Sustainable Water Infrastructure Task Force
Draft Report to the Governor
August 28, 2008

Pennsylvania's water infrastructure - its drinking water and wastewater facilities and collection and distribution systems - is integral to the Commonwealth's economic, environmental and cultural vitality. Aging infrastructure, regulatory requirements to protect public health and water quality, as well as economic development and growth create a growing demand for investments in water and wastewater infrastructure. Much of the state's core drinking water and wastewater treatment system infrastructure has crossed the quarter-century mark, dating back to the Clean Water Act construction grants of the 1970s and 1980s. Many of the pipe systems date from the suburban population boom of the post World War II era; the oldest portions of the pipe network exceed 100 years in service.

Overuse and the persistent under funding of operations, maintenance, repair, rehabilitation and replacement have taken an increasing toll. In many of our communities, the existing asset base is deteriorating.

During his first term as Governor Edward G Rendell and the General Assembly invested over $1.3 billion in the state's water infrastructure. This investment in a number of compliance assistance and financing programs has helped to optimize, upgrade, expand or construct the necessary water and wastewater infrastructure needed to continue to provide safe drinking water to Pennsylvania's citizens and protect the environment. Recognizing the important role that our drinking water and wastewater facilities have in the continued growth of our state, the Rendell Administration and the General Assembly instituted several new programs to address unmet infrastructure needs, building on the successful PENNVEST program, which continues to provide about $295 million in grants and loans annually. Through PennWORKS and the related $250 million referendum and bond issue, a stepped-up level of financial support was provided for water infrastructure associated with economic development, and for wastewater system improvements to address nutrient reduction and combined sewer overflows.

In this era of shrinking federal support, down almost 50% since 2004, it has become obvious that the state must take the lead to develop a comprehensive strategy to ensure the long-term sustainability of Pennsylvania's drinking water and wastewater infrastructure. It is time to take a comprehensive approach that considers not only the initial capital investment in construction, but also the long-term technical, managerial and financial capability of Pennsylvania's drinking water and wastewater systems to operate in the most cost-effective manner to protect public health, safety and the environment. On February 27, 2008, Governor Edward G. Rendell signed an Executive Order to convene the Sustainable Water Infrastructure Task Force (Task Force) for the purpose of developing such a strategy.

I. The Process

By signing Executive Order 2008-02, the Governor assigned a challenge to a diverse group of individuals. The Task Force includes representatives of the administration, the General Assembly, academia, the state's Office of Consumer Advocate, local governments, municipal associations, and members of business and industry. In total, 30 members were appointed to the task force. The list of task force membership is available as Appendix C.

The Executive Order set forth clear objectives for the Task Force to address, including an analysis of the issues related to cost-effective and sustained investment in Pennsylvania's water and wastewater infrastructure and potential funding sources to support the Governor's fiscal year 2009-10 budget proposal. The Task Force was expected to address the following issues:

- **a.** The current and projected costs for the construction, upgrade, repair, operation and maintenance of Pennsylvania's drinking water and sewage infrastructure.
- **b.** The projected cost savings realized by the consideration and implementation of all available non-structural alternatives.
- **c.** The current and projected financial resources to address water and sewer services and infrastructure needs.
- **d.** The current and projected gap between water and sewer service and infrastructure financing needs and available resources.
- **e.** The potential sustainable funding from federal, state and local sources and public/private partnerships.
- **f.** The actual costs of water and sewer service, including recommendations for allocating the costs of capital investment, asset management, operation and maintenance among customers and state or federal assistance programs.
- **g.** The targeting of funds to address the most serious and urgent needs of the Commonwealth, with particular focus on protecting public health and safety, maintaining recreational opportunities, and encouraging continued economic development.
- **h.** Recommendations for legislative or regulatory changes to promote sustainable water and sewer services, including the following components of sustainability:
  - **(1)** Effective System Management -- Creation and implementation of business plans, workforce and management training, and development and promotion of measures to ensure customer satisfaction and the protection of public health and the environment.
  - **(2)** Asset Management - Incorporation of accounting and business practices to assess and anticipate operational, replacement and long-term capital improvement costs, and to ensure such improvements are covered by available resources.
  - **(3)** Efficient Operation - Incorporation of water and energy conservation and system optimization to deliver cost-effective treatments that meet

or exceed existing and future public health and environmental standards.

(4) Regionalization - Integrated water resource planning and incentives for consolidation or decentralization of water systems to achieve the best scale to facilitate professional management

(5) Maximization of Non-Structural Solutions - Integrating conservation, water reuse, trading strategies and comprehensive water resource planning into sewer and water infrastructure planning.

The Task Force created five work groups. Interested parties were invited to participate in the following work groups: Needs Assessment, Innovative Measures, Financial Resources, Financial Sustainability, and Legislative and Regulatory Needs. These work groups met several times and provided recommendations to the Task Force. Many of those recommendations are included in this report.

In addition to the work groups, the Task Force also held eight statewide meetings to gather public input. These meetings were hosted by members of the Task Force and were well attended, with approximately 60 individuals presenting formal testimony. Details of those proceedings can be found on the Department of Environmental Protection's web site. This public input provided a great opportunity for Task Force members to gain a better understanding of the issues, including the differences from region to region across the state.

The Task Force respectfully submits this report as its analysis and recommendations.

II. Methodologies to Estimate Needs

Every four years the U. S. Environmental Protection Agency (EPA) and states assess the infrastructure financing needs for drinking water and wastewater infrastructure. Charts 1 and 2 are a graphical representation of the results for the 2003 Drinking Water Needs Survey and the 2004 Clean Watersheds Needs Survey. These two surveys identify our statewide needs of $10.9 billion for drinking water and $7.2 billion for wastewater. Keep in mind the results from these surveys are an underestimate of actual need for a number of reasons including:

1. Only construction-type costs are captured. Costs of ongoing operation and maintenance costs are not captured as part of this survey, nor are the costs incurred by water and wastewater systems for debt retirement.
2. The survey reliably captures only short-term (generally 5-year) capital needs.

INSERT NEEDS SURVEYS CHARTS MENTIONED ABOVE?

In order to gain a better understanding of Pennsylvania's infrastructure needs today, the task force created the Needs Assessment work group. The group was chaired by John Schombert, executive director of the 3 Rivers Wet Weather Project. In order to

determine the needs in the most efficient manner, the work group chose to use information which was already under development through the Pennsylvania Water and Wastewater Infrastructure Gap Analysis. Details of the gap analysis can be found in Appendix B.

A gap typically exists in a community because:

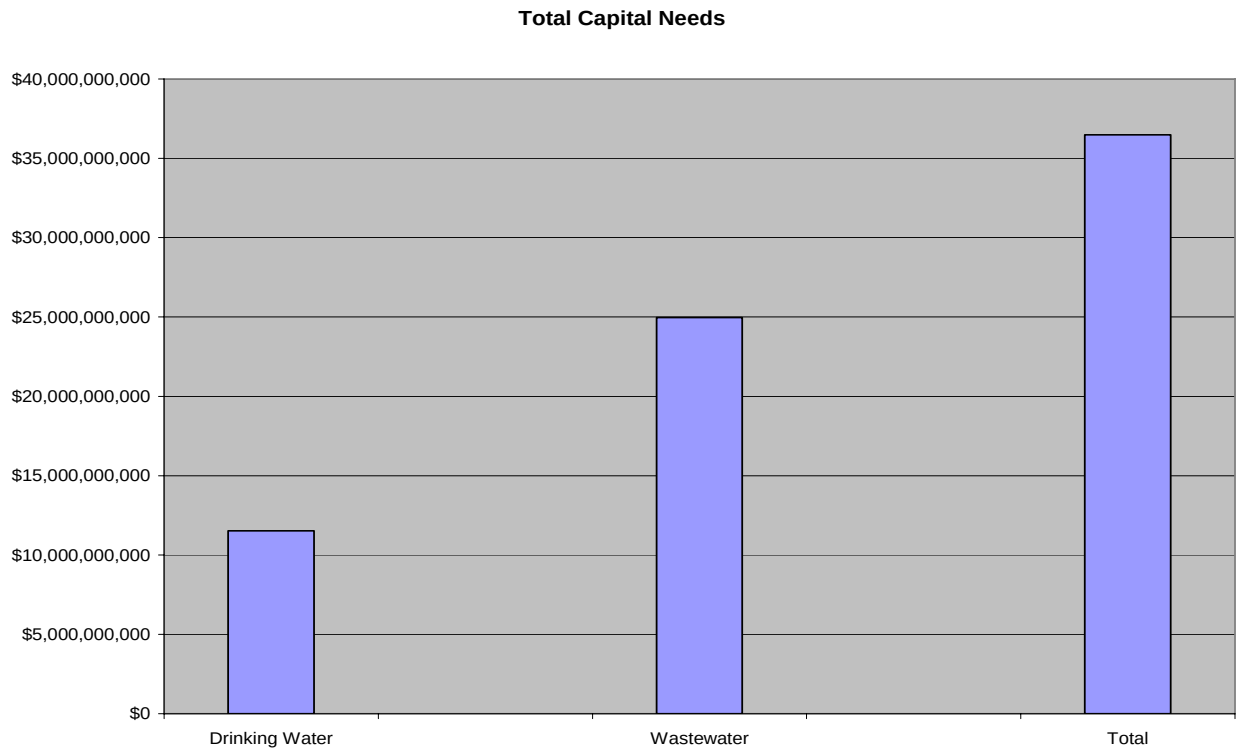
- Operations and maintenance costs will increase at a rate faster than inflation because assets are getting older.
- Rates provide funds sufficient to pay current operation and maintenance, but insufficient to pay for capital replacements.

The gap analysis is an extremely useful tool for the work that was assigned to the Task Force. The Gap Analysis provides an estimate of all needs, including the full 20-year capital needs, operations and maintenance, and debt retirement. It also collects current revenue and operating budgets. The information therefore allows a comparison between how much money is needed and how much is available, at current rates as well as at increased rates. The difference between what is needed and what is available is the "gap." The gap is calculated for each community that was sampled, they are then totaled, and that total is extrapolated to the state as a whole.

