform this function.

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- The Environmental Quality Board (EQB) shall promulgate regulations and the Pennsylvania Department of Environmental Protection (PADEP) and PAPUC shall provide guidance to implement this asset management requirement.

Financial Oversight/Business Planning: Pennsylvania is home to an estimated 2,200 municipal, authority and investor-owned community drinking water systems and 1,059 wastewater systems. While all of Pennsylvania's water and wastewater systems receive environmental regulation from the U.S. Environmental Protection Agency (USEPA) and PADEP, rates and service are regulated differently. The PAPUC has regulatory jurisdiction over the rates and service of 126 water systems, including 31 municipal water systems, and 74 wastewater systems, including 7 municipal wastewater systems. Those municipal water and wastewater systems are publicly-owned by municipalities that serve outside their boundaries and the PAPUC's jurisdiction is limited to regulating the rates and service of customers outside their boundaries. The non-municipal water and wastewater systems are companies privately or investor-owned and the PAPUC exercises complete jurisdiction over the rates and service of investor-owned systems. In addition, the Office of Consumer Advocate (OCA) and Office of Small Business Advocate (OSBA) monitor the rates and service of investor-owned systems. The federal Securities Exchange Commission (SEC) also regulates some investor-owned systems.

Moreover, the PAPUC has no jurisdiction over Pennsylvania's approximately 2,005 municipally and authority owned community drinking water systems or 992 municipal and authority owned wastewater systems. An elected or appointed municipality or authority board sets the rates of publicly-owned systems.

However, the Municipal Authorities Act requires authorities to submit an annual report of its fiscal affairs and have their books, accounts and records audited annually by a certified public accountant. These annual financial reports and audit are submitted to the Department of Community and Economic Development (DCED), but no oversight or action is triggered.

- The General Assembly should adopt legislation amending Title 66 (Public Utilities) § 1706 (Applicability to municipal corporations) to reference § 1705 (Budgets of public utilities) and require municipal corporations (authority and municipally-owned water and wastewater systems) to file an annual report of its fiscal affairs including its audit with the PAPUC and OCA, due to their experience and staff expertise, for review and recommendation (not regulation). PAPUC and OCA shall jointly make public recommendations to the municipal corporation and submit a copy to the PADEP. The PADEP may provide technical assistance through their Capability Enhancement Program.
- An additional annual state appropriation should be made to the PAPUC and OCA budgets for additional staff to perform this function.
- Failure to submit such an annual report of its fiscal affairs to the PAPUC and OCA should result in a PAPUC management audit of the municipal corporation with recommendations and directives, at the municipal corporation's expense.
- Repeal § 5612 (b) (Report) of the Municipal Authorities Act requiring authorities to submit an annual report of its fiscal affairs and have their books, accounts and records audited annually by a certified public accountant as it will be duplicative.

- ❑ **Alternative Option**: The General Assembly should adopt legislation amending the Pennsylvania Infrastructure Investment Authority Act of 1988, requiring publicly-owned water and wastewater systems to file an annual report of its fiscal affairs including its audit with PENNVEST, for review and recommendation (not regulation). PENNVEST shall make public recommendations to the publicly-owned water and wastewater system and submit a copy to the

PADEP. The PADEP may provide technical assistance through their Capability Enhancement Program. An additional annual state appropriation should be made to PENNVEST's budget for additional staff to perform this function.

- Capability Enhancement Program: PADEP has issued an "interim final" Pennsylvania Capability Enhancement Program (Doc. No. 383.0400-114), setting for the guidance and procedures for implementing the federal capacity development strategy called for under the 1996 amendments to the Federal Safe Drinking Water Act. The PADEP CEP guidance document seeks to establish a methodology to implement, track and allocation resources needed to carryout a program to improve the management and financial capabilities of community, non-transient non-community, and transient drinking water systems. In doing so, the PADEP CEP guidance undertakes to address both capability enhancement program requirements and source water assessment and protection program requirements (adding three new Capability Enhancement Facilitators and twelve Source Water Protection Facilitators who will work with regional staff) by providing methods for evaluating how well public water systems are performing, and to identify on a priority basis those systems which require assistance to improve either managerial skills or financial resources.

  - We support and recommend the adoption of the interim final Capability Enhancement Program guidance. However, we are concerned that three Capability Enhancement Facilitators will be spread extremely thin in terms of their ability to effectively reach out to and assist the myriad of small and challenged systems across PA.
  - The CEP guidance ranks water systems, but somewhere in the prioritization process regional staff should be given greater latitude to identify problem systems based on their experience and overall knowledge of system issues.

- Capability Enhancement Program for Wastewater Systems: PADEP should draft and implement a similar guidance to apply to wastewater systems. An additional annual state appropriation should be made to PADEP's budget for additional staff to perform this function because the federal Safe Drinking Water Act (SDWA) limits federal funding for the drinking water CEP only.

- Workforce Development: PADEP must identify the specific knowledge and job skills at risk, and develop a comprehensive private/public approach among a broad array of stakeholders to address this issue. This can be achieved by involving both private and public water and wastewater systems; reaching out to educators; bringing together labor and management; and connecting younger workers to older workers, to ensure that the next-generation workforce can meet Pennsylvania's water and wastewater needs.

- Customer Education: PADEP, PAPUC, DCED and water and wastewater systems should provide customer education regarding infrastructure issues.

  - Utility managers have also discovered that asset management practices and tools help them communicate their renewal needs to customers and policy boards.[6]
  - Industry associations, like the American Water Works Association (AWWA), have customer education templates ("Only Tap Water Delivers") available.

- Board Training: Because an elected or appointed municipality or authority board sets the rates of publicly-owned systems, the governing body should encourage annual board training through their industry association or consultants.

[6] "Asset Management Planning and Reporting Options for Water Utilities," AWWA Journal, Matichich et al, pg. 80

Full Cost Pricing

- Asset management provides an operational means to employ full cost pricing. Note that it makes no mention of subsidies. The implication is that the plan/budget would assume self-sufficiency. Those plans/budgets should be a required component of requests to funding agencies, with subsequent subsidized loans/grants made on an exceptions basis. Following state agency commitment for subsidized funding, asset management plans/budgets should be adjusted to reflect those subsidies.

- Collection System Improvement Charge (CSIC): Adopt legislation amending Title 66 (Public Utilities), further providing for sliding scale of rates and adjustments (This was not a unanimous recommendation). This legislation would provide the requisite statutory authority for the PAPUC to reinstate a Collection System Improvement Charge (CSIC) for wastewater utilities. The CSIC is modeled after the successful Distribution System Improvement Charge (DSIC), previously approved by the PAPUC and subsequently codified into law by the General Assembly as Act 156 of 1996, for use by Pennsylvania's water utilities. Similarly, the CSIC would provide a wastewater utility with the financial flexibility to accelerate its replacement of aged and deteriorating wastewater infrastructure, including improvement projects to prevent overflows, infiltration and other similar problems, in a cost-effective manner and thereby avoiding rate shock for the customers. **Note**: This was not a unanimous recommendation of the subgroup on public utility issues.

  - Publicly-owned water and wastewater systems should incorporate a DSIC/CSIC into their rate structure to dedicate funds to replacing aged infrastructure on a continuing basis. This recommendation could be accomplished without legislation by a vote of the system's board, but may be required to mandate compliance. DSIC/CSIC will also help system managers communicate their infrastructure needs to customers and government officials.

- Subsidy Policy: Subsidies should be provided only to the extent that local resources are inadequate. Such a "gap financing" approach provides just enough subsidy (using a mix of low-interest loans/grants from any source) to make required infrastructure improvements without resulting in rates which exceed a state affordability standard.

  - Subsidies from all sources would be coordinated through the Pennsylvania Infrastructure Investment Authority (PENNVEST) to provide "one-stop shopping" for subsidy applicants, to ensure the best mix of subsidies to meet local needs and to minimize the provision of excess subsidy.
  - The affordability standard could be user rates of 1.5-2.0 percent of median household income, individually, for water and wastewater.
  - Note that one objective of the *Pennsylvania Water and Wastewater Infrastructure Gap Study* is to compare needs, local resources and available subsidies. The study may therefore be able to propose an affordability standard, and/or a means to create and adjust a standard over time.

- Access to Capital: President Bush's fiscal year 2009 budget proposal aims to repeal the private-activity bond volume cap for bonds issued for water and wastewater facilities; allowing states to issue an unlimited amount of private-activity bonds for water and wastewater infrastructure. If adopted, the Governor should provide privately or investor-owned systems greater access to tax-exempt financing, through the Pennsylvania Economic Development Authority (PEDFA) for large projects.

- Uniform System of Accounts: Publicly-owned water and wastewater systems should adopt a Uniform System of Accounts (accounting principles), as required by the PUC under Title 66 (Public Utilities) § 1706 (Applicability to municipal corporations) regarding § 1701 (Mandatory system of accounts).

Water Efficiency

- Reducing Unaccounted-for Water: Unaccounted-for water loss or non-revenue water (NRW) is a considerable problem around the world. Investing in underground infrastructure including pipes, valves, meters and the complete distribution, security and transportation network will be critical to improving water loss rates. While pipe leakage is an obvious cause of water loss, NRW includes other areas of "water loss" that are not as immediately apparent, but have a huge impact on the water system and on revenues. NRW includes unbilled authorized consumption (ex. firefighting), unauthorized consumption (ex. illegal connections and metering inaccuracies), and real losses due to pipe leakages and overflow from tanks and reservoir.

  - Asset management requirements should reduce unaccounted-for water loss.
  - Encourage regionalization for systems to gain efficiencies, where applicable.

Watershed Approach

- Regionalization/Consolidation: Consolidation has taken many forms including: (1) acquisitions of smaller systems by larger systems; (2) mergers between utilities; and (3) regionalization, where smaller systems integrate part or all of their water or wastewater management systems to reduce costs, improve service, and maintain regulatory compliance. However, many local governments are parochial and have been slow to embrace regionalization/consolidation in any form. Encourage regionalization for systems where the full cost of service may be unattainable because of the lack of economies of scale/financing ability. State regulatory and funding agencies should encourage public-private partnerships, consolidation and other solutions. The PAPUC has the statutory authority under Section 529 of Title 66 (Public Utilities)[7] to order "a capable public utility to acquire a small water or sewer utility if the PAPUC, after notice and an opportunity to be heard determines…" that six enumerated criteria exist.

