

**REVIEW OF THE  
ALLEGHENY COUNTY SANITARY AUTHORITY  
(ALCOSAN)**



**MARK PATRICK FLAHERTY  
CONTROLLER**

**COUNTY OF ALLEGHENY**



**MICHAEL E. LAMB  
CONTROLLER**

*City of Pittsburgh*

**APRIL 2, 2009**

**Review of the  
Allegheny County Sanitary Authority  
(ALCOSAN)  
For the Period January 1, 2007  
Through July 31, 2008**



**April 2, 2009**

*A Review by  
Allegheny County Controller  
Mark Patrick Flaherty*

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# COUNTY OF ALLEGHENY

## OFFICE OF THE CONTROLLER

104 COURTHOUSE • 436 GRANT STREET  
PITTSBURGH, PA 15219-2498

PHONE (412) 350-4660 • FAX (412) 350-4770

**MARK PATRICK FLAHERTY**  
CONTROLLER

**GUY A. TUMOLO**  
DEPUTY CONTROLLER

January 15, 2009

Ms. Arletta Scott Williams  
Executive Director  
Allegheny County Sanitary Authority  
3300 Preble Avenue  
Pittsburgh, PA 15233

Dear Ms. Williams:

We have completed a review of the Allegheny County Sanitary Authority (ALCOSAN) for the period January 1, 2007 through July 31, 2008. The purpose of this review was to analyze the provisions of the consent decree, evaluate the associated costs, assess measures taken to ensure compliance with the consent decree and project future fee increases.

Our analysis of the provisions of the consent decree revealed that ALCOSAN's increase in expenses could average an additional \$21 billion through 2026. Without external funding, this could cost each home between \$425 and \$3,104 a year and each business between \$3,516 and \$25,684 a year. The current projections also show that the cost increase for the member municipalities could increase an average of \$10.2 billion.

In addition, our testing of compliance with the terms of the consent decree revealed that ALCOSAN has complied with all major requirements and time tables through July 31, 2008. Overall, we recommend that ALCOSAN continue to work toward the most cost-effective solutions that provide a sustainable pathway to compliance with laws and regulations. It should continue to maintain compliance with the terms of its consent decree, educate the public about the consent decree, and lobby for additional funding.

We hope this report provides a starting point for discussion regarding the magnitude of clean water infrastructure funding issues.



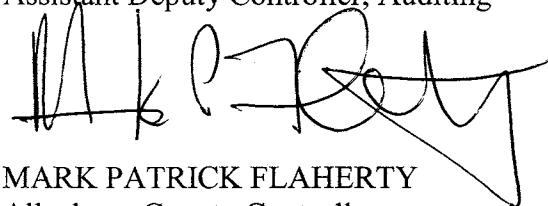
Ms. Williams  
January 15, 2009

We would like to thank the management, staff, and consultants of ALCOSAN for their courtesy and cooperation during our review.

Very truly yours,



Lori A. Churilla  
Assistant Deputy Controller, Auditing



MARK PATRICK FLAHERTY  
Allegheny County Controller

cc: Honorable Rich Fitzgerald, President, County Council  
Honorable William Russell Robinson, County Council  
Honorable Dan Onorato, Chief Executive, Allegheny County  
Mr. James M. Flynn Jr., County Manager, Allegheny County  
Ms. Amy Griser, Budget Director, Allegheny County  
Mr. Joseph Catanese, Director of Constituent Services, County Council  
Ms. Jennifer Liptak, Budget Director, County Council  
Mr. Guy A. Tumolo, Deputy Controller, County Controller's Office  
Mr. Robert J. Lentz, Assistant Deputy, Accounting, County Controller's Office  
Ms. Pamela Goldsmith, Communications Director, County Controller's Office

# **EXECUTIVE SUMMARY**

## **EXECUTIVE SUMMARY**

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### **Background:**

The Allegheny County Sanitary Authority (ALCOSAN) is the largest wastewater treatment facility in Allegheny County. ALCOSAN serves nearly 315,000 residential, commercial, and industrial customers (approximately 900,000 people) throughout 83 municipalities in Allegheny County and the surrounding counties.

The systems that collect the wastewater and storm water are owned and operated by the municipalities, while the system which conveys the sewage to be treated, as well as the treatment plant, are owned and operated by ALCOSAN.

Under certain circumstances, not all sewage is conveyed to the plant, and it overflows into surrounding waterways. A combined sewer overflow (CSO) occurs when storm water and sewage, carried in a single pipe, overload the sewer system. A sanitary sewer overflow (SSO) occurs when a line designated to carry only sewage is blocked or infiltrated. SSOs contain raw sewage and are illegal.

Laws and regulations regarding clean water have changed over the years, requiring increased controls by wastewater treatment facilities such as ALCOSAN. The US Department of Justice and the U.S. Environmental Protection Agency (EPA) began enforcing compliance nationwide through heavy civil penalties and by issuing judicial orders or consent decrees.

The U.S. EPA, the state Department of Environmental Protection (PA DEP) and the Allegheny County Health Department (ACHD) filed a complaint against ALCOSAN for allegedly violating the Clean Water Act, Clean Streams Law, and the Local Health Administration Law by discharging untreated sewage into rivers and streams.

To settle these charges, a consent decree was approved on January 23, 2008. The consent decree requires ALCOSAN to pay \$1.2 million in civil penalties, submit a Long Term Wet Weather Plan to the regulatory agencies by January 2013, complete construction of all projects by 2026, and sustain compliance and monitoring of the completed work for 20 years (2046) after completion. Numerous actions, tasks, key activities, and reports are also required to be completed by ALCOSAN throughout the process. A table highlighting these key activities is included on page 8.

## **EXECUTIVE SUMMARY**

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**Purpose of Review:**

The purpose of our review was to assess ALCOSAN's compliance with the consent decree and to analyze and project the cost for ALCOSAN to plan, design, construct and implement the measures needed to comply with the consent decree.

**Results in Brief:**

Our review found that ALCOSAN has complied with the requirements of the consent decree through July 31, 2008. Schedule I on page 37 identifies the major consent decree tasks completed through July 31, 2008.

The wet weather plan detailing the proposed remedial controls and projects that ALCOSAN will complete is not required to be submitted until January 2013. Therefore, ALCOSAN has not yet thoroughly analyzed all probable compliance options, identified any actual projects, or determined the potential resulting costs. However, ALCOSAN and its consultants have provided the current options under consideration and their associated costs based on preliminary projections and information available through September 2008.

Based on this information, we analyzed and projected the costs through 2026, which is the year ALCOSAN must complete the work identified in the wet weather plan. A summary of the costs is provided below and a detailed explanation is provided in our report on pages 23 through 28.

**Projected Costs**  
**(Inflated to Future Year Dollars)**

	<u>Low Projection</u>	<u>High Projection</u>
<b><u>ALCOSAN</u></b>		
Capital Costs	\$ 3,179,095,500	\$ 23,397,401,400
Net Interest Expense	1,843,875,390	13,570,492,812
O&M 2017-2026	41,393,109	41,393,109
ECM System	2,427,825	2,427,825
Subtotal	<u>5,066,791,824</u>	<u>37,011,715,146</u>
<b><u>MUNICIPAL</u></b>		
Construction	2,879,315,136	10,077,602,976
Net Interest Expense	1,670,002,779	5,845,009,726
Subtotal	<u>4,549,317,915</u>	<u>15,922,612,702</u>
<b><u>TOTAL</u></b>	<b><u>\$ 9,616,109,739</u></b>	<b><u>\$ 52,934,327,848</u></b>

## **EXECUTIVE SUMMARY**

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ALCOSAN presented us with several construction options it is considering as it develops the wet weather plan. The projected capital costs were inflated into 2021 dollars, the assumed mid-point of construction. Based on these calculations, the inflated capital costs could range from \$3.2 billion to \$15.6 billion. Given the uncertainty surrounding these projects and their related costs, the consultants also calculated the cost allowing for a 50% contingency. With the contingency, the costs could range between \$4.8 billion and \$23.4 billion.

If outside funding is not provided to offset these costs, ALCOSAN management and its consultants indicated it would likely issue bonds to cover the expenses. The interest expense for the life of the bonds was calculated using a simplistic schedule and is estimated at \$1.8 billion based on the low capital costs estimate, and \$13.6 billion based on the high capital costs estimate.

The operating and maintenance costs (O&M) associated with the projects recommended in the 1999 concept plan were inflated into 2026 dollars. Since the consent decree requires construction to be complete in 2026, we assumed that 100% of the inflated yearly total O&M would be expended in 2026 and only a portion of the inflated yearly total would be expended each year from 2017 through 2025. The ten year total projected O&M costs are \$41.4 million. This total only represents the O&M costs originally identified in the concept plan. It does not include additional O&M for any of the additional options currently being considered by ALCOSAN. According to its consultants, ALCOSAN is in the process of developing a costing tool to estimate O&M for the various alternatives.

ALCOSAN's ECM system is used to track the information and documents associated with the consent decree. We included \$2,427,825, the 2007 and 2008 capital budget amount in our projected costs, but did not inflate it to future year dollars.

The municipalities that fall within the ALCOSAN treatment area must also make necessary repairs and upgrades to their collection systems. The 1998 cost estimates were inflated into 2021 dollars, which is the assumed mid-point of construction. Based on these calculations, the inflated capital costs for the municipalities

## **EXECUTIVE SUMMARY**

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could range from \$2.9 billion to \$10.1 billion. Additionally, we calculated bond interest expense using the same methodology we used to expense for ALCOSAN. The interest expense is estimated at \$1.7 billion based on the low capital costs estimate and \$5.8 billion based on the high capital costs estimate. Although some maintenance costs may be included in the figure, additional future O&M costs are expected that were not included in the original projections.

We used billing information provided by ALCOSAN to calculate the average cost per non-commercial premise (home) and commercial premise (business). Based on ALCOSAN's total projected costs, the calculated average yearly increase could be:

	<u>Low Projection</u>	<u>High Projection</u>
• Per home	\$ 425	\$ 3,104
• Per business:	\$3,516	\$25,684

Our calculations do not include the costs projected for the municipalities. Since the cost for each municipality will vary greatly depending on the work that is needed there, we cannot determine the portion of the total cost that will be incurred by each municipality.

Currently, only two potential funding sources exist which could provide \$1.2 billion across the entire state.

- Act 63, the H<sub>2</sub>O PA Act, provides for the allocation of up to \$800 million of Pennsylvania Gaming Economic Development and Tourism Fund revenues for water, sewer, storm water, flood control and high hazard unsafe dam projects. However, first and second class counties, including Allegheny County, are not eligible to receive funding under this act until \$750,000,000 has been distributed for projects outside of a city or county of the first or second class. Allegheny County has already received funding for other projects through this fund.
- Act 64, the Water and Sewer Systems Assistance Act allows for a \$400 million bond issue for the acquisition, construction, improvement, expansion, extension, repair, rehabilitation, or security measures for drinking water and wastewater system

## ***EXECUTIVE SUMMARY***

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projects. The largest systems, including ALCOSAN are eligible to receive up to \$50 million in grants and/or loans.

**Recommendations:** We recommend that ALCOSAN management:

- Ensure that ALCOSAN continuously maintains compliance with the terms of the consent decree.
- Continue to work toward the most cost-effective solutions that provide a sustainable pathway to compliance with laws and regulations.
- Explore options that incorporate green infrastructure such as rain gardens, pervious pavement, green roof applications, rain barrels, and constructed wet lands. Over time, green infrastructure may reduce capital as well as operating and maintenance costs.
- Promote solutions for going “green” including public education on ways individuals can help manage storm water beginning in their own backyards.
- Educate the public about the consent decree, its importance, and its ramifications in order to gain their support for increased spending.
- Continue to work with other agencies to lobby for additional funding.
- Use this report to facilitate discussions regarding the magnitude of clean water infrastructure funding issues.

## Milestones for Regional Cooperation

ALCOSAN Consent Decree Schedule		Municipal Consent Orders
ALCOSAN Responsibilities	ALCOSAN Coordination with Customer Municipalities	Revised Schedule
<b>2007</b>		
<ul style="list-style-type: none"> <li>▪ May: Consent Decree Published in Federal Register for Public Comment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Submit Regional Data to ALCOSAN:           <ul style="list-style-type: none"> <li>○ System Mapping</li> <li>○ Physical Surveys</li> <li>○ Nine Minimum Control Plans</li> </ul> </li> <li>▪ Provide ALCOSAN Access to Municipal Collection System for Flow Meter Installation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complete Dye Testing, Mapping and Physical Survey of the Collection System</li> </ul>
<b>2008</b>		
<ul style="list-style-type: none"> <li>▪ Feb. 1: Begin Flow Monitoring</li> <li>▪ Create Advisory Committee and Public Participation Plan</li> <li>▪ Develop Hydrologic/Hydraulic Modeling Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Feb. 1: Begin Flow Monitoring Data Sharing</li> <li>▪ Complete GIS Map Incorporating Municipal System Mapping</li> </ul>	<ul style="list-style-type: none"> <li>▪ Feb. 1: Analyze Flow Monitoring Data</li> <li>▪ May 31: Complete Hydraulic Characterization</li> </ul>
<b>2009</b>		
<ul style="list-style-type: none"> <li>▪ Feb. 1: Complete One Year of Flow Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>▪ ALCOSAN to Submit SSO Response Plan to Regulatory Agencies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Feb. 1: Complete One Year of Flow Monitoring</li> <li>▪ May 31: Submit O&amp;M Plans to Regulatory Agencies</li> </ul>
<b>2010</b>		
	<ul style="list-style-type: none"> <li>▪ Feb. 1: Submit All Flow Data to ALCOSAN</li> <li>▪ Submit All Hydrologic/Hydraulic Analysis, System Hydraulic Characterization to ALCOSAN</li> <li>▪ ALCOSAN to Submit Long-Term Control Plan (LTCP) to Regulatory Agencies</li> </ul>	<ul style="list-style-type: none"> <li>▪ May 31: Complete CCTV of Collection System</li> <li>▪ Nov. 30: Complete Deficiency Corrections of Major Restrictions and Collapses</li> </ul>
<b>2012</b>		
<ul style="list-style-type: none"> <li>▪ Develop a Draft Wet Weather Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Municipalities Comment on Draft Wet Weather Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop Feasibility Report 6 Months after ALCOSAN's Wet Weather Plan</li> </ul>
<b>2013</b>		
<ul style="list-style-type: none"> <li>▪ January: Submit Wet Weather Plan to EPA</li> </ul>		<ul style="list-style-type: none"> <li>▪ Submit Feasibility Study to DEP &amp; ACHD</li> </ul>
<b>2015</b>		
		<ul style="list-style-type: none"> <li>▪ March 31: Termination of Municipal Consent Orders</li> </ul>
<b>2026</b>		
	<ul style="list-style-type: none"> <li>▪ Completion of All Remedial Controls and Activities as Specified in the Wet Weather Plan</li> </ul>	
<b>2046</b>		
	<ul style="list-style-type: none"> <li>▪ Maintain Adequate Capacity and Treatment for 20 years After Implementation of the Wet Weather Plan</li> </ul>	

Source: 3 Rivers Wet Weather

# **INTRODUCTION**

## **I. Introduction**

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### **BACKGROUND**

The Allegheny County Sanitary Authority (ALCOSAN) is the largest wastewater treatment facility in Allegheny County and one of the largest in the Ohio Valley. ALCOSAN serves nearly 315,000 residential, commercial, and industrial customers (approximately 900,000 people) throughout 83 municipalities in Allegheny County and the surrounding counties. The area served covers approximately 310 square miles. ALCOSAN's mission statement is "to provide cost effective environmentally conscious wastewater treatment that enhances the use of our natural resources."

As of today, ALCOSAN is an independent municipal authority governed by a seven-member board of directors. Three members are appointed by the Mayor of Pittsburgh, three are appointed by the Allegheny County Chief Executive, and one is a joint City-County appointee. No tax monies are received and operations are supported by user rates. ALCOSAN is a self contained operating entity with a full in-house support system. It employs approximately 339 people.

### **OPERATIONS**

There are three main components for wastewater treatment – collection, conveyance, and treatment:

- **Collection** - The collection system is owned and operated by customer municipalities and conveys sewage or storm water from homes and businesses to ALCOSAN's conveyance and treatment system. This system has approximately 4,000 miles of pipes including both sanitary and combined sewer systems. Most of these collection systems existed prior to the creation of ALCOSAN's system of tunnels and treatment plant. Some parts of the collection system are over 100 years old. These municipal collection systems are able to capture nearly one billion gallons per day (BGD) of wastewater.
- **Conveyance** - ALCOSAN owns and operates the conveyance system that intercepts and transports the flow from the municipal trunk sewers to the

## I. Introduction

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ALCOSAN treatment facility. There are approximately 90 miles of interceptors, 30 miles of deep tunnel, and over 300 overflow/regulating structures in the conveyance system. The system interceptors can transport up to 875 million gallons per day (MGD) to the ALCOSAN treatment plant.

- **Treatment** – ALCOSAN owns and operates the 56-acre sewage treatment plant. Even though the system can transport larger amounts, the treatment plant can only process 275 MGD.

ALCOSAN's conveyance and treatment system, together with the municipal collection systems are collectively referred to as the **Regional Collection System**.

Dry weather discharges can occur due to blockages in the pipes, pipe breaks, or power failures.

During wet weather conditions, the capacity of the treatment plant as well as the designed carrying capacity of the ALCOSAN system and, in some cases the satellite collection system, is exceeded. Excess water in the system is caused by the following:

- **Infiltration** is water other than sewage that enters the sewer system through structural or mechanical defects in the system. For instance, cracked and deteriorated pipes allow rain and snow melt to leak into the system.
- **Inflow** is water, other than sewage or infiltration, which enters the sewer system. Many households have improperly connected downspouts or sump pumps that force storm water into the sewer lines designated to carry only sewage. Other inflow sources include streams, springs and swampy areas, cross connections between storm sewers and sanitary sewers, surface runoff, street wash waters, and drainage.

There are generally two types of overflows that occur:

- A **combined sewer overflow (CSO)** occurs when storm water and sewage, carried in a single pipe, overload the sewer system and flow untreated into

## **I. Introduction**

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rivers and streams. CSOs contain a variety of pollutants such as debris, chemicals, bacteria, toxic materials, untreated human and industrial waste, and animal waste.

- A **sanitary sewer overflow (SSO)** occurs when a line designated to carry only sewage is blocked or infiltrated. These overflows contain raw sewage and are illegal. The overflow structures were designed to help prevent untreated sewage from backing up into basements or overflowing from manholes onto streets and playgrounds.

There are 312 **outfall structures** in the ALCOSAN system. The EPA has identified 53 of these outfalls as SSOs, while the remaining 259 outfalls are classified as CSOs. Hundreds of overflows occur across Allegheny County during each rainstorm.

### **CONSENT DECREE**

In January 2008, a federal judge approved a consent decree addressing sewer overflows by the Allegheny County Sanitary Authority. A **consent decree** is a judicial order expressing a voluntary agreement between parties to a lawsuit to cease activities alleged by the government to be illegal in return for an end to the charges.

Several years ago increased scrutiny from the U.S. Department of Justice and the **U.S. Environmental Protection Agency (EPA)** initiated the enforcement of regulations regarding overflows in large cities, leveling heavy civil penalties on those out of compliance. As a result of a complaint filed by the United States Environmental Protection Agency, the state **Department of Environmental Protection (PA DEP)** and the **Allegheny County Health Department (ACHD)** against ALCOSAN, the United States Court for the Western District of Pennsylvania officially entered a consent decree.

The decree alleges ALCOSAN has violated and continues to violate the **Clean Water Act, Clean Streams Law, and the Local Health Administration Law**. The violation is a discharge of untreated sewage into rivers and streams. The consent decree requires ALCOSAN to pay

## **I. Introduction**

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\$1.2 million in civil penalties and expend \$3 million on supplemental projects. In addition, ALCOSAN is required to develop a Long Term Wet Weather Plan and submit it to the regulatory agencies by January 2013, complete construction of all phases of all projects by 2026, and sustain compliance and monitoring of the completed work for 20 years (2046) after completion.