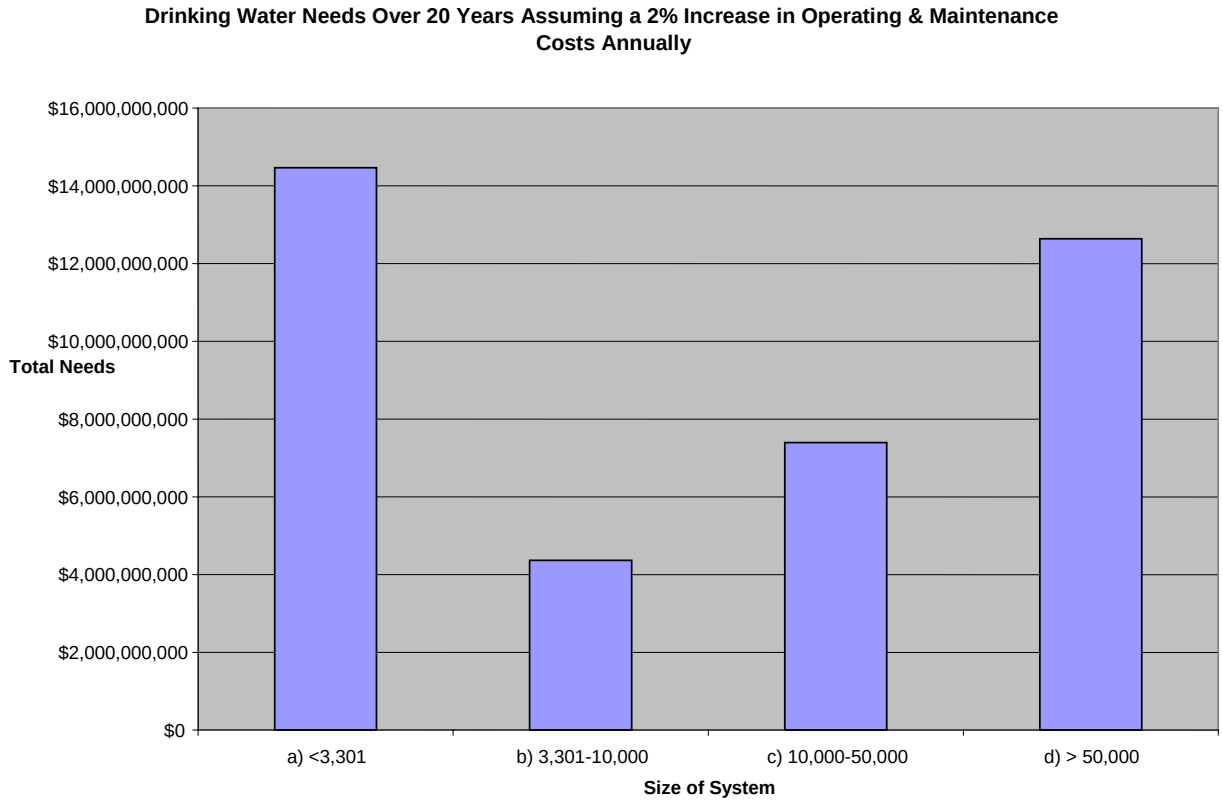
Median Household Income (MHI) data are also identified for each community, which can be used to judge the affordability of increased rates.

III. Our Current Needs

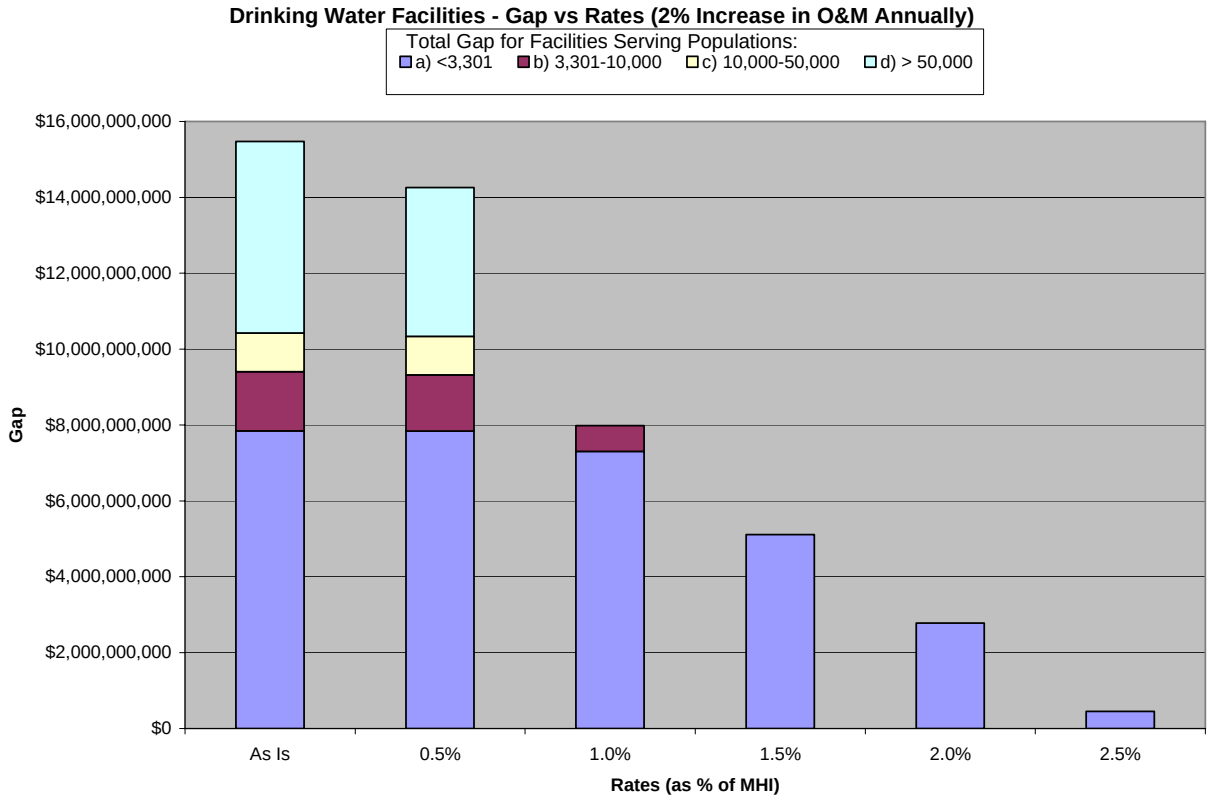
There are many factors impacting the current and future needs of Pennsylvania. Beyond the age of the state's our water infrastructure, there are also emerging issues that are increasing the costs of adequately protecting the environment. Some of those factors include: Total Maximum Daily Loads (TMDLs), Combined Sewer Overflows (CSOs), and the cost of nutrient removal.



Results to date from the Needs Assessment work group indicate a total capital need of $36.5 Billion over the next 20 years. This combines the needs of wastewater systems, which stand at $25 Billion over the next 20 years, and drinking water systems, which stand at $11.5 Billion over the next 20 years. A demonstration of these needs follows through the graphical depiction of each need and gap for drinking water and wastewater.



This graph displays an estimate of all of the money that is needed to run all of the drinking water systems, statewide, for 20 years. The largest needs areas are small systems (under 3301 population) and the largest systems (over 50,000 population).



This graph builds on the previous one by comparing dollars that are needed (to meet all financial needs at all drinking water systems in the state for 20 years) to dollars that are available (through user charges at all drinking water systems in the state for 20 years). The difference between available revenues and needed revenues is the "Gap." The bars in the graph show how the gap is reduced as user charges increase.

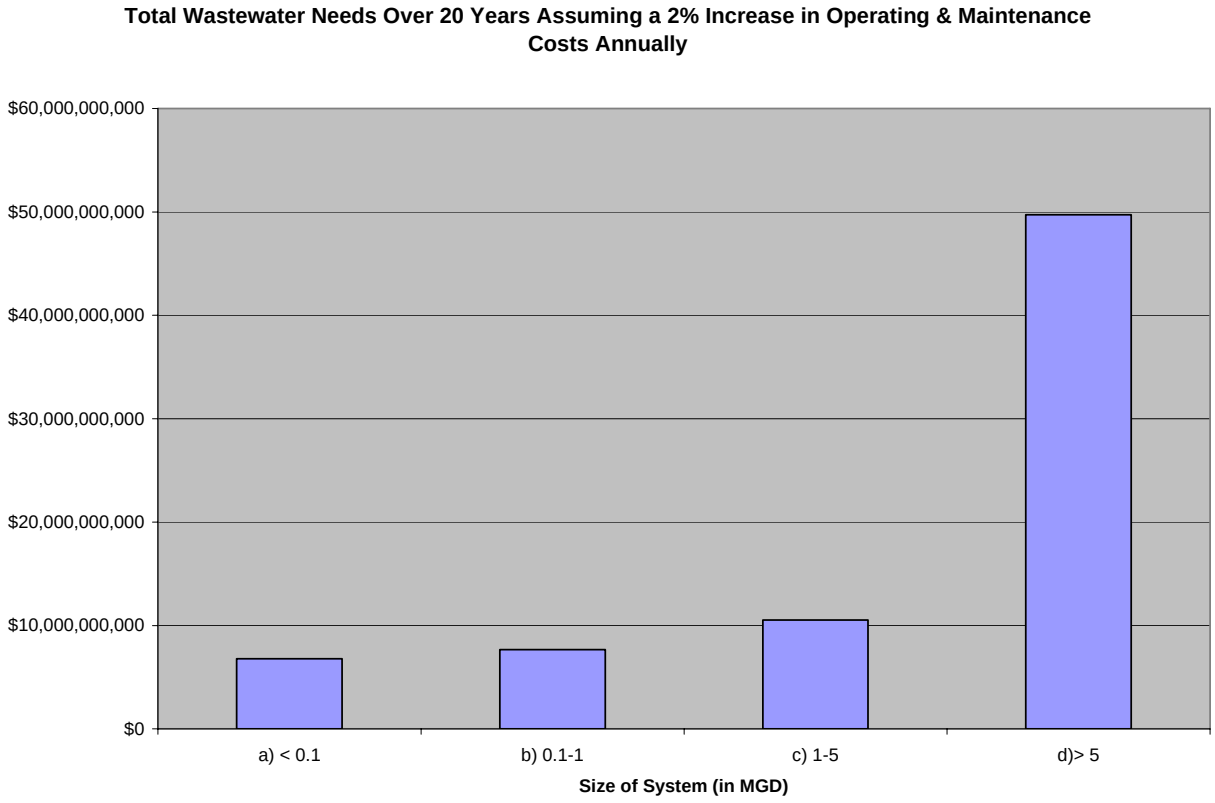
As a rule-of-thumb, user charges are not considered high unless they exceed 2% of MHI. As an example, this means that a community with an MHI of $40,000, drinking water user charges would not generally be considered high unless they exceeded $800 per year (2% X $40,000 = $800). User charges in Pennsylvania are frequently far less than 2% of MHI.