  - The definition of "small water or sewer utility" under Section 529 should be amended to include municipal corporations providing public utility service; thus allowing the PAPUC to order the consolidation or acquisition of non-viable publicly-owned water and wastewater systems upon the recommendation of PADEP. A "viable" system is one which is self-sustaining and has the commitment and financial, managerial and technical capabilities to reliably meet PAPUC and PADEP requirements on a long-term basis.[8]
  - The Commonwealth should support regionalization as a key component of a sustainable water and wastewater infrastructure strategy by tying regulatory decision making and funding sources to regional collaboration.

[7] http://ldp.legis.state.pa.us/WU01/LI/LI/CTS/66/00.005.029.000..HTM
[8] Memorandum of Understanding between Department of Environmental Protection and Pennsylvania Public Utility Commission, November 16, 2003

    - Public funding sources for infrastructure improvements should incorporate incentives for regional cooperation, sharing of resources, and, where appropriate, consolidation of systems.

  - Regionalization will not be a "one size fits all" solution. Strategy should recognize that viable options could range from sharing of resources and management systems to physical consolidation of systems where appropriate.
  - Strategy should include greater utilization of intergovernmental cooperation agreements as effective alliances that can pool certain common water/sewer operations such as billing, repair parts and equipment, bulk purchasing, energy purchase, insurance, professional services and training.

- PADEP and PAPUC, through a Memorandum of Understanding, should collaborate and coordinate in the permit phase regarding new and existing water and wastewater systems.

  - Regulations should encourage alternatives (i.e., interconnection with existing systems) to the creation of new small systems.
  - Remove regulatory barriers to developers' options regarding choosing a water or wastewater supplier.

- PADEP, PAPUC and other agencies should collaborate, through a Memorandum of Understanding, in the permit phase to accomplish water quality protection.

- Source Water Protection: Encourage the use of buffer plantings and other Best Management Practices (BMPs) to protect source waters and reduce sediment in reservoirs (thus increasing their useful lives and extending the time needed to replace that "infrastructure") and costs to treatment process (thus reducing strain on the filter plant and increasing its useful life).

- Water Quality Trading: A trading program has been established in the Chesapeake Bay Watershed for Pennsylvania. It is a voluntary program that provides entities with options to traditional infrastructure solutions. Trading creates less expensive options to traditional infrastructure financing. Trading also establishes a mechanism to address non-point sources of pollution not addressed by traditional environmental permitting programs. Nutrient trading also provides incentives for credit generation when infrastructure solutions go beyond minimum requirements.

  - Consideration should be given to the creation of a credit "bank" established by or through the Commonwealth, from which wastewater systems could directly purchase credits.

- Stormwater Management: Encourage the voluntary integration of planning within the water, wastewater and stormwater communities.

Other

- Procurement Law Issues:

  - Low and Outdated Bid Limit Thresholds – some of these procurement law provisions present impediments to the most efficient and cost-effective implementation of complex water and

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sewer systems, and some new tools need to be provided in the "tool box" to facilitate new forms of public contracts and public-private partnerships.

- Following the model of the Commonwealth Procurement Code, bidding thresholds for contracts for construction, repairs, supplies and material procured by municipal authorities and municipalities should be increased to $25,000 with an automatic annual inflation index.
- For contracts involving less than the formal bidding thresholds, municipal authorities and local governmental units should be empowered to utilize less formal multi-vendor solicitation procedures.

- Authorization for Design/Build Contracts – Numerous states and public agencies have shifted to design/build arrangements, in which a single contractor is engaged to be responsible for both the design and construction of particular public works. The design/build arrangement is focused on meeting performance standards, and the contractor is responsible for all design, construction, material and equipment procurement, and installation required to meet the performance standards.

  - Provisions similar to those provided in the Commonwealth Procurement Code should be adopted allowing municipal authorities and municipalities engaged in development and improvement of water and wastewater infrastructure projects to utilize a design/build approach to procurement.
  - To assure that local governments and municipal authorities are properly prepared to utilize DB arrangements, a state agency (such as the Center for Local Government Services in DCED) should be tasked with (i) developing appropriate training programs for municipal leaders, solicitors, engineers and managers; and (ii) preparing model documents and procurement procedures for DB contracting of water and wastewater projects.

- Allowance for Multi-Factor Competitive Proposal Procurement on Complex Projects – The Commonwealth Procurement Code currently allows state agencies to utilize a multi-factor competitive procurement process, which uses a sequence of steps, including request for qualifications, followed by a request for proposal, review of detailed proposals, selection of one or several preferred proposals, and final negotiation of an agreement.

  - Similar to the provisions now contained in the Commonwealth Procurement Law as to state agency procurement, municipal authorities and municipalities engaged in water and wastewater infrastructure projects should be allowed to utilize a competitive procurement process for DB, DBO (design/build/operate), DBOF (design/build/operate and finance) and similar arrangements where multiple performance factors are critical, and selection based on price alone is not appropriate. Such a competitive procurement process would involve a request for proposal / multi-factor evaluation procedure to select the best proposal for project implementation. Procedures should assure a fair and objective review of competing proposals to seek the best deal for the public, considering relevant factors, such as performance, capital and operating cost and risk allocation.
  - A Commonwealth agency should provide training to municipal authority and municipal officials in the utilization of such competitive procurement procedures, in order to promote sound use of these processes. Model documents and procedures should be developed and distributed to facilitate understanding and proper use of these processes.
  - As a check to assure that the multi-factor competitive proposal process is being conducted in a fair, open and proper manner, the procurement law may require that municipal authorities and municipalities submit their proposed RFP solicitation packages and review

procedures to a designated state agency (such as the Center for Local Government Services in DCED) for review and approval.

- Separations Act – The Separations Act requires separate specifications and separate contracts be awarded for plumbing, heating, ventilating, and electrical work. Thus, every project is broken down into four prime contracts: basic construction, plumbing, HVAC, and electrical work. Courts have ruled that public agencies cannot simply select one integrated contractor, and have that contractor separately bid and subcontract the four elements.

  - Municipalities and municipal authorities engaged in construction, expansion or improvement of water or wastewater infrastructure should be permitted to contract with a single general contractor for delivery of integrated projects, and for such purposes should be exempted from the Separations Act.
  - To maintain competition in the particular trades addressed in the Separations Act and to leave open opportunities for small contractors in these trades, one option would be to encourage the general contractor separately bid out some or all of the plumbing, electrical and HVAC work to qualified subcontractors.

- Bidding Requirements for Nutrient Credits – Traditional bidding arrangements are not well suited to nutrient trading arrangements. Not all nutrient credits are "equal" – and the value of such credits may depend upon a number of factors, including the short or long-term nature of commitments being made by the person creating the credit to continue the practices that generate such credits, the risks that such activities may not produce sufficient credits in a particular year, and other considerations. In many cases, the projects required to generate credits must be funded up front, and the terms of the arrangements must be negotiated. As a result, agencies undertaking to purchase credits may need considerable flexibility in the procurement process to develop and negotiate viable trading deals.

  - A water and wastewater infrastructure procurement law should explicitly allow municipal authorities and municipalities to procure nutrient credits and similar forms of pollutant trading credits on a negotiated basis, without the need for formal solicitation and competitive bidding. To provide transparency and accountability, such negotiated arrangements should be allowed only after public notice and a hearing, followed by a finding by the governing board of the agency that such arrangements are in the best interests of the public and water or sewer ratepayers. If a further check is deemed warranted, then it may be provided by permitting such negotiated arrangements only upon submission of the trading proposal to and approval by PADEP.
  - A further option to be considered would be the creation of a credit "bank" established by or through the Commonwealth, from which authorities and municipalities could directly purchase credits at rates set by the bank.

- Authority for Public-Private Partnership Arrangements -- Currently, DBO (design, build, operate) and DBOF (design, build, operate and finance) arrangements are not explicitly allowed in Pennsylvania, and our strict design-bid-build procurement model effectively precludes these more innovative arrangements. To allow and promote such arrangements, a water and wastewater infrastructure procurement law should establish the framework for P3 (public-private partnership) arrangements.

  - As an alternative to traditional construction and services procurement, a water and wastewater infrastructure procurement law should allow municipalities and municipal

authorities to pursue DBO and DBOF arrangements, following a competitive procurement process of the type discussed above. The law should outline minimum provisions for such arrangements, including investigation of contractor qualifications, security for performance, and transition protection for existing employees, as well as provisions necessary to secure private investment in such infrastructure (including assurances of proper service fee setting and collection, public agency repayment, and dispute resolution procedures).

- Risk Allocation Issues -- Governmental units understandably wish to pursue procurements in a manner which reduces uncertainty as to future contingencies and price issues. In seeking that certainty, however, governmental units frequently attempt to shift all contingent risks to the contractors, including issues such as unknown subsurface conditions and cost risks involving commodities (such as asphalt) which are undergoing rapid price changes.

  - Municipal authorities and municipalities should be encouraged to consider alternative and more flexible risk allocation approaches in framing contract provisions. Options to be considered include (i) establishing and setting aside contingency amounts in contracts for particular risk items; (ii) establishing contingencies for certain items and providing for payment to the contractor of a percentage portion of the unused contingency (thereby providing an incentive for contractor efforts to minimize such costs); and (iii) providing risk sharing (where the agency and contractor each take a share of a particular contingency).
  - In situations where key materials are subject to price uncertainties, municipal authorities and municipalities should seriously consider utilizing escalator clauses or special fuel surcharge clauses, similar to those commonly utilized by the Pennsylvania Department of Transportation and federal agencies, to temper those risks and obtain better overall pricing on bid contracts.
  - As another option to control construction material price risks, public agencies should consider purchasing certain materials directly, as is frequently done in waterline projects (*e.g.*, an agency purchases pipeline materials needed for projects through a year directly from the foundry, and provides that material to contractors as projects are let over the year).
  - In light of the current steep price escalations seen in such areas as steel, fuel, and some other commodity, PENNVEST and other financing agencies should provide flexibility in grant and loan awards to allow for escalator clauses in contracts awarded by entities receiving financial assistance.
  - Considering the imperative that projects once started need to be completed, PENNVEST should establish an extraordinary contingency set aside to cover cost contingencies which are beyond the reasonable control of the project sponsor and contractor.

- Value Engineering -- Utilizing their experience and expertise, contractors frequently can assist agencies in identifying “value engineering” adjustments to projects that can reduce overall costs while delivering the desired product.

  - Municipal authorities and municipalities should be strongly encouraged to include in their major infrastructure projects provisions which allow for and encourage contractor value engineering. As an incentive for the contractor to bring value engineering recommendations to the table, agencies should be encouraged to include in such provisions procedures whereby anticipated cost savings (capital and O&M costs) are calculated, and a percentage share of that savings is shared with the contractor who suggested the change.