### **LEGISLATIVE AND DEVELOPMENTAL HISTORY**

- During the late 1800s and early 1900s, major infrastructure such as sewers and water mains was constructed in the Pittsburgh region. Due to a lack of legislative oversight regarding the treatment of wastewater, cities were permitted to dump raw sewage directly into the rivers and streams.
- 1905-1937 ~ The Pennsylvania Purity of Waters Act, passed in 1905 and the Pennsylvania Clean Streams Law, passed in 1937, set standards for domestic sewage disposal to assure clean drinking water and protect streams from harmful pollutants.
- 1945 ~ The State Sanitary Water Board ordered the communities and industries in Allegheny County to develop a sewage treatment plan and stop discharging into the river. Of the 102 municipalities in the County, 74 solicited a petition requesting that a County authority be created to ease the burden of individually constructing separate wastewater treatment plants.
- 1946 ~ ALCOSAN was formed under the Pennsylvania Municipal Authorities Act. ALCOSAN's treatment plan was approved by the Sanitary Water Board in 1954.
- 1959 ~ After approximately five years of construction, ALCOSAN's wastewater treatment plant began operations.
- 1972 ~ The Federal Water Pollution Control Act Amendments of 1972, currently known as the Clean Water Act, was enacted to establish the basic structure for regulating pollutant discharges into U.S. waters. The Act also gave the EPA the authority to implement various projects and created a National Pollutant Discharge Elimination System (NPDES) permit program to control water pollution by regulating discharges that go directly into waters.

## I. Introduction

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- 1973 ~ ALCOSAN's secondary treatment system became operational and reduced the amount of pollutants discharged from the treatment plant into the Ohio River.
- 1988 ~ The Federal Clean Water Act was amended to require the elimination of SSOs and the reduction of CSOs. As a result, the US Department of Justice and the EPA began enforcing compliance nationwide through heavy civil penalties and by issuing consent decrees. A consent decree is a judicial order expressing a voluntary agreement between parties to a suit to cease activities alleged by the government to be illegal in return for an end to the charges.
- 1994 ~ The CSO Control Policy was published. The policy brought on new requirements and provided guidance on how CSO communities could meet the goals of the Clean Water Act.
- 1995 through 1999 ~ The EPA CSO Policy required NPDES permittees with combined sewer systems to accurately characterize their sewer systems, demonstrate implementation of the nine minimum controls, and develop a long-term CSO control plan. ALCOSAN contracted with Camp Dresser McKee, Inc. (CDM) to develop the following four reports for wet weather compliance planning:
  - 1995 System Inventory and Characterization - what's in the ground?
  - 1996 System Hydraulic and Hydrologic Characterization - how well is it working?
  - 1996 Implementation of the Nine Minimum Controls – are we doing the best with what we've got?
  - 1999 Regional Long Term Wet Weather Concept Plan – long term capital improvements.
- 2000 ~ In September, ALCOSAN was issued a draft consent decree. Negotiations toward a final document began.
- 2001 ~ Negotiations with the regulatory agencies were suspended to allow review of the individual collection systems.
- 2003 ~ In July, negotiations resumed.
- 2007 ~ In May, the Consent Decree was lodged. In addition, the EPA, the PADEP, and the ACHD filed a complaint against ALCOSAN with the United States District Court for the Western District of Pennsylvania. This complaint sought injunctive relief and civil

## **I. Introduction**

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penalties for alleged violations of the Clean Water Act, the Clean Streams Law, and the Local Health Administration Law for discharging untreated sewage into the water.

- 2008 ~ On January 23, the Consent Decree was approved, signed, and entered by the US District Court Judge for the Western District of Pennsylvania.

### **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT**

Currently, ALCOSAN operates under a **National Pollutant Discharge Elimination System (NPDES) Permit** which allows ALCOSAN to operate at its maximum treatment capacity of 275 million gallons of waste water per day. The NPDES Permit is issued and administered by the PADEP.

The NPDES permit program controls water pollution by regulating sources (pipes, ditch, channel, tunnel, conduit, container, etc) that discharge pollutants (solid waste, sewage, garbage, chemical wastes, biological material, etc.) into waters. The Water Permits Division (WPD) within the EPA Office of Wastewater Management leads and manages the NPDES permit program in partnership with EPA Regional Offices, States and Tribes. The NPDES permit specifies an acceptable level of a pollutant in a discharge ensuring that states standards for clean water and federal minimums are being met. Facilities are required to sample discharges and notify the EPA and the state regulatory agency of the results. Inspectors are also sent to determine if the facility is in compliance with the conditions imposed under their permits.

Federal laws provide the EPA and authorized state regulatory agencies with various methods of taking enforcement action against violators of permit requirements. These methods include administrative orders and monetary penalties. In addition, criminal and civil actions may include mandatory injunctions or penalties as well as jail sentences for persons found willfully violating NPDES requirements and endangering the health and welfare of the public or the environment.

# **SCOPE AND METHODOLOGY**

## **II. Scope and Methodology**

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### **SCOPE**

The Allegheny County Controller's Office performed a review of ALCOSAN regarding the Consent Decree entered into Court on January 23, 2008. The purpose of our review was to assess ALCOSAN's compliance with the consent decree, and to analyze and project the cost for ALCOSAN to plan, design, construct and implement the measures needed to comply with the provisions contained within the Consent Decree, including the Wet Weather Plan. Additionally, our review assessed the additional cost impact of the administrative consent orders and consent orders and agreements entered into by the individual municipalities served by ALCOSAN and evaluated the overall financial impact on the public.

### **METHODOLOGY**

We reviewed ALCOSAN's records for the period January 1, 2007 through July 31, 2008. Specifically, we performed the following:

- Interviewed the following:
  - ALCOSAN personnel and consultants involved in the development of the Wet Weather Plan and compliance with the other provisions of the Consent Decree.
  - The Director of 3 Rivers Wet Weather Demonstration Program regarding municipality Administrative Consent Orders, compliance with, and costs.
  - The Principal and CEO of KBealer Consulting LLC, hired by ALCOSAN to determine the national sewage rate increase and public trends.
  - Representatives from Camp Dresser McKee, Inc., the wet weather consultant retained by ALCOSAN.
- Reviewed pertinent documentation including the ALCOSAN Consent Decree, the Regional Long Term Wet Weather Control Concept Plan (LTCP), and a sample of the Consent Order and Agreements/Administrative Consent Orders entered into by member municipalities.
- Examined records and supporting documentation to verify that ALCOSAN has met the deadlines and

## **II. Scope and Methodology**

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compliance requirements of the Consent Decree as of July 31, 2008.

- Reviewed applicable laws and regulations including the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act), the Pennsylvania Clean Streams Law, the Local Health Administration Law, and the Allegheny County Health Department Rules and Regulations Article XIV.
- Analyzed the projected capital and operating cost of developing the Wet Weather Plan as required in the Consent Decree.
- Extrapolated the projected cost of complying with the Consent Decree through 2026.
- Evaluated the financial consequences of the Consent Decree to the public.
- Researched alternative funding options available to ALCOSAN that could offset the cost passed on to ratepayers.
- Contacted other agencies operating under a consent decree to determine how their cost and fines were funded and what action was taken to become compliant with the Consent Decree.
- Contacted all 83 member municipalities to obtain current rate information.
- Performed benchmarking analysis in which ALCOSAN customer rates were compared with other Pennsylvania sewage treatment authorities.
- Attended the 3 Rivers Wet Weather Sewer Conference held in October 2008 regarding compliance requirements, feasibility studies, green solutions and asset management.

We conducted this review from July through October 2008. We provided a draft copy of this report to the ALCOSAN Executive Director for comment. Her response begins on page 46.

# **CONSENT DECREE ~ PROVISIONS AND COMPLIANCE**

### **III. Consent Decree ~ Provisions and Compliance**

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#### **ALCOSAN'S CONSENT DECREE ~ PROVISIONS AND COMPLIANCE**

In 1988 amendments to the federal Clean Water Act called for the elimination of SSOs and reduction of CSOs. A nationwide campaign was launched in major cities to enforce the ruling by issuing consent decrees (a judicial order) and levying heavy civil fines and penalties for noncompliance. ALCOSAN is not alone in facing a consent decree. Sewer authorities in cities such as Atlanta, Boston, New York City, Philadelphia, Cleveland, and Cincinnati are all under strict guidelines of a consent decree in order to comply with the U.S. Clean Water Act.

On May 31, 2007 the consent decree was lodged simultaneously with the filing of a complaint against ALCOSAN by the U.S. EPA, Pa DEP, and the Allegheny County Health Department (ACHD). The plaintiffs sought injunctive relief and civil penalties from ALCOSAN for allegedly discharging untreated sewage into the water. On January 23, 2008 (the date of entry) the consent decree was approved, signed, and entered by the Court. This is an important date of reference because the due date for many of the consent decree requirements is based on the date of entry.

The consent decree settled the regulatory agencies' claims without additional litigation or a trial. By agreeing to the consent decree, ALCOSAN does not admit to any of the non-jurisdictional allegations. The decree holds ALCOSAN responsible for evaluating, monitoring, modeling, repairing, and assuring compliance for the conveyance and treatment system in the service area through judicially enforceable schedules and requirements.

The provisions are laid out within the consent decree and appendices. The consent decree specifies numerous actions, tasks, key activities, and reports to be completed by ALCOSAN. Some requirements are recurring events while others are predicated on the completion of other tasks. Time frames were also established as part of the wet weather plan process. The due dates are enforced by the regulatory agencies and must be strictly adhered to or additional fines and penalties will be levied. The major requirements of the consent decree are summarized below.

### **III. Consent Decree ~ Provisions and Compliance**

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In order to achieve compliance with applicable laws, **ALCOSAN is required to:**

- Eliminate all sanitary sewer overflows (SSOs) from the conveyance and treatment system.
- Eliminate all dry weather discharges from the conveyance and treatment system.
- Ensure any discharge meets the requirements of the Clean Water Act and the EPA CSO Policy. Discharges must be monitored.
- Construct and operate conveyance, storage, and treatment facilities for flows from the Regional Collection System in accordance with specific planning, design, and construction requirements.
  - ALCOSAN must design and construct the facilities for the Conveyance and Treatment System by September 30, 2026. These facilities must capture and treat the sanitary sewer system and combined sewer system flows for at least 20 years after construction.
  - For the sanitary sewer systems, ALCOSAN must operate the system to capture and treat all sanitary sewer flow and eliminate all SSOs.
  - For the combined sewer system, ALCOSAN can submit its wet weather plan using either a demonstration or presumption approach.
    - Under the demonstration approach, ALCOSAN must capture and treat all peak dry weather flow, and provide maximum pollution reduction benefits reasonably attainable for all wet weather flow. All discharges must meet requirements of the Clean Water Act and the EPA CSO Policy.
    - Under the presumption approach, ALCOSAN must capture 85% of the combined sewer system flow, treat all peak dry weather flow, and treat the captured wet weather flow to meet applicable water standards. If ALCOSAN would like to use a presumption approach, it must request a preliminary determination from the EPA and PADEP and submit documentation

### **III. Consent Decree ~ Provisions and Compliance**

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supporting that this approach is appropriate by January 23, 2010.

- The 1999 concept plan was prepared using the presumption approach. However, ALCOSAN is considering several options and alternatives under both methods while it is in the process of preparing their wet weather plan. As of the date of this report, ALCOSAN has not determined which approach it will use.
- Complete or initiate numerous tasks and subtasks including, but not limited to plant operations, an operations and maintenance program, compliance with nine minimum controls, system maps, modeling, and monitoring of: overflows, flows of the regional collection system, rainfall, and receiving water quality, by specific dates.
  - ALCOSAN purchased Enterprise Content Management (ECM), a software package to facilitate the tracking, management and retention of information and documents required to maintain compliance with the consent decree.

Every activity required under the consent decree is recorded in the ECM, including a reference to the applicable paragraph of the consent decree. The ECM tracks the due date, responsible staff, work flow, current status, and completion percentage for every activity. The system will send notifications to appropriate personnel based on the due date and percent completed.

- ALCOSAN summarized some of the major tasks and due dates, and identified which tasks were completed. See **Schedule I on page 37**.

We reviewed documentation submitted to the regulatory agencies as well as information in ECM, correspondence, records and ALCOSAN's web site to ensure ALCOSAN was in compliance with the terms of its consent decree as of July 31, 2008. **Based on our review, ALCOSAN has completed the requirements as of that date.**

### **III. Consent Decree ~ Provisions and Compliance**

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- Submit a **wet weather plan** to the EPA, PADEP, and ACHD by January 30, 2013. The plan was originally due September 30, 2012, but at ALCOSAN's request, the US Department of Justice extended the due date four months. Specific terms and requirements of the wet weather plan are listed in the consent decree. The EPA and PADEP have 12 months to review the plan.
- Complete construction and implement remedial activities from the approved wet weather plan by September 30, 2026.
- Ensure the design and construction of the facilities is sufficient to capture and treat system flows for at least 20 years after construction of the remedial controls is complete.
- Pay a **civil penalty** totaling \$1.2 million equally split between the United States, the Commonwealth of Pennsylvania, and the Allegheny County Health Department. The penalty is for alleged past violations cited in the complaint for unauthorized and noncompliant discharges. The payment to the United States and the Commonwealth were due February 22, 2008 and July 21, 2008 respectively, and were paid on time. The payment to the Allegheny County Health Department is not due until January 17, 2009.
- Perform stream restoration activities, referred to as supplemental environmental projects, in accordance with the May 1998 EPA Supplemental Environmental Projects Policy.

ALCOSAN had to submit a proposal by May 22, 2008 identifying which projects it had selected. ALCOSAN must expend at least \$3 million on these projects and complete them within three years after they are approved. It must submit semi-annual progress reports during construction, and file an SEP completion report within 120 days of project completion.

ALCOSAN submitted its proposal on time and selected stream removal projects at Pine Hollow, Orr Street, and Carnegie Park to assist with flow and/or CSO reduction. The estimated cost of these three projects is

### **III. Consent Decree ~ Provisions and Compliance**

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\$6,142,565 and the member municipalities are expected to participate in each of the projects.

#### **MUNICIPALITIES' ORDERS**

ALCOSAN's consent decree requires the 83 member municipalities to provide ALCOSAN with certain information and documentation in order for ALCOSAN to prepare the wet weather plan (See **Schedule I** page 37).

The member municipalities also allegedly discharged untreated sewage or contributed to a combined sewer overflow. Municipalities with combined sewer systems entered into a consent order and agreement with the PADEP and municipalities with separate sewer systems entered into an administrative consent order with the ACHD.

As a result, these municipalities were ordered to retain an engineer, complete a physical survey/visual inspection, use closed circuit television to inspect its sewer system, map the system using GIS, perform flow monitoring, participate in a feasibility study with ALCOSAN, and submit semi-annual progress reports.

Additionally, municipalities with separate sewer systems must dye test all structures to determine the sources of surface storm water, construct an emergency SSO response plan, complete a hydraulic design capacity evaluation, and submit an operation and maintenance program plan.

Municipalities with combined sewer systems must complete a hydraulic capacity evaluation and implement and comply with the nine minimum technology-based controls listed in the CSO Control Policy. These tasks are to be completed no later than November 30, 2010, with interim deadlines to be met.

There are approximately 70 other sewage treatment plants in Allegheny County that operate under an NPDES permit. Some of these plants serve multiple municipalities while others serve only a small portion of a town. Many of the non-ALCOSAN plants and the municipalities they serve are also in violation of federal, state, and local laws, and are under various stages of compliance enforcement.

**CONSENT DECREE ~**

**PROJECTED**

**COSTS**

## **IV. Consent Decree ~ Projected Costs**

### **CURRENT SEWER RATES**

ALCOSAN's fee includes a quarterly service charge and a commodity charge per 1,000 gallons of water consumed (billing is based on water consumption, not the volume actually processed by ALCOSAN). Some commercial customers' bill also includes an additional surcharge. The table below shows ALCOSAN's rate for 2007, 2008, and 2009 (excluding any surcharges). The annual rate is based on estimated water consumption of 15,000 gallons a quarter for a non-commercial ratepayer.

	Service Charge Per Quarter	Commodity Charge Per 1,000 Gallons	Average Annual Charge (60,000 gal)
2007	\$6.27	\$2.98	\$203.88
2008	\$6.83	\$3.25	\$222.32
2009	\$7.92	\$3.77	\$257.88

In addition to ALCOSAN's rate, the individual municipality may also charge the customer their own fee. We obtained the current rates for each of the municipalities served by ALCOSAN. Schedule II on page 41 compares the total sewer rate, including the ALCOSAN charge, in 2008 to the sewer rate in 2004. These figures do not include any future increases.

### **PROJECTED COSTS**

As part of its consent decree, ALCOSAN is required to prepare a wet weather plan which details, among other things, the remedial controls and activities that it will implement in order to achieve compliance with applicable laws. Although the basic premise is the same as the draft Regional Long Term Wet Weather Concept Plan (concept plan) submitted to regulatory agencies in 1999, the consent decree requires the wet weather plan to include direct input from the municipalities in order to encompass the entire regional system.

The cost to design and construct the controls to bring ALCOSAN into compliance with the changing laws and regulations will represent a significant expense to ALCOSAN and its ratepayers. Since the wet weather plan is not required to be submitted until January 2013, ALCOSAN has not identified the actual projects that will

## **IV. Consent Decree ~ Projected Costs**

be completed. However, it has provided some of the current options under consideration as well as a preliminary cost projection with the following qualification: “The data presented is in no way intended to represent a full and thorough analysis of probable control/compliance options and or potential resulting costs as required by the Consent Decree. As such this information is offered in the context of a heavily qualified preliminary projection based on our understanding of available technology, regulatory climate and compliance trends in September 2008.”

Based on information provided by ALCOSAN and its consultants, we have extrapolated the costs to comply with the consent decree through 2026, which is the year ALCOSAN must complete the work it identifies in the wet weather plan (see the table below). A detailed explanation of these costs is provided in the subsequent paragraphs.

### **Projected Costs (Inflated to Future Year Dollars)**

	<u>Low Projection</u>	<u>High Projection</u>
<b><u>ALCOSAN</u></b>		
Capital Costs	\$ 3,179,095,500	\$ 23,397,401,400
Net Interest Expense	1,843,875,390	13,570,492,812
O&M 2017-2026	41,393,109	41,393,109
ECM System	2,427,825	2,427,825
Subtotal	<u>5,066,791,824</u>	<u>37,011,715,146</u>
<b><u>MUNICIPAL</u></b>		
Construction	2,879,315,136	10,077,602,976
Net Interest Expense	1,670,002,779	5,845,009,726
Subtotal	<u>4,549,317,915</u>	<u>15,922,612,702</u>
<b><u>TOTAL</u></b>	<b><u>\$ 9,616,109,739</u></b>	<b><u>\$ 52,934,327,848</u></b>

The CSO Guidance for Financial Capability Assessment and Schedule Development assesses the permittee's financial capability to implement the CSO controls using a two-phase approach which includes calculating the financial impact on individual households as well as the permittee's debt, socioeconomic and financial conditions. This assessment can be used to assist in establishing an implementation schedule. ALCOSAN's consultants are currently working on this analysis. According to its

## **IV. Consent Decree ~ Projected Costs**

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management, if this assessment yields unfavorable results, ALCOSAN could seek additional time to complete the construction of the remedial controls.

### **ALCOSAN's Capital and Operating and Maintenance Costs**

ALCOSAN presented us with several construction options it is considering as it develops the wet weather plan. All the options discussed include the recommended structural alternatives identified in the concept plan as the starting point but also include modifications based on updated information and advances in technologies.

When the concept plan was developed, ALCOSAN's system was divided into eight study areas for evaluation purposes. Per ALCOSAN management, the eight study areas identified in the concept plan have been consolidated into seven basins for the development of the wet weather plan. Although the projects in the concept plan will be used as a starting point for the wet weather plan, the basin planners will utilize more survey data and geotechnical information, and will include more detailed plans and projects such as utility placement that was not accounted for in the concept plan.

The concept plan details the numerous structural alternatives that were evaluated for each of the eight areas, and identifies the recommended structural alternatives as well as their associated costs. The general implementation strategy under the concept plan included:

- Expansion of the treatment plant wet weather capacity to 875 million gallons per day (mgd) and optimization of the regulator gate settings to maximize flow.
- General system improvements including direct stream connection removal and installation of grit controls upstream of CSO points of connection.
- Transmission expansion including upgrading shallow-cut interceptors and building storage and treatment facilities to achieve SSO compliance and the presumptive approach to CSO capture in the tributaries and the hydraulically compromised deep tunnel connections.