The first bar on this graph shows that the statewide gap is over $15B at current user rates. It is not surprising that a gap exists, because some systems have very low user charges when compared to affordability thresholds. The columns to the right reflect a decreasing gap as rates increase in proportion to local MHI.

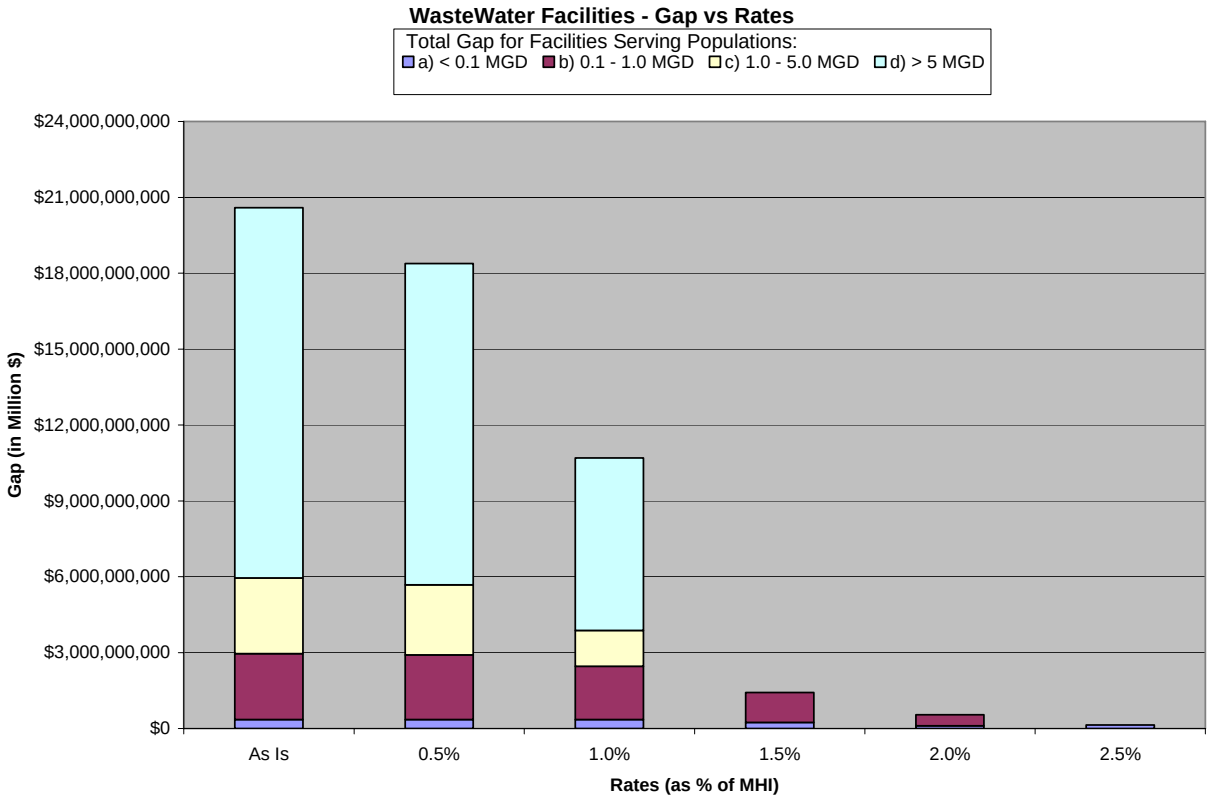
Note that the study does not assume that all communities would need to increase their rates. Those communities that are able to meet their financial obligations at

low rates are not assumed to increase them. Rates would increase only for those communities that need more funds for their own use.

This graph suggests two things: rates need to increase, and even as they increase, there will continue to be a need for subsidies for small systems.



The design of the wastewater needs graph above is the same as the previous for drinking water. It displays an estimate of all of the money that is needed to run all of the wastewater systems, statewide, for 20 years. Unlike drinking water, the largest financial needs are in the larger communities.



As was done for drinking water, this graph builds on the previous one by comparing dollars that are needed (for 20 years) to dollars that are available (also over the coming 20 years). The first bar on this graph shows that the statewide wastewater gap is approaching $21 B at current user rates. It is not surprising that a gap exists in wastewater as it does in drinking water, because the user charge scenarios are similar. The columns to the right also reflect a decreasing gap as rates increase in proportion to local MHI.

IV. Current Available Resources

In order to gain a better understanding of available funding, the task force created the Financial Resources work group, Chaired by Paul Marchetti, the executive director of PENNVEST.

Members of the workgroup investigated the following sources of information:

- Drinking water and wastewater programs in all 50 states to see what funding mechanisms have been employed, done by a query sent out nationally through the Council of Infrastructure Financing Authorities

- Federal agencies that have investigated these issues, most notably the Government Accountability Office, the Congressional Research Service, and the Congressional Budget Office

- Non-profit organizations that have a long-standing interest in sustainable infrastructure financing, most notably the National Association of Clean Water Agencies

- Academic literature and other sources of information on local, state and federal funding programs and mechanisms that have been or could be applied to water quality issues.

- Private sector investment alternatives, including high-level comparative evaluation of the United Kingdom privatization model,

The following chart shows the annual level of funding available for drinking water and wastewater projects from established sources of funding. We have divided these sources into two categories, direct and indirect. The direct category includes those programs with the sole or primary purpose is to fund drinking water and wastewater projects. It is reasonable to assume that all of the funding identified for these sources is available for these purposes. On the other hand, the indirect category includes those programs whose primary purpose is something other than funding drinking water and wastewater projects. It is probably fair to assume that only a relatively small fraction of the funding identified for these sources would be applied to drinking water and wastewater projects. However, there is no clear indication in any of these programs that would allow us to calculate an exact dollar estimate for this amount.

With the above caveats in mind, we can say that, as of the date of this inquiry, approximately $524 million is available annually for drinking water and wastewater projects. In addition, some fraction of $206 million might also be available for these purposes on an annual basis from indirect sources.

Program Name	**Source**	**Direct/Indirect**	**Agency**	**Annual Funding Available**
U.S. Department of Agriculture (USDA)	Federal	Direct	USDA	$60,500,000
PENNVEST	State	Direct	PENNVEST	$280,000,000
PA Rural Water Association	Other	Direct	PARWA	$50,000,000
Growing Greener II	State	Direct	DEP	$12,000,000
EPA Earmark	Federal	Direct	DEP	$9,900,000
Community Development Block Grant (CDBG)/HUD	Federal	Direct	DCED	$42,000,000
Commonwealth Finance Agency (CFA)**	State	Direct	CFA	$67,000,000
Appalachian Region Commission	Federal	Direct	DCED	$3,000,000

(ARC)				
			Sub-total	**$524,400,000***
Watershed Protection Grants	State	Indirect	DEP	$9,000,000
State Water Resource Planning	State	Indirect	DEP	$1,500,000
PA Finance Housing Authority (PHFA)	State	Indirect	PHFA	$1,000,000
PA Energy Development Authority	State	Indirect	PEDA	$10,000,000
Oil and Gas Orphan & Abandoned Wells	State	Indirect	DEP	$1,500,000
Industrial Sites Reuse / Brownfields	State	Indirect	DEP	$5,000,000
Housing & Redevelopment Assistance Program	State	Indirect	DCED	$1,600,000
Flood Protection Program	State	Indirect	DEP	$13,500,000
Farmland Preservation	State	Indirect	PADA	$33,000,000
Dam Safety	State	Indirect	DEP	$30,000,000
Community Revitalization	State	Indirect	DCED	$40,000,000
Community Conservation Partnership	State	Indirect	DCNR	$50,000,000
Abandoned Mine Reclamation	State	Indirect	DEP	$9,700,000
			Sub-total	**$205,800,000**
			Total	**$730,200,000**

*The $524,400,000 includes a mix of grants and loans
**The annual level of funding is difficult to determine and could be more than is indicated here.

The Task Force also did calculations of the subsidy value of all of the Direct sources. This involved a simple addition of the dollars available as grants. The cash value of the loan totals was somewhat more complex, because it involved assumptions on the savings that low interest loans offer to recipients. The calculated total, for water and wastewater combined, is $2.1B. This total should be compared to the Gap figures presented earlier in this report.

Overall options

Through the task force's initial discussions and especially as public comments were being collected it became clear that a need for additional financial resources to address this issue exists. The General Assembly and Governor made that very clear in issuing a down-payment on water infrastructure by including Acts 63 and 64 in the 2008-09

Pennsylvania budget. Those funding packages will provide up to $1.2 Billion to address Pennsylvania's water infrastructure needs.

That funding represents a significant part of the resources available in the table above. The table entry "Commonwealth Finance Agency (CFA)" assumes that $670 M of the total of $800 M provided in Act 63 will be made available for water and wastewater work over a ten-year period. The remainder of the $1.2B ($400 M) is tied to Act 64, and was not included in the table because it is yet to be approved by the voters in a future referendum.