- Timely Contractor Payment and Interim Financing -- One of the factors which drive up project costs involves contractor concerns for timely payment, and particularly the difficulty of receiving

progress payments in a timely manner. In some cases, progress payments may be delayed 120 days or more after the close of an invoice period, and the effect ripples down to subcontractors, equipment and material suppliers, and service providers.

- At the outset of projects, municipal authorities and municipalities should develop and commit to clear and expeditious progress payment review and disbursement procedures that assure timely disbursements to contractors. Such procedures should make clear that the project sponsor will pay commercial-borrowing rate interest on payments that are delayed.
- Engineers and other professionals involved in reviewing requisition requests must be made thoroughly familiar with the requisition and disbursement procedures, and be committed to follow those procedures in an expeditious manner.
- Where project sponsors are obtaining federal or state financial assistance, they should consider making arrangements for interim financing with local banks to cover progress payment disbursements pending receipt of reimbursements from the assisting federal or state agencies. To the extent that such interim financing arrangements may be constrained by the provisions of the Local Governmental Unit Debt Act, an exception to the Act's limitations should be adopted that would allow for such temporary borrowing pending receipt of committed federal and state financing assistance.
- Federal and state financing entities, such as PENNVEST, should develop fund disbursement procedures that reduce the need for "contractor financing" or project sponsor interim financing. One option may be to provide an expedited conditional release of an initial reimbursement payment subject to subsequent further detailed review of that request, with the potential for hold back of later reimbursement payments if issues are found in the earlier request.

- Energy Conservation Measures – Under the Procurement Code, a guaranteed energy savings contract may provide for payments over a period of time not to exceed 15 years and for evaluation, recommendation, design, implementation and installation of energy conservation measures on an installment payment or lease purchase basis.

  - The Procurement Code should be amended to allow payments over a period of time not to exceed 20 years and for evaluation, recommendation, design, implementation and installation of energy conservation measures on an installment payment or lease purchase basis. New energy efficient and chemical reducing technologies for above ground water storage reservoirs have shown great reductions in the amount of chemicals needed while reducing maintenance costs for tanks.

Long Term Recommendations

The following are recommendations that, in the opinion of the Work Group, will take more than two years to achieve:

Better Management

- Publicly-owned water and wastewater systems should provide uniform consumer services, e.g. billing, termination (along the lines of the PAPUC regulated systems).

Full Cost Pricing

- Customer Assistance Programs: Examine the feasibility of authority and municipally-owned water and wastewater systems to provide customer assistance programs for low income customers.

- Energy Synergies: Encourage cost control, including energy synergies (i.e., generation of electricity from wind).

Water Efficiency

- Reduce Infiltration/Inflow in Wastewater Systems: Asset management requirements should reduce infiltration/inflow in wastewater systems.

Watershed Approach

- Regionalization should be viewed in the context of an integrated, watershed-based planning approach that addresses drinking water, wastewater and stormwater management needs.

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APPENDIX
Issues

The Legislative and Regulatory Needs Work Group and its subgroups discussed and made recommendations on the following issues:

Public Utility Issues

Background

The subgroup structured their discussions around the U.S. Environmental Protection Agency's (USEPA) four pillars of Sustainable Infrastructure: (1) Better Management; (2) Full Cost Pricing; (3) Water Efficiency; and (4) Watershed Approaches. However, the subgroup consolidated the last two USEPA pillars for discussion purposes.

Issue: Better Management

- Encourage collaboration and coordination of operations in the permitting phase as well as for existing water suppliers.
- Customer education regarding infrastructure issues.
- Consumer service issues, e.g., billing, termination (could be addressed by the PAPUC).
- Energy synergies.

Issue: Full Cost Pricing

- Encourage the use of the Uniform System of Accounts.
- Customer assistance programs for low income customers.
- Encourage regionalization for systems where the full cost of service may be unattainable because of the lack of economies of scale/financing ability.
- Cost control, including energy synergies.

Issue: Efficient Water Use/Watershed Approaches

- Encourage regionalization for systems to gain efficiencies.
- Energy issues.
- Permitting is an opportunity for PADEP/PAPUC and other agencies to work together to accomplish these goals.
- Remove barriers to developers' options regarding a water provider.

Issue: Other Initiatives

- Distribution/Collection System Improvement Charge (DSIC/CSIC). **Note**: This was not a unanimous recommendation of the subgroup.

Procurement Law Issues

Overview

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Procurements of construction, supplies and services by Pennsylvania municipal authorities, cities, boroughs and townships are governed by a variety of different statutes, that apply either to specific types of municipal entities or to all or most public entities. These laws were developed at varying times over the past century or more to address a range of concerns or issues. Many of these laws were framed with the laudable objective of assuring honest governmental practices, cost-effective use of taxpayer funds, and a fair, open, and competitive process for procuring goods and services. However, some of these procurement law provisions present impediments to the most efficient and cost-effective implementation of complex water and sewer systems, and some new tools need to be provided in the "tool box" to facilitate new forms of public contracts and public-private partnerships – such as design/build ("DB") construction, design/build/operate ("DBO") contracts, and design/build/operate and finance ("DBOF") arrangements.

This paper outlines some of the key issues or impediments, and provides suggestions for possible reforms meriting serious legislative consideration. It is recommended that such procurement law reforms be expressed in a separate bill, rather than being combined into legislation dealing with financing or other aspects of the sustainable infrastructure challenge.

1. **Issue**: **Low and Outdated Bid Limit Thresholds.** Currently, the Municipality Authorities Act sets a threshold for bidding for all construction, reconstruction, repairs or work, and for all contracts for supplies and materials, of $10,000.[9] This threshold has been in effect since 1990, without adjustment, while inflation has significantly reduced the "value" of $10,000.

   Similarly, water and wastewater systems operated by cities, boroughs, and townships are subject to relatively low bidding levels of $10,000, with limited exceptions (only in some cases) for projects involving only maintenance of water systems.[10]

   As a result, many relatively small maintenance jobs (some of which need to be procured on an expeditious basis) are forced into formal time-consuming and expensive bidding arrangements, when much less cumbersome solicitations of vendors might be warranted.

   ***Recommendations**:*

   1.1 Following the model of the Commonwealth Procurement Code,[11] bidding thresholds for contracts for construction, repairs, supplies and material procured by municipal

[9] 53 Pa. C.S. §5614(a)-(b).

[10] *See* Act of March 7, 1901, P.L. 20, *as amended*, 53 P.S. § 23308.1 (second class cities subject to $10,000 threshold); Act of June 23, 1931, P.L. 932, *as amended*, 53 P.S. § 36901(b), (d)(1) (third class cities subject to $10,000 threshold; however, contracts for water system maintenance, repairs and replacements are exempt from competitive bidding requirements if they do not constitute new additions, extensions or enlargements of existing facilities and equipment); Act No. 1966-581, *as amended*, 53 P.S. § 46402(a), (d)(1) (boroughs subject to $10,000 threshold; however, contracts for water system maintenance, repairs and replacements are exempt from competitive bidding requirements if they do not constitute new additions, extensions or enlargements of existing facilities and equipment); Act of June 24, 1931, P.L. 1206, *as amended*, 53 P.S. § 56802 (a), (d)(1) (first class townships subject to $10,000 threshold; however, contracts for water system maintenance, repairs and replacements are exempt from competitive bidding requirements if they do not constitute new additions, extensions or enlargements of existing facilities and equipment); Act No. 1933-69, *as amended*, 53 P.S. § 68102(a), (h)(1) (second class townships subject to $10,000 threshold; however, contracts for water system maintenance, repairs and replacements are exempt from competitive bidding requirements if they do not constitute new additions, extensions or enlargements of existing facilities and equipment).

authorities and municipalities should be increased to $25,000 with an automatic annual inflation index.

1.2 For contracts involving less than the formal bidding thresholds, municipal authorities and local governmental units should be empowered to utilize less formal multi-vendor solicitation procedures.

2. **Issue: Authorization for Design/Build Contracts.** The traditional pattern of design-bid-build contracting for public works involves a protracted process under which (1) a water or wastewater facility must first be fully designed by an engineering firm engaged by the public agency owner; (2) the public agency must solicit bids on a set contract form and specifications; and (3) after award of the contract to the lowest responsible bidders,[12] the contractors proceed to build the project. This process leads to inevitable claims for change orders and/or "finger pointing" between the contractors and design professionals when problems arise.

In contrast, over the past several decades numerous states and public agencies have shifted to design/build arrangements, in which a single contractor is engaged to be responsible for both the design and construction of particular public works. The design/build arrangement is focused on meeting performance standards, and the contractor is responsible for all design, construction, material and equipment procurement, and installation required to meet the performance standards. The public agency owner is no longer placed between the design engineer and the construction contractor. "Finger pointing" is eliminated, as the contractor is fully responsible for project delivery, and cannot blame someone else.

DB approaches are particularly useful in the context of substantial water and wastewater treatment plant construction projects, where alternative approaches may be considered to achieve a particular performance objective and standard, and the goal is to solicit proposals for obtaining the most cost-effective approach to achieving such results. Studies have indicated that design/build arrangements can save approximately 20% in overall project procurement costs. At the same time, design/build arrangements have proven highly effective in allowing for "fast track" implementation of larger projects, as design proceeds in phases while elements of the project get underway. Such DB arrangements have worked quite effectively in large and small water and wastewater projects, such as the Tampa Bay Water 60 mgd surface water treatment facility.

While the Commonwealth Procurement Code specifically allows state agencies to utilize DB arrangements, similar clear authorization has not been extended to municipal authorities and municipalities. Although Pennsylvania courts have consistently held that professional skill services, such as architectural and engineering design, are exempted from competitive bidding requirement, the treatment of mixed design/build contracts is uncertain and doubtful. This situation should be rectified, especially for water and wastewater infrastructure projects.

It is noted that managing design/build procurement arrangements requires a degree of expertise and sophistication by the governmental entity, and it will be important to assure fair, open and competitive procedures. Further, the work group cautions that DB procedures

[11] 62 Pa. C.S. §101 *et seq.*
[12] See discussion below concerning Separations Act issues.

should be framed and implemented to assure fair and open competition, to avoid creating an environment for improper behavior or monopolistic activity.

Recommendation:

2.1 Provisions similar to those provided in the Commonwealth Procurement Code should be adopted allowing municipal authorities and municipalities engaged in development and improvement of water and wastewater infrastructure projects to utilize a design/build approach to procurement.

2.2 To assure that local governments and municipal authorities are properly prepared to utilize DB arrangements, a state agency (such as the Center for Local Government Services in DCED) should be tasked with (i) developing appropriate training programs for municipal leaders, solicitors, engineers and managers; and (ii) preparing model documents and procurement procedures for DB contracting of water and wastewater projects.