## **IV. Consent Decree ~ Projected Costs**

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- Municipal collection systems rehabilitation and reconstruction.
- Participation in regional and interstate watershed approach to water quality management planning.

In 1998, ALCOSAN's capital costs for this structural plan were estimated to be \$922 million, including 15% for soft costs such as design and construction engineering, as well as a 33% construction contingency. It should be noted that although the concept plan included expansion of the plant's wet weather treatment capacity, the cost for the expansion was not included in these estimates. In addition to the capital costs, \$3.5 million per year was estimated for the operation and maintenance costs associated with this structural plan.

ALCOSAN and its consultants have identified projects that could be completed in addition to the work identified in the concept plan. Since the wet weather plan is not due until 2013, these alternatives are not meant to depict a final list of potential solutions. ALCOSAN is still exploring and considering other alternatives. Currently the options under consideration include:

- Bypass – In order to expand the wet weather capacity of the treatment plant from 275 mgd to 875 mgd, a portion of the waste water would be processed through the primary treatment, but not the secondary treatment during a wet weather occurrence. During these occurrences, waste water is already more diluted due to the excess storm water in the system. Primary treatment includes removal of solids (e.g. rags, large food waste), gravel, grit, scum and grease, and heavy organic material (biosolids), while the secondary treatment uses microorganisms and sedimentation clarifiers to remove remaining organic materials. All waste water would be chemically treated prior to discharge. As noted above, the plant expansion was identified in the concept plan; however, the cost was not included in the 1998 projections.
- Additional satellite treatment – If the bypass is not permitted by the regulatory agencies, ALCOSAN will still need capacity to treat wet weather flow of 875 mgd. Therefore, it could construct three 200 mgd satellite treatment facilities.

## **IV. Consent Decree ~ Projected Costs**

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- Storage tunnel – If the bypass is not permitted by the regulatory agencies, ALCOSAN will still need capacity to treat wet weather flow of 875 mgd. Therefore, it could construct a temporary storage tunnel to hold the waste until it could be treated at the existing plant under the current plant capacity. The size of the tunnel depends on the wet weather flow capture required by the regulatory agencies. Under the presumption approach, 85% of the combined sewer flow must be captured. However, if this approach is not approved by the regulatory agencies, ALCOSAN may be required to capture additional flow, requiring a larger storage tunnel.
- Multiple Structures - If the bypass is not permitted by the regulatory agencies, and regulatory agencies require capture of nearly all combined sewer flow, ALCOSAN could construct three 200 mgd satellite treatment facilities and the larger storage tunnel.

ALCOSAN's consultants adjusted the 1998 costs of \$922 million based on updated satellite treatment costs and inflated the figure to 2008 dollars. The consultants also projected the costs for each of the additional options identified above. We inflated their costs for each option from 2008 dollars into 2021 dollars, which is the assumed mid-point of construction. Based on these calculations, the inflated capital costs could range from \$3.2 billion to \$15.6 billion.

Given the uncertainty surrounding these projects and their related costs, the consultants also presented the costs allowing for a 50% contingency. We inflated their costs including the contingency from 2008 dollars into 2021 dollars. Based on these calculations, the inflated capital costs, including the 50% contingency, could range between \$4.8 billion and \$23.4 billion.

Our table on page 23 presents the low range costs of \$3.2 billion and the high range costs of \$23.4 billion. The costs of supplemental environmental projects described in the preceding section are included in these figures. These supplemental projects involve stream removal, which was identified in the concept plan.

## **IV. Consent Decree ~ Projected Costs**

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If outside funding is not provided to offset these costs, ALCOSAN management and its consultants indicated it would likely issue bonds to cover the expense. Therefore, we calculated bond interest expense on the capital costs. Our calculation applied a simplistic schedule although we expect ALCOSAN will incorporate its own financing plan. The interest expense for the life of the bonds is estimate at \$1.8 billion based on the low capital costs estimate, and \$13.6 billion based on the high capital costs estimate. The assumptions we used to calculate the interest expense are described in Schedule III on page 43.

As indicated above, the annual operating and maintenance costs (O&M) associated with the projects recommended in the concept plan were estimated at \$3.5 million in 1998 dollars. We inflated the \$3.5 million from 1998 dollars into future year dollars for each year through 2026. Since the consent decree requires construction to be complete in 2026, we assumed that 100% of the inflated yearly total O&M would be expended in 2026 and only a portion of the inflated yearly total would be expended each year from 2017 through 2025. Our projection of future O&M costs is based on the information in the concept plan and the assumptions used by ALCOSAN and its consultants. The ten year total projected O&M costs are \$41.4 million. This total only represents the O&M costs originally identified in the concept plan; it does not include additional O&M for any of the additional options currently being considered by ALCOSAN. According to its consultants, ALCOSAN is in the process of developing a costing tool to estimate O&M for the various alternatives.

ALCOSAN included the costs of its ECM system, which is used to track the information and documents associated with the consent decree, in its capital project budget for 2007 and 2008. A total of \$2,427,825 was budgeted for equipment, consultants, and labor. We included this amount in our projected costs, but did not inflate it to future year dollars since the expenses are for 2007 and 2008.

### **Municipality Costs**

The Concept Plan also anticipated the necessity for long term reconstruction and rehabilitation of collection systems

## **IV. Consent Decree ~ Projected Costs**

by the municipalities that fall within the ALCOSAN treatment area. In 1998, the costs to the municipalities for reconstruction and rehabilitation were estimated between \$1.2 billion and \$4.2 billion. The low-end estimates assumed rehabilitation of 25% of the public sewers, manholes, and service laterals, replacement of 10% of the service connections, and a clean-out of 10% of the service laterals. The high-end estimates assumed rehabilitation of 90% of the public sewers, manholes, and service laterals, replacement of 40% of the service connections, and a clean-out of 40% of the service laterals.

These original projections were only for construction costs and did not include future O&M costs. The municipalities' process was originally estimated to take 50 years with the worst problems/greatest flow reductions occurring first. Since the process was projected over decades, it is likely that some costs included were for future maintenance. Additionally, some of the work identified likely included deferred maintenance, as well as replacement costs. Despite these considerations, additional future O&M costs are expected that were not included in the original projections.

We inflated the low and high costs identified in the consent decree from 2008 dollars into 2021 dollars, which is the assumed mid-point of construction. Based on these calculations, the inflated capital costs for the municipalities could range from \$2.9 billion to \$10.1 billion. Additionally, we calculated bond interest expense using the same methodology we used to expense for ALCOSAN. The interest expense for the life of the bonds is estimated at \$1.7 billion based on the low capital costs estimate, and \$5.8 billion based on the high capital costs estimate.

### **State Task Force**

In 2008 the Governor signed an executive order creating the Sustainable Infrastructure Task Force. The Task Force was to assess the commonwealth's water infrastructure needs, to identify financing strategies, and to make recommendations for more efficient water infrastructure management.

## **IV. Consent Decree ~ Projected Costs**

Its report released on November 1, 2008 identified a capital need of \$25 billion dollars over the next twenty years for wastewater infrastructure improvements. Additionally, \$49.7 billion will be needed for operation and maintenance and debt retirement costs. The total estimated need to operate all of the wastewater systems statewide for twenty years is therefore \$74.7 billion. It must be noted that these cost estimates are based on 2007 dollars and assume that operation and maintenance costs will increase 2% a year faster than inflation.

In comparison, our estimated construction cost for ALCOSAN in 2008 dollars ranges from \$1.7 billion to \$12.6 billion. The projected cost for municipal construction in 2008 dollars ranges from \$1.6 billion to \$5.4 billion. Together, the estimated construction cost alone, without considering operation and maintenance and debt service costs, totals \$3.3 billion to \$18 billion. This is equivalent to 13.2% to 72% of the statewide capital need calculated by the Task Force.

### **COST PER RATEPAYER**

ALCOSAN will need to obtain funding for these additional expenses. The funding currently available from outside agencies is detailed in the next section of the report. However, as of the date of this report, there is not extensive external funding available to offset these costs. Therefore, the majority of these costs will need to be absorbed by the ratepayers.

To make the cost projections meaningful, we wanted to illustrate how much each ratepayer would have to contribute under the low and high cost projection scenarios. Our methodology assumed a very basic calculation. Therefore, numerous factors would impact the cost of any individual ratepayer. Specifically, any external funding received would decrease an individual's cost.

We used billing information provided by ALCOSAN to calculate the average cost per premise. For 2007, ALCOSAN billed approximately:

- 302,947 non-commercial premises ~ Non-commercial premises include single family dwellings, apartments, condos, schools, multifamily

## **IV. Consent Decree ~ Projected Costs**

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dwellings, and duplexes, which we refer to as “homes”.

- 13,293 commercial premises ~ Commercial premises include commercial, public, and industrial customers, which we refer to as “businesses”.

ALCOSAN’s fees include quarterly service charges and other surcharges. However, a large portion of its fee is based on a commodity charge per 1,000 gallons of water consumed.

For 2007, water consumption in the ALCOSAN service area totaled approximately 25.5 billion gallons. On average, in 2007:

- Each home consumed approximately 62,000 gallons of water.
- Each business consumed approximately 513,000 gallons of water.

We calculated the average cost per year per 1,000 gallons based on the total projected costs through 2026 (see table on page 23). We assumed the fee increases would occur over a 29 year period beginning in 2016, the year construction is assumed to begin, and ending in 2044, the year the last bond would presumably be retired. Based on these assumptions, the average fee increase could be:

- Low Projection ~ \$6.85 per 1,000 gallons per year
- High Projection ~ \$50.07 per 1,000 gallons per year

In comparison, ALCOSAN’s current charge per 1,000 gallons is \$3.25. Based on the average consumption, the average yearly increase could be:

	Low Projection	High Projection
• Per home	\$ 425	\$ 3,104
• Per business:	\$3,516	\$25,684

Our calculations do not include the costs projected for the municipalities. Since the cost for each municipality will vary greatly depending on the work that is needed there, we cannot determine the portion of the total cost that will be incurred by each municipality.

# **ADDITIONAL FUNDING SOURCES**

## **V. Additional Funding Sources**

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### **EXTERNAL FUNDING**

Although the costs to prepare and implement the wet weather plan required under the consent decree will be significant, the government is providing minimal funding. There are two State acts, described below, that will provide funding to assist with water, sewer, and storm water projects. According to the Executive Director of 3 Rivers Wet Weather, these are the only substantial funding programs. There are some small grants and programs, but they will not provide anywhere near the funding needed.

In July 2008, the Governor of Pennsylvania signed into law Act 63, the H<sub>2</sub>O PA Act, providing for the allocation of up to \$800 million of Pennsylvania Gaming Economic Development and Tourism Fund revenues for water, sewer, storm water, flood control and high hazard unsafe dam projects. However, Allegheny County is not eligible to receive funding under this act. According to the act, "No money shall be authorized or distributed for any project within a city or county of the first or second class, other than those projects described in the Pennsylvania Gaming Economic Development and Tourism Fund Capital Budget Itemization Act of 2007, until such time as an amount equal to \$750,000,000 has been authorized and distributed from the fund for projects outside of a city or county of the first or second class."

The table below summarizes the Allegheny County projects that were financed from the revenues of the Pennsylvania Gaming and Economic Development and Tourism Fund Capital Budget Itemization Act of 2007.

<b>Project</b>	<b>Allocation</b>
Retirement of the indebtedness of an urban redevelopment authority in a city of the second class which is financed, in part, with the utilization of funds transferred to the Regional Asset District pursuant to article XXXI-B of the Act of July 28, 1953 (P.L. 723, No. 230), known as the Second Class County Code.	\$60,000,000
Retirement of the indebtedness of a convention center in the city of the second class established pursuant to the authority of the Act of July 29, 1953 (P.L. 1034, No. 270), known as the Public Auditorium Authorities Law.	\$20,000,000

## **V. Additional Funding Sources**

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Payment of the operating deficit for the operation of a convention center in a city of the second class established pursuant to the Public Auditorium Authorities Law.	\$20,000,000
Payments related to the construction of a facility designated for use by a professional hockey franchise.	\$225,000,000
Debt service and development and economic development projects for an international airport located in a county of the second class.	\$150,000,000
Distribution to a community infrastructure development fund of a county of the second class to fund construction, development, improvement, and maintenance of infrastructure projects.	\$80,000,000
Retirement of indebtedness and financing of a hotel or convention center in a city of the second class established pursuant to the authority of the Public Auditorium Authorities Law.	\$44,000,000
Retirement of indebtedness of a county of the second class development fund created pursuant to the authority of Article XXXI-B of the Second Class County Code and the Act of May 24, 1945 (P.L. 991, No. 385), known as the Urban Redevelopment Law.	\$30,000,000
<b>Total Funding Provided by PA Gaming Fund:</b>	<b>\$629,000,000</b>

In July 2008, the Governor of Pennsylvania also signed into law Act 64, the Water and Sewer Systems Assistance Act, which authorizes, with approval of the electors, a \$400 million bond issue for the acquisition, construction, improvement, expansion, extension, repair, rehabilitation, or security measures for drinking water and wastewater system projects. The question of incurring this indebtedness was included on the ballot of the November 4<sup>th</sup>, 2008 election and was approved by the electors.

The proceeds of the state issued bonds will be granted or loaned to municipalities and public utilities for the cost associated with their qualified projects. Funding limits are based on the annual average daily flow for sewage treatment systems. The largest systems, including ALCOSAN, which have an annual average daily flow greater than 100,000,000 gallons per day, are eligible to receive up to \$50 million in grants and/or loans.

# **BENCHMARKING**

## **VI. Benchmarking**

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### **BENCHMARKING**

As described in the introduction, other cities are facing the same types of orders. A summary of the major points of other cities orders is provided below.

#### **Atlanta, GA**

- There were two consent decrees:
  - One in 1998 for CSOs and
  - Second in 1999 for SSOs.
- In 2006, the consent decree was estimated to cost \$3.9 billion dollars.
- Sanitary sewer improvements are to be completed by July 1, 2014.
- Projected funding:
  - \$1 billion in federal appropriations,
  - \$500 million in state low interest loans,
  - \$500 million from a 1% sales tax,
  - \$1 + billion from ratepayer.
- \$53 was the residential customer's monthly pre-consent decree bill.
- \$85 will be the 2008 monthly residential customer's post consent decree bill with a 1% sales tax.
- \$118 will be the 2008 monthly residential customer's post consent decree bill without a 1% sales tax.
- In 2014, monthly bills are expected to increase to \$148.

#### **Washington D.C.**

- Washington DC entered into a consent decree in 2005.
- According to the 2007-2016 Financial Plan, the consent decree was estimated to cost \$5.0 billion dollars:
  - The LTC Plan would cost \$1.9 billion over a twenty year period and
  - The cost of capital improvements was expected to be \$3.1 billion over a ten year period beginning in 2007.
- Funding received:
  - \$89.5 million in Congressional appropriations,
  - \$7 million was proposed for 2007
- Projected funding:
  - \$1.4 billion in revenue bonds and commercial paper,
  - \$422 million from wholesale capital payments,
  - \$270 million in EPA grants and appropriations,
  - \$105 million from "pay-go" financing from operating reserves,

## **VI. Benchmarking**

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- \$19 million in interest income on bond proceeds.
- \$26 was the residential customer's 2007 monthly sewage bill.
- According to the 2005-2014 Financial Plan, without additional federal assistance, \$110 will be the projected monthly residential customer's bill at the end of the 20 year implementation period, a 325% rate increase.

### **Columbus Ohio**

- There were two consent decrees:
  - One in 2004 for CSOs and
  - One in 2002 for SSOs.
- In July 2005 Columbus created a wet weather plan planning for \$2.5 billion in improvements over the next 40 years.
- Effective January 1, 2008 the new rates for the City of Columbus residents were \$9.11 for the quarterly sewer service charge and \$3.12 per one hundred cubic foot (CCF) for sewer usage.
- It is estimated that the average quarterly sewer bill will increase 2.6 times from the 2005 average sewer bill of \$72 to \$201.60.

### **Detroit Michigan**

- In 1999 the State of Michigan entered into a consent decree.
- Since 1992, Detroit has spent \$18 million on the development and implementation of the long term control plan (LTCP), \$260 million on the design, and \$300 million implementing the LTCP.
- The current 2008 Capital Improvement Program calls for \$2.1 billion to be invested over the next five years in the wastewater system. \$284 million is budgeted for sewer projects for FY 2008-2009.
- In July 2007 the City of Detroit began billing City customers an average \$51.35 per month which included all costs of providing safe drinking water and sewer service to their homes.
- Suburban municipalities operate additional facilities to bring these services to their homes, so Detroit Water and Sewer Department's only charged \$23.70 per month representing only a portion of the final bill for residents outside the city.

# **CONCLUSION AND RECOMMENDATIONS**

## **VII. Conclusion and Recommendations**

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### **CONCLUSION**

Changing regulations and a consent decree have forced ALCOSAN and its member municipalities to examine their sewer systems and make the necessary repairs and changes to the systems.

These upgrades will have an enormous price tag which will have to be absorbed by the ratepayers if substantial Federal and or State funding is not made available.

- The current projections show that ALCOSAN's increase in expenses could range from \$5.1 billion to \$37 billion, or an average of \$21 billion.
  - Without external funding, this could cost each home between \$425 and \$3,104 a year and each business between \$3,516 and \$25,684 a year.
- The current projections show that the cost increase for the member municipalities could range from \$4.5 billion to \$15.9 billion, or an average of \$10.2 billion.

Currently, only two potential funding sources exist which could provide \$1.2 billion across the entire state.

ALCOSAN will need to use a combination of increased spending and innovative management practices to meet the requirements of the consent decree. As it plans the specific projects it will need to undertake, ALCOSAN must explore standard as well as creative alternatives to find a solution that will be sustainable and affordable to its ratepayers. We hope this report provides a starting point for discussion regarding the magnitude of clean water infrastructure funding issues.

### **RECOMMENDATIONS**

We recommend that ALCOSAN management:

- Ensure that ALCOSAN continuously maintains compliance with the terms of the consent decree.
- Continue to work toward the most cost-effective solutions that provide a sustainable pathway to compliance with laws and regulations.
- Explore options that incorporate green infrastructure such as rain gardens, pervious pavement, green roof

## **VII. Conclusion and Recommendations**

---

applications, rain barrels, and constructed wet lands. Over time, green infrastructure may reduce capital as well as operating and maintenance costs.

- Promote solutions for going “green” including public education on ways individuals can help manage storm water beginning in their own backyards.
- Educate the public about the consent decree, its importance, and its ramifications in order to gain their support for increased spending.
- Continue to work with other agencies to lobby for additional funding.
- Use this report to facilitate discussions regarding the magnitude of clean water infrastructure funding issues.