Ascertaining whether additional resources are necessary was only one goal of the task force. The group was also responsible for suggesting how overall needs may be reduced to solve the long-term issue with water infrastructure financing. The recommendations of the Task Force provide options for Pennsylvania to begin a process of becoming self-sustaining to continue the long-term operation and maintenance of this key piece of Pennsylvania's Infrastructure.

To address the current $36.5 billion in capital needs and additional costs for operation and maintenance of systems over the coming 20 years, the Task Force has identified several potential overarching options with various alternatives for implementation. The Task Force has identified four potential solutions to the issue of funding as follows:

- Increased Federal Subsidy
- Increased State Subsidy
- Increased reliance on user fees
- A combination of the options above

Increased Federal Subsidy

The table above lists a number of different federal agencies that provide federal subsidies to states or individual communities for water and wastewater infrastructure improvements. The largest single source of federal funding to Pennsylvania is the State Revolving Loan Fund grant from the US Environmental Protection Agency. This program is administered by PENNVEST. In the past four years (2004-2007), Congress has appropriated more than $4 billion for the Clean Water State Revolving Loan Fund (CWSRF) and ?? billion for the Drinking Water State Revolving Loan Fund (DWSRF). Pennsylvania's share of this funding was $??? million for the DWSRF and $158.9 million for the CWSRF. It should be noted that while Pennsylvania's annual appropriation for the DWSRF has been approximately $32 million per year, the amount of funding for the CWSRF has been cut in half in the past four years. This has translated into a reduction in Pennsylvania's grant for wastewater infrastructure from $53 million in 2004 to $27 million in 2007. This decrease has exacerbated the issue within Pennsylvania. We can anticipate that funding will continue at some level, but cannot expect additional Federal funds, especially at a level to address the pressing need in Pennsylvania.

Another factor to consider in utilizing federal subsidies is the grant requirements attached to these funds. These requirements can significantly increase the cost to the state and the community. Examples of these additional requirements include:

1. Match – states or local communities are usually required to contribute other financial resources to the program. This match can range from 10% to 100% of the grant award.
2. Environmental Reviews – Federal programs require all projects built with federal funds to complete a detailed assessment of the impact the project will have on the environment.
3. Disadvantaged Business Enterprise Solicitation – in addition to state procurement requirements, additional steps must be taken to ensure disadvantaged firms are given every opportunity to bid on projects funded with federal money.

One final factor to consider with this option is the national effort by members of Congress, the National Association of Clean Water Agencies, and others to create a national water trust fund. The proposal is to assess a small fee on service to create a dedicated national funding source for water and wastewater infrastructure and programmatic funding to meet current and future infrastructure needs, similar to the national highway trust fund.

Increased State Subsidy

In order for additional state subsidy to meet the capital demands, the financial resources work group identified some potential funding sources. The task force has reviewed those recommendations[1] and considers the following as the most viable options:

[1] See http://www.depweb.state.pa.us/watersupply/lib/watersupply/municipalfinance/taskforce/financial_resources_workgroup_report_072408.pdf for additional detail and a full listing of the potential funding sources provided by the financial resources work group.

	Effectiveness	Efficiency	Equity	Administrative Simplicity	Political Considerations	Legal Impediments
State-level funding of projects with either General Obligation debt or General Fund appropriations						
Surcharge on water use						
Bond financing						
Taxes and charges on products related to water use						
Beneficiary pays						
Polluter pays						
Taxes and charges on activities unrelated to water use						
Charges tied to local infrastructure effects						
Public-Private Partnerships						

Legend: Undecided; Weak Characteristic; Moderately Weak Characteristic; Moderate Characteristic; Moderately Strong Characteristic; Strong Characteristic

The chart above shows the various forms of potential funding examined by the Task Force to combat the drinking water and wastewater infrastructure problem experienced by the Commonwealth through a pictorial summary. This simplifies the assessments made by the Task Force, but nonetheless serves as a good reference for each point. Below is a brief explanation of each solution and its viability for Pennsylvania. For further details, please refer to the Sustainable Infrastructure section of the DEP website located at:
http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1263&Q=536847

State-level funding of projects with either General Obligation debt or General Fund appropriations: There already are state funded programs for both drinking water and wastewater project financing. These are generally, but not exclusively, financed by annual appropriations from the General Fund or by General Obligation bonds, whose debt service is paid from General Fund proceeds. While the Commonwealth has made significant contributions to this funding effort, these contributions have historically not been sufficient to address the entire funding need.

Surcharge on Water Use: A program utilizing this approach has been adopted in Maryland. Known colloquially as a "Flush Tax", in Maryland's case this is a flat $2.50 monthly charge added to residential customers' sewer bills, along with an equivalent $30 annual charge to owners of on-lot septic systems. Revenue collected from residential sewer customers are allocated to upgrades of wastewater treatment plants, while revenues collected from on-lot septic system owners are allocated to the upgrade or replacement of failing septic systems or to farmers for the nutrient reduction projects.

Annual revenue estimates for the Maryland Flush Tax are approximately $72 million - $60 million from residential users and $12 million from septic system owners. If a similar charge were to be implemented in Pennsylvania, we might expect revenues of about double these amounts, based on population alone. If so, these would not be sufficient to address the existing funding needs in the Commonwealth.

Bond Financing: Water-related infrastructure could be (and a good portion already is) financed by the issuance of bonds (we will abstract from commercial bank loans but these amount, for all practical purposes, to bond financing). In the case of public entities, this typically takes the form of tax-exempt bonds while in the private sector, taxable bonds are generally issued. Bond financing of projects has many of the same characteristics as does the funding of projects via the implementation of a surcharge, in the sense that users of the facilities being constructed pay for the debt service on the bonds just as they do the surcharges added to their water bills. However, there are two differences:

- In the case of tax-exempt financing, both the state and federal governments finance a portion of the projects through the revenues lost from tax exemption, and

- Revenues paid by system users devoted to bond debt service stay with the system that they use, rather than being paid into a fund that may or may not yield financial benefits for those particular users.

Conceivably, there is little to limit to the amount of funds that could be raised on the bond markets for infrastructure financing. Admittedly, some potential borrowers may not be considered to be investment grade or may face other borrowing limitations, but, on the whole, bond financing has the potential to account for a significant portion of our water-related funding needs

Taxes and Charges on Products Related to Water Use: This is the notion that consumers who participate in activities such as purchasing bottled water, soft drinks, and liquor would be subject to an additional tax. It seems that this method would raise a significant amount of money and be very simple to implement through the use of already existing sales tax software. However, it has been Pennsylvania's long standing tradition not to tax necessities, including bottled water and soft drinks, so this could be met with some political and legal hurdles.

This option appears to be capable of consistently raising a significant amount of funding in a relatively stable manner. For example, the Johnstown Flood Tax, which is a tax of 18% on sales by Pennsylvania Liquor Control Board, over and above the 6% sales tax, raises approximately $250 million annually.

The beneficiary pays approach can also be applied to products associated with swimming, fishing and boating. In addition, cross-state nutrient credit sales would be one subcategory of possible beneficiary-pay options, particularly relative to clean-up of the Chesapeake Bay. To the extent that water quality improvements in the Bay would benefit individuals, businesses and governmental entities in Maryland and Virginia, sales of nutrient credits created by nitrogen and phosphorous emissions by Pennsylvania point sources and non-point sources to Maryland and Virginia buyers would be one possible revenue source to finance these Pennsylvania activities.

Polluter Pays Taxes and Charges on Products Related to Water Use: This would include taxes on products that people add to the water supply either intentionally or inadvertently such as toilet paper, soap, chemicals, pesticides, and fertilizers. Similar to the beneficiary pays tax, the polluter pays tax would face challenges due to some of the items that would be subject to the tax being considered necessities. However, there are states that participate in these same taxation practices with success.

Taxes and Charges on Activities Unrelated to Water Use: The items that would be subject to the tax in this category would include those considered "public bads" such as cigarettes and alcohol. It could also involve charging a fee to enter state parks. This tax would allow the Commonwealth to raise a significant amount of money, be easy to implement, and would face few, if any, legal impediments. However, politically, since this tax would be unrelated to water use, it would be expected to face significant concern.

Paying for expenses necessary to support new development These charges would be assessed to developers when they require wastewater or drinking water infrastructure where it does not already exist. While these charges would be borne by the developer, they would most likely be passed on to their future residential or commercial customers. These fees would certainly fund the new infrastructure necessary in these developing areas as they would represent the full cost. They would however face significant political opposition and legal challenges.

Public-Private Partnerships: By public-private partnerships, we mean the investment in water-related infrastructure assets by the private sector. There are several alternatives for private sector investment in water and wastewater assets. Common examples include:

- Design Build Operate (DBO)
- Design Build Finance Operate (DBFO)
- Build Operate Own Transfer (BOOT)
- Operate and Maintain or Manage (O&M)
- Privatization

The first four alternatives are distinguished from the last (i.e., privatization) by the structure of ownership for the physical plant and water system assets. In the first four cases, ownership of the asset is often maintained by a public entity, whereas with privatization this is not the case. In general, privatization may be expected to be most appropriate for large, vertically integrated systems or systems that can be combined to create a similar scale of operation.

Increased reliance on user fees

Noting the gap between the current and future needs and the resources available to meet those needs, it is clear to the Task Force that we are not currently paying for the actual cost of water and wastewater service. In fact, the Gap Analysis results indicate that on average, user fees are only accounting for 52% of the true cost of the service. Based on the information available, the Task Force recommends that changes be made to close the gap. Mandating the implementation of full cost pricing would ensure that we are meeting our financing needs through the increased collection of user fees.

A definition of Full Cost Pricing (for a water or wastewater system) is offered for the purposes of this report:

Full Cost Pricing is a method of:

- Obtaining funds from the users,
- As they are needed,

- In a sufficient amount to cost-effectively operate, maintain, repair and replace all of the assets which are needed to provide the necessary level of service.