3. **Issue: Allowance for Multi-Factor Competitive Proposal Procurement on Complex Projects.** The design-bid-build public works procurement model is fundamentally built upon review of one factor – the lowest construction or equipment price received from "responsible" bidders. However, in complex infrastructure projects, purchase price alone may not be the appropriate metric for determining the "best deal" for the public. Particularly in DB, DBO, and DBOF contracting, the preferred method for contractor selection considers multiple factors – including contractor qualifications, reputation, financial strength, past performance, initial design/construction cost, long-term operating and replacement costs (*e.g*., life-cycle analysis), guarantees, risk allocation and contract terms.

The Commonwealth Procurement Code currently allows state agencies to utilize a multi-factor competitive procurement process, which uses a sequence of steps, including request for qualifications, followed by a request for proposal, review of detailed proposals, selection of one or several preferred proposals, and final negotiation of an agreement. This procurement model has worked well in other jurisdictions, and is accepted norm for DB, DBO, DBOF and other public-private partnership procurements.

Recommendation:

3.1 Similar to the provisions now contained in the Commonwealth Procurement Law as to state agency procurement, municipal authorities and municipalities engaged in water and wastewater infrastructure projects should be allowed to utilize a competitive procurement process for DB, DBO, DBOF and similar arrangements where multiple performance factors are critical, and selection based on price alone is not appropriate. Such a competitive procurement process would involve a request for proposal / multi-factor evaluation procedure to select the best proposal for project implementation. Procedures should assure a fair and objective review of competing proposals to seek the best deal for the public, considering relevant factors, such as performance, capital and operating cost and risk allocation.

3.2 As noted above, a Commonwealth agency should provide training to municipal authority and municipal officials in the utilization of such competitive procurement procedures, in order to promote sound use of these processes. Model documents and procedures

should be developed and distributed to facilitate understanding and proper use of these processes.

3.3 As a check to assure that the multi-factor competitive proposal process is being conducted in a fair, open and proper manner, the procurement law may require that municipal authorities and municipalities submit their proposed RFP solicitation packages and review procedures to a designated state agency (such as the Center for Local Government Services in DCED) for review and approval.

4. **Issue: Separations Act.** What is commonly known as the Separation Act,[13] applies to municipality and municipal authority procurements for the "erection, construction, and alteration of any public building," where the cost of such work exceeds $4,000.[14] The Separations Act requires separate specifications and separate contracts be awarded for plumbing, heating, ventilating, and electrical work. Thus, every project is broken down into four prime contracts: basic construction, plumbing, HVAC, and electrical work. Courts have ruled that public agencies cannot simply select one integrated contractor, and have that contractor separately bid and subcontract the four elements.[15]

The construction of water supply and wastewater treatment systems involve complex, integrated systems, which include interlinked elements of plumbing (valves, pumps, and gauges), electrical systems (including SCADA controls and power to supply various equipment), and HVAC systems (including odor control and pressure control systems). The Separations Act seriously precludes contracting on an integrated systems basis. The Act essentially forces a municipality or municipal authority to either act as the "general contractor" or alternatively spend additional money to hire a construction manager to oversee four or more separate contractors. At the same time, the Separations Act inhibits the placement of responsibility on contractors to deliver a final product that meets a performance standard, as each contractor claims responsibility only for their piece of the work, not the final product.

Whatever the merits may be of the Separations Act in other contexts, it is a suboptimal model for contracting water and wastewater infrastructure where the concern for accountability in delivering a project on time, on budget, and meeting all system standards is of paramount concern.

Recommendation:

4.1 Municipalities and municipal authorities engaged in construction, expansion or improvement of water or wastewater infrastructure should be permitted to contract with a single general contractor for delivery of integrated projects, and for such purposes should be exempted from the Separations Act.

4.2 To maintain competition in the particular trades addressed in the Separations Act and to leave open opportunities for small contractors in these trades, one option would be to encourage the general contractor separately bid out some or all of the plumbing, electrical and HVAC work to qualified subcontractors.

[13] Act of May 1, 1913, P.L. 155, *as amended*, 53 P.S. § 1003 (1997).

[14] *See id.* The Administrative Code contains an identical version of the Separation Act applicable to construction by State agencies. 71 P.S. § 1618 (1997).

[15] *Mechanical Contractors Assoc. of Eastern Penna., Inc. v. Southeastern Penna. Transport. Auth.*, 654 A.2d 119 (Pa. Commw. 1995).

5. **Issue: Bidding Requirements for Nutrient Credits.** Under the Chesapeake Bay Tributary Strategy, as well as potential future nutrient management programs, one of the options for complying with nutrient limitations involves the "trading" mechanisms under which a discharger may acquire "nutrient credits" from other point or non-point sources who have undertaken to control phosphorus or nitrogen loadings below minimum regulatory requirements. PADEP has established a "market" for such credits, including procedures for determining the amount of eligible credits, and mechanisms for recording trades. The legal status of nutrient credits under municipal and municipal authority procurement provisions has not been definitively determined. Wastewater operators are left with the question as to whether credits are supplies, material, or services subject to bidding requirements or not.

At the same time, traditional bidding arrangements are not well suited to nutrient trading arrangements. Not all nutrient credits are "equal" – and the value of such credits may depend upon a number of factors, including the short or long-term nature of commitments being made by the person creating the credit to continue the practices that generate such credits, the risks that such activities may not produce sufficient credits in a particular year, and other considerations. In many cases, the projects required to generate credits must be funded up front, and the terms of the arrangements must be negotiated. As a result, agencies undertaking to purchase credits may need considerable flexibility in the procurement process to develop and negotiate viable trading deals.

Recommendation:

5.1 A water and wastewater infrastructure procurement law should explicitly allow municipal authorities and municipalities to procure nutrient credits and similar forms of pollutant trading credits on a negotiated basis, without the need for formal solicitation and competitive bidding. To provide transparency and accountability, such negotiated arrangements should be allowed only after public notice and a hearing, followed by a finding by the governing board of the agency that such arrangements are in the best interests of the public and water or sewer ratepayers. If a further check is deemed warranted, then it may be provided by permitting such negotiated arrangements only upon submission of the trading proposal to and approval by PADEP.

5.2 A further option to be considered would be the creation of a credit "bank" established by or through the Commonwealth, from which authorities and municipalities could directly purchase credits at rates set by the bank.

6. **Issue: Authority for Public-Private Partnership Arrangements.** A variety of states (including California, Connecticut, Florida, Massachusetts, New Jersey, and New York) have progressed forward in adopting legislation allowing public-private partnership ("P3") arrangements for the delivery and operation of water and wastewater infrastructure. Allowable arrangements including long-term design, build and operation ("DBO") contracts (including full responsibility for maintenance, repair and replacement). An even broader option, used in a few jurisdictions, involve design, build, operate and finance ("DBOF") arrangements, where the private contractor takes over the water or wastewater treatment facility, finances and builds improvements, operates the plant and is paid back by the municipality over time through service fees collected by the municipality. Based on studies compiled by the National Council on Public Private Partnerships, such arrangements can result in significant long term cost savings, by bringing the knowledge, experience and advantages of sophisticated and well managed business organizations to operate and oversee such infrastructure.

Currently, DBO and DBOF arrangements are not explicitly allowed in Pennsylvania, and our strict design-bid-build procurement model effectively precludes these more innovative arrangements. To allow and promote such arrangements, a water and wastewater infrastructure procurement law should establish the framework for P3 arrangements.

Recommendation:

6.1 As an alternative to traditional construction and services procurement, a water and wastewater infrastructure procurement law should allow municipalities and municipal authorities to pursue DBO and DBOF arrangements, following a competitive procurement process of the type discussed above. The law should outline minimum provisions for such arrangements, including investigation of contractor qualifications, security for performance, and transition protection for existing employees, as well as provisions necessary to secure private investment in such infrastructure (including assurances of proper service fee setting and collection, public agency repayment, and dispute resolution procedures).

7. **Risk Allocation Issues**. Governmental units understandably wish to pursue procurements in a manner which reduces uncertainty as to future contingencies and price issues. In seeking that certainty, however, governmental units frequently attempt to shift all contingent risks to the contractors, including issues such as unknown subsurface conditions and cost risks involving commodities (such as asphalt) which are undergoing rapid price changes. While such a risk-shifting approach may reduce "uncertainty," it essentially requires that contractors assume worst case and include the cost of such contingencies in their price proposal. If the contingency does not occur, then the contractor still gets paid the higher price, and makes a windfall. The result of such an approach is a higher price to the public than might otherwise have occurred.

Recommendation:

7.1 Municipal authorities and municipalities should be encouraged to consider alternative and more flexible risk allocation approaches in framing contract provisions. Options to be considered include (i) establishing and setting aside contingency amounts in contracts for particular risk items; (ii) establishing contingencies for certain items and providing for payment to the contractor of a percentage portion of the unused contingency (thereby providing an incentive for contractor efforts to minimize such costs); and (iii) providing risk sharing (where the agency and contractor each take a share of a particular contingency).

7.2 In situations where key materials are subject to price uncertainties, municipal authorities and municipalities should seriously consider utilizing escalator clauses or special fuel surcharge clauses, similar to those commonly utilized by the Pennsylvania Department of Transportation and federal agencies, to temper those risks and obtain better overall pricing on bid contracts.

7.3 As another option to control construction material price risks, public agencies should consider purchasing certain materials directly, as is frequently done in waterline projects (*e.g.*, an agency purchases pipeline materials needed for projects through a year directly from the foundry, and provides that material to contractors as projects are let over the year).

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7.4 In light of the current steep price escalations seen in such areas as steel, fuel, and some other commodity, PENNVEST and other financing agencies should provide flexibility in grant and loan awards to allow for escalator clauses in contracts awarded by entities receiving financial assistance.

7.5 Considering the imperative that projects once started need to be completed, PENNVEST should establish an extraordinary contingency set aside to cover cost contingencies which are beyond the reasonable control of the project sponsor and contractor.

8. **Value Engineering.** Utilizing their experience and expertise, contractors frequently can assist agencies in identifying "value engineering" adjustments to projects that can reduce overall costs while delivering the desired product. Post contract award value engineering procedures are an accepted practice in state and federal contracting, although often less flexibility is accorded to such approaches in local government contracting. Unfortunately, value engineering is not encouraged when municipalities simply take contractor suggestions and issue change orders reducing the contract price, providing no reward to the contractor for innovation and valuable suggestions.

Recommendation:

8.1 Municipal authorities and municipalities should be strongly encouraged to include in their major infrastructure projects provisions which allow for and encourage contractor value engineering. As an incentive for the contractor to bring value engineering recommendations to the table, agencies should be encouraged to include in such provisions procedures whereby anticipated cost savings (capital and O&M costs) are calculated, and a percentage share of that savings is shared with the contractor who suggested the change.