# **SCHEDULE I**

**COMPLIANCE STATUS BY CONSENT DECREE TASK as of July 31, 2008**

<b>TASK</b>	<b>SUBTASK</b>	<b>DATE DUE (initiate or complete)</b>	<b>STATUS</b>
Comply with Clean Water Act		September 30, 2026	
Treatment Plant Wet Weather Operating Plan		July 21, 2008	Complete
Maximize Pumping during Wet Weather		July 21, 2008	Complete
Conveyance and Treatment System Operation and Maintenance Program		January 23, 2008	Complete
Presumptive Wet Weather Control Plan Preliminary Determination		January 23, 2010	
Demonstrative Wet Weather Control Plan Water Quality Model Plan		January 30, 2012	
Submit Wet Weather Control Plan based upon Presumption or Demonstration Approach	Eliminate SSOs and control CSOs to attain receiving water quality standards	January 31, 2013	
Municipal Interaction - Requests	Municipal Sewer Maps	March 23, 2008	Complete
	Physical Surveys	March 23, 2008	Complete
	Flow Monitoring	February 1, 2010	
	Hydraulic Capacity Evaluations	August 1, 2010	
	Sanitary Sewer System Overflow Reponses Plans	August 31, 2009	
	Long Term Control Plans	August 1, 2010	
	NMC Plans	March 23, 2008	Complete
	Comment on Wet Weather Control Plan	July 31, 2012	
Municipal Interaction - Provide	Flow Monitoring Plan	15 days after submission	Complete
	QC'd Flow Monitoring Data	60 days after complete	Complete
	GIS Map of CTS & RCS	60 days after complete	
	H&H Model Results for RCS	60 days after complete	
	Overflow Response Plan	60 days after complete	Complete
	Approved NNC Plan	60 days after complete	
	Periodic Progress Reports	60 days after complete	
	Comments on Municipal NMC Plans	July 23, 2008	Complete
Annual Report on Municipal Data		July 30, 2009	
Public Participation Plan		July 23, 2008	Complete
Municipal Advisory Committee		July 23, 2008	Complete
Overflow Response Plan		February 22, 2008	Complete
Overflow Reporting		March 23, 2008	Complete
Revised NMC Plan	Circulate for Municipal Comment	July 23, 2008	Complete
	Submit to Agencies	February 18, 2009	
Annual Progress Report		July 23, 2008	Complete
SEP Proposal		May 22, 2008	Complete
Complete SEP		3 years after approval	
Penalty Payment	To United States	February 22, 2008	Complete
	To Pennsylvania	July 21, 2008	Complete
	To Allegheny County	January 17, 2009	

TASK	SUBTASK	DATE DUE (initiate or complete)	STATUS
Appendix E: Regulator Capacity Evaluation	Determine throughput flow rate, capacity, and peak dry weather flow of each regulator	February 23, 2008	Complete
	Report and adjust low capacity regulators	May 23, 2008	Complete
	Repair or replace low capacity regulators	May 23, 2009	
Appendix F: Reduction of Industrial User Water Quality Impact	Identify downstream outfall	July 21, 2008	Complete
	Determine user storage capacity	July 21, 2008	Complete
	Determine user impact on receiving water	July 21, 2008	Complete
	Identify downstream outfalls to be sampled	July 21, 2008	Complete
	Conduct annual Industrial User survey	July 21, 2009	
	Revise permits to require storage	September 9, 2008	
	Develop stormwater management guidance and target industry list	July 23, 2008	Complete
	Develop sampling plan PCB's	January 23, 2009	
Appendix G: Control of Solids and Floatables	Assess type and quantity of solids/floatables discharged to CTS and Rivers	January 23, 2010	
	Submit plan to control solids/floatables	120 days after approval of assessment	
	Implement approved control plan	24 months after plan approved	
Appendix H: Elimination of Dry Weather Discharges	Develop plan to eliminate dry weather CSOs, including identification and adjustment of low-flow regulators, monitoring, location of potential blockages, preventative maintenance and source control, and notice of municipal blockage	October 23, 2008	
	Amend plan to remedy remaining DWOs, including municipal request for flow reduction	2 years after implementation	
	Eliminate DWOs	January 23, 2014	
Appendix I: Conveyance and Treatment System O&M	Sewer System Component Inventory	July 23, 2008	Complete
	Regional GIS Map	December 31, 2008	Ongoing
	Conveyance System Inspections (General)	April 22, 2008	Complete
	External Inspections	March 23, 2008	Complete
	Internal Inspections-Sewer Pipes	February 10, 2010	
	Internal Inspections-Deep Tunnels	February 10, 2010	
	Inspection of Manholes & Access Shafts	February 10, 2010	
	Inspection of Drop Shafts	23-Jan-18	
		April 22, 2008	Complete
	Clean Shallow Interceptors more than 25% occluded	within 1 year of discovery	Ongoing
	Clean Deep Interceptors more than 50% occluded	within 2 years of discovery	Ongoing
	Repair Regulators & Black-flow Devices	within 60 days of discovery	Ongoing
	Correct Manhole and Access Shaft Problems	within 9 months of discovery	Ongoing
	Correct Pump Station Problems	within 90 days of discovery	Ongoing

TASK	SUBTASK	DATE DUE (initiate or complete)	STATUS
Preventative Maintenance		January 23, 2008	Complete
	O&M Manual Update and Consolidation	January 23, 2008	Complete
	Document O&M Program	July 23, 2008	Complete
	Post O&M Forms to Web Page	May 23, 2008	Complete
	Implement O&M Electronic Data Management System	October 23, 2008	Complete
Appendix K: Public Notification and Outreach	Post signs at every outfall	January 23, 2009	In progress
	Post and update quarterly various maps, public advisories, sampling data, methods for public notice of discharge impact, and overflow contact information to the public website	July 23, 2008	Complete
	Provide web address, explain ACHD River Advisory, and provide Hotline number for area boat shows	January 23, 2008	Complete
	Conduct at least 3 regional municipal meetings per year for CD status update	January 23, 2008	Complete
	Participate in ACHD River Advisory Program	January 23, 2008	Complete
	Make available CSO Fact-sheet Bulletins	January 23, 2008	Complete
Appendix L: CSO and SSO monitoring	Implement program to monitor discharges at each outfall which includes monitors at select CSOs and all SSOs, electronic data management , and cause of CSO	July 21, 2008	Complete
	Create semiannual trends for various cause categories of overflow	December 31, 2008	
	Evaluate efficacy of MNCs annually	December 31, 2008	
Appendix M: Flow Monitoring Plan	Submit Regional Collection System Flow Monitoring Plan based upon 3RWW plan encompassing 500+ locations and numerous categories	February 22, 2008	Complete
	Implement the plan	90 days after approval	Complete
	Periodically amend plan in response to field conditions	submit amendment within 45 days of change	Complete
Appendix N: Rainfall Monitoring	Continuously monitor rainfall with a network of at least 10 gauges and 583 pixel resolution Doppler Radar	January 23, 2008	Complete
	Post rainfall data to public website and update quarterly	July 23, 2008	Complete
Appendix O: CSO Pollutant Monitoring	Prepare/submit Pollutant Monitoring Plan, to include sampling and analysis for 17 pollutants from 10% of outfalls combined with modeling to estimate pollution from remaining outfalls	May 23, 2008	Complete
	Revise Plan to monitor pollutants after Wet Weather Plan is implemented	180 days after implementation	
Appendix P: Hydrologic and Hydraulic Model	Prepare/submit plan to develop H-H Model, capable of simulating flow, response to weather, pollutant loading, average and peak conditions, current and future conditions throughout defined portions of the RCS	October 23, 2008	

TASK	SUBTASK	DATE DUE (initiate or complete)	STATUS
Appendix Q: Receiving Water Quality Monitoring	Prepare/submit monitoring plan to measure water quality and CSO impact before, during, and after Wet Weather Plan Implementation , and to validate Water Quality Model	January 23, 2009	Complete
	Revise post construction monitoring provisions as appropriate	September 20, 2024	
Appendix R: Receiving Water Quality Model	Prepare/submit a plan to develop a model to describe the impact of overflows on water quality for use with Demonstration Wet Weather Plan and nonattainment after Plan is implemented	January 30, 2012	

# **SCHEDULE II**

## Comparison of Total Sewer Rate Charges for the Years 2004 and 2008

Municipality	Municipal Charge + ALCOSAN Charge (ALCOSAN's rate in 2004 was \$42.75; in 2008 \$55.58)			
	2004 Total Quarterly Charge for 15,000 Gallons	2008 Total Quarterly Charge for 15,000 Gallons	Dollar Change	% Change
Aspinwall	\$57.75	\$55.58	(\$2.17)	-4%
Avalon Borough	\$42.75	\$97.03	\$54.28	127%
Baldwin Borough	\$72.50	\$161.18	\$88.68	122%
Baldwin Township	\$112.00	\$119.33	\$7.33	7%
Bellevue	\$50.70	\$74.58	\$23.88	47%
Ben Avon	\$42.75	\$55.58	\$12.83	30%
Ben Avon Heights	\$42.75	\$55.58	\$12.83	30%
Bethel Park	\$64.50	\$108.75	\$44.25	69%
Blawnox	\$52.20	\$98.63	\$46.43	89%
Braddock	\$54.00	\$74.33	\$20.33	38%
Braddock Hills	\$65.25	Not Available	n/a	n/a
Brentwood Borough	\$99.30	\$116.66	\$17.36	17%
Bridgeville Borough	\$57.45	\$100.58	\$43.13	75%
Carnegie	\$65.25	\$233.87	\$168.62	258%
Castle Shannon	\$87.75	\$123.83	\$36.08	41%
Chalfant	\$57.75	\$115.58	\$57.83	100%
Churchill	\$42.75	\$85.58	\$42.83	100%
City of Pittsburgh	\$61.50	\$99.83	\$38.33	62%
Collier Township	\$87.00	\$117.75	\$30.75	35%
Crafton	\$78.75	\$144.08	\$65.33	83%
Dormont	\$72.75	\$114.92	\$42.17	58%
East McKeesport	\$71.25	\$91.50	\$20.25	28%
East Pittsburgh	Not Available	Not Available	n/a	n/a
Edgewood	\$80.25	\$111.08	\$30.83	38%
Emsworth	\$63.50	\$80.00	\$16.50	26%
Etna	\$71.25	\$97.50	\$26.25	37%
Forest Hills	\$62.25	\$100.58	\$38.33	62%
Fox Chapel	\$52.50	\$65.33	\$12.83	24%
Franklin Park - Bear Run	\$142.50	\$87.70	(\$54.80)	-38%
Franklin Park- Lowries Run	\$106.50	\$87.70	(\$18.80)	-18%
Green Tree	\$57.75	\$85.58	\$27.83	48%
Heidelberg	\$80.25	\$137.72	\$57.47	72%
Homestead Borough	\$95.40	\$114.08	\$18.68	20%
Indiana*	\$51.75	\$64.58	\$12.83	25%
Ingram	Not Available	\$95.60	n/a	n/a
Kennedy	\$67.50	\$97.75	\$30.25	45%
Kilbuck	\$80.00	\$80.00	\$0.00	0%
McCandless	\$78.20	\$87.70	\$9.50	12%
McDonald Borough	\$124.50	\$136.50	\$12.00	10%
McKees Rocks	\$100.05	\$81.83	(\$18.22)	-18%
Millvale **	\$81.00	\$107.10	\$26.10	32%
Monroeville Municipal	\$64.69	\$101.93	\$37.24	58%
Mt. Lebanon	\$63.75	\$116.33	\$52.58	82%
Mt. Oliver	\$87.75	\$130.58	\$42.83	49%
Munhall Borough	\$80.25	\$96.83	\$16.58	21%
Neville	\$95.80	\$127.30	\$31.50	33%
North Braddock	\$57.75	\$85.58	\$27.83	48%
North Fayette	\$69.00	\$69.00	\$0.00	0%
North Huntingdon Township	\$94.65	\$114.60	\$19.95	21%

## Comparison of Total Sewer Rate Charges for the Years 2004 and 2008

Municipality	Municipal Charge + ALCOSAN Charge (ALCOSAN's rate in 2004 was \$42.75; in 2008 \$55.58)			
	2004 Total Quarterly Charge for 15,000 Gallons	2008 Total Quarterly Charge for 15,000 Gallons	Dollar Change	% Change
North Versailles	\$80.25	\$98.25	\$18.00	22%
Oakdale	\$211.35	\$142.35	(\$69.00)	-33%
O'Hara	\$60.54	\$77.53	\$16.99	28%
Ohio	\$93.90	\$140.03	\$46.13	49%
Penn Hills	\$97.50	\$181.05	\$83.55	86%
Penn Township	\$76.18	\$97.88	\$21.70	28%
Peters Township	\$83.25	\$91.50	\$8.25	10%
Pitcairn	\$42.75	\$78.08	\$35.33	83%
Pleasant Hills	\$99.50	\$139.58	\$40.08	40%
Plum Borough	\$96.47	\$104.50	\$8.03	8%
Rankin	\$53.44	\$69.48	\$16.04	30%
Reserve	\$57.75	\$71.48	\$13.73	24%
Robinson Township	\$90.09	\$102.78	\$12.69	14%
Ross	\$76.50	\$89.33	\$12.83	17%
Rosslyn Farms	\$102.75	\$115.58	\$12.83	12%
Scott Township	\$65.25	\$78.08	\$12.83	20%
Shaler	\$62.25	\$86.08	\$23.83	38%
Sharpsburg	\$53.25	\$118.88	\$65.63	123%
South Fayette Township	\$72.00	\$98.24	\$26.24	36%
Stowe Township	\$72.75	\$85.58	\$12.83	18%
Swissvale	\$66.75	\$78.08	\$11.33	17%
Thornburg Borough	Not Available	\$55.58	n/a	n/a
Trafford	\$80.25	\$108.08	\$27.83	35%
Turtle Creek	\$42.75	\$74.33	\$31.58	74%
Upper St. Clair	\$83.36	\$102.84	\$19.48	23%
Verona	\$42.75	\$55.58	\$12.83	30%
Wall Borough	\$63.98	\$76.81	\$12.83	20%
West Homestead	Not Available	\$89.33	n/a	n/a
West Mifflin	\$81.00	\$101.75	\$20.75	26%
West View	\$64.83	\$119.92	\$55.09	85%
Whitaker	\$62.70	\$84.53	\$21.83	35%
Whitehall Borough	\$99.30	\$127.33	\$28.03	28%
Wilkins	\$80.25	\$93.08	\$12.83	16%
Wilkinsburg	\$57.50	\$71.93	\$14.43	25%
Wilmerding	\$57.71	\$79.23	\$21.52	37%

Source: 2004 rate information obtained from 3 Rivers Wet Weather Demonstration Program 2004 Sewer Rate Survey. 2008 rate information obtained from municipalities.

\* Indiana Township has four sewer districts, three of which pay an additional quarterly service charge for the repayment of loans used to install the sewer line. The municipal charge presented does not reflect this service charge due to the fact that it is not a uniform charge.

\*\* Millvale does not own its sewer lines. The municipality charge for Millvale includes the fee charged by the Girty's Run Joint Sewer Authority for use of its lines.

# **SCHEDULE III**

## **Assumptions Used in Cost Projections**

In order to project the costs for ALCOSAN and its member municipalities to comply with the consent decree, we had to make numerous assumptions. A list of the major assumptions is presented below.

### **GENERAL ASSUMPTIONS**

- ALCOSAN will submit its wet weather plan in January 2013, as currently required by the consent decree.
- The wet weather plan will be approved by January 2014. Follow-up discussions and project design will be completed by January 2016.
- Construction will begin in February 2016.
- June 2021 is the assumed mid-point of construction. For present value calculations, costs will be inflated to the mid-point.
- Construction will be completed by September 2026, as currently required by the consent decree.
- All estimates are based on the best information available at the time they were prepared. Numerous factors can result in changes to these costs.

### **CAPITAL COSTS**

- The costs, and the related assumptions, identified in the 1999 Regional Long Term Wet Weather Concept Plan (concept plan) are used as a basis for the current cost projections.
  - These costs included a 15% allowance for engineering, legal, and other administrative costs (soft costs). In addition, a 33% contingency was applied to the raw construction costs.
- The June 1998 costs were inflated into 2008 dollars using a multiplier derived from the Engineering News Record Construction Cost Index for the Pittsburgh Region from December 1998 to August 2008. This is approximately a 3% annual inflation rate.
- ALCOSAN's 2008 costs were inflated into 2021 dollars using a 5% annual inflation rate.

### **DEBT SERVICE EXPENSE**

- The debt service expense was calculated using a simplistic approach. It is assumed ALCOSAN will implement a long term financing strategy.
- Total projected capital costs will be spent evenly each year over an 11 year period.
- Revenue bonds will be issued every other year in equal amounts beginning in 2016 and ending in 2024.
  - Bond interest rate will average 6%.
  - Bond term will be 20 years.

- Bonds will be issued at par.
- Excess funds will be invested at a rate of 5%.
- Five percent of the bond issue will be retired each year.
- It is assumed that outside funding will not be received.
- Fees will not increase until 2016.

### **OPERATING AND MAINTENANCE**

- The annual operating and maintenance (O&M) costs identified in the concept plan were inflated from 1998 dollars into 2008 dollars using the historical consumer price index (CPI) inflation data from June 1998 to June 2008.
- The five year average CPI of 3.56% was used to inflate the annual cost to future year dollars for each year from 2009 through 2026.
- It was assumed that:
  - A portion of the O&M will be incurred each year from 2017 through 2025.
  - Construction will be completed, and the full amount of O&M will be incurred in 2026.
  - The prorated portion applicable for each year identified in the concept plan is still valid.
- The projected O&M costs were based on the projects identified in the concept plan only. Future O&M costs for additional projects currently under consideration have not been calculated as of the date of this report.

### **ECM SYSTEM**

- The ECM cost is based on information obtained from ALCOSAN's fiscal 2008 budget.
- This cost was not inflated or extrapolated.

### **MUNICIPALITIES**

- The municipal construction costs identified in the concept plan were inflated from 1998 dollars into 2008 dollars using a multiplier derived from the Engineering News Record Construction Cost Index for the Pittsburgh Region from December 1998 to August 2008. This is approximately a 3% annual inflation rate.
- The municipalities' 2008 costs were inflated into 2021 dollars using a 5% annual inflation rate.
- The concept plan originally indicated that the municipalities' construction would be completed over a 50 year period. However, it was assumed that the work identified in the concept plan will need to be completed by September 2026, the same date imposed on ALCOSAN.
- The debt service expense assumptions used for ALCOSAN were also used for the municipalities.
- Additional O&M costs will be incurred.

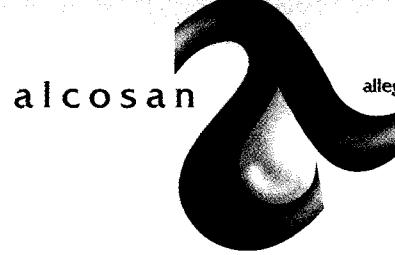
### **Schedule III**

- Since a breakdown of cost by municipality is not available, we did not project a municipal cost per ratepayer.

#### **COST PER RATEPAYER**

- It was assumed no external funding will be received. However, any funding received would decrease the cost to the ratepayers.
- ALCOSAN will add a fee per 1,000 gallons of water consumed to cover the increased costs.
- An even amount will be billed each year.
- The fee increase was calculated to begin in 2016, the year the first bonds are issued, and end in 2044, the year the final bonds would be retired.
- Each non-commercial premise (home) will use the average 62,000 gallons annually.
- Each commercial premise (business) will use the average 513,000 gallons annually.

# **RESPONSE FROM ALCOSAN'S EXECUTIVE DIRECTOR**



allegheny county  
sanitary authority  
TM

*Members of the Board*

Rep. Harry Readshaw  
*Chairman*

Sylvia C. Wilson

Jim Motznik

Jack Shea

Evelyn R. O'Brien

Jacques L. Moye

Daniel G. Keller

Arletta Scott Williams  
*Executive Director*

David W. Borneman, P.E.  
*Director*  
*Engineering & Construction*

Arthur M. Tamilia, Esq.  
*Director*  
*Environmental Compliance*

William H. Inks, CPA  
*Director*  
*Finance & Administration*

Jan M. Oliver  
*Director*  
*Regional Conveyance*

Douglas A. Jackson, P.E.  
*Director*  
*Operations & Maintenance*

February 23, 2009

Mark Patrick Flaherty  
Allegheny County Controller  
104 Courthouse  
436 Grant Street  
Pittsburgh, PA15219

Dear Mr. Flaherty:

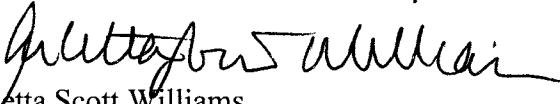
On behalf of the ALCOSAN Board of Directors and employees, I would like to thank you and your staff for the time, interest and level of effort that was afforded to the review and creation of this report.

The field team was extremely engaging and professional in their interactions, conducting a thorough and meticulous review of the subject matter. The process was rigorous, yet insightful. Comments presented are offered in support of the report observations and recommendations.

Thank you for the opportunity to respond.

Sincerely,

**ALLEGHENY COUNTY SANITARY AUTHORITY**

  
Arletta Scott Williams

Executive Director

ASW:saj

Attachment

cc: Harry Readshaw, Chairman

## ALLEGHENY COUNTY SANITARY AUTHORITY

### Response to Allegheny County Controller's Audit Report

- Ensure that ALCOSAN continuously maintains compliance with the terms of the consent decree.

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

Compliance with the terms of the consent decree directly equates to avoidance of penalties and we are fully committed to this undertaking. As noted ALCOSAN has a well structured, strategically aligned program that provides for compliance through the accountability of both in-house staff and retained consultants. Management of the resulting data and deliverables is facilitated through a recently implemented yet robust Enterprise Content Management System. Over the past several years we have also reconfigured key internal areas and functions to provide enhanced support for consent decree requirements while maintaining the integrity of our day to day business functions.

We are proud to report that as of January 23, 2008 we successfully completed one year of operating under the dictates of the consent decree; the Authority is in compliance and has incurred no stipulated penalties.

- Continue to work toward the most cost effective solutions that provide a sustainable pathway to compliance with laws and regulations.

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

Apart from assurance of the viability of control measures to be implemented, cost containment is the single most important aspect of ALCOSAN planning. Application of cost effective solutions must account for technical compliance, financial feasibility and long term practicality. Misapplication of this fundamental could generate a variety of untenable outcomes including: *Design of solutions that are cost prohibitive to build and implement (irrespective of time considerations). Implementation of solutions that cannot be adequately operated and/or maintained. Implementation of solutions that do not provide long term compliance.* Producing the most cost effective solution has been a focus of our wet weather compliance planning since the early 90's as evidenced by the options set forth in the 1999 Regional Long Term Wet Weather Concept Plan. It is sound engineering practice. It is a requirement of the wet weather planning process. It is a mandate of the ALCOSAN Board of Directors. It is a directive of both the Allegheny County Chief Executive and the Mayor of the City of Pittsburgh. It is a commitment to the ALCOSAN rate payer and a function of how we conduct business.

- **Explore options that incorporate green infrastructure such as rain gardens, pervious pavement, green roof applications, rain barrels and constructed wet lands. Over time, green infrastructure may reduce capital as well as operating and maintenance costs.**

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

As indicated over the long haul, green infrastructure applications may prove to reduce costs. Currently, the inclusion of “green techniques” is gaining recognition as a vehicle to produce both environmental and economic improvements. As green solutions grow in popularity, there may be opportunities for specialized funding. Green infrastructure approaches such as pervious pavements and green roofs can ultimately reduce the overall frequency, duration and volume of wet weather flow that must be treated which can result in smaller treatment facilities. When possible, ALCOSAN will combine stream disconnection / rerouting projects with stream restoration projects where the stream channel is daylighted and restored to a natural riparian environment. In addition, these green infrastructure applications can generate the ancillary benefit of increased land values which can be vital to community acceptance and support.

- **Promote solutions for going “green” including public education on ways individuals can help manage storm water beginning in their own backyards.**

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

Over the last decade, ALCOSAN has worked to bring individual homeowners into the wet weather conversation denoting the distinction in responsibilities – authority – municipality – homeowner. 2009 is our ninth year participating in the annual Home and Garden Show at the David Lawrence Convention Center. We staff a booth to directly engage homeowners about their responsibility and impact on the wet weather crisis focusing on the private home laterals. We have also served as a repository and distribution site for rain barrels that were offered by local agencies; however, those programs are now defunct. While we have engaged in this and many other opportunities to educate the public, including the extremely successful annual ALCOSAN Open House, the message has not been specific to implementation of “green solutions”. We are currently participating in a newly formed group of local governmental agencies focused on stormwater management approaches across the region. This will be an excellent opportunity to develop and promote green solutions for individuals within the ALCOSAN service area and beyond.

- **Educate the public about the consent decree, its importance and its ramifications in order to gain their support for increased spending.**

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

ALCOSAN has hosted or participated in various meetings and events over the last decade designed to educate the public about wet weather compliance challenges, obstacles, options, and more recently the consent decree, all with varying degrees of success. Regardless of the communications effort, it is never enough. The topic is extensive, solutions are intricate and while of critical importance to the vitality of this region, the subject matter is not particularly alluring to the general public. Given these unfortunate facts, it can be difficult to generate interest. Consequently, we are always seeking opportunities to address and involve new and varied audiences. Aside from the long range projections established in the 1999 ALCOSAN Regional Long Term Control Concept Plan, we have not created nor have we been in a position to contemplate the level of detail with regard to potential cost and resulting rates that exists in the County Controller's report. As such, we believe this report will be instrumental in expanding the dialogue regarding wet weather compliance issues throughout Southwestern Pennsylvania. As the consent decree is the basis for your report, its importance and ramifications will be an inherently critical component of this discussion.

- **Continue to work with other agencies to lobby for additional funding.**

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

ALCOSAN will continue efforts to educate the public, political leaders, academia, environmental groups and the business community. Educating, informing and involving these groups create natural alliances, consensus and support for funding initiatives. We will continue to work fastidiously to maintain the legislative relationships that have brought close to \$ 40 M in funding to wet weather compliance endeavors in Allegheny County since 1998. Where appropriate we will continue to aggressively lobby in unison and independently for all available resources to offset the impact of regional wet weather compliance solutions to the ALCOSAN rate payer, including the pending Federal Stimulus Package. Where necessary we will seek to relax or restructure funding protocols that are excessively restrictive and exclusionary. We will continue to seek opportunities to support creation of and access to new renewable funding sources through our affiliations with national, statewide and local organizations.

- **Use this report to facilitate discussions regarding the magnitude of clean water infrastructure funding issues.**

*ALCOSAN agrees and will incorporate this recommendation into our ongoing wet weather planning and consent decree compliance efforts.*

As previously noted, the Allegheny County Controller's Report on ALCOSAN will be instrumental in highlighting the enormity of these complex compliance and funding matters. As stated on page 4 of your report:

"The wet weather plan detailing the proposed remedial controls and projects that ALCOSAN will complete is not required to be submitted until January 2013. Therefore ALCOSAN has not yet thoroughly analyzed all probable compliance options, identified any actual projects, or determined the potential resulting costs. However, ALCOSAN and its consultants have provided the current options under consideration and their associated costs based on preliminary projections and information available through September 2008."

While there is arguably much left to be determined, your analysis and projections support even the casual observer's expectation that assurance of wet weather compliance is a tremendously costly mandate that cannot and should not be borne by user fees alone. The County Controller's report in conjunction with documents like the recently released ASCE 2009 Report Card for America's Infrastructure and others will be timely and effective tools in scoping the magnitude of this issue. ALCOSAN will endeavor to use the report to spur public dialogue regarding the massive need for funding of clean water infrastructure in Southwestern Pennsylvania and across the Nation.



Performance Audit

**ALLEGHENY COUNTY  
SANITARY AUTHORITY  
(ALCOSAN)**

Report by the  
Office of City Controller

**MICHAEL E. LAMB  
CITY CONTROLLER**

Douglas W. Anderson, Deputy Controller

Anabell Kinney, Management Auditor

Gloria Novak, Assistant Management Auditor

Bette Ann Puharic, Performance Auditor

April 2009

MICHAEL E. LAMB



CITY CONTROLLER

First Floor City-County Building 414 Grant Street Pittsburgh, Pennsylvania 15219

April 1, 2009

To the Honorable: Pittsburgh Mayor Luke Ravenstahl,  
Allegheny County Executive Dan Onorato and Members of  
Pittsburgh City and Allegheny County Councils:

The Office of City Controller is pleased to present this performance audit of the *Allegheny County Sanitary Authority* conducted pursuant to the Controller's powers under Section 404(c) of the Pittsburgh Home Rule Charter.

## EXECUTIVE SUMMARY

The City Controller and the Allegheny County Controller jointly conducted this performance and fiscal audit of the Allegheny County Sanitary Authority (ALCOSAN). The City Controller assessed the Authority's procurement practices for Construction/Purchase of Goods and Professional Services contracts focusing on compliance with internal contracting procedures and compliance with statutory procurement requirements. A sample of contracts awarded between January 1, 2007 and June 30, 2008 was selected for testing. Total dollar value of Professional Services Contracts and Construction Contracts tested was \$14,223,091 and \$12,883,373, respectively.

## Findings and Recommendations

### Compliance with Statutory Procurement Requirements

**Finding:** ALCOSAN's Construction and Professional Services contract procedures are in substantial compliance with applicable statutory procurement requirements.

**Finding:** ALCOSAN's Construction contract award process complies with the Municipality Authorities Act's public notice and lowest responsible bidder requirements.

**Finding:** ALCOSAN's Professional Services Evaluation and Recommendation Procedures do not fully comply with the Code. There is provision for negotiating Professional Services fees but not for explaining in writing why the recommended firm was determined to be best qualified.

**Finding:** Seven "Wet Weather Basin Facilities Planning Recommendations" proposal evaluations were found. These would satisfy the 'determined in writing' requirement. However, the auditors found no similar written proposal evaluations for the other Professional Services contracts in the testing sample.

**Recommendation:** To fully comply with State procurement requirements, all Professional Services contract award recommendations should specify in writing how the recommended firm meets the "evaluation factors set forth in the request for proposals".

### **General Contract Organization**

**Finding:** An easily accessible list of all Professional Services and Construction contracts awarded during this time period did not exist; the Executive Assistant had to compile a list for the auditors. Even though the Construction contracts had a numeric number for reference, one contract for a large construction project was missing from the listing. Professional Services contracts did not have any reference system.

**Recommendation:** A complete list of all contracts should be kept on a data base for easy access. A contract numbering or other identification system should be developed for Professional Services Contracts.

**Finding:** Professional Service contract documentation is not centrally located. The Executive Director explained that information was kept in different departments. Requested information had to be specified for different ALCOSAN staff to locate. Construction contracts are kept together in a storage vault.

**Recommendation:** Professional Service contracts should be kept in one location with individual files containing all documentation relating to the award process. A central location for all contracts (with one file for every contract) would provide easy access, not only for auditing purposes but for any questions relating to the contract.

Documentation verifying ALCOSAN's written procurement processes was requested for each contract in the sample. The Executive Director provided an answer sheet with explanations about each document requested. Requested documents were referenced as attachments.

**Finding:** Some Professional Services Contract (PSC) attachments seemed as if they were prepared for the auditors from memory rather than retrieved from actual contract files. Other documents referred to as attachments were missing.

**Finding:** Many PSC documents provided by ALCOSAN had no letterhead, markings, dates or signatures as to when the documents were prepared or by whom.

**Recommendation:** Documents, whether prepared in-house or by the outside consultant, should be dated and include the name of the preparer, their position with the Authority or their firm. Documents prepared by outside consultants should be identified by company letterhead. Then, if questions arise about the document, the responsible person can be easily identified and contacted.

**Finding:** Answer sheets supplied for Construction contracts had more of the requested documents in the files.

### **Professional Services Contract Testing**

**Finding:** As written, the Authority's internal procedures for awarding Professional Services contracts exceed statutory requirements. However, there was insufficient documentation for the Professional Services contracts in the testing sample to support compliance with all internal award procedures.

A July 25, 2000 memo from the Executive Director to the Professional Services Committee describes the "formal procedure used by the Authority to acquire professional service firms" yet states that "the various steps described in this procedure may be modified or waived as necessary depending on the specific service required".

**Finding:** Missing documentation may have been due to steps in the award process being modified or waived. However, there was no evidence that such waiver or modification had occurred.

**Recommendation:** Any deviation from formal contracting procedures should be explained and documented.

**Recommendation:** All informal contract procedures should be documented as “Memo to File” and included in the contract

**Finding:** Not all contracting steps are included on the Authority’s flowcharted award process. For example, the use of projected man-hours and cost estimates, and sending Request For Qualifications to select firms instead of advertising, are missing from ALCOSAN’s Professional Services flowchart.

**Recommendation:** ALCOSAN needs to update its flowchart to include all steps routinely used in the awarding of Professional Service Contracts.

**Finding:** Documentation verifying the contract award process was missing for many Professional Services Contracts.

Prior to reviewing submitted proposals, ALCOSAN staff or consultants estimate man hours and costs for the project. The projected man hours and cost estimates are used to assess the proposals scope and to negotiate a contract price with the selected firm.

**Finding:** Documentation for estimated projected man hours and costs was provided for only two of the sixteen Professional Services contracts in the new contract sample and for two of the nine contract extensions.

**Recommendation:** Estimated or projected man hours and costs are essential components of the Professional Services award process and should be included with all contracts.

The purpose of requesting Statements of Qualifications from interested firms is to determine which firms have the experience and capability to meet the objectives of the proposal at issue. Firms that meet this criteria are “short listed” and asked to respond to the Request for Proposal for the needed service.

**Finding:** Short List Assessment documents were provided for two contracts in the above testing sample. One document appears to be a check list of Staff Committee short list recommendations. One firm was short listed solely on the Executive Director’s recommendation.

**Finding:** The other contract had two short list assessment documents. One was an undated assessment of short listed and excluded firms. The other was a dated “final shortlist” of firms sent RFPs and firms sent non-selection letters.

**Recommendation:** To avoid appearances of favoritism, a rating system with objective rating criteria should be used to determine the qualifications of firms submitting Statement of Qualifications. Ratings of shorts listed and eliminated firms should be kept in all contract files.

### **Construction Contract Testing**

Major construction contracts are bid as separate contracts for General Contractor, Plumbing Contractor, HVAC Contractor and Electrical Contractor.

**Finding:** Not allowing a general contractor to subcontract different phases of the project is a good way for ALCOSAN to ensure that all qualified contractors meet its requirements and allow the Authority to maintain better control over all aspects of the project.

**Finding:** A greater amount of documents were available for Construction contracts than Professional Service contracts.

**Finding:** Engineer's estimates are used as a guide to assess bids for all work and estimates were found for 86% of the testing sample.

**Finding:** In one instance, a bidder was awarded a contract as lowest responsible bidder then subsequently rejected. The Executive Director obtained a copy of the bid rejection letter for the auditors. The letter was prepared by outside counsel and clearly explained why the firm's licensing deficiencies were the reason for rejecting its bid.

**Recommendation:** If a bidder awarded a contract is later deemed not responsible, ALCOSAN must document the reasons for withdrawing the contract and include the rejection documents in the contract file.

**Finding:** Because some chemicals are critically needed for plant operation, ALCOSAN will contract with the second lowest bidder as a back up supplier in case there is a problem with the low bid supplier. The back up lime supplier charged \$4.66 per ton more than the lowest responsible bidder.

**Recommendation:** To save money on critically needed plant supplies, ALCOSAN should try to negotiate a standby contract at the low bid rate. If the second lowest bidder refuses to amend its price, all other bidders should be given the opportunity to match the awarded contract price as a standby contractor.

We are pleased that ALCOSAN agrees with our recommendations and will review incorporating them into its professional service and construction procurement procedures.

Sincerely,



Michael E. Lamb  
City Controller

## **INTRODUCTION**

The City Controller and the Allegheny County Controller jointly conducted this performance and fiscal audit of the Allegheny County Sanitary Authority (ALCOSAN). The City Controller assessed the Authority's procurement practices for Construction/Purchase of Goods and Professional Service contracts. The performance audit portion was conducted pursuant to section 404(c) of the Pittsburgh Home Rule Charter.

## **OVERVIEW**

ALCOSAN is a joint City-County Authority created under the Municipality Authorities Act, 53 Pa. C.S. §5601, *et seq.* Located along the Ohio River on the North Side of Pittsburgh, the Authority is responsible for the collection, transportation, treatment and disposal of sewage and some limited industrial wastewaters within its service area. ALCOSAN provides wastewater treatment services for the City of Pittsburgh, 82 other Allegheny County municipalities and sections of communities in Washington and Westmoreland Counties. The Authority serves nearly 900,000 customers, treating approximately 200 million gallons of wastewater and storm water per day. ALCOSAN's operations are supported solely by revenues generated through user fees; no tax monies are received.

ALCOSAN is governed by a seven member Board of Directors that serve staggered, five-year terms. Three members are appointed by Allegheny County, three by the City and one is jointly appointed by both. The Board meets monthly to discuss policy and to vote on resolutions. The meetings are open to the public. The Board is responsible for making all policy decisions regarding financial, operational and administrative procedures. ALCOSAN's Executive Director is responsible for implementing the Board's authorizations and policies and the Authority's day-to-day operations.

ALCOSAN has five divisions each headed by a Director: Director of Finance & Administration, Director of Operations and Maintenance, Director of Environmental Compliance, Director of Engineering & Construction and a Director of Regional Conveyance. The Authority employs approximately 339 employees.

## History

To assure supplies of clean drinking water, the State legislature passed the Purity of Waters Act in 1905. The Act's standards for sewage disposal into state waterways applied to individuals, municipalities and corporations but exempted coal mines. However, municipalities still dumped raw sewage into rivers and nearby streams and large quantities of untreated industrial waste were discharged directly into rivers. In 1945, the State Sanitary Board, under the authority of the Federal Clean Streams Act of 1937, ordered municipalities and industries in Allegheny County to stop polluting waterways. As a result, ninety-six of the municipalities and 36 of the industries agreed to participate in a countywide collection and treatment system.

The Allegheny County Sanitary Authority (ALCOSAN) was chartered in March of 1946 to implement a plan for meeting the state mandate to control water pollution. In 1955, the City of Pittsburgh became a member of the Authority. With miles of intercepting sewers, tunnels, regulators, pump stations and ejector stations, ALCOSAN's treatment plant was completed and began operation in 1959.

## Sewage Treatment Process

ALCOSAN's wastewater process consists of three steps: collection, conveyance and treatment. Each municipal collection system transports wastewater to ALCOSAN's conveyance system. Some municipal sewer lines go directly to ALCOSAN. Other municipal sewer lines tap into the City's sewer system. An analysis of these shared sewage lines can be found in the City Controller's March, 2006 audit: *PWSA- Outside Municipal Use of City Sewer System*.

Wastewater is conveyed through ALCOSAN's 90 miles of interceptors and 316 diversion structures until it reaches the Authority's treatment plant. At the plant, after sludge is removed the wastewater is treated with chemicals and the purified water is released back into the river.

Approximately thirty percent (30%) of ALCOSAN's service area have combined sewer systems in which sanitary and storm water flow through the same sewer main. During wet weather, ALCOSAN's system becomes overloaded with the additional storm runoff from the combined sewers. This overload results in raw sewage water and storm runoff being discharged through a network of over 300 outfalls along the Allegheny, Monongahela and Ohio rivers.

## Federal Consent Decree

These chronic combined sewer overflows (CSOs) put ALCOSAN in alleged violation of the Federal Clean Water Act. To resolve these alleged violations, on May 31, 2007, the Authority entered into a Consent Decree with the United States, State Department of Environmental Protection and Allegheny County Health Department. In signing the decree, the Authority agreed to make comprehensive system wide upgrades over the next twenty years that will greatly reduce sewage overflows and ensure compliance with the Clean Water Act.

## Contracts

ALCOSAN employs different procurement procedures for Construction contracts, Purchase of Goods contracts and Professional Services contracts. Construction contracts include new construction and reconstruction of existing facilities. Professional Services contracts are specialized or skilled services such as engineering, architectural, consulting or construction management. Purchase of Goods contracts are used to obtain, goods and supplies needed for the day to day operations.

Construction and Purchase of Goods contracts where ALCOSAN will spend more than \$10,000 must be competitively bid and awarded to the lowest responsible bidder. Professional Service contracts are not competitively bid. ALCOSAN's Construction, Purchase of Goods and Professional Services Contract award processes are as follows:

### Construction and Purchase of Goods Contracts >\$10,000

ALCOSAN is currently in need of many construction projects to meet Consent Decree compliance requirements such as eliminating all Sanitary Sewer Overflows from the Conveyance and Treatment System. Changes must be made to the system to prevent overflows when it rains and to increase usage volume at the plant. A comprehensive plan must be developed and approved by the year 2012. Construction and Purchase of Goods contracts are administered through ALCOSAN's Engineering & Construction and Purchasing Departments.

ALCOSAN flowcharts the Construction/Purchase of Goods Contract Award Process as follows: (A copy of their actual flowchart can be found in the Appendix.)

1. ALCOSAN Division Staff and the Design Consultant prepare Construction Plans and Specifications. Additionally the Design Consultant Separates Prime Contractors, DEP and Local Permits, Sealed by a Professional Engineer.
2. ALCOSAN Managers Review and Approve Bid Documents.
3. ALCOSAN Directors Review and Approve Bid Documents.
4. ALCOSAN Executive Director Reviews and Approves Bid Documents.
5. Board of Directors Authorizes Contract for Advertisement.

6. ALCOSAN Division Staff Advertises Contract for Competitive Bids—Advertises in the Pittsburgh Post Gazette and Pittsburgh Courier—allows 3 or 4 week Bid Period.
7. ALCOSAN Staff Holds Pre-Bid Meeting Within 7 to 10 Days After Advertisement—Addendum(s) Issued for Clarification If Necessary.
8. ALCOSAN Division Staff Receives Sealed Bids at ALCOSAN Engineering Building Until Bid Submittal Deadline.
9. ALCOSAN Division Staff Opens Bids and Reads Them Aloud.
10. Design Consultant Reviews Bids for—Completeness—Cost—Qualifications—DBE Participation—Exceptions.
11. Construction Manager Review Bids (If Applicable).
12. ALCOSAN Division Staff Reviews Bids.
13. ALCOSAN Division Staff Prepares Bid Review Forms.
14. ALCOSAN Division Staff Determines Lowest Responsible Bidder.
15. ALCOSAN Division Staff Recommends Reward or Rejection of Contract to ALCOSAN Executive Director.
16. ALCOSAN Executive Director (With Opinion of Solicitor) Recommends Award or Rejection of Contract to ALCOSAN Board of Directors.
17. ALCOSAN Board of Directors awards Contract to Lowest Responsible Bidder.

#### Professional Services Contracts (PSC)

Professional Services contracts for design and construction management are administered through the Director of Engineering & Construction and Administrative Secretary. These types of services include engineering, architectural and construction management. Other specialty consultant contracts are administered through the Authority's other respective operations directors.

ALCOSAN flowcharts the Professional Services Award Process as follows: (A copy of this flowchart can be found in the appendix.)

1. ALCOSAN Division Staff Determines Need for Service.
2. ALCOSAN Division Staff Prepares and Issues Request for Qualifications (RFQ).
  - a. Advertises in Local Newspapers,
  - b. Allows for a 3 to 4 Week Response Time.
3. ALCOSAN Executive Director Forms Staff Review Committee (SRC). Includes Executive Director, Division Director, Division Manager, and Project Manager.
4. SRC Reviews Statement of Qualification (SOQ) Submittals.
5. SRC Develops Short-List of 3 to 5 Capable Firms.
  - a. Based on Qualifications,
  - b. Previous Experience and,

- c. ALCOSAN Staff's Knowledge of Firm's Capabilities.
6. ALCOSAN Executive Director Submits Short-Listed Firms to Professional Services Committee.
7. ALCOSAN Division Staff Prepares and Issues Request for Proposals (RFP) to Short-Listed Firms.
8. ALCOSAN Division Staff Hold Pre-Proposal Meeting.
  - a. Clarify Requested Scope,
  - b. Review General Requirements,
  - c. Provide Site Tour (When Necessary).
9. Staff Review Committee (SRC) Reviews Proposal Submittals.
  - a. Technical Merit
  - b. Project Understanding
  - c. Overall Approach
  - d. Staffing/ Related Experience
  - e. Ability to Meet Schedule
  - f. MBE/WBE Utilization
  - g. Management Plan Including QA/QC.
10. SRC Interviews Interested Firms.
11. SRC Meets and Discusses Proposals.
12. Executive Director Makes Recommendation to the Professional Services Committee.
13. Professional Services Committee Makes Recommendation to the Board for Action.
14. ALCOSAN Board of Directors Awards Professional Services and Authorizes Negotiations with Recommended Firm.
15. SRC Negotiates Acceptable Fee and Terms—Opens Preferred Candidate's Cost Proposal.
16. Board of Directors Awards Service Authorization.

The Authority has another method of awarding Professional Service Contracts for smaller construction projects that could be handled in-house if Authority staffing constraints did not exist. These projects are awarded to one of five woman/minority firms. Awards are rotated. This process is not flow charted or documented by ALCOSAN personnel.

Once a contract award is approved by the Board, a formal document is executed by the Authority's Solicitor. A review of contract terms was beyond the scope of this audit.

## **OBJECTIVES**

1. Assess ALCOSAN'S award process for Construction and waste disposal contracts.
2. Assess ALCOSAN'S bidding and selection procedures for Professional Service contracts, including engineering, architectural and construction management services.
3. Assess compliance with Authority award process procedures for Construction and Professional Service contracts.
4. Assess compliance with statutory procurement requirements.
5. Make recommendations for improvements.

## **SCOPE**

The scope of the performance audit section is all ALCOSAN contracts in excess of \$10,000 awarded from January 1, 2007 through June 30, 2008.

## METHODOLOGY

The auditors toured ALCOSAN's waste water treatment facility and attended power point presentations by ALCOSAN staff. Presentations covered the Federal Consent Decree and Overflows, Accounting Department, Procurement Methods Presentation and Change Orders. Also presented were ALCOSAN's organizational chart, purchasing department and accounting department procedures. The purchasing presentation focused on processes needed for purchasing all items and services of different dollar amounts. Items or services purchased for more than \$10,000 require a contract. Flowcharts documenting the awarding of contracts over \$10,000 were explained. These included Professional Services, Construction and Purchase of Goods (Material) Contracts.

Attending the presentations were the Executive Director, Executive Assistant, Director of Operations and Maintenance, Director of Regional Conveyance, Director of Engineering and Construction, Deputy Executive Director and Director of Environmental Compliance, Director of Finance and Administration, Manager of Public Relations, and Manager of Purchasing. These individuals were available for interviews and questioning as needed.

The auditors tested ALCOSAN's compliance with its flowcharted procedures for awarding Construction and Professional Services contracts. The auditors requested a list of all contracts awarded from January 1, 2007 through June 30, 2008 and separate lists of the Professional Services and Construction contracts. The auditors received fifty-two (52) PSCs and thirty-eight (38) other contracts: of which twenty-eight (28) were Construction and ten (10) were Materials (Purchase of Goods) contracts.

A random 50% sample of Professional Service contracts (PSC) was chosen. This yielded twenty-six (26) contracts. Complete contract files were requested for documentation review. A checklist was created for the auditors to document compliance with PSC award procedures

ALCOSAN awards large construction projects as four separate contracts; one each for electrical, plumbing, general and HVAC. All four contracts share the same contract number. There were three large construction projects in the sample. One contract phase (plumbing) from one of the large construction projects was missing from the contact list provided by ALCOSAN.

The auditors chose 20 Construction contracts for review, representing a 71% sample of contracts awarded during the audit scope period. Projects were selected to include a sample of different types of work being performed. Later the missing plumbing contract from the large construction project was added for a total of 21 contracts.

The auditors requested documentation to verify compliance with ALCOSAN's flowcharted Construction contracting procedures. A checklist was created for this purpose.

The auditors visited the vault where the Construction contracts were stored. The Professional Service contracts are not stored in a central location.

The requested Construction contract list included 10 Purchase of Goods contracts that follow the same award process as Construction contracts. Consequently, the auditors selected a 50% sample of these material contracts. A checklist was created for purchasing procedure compliance analysis.

## FINDINGS AND RECOMMENDATIONS

### **Compliance with Statutory Procurement Requirements**

**Finding:** ALCOSAN's Construction and Professional Services contract procedures are in substantial compliance with applicable statutory procurement requirements.

#### Construction Contracts

As an authority created under the Municipality Authorities Act, 53 Pa. C.S. §5601, *et seq.*, ALCOSAN is subject to Act section 5614, Competition in Award of Contracts. Section 5614 applies to all construction, reconstruction; repair or work whose labor and materials cost exceeds \$10,000.

Contracts must “be entered into by the Authority with the lowest responsible bidder, upon proper terms, after public notice asking for competitive bids as provided in this section”.

**Finding:** ALCOSAN's Construction contract award process complies with the Municipality Authorities Act's public notice and lowest responsible bidder requirements.

The Authority's Construction Contract Award Process requires advertising for competitive bids and awarding the contract to the lowest responsible bidder.

#### Professional Services Contracts (PSC)

The Municipality Authorities Act has no requirements for professional services contracts. However, in addition to being an authority under the Municipality Authorities Act, ALCOSAN is considered to be an independent agency of the Commonwealth. As such, ALCOSAN must follow the competitive selection procedures for professional service contracts applicable to all State agencies, departments, bureaus and other divisions. The controlling statute is 62 Pa. Cons. Stat. §518.

The only statutory requirement for awarding professional service contracts is that the “award shall be made to the responsible offeror determined in writing by the contracting officer to be best qualified based on the evaluation factors set forth in the request for proposals”. The fee for such services must be “fair and reasonable compensation...determined through negotiation”.

**Finding:** ALCOSAN's Professional Services Evaluation and Recommendation Procedures do not fully comply with the Code. There is provision for negotiating

Professional Services fees but not for explaining in writing why the recommended firm was determined to be best qualified.

The Executive Director places the recommended firm on the Board of Directors meeting agenda for Board. Asking for Board approval implies that the contracting officer believes his/her recommendation to be the best qualified. However, the Code implies a more detailed explanation of how the nominee meets the “evaluation factors set forth in the request for proposals”.

Included with the requested documentation were seven “Wet Weather Basin Facilities Planning Recommendations”. These recommendations appear to be evaluations of the proposals submitted for ALSOSAN’s wet weather basin planning program. The evaluations included a short description of the firm’s relevant experience and planning approach. Five of the seven firms given a “recommended assignment” were awarded wet weather basin contracts.

**Finding:** These ‘recommendations’ would satisfy the ‘determined in writing’ requirement. However, the auditors found no similar written proposal evaluations for the other Professional Services contracts in the testing sample.

## **RECOMMENDATION NO. 1**

To fully comply with State procurement requirements, all Professional Services contract award recommendations should specify in writing how the recommended firm meets the “evaluation factors set forth in the request for proposals”.

### **General Contract Organization Findings**

**Finding:** An easily accessible list of all Professional Services (PSC) and Construction contracts awarded during this time period did not exist; the Executive Assistant had to compile a list for the auditors. Even though the Construction contracts had a numeric number for reference, one contract for a large construction project was missing from the listing. Professional Services contracts did not have any reference system.

## **RECOMMENDATION NO. 2**

A complete list of all contracts should be kept on a data base for easy access. A contract numbering or other identification system should be developed for PSCs.

**Finding:** Professional Service contract documentation is not centrally located. The Executive Director explained that information was kept in different departments. Requested information had to be specified for different ALCOSAN staff to locate. Construction contracts are kept together in a storage vault.

### **RECOMMENDATION NO. 3**

Professional Service contracts should be kept in one location with individual files containing all documentation relating to the award process. A central location for all contracts (with one file for every contract) would provide easy access, not only for auditing purposes but for any questions relating to the contract.

A list of documents specific to the award process was requested for each contract in the sample. The Executive Director provided an answer sheet with explanations about each document requested. Requested documents were referenced as attachments.

**Finding:** For PSCs some of these attachments seemed as if they were prepared for the auditors from memory rather than retrieved from actual contract files. Other documents referred to as attachments were missing.

**Finding:** Many PSC documents that were provided by ALCOSAN had no letterhead, markings, dates or signatures as to when the documents were prepared or by whom.

### **RECOMMENDATION NO. 4**

Documents, whether prepared in-house or by the outside consultant, should be dated and include the name of the preparer, their position with the Authority or their firm. Documents prepared by outside consultants should be identified by company letterhead. Then, if questions arise about the document, the responsible person can be easily identified and contacted.

**Finding:** Answer sheets supplied for Construction contracts had more of the referenced documents in the files.

Despite the lack of identifying letterhead, dates and signatures, the auditors gave ALCOSAN the benefit of the doubt as to the accuracy of the information. In other words any type of document provided was counted but if a document did not exist to back up the Executive Directors answer sheet, then it was not counted.

## **Contract Sample Testing**

### Professional Services Contract Award Process

ALCOSAN awarded fifty-two (52) Professional Services contracts (PSC) during the audit scope period, January 1, 2007 through June 30, 2008. Twenty-six (26) of these contracts, representing a 50% sample, were selected for review. One contract was abandoned by ALCOSAN so it was eliminated, reducing the testing sample to 25 contracts.

The total dollar amount of 24 of the contracts in the testing sample was \$14,223,091. The other contract had an hourly rate schedule.

**Finding:** As written, the Authority's internal procedures for awarding Professional Services contracts exceed statutory requirements. However, there was insufficient documentation for the Professional Services contracts in the testing sample to support compliance with all internal award procedures.

A July 25, 2000 memo from the Executive Director to the Professional Services Committee describes the "formal procedure used by the Authority to acquire professional service firms" yet states that "the various steps described in this procedure may be modified or waived as necessary depending on the specific service required".

**Finding:** Missing documentation may have been due to steps in the award process being modified or waived. However, there was no evidence that such waiver or modification had occurred.

## **RECOMMENDATION No. 5**

Any deviation from formal contracting procedures should be explained and documented.

According to the Executive Director, Professional Service contracts procedures (especially the negotiation process) are sometimes done informally and not documented in the files or elsewhere. These could have occurred in the form of telephone conversations or e-mails, with no evidence of record.

## **RECOMMENDATION NO. 6**

All informal contract procedures should be documented as "Memo to File" and included in the contract file.

**Finding:** Not all contracting steps are included on the Authority's flowchart. According to the above referenced memorandum and conversations with the Executive Director, a projected man-hours and cost estimate is prepared by ALCOSAN staff or consultant and used as a guideline for selecting a firm and negotiating the final cost of the contract. This step is missing from ALCOSAN's flowcharted award process.

The Executive Director stated that depending on the length of the project and the time needed for a response, Request for Qualifications (RFQ) can be advertised or sent directly to firms in the Authority's database.

**Finding:** Sending RFQs directly to select firms is also missing from ALCOSAN's flowchart.

### **RECOMMENDATION NO. 7**

ALCOSAN needs to update its flowchart to include all steps routinely used in the awarding of Professional Service Contracts.

### Professional Services Contracts Award Process Compliance

Of the 25 Professional Services contracts selected for testing, sixteen (16) were new contracts. The cost of these sixteen contracts totaled \$9,901,270. The auditors tested for documented compliance with the Authority's flowcharted and stated award process.

Fifteen (15) steps of the PSC award process were tested for compliance. The auditors requested documentation of: Projected Man Hours and Cost, RFQ Advertised, Names of Staff Review Committee, List of RFQ Respondents, Short List Assessment Process, Short List, Pre-Proposal Meeting, Staff Review Committee Interviews Firms, Directors Recommendation to Committee, Staff Review Committees Recommendation to the Board, Board Authorization to the Firm, Firms Acceptance, Service Agreement Signed, Service Authorization Approved, and the Negotiated Fee. Findings are found in Table 1.

TABLE 1

**PROFESSIONAL SERVICE CONTRACT  
PROCESS COMPLIANCE**

**TOTAL: 16 Contracts Examined**

<b>EVIDENCE OF:</b>	<b>Number Of Contracts That Had Documentation</b>	<b>Percent %</b>	<b>Number Of Contracts That Didn't Have Documentation</b>	<b>Percent %</b>
Projected Man Hours And Cost	2 (unknown authors)	13%	14	87%
RFQ Advertised	2	13%	14	87%
Names of Staff Review Committee	2	13%	14	87%
List of RFQ Respondents	4	25%	12	75%
Short List Assessment Process	2	13%	14	87%
Short List	6	50%	6	50%
Pre-Proposal Meeting	4	25%	12	75%
Staff Review Committee Interviews Firms	3	19%	13	81%
Directors Recommendation to Committee	1	6%	15	94%
Staff Review Committees Recommendation to the Board	9	56%	7	44%
Board Authorization to the Firm	12	75%	4	25%
Firms Acceptance	4	25%	12	75%
Service Agreement Signed	11	73%	5	27%
Service Authorization Approved	14	87%	2	13%
Negotiated Fees	9	56%	7	44%

**Finding:** The highest award procedure document compliance was provided for Board Authorization to the Firm, Service Authorizations Approved, Service Agreement Signed and Staff Review Committees Recommendation to the Board. The lowest areas of documentation concerned the Short List Assessment Process and the Directors Recommendation to Committee.

**Finding:** Documentation of a Negotiated Fees was found in 9 contracts. Five (5) negotiated fees were slightly higher than the contractor's proposed fee; 4 negotiated fees were less than the contractors proposed fee. The higher negotiated fees seemed to be more of a 'rounding up' of the dollar amount than any great increase over the contractors proposed fee.

## Projected Man Hours and Cost

Firms responding to Authority RFPs submit two proposals: one proposal is a response to the specific scope of work to be performed and the other is a sealed cost proposal. ALCOSAN selects a preferred firm based on its related experience and project comprehension and methodology. After the Board awards the contract, the winning firm's cost proposal is opened for price negotiations.

Prior to reviewing submitted proposals, ALCOSAN staff or consultants estimate man hours and costs for the project. The projected man hours and cost estimates are used to assess the proposals scope and to negotiate a contract price with the selected firm.

**Finding:** Documentation for in-house or consultants estimated projected man hours and costs was provided for only two of the sixteen Professional Services contracts in the new contract sample for two of the nine contract extensions.

## RECOMMENDATION NO. 8

Estimated or projected man hours and costs are essential components of the Professional Services award process and should be included with all contracts.

## Statements of Qualifications Assessment

The purpose of requesting Statements of Qualifications from interested firms is to determine which firms have the experience and capability to meet the objectives of the proposal at issue. Firms that meet this criteria are "short listed" and asked to respond to the Request for Proposal for the needed service. Firms that do not meet the criteria are eliminated from the competition process.

**Finding:** Short List Assessment documents were provided for two contracts in the above testing sample. One document appears to be a check list of Staff Committee short list recommendations. One firm was short listed solely on the Executive Director's recommendation.

**Finding:** The other contract had two short list assessment documents. One was an undated assessment of short listed and excluded firms. The other was a dated "final shortlist" of firms sent RFPs and firms sent non-selection letters.

## **RECOMMENDATION NO. 9**

To avoid appearances of favoritism, a rating system with objective rating criteria should be used to determine the qualifications of firms submitting Statement of Qualifications. Ratings of shorts listed and eliminated firms should be kept in all contract files.

### Professional Services Contract Extensions

**Finding:** There are two types of Professional Service contracts: new (as explained above) and extensions of existing contracts.

Of the 25 PS contracts selected for review, nine (9) were extensions of existing contracts. Eight of the contract extensions totaled \$4,321,821 with the remaining contract based on an hourly rate schedule.

Professional Services contracts that are extensions of existing work are usually awarded to the same contractor that performed the prior work. The ALCOSAN Executive Director has indicated that this is because of the prior contractors' familiarity with the project as well as the Authority's familiarity with the contractor and satisfaction of prior completed project work. Contract extensions also help keep the project on schedule. No Request for Qualifications (RFQ) is advertised and the only contractor on the short-list is the contractor who did the original work.

The awarding of these PS extension contracts begins after the previous work is completed and more work is needed. Sometimes it's "Phase II" of a 3 Phase project, or sometimes it's a function that was overlooked in the original drawing scope, such as providing for the design for raising a door.

The nine extension contracts in the testing sample were for the following:

- New Truck Staging Building Door
- Phases II Plant Expansion
- Satellite Treatment Facilities Demonstration Program
- 43<sup>rd</sup> Street Access Shaft
- Construction Management Services of O & M Facilities
- CS & T building Design Services (a spin-off project of the O & M Facilities)
- Construction Management Services for CS & T Building
- Construction Management Services for CIP Plant Improvement
- Retained Consultant Services (set hourly rate)

**Finding:** The Contract extension process takes less time because ALCOSAN does not advertise for Request for Qualifications (RFQ) or prepare a short list of other firms to contact or send a RFP.

The Executive Director stated that the original contract (some dating back to 1994) did follow the PSC process. Verifying this statement was outside the scope of this audit.

**Finding:** For the nine extension contracts in the testing sample, the same consultant/engineer/architect was awarded the contract. They alone were contacted to provide a written bid for the new project.

#### Extension Contract Award Process Compliance

**Finding:** The process used to award Professional Services contracts depends on whether the contract is new or an extension of an existing contract. Contract extensions are awarded differently than new contracts. The auditors were not provided with a flowchart or other written description of the contract extension process.

#### **RECOMMENDATION NO. 10**

A step by step process for awarding Professional Services contract extensions should be flowcharted as are the other contract award processes.

According to the Executive Director, seven areas of the PSC award process are applicable for contract extensions. They are: Projected Man Hours and Cost, Staff Review Committees Recommendation to the Board, Board Authorization to the Firm, Firms Acceptance, Service Agreement Signed, Service Authorization Approved, And the Negotiated Fee. Documentation findings are found in Table 2.

**TABLE 2**
**PROFESSIONAL SERVICE CONTRACT EXTENSIONS  
PROCESS COMPLIANCE**
**TOTAL: 9 Contracts Examined**

<b>EVIDENCE OF:</b>	<b>Number Of Contracts That Had Documentation</b>	<b>Percent %</b>	<b>Number Of Contracts That Didn't Have Documentation</b>	<b>Percent %</b>
Projected Man Hours And Cost	2 (unknown authors)	22%	7	88%
Staff Review Committees Recommendation To The Board	5	56%	4	44%
Board Authorization To The Firm	5	56%	4	44%
Firms Acceptance	0	0%	9	100%
Service Agreement Signed	8	89%	1	11%
Service Authorization Approved	6	67%	3	33%
Negotiated Fee	0	0%	9	100%

Table 2 shows the highest award procedure document compliance was with Service Agreements Signed and Service Authorizations Approved. The lowest area of documented compliance was Negotiated Fees.

### **Construction Contracts**

As noted in the Methodology, the auditors requested a list of all Construction contracts awarded during the audit scope period. The list comprised twenty-eight (28) Construction and ten (10) were Materials (Purchase of Goods) contracts

A sample of 21 Construction contracts was chosen for testing. These contracts totaled \$12,883,373 and included three large construction projects that were awarded as four separate contracts.

At ALCOSAN, larger projects are not awarded to one general contractor to subcontract out to whoever they choose. Instead, major construction phases are put out to bid separately according to the specialized phase of work needed. These four separately bid phases are: General Contractor, Plumbing Contractor, HVAC Contractor and Electrical Contractor.

**Finding:** Not allowing a general contractor to subcontract different phases of the project is a good way for ALCOSAN to ensure that all qualified contractors meet its requirements and allow the Authority to maintain better control over all aspects of the project.

#### Construction Contract Award Process Compliance

**Finding:** The Executive Director stated that an estimate of cost is prepared by ALCOSAN staff or consultant to assess the reasonableness of bids. Like the projected man hours and cost estimate for Professional Services contract, this step is missing from ALCOSAN's flowcharted award process for Construction contracts.

Eleven (11) steps of the Construction contract award process were tested for compliance. The auditors requested documentation of: Estimated Consultant Cost, Managers Review & Approval of Bid Documents, Board of Directors Authorization of Contract Advertisement, Copy of Advertisement, Date of Pre-Bid Meeting & List of Attendees, Names of Bidders and Bid Amounts, Checklist of Staff Reviewing Bids/Comments, Division Staff Recommendation to Executive Director, Executive Director's Recommendation to Board, Contract Awarded to Lowest Bidder and Contract Signed. Findings are found in Table 3 below.

**Finding:** The majority of the requested documentation for the Construction contracts was provided.

The following chart summarizes the award process documentation found in the Construction contract files.

**TABLE 3**  
**CONSTRUCTION CONTRACTS**  
**PROCESS COMPLIANCE**

**TOTAL: 21 Contracts Examined**

<b>EVIDENCE OF:</b>	<b>Number Of Contracts That Had Documentation</b>	<b>Percent %</b>	<b>Number Of Contracts That Didn't Have Documentation</b>	<b>Percent %</b>
Consultant's Estimate of Cost	18	86%	3	14%
Number Over Cost Estimate	8	38%		
Number Under Cost Estimate	10	48%		
Review & Approval of Bid Documents	17	81%	4	19%
Board of Directors Authorization of Contract Advertisement	21	100%	0	0%
Copy of Advertisement	17	81%	4	19%
Date of Pre-bid Meeting and List of Attendees	20	95%	1	5%
Names of All Bidders With Dollar Amounts.	21	100%	0	0%
List of Names Who Reviewed Bids	21	100%	0	0%
Division Staff Recommendation to Executive Director	21	100%	0	0%
Executive Director Recommendation to Board	21	100%	0	0%
Contract to Lowest Responsible Bidder	21	100%	0	0%
Contract Signed	20	95%	1	5%

Table 3 shows the highest award procedure document compliance was with Board of Directors Authorization of Contract Advertisement, Names of All Bidders with Dollar Amounts, List of Names Who Reviewed Bids, Division Staff Recommendation to Executive Director, Executive Director Recommendation to Board, Contract to Lowest Responsible Bidder and Contract Signed. All had 100% compliance. The lowest area of document compliance was Review & Approval of Bid Documents and Copy of Advertisement. These ‘low’ rates of compliance were 81%.

**Finding:** A greater amount of documents were available for Construction contracts than Professional Service contracts.

A cost estimate is to be prepared by either ALCOSAN’s engineering staff or contracted consultant as a tool to help determine the lowest responsible bidder. Eight (8) contracts (38% of the sample) were awarded to companies whose bids were over ALCOSAN’s estimated cost. Ten (10) contracts (48% of the sample) were under the estimated cost. Three contracts (14%) had no cost estimate.

Contracts awarded over the estimated cost ranged from a low of 2% and a high of 76% over the estimate. In the case of the bid being 76% higher than the ALCOSAN engineer’s estimate, it was determined that the engineer’s estimate was substantially low in a number of areas and was adjusted accordingly.

**Finding:** Engineer’s estimates should be used as a guide to assess bids for all work and kept in the files. All discrepancies between cost estimates and final contract cost should be explained in writing, especially when they vary excessively.

**Finding:** In one instance, a bidder was awarded a contract as lowest responsible bidder then subsequently rejected. The Executive Director obtained a copy of the bid rejection letter for the auditors. The letter was prepared by outside counsel and clearly explained why the firm’s licensing deficiencies were the reason for rejecting its bid.

#### **RECOMMENDATION NO. 11:**

If a bidder awarded a contract is later deemed not responsible, ALCOSAN must document the reasons for withdrawing the contract and include the rejection documents in the contract file.

**Finding:** One contractor’s bid of \$74,643 was significantly lower than the others bids which ranged from \$193,678.95 to \$529,689.50. To its credit, instead of rejecting this bid ALCOSAN investigated the contractor. It found that the contractor had a good reputation and was able to perform the work at this low bid by using creative approaches such as working during the night when the sewage flow is lowest.

## **Materials Contract Award Process Compliance**

Materials contracts reviewed were for the purchase of chemicals needed for ALCOSAN's plant operations. These contracts were bid as cost per unit prices and not as a total contract amount. Unit costs were bid according to how the chemical is sold, i.e., by the gallon, ton or pound.

ALCOSAN uses a large quantity of chemicals for sewage disposal and waste treatment. Contracts for these chemicals are awarded through the same process as Construction contracts, i.e., to the lowest responsible bidder. There were 5 Materials contracts in our sample. The following Table 4 summarizes the documentation for these Materials contracts. The same 11 steps examined in the Construction contract award process above were tested for compliance in the Materials contracts.

**TABLE 4**  
**SUMMARY OF MATERIALS CONTRACTS**

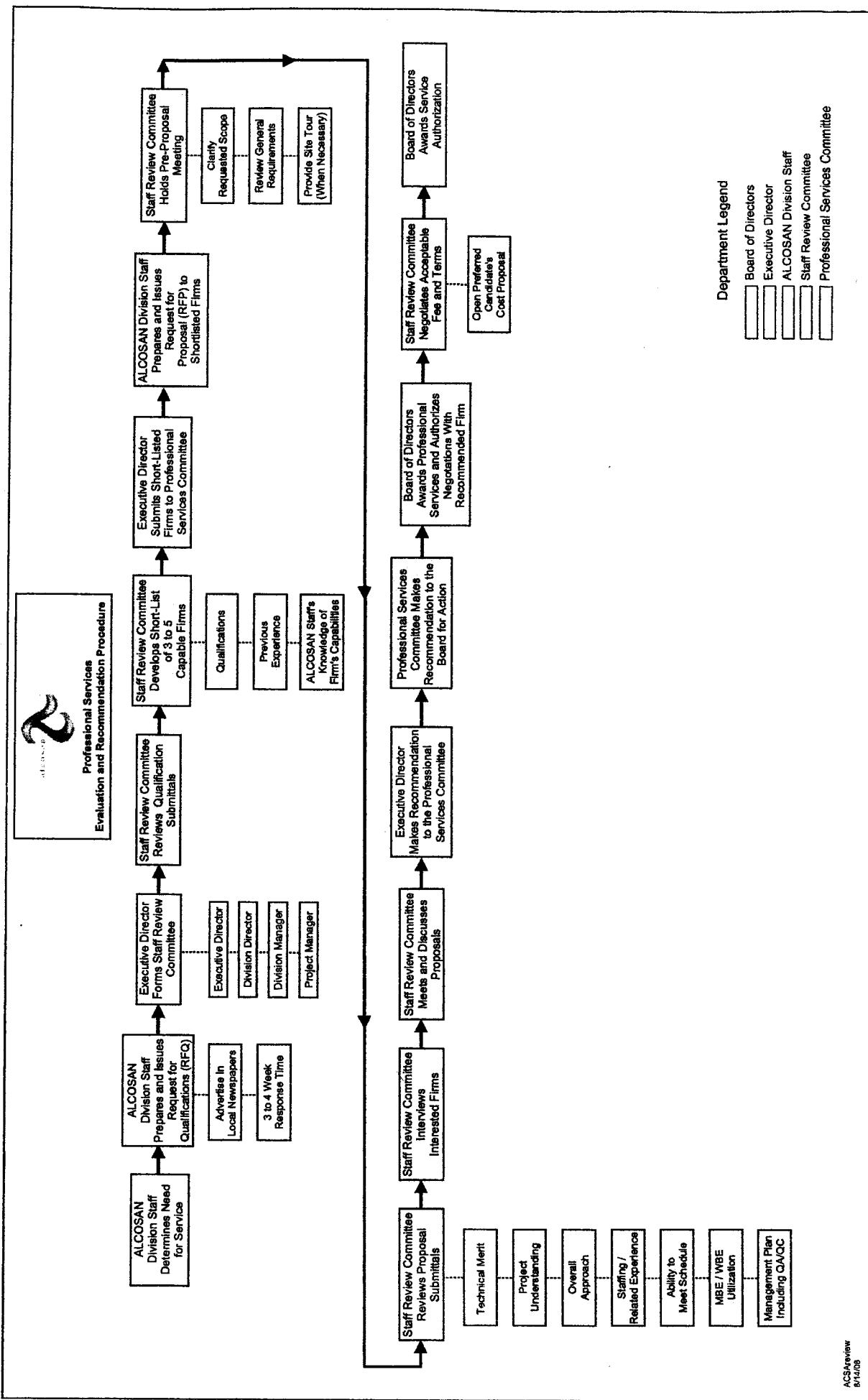
<b>TOTAL: 5 Contracts Examined</b>				
<b>EVIDENCE OF:</b>	<b>Number Of Contracts That Had Documentation</b>	<b>Percent %</b>	<b>Number Of Contracts That Didn't Have Documentation</b>	<b>Percent %</b>
Review & Approval of Bid Documents	0	0%	5	100%
Board of Directors Authorization of Contract Advertisement	5	100%	0	0%
Copy of Advertisement	5	100%	0	0%
Date of Pre-Bid Meeting and List of Attendees	1	20%	4	80%
Names of All Bidders With Dollar Amounts.	4	80%	1	20%
List of Names Who Reviewed Bids	5	100%	0	0%
Division Staff Recommendation to Executive Director	5	100%	0	0%
Executive Director Recommendation To Board	4	80%	1	20%
Contract To Lowest Responsible Bidder	5	100%	0	0%
Contract Signed	5	100%	0	0%

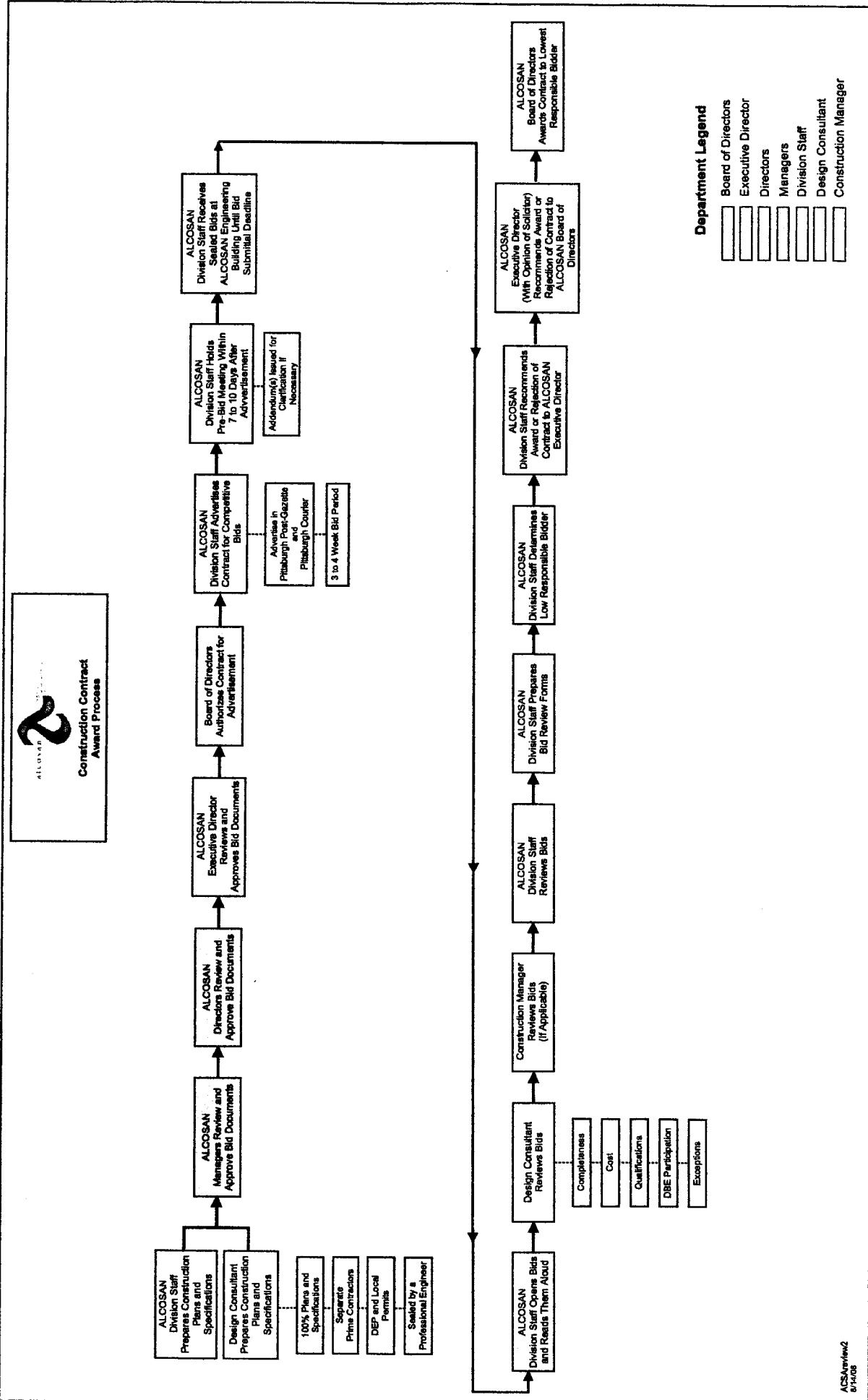
**Finding:** Because some chemicals are critically needed for plant operation, ALCOSAN will contract with a back up supplier in case there is a problem with the lowest responsible bidder. This was done with the lime supplier. The back up supplier was the second lowest responsible bidder charging \$4.66 per ton more than the lowest responsible bidder.

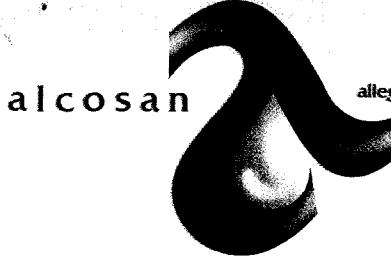
**RECOMMENDATION NO. 12:**

To save money on critically needed plant supplies, ALCOSAN should try to negotiate a standby contract at the low bid rate. If the second lowest bidder refuses to amend its price, all other bidders should be given the opportunity to match the awarded contract price as a standby contractor.

## **APPENDIX**







*Members of the Board*

Rep. Harry Readshaw  
*Chairman*

Sylvia C. Wilson

Jim Motznik

Jack Shea

Evelyn R. O'Brien

Jacques L. Moye

Daniel G. Keller

Arletta Scott Williams  
*Executive Director*

David W. Borneman, P.E.  
*Director*  
*Engineering & Construction*

Arthur M. Tamilia, Esq.  
*Director*  
*Environmental Compliance*

William H. Inks, CPA  
*Director*  
*Finance & Administration*

Jan M. Oliver  
*Director*  
*Regional Conveyance*

Douglas A. Jackson, P.E.  
*Director*  
*Operations & Maintenance*

March 27, 2009

Michael E. Lamb  
City of Pittsburgh Controller  
First Floor – City County Building  
414 Grant Street  
Pittsburgh, PA 15219

Dear Mr. Lamb:

On behalf of the ALCOSAN Board of Directors and employees, I would like to thank you and your field audit team for the time and effort afforded this engagement. Their thorough investigation and assessments while rigorous have been extremely useful in identifying opportunities to strengthen the Authority's procurement procedures, particularly with respect to professional services.

As noted in the first finding under Contract Sample Testing, page 13: *"As written, the Authority's internal procedures for awarding Professional Services contracts exceed statutory requirements. However, there was insufficient documentation for the Professional Services contracts in the testing sample to support compliance with all internal award procedures."* The audit process and report have highlighted a necessity for enhanced documentation of the processes and procedures presently in use by the Authority to procure professional services.

The Authority puts a great deal of time, effort and pride into the selection of best qualified professional service providers. Unfortunately while engaged in this process we have not effectively documented these labors. Ensuring the overall integrity and transparency of the process is just as important as ensuring quality of the service to be provided. ALCOSAN accepts the recommendations offered in the spirit of process improvement, and we look forward to implementation of an enhanced procurement documentation strategy.

Sincerely,

**ALLEGHENY COUNTY SANITARY AUTHORITY**

Arletta Scott Williams  
Executive Director

ASW:saj  
Attachment  
cc: Harry Readshaw, Chairman

## **ALLEGHENY COUNTY SANITARY AUTHORITY**

### **Response to City of Pittsburgh Controller's Audit Report**

### **FINDINGS AND RECOMMENDATIONS**

#### **Compliance with Statutory Procurement Requirements**

**Finding:** ALCOSAN's Construction and Professional Services contract procedures are in substantial compliance with applicable statutory procurement requirements.

##### **Construction Contracts**

As an authority created under the Municipality Authorities Act, 53 Pa. C.S. §5601, *et seq.*, ALCOSAN is subject to Act section 5614, Competition in Award of Contracts. Section 5614 applies to all construction, reconstruction; repair or work whose labor and materials cost exceeds \$10,000.

Contracts must "be entered into by the Authority with the lowest responsible bidder, upon proper terms, after public notice asking for competitive bids as provided in this section".

**Finding:** ALCOSAN's Construction contract award process complies with the Municipality Authorities Act's public notice and lowest responsible bidder requirements.

The Authority's Construction Contract Award Process requires advertising for competitive bids and awarding the contract to the lowest responsible bidder.

##### **Professional Services Contracts (PSC)**

The Municipality Authorities Act has no requirements for professional services contracts. However, in addition to being an authority under the Municipality Authorities Act, ALCOSAN is considered to be an independent agency of the Commonwealth. As such, ALCOSAN must follow the competitive selection procedures for professional service contracts applicable to all State agencies, departments, bureaus and other divisions. The controlling statute is 62 Pa. Cons. Stat. §518.

The only statutory requirement for awarding professional service contracts is that the "award shall be made to the responsible offeror determined in writing by the contracting officer to be best qualified based on the evaluation factors set forth in the request for proposals". The fee for such services must be "fair and reasonable compensation...determined through negotiation".

**Finding:** ALCOSAN's Professional Services Evaluation and Recommendation Procedures do not fully comply with the Code. There is provision for negotiating Professional Services fees but not for explaining in writing why the recommended firm was determined to be best qualified.

The Executive Director places the recommended firm on the Board of Directors meeting agenda for Board. Asking for Board approval implies that the contracting officer believes his/her recommendation to be the best qualified. However, the Code implies a more detailed explanation of how the nominee meets the "evaluation factors set forth in the request for proposals".

Included with the requested documentation were seven "Wet Weather Basin Facilities Planning Recommendations". These recommendations appear to be evaluations of the proposals submitted for ALCOSAN's wet weather basin planning program. The evaluations included a short description of the firm's relevant experience and planning approach. Five of the seven firms given a "recommended assignment" were awarded wet weather basin contracts.

**Finding:** These 'recommendations' would satisfy the 'determined in writing' requirement. However, the auditors found no similar written proposal evaluations for the other Professional Services contracts in the testing sample.

## **RECOMMENDATION NO. 1**

To fully comply with State procurement requirements, all Professional Services contract award recommendations should specify in writing how the recommended firm meets the "evaluation factors set forth in the request for proposals".

### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*While we do not believe the Authority can be considered an independent agency of the Commonwealth and as such does not fall under the guidelines cited by the Audit Team, there is no dispute that appropriate documentation is a necessity in the selection and award process. Clear representation of valid rationale for contract award recommendations is an integral part of the Authority's professional service procurement process.*

*Presentation of this information takes place at a meeting of the Professional Services Committee. The Professional Services Committee is a committee of the ALCOSAN Board of Directors. These meetings have been duly advertised public meetings since December 2007. The project details and reasons for selection and recommendation of a specific firm are verbally provided to the Board Committee by the Executive Director. As noted under normal circumstances there is not a separate recommendation document*

*specifically directed to the Board Committee. The written recommendation generated from the internal staff review committee portion of the process is provided to the Board Committee for reference.*

*The concurrence of the Professional Services Committee, a brief summary of the project and the recommended firm's qualifications are verbally provided to the entire Board at the public Board meeting where the recommended award appears as an agenda item for the first phase of Board action. As noted, the first phase of Board action on a professional service contract is award of the service with authorization to negotiate a fee. The subsequent phase of Board action is award of the resulting negotiated fee.*

*The Authority will include written representation of the rationale for contract award recommendations into the presentation of professional service award recommendations to the Board of Directors.*

### **General Contract Organization Findings**

**Finding:** An easily accessible list of all Professional Services (PSC) and Construction contracts awarded during this time period did not exist; the Executive Assistant had to compile a list for the auditors. Even though the Construction contracts had a numeric number for reference, one contract for a large construction project was missing from the listing. Professional Services contracts did not have any reference system.

### **RECOMMENDATION NO. 2**

A complete list of all contracts should be kept on a data base for easy access. A contract numbering or other identification system should be developed for PSCs.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*The Authority is in the process of establishing an independent numbering system for professional service contracts and delineating responsibility for creation, maintenance and management of a uniform database and tracking system with respect to these contracts.*

**Finding:** Professional Service contract documentation is not centrally located. The Executive Director explained that information was kept in different departments. Requested information had to be specified for different ALCOSAN staff to locate. Construction contracts are kept together in a storage vault.

### **RECOMMENDATION NO. 3**

Professional Service contracts should be kept in one location with individual files containing all documentation relating to the award process. A central location for all contracts (with one file for every contract) would provide easy access, not only for auditing purposes but for any questions relating to the contract.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*In keeping with the response to R – 2, the Authority is also in the process of establishing a centralized filing system for professional service matters similar to that noted by the Audit Team for construction contract documents.*

A list of documents specific to the award process was requested for each contract in the sample. The Executive Director provided an answer sheet with explanations about each document requested. Requested documents were referenced as attachments.

**Finding:** For PSCs some of these attachments seemed as if they were prepared for the auditors from memory rather than retrieved from actual contract files. Other documents referred to as attachments were missing.

**Finding:** Many PSC documents that were provided by ALCOSAN had no letterhead, markings, dates or signatures as to when the documents were prepared or by whom.

### **RECOMMENDATION NO. 4**

Documents, whether prepared in-house or by the outside consultant, should be dated and include the name of the preparer, their position with the Authority or their firm. Documents prepared by outside consultants should be identified by company letterhead. Then, if questions arise about the document, the responsible person can be easily identified and contacted.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*Historically the Authority has utilized a note to file or note to the record memo format to manage miscellaneous information. We will examine the development of standardized forms and formats that can be utilized in the professional service procurement process to provide for better documentation of specific circumstances.*

**Finding:** Answer sheets supplied for Construction contracts had more of the referenced documents in the files.

Despite the lack of identifying letterhead, dates and signatures, the auditors gave ALCOSAN the benefit of the doubt as to the accuracy of the information. In other words any type of document provided was counted but if a document did not exist to back up the Executive Directors answer sheet, then it was not counted.

### **Contract Sample Testing**

#### Professional Service Contract Award Process

ALCOSAN awarded fifty-two (52) Professional Services contracts (PSC) during the audit scope period, January 1, 2007 through June 30, 2008. Twenty-six (26) of these contracts, representing a 50% sample, were selected for review. One contract was abandoned by ALCOSAN so it was eliminated, reducing the testing sample to 25 contracts.

The total dollar amount of 24 of the contracts in the testing sample was \$14,223,091. The other contract had an hourly rate schedule.

**Finding:** As written, the Authority's internal procedures for awarding Professional Services contracts exceed statutory requirements. However, there was insufficient documentation for the Professional Services contracts in the testing sample to support compliance with all internal award procedures.

A July 25, 2000 memo from the Executive Director to the Professional Services Committee describes the "formal procedure used by the Authority to acquire professional service firms" yet states that "the various steps described in this procedure may be modified or waived as necessary depending on the specific service required".

**Finding:** Missing documentation may have been due to steps in the award process being modified or waived. However, there was no evidence that such waiver or modification had occurred.

### **RECOMMENDATION No. 5**

Any deviation from formal contracting procedures should be explained and documented.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*The process described and flow charted depicts the most extensive full scale process for procurement of professional services used by the Authority. There are various reasons the procedure could be truncated. For example, requiring potential participants to engage in an elaborate process that requires significant preparation expense to be considered for a contract of nominal value is impractical. In this instance, it is more productive and credible to tailor the process to preserve maximum competition while generating the highest quality submissions. The Authority will develop standardized forms to provide for better documentation of specific deviations in the professional service procurement process*

According to the Executive Director, Professional Service contracts procedures (especially the negotiation process) are sometimes done informally and not documented in the files or elsewhere. These could have occurred in the form of telephone conversations or e-mails, with no evidence of record.

#### **RECOMMENDATION NO. 6**

All informal contract procedures should be documented as “Memo to File” and included in the contract file.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*As noted in the response to R – 4, the Authority will examine the development of standardized forms and formats that can be utilized in the professional service procurement process to provide for better documentation of specific circumstances.*

**Finding:** Not all contracting steps are included on the Authority’s flowchart. According to the above referenced memorandum and conversations with the Executive Director, a projected man-hours and cost estimate is prepared by ALCOSAN staff or consultant and used as a guideline for selecting a firm and negotiating the final cost of the contract. This step is missing from ALCOSAN’s flowcharted award process.

The Executive Director stated that depending on the length of the project and the time needed for a response, Request for Qualifications (RFQ) can be advertised or sent directly to firms in the Authority’s database.

**Finding:** Sending RFQs directly to select firms is also missing from ALCOSAN’s flowchart.

#### **RECOMMENDATION NO. 7**

ALCOSAN needs to update its flowchart to include all steps routinely used in the awarding of Professional Service Contracts.

## ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*Expediency, duration, size, value and nature are just a few of the factors that may be considered when determining whether a professional service contract should be advertised, proposals solicited from a pool of qualified candidates or the work assigned to the Authority's retained consultant. For example, required work may be similar in nature to that which has been recently awarded. This coupled with time constraints may make it advantageous to approach firms who had been successfully short-listed on that previously awarded work. The Authority will endeavor to capture the most commonly used practices and document appropriately.*

## **Professional Services Contracts Award Process Compliance**

Of the 25 Professional Services contracts selected for testing, sixteen (16) were new contracts. The cost of these sixteen contracts totaled \$9,901,270. The auditors tested for documented compliance with the Authority's flowcharted and stated award process.

Fifteen (15) steps of the PSC award process were tested for compliance. The auditors requested documentation of: Projected Man Hours and Cost, RFQ Advertised, Names of Staff Review Committee, List of RFQ Respondents, Short List Assessment Process, Short List, Pre-Proposal Meeting, Staff Review Committee Interviews Firms, Directors Recommendation to Committee, Staff Review Committees Recommendation to the Board, Board Authorization to the Firm, Firms Acceptance, Service Agreement Signed, Service Authorization Approved, and the Negotiated Fee. Findings are found in Table 1.

**Finding:** The highest award procedure document compliance was provided for Board Authorization to the Firm, Service Authorizations Approved, Service Agreement Signed and Staff Review Committees Recommendation to the Board. The lowest areas of documentation concerned the Short List Assessment Process and the Directors Recommendation to Committee.

**Finding:** Documentation of a Negotiated Fees was found in 9 contracts. Five (5) negotiated fees were slightly higher than the contractor's proposed fee; 4 negotiated fees were less than the contractors proposed fee. The higher negotiated fees seemed to be more of a 'rounding up' of the dollar amount than any great increase over the contractors proposed fee.

## Projected Man Hours and Cost

Firms responding to Authority RFPs submit two proposals: one proposal is a response to the specific scope of work to be performed and the other is a sealed cost proposal. ALCOSAN selects a preferred firm based on its related experience and project comprehension and methodology. After the Board awards the contract, the winning firm's cost proposal is opened for price negotiations.

Prior to reviewing submitted proposals, ALCOSAN staff or consultants estimate man hours and costs for the project. The projected man hours and cost estimates are used to assess the proposals scope and to negotiate a contract price with the selected firm.

**Finding:** Documentation for in-house or consultants estimated projected man hours and costs was provided for only two of the sixteen Professional Services contracts in the new contact sample for two of the nine contract extensions.

### **RECOMMENDATION NO. 8**

Estimated or projected man hours and costs are essential components of the Professional Services award process and should be included with all contracts.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*As noted by the Audit Team, the projecting of man hours and establishing a basis for probable costs are basic elements and essential components of professional service procurement. While an integral facet of the Authority's process, our documentation has not adequately preserved the attendant effort. The Authority will create a format to better capture the process, level of effort and provide for uniform record keeping of results.*

## Statements of Qualifications Assessment

The purpose of requesting Statements of Qualifications from interested firms is to determine which firms have the experience and capability to meet the objectives of the proposal at issue. Firms that meet this criteria are "short listed" and asked to respond to the Request for Proposal for the needed service. Firms that do not meet the criteria are eliminated from the competition process.

**Finding:** Short List Assessment documents were provided for two contracts in the above testing sample. One document appears to be a check list of Staff Committee short list recommendations. One firm was short listed solely on the Executive Director's recommendation.

**Finding:** The other contract had two short list assessment documents. One was an undated assessment of short listed and excluded firms. The other was a dated “final shortlist” of firms sent RFPs and firms sent non-selection letters.

### **RECOMMENDATION NO. 9**

To avoid appearances of favoritism, a rating system with objective rating criteria should be used to determine the qualifications of firms submitting Statement of Qualifications. Ratings of shorts listed and eliminated firms should be kept in all contract file.

#### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*The short listing process typically occurs in an internal staff review committee setting. Having reviewed the submitted statements of qualifications or letters of interest, each committee member presents their assessments and rankings of the candidate firms. Although it is a fairly informal process, it is nonetheless thorough with participants vigorously affirming or challenging their colleague’s assertions; it is very much a collaborative process. To better capture this effort the Authority will create a standard format and record keeping for the professional service short listing process.*

#### Professional Services Contract Extensions

**Finding:** There are two types of Professional Service contracts: new (as explained above) and extensions of existing contracts.

Of the 25 PS contracts selected for review, nine (9) were extensions of existing contracts. Eight of the contract extensions totaled \$4,321,821 with the remaining contract based on an hourly rate schedule.

Professional Services contracts that are extensions of existing work are usually awarded to the same contractor that performed the prior work. The ALCOSAN Executive Director has indicated that this is because of the prior contractors’ familiarity with the project as well as the Authority’s familiarity with the contractor and satisfaction of prior completed project work. Contract extensions also help keep the project on schedule. No Request for Qualifications (RFQ) is advertised and the only contractor on the short-list is the contractor who did the original work.

The awarding of these PS extension contracts begins after the previous work is completed and more work is needed. Sometimes it’s “Phase II” of a 3 Phase project, or sometimes it’s a function that was overlooked in the original drawing scope, such as providing for the design for raising a door.

The nine extension contracts in the testing sample were for the following:

New Truck Staging Building Door  
Phases II Plant Expansion  
Satellite Treatment Facilities Demonstration Program  
43<sup>rd</sup> Street Access Shaft  
Construction Management Services of O & M Facilities  
CS & T building Design Services (a spin-off project of the O & M Facilities)  
Construction Management Services for CS & T Building  
Construction Management Services for CIP Plant Improvement  
Retained Consultant Services (set hourly rate)

**Finding:** The Contract extension process takes less time because ALCOSAN does not advertise for Request for Qualifications (RFQ) or prepare a short list of other firms to contact or send a RFP.

The Executive Director stated that the original contract (some dating back to 1994) did follow the PSC process. Verifying this statement was outside the scope of this audit.

**Finding:** For the nine extension contracts in the testing sample, the same consultant/engineer/architect was awarded the contract. They alone were contacted to provide a written bid for the new project.

#### Extension Contract Award Process Compliance

**Finding:** The process used to award Professional Services contracts depends on whether the contract is new or an extension of an existing contract. Contract extensions are awarded differently than new contracts. The auditors were not provided with a flowchart or other written description of the contract extension process.

#### **RECOMMENDATION NO. 10**

A step by step process for awarding Professional Services contract extensions should be flowcharted as are the other contract award processes.

According to the Executive Director, seven areas of the PSC award process are applicable for contract extensions. They are: Projected Man Hours and Cost, Staff Review Committees Recommendation to the Board, Board Authorization to the Firm, Firms Acceptance, Service Agreement Signed, Service Authorization Approved, And the Negotiated Fee. Documentation findings are found in Table 2.

## ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our professional service procurement procedures.*

*As noted the process supporting recommendation of extensions on professional service contracts includes estimating, evaluating and negotiating. Likewise, as noted by the Audit Team, there is no prescribed format for this process. The Authority will identify and appropriately document the most commonly used practices in managing professional service contract extensions in the issuance of supplemental service authorization awards.*

Table 2 shows the highest award procedure document compliance was with Service Agreements Signed and Service Authorizations Approved. The lowest area of documented compliance was Negotiated Fees.

## **Construction Contracts**

As noted in the Methodology, the auditors requested a list of all Construction contracts awarded during the audit scope period. The list comprised twenty-eight (28) Construction and ten (10) were Materials (Purchase of Goods) contracts

A sample of 21 Construction contracts was chosen for testing. These contracts totaled \$12,883,373 and included three large construction projects that were awarded as four separate contracts.

At ALCOSAN, larger projects are not awarded to one general contractor to subcontract out to whoever they choose. Instead, major construction phases are put out to bid separately according to the specialized phase of work needed. These four separately bid phases are: General Contractor, Plumbing Contractor, HVAC Contractor and Electrical Contractor.

**Finding:** Not allowing a general contractor to subcontract different phases of the project is a good way for ALCOSAN to ensure that all qualified contractors meet its requirements and allow the Authority to maintain better control over all aspects of the project.

### **Construction Contract Award Process Compliance**

**Finding:** The Executive Director stated that an estimate of cost is prepared by ALCOSAN staff or consultant to assess the reasonableness of bids. Like the projected man hours and cost estimate for Professional Services contract, this step is missing from ALCOSAN's flowcharted award process for Construction contracts.

Eleven (11) steps of the Construction contract award process were tested for compliance. The auditors requested documentation of: Estimated Consultant Cost,

Managers Review & Approval of Bid Documents, Board of Directors Authorization of Contract Advertisement, Copy of Advertisement, Date of Pre-Bid Meeting & List of Attendees, Names of Bidders and Bid Amounts, Checklist of Staff Reviewing Bids/Comments, Division Staff Recommendation to Executive Director, Executive Director's Recommendation to Board, Contract Awarded to Lowest Bidder and Contract Signed. Findings are found in Table 3 below.

**Finding:** The majority of the requested documentation for the Construction contracts was provided.

Table 3 shows the highest award procedure document compliance was with Board of Directors Authorization of Contract Advertisement, Names of All Bidders with Dollar Amounts, List of Names Who Reviewed Bids, Division Staff Recommendation to Executive Director, Executive Director Recommendation to Board, Contract to Lowest Responsible Bidder and Contract Signed. All had 100% compliance. The lowest area of document compliance was Review & Approval of Bid Documents and Copy of Advertisement. These 'low' rates of compliance were 81%.

**Finding:** A greater amount of documents were available for Construction contracts than Professional Service contracts.

A cost estimate is to be prepared by either ALCOSAN's engineering staff or contracted consultant as a tool to help determine the lowest responsible bidder. Eight (8) contracts (38% of the sample) were awarded to companies whose bids were over ALCOSAN's estimated cost. Ten (10) contracts (48% of the sample) were under the estimated cost. Three contracts (14%) had no cost estimate.

Contracts awarded over the estimated cost ranged from a low of 2% and a high of 76% over the estimate. In the case of the bid being 76% higher than the ALCOSAN engineer's estimate, it was determined that the engineer's estimate was substantially low in a number of areas and was adjusted accordingly.

**Finding:** Engineer's estimates should be used as a guide to assess bids for all work and kept in the files. All discrepancies between cost estimates and final contract cost should be explained in writing, especially when they vary excessively.

**Finding:** In one instance, a bidder was awarded a contract as lowest responsible bidder then subsequently rejected. The Executive Director obtained a copy of the bid rejection letter for the auditors. The letter was prepared by outside counsel and clearly explained why the firm's licensing deficiencies were the reason for rejecting its bid.

## **RECOMMENDATION NO. 11**

If a bidder awarded a contract is later deemed not responsible, ALCOSAN must document the reasons for withdrawing the contract and include the rejection documents in the contract file.

### ***Response***

*ALCOSAN accepts the recommendation and will review incorporation into an enhancement of our construction contract procurement procedures*

*With the expectation that a rejection based on responsiveness or responsibility may result in a legal challenge, it is policy to refer the matter and have counsel research, document and prepare a response to the unsuccessful bidder. Heretofore the precipitating need for a rejection has been verbally referred to the solicitor. Although this is a rare occurrence, going forward the Authority will present preliminary concerns in writing and add same to the appropriate contract file to better capture and manage this information.*

**Finding:** One contractor's bid of \$74,643 was significantly lower than the others bids which ranged from \$193,678.95 to \$529,689.50. To its credit, instead of rejecting this bid ALCOSAN investigated the contractor. It found that the contractor had a good reputation and was able to perform the work at this low bid by using creative approaches such as working during the night when the sewage flow is lowest.

### **Materials Contract Award Process Compliance**

Materials contracts reviewed were for the purchase of chemicals needed for ALCOSAN's plant operations. These contracts were bid as cost per unit prices and not as a total contract amount. Unit costs were bid according to how the chemical is sold, i.e., by the gallon, ton or pound.

ALCOSAN uses a large quantity of chemicals for sewage disposal and waste treatment. Contracts for these chemicals are awarded through the same process as Construction contracts, i.e., to the lowest responsible bidder. There were 5 Materials contracts in our sample. The following Table 4 summarizes the documentation for these Materials contracts. The same 11 steps examined in the Construction contract award process above were tested for compliance in the Materials contracts.

**Finding:** Because some chemicals are critically needed for plant operation, ALCOSAN will contract with a back up supplier in case there is a problem with the lowest responsible bidder. This was done with the lime supplier. The back up supplier was the second lowest responsible bidder charging \$4.66 per ton more than the lowest responsible bidder.

## **RECOMMENDATION No. 12**

To save money on critically needed plant supplies, ALCOSAN should try to negotiate a standby contract at the low bid rate. If the second lowest bidder refuses to amend its price, all other bidders should be given the opportunity to match the awarded contract price as a standby contractor.

### ***Response***

*ALCOSAN accepts the intent of this recommendation but disagrees with the remedy as proposed and on the advice of counsel will not be able to incorporate this recommendation specifically as offered.*

*As noted by the Audit Team, the Authority currently utilizes a strategy of awarding a standby contract for critical plant supplies where warranted. When deemed necessary, the requirement for a standby contract is detailed in the bid specifications and a standby award is made to the second lowest responsible bidder. The standby award is made for implementation only in the event of default by the primary supplier. Should this be necessary, contract language can provide for recovery of the cost difference between the defaulting supplier and the standby supplier. This coverage can be guaranteed via the defaulting supplier's bid bond requirement. As bids for public works cannot be modified or negotiated after bid opening, the Authority will include explicit cost recovery language in all contract specifications with provision for a standby award. We believe this approach provides the best legally defensible protection and meets the intent of the recommendation*