There could be adverse affordability effects for residential customers, as well as industrial and commercial customers, to the extent that they would experience rate increases as a result of a full cost pricing mandate.

A mandate for Full Cost Pricing would require oversight of all drinking water and wastewater systems to ensure that they are, in fact, charging full costs. This would require knowing not only user charge collections but also all costs associated with these systems' operations, including future capital costs.

A model that could be applied is what the Public Utility Commission (PUC) currently requires as it regulate privately owned utilities (and publicly-owned systems that provide service outside their municipal boundaries). Those systems must justify their rate increases in order to gain PUC approval. A Full Cost Pricing mandate would require the opposite effect: non-PUC regulated systems would be required to show that their rates are sufficient to cover the true cost of the service provided.

The Task Force does note that increasing the reliance on user fees could place a burden on low-income families and those with fixed incomes. In order to ensure that this does not inadvertently impact these individuals, any program developed that requires systems to meet guidelines for user fees to ensure the cost of service is being funded should also come with a requirement for an assistance program to aid these individuals in paying these increases costs[2]. This system could be administered at the local level or at a state level. It could also be based on assistance to systems to provide this service or directly to the individuals themselves.

[2] It is acknowledged that many publicly owned water and wastewater systems bill the property owner and not the resident. Nonetheless, it is reasonable to assume that the cost of the bill is passed on to the resident in his rent and relief remains desirable.

The options highlighted previously all have the potential to solve the issues facing Pennsylvania, however the Task Force does not believe that any one of them alone is a panacea. By combining options however the Task Force believes that a fair and achievable solution can be developed. It is clear to the Task Force that a sustainable solution must include increased reliance on user fees in some form.

First, the Task Force believes that efforts to increase federal funding should be supported. However, it must be kept in mind that appropriations have been cut from $53 million in 2004 to $27 million in 2007 and 2008 for wastewater system construction and upgrade, while federal funding for drinking water systems has also leveled off to around $27 million per year. Pennsylvania's 20-year gap is estimated at $39.1 B, which over 20 years averages about $2 B per year. It is therefore probably unrealistic to assume that the Federal government will increase its appropriations in future years sufficiently to resolve the gap in Pennsylvania.

The Task Force also notes that additional subsidies on the state level will be necessary to address the immediate needs for infrastructure improvements from delayed maintenance and new state and federal requirements. Subsidies should be provided only to the extent that local resources are inadequate. Such a "gap financing" approach should provide 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. The affordability standard could be user rates of 1.5-2.0 percent of median household income, individually, for water and wastewater.

V. Recommendations

The task force would like to suggest the following options to begin to close the gap and provide for a sustainable solution to the infrastructure needs of Pennsylvania.
These options are listed by the five elements of sustainability identified in the Executive Order. They are further split between:

1. Recommendations for Immediate Success: Assuming the additional necessary staff and financial resources are provided for implementation, the following are recommendations that could be implemented in a relatively short period of time through changes in existing policy or procedure.
2. Recommendations to Ensure Long-Term Improvement: In addition to additional staff and financial resources, the following are recommendations that would need either a legislative or regulatory change to ensure the long-term sustainability of our water infrastructure.

a. Effective System Management

Throughout the opportunity for public comment, the Task Force repeatedly heard testimony stating that additional training and education was necessary for the development of a sustainable solution, so much so that the Task Force has chosen to

provide recommendations on education and outreach as a separate section within this report. Effective system management goes beyond an educated board, managers and workforce, but also includes business planning and ensuring the health of the public and the environment and the satisfaction of the customer base. To ensure the effective management of systems as described above, the Task Force provides the following options:

Recommendations for Immediate Success

Capability Enhancement Program (CEP): DEP has issued an "interim final" Pennsylvania Capability Enhancement Program (Doc. No. 383.0400-114), defining the policy and procedures for implementing the federal capacity development strategy called for under the 1996 amendments to the Federal Safe Drinking Water Act. The DEP CEP guidance document modifies the existing methodology to implement, track and allocate resources needed to carry out a program to improve the technical, managerial and financial capabilities of community, non-transient non-community, and transient non-community drinking water systems. In doing so, the DEP CEP guidance undertakes to address both capability enhancement program requirements and source water assessment and protection program requirements by more effectively utilizing the time of the three Capability Enhancement Facilitators and twelve Source Water Protection Facilitators. These facilitators will work closely with DEP regional staff to evaluate how well public water systems are performing and identify on a priority basis those systems that require assistance to improve either technical, managerial, or financial management skills The intent is to implement the program within a focused watershed approach that also ensures the long-term protection of the systems' source water.

In addition to supporting the adoption of this guidance, the Task Force also recommends that DEP should draft and implement a similar guidance to apply to wastewater systems. An additional annual state appropriation should be made to DEP'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.

Streamline the Disadvantaged Business Enterprise (DBE) Program: Recipients of federal funding are required to provide opportunities for minority and women-owned businesses to compete for work that is federally-funded. The requirement applies to a portion of loans offered by PENNVEST. There is a perception that the requirements cause delays and add cost to water and wastewater projects. It is recommended that DEP (which provides DBE reviews on behalf of PENNVEST) do an analysis of the program and propose improvements.

Design infrastructure funding programs to provide only as much subsidy as is needed to make projects locally affordable: Some funding programs provide a fixed level of subsidy (e.g. a 50% grant). The concern with such an approach is that there is insufficient funding available to satisfy all the needs. Funding programs should therefore be modeled after the approach used at PENNVEST. PENNVEST identifies an

appropriate user rate for each loan applicant, and provides loan terms which attempt to avoid user charges above that target rate.

Note that efficiencies could be applied to the PENNVEST program. Current constraints on minimum and maximum interest rates should be eliminated. The process used to establish the target rate could be simplified.

Recommendations to Ensure Long-Term Improvement

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 are regulated by the EPA and DEP, rates and service are regulated differently. The Pennsylvania Public Utility Commission (PUC) 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. PUC jurisdiction for these municipal systems is limited to regulating the rates and service of customers outside the municipality's boundaries. The non-municipal water and wastewater systems are privately or investor-owned. The PUC exercises complete jurisdiction over the rates and service of these systems. In addition, the Office of Consumer Advocacy (OCA) and the 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 PUC 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 could adopt legislation amending Title 66 (Public Utilities) § 1706 (Applicability to municipal corporations) to reference § 1705 (Budgets of public utilities) to 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 PUC and OCA, for review and recommendation (not regulation). PUC and OCA shall jointly make public recommendations to the municipal corporation and submit a copy to the DEP. DEP may provide technical assistance through their Capability Enhancement Program.

- It would probably be necessary for the applicable audit standards to be adjusted in order to assure that the content of the audits would provide the necessary content.

- An additional annual state appropriation should be made to the PUC and OCA budgets for additional staff to perform this function.

- Failure to submit such an annual report of its fiscal affairs to the PUC and OCA should result in a PUC 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.

As an alternative to the above, the General Assembly could 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 DEP. The DEP 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.

Changes in planning requirements: Extend the planning period for drinking water and wastewater planning to a minimum of 10 and a maximum of 50 years. Five-year implementation plans with five year planning updates for all municipalities that are served by public or private sewer systems should be required. Plans should also specify funding sources for planned projects.

Reinstate the Collection System Improvement Charge (CSIC): Adopt legislation amending Title 66 (Public Utilities), further providing for sliding scale of rates and adjustments. This legislation would provide the requisite statutory authority for the PUC 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 PUC 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 of the Task Force's Legislative Regulatory Needs Workgroup.

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.

Changes to Procurement Law: On several occasions, the task force was presented with testimony highlighting obstacles to publicly owned utilities. 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.

The task force has received a detailed report on suggested changes from the legislative and regulatory needs workgroup, however to ensure that public utilities are able to cost effectively operate, maintain and replace critical pieces of water infrastructure the task force recommends the following changes:

Adjust 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 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 with an automatic annual inflation index. The amount of the increase should take into consideration the fact that the Federal government applies small purchase procurement processes to procurement under $100,000. 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.

Authorize the use of 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.

Allow 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.

Allow exemptions to subjectivity to the Separations Act: The Separations Act requires separate specifications and separate contracts to be awarded to different trades. Thus, every project is broken down into four prime contracts: basic construction, plumbing, heating/ventilating/air conditioning (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.

The Task Force believes that efficiencies would be gained if municipalities and municipal authorities were empowered to contract with a single general contractor for delivery of integrated water and/or wastewater projects, and for such purposes should be exempted from the Separations Act. The Task Force believes that adequate competition would remain assured because competitive forces in the industry fully apply at the subcontracting level.

Remove 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 DEP. 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.

Provide 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).

Examine 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.

Encourage 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 net cost savings is shared with the contractor who suggested the change.

Limit the use of water and sewer revenues to the payment of water and sewer expenses: If the system is publicly owned, limitations need to be established to ensure that funds collected are utilized appropriately and not diverted by the public officials for other purposes not related to the function of the system.

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.

b. Asset Management

A key to the sustainability of either a publicly or privately owned treatment facility is understanding the condition of existing assets and ensuring adequate maintenance. Systems must also identify when assets need to be rehabilitated or replaced, and provide an estimate of costs. The idea of asset management works both at large facilities and in small facilities. Understanding the needs of the system, the potential problems that could arise and incorporating business practices that provide resources for future needs and, when possible, parts and equipment necessary to address those needs in a timely manner are keys to successfully managing a system and ensuring it's long term sustainability. To accomplish this, the task force recommends the following options:

Recommendations for Immediate Success

One option discussed below is to mandate the implementation of asset management principles for all water and wastewater systems. Recognizing that this requirement would need to be phased in over time, based on the capabilities of the systems, the following are options for more immediate steps the state could take:

1. Establish an asset management steering committee as a forum for defining best practice standards for asset management.

2. Develop guidelines to encourage continuing improvement in performance and identify criteria for best practice management of water and wastewater utilities.