9. **Timely Contractor Payment and Interim Financing**. One of the factors which drive up project costs involves contractor concerns for timely payment, and particularly the difficulty of receiving progress payments in a timely manner. In some cases, progress payments may be delayed 120 days or more after the close of an invoice period, and the effect ripples down to subcontractors, equipment and material suppliers, and service providers. Such situations may be contributed to by several factors, including (i) uncertainty or personnel unfamiliarity with the public agency's requisition process; (ii) delays in engineer or project management personnel review of invoices; and (iii) delays encountered by the project sponsor in obtaining the release of funds from financing sources, such as PENNVEST or other assisting organizations.

Such situations force general contractors and subcontractors to, in effect, finance the carrying cost of projects. Contractors need to borrow (utilizing lines of credit) at interest rates considerably higher than those available to public agencies, and these costs, in turn, are reflected in bids. Project sponsors can reduce such costs by improving and expediting the requisition/payment process and by arranging for interim financing to cover the time period between payment requisition and release of grant or loan funds from federal or state assisting agencies. Federal and state agencies providing financial assistance can assist in reducing costs by streamlining fund release protocols, or providing a fund release system that in effect provides an interim financing arrangement.

Recommendations:

9.1 At the outset of projects, municipal authorities and municipalities should develop and commit to clear and expeditious progress payment review and disbursement procedures that assure timely disbursements to contractors. Such procedures should make clear that the project sponsor will pay commercial-borrowing rate interest on payments that are delayed.

9.2 Engineers and other professionals involved in reviewing requisition requests must be made thoroughly familiar with the requisition and disbursement procedures, and be committed to follow those procedures in an expeditious manner.

9.3 Where project sponsors are obtaining federal or state financial assistance, they should consider making arrangements for interim financing with local banks to cover progress payment disbursements pending receipt of reimbursements from the assisting federal or state agencies. To the extent that such interim financing arrangements may be constrained by the provisions of the Local Governmental Unit Debt Act, an exception to the Act's limitations should be adopted that would allow for such temporary borrowing pending receipt of committed federal and state financing assistance.

9.4 Federal and state financing entities, such as PENNVEST, should develop fund disbursement procedures that reduce the need for "contractor financing" or project sponsor interim financing. One option may be to provide an expedited conditional release of an initial reimbursement payment subject to subsequent further detailed review of that request, with the potential for hold back of later reimbursement payments if issues are found in the earlier request.

Other Issues. The procurement law work group recognizes that other issues of potential interest have been raised regarding procurement arrangements governing water and wastewater infrastructure, including the applicability and implementation of prevailing wage laws. Some of these issues are highly charged and politically controversial, and may need to be considered separately or in a broader context, but should not become a hurdle to addressing those reforms described above.

Capacity Enhancement Program

On June 28, 2008, the Pennsylvania Department of Environmental Protection (PADEP) issued an "interim final" Pennsylvania Capability Enhancement Program (Doc. No. 383.0400-114), setting for the guidance and procedures for implementing the federal capacity development strategy called for under the 1996 amendments to the Federal Safe Drinking Water Act. The PADEP CEP guidance document seeks to establish a methodology to implement, track and allocation resources needed to carryout a program to improve the management and financial capabilities of community, non-transient non-community, and transient drinking water systems. In doing so, the PADEP CEP guidance undertakes to address both capability enhancement program requirements and source water assessment and protection program requirements by providing methods for evaluating how well public water systems are performing, and to identify on a priority basis those systems which require assistance to improve either managerial skills or financial resources.

In the short time available, a small team reviewed the interim final CEP guidance document. The public comment period on this guidance is currently open, and comments from involved water systems may be particularly helpful in terms of identifying the current strengths, gaps and potential avenues for improvement of the capacity enhancement program.

Based on our current review, we would offer several observations for consideration:

1. ***Need to Broaden Objectives to Included Quantity Issues.*** The CEP guidance states the overall objective of the program as being to "[e]mpower public water system personnel with the knowledge or access to information that allows them to address any factor that limits their capability to produce quality water in a reliable and efficient manner." The dominant theme of the entire document is on the quality of water delivered by public systems. Very little consideration or attention is provided to the other critical factor of water system performance – the delivery of adequate ***quantities*** of water under varying hydrologic conditions (*e.g*., during drought as well as normal climatic conditions). The objectives of the policy should be broadened to encompass and reflect quantity, as well as quality, aspects of water system performance.

2. ***Program Organization and Administration.*** The CEP guidance contains a description of the overall organization of the CEP program, including the respective allocations of staff among PADEPs regions. The program calls for three (3) Capacity Enhancement Facilitators, each serving two PADEP regional offices. Separately, 12 Source Water Protection Facilitators ("SWPFs") have been assigned to the regional offices, with one regional office (the Southwest) having no SWPF, and others (Northeast and Northwest) having up to 4 SWPFs. The rationale for this particular allocation of staff is not provided in the document. Overall, it appears that heavy emphasis is placed upon staffing the source water protection program assistance. We are concerned that three Capacity Enhancement Facilitators will be spread extremely thin in terms of their capacity to effectively reach out to and assist the myriad of small and challenged systems across the Commonwealth. It would be helpful to obtain from PADEP further information concerning what the agency projects to be the staffing or other resources required to make the capacity enhancement program fully effective.

3. ***Site Specific and Global Capability Enhancement Strategies.*** What the CEP guidance refers to as "site specific" and "global" capability enhancement strategies largely appear focused on how to help existing systems (in their current configuration) be more effective from an managerial skills or financial planning perspective. The strategies do not really tackle some of the toughest questions posed by the large numbers of small systems owned by municipalities, homeowner associations, land developers and the manufactured housing industry. Those difficult challenges are briefly identified on pages 30-32 of the document, but without suggestions as to approaches or strategies to address those problems.

Understanding that PADEP's CEP strategies may be largely designed to address USEPA program guidance, and may therefore be flavored by having to address USEPA regional or headquarters guidance, a casual reader's review suggests that the strategies are heavy on process, flow charts and internal procedures. What is less obvious is how the strategies will work in practical effect to reach out and actually effectuate change and improvement "on the ground" at the water system level.

4. ***Priority Ranking System.*** The CEP guidance ranks water systems based on five relatively simplistic factors: (1) whether the system is listed on the "significant non-complier" list; (2) whether the system has a written source water protection plan; (3) whether the system reports an available licensed operator of appropriate class was employed throughout the prior year; (4) whether the system has an emergency response and an operations and maintenance plan; and (5) if the system's revenues to expense ratio is sufficient to cover operational costs. Each of these are yes/no questions (with a score of either 0 or 1), leading to a total system score of between 0 and 5.

Understanding that this prioritization scheme was developed to rely on readily available information in PADEP's databases, we are nevertheless concerned that the prioritization approach may have some significant gaps. For example:

- If a system which puts out good quality water, but has recurrent source yield deficiencies such that it must curtail service or invoke rationing, it appears that situation would not be "flagged" by any of the 5 factors. Similarly, systems which put out water of satisfactory quality, but have excessive leakage and loss, would not trigger any factor.

- Two of the five questions ask whether a system has a certain written plan; but if the only system has a plan on paper and does not actively implement it, that deficit does not trigger any rating factor.

- The financial rating factor looks at the reported system revenue to expense ratio, but does not apparent ask whether the system's operating expense budget is really adequate. If a system defers maintenance, and therefore reports a low operating budget, in may appear that the revenue to expense ratio is adequate when in fact problems are building.

Somewhere in the prioritization process, regional staff should be given greater latitude to identify problem systems based on their experience and overall knowledge of system issues.

5. ***Assistance Implementation Plans.*** The CEP guidance calls for more detailed assistance implementation plans ("AIP") for high-priority systems identified in the course of the prioritization process. This seems like a logical step, but would urge that the AIP process be carried out on streamlined basis. Clearly, the goal is not planning, but delivery of practical assistance.

6. ***Program Resources for AIP Implementation***. Pages 24-26 describe generally a smorgasbord of programs for providing various types of assistance to individual systems. Given the nature of this guidance document, the document itself does not problem much in the way of understanding the breadth or depth of these programs – such as the number of target systems that can be practically covered each year by the "Engineering Services Contract," or what resources are available via the "Business Planning and Asset Management" program.

7. ***The Big Issues***. Finally, as noted above, the last few pages of the CEP guidance makes note of some overriding institutional, managerial and financial challenges facing many small water systems. With 91 percent of Pennsylvania's water systems serving less than 3,300 customers, and more than 1200 association, institution, manufactured housing and apartment complex systems, the Commonwealth faces a plethora of entities that are severely challenged in terms of marshalling managerial and financial resources needed to operate cost-effective water systems. Potential approaches to address some of these challenges are being addressed by other Work Groups of the Sustainable Water Infrastructure Task Force, but there can be no doubt that this institutional challenge must be forthrightly tackled if we are to make effective headway in terms of maintaining sustainable water supply (and also wastewater) systems.

Regionalization/Consolidation

Overview

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The purpose is to outline the issue of regionalization as it pertains to sustainable water and wastewater infrastructure in the Commonwealth of Pennsylvania. Consolidation has taken many forms including: (1) acquisitions of smaller systems by larger systems; (2) mergers between utilities; and (3) regionalization, where smaller systems integrate part or all of their water or wastewater management systems to reduce costs, improve service, and maintain regulatory compliance.

Recommendations:

1. The Commonwealth should support regionalization as a key component of a sustainable water and wastewater infrastructure strategy by tying regulatory decision making and funding sources to regional collaboration.

2. Regionalization should be viewed in the context of an integrated, watershed-based planning approach that addresses drinking water, wastewater and stormwater management needs.

3. Regulatory and legislative mechanisms should complement each other in order to facilitate an integrated, watershed-based management approach.

4. Regionalization will not be a "one size fits all" solution. Strategy should recognize that viable options could range from sharing of resources and management systems to physical consolidation of systems where appropriate.

5. Public funding sources for infrastructure improvements should incorporate incentives for regional cooperation, sharing of resources, and, where appropriate, consolidation of systems.

6. Environmental regulation and enforcement activities should provide incentives for viable utilities to acquire or manage troubled systems.

7. Regulations should discourage the creation of new small systems that historically have shown a high likelihood of becoming troubled systems in the future.

8. Strategy should include greater utilization of Councils of Government as effective alliances that can pool certain common water/sewer operations such as billing, repair parts and equipment, bulk purchasing, energy purchase, insurance, professional services and training.

Land Use Planning

Overview

The purpose of this paper is to outline the issue of land use planning as it pertains to sustainable water and wastewater infrastructure in the Commonwealth of Pennsylvania.

I. Authorization for Land Use Planning

Land use planning in Pennsylvania is authorized by the Municipalities Planning Code (MPC), Act 247 of 1968 as amended. The Act applies to all Pennsylvania local government with the exception of First Class Counties (Philadelphia) and First Class Cities (Philadelphia and Pittsburgh).

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The MPC authorizes local government "to plan their development and to govern the same by zoning, subdivision and land development ordinances, planned residential development and other ordinances…"

Article III of the MPC allows, in preparation of a Comprehensive Plan, "a plan of community facilities and utilities, which may include public and private education, recreation, municipal buildings, fire and police stations, libraries, hospitals, water supply and distribution, sewerage and waste treatment (emphasis added), solid waste management, storm drainage, and flood plain management, utility corridors and associated facilities, and other similar facilities or uses." (Section 301(4)). The Comprehensive Plan shall also include "a plan for the reliable supply of water, considering current and future water resources availability, uses and limitations, including provisions adequate to protect water supply sources." Any such plans shall be consistent with the State Water Plan and any applicable water resources plan adopted by a Water Basin Commission.

Section 303 of the MPC indicates that the planning agency of the local government shall have the opportunity to review any proposed action related to "the construction, extension or abandonment of any water line, sewer line or sewage treatment facility." (Section 303(A)(4).

Unfortunately, with limited exception as addressed later, the Comprehensive Plan is a planning document with no enforcement provisions.

Also authorized by the MPC, and necessary for the implementation of the Comprehensive Plan with its specified future land use plan and utility plans, are a Zoning Ordinance and Subdivision and Land Development Ordinance. Zoning Ordinances may include provisions regulating the "siting, density and design of residential, commercial, industrial and other developments in order to assure the availability of reliable, safe and adequate water supplies to support the intended land use within the capacity of available water resources." (Section 603 (d). Additionally, Zoning Ordinances may regulate the uses of land, dimensional criteria of buildings, density of population and intensity of use, protection and preservation of natural resources and agricultural land and activities, among other things. The Zoning Ordinance does establish the future land use plan of the Comprehensive Plan and converts it to a Zoning Map, with sub-districts designed to implement the future land use plan of the Comprehensive Plan. The relationship between infrastructure such as water and sewer and land use is addressed in the Comprehensive Plan as the future land use map is created, and thus the Zoning Ordinance hopefully reflects land use taking into account the availability of, or desire for, infrastructure.

The Subdivision and Land Development Ordinance which is provided for in the MPC is predominantly a more technically oriented regulation to outline the required approval process and planning content for the subdivision or development of land. While taking into account the zoning with acceptable uses, the Subdivision and Land Development Ordinance can take into account and can require the provision of adequate infrastructure as a condition of the approval of a subdivision or land development. For instance, Section 503(3) authorizes "provisions governing the standards by which streets shall be designed, graded and improved, and walkways, curbs, gutters, street lights, fire hydrants, water and sewage facilities (emphasis added) and other improvements shall be installed as a condition…"

Both the Zoning Ordinance and Subdivision and Land Development Ordinance are regulatory tools which can be used to implement the Comprehensive Plan. Exceptions to the Zoning Ordinance are by recommendation of the Planning Commission and approval by the Zoning Hearing Board, and

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exceptions to the Subdivision and Land Development Ordinance are by recommendation of the Planning Commission and approval by the governing body of the municipality.

It should be noted, however, that there is neither authorization of nor prohibition of the extension of water or sewer infrastructure in relationship to land use; any utility is free to extend infrastructure without regulation or without regard to land use, with limited exception as outlined below.

Act 537, which requires official plans for sewage planning, does require a needs-based assessment for the approval of the overall plan and how waste water needs are met within the local government jurisdiction.

To our knowledge, no comparable official water plan requirement exists.

II. Relationship of Land Use Planning to approval agencies.

With regard to the approval or prohibition of utilities extending their infrastructure into new areas, Acts 67 and 68 of 2000 provided limited guidance to the Pennsylvania Department of Environmental Protection (PADEP) and other state agencies to "encourage sound land-use planning at the local level and require state agencies to consider local land use ordinances and comprehensive plans in making certain permit and funding decisions."

With regard to permitting, PADEP policy contained in document number 012-0200-001 dated March 6, 2004 contains a policy entitled, "Final Revision of Policy for consideration of local comprehensive plans and zoning ordinances and PADEP review of permits for facilities and infrastructure." The policy, unfortunately, was limited in its applicability to only certain projects for construction of facilities or infrastructure and specifically listed programs. The policy does not appear to apply to the most commonly utilized permits for extension of water and waste water facilities infrastructure. Actual results from the implementation of this policy are unknown.

With regard to funding of facilities and infrastructure, the PADEP policy entitled "Policy for consideration of Comprehensive Plans and Zoning Ordinances in PADEP's view of grants and funding for facilities and infrastructure" contained in document ID012-020-002 dated August 28, 2004 does in fact cover most, if not all, sources of funding. The policy applies to the municipalities with adopted MPC Comprehensive Plans and Zoning Ordinances. The outcome of the review policy is that ranking would be higher priority for those projects in municipalities where one of the three required criteria (Section 619.2(a) of the MPC, or Joint Zoning Ordinance, or a Cooperative Agreement and Adopted Zoning Ordinances) exist. PADEP would also have the authority to deny funding or condition grants to projects originating in areas in the state that meet the criteria, but which are not consistent with the Comprehensive Plans and appropriate implementing ordinances. The operational implementation of the grants application policy is to first conduct a review to ensure compliance with application procedures and then consider the land use information. Actual implementation results of this policy are unknown.

To our knowledge, no other authorization for extension of infrastructure exists nor does any prohibition of infrastructure extension exist within the planning documents.

Workforce Development

Overview

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Not only can we expect it to be very costly to replace our infrastructure, but it will also require a trained workforce of water and wastewater professionals in sufficient numbers, and possessing the necessary knowledge and skills to design, rebuild, operate, and maintain that infrastructure.

Why is it important that we start now to build this workforce? Perhaps the most pressing reason for the urgency is the aging of the workforce. The industry is undergoing significant demographic change, as baby boomers are beginning to retire and fewer younger workers are entering the water and wastewater industry. According to the PADEP, over 70 percent of water and wastewater operators are over the age of 50. An American Water Works Research Foundation study conducted in 2005, found that more than 50% of current workers will no longer be at their utility in 10 years. At the same time that an unprecedented number of workers are exiting the workforce, the pool of technically skilled workers is shrinking, and drinking water treatment ancillary technologies are becoming increasingly more complex.

In Pennsylvania, we are particularly challenged by the fact that the water and wastewater industry is highly fragmented – of varying size, ownership, structure and capabilities. We find various stakeholders looking at individual training programs and practices, but few stakeholders working together in a comprehensive way to engage in a coordinated strategy to address utility workforce development and knowledge retention issues.

Although the challenge may seem somewhat daunting, there are a number of very positive attributes that place Pennsylvania in a very good position to address the industry's workforce issues. First, the jobs that require training are good jobs – such as treatment plant operator, maintenance service worker, and meter serviceperson. These are the types of jobs that have provided steady work and income to incumbent workers and their families over many years. Second, in addition to the training provided by the industry itself, we have the potential to forge partnerships among an array of educational institutions in the state such as community colleges, vocational-technical schools, and even high schools that can potentially provide the education and training for these jobs. Third, we have already achieved some positive results through collaboration, although a lot more needs to be done.

Given the demographics and industry fragmentation, we cannot expect that the workforce needed to achieve sustainability will evolve on its own. It is imperative that we focus on workforce planning and replenishment as an integral component of sustainability. As we plan the replacement of the physical infrastructure, we must take steps to develop the human infrastructure.

Recommendations

1. We must identify the specific knowledge and job skills at risk, and develop a comprehensive private/public approach among a broad array of stakeholders to address this issue. This can be achieved by involving both private and public water and wastewater systems; reaching out to educators; bringing together labor and management; and connecting younger workers to older workers, to ensure that the next-generation workforce can meet Pennsylvania's water and wastewater needs.

2. Working to Build Partnerships

    - Utilities, Water and Wastewater Systems

    - Training Providers

- High Schools
- Voc-Tech Schools
- Community Colleges
- Industry Associations

- State Agencies
  - Environmental Protection
  - Education
  - Labor and Industry

- Job Placement Agencies

3. Pilot Projects

4. State Agency Workforce Development Webpage

Onsite Wastewater Treatment Systems

Onsite wastewater treatment systems (septic systems) are a privately held publicly essential component of a municipality's overall wastewater management infrastructure. There are approximately 1.5 million onsite systems in the Commonwealth. It is reasonable to expect that there will always be onsite systems in every county.

PADEP, through the Act 537 program (specifically Title 25 §71.73) is requiring some form of management of these systems. The first task is for PADEP to establish minimum universally applied management standards rather than continue to allow potentially 2,500 different municipal standards. The second task is to delineate minimum knowledge and training requirements for "recognized" onsite system managers. This is necessary because Sewage Enforcement Officers receive no training from or through the Department in regard to inspecting or managing these systems. Since many involve proprietary technologies, some would argue that the manufacturers have the obligation to provide such training.

With these in place, public/private partnerships, (and NOT PADEP) can create training programs to prepare this niche or boutique work force.

SEOs could indeed be trained for these tasks. There is no expectation that these system managers must be municipal or local agency employees. A cadre of PADEP recognized managers offering their services to individual landowners so that the landowners can satisfy their management obligations will diminish municipal costs and place the compliance burden on those directly benefited.

The discussion of Workforce has focused solely on the individuals who will operate the public and private facilities. The shadow Workforce that must be in place and at least as knowledgeable on the subject as the regulated community is the regulator worker. The effectiveness of the regulatory program correlates directly to regulator training and experience. For a state agency regulator to field a workforce of recent graduates or employees who have had experience in programs other than wastewater/drinking water is to devalue the enforcement program.

Work Group Integration

❑ OVERVIEW OF INDUSTRY

Pennsylvania is home to an estimated 2,200 municipal, authority and investor-owned community drinking water systems and 1,059 wastewater systems. While all of Pennsylvania's water and wastewater systems receive environmental regulation from the U.S. Environmental Protection Agency (USEPA) and the Pennsylvania Department of Environmental Protection (PADEP), rates and service are regulated differently. The Pennsylvania Public Utility Commission (PAPUC) has regulatory jurisdiction over the rates and service of 126 water systems, including 31 municipal water systems, and 74 wastewater systems, including 7 municipal wastewater systems. Those municipal water and wastewater systems are publicly-owned by municipalities that serve outside their boundaries and the PAPUC's jurisdiction is limited to regulating the rates and service of customers outside their boundaries. The non-municipal water and wastewater systems are companies privately or investor-owned and the PAPUC exercises complete jurisdiction over the rates and service of investor-owned systems. In addition, the Office of Consumer Advocate (OCA) and Office of Small Business Advocate (OSBA) monitor the rates and service of investor-owned systems. The federal Securities Exchange Commission (SEC) also regulates some investor-owned systems.

Moreover, the PAPUC has no jurisdiction over Pennsylvania's approximately 2,005 municipally and authority owned community drinking water systems or 992 municipal and authority owned wastewater systems. An elected or appointed municipality or authority board sets the rates of publicly-owned systems.

Therefore, comparing the rates of publicly-owned systems to those of investor-owned systems is not a valid or fair comparison. As the Congressional Budget Office (CBO) noted, "Ultimately, society as a whole pays 100 percent of the costs of water services, whether through ratepayers' bills or through federal, state, and local taxes."[16]

Having established that the industry consists of different entities with different regulatory oversight and business considerations, it is important to note that both publicly and investor-owned systems can and do operate efficiently and provide excellent customer service while fully protecting public health.[17]

- Failure to have rates that reflect full cost pricing sends the wrong economic signals, discouraging conservation, and because revenues received from customers do not support all the costs, **may** lead to undesirable practices such as deferred investment, postponed maintenance and cutbacks in service or health protection.

❑ AGING WORKFORCE/EMPLOYEE RETENTION

The industry is undergoing significant demographic change, as baby boomers are beginning to retire and fewer younger workers are entering the water and wastewater industry. The dual impact of retirements and fewer choices to fill the vacancies is a long-term issue. Retention of current, valued employees and the recruitment of a qualified workforce will become more challenging and require both human resources and technical solutions to address staffing issues, enhance work quality and

[16] Drinking Water Infrastructure Needs Survey and Assessment, Third Report to Congress, June 2005, Appendix A, pg. 39 http://www.epa.gov/safewater/needssurvey/pdfs/2003/report_needssurvey_2003.pdf

[17] AWWA "Privatization and Alternative Approaches to Management, Operations and Ownership of Drinking Water Facilities," 4/11/97

efficiency.[18] According to the PADEP, over 70 percent of water and wastewater operators are over the age of 50.[19]

- **Recommendation**: We must identify the specific knowledge and job skills at risk, and develop a comprehensive private/public approach among a broad array of stakeholders to address this issue. This can be achieved by involving both private and public water and wastewater systems; reaching out to educators; bringing together labor and management; and connecting younger workers to older workers, to ensure that the next-generation workforce can meet Pennsylvania's water and wastewater needs.

❑ INFRASTRUCTURE NEEDS

A significant portion of our nation's water and wastewater infrastructure is reaching the end of its useful life. There are thousands of miles of pipelines that were installed 50 to 100 years ago, which need to be replaced.

Sustainable Water Infrastructure

The U.S. Environmental Protection Agency (USEPA), led by the Office of Water, launched the *Sustainable Water Infrastructure (SI)* initiative in January 2003. USEPA's SI activities are organized around the following four priority areas, or pillars:

- **Better Management**—to shift the utility management model beyond compliance to sustainability and improved performance by focusing on utility management systems, such as asset management and environmental management systems (EMS), capacity development for smaller utilities, and selection of innovative, cost-effective technologies.

- **Full Cost Pricing**—to help utilities recognize their full costs for providing service over the long-term and to implement pricing structures that effectively recover costs and promote environmentally sound decisions by customers.

- **Water Efficiency**—to promote water efficiency in the residential and commercial sector through WaterSense, a new market enhancement program for water efficient products and services. Under this pillar, USEPA also is facilitating the establishment of an independent, national collaborative organization committed to improving water efficiency, promoting improved building and landscaping practices, and recognizing leadership in water efficiency. *For example, PA has emphasized the need to reduce leaks in drinking water systems (reducing "unaccounted-for water") and reducing infiltration/inflow in wastewater systems.*

- **The Watershed Approach**—to encourage the adoption of watershed management principles and tools into utility planning and management practices, so that key decision makers consider watershed-based, cost effective alternatives along with traditional treatment technology investment choices. Watershed management approaches include, but are not limited to, source water protection, water quality trading, centralized

[18] "Small and Mid-sized Utilities Must Understand Business Strategy, Operation, Management, Finance, Technology and Operations," Mike Freeman, Chris Fabian and Stefanie Mosteller, Water & Wastes Digest, Vol. 45, No. 12, December 2005

[19] PADEP PowerPoint presentation: Drinking Water & Wastewater Treatment Industry – A Need for Workforce Development

management of decentralized systems, and smart growth approaches to stormwater and wastewater management.[20]

Water

Pennsylvania is ranked 7th in total drinking water system infrastructure financing needs, according to the 2003 U.S. Environmental Protection Agency Needs Survey[21]. In this survey, the total identified financial need for Pennsylvania was $10.990 billion. A number of new treatment requirements to further protect public health and safety will add to the need for additional infrastructure in the next ten to fifteen years. In addition, existing infrastructure is aging and will need to be replaced.[22]

- The Distribution System Improvement Charge (DSIC), previously approved by the PAPUC and subsequently codified into law as Act 156 of 1996, for use by Pennsylvania's investor-owned water companies is one of the most important regulatory tools of the past decade.

- Implemented in 1997, DSIC is an automatic adjustment charge that enables privately or investor-owned water utilities to recover certain infrastructure improvement costs between base rate cases through a quarterly surcharge on customers' bills. The DSIC resets to zero when the utility files a base rate case or if the utility is over-earning. The utility must also notify customers of any change in the DSIC. An annual reconciliation audit is conducted by the PAPUC to ensure that no over-collections or under-collections have occurred.

- The DSIC allows water utilities to use a surcharge to fund more upgrades of aged infrastructure that would not otherwise be feasible at a reasonable rate for customers. Pennsylvania is the first state in the nation to use the DSIC. In the 10 years, the DSIC has had substantial impact on accelerating infrastructure remediation in Pennsylvania.

  - "The DSIC is one of the most important regulatory tools of the past decade. It has been cited by the National Association of Regulatory Utility Commissioners as a 'Best Practice' and it has been designated by the Council of State Governments as 'Model Legislation'," said PAPUC Chairman Wendell Holland.[23]

- On July 11, 2007, the PAPUC unanimously approved a Pennsylvania-American Water Company (PAWC) request to increase its DSIC cap from 5 percent to 7.5 percent.[24]

- **Recommendation**: Publicly-owned water systems should incorporate a DSIC into their rate structure to dedicate funds to replacing aged infrastructure on a continuing basis. This recommendation could be accomplished without legislation by a vote of the system's board, but may be required to mandate compliance. DSIC will also help system managers communicate their infrastructure needs to customers and government officials.

Wastewater

[20] "Sustaining Our Nation's Water Infrastructure," U.S. Environmental Protection Agency www.epa.gov/water/infrastructure
[21] Drinking Water Infrastructure Needs Survey and Assessment, Third Report to Congress, June 2005 http://www.epa.gov/safewater/needssurvey/pdfs/2003/report_needssurvey_2003.pdf
[22] PADEP webpage, "Water Standards and Facility Regulation: Drinking Water Program Performance Measures," http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1450&q=512634
[23] Motion of PAPUC Chairman Wendell Holland (Docket No.: P-00062241, *et al.)*, 7/11/07 http://www.puc.state.pa.us/PcDocs/675988.doc
[24] http://www.puc.state.pa.us/General/press_releases/Press_Releases.aspx?ShowPR=1801

The U.S. Environmental Protection Agency's 2004 Clean Water Needs Survey[25] ranks Pennsylvania 7th in the nation in total wastewater infrastructure financing needs. In this survey, the total identified need for Pennsylvania was $7.196 billion. Much of the existing wastewater infrastructure in Pennsylvania is aging, and will need significant upgrading or replacement in the next ten to twenty years.[26]

- Many communities started building sewer collection systems over 100 years ago and many of these systems have not received adequate upgrades, maintenance, and repairs over time. In addition, many used a wide variety of materials, designs, and installation practices to construct sewer collection systems. Even well-operated systems may be subject to occasional blockages or structural, mechanical, or electrical failures.

- Sanitary sewer collection systems collect sewage and other wastewater and transport it to a facility for proper treatment and disposal. Sanitary Sewer Overflows (SSOs) occur when untreated sewage is discharged from the collection system due to pipe blockages, pipe breaks, infiltration and inflow from leaky pipes, equipment failures, and insufficient system capacity.

- Combined Sewer Overflow Systems (CSOs) -- designed to collect storm water runoff, domestic and industrial sewage in the same pipe -- are overwhelming many wastewater treatment plants during heavy rains or snowmelts, causing those plants to discharge untreated human and industrial waste, toxic materials and debris directly into our rivers and streams. CSOs are the primary stream contamination problem facing Pennsylvania's communities, leading the nation with 1,500 locations in over 150 communities. These conditions jeopardize the environment, public health and the financial solvency of wastewater systems statewide.

- To prevent hydraulic overloading in wet weather conditions, some wastewater treatment plants seek approval to allow storm flows to bypass the biological treatment process, employing only disinfection, and "blend" this partially-treated sewage into the system's treated flow for discharge. While cost-effective, this method also jeopardizes the environment and public health and should only be allowed as an interim measure while collection system improvements to correct CSOs and SSOs are undertaken.

- **Recommendation**: The General Assembly should adopt legislation which provides the PAPUC the statutory authority to approve a Collection System Improvement Charge (CSIC) for privately or investor-owned wastewater utilities. Modeled after the successful Distribution System Improvement Charge (DSIC) for water suppliers, CSIC would provide investor-owned wastewater utilities with the financial flexibility to accelerate the replacement of aged and deteriorating infrastructure. CSIC will also help utility managers communicate their infrastructure needs to customers and government officials.

- **Recommendation**: Publicly-owned wastewater systems should incorporate a CSIC into their rate structure to dedicate funds to replacing aged infrastructure on a continuing basis. This recommendation could be accomplished without legislation by a vote of the system's board, but may be required to mandate compliance. CSIC will also help system managers communicate their infrastructure needs to customers and government officials.

[25] Clean Watersheds Needs Survey 2004, Report to Congress http://www.epa.gov/cwns/2004rtc/cwns2004rtc.pdf
[26] PADEP webpage, " Water Standards and Facility Regulation: Wastewater Program Performance Measures," http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1450&q=512662

❑ ASSET MANAGEMENT

The drinking water industry has only recently embraced asset management as a technique for optimizing investments in infrastructure. Although definitions of asset management differ, an industry report gives one definition: "Managing infrastructure assets to minimize the total cost of owning and operating them, while continuously delivering the service levels customer's desire."[27]

According to the USEPA, there are five steps in an asset management process:

1. **Take inventory**. Before you can manage your assets, you need to know what assets you have and what condition they are in. List the condition, age, service history, and useful life of each.

2. **Prioritize your assets**. Because most water systems have a limited budget, prioritizing assets will ensure that funds are allocated for the rehabilitation and replacement of the most important assets. Ask how important is this asset and how soon will it have to be replaced?

3. **Develop an asset management plan**. Plan for the rehabilitation and replacement of your assets, including estimates of how much money is needed annually to maintain the operation of the system. Ask local contractors and businesses for estimated costs. Contact neighboring systems about their costs, and discuss this with your state, tribal, or local technical assistance organization.

4. **Implement the asset management plan**. Once the annual budget is estimated, work with regulators and customers to determine how much additional funding will be necessary. To meet the need, consider creating additional reserve accounts, forming partnerships with other systems, increasing rates, or applying for financial assistance.

5. **Review and revise the asset management plan**. Once the plan is in place, view it as a flexible document to help you evolve and gain more information as priorities shift, and review it annually.[28]

When an accurate inventory and condition assessment is derived, water utilities can weigh potential value-added replacement and renewal (R&R) strategies in terms of their effects on facility condition, water rates, and other key financial indicators such as debt-service coverage. Utility managers have also discovered that asset management practices and tools help them communicate their renewal needs to customers and policy boards.[29]

- **Recommendation**: Asset Management Requirement -- Require water and wastewater systems to prepare long-term (5-10 year) estimated budgets supported by analyses of all major assets. Those analyses would consider asset condition, risk of failure, and expected costs and dates of renewal and ultimate replacement. The budgets would include sources and amounts of revenues sufficient to finance operations, maintenance and capital needs required by the asset analyses. The budget would include adequate reserves for emergencies. The long-term budgets would be updated each year. The long-term budgets would be used to develop short-term budgets

[27] AMSA (Association of Metropolitan Sewerage Agencies) et al, 2001. Managing Public Infrastructure Assets. AMSA, Washington
[28] U.S. Environmental Protection Agency. Asset Management: A Handbook for Small Water Systems http://www.epa.gov/safewater/smallsys/pdfs/guide_smallsystems_asset_mgmnt.pdf
[29] "Asset Management Planning and Reporting Options for Water Utilities," AWWA Journal, Matichich et al, pg. 80

which implement the long-term plan. Publicly-owned system budgets would be precluded from using water and wastewater system revenues as a cash source for non-water and wastewater system cash needs, but would allow payment for use of municipally-owned facilities, such as rent for the use of office space.

  - Full Cost Pricing: Asset management provides an operational means to employ full-cost pricing. Note that it makes no mention of subsidies. The implication is that the budgets would assume self-sufficiency. Those budgets should be a required component of requests to funding agencies, with subsequent subsidized loans/grants made on an exceptions basis. Following state agency commitment for subsidized funding, budgets should be adjusted to reflect those subsidies.

- The Asset Management requirement should be applied to all publicly-owned water and wastewater systems (PUC regulated systems already utilize asset management and full cost pricing). A phase-in process should be used in which systems are required to first assess the adequacy of their asset management and budgeting processes, with implementation occurring first at the larger systems. The DEP shall promulgate regulations and guidance to implement this asset management requirement.

- Failure to have rates that reflect full cost pricing sends the wrong economic signals, discouraging conservation, and because revenues received from customers do not support all the costs, may lead to undesirable practices such as deferred investment, postponed maintenance and cutbacks in service protecting public health.

- **Recommendation**: Subsidy Policy -- Subsidies should be provided only to the extent that local resources are inadequate. Such a "gap financing" approach provides just enough subsidy (using a mix of low-interest loans/grants from any source) to make required infrastructure improvements without resulting in rates which exceed a state affordability standard.

  - Subsidies from all sources would be coordinated through the Pennsylvania Infrastructure Investment Authority (PENNVEST) to provide "one-stop shopping" for subsidy applicants, to ensure the best mix of subsidies to meet local needs and to minimize the provision of excess subsidy.

Affordability Standard

A key finding in the recently published report, *Avoiding Rate Shock: Making the Case for Water Rates,*[30] was that people undervalue water, which is one reason that rate increases are difficult for some customers to accept. Compared to other countries, as a percentage of disposable income, U.S. consumers generally paid the least for water consumption -- roughly 0.5 percent of total household income for water and 0.8 percent for wastewater.

USEPA policy is that an affordable user rate for water and wastewater service can be identified as approximately 1.5-2.0 percent of the gross household income.

- **Recommendation**: The affordability standard could be user rates of 1.5-2.0 percent of median household income, individually, for water and wastewater. The standard could include additional

[30] http://www.awwa.org/Advocacy/pressroom/pr/index.cfm?ArticleID=346

measures such as percent of households on fixed incomes, or percent unemployed, or percent over age 65. Such measures all boil down to available cash, and are therefore of limited value.

- Note that one objective of the *Pennsylvania Water and Wastewater Infrastructure Gap Study* is to compare needs, local resources and available subsidies. The study may therefore be able to propose an affordability standard, and/or a means to create and adjust a standard over time.

Tax-exempt Private-activity Bonds

President Bush's fiscal year 2009 budget proposal aims to repeal the private-activity bond volume cap for bonds issued for water and wastewater facilities; allowing states to issue an unlimited amount of private-activity bonds for water and wastewater infrastructure. This proposal provides fiscally responsible and innovative financing solutions to municipalities working to upgrade their water and wastewater infrastructure. Recognizing that there is no shortage of private capital available for this work, this proposal will create more avenues though which private capital can be put to work for the betterment of all.

In a time of federal budget shortfalls and uncertain economic forecasts, this change in the tax code would cost the federal government very little money: Wall Street experts and the U.S. Environmental Protection Agency estimate the change could result in as much as $6 billion annually in private capital being deployed to help communities re-build their water infrastructure with an investment of only $31 million over 5 years, $184 million over 10 years. With its low price tag and impetus for the creation of green-collar jobs, this creative financing initiative is an important and attractive option.

Tax-exempt private-activity bonds can be used for facilities if they meet both a private business use test and a private payments test, but states are limited in the amount of such bonds they can issue each year, based on population estimates. By eliminating the cap, states can more readily address important water and wastewater infrastructure revitalization.

- **Recommendation**: If President Bush's fiscal year 2009 budget proposal to repeal the private-activity bond volume cap is adopted, the Governor should provide privately or investor-owned systems greater access to tax-exempt financing, through the Pennsylvania Economic Development Authority (PEDFA) for large projects (i.e., treatment plants).

❑ CUSTOMER EDUCATION

Generally, most customers do not understand what is involved in the treatment and distribution of drinking water and the collection and treatment of wastewater or that the water and wastewater industry is an extremely capital-intensive business. Although unseen and taken for granted by the public, drinking water and wastewater infrastructure have been the essential building blocks for any advanced society.

It's hard to explain why many people are willing to pay a dollar and fifty cents for 20 ounces of bottled water. At the same time, however, they will object to the smallest increase in tap water rates. To put this in perspective, consider this: For the same one dollar and fifty cents, you could fill that same 20-ounce bottle with tap water, every single day for more than 5 years.

This is not meant to decry bottled water. In fact, bottled water has its benefits and it pays to have some on hand in case of an interruption in service or a natural disaster. While the bottled water craze is somewhat puzzling, we should be concerned that – in Pennsylvania and across North America –

many people simply do not place similar value on their tap water service. And yet tap water delivers so many things that bottled water cannot deliver.

- It delivers public health protection;
- It delivers fire protection;
- It delivers support for the economy; and
- It delivers quality of life.

If we can begin to think about the value of water in these areas, we'll have a better understanding of why we need to care for our water resources and systems. Another area of consideration is Level of Service (LOS), which is an asset management concept that promotes a dialogue between customers and system or utility management regarding the quality of service that is expected. Notwithstanding the environmental and public health mandates which systems or utilities are required to achieve, there are also a variety of optional objectives which the system or utility can pursue if their customers are willing to pay for them. For example, odor control in the wastewater area and consistency of pressure, taste/odor, and service during power outages in drinking water systems.

- The water and wastewater industry must do a better job of educating their customers, regulators and elected officials on the cost of service and the ratemaking process.

- Infrastructure investment and improvements are necessary to provide high quality and reliable service and to meet ever increasing federal and state water and wastewater quality standards.

- Moving forward, more proactive customer education will be critical. If customers and elected officials have a better understanding of the need for infrastructure improvements and appreciation for the value of water and wastewater service, they may be less likely to oppose rate changes.

❑ CONSOLIDATION

Smaller systems, regardless of ownership status, lack economies of scale and are having an increasingly difficult time finding the capital and human resources required to comply with stringent water quality standards to remain viable. Since the early 1990s, larger water systems have been encouraged by the PADEP, PAPUC and USEPA to acquire smaller systems in an effort to address the growing number of unviable water and wastewater systems.

- Consolidation has taken many forms including: (1) acquisitions of smaller systems by larger systems; (2) mergers between utilities; and (3) regionalization, where smaller systems integrate part or all of their water management systems to reduce costs, improve service, and maintain regulatory compliance.

- Pennsylvania has been a leader in regionalization and consolidation with an impressive record of successful acquisitions by both publicly and privately-owned systems.

- Occasionally, there is going to be conflict and competition amongst systems vying for acquisitions, but every situation is different and some systems, whether publicly or privately-owned, may be a better fit than others to meet a community's needs.

Moreover, state regulatory and funding agencies should encourage public-private partnerships, consolidation and other solutions. The PAPUC has the statutory authority under Section 529 of Title

66 (Public Utilities)[31] to order "a capable public utility to acquire a small water or sewer utility if the PAPUC, after notice and an opportunity to be heard determines…" that six enumerated criteria exist.

- **Recommendation**: The definition of "small water or sewer utility" under Section 529 should be amended to include municipal corporations providing public utility service; thus allowing the PAPUC to order the consolidation or acquisition of non-viable publicly-owned water and wastewater systems upon the recommendation of PADEP. A "viable" system is one which is self-sustaining and has the commitment and financial, managerial and technical capabilities to reliably meet PAPUC and PADEP requirements on a long-term basis.[32]

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[31] http://ldp.legis.state.pa.us/WU01/LI/LI/CTS/66/00.005.029.000..HTM
[32] Memorandum of Understanding between Department of Environmental Protection and Pennsylvania Public Utility Commission, November 16, 2003