ALLEN COUNTY SANITARY ENGINEERING DEPARTMENT
10 – YEAR CAPITAL NEEDS ASSESSMENT REPORT
AND
CAPITAL IMPROVEMENT PROGRAM

PRESENTATION TO THE
BOARD OF COUNTY COMMISSIONERS
ALLEN COUNTY, OHIO

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Background

Many communities in the State of Ohio and United States are, and/or will be faced with increasing water and sewer rates to finance improvements mandated by EPA regulation, and to replace deteriorated infrastructure. Saddled with aging wastewater infrastructure, and increasing pressure from federal regulators to eliminate sanitary sewer collection leaks, overflows, and stricter wastewater treatment plant discharge permit limits, communities across the country are facing massive shortfalls of funding needed to repair and upgrade deteriorating and antiquated wastewater collection and treatment facilities. This increased pressure from EPA regulators is forcing governmental utilities to pass along billions of dollars in capital upgrades, maintenance, operation, and repair costs to customers.

Reports from federal agencies and private consultants have found substantial and growing gaps between funding to wastewater utilities, and the costs they will incur to meet EPA orders to overhaul entire wastewater systems, expand sewer capacities, and replace old and faulty equipment. If not rectified, the cost gap could easily go into the hundreds of billions of dollars to the nations customer base, leading to a doubling, tripling, or even quadrupling of sewer rates in the United States.

Introduction

The Allen County Sanitary Engineering Department has completed its own evaluation of wastewater collection systems and treatment facilities to develop a 10-year capital needs list to replace and repair aging collection systems, inadequate wastewater treatment plants, and improvements required to keep pace with increased development. The evaluation has also factored in unfunded regulatory mandates issued by state and federal EPA regulators. The department recommends a 10-year sanitary sewer rate increase schedule (see Appendix A) to fund approximately $35 million of improvements for the aforementioned capital improvements. This report will detail a 10-Year Capital Improvement Program, and outline the funding structure to pay for the improvements, schedule projects, and method to be used to evaluate the financial status of the department.

10-Year Capital Improvement Program (CIP)

The 10-Year CIP addresses a variety of improvements to the County's entire wastewater collection and treatment infrastructure. The following is a description of all projects, in progress, completed, or to be completed from fiscal year 2005 thru 2015:

Capital Replacement and Improvement Program

The Capital Replacement and Improvement Program fund is used as a means to address smaller capital improvement projects. For example, replacement of

wastewater pumping stations, funding participation of department initiated sewer extension projects, purchase of vehicles and maintenance equipment. The County has committed to participate financially in the Early/Lutz Road Sewer Improvement Area to be constructed in 2006/2007 and the Allen East School Sewer Improvement Area to be constructed in 2006/2007. The program is also used as source for emergency repair and replacement of department infrastructure. The department anticipates spending approximately $4.0 million dollars over the next ten (10) years for completing smaller capital improvements, and purchase of operational equipment.

Shawnee No. 2 Wastewater Treatment Plant Improvements

During the early to mid 90's the Shawnee No. 2 Wastewater Treatment Plant, constructed in the early 70's, underwent a $3 million expansion of its wastewater treatment capacity to respond to requirements of a United States Environmental Protection Agency (USEPA) Consent Decree. The plant improvements included increased wastewater pumping capacity, a new Sequencing Batch Reactor, new chlorine disinfection system, and to provide additional sludge treatment capacity by completing modifications to the old wastewater plant. During the late 90's additional sludge storage capacity and sludge dewatering was added to the plant utilizing a State of Ohio Issue II Grant.

However, it is apparent the 30-year old wastewater treatment plant being used for additional sludge treatment capacity is deteriorating to a point that repairs are cost prohibitive. Therefore, the Shawnee No. 2 Wastewater Treatment Plant needs to have new sludge treatment facilities and additional sludge storage capacity, replace its 30-year old influent structure, and convert the chlorine disinfection system to an ultraviolet disinfection system to allow for a safer work environment and a more cost effective method of disinfecting the treated wastewater effluent.


Sludge Treatment Tanks


Influent Structure

The estimated cost of design for the improvements is $400,000 with preliminary design to start in 2007. The cost of construction for the improvements is estimated at $4 million with construction beginning in 2008. The project is to be funded by issuance of long-term Sewer Revenue Bonds, or Ohio Environmental Protection Agency (OEPA), Division of Environmental Financial Assistance (DEFA) funds. In either case, increased sanitary sewer rates will be required to pay back the debt incurred for the project.

Eastown Road Sanitary Sewer Replacement

The Eastown Road Sanitary Sewer Replacement is a project to replace approximately 2600 lineal feet of 15-inch, and 1500 lineal feet of 12-inch sanitary sewer with 3100 lineal feet of 21-inch sanitary sewer to allow for future residential and commercial development. The design and construction of the improvement is estimated to be $800,000 and will coincide with the Eastown Roadway Improvements to be completed by the Allen County Engineers Office in 2007. The project is to be funded by short-term notes, and paid back through department capital funds.

American No. 2 Wastewater Treatment Plant Reconstruction

The American No. 2 Wastewater Treatment Plant is a .80 MGD activated sludge treatment plant built in the early 70's. Presently, the plant is complying with OEPA wastewater discharge permit limits; however, the plant has demonstrated difficulties adjusting to increased flows and fluctuating wastewater strengths. The American No. 2 Wastewater Treatment Plant Reconstruction will consist of building a new 1.2 MGD Sequencing Batch Reactor Treatment Plant with new sludge treatment facilities to provide for additional wastewater treatment capacity for future development and growth. The engineering design cost is estimated to be $550,000 with design beginning late 2005. The construction is estimated to cost $7.7 million with construction starting late 2006.