3. Focus on enhancing training efforts by getting training entities to upgrade instruction they deliver to include asset management practices, processes, tools and techniques; adding questions on asset management to the Operator Certification general and stand-alone distribution system, collection system and small drinking water examinations; and targeting training to mid- to upper-management using Department of Environmental Protection-approved training courses.

Recommendations to Ensure Long-Term Improvement

Require asset management: Require publicly-owned water and wastewater systems to prepare long-term (minimum 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.

A full asset management approach will be beyond the capability of very small systems, defined by EPA as those serving less than 3300 customers. For these systems, a set amount should be set-aside for repair and replacement of the utility's assets. DEP should provide circuit riders to assist these systems in establishing the R&R funds and planning for asset maintenance and replacement.

To help systems comply with this requirement, utilize the DEP's Drinking Water Capability Enhancement program as a model for program requirement delivery by adding a mandatory component with established benchmarks that systems must meet. Use this program as a mechanism to operate within a regulatory framework where regulators value and reward service providers that have adopted best management practices, recognize systems that perform to exemplary standards and distinguish them as model programs.

Require the creation of a repair and replacement fund: Water and wastewater systems should be required to have a capital asset repair and replacement fund. The amount to be deposited annually to this fund should be equal to 1-5 percent of the fixed assets as defined by an asset management system. The value of the fixed assets must be based on their gross current value, not the net value (to account for the condition and age of the existing infrastructure). The money in the fund should be used for costs of extraordinary repairs, acquisition or construction of capital additions and shall require Board/Officer certification specifying the specific purpose for which the money is to be used. These funds should be treated as separate and distinct from other sources of capital funds, but could be incorporated into an annual capital budget. Reconciliation of the fund would be done annually as part of a financial audit.

c. Efficient Operations

In many cases, the most effective way to reduce the costs associated with treating both drinking water and wastewater is to treat less of it. By encouraging water conservation, we can reduce both the drinking water and wastewater being treated. Water reuse reduces the amount of water entering the collection system, reducing the necessary capacity and the fees associated with the operation of the system. The cost of electrical energy is one of the largest expenses incurred by a drinking water or wastewater treatment system. The efficient use of energy is essential to reduce costs and to reduce

pollution. Finally, there are methodologies and techniques for the day-to-day operation of a drinking water or wastewater system that can be utilized to ensure costs are kept at a minimum while ensuring long-term compliance. To ensure that drinking water and wastewater systems are operated in the most efficient manner, the Task Force recommends the following:

Recommendations for Immediate Success

Encourage the use, and correct application of innovative technology: New developments in treatment technologies are largely aimed at addressing new treatment and water quality requirements and not at providing the same level of treatment at lower cost. Innovation therefore lies equally with the development of new technology and the implementation of the right technology. It also lies more with the appropriate rules and regulations to encourage the application of the right technology. Without encouragement, it is unlikely that the lowest cost and greatest benefit to society will occur. The following options are some immediate steps the state could take to accomplish this:

- Initiate training seminars throughout Pennsylvania of energy saving approaches.

- Encourage the implementation of anaerobic treatment technologies for wastewater and biosolids treatment through training seminars and small grants.

- Develop and distribute on a regular basis a list of alternate technologies that should be considered for various types of water and wastewater infrastructure projects.

- Establish within the appropriate standing DEP advisory committees a subcommittee charged with identifying and analyzing new technologies.

- Appoint private/public subcommittees within the appropriate standing advisory committees to update the major technical guidance documents to reflect an emphasis on the use of new and emerging technologies and the discarding of old and no longer appropriate guidelines.

Recommendations to Ensure Long-Term Improvement

Incorporation of standard practices: The greatest focus of innovation lies in adequate planning. In addition, standard practices in other states, like water reuse, need to be encouraged and/or mandated. In addition, certain levels of technological performance need to be mandated and maintained.

Encourage the use and correct application of innovative technology: Beyond the short term options listed above to accomplish this, the following are additional options the Task Force recommends the state consider:

- Incorporate energy analysis as a required element of Act 537 Planning.

- By policy establish minimum standards for alternatives analyses or required infrastructure and require selection of lowest present worth as a condition for receiving state or federal grants, or loans. Standards could include service life, repair costs, energy consumption, chemical requirements, and operational requirements such as special licenses/certifications.

- Employ private contractors to evaluate the technical and design aspects of each project above a predetermined dollar amount for which state or federal grant and loan monies are sought to assure that the most cost effective solution has been selected.

- Require the study and implementation of water reuse for all new development including all special protection watersheds.

- Encourage retrofit to water reuse where projects such as golf courses, parks, etc are near water reuse sources, e.g., within 0.25 miles.

- Establish design and construction standards for individual water supply wells.

- Regarding infiltration and inflow (I/I):

    - **o** Require the inspection and correction of deficiencies in lateral, building sewer, and water service lines at time of real estate transfer. This would also be an opportunity to mandate installation of water conserving fixtures, such as shower heads, low-flow toilets, etc.

    - o Establish maximum I/I allowance thresholds similar to the limits imposed for water loss in water distribution systems, and limit funding to the portion of a project which is above the threshold.

    - o Mandate the use of low pressure sewers for new sewer construction in special protection watersheds as a means to limit the volume of wastewater treated.

    - o Develop and enforce strict limits for leakage in new sewer construction and new sewer line, manhole, lateral and building sewer construction and extend the requirement for the engineer's certification to require a certification regarding the integrity of the sewer system at both one year and the fifth year after completion of construction.

    - o Extend the requirement for Chapter 94 reporting to all sewer systems eligible to receive state assistance.

d. Regionalization

Pennsylvania is home to over 2,600 local government entities. The fact that this many different governing bodies exist begins to show the difficulty in implementing statewide policies and practices that ensure sustainability in the future. For the purposes of this report, the task force is looking beyond the traditional definition for regionalization, historically viewed as the interconnection of systems, and is instead looking at a broader definition. That definition would include practices such as: regional management and staffing, integrated planning, shared purchasing and, when practical, the physical interconnection of systems. By removing hurdles and providing incentives for regionalization, the task force believes considerable cost savings can be realized in the short term and sustainability will become more likely in the long term.

Many local governments are parochial and have been slow to embrace regionalization in any form. Encouraging regionalization for systems where the full cost of service may be unattainable because of the lack of economies of scale/financing ability. To encourage regionalization, the task force suggests State regulatory and funding agencies should encourage public-private partnerships, consolidation and other solutions.

Recommendations for Immediate Success

Encourage public-private partnerships, consolidation and other solutions -- Many local governments are parochial and have been slow to embrace regionalization in any form. Those systems where the full cost of service may be unattainable because of the lack of economies of scale/financing ability should be encouraged to look for options to minimize costs such as partnerships with other private or public entities, or consolidation with another system.

Establish state incentives for regionalization and consolidation through state financing and regulatory programs by:

- Providing financial incentives for utilization of existing capacity and facilities in neighboring systems rather than constructing new facilities.

- Providing incentives for projects that achieve regional cooperation or collaboration and greater incentives or projects that produce consolidation. Example: Under PENNVest, PennWorks, Act 63 of 2008, and Act 64 of 2008, a collaborative/partnership project might receive a grant of 25% of the project cost or an interest rate of 1% below the typical rate; a consolidation project might receive a 50% grant or an interest rate 2% below the typical rate.

- Require all state funding and permit applicants to provide certification and documentation that there is no cost-effective regional solution alternative to the proposed project as a condition of funding.

- Provide a state guarantee for all local financings that achieve regional approaches to water and wastewater service.

- Educate stakeholders, interest groups and the general public on benefits of regionalization and consolidation.

- Involve professional associations to help promote and coordinate consolidation and regionalization efforts.

Recommendations to Ensure Long-Term Improvement

Legal authority to order consolidation: The PUC has the statutory authority under Section 529 of Title 66 (Public Utilities) to order "a capable public utility to acquire a small water or sewer utility if the PUC, 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 PUC to order the consolidation or acquisition of non-viable publicly-owned water and wastewater systems upon the recommendation of DEP. A "viable" system is one which is self-sustaining and has the commitment and financial, managerial and technical capabilities to reliably meet PUC and DEP requirements on a long-term basis.

Eliminate non-viable systems: Do not allow new systems serving more than 3300 customers to be permitted without a viable business plan or if an established system is willing to accept service responsibility. Use the PUC, DCED and/or DEP to monitor the viability of systems and develop a regionally focused backup plan in the event of system failure.

Ensure new developments are sustainable: Condition new developments on completion of long-term plan that shows in-tract and out-of-tract impacts, infrastructure needs and water and sewer resources are funded and available.

e. Maximization of Non-Structural Solutions

The task force recognizes that by encouraging, and in some cases mandating, the use of non-structural solutions, the overall costs of maintaining and upgrading the water infrastructure can be reduced. An increased focus on regional and comprehensive water planning and the use of strategies to reduce the cost of compliance, such as trading programs, all contribute to less reliance on additional funding for construction and ongoing operation, maintenance and repair of systems. To maximize the use of non-structural solutions, the task force recommends:

Recommendations for Immediate Success

Focus on better management of stormwater: In many watersheds, stormwater discharge has a measurable negative effect on receiving surface waters, yet until very recently, the focus has been on dealing with the quantity and flow rates of the flow and not with its quality. The Task Force recommends implementation of the following short term steps to begin to address this issue:

- Require statewide public education programs highlighting the concept that the watershed and water quality start at the catch basin, similar to the "Bay starts here."

- Invest funding in urban tree planting, riparian buffer protection and restoration, installation of rain barrels and cisterns, rain gardens, and green roofs.
- Work with Soil Conservation Districts, Penn State Extension Office, local colleges and universities, the Pennsylvania Department of Education, and local garden clubs to provide workshops on the importance and effectiveness of non-structural solutions.

Encourage the use of and further development of trading programs: Trading is an established compliance tool in air pollution and in TMDL watersheds. In the water environment, it is a viable tool where water quality governs, but where local hot spots are not a concern. Given the many wastewater treatment plants in Pennsylvania, there are many instances of interaction between several discharges. In those cases, trading may be viable.

On the water infrastructure side, there may be opportunities for trading of some regulatory limits, like withdrawals from a watershed that would allow greater flexibility in source of supply.

In cases where trading is viable, the question becomes whether trading should be optional or mandated. In cases where state funding assistance is sought to support wastewater infrastructure projects the appropriately defined lowest cost of compliance should be required.

The Chesapeake Bay Tributary Strategy trading program has been introduced to be market based and involves trading between credit generators and those who need credits. DEP only approves the trades. Many have voiced the need for a credit bank and a set price for credit purchase in order to allow greater assurance in the selection of the trading option over the option of building nutrient removal infrastructure.

Recommendations to Ensure Long-Term Improvement

Promote watershed-based management approaches and integrated water resources management: Educate stakeholders, interest groups and the general public on benefits of watershed-based management approaches and integrated water resources management. Encourage the formation of "Stormwater Enterprise Agencies" within the water and wastewater community to integrate planning and services. These should be

regional in approach and work with county planning commissions. House Bill 2266, proposed by Representative Steil, provides authority for this effort which and should be supported.

Focus on better management of stormwater and protection of "green" infrastructure: In many watersheds, stormwater discharge has a measurable negative effect on receiving surface waters, yet until very recently, the focus has been on dealing with the quantity and flow rates of the flow and not with its quality. In addition to the short term steps listed above, the Task Force recommends implementation of the following:

- State should encourage inter-departmental cooperation in the identification of important natural water recharge and stormwater retention areas and integrate planning and conservation tools in an effort to project these areas as a pro-active means towards passive stormwater management on a landscape/watershed and/or regional basis. State community development grants that promote multiple-use facilities allowing infiltration, such as grassed playing fields, should be given priority over hardscape features.

- Incentive funding should prioritize restoration or reattachment of floodplains to rivers and streams to enhance groundwater infiltration, sediment trapping, and limit flood damage. Ensure maximum enforcement of wetlands protection laws, with particular focus on protecting vernal ponds. Promote wetland enhancement and restoration projects wherever possible, especially along urban river corridors.

- Work to ensure that all DEP bureaus, DCNR, PDA, and all other agencies make riparian forest buffer protection and restoration a commonwealth priority. Riparian buffers should be promoted wherever possible. Rural forest conservation and planting should be promoted to reduce stormwater flow, erosion, and help water quality.

- Incentive programs should encourage developers to set aside “green” areas in all new developments above what is required by law, and when renovating existing developments.

- Extend MS4 permitting to all stormwater systems located in special protection and all non-attainment watersheds.

- Begin the development of water quality standards for stormwater discharges, particularly the first flush and encourage the construction of wetlands to capture and treat the first flush through state financial assistance to several demonstration projects located throughout Pennsylvania.

VI. Education

As can be expected by the magnitude of the drinking water and wastewater infrastructure problem in the Commonwealth, a vital ingredient for success is education.

While education can take on a variety of forms, it is the public and industry education which will be key to the success of this initiative. Public education recommendations should include an explanation of the value of water and the service that is currently being provided to customers at a very low rate relative to the true cost of service. Additionally, the Task Force recommends a focus be placed on the importance of early childhood education and points to the success of the recycling program in the schools.

The industry education being recommended by the task force includes workforce development and management/board training. A majority of the workforce in the water and wastewater treatment facilities is fast approaching retirement age. Developing training programs, including the pilot project currently underway at Montgomery County Community College, will reduce some of the burden this mass exodus will create. When conducting research and obtaining testimony throughout the Commonwealth, it was also brought to the attention of the Task Force that there are very few opportunities for the managers and board members of the treatment facilities to get training on the basics of drinking water or wastewater treatment. Based on these needs, the Task Force recommends creating education programs related to water and wastewater infrastructure throughout the Commonwealth.

Public Education

As indicated above, it has been recognized that the Commonwealth should provide its residents with education regarding the value of services provided by the drining water and wastewater treatment industry . Customers do not fully understand what is involved in the treatment and distribution of drinking water and the collection and treatment of wastewater. Unseen and taken for granted by the public, drinking water and wastewater infrastructure has been, and will continue to be, an essential building block of Pennsylvania's economy.

The goal of this education program should be to promote the understanding of the true cost and value of the service being provided, focusing on the protection of public health, economic vitality, and water quality. It's difficult to explain why many people are willing to pay $1.50 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 example: for the same $1.50, you could fill that same 20 ounce bottle with tap water every day for more than 5 years. This is not meant to condemn the use of bottled water. In fact, bottled water does have its benefits, and it pays to have some on hand in case of an interruption in service or a natural disaster. It is, however, meant to demonstrate the concern that many people simply do not place a similar value on their tap water service. Pennsylvanians need to be made aware of the benefits that tap water delivers to them that bottled water cannot; including public health protection, fire protection, support for the economy, and quality of life factors.

If Pennsylvanians can begin to think about the value of water in these areas, they will develop a better understanding of the overwhelming need to care for the water resources and our water infrastructure. An area of consideration is the Level of Service

(LOS) concept, which is an asset management model that promotes dialogue between customers and system 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. Odor control in the wastewater area and consistency of pressure, taste, and service during power outages in drinking water systems are examples of this.

Knowing all of this, it is the recommendation of the Task Force that Pennsylvania develop a public education program on general and specific water treatment information. The education program should contain a few specific pieces of information. The program should educate homeowners on the available resources to help with the repair and replacement of laterals. It should also educate the general public on the value of services provided by the water industry. Lastly, the program should teach homeowners and commercial and lawn care providers about the Source Water Protection Program and the impacts of their actions on the functionality and sustainability of water and wastewater treatment systems. State agencies could convey this information by creating outreach materials such as fliers to homeowners and letters to businesses. This material should contain best practices, conservation techniques, and nutrient management plan among other pieces of information that inform customers about the need for water.

The education of school age children on the value of water and their impact on the environment is also a need for Pennsylvania. The Task Force recommends building on existing elementary and secondary education efforts. Currently elementary school programs focus on the water cycle. These programs can be expanded to cover more information regarding the water and wastewater industry to get kids thinking about water management. The very successful recycling program could be used as a starting point to model this water education program.[3] Another possible avenue of education for young minds is through the local water and wastewater entities. The Allegheny County Sanitary Authority's summer camp program is a good example of youth education and is highlighted on page _____.

Industry Workforce Development

Not only is it expected to be very costly to replace the water and wastewater infrastructure throughout Pennsylvania, but it will also require a trained, professional workforce in sufficient numbers and possessing the necessary knowledge and skills to design, rebuild, operate, and maintain the infrastructure. As Pennsylvania plans the replacement of the physical infrastructure, the State must take steps to develop the human infrastructure.
DEVELOPING NEEDS PAPER FOR LABOR AND IINDUSTRY. MUCH OF THIS PAPER COULD BE INSERTED HERE, COMPLETE WITH MAPS AND GRAPHS.

[3] Amy Brinton, representing Task Force member _____, August 7, 2008

It is very important that Pennsylvania begins to build its future workforce today. The most pressing reason for this urgency is the aging of the workforce. The industry has undergone a significant demographic change over the last several years. Baby boomers are starting to retire and fewer workers are entering the industry. According to the Pennsylvania Department of Environmental Protection, over 70% of water and wastewater operators are over the age of 50. Additionally, an American Water Works Association Research Foundation study conducted in 2005, found that more than 50% of current workers will no longer be in their current position in 10 years. At that same time, an unprecedented number of workers will be exiting the workforce, the pool of technically skilled workers will continue to shrink, and water treatment ancillary technologies will continue to become increasingly more complex.

Pennsylvania is particularly challenged by the fact that the water and wastewater industry is highly fragmented with entities of varying size, ownership, structure, and capabilities. There are various stakeholders looking at individual training programs and practices, but few working together in a comprehensive way to engage in a coordinated strategy to address utility workforce development and knowledge retention issues. Given the demographics and fragmentation of the industry, it cannot be expected that the workforce needed to achieve sustainability will evolve on its own. It is imperative that a focus be placed on workforce planning and replenishment as an integral component of sustainability.

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. These include; but are not limited to, treatment plant operator, maintenance service worker, electrician, and plumber. These are the types of professions that have provided steady work and income to incumbent workers and their families for many years. Second, in addition to the training provided by the industry itself, Pennsylvania has the potential to forge partnerships among an array of educational institutions throughout the State such as colleges & universities, community colleges, vo-tech schools, and even high schools. These partnerships can potentially provide the entry education and training and, also, the continued education for these positions. Third, Pennsylvania has already achieved some positive results through collaboration with schools such as Montgomery County Community College, which is featured on ____ page, and plans to graduate its first class of certified operators in the Spring of 2009.

IA few years ago, DEP completed an assessment of the specific job knowledge, skills and abilities needed to operate a water or wastewater treatment system. This assessment was completed in partnership with representatives from a number of educational institutions and water and wastewater industry associations. From these assessments, a series of training modules and workbooks were developed However, a more comprehensive approach is needed to include all aspects of the industry. This can be achieved by enhancing and expanding these early efforts of DEP to involve both private and public water and wastewater systems, reaching out to educators, bringing together labor and management, and connecting younger workers with older

workers to ensure that the next-generation workforce can meet Pennsylvania's water and wastewater needs.

An additional way these entities could work together is through the development and implementation of a Utility Training Strategy to provide continuing education to water and wastewater treatment employees. The Utilities Industry Partnership (UIP) has already completed work on the skills gap that exists for the water and wastewater industry. Pennsylvania could build on this knowledge, address the identified need, and tap into the 25% of UIP funding available for this training.

A suggested method to bolster interest among high school students is to offer guidance counselors and teachers in Pennsylvania's high schools water industry career information through the creation of a recruiting toolbox. Included could be information about the positions such as education requirements, training requirements, average wages, and available jobs. A section could also be included on why students should want to choose a career in either water or wastewater management.

Some other recommendations aimed at addressing the workforce issue include creating incentives and grants for training providers, instead of employers or employees. This would create more training opportunities and stimulate the training providers to assist in promoting the occupations in the water industry.

The last measure that was recommended was to reevaluate the civil service examination process. It is viewed by a majority of citizens who would be otherwise interested in the position as a barrier to employment. This is particularly true in urban areas such as Philadelphia where people do not consider the water and wastewater industry as a profession due to the testing requirement.

Industry Board & Management Training

Because an elected or appointed official for a municipality or authority board sets the rates of publicly-owned systems, annual board training through their industry association, consultants or DEP should be encouraged. Attempts to require formalized training programs for boards and councils have often failed due to the difficulty in recruiting board members and the ex officio appointments. Instead, it is proposed that efforts be undertaken to encourage board members and officials to use existing training programs to gain the basic knowledge required to understand their role and to make informed decisions concerning water and wastewater services. DEP has a series of 10 training modules with workbooks and instructor guides. These guides should be fully converted to a web based format that allows users to view and complete guides at their own pace. DEP program staff should contact new and existing board members and provide them with web links and follow-up.

Providing Commonwealth-wide updates is also an option to keep board members up-to-date on all industry standards. The Commonwealth could distribute a quarterly or

semiannual newsletter designed to update boards and systems on key topics such as changes in regulations or requirements, and provide insight into future water and wastewater initiatives. Used in conjunction with the training program described above, this can maintain the necessary partnership with a variety of entities including the DEP, PUC, the Department of Community and Economic Development, PENNVEST and industry associations such as the Pennsylvania Rural Water Association, the American Water Works Association and the Pennsylvania Water Environment Association to make this newsletter even more informational.

That having been said, the water and wastewater systems must do a better job of educating their customers, elected officials, and employees on the cost of service and the asset management process. The industry must also plan to replace its aging workforce. Infrastructure investment and improvements are necessary to provide high quality and reliable service and to meet the even 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 wastewater service they may begin to understand the true value of the service provided.

Appendix A

Proposed Programs

Similar to the above information, we have compiled a list of potential funding programs that have been proposed in either state or federal legislation. All of the proposals that we identified would be classified as "direct" by the above definition, i.e. they all were targeted primarily at water-related activities. Based on our review, there is approximately $5 billion of state funding being proposed, and a total of $4 billion being proposed at the federal level. Assuming that 4.5 percent of the proposed federal funding would come to Pennsylvania, this implies total possible funding for the Commonwealth of $5.4 billion.

In compiling the following lists of Commonwealth and federal funding bills, we only counted legislation once in cases where one piece of legislation exactly duplicated another (e.g. one bill might be in the Senate while the other is in the House). That having been said, however, there were a number of instances where bills that we have identified below as being separate were actually quite similar. Consequently, the following lists may overstate the potential funding that could be forthcoming, if all of this legislation were to be adopted, which in itself is a problematic assumption.

			Total Proposed
Bill Number	**Source**	**Agency**	**Funding**
Act 64 of 2008	State	PENNVEST	$400,000,000
HB 100	State	SCC and Agric.	$450,000,000
HB 710	State	DCED	$15,000,000
HB 1331	State	EQB	$1,000,000
HB 2441	State	PENNVEST/SCC	$750,000,000
HB 2450	State	PENNVEST	$200,000,000
HB 2621	State	PENNVEST	$1,000,000,000
HB 2654	State	PENNVEST/SCC	$890,000,000
HB 2656	State	SCC and Agric.	$390,000,000
SB 101	State	PENNVEST	$1,000,000,000
SB 690	State	SCC	$10,000,000
HB 221	State	PENNVEST	($10,000,000)
		sub-total	**$5,096,000,000**
HR 569	Federal	CWSRF	$1,709,000,000
HR 700	Federal	CWSRF	$125,000,000
HR 720	Federal	States	$1,975,000,000
S 1968	Federal	States	$216,000,000
		sub-total	**$4,025,000,000**
		Total	**$9,121,000,000**
		Total for Pennsylvania	**$5,506,445,000**

Appendix B

The Pennsylvania Water and Wastewater Infrastructure Gap Analysis

The data was collected on-site at water and wastewater systems by experienced professionals. The goal was to avoid the data inaccuracies that can result if surveys are simply mailed or if they are conducted by people who are inexperienced in the field. All of the data collectors were trained in the use of the survey tool by a single person to minimize inconsistencies.

The principal objective of the capital needs data collection was to identify all major assets that should be replaced within the coming 20 years. The data collector therefore developed a listing of all the major assets in the system, and for each asset, identified its age and condition. The capability of each asset was then compared to the necessary performance of that asset, and a conclusion was made regarding when it would need to be replaced. Sufficient technical information was collected on each asset to allow an estimate of replacement cost. Those assets which need to be replaced were priced using unit costs from a web-based price-estimating tool. The tool was used in part because systems usually did not have current cost estimates for asset replacement. It was also used to provide a consistent method. Some systems did have pricing information for at least some assets; that information was used to double-check the unit prices obtained from the web-based source.

All costs were normalized to 2007 dollar prices. Some data was collected in late 2007. Systems, at that time, could not be expected to have final O&M budget data or revenue data for 2007. As a result, 2006 data was collected. The data analysis used an inflation factor to adjust those costs to 2007. The Task Force considered presenting future needs in dollar amounts which take into account the effect of inflation, however decided not to do so for two reasons: 1. the rate of future inflation is unknown, and to assume an average rate would introduce yet another variable, and 2. there is no way to know whether the inflation experienced by the water and wastewater industry will be greater or less than the inflation experienced by the overall economy. It was however decided that, for consistency, future-year subsidy dollars should be presented in a way that shows their future-year buying power. (HAS ANYONE DONE THIS YET?)

The Task Force recognized that water and wastewater assets are ageing at a rate faster than they are being replaced. On the advice from experts in the U. S. Environmental Protection Agency, a decision was made to assume that operation and maintenance costs would increase at a rate of 2% per year (over and above inflation). A calculation was also made at a rate of 4% to test the degree that assumption would affect the gap.

A study of capital costs to be incurred to satisfy nutrient control requirements imposed to protect the Chesapeake Bay is currently on-going. That work, which is under the direction of the State Legislature, will unfortunately not be done in time to input to the

Gap Study. Some of the wastewater systems to be interviewed for the Bay study were also surveyed by the Gap Study; it is therefore planned that information developed by the Bay study will be incorporated by the Gap study and used to support future deliberations of the Gap Study.

It cannot be assumed that the result of the study represents the exact status of Pennsylvania's water and sewer industry. The study was designed to draw information from a sample of 358 water and sewer systems across the state. This is a relatively small sample of the 2200 municipal, authority owned and investor-owned drinking water systems, and the 1059 wastewater systems. The intent of the design was to provide enough systems in each basin, as well as in each size group of facilities.

The graphs and other materials referred to in this report are based on the 125 systems which had been interviewed by the time this report was prepared. A statistical reliability test was applied to that sample: the result is that accuracy level is 50% at a confidence level of 95%. The effect of the limited sample is that statewide conclusions can be drawn for both wastewater and drinking water, but there is insufficient data to rely on the data to make geographic (by basin) conclusions. DEP intends to continue to collect data which is expected to allow refined use of the Gap Analysis in the future.

The water and wastewater systems which provided data for the Gap study were assured that the data they provided on their system would not be attributed to their system.

Appendix C

Members of the
Sustainable Infrastructure Task Force

John Hanger, Secretary of the Department of Environmental Protection
Kathleen McGinty, past Secretary of the Department of Environmental Protection
Joseph Powers, past Acting Secretary of the Department of Environmental Protection
Alternate: Cathleen Curran Myers

Donna Cooper, Secretary of Policy and Planning
Alternate: Joanne Denworth

Dennis Yablonsky, Secretary of the Department of Community and Economic Development
Alternate: Steve Drizos

Steven Kaplan, Secretary of Banking
Alternate: Wendy Spicher

Paul Marchetti, Executive Director of the Pennsylvania Infrastructure Investment Authority

Sonny Popowsky, Consumer Advocate
Alternate: Christine Hoover

Representative Bud George, Majority Chair, House ERE Committee
Alternate: E. Thomas Kuhn

Representative Scott Hutchinson, Minority Chair, House ERE Committee
Alternate: Joe Deklinski

Representative Robert Freeman, Majority Chair, Local Government Committee
Alternate: Amy Brinton

Representative Stanley Saylor, Minority Chair, Local Government Committee
Alternate: Don Grell

Senator Mary Jo White, Majority Chair, Senate ERE Committee
Alternate: Patrick Henderson

Senator Raphael Musto, Minority Chair, Senate ERE Committee
Alternate: Richard Fox

Senator Robert Regola, Majority Chair, Local Government Committee
Alternate: Nathan Silcox

Senator Jim Ferlo, Minority Chair, Local Government Committee
Alternate: Stephen Bruder

Karl Brown, Executive Director of the State Conservation Commission

Judy Jengo, Executive Director of the Green Space Alliance

Dr. Jared Cohen, President of Carnegie Mellon University
Alternate: Ty Gourley

Mr. Terry Kauffman, Manager, Borough of Mount Joy

Mr. William Inks, Director of Finance and Administration, ALCOSAN

George Crum, Director, Southwest Delaware County Municipal Authority

Douglas Bowen, General Manager of Whitehall Township Authority

Ginnie Anderson Kane, Commissioner, Upper Allen Township, and PSATC First Vice President for the Sustainable Water Infrastructure Task Force

Sally B. Holbert, RLA, Founding Principal, Land Logics Group

Kathy Pape, President and CEO, Pennsylvania American Water

Edward Troxell, Director of Government Affairs, Pennsylvania Association of Boroughs

Richard Marcinkevage, Manager, City of Lockhaven

Tom Ceraso, County Commissioner, Westmoreland County

Lester Houck, Secretary-Treasurer, Pennsylvania Association of Township Supervisors
Alternate: Keith Hite

Mr. Donald Bluedorn, Chair, Statewide Water Resources Committee
Alternate: Kevin Garber

Mr. Nicholas DeBenedictis, Chairman, President and CEO, AquaAmerica Inc.