American No. 2 WWTP

The project is to be funded by issuance of long-term Sewer Revenue Bonds, or Ohio Environmental Protection Agency (OEPA), Division of Environmental Financial Assistance (DEFA) funds. In either case increased sanitary sewer rates will be required to pay back the debt incurred for the project.

Village of Westminster Wastewater Improvement Area

The Westminster Wastewater Improvement Area is an unincorporated area located in Auglaize Township, Allen County, Ohio. Since unincorporated, this area falls under the jurisdiction of the Board of County Commissioners being a part of the Allen County Sewer District.

Individual on-lot systems with off-lot discharges serve the area. The OEPA, Allen County Combined Health District, and the Allen County Sanitary Engineering Department (ACSED) have documented nuisance conditions within the area. At the request of OEPA, in April, 2004 the Board of County Commissioners authorized the preparation of a General Plan to determine how best to serve the Westminster Wastewater Improvement Area with collection and treatment facilities. A number

of alternatives were studied factoring in the cost of operation and maintenance of the infrastructure. At this time, the most cost effective solution is to construct a $1.6 million collection system, and $2.0 million Sequencing Batch Reactor Treatment Facility. The County anticipates beginning design in 2008 with construction starting in 2009.

The construction of the wastewater treatment plant is to be funded by issuance of long-term Sewer Revenue Bonds, or Ohio Environmental Protection Agency (OEPA), Division of Environmental Financial Assistance (DEFA) funds, while the construction of the collection system will be funded through property owner assessments. Increased sanitary sewer rates will be required to pay back the debt incurred for the construction of the wastewater treatment plant.

<u>Shawnee Sewer Sub-District Stormwater Infiltration/Inflow Remediation</u>

The Shawnee Sewer Sub-District Storm Water Infiltration/Inflow Remediation Project consists of a complete investigation of the integrity of the sanitary sewer collection system so a priority list of rehabilitation projects may be developed and implemented to reduce the amount of storm water entering the collection system. The excessive storm water is causing the collection system to backup and divert storm water to sanitary sewer overflows (SSOs) causing an unintentional release of raw sewage to the waters of the State during excessive rain events. The release of any untreated sewage to the waters of the State is illegal under the Federal Clean Water Act. Raw sewage contains disease-causing pathogens, including viruses, bacteria, worms and protozoa. On April 21, 2005 the Board of County Commissioners, Allen County, Ohio entered into an agreement with OEPA to eliminate all bypassing of sanitary waste by 2015, and develop a plan that defines the steps that will be taken to evaluate the collection system and treatment plant and addresses the short-term and long-term deficiencies in the system.


Zurmehly Road Sanitary Sewer Overflow

The Shawnee Sewer Sub-District investigation began in 2001 with implementation of rehabilitation projects starting in 2004, and completion of the projects by 2013. The investigation phase of the project will consist of the following:

1. **Sanitary sewer mainline closed-circuit camera television inspection.**
2. **Private property storm water infiltration/inflow inspections.**
3. **Sanitary manhole inspections.**

From the investigation phase of the project a detailed database of defects and sources of infiltration/inflow of storm water will be developed. A priority list of rehabilitation projects shall be scheduled and implemented once the database has been reviewed. The rehabilitation phase of the project will consist of the following:

1. **Sanitary sewer mainline replacement and/or rehabilitation.**
2. **Sanitary manhole replacement and/or rehabilitation.**
3. **Property owner notice to disconnect sump pump, foundation drains, and other sources of storm water from the sanitary sewer.**
4. **Replacement/rehabilitation of private property service laterals.**

The department has estimated the cost to complete the projects to be $10.5 million. The project is to be funded by issuance of long-term Sewer Revenue Bonds, or Ohio Environmental Protection Agency (OEPA), Division of Environmental Financial Assistance (DEFA) funds. In either case increased sanitary sewer rates will be required to pay back all debt incurred for the project.

<u>American-Bath Sewer Sub-District Stormwater Infiltration/Inflow Remediation</u>

The Bath Sewer Sub-District Storm Water Infiltration/Inflow Remediation Project consists of a complete investigation of the integrity of the sanitary sewer collection system so a priority list of rehabilitation projects may developed and implemented to reduce the amount of storm water entering the collection system. The excessive storm water is causing the collection system to backup and divert wastewater to a sanitary sewer overflow (SSO) causing an unintentional release of raw sewage to the waters of the State during excessive rain events. The release of any untreated sewage to the waters of the state is illegal under the Federal Clean Water Act. Raw sewage contains disease-causing pathogens, including viruses, bacteria, worms and protozoa. On April 21, 2005 the Board of County Commissioners, Allen County, Ohio entered into an agreement with OEPA to eliminate all bypassing of sanitary waste by 2015, and develop a plan that defines the steps that will be taken to evaluate the collection system and treatment plant and addresses the short-term and long-term deficiencies in the system.

The Bath Sewer Sub-District investigation will begin in 2008 with implementation of rehabilitation projects starting in 2009, and completion of the projects by 2009. The investigation phase of the project will consist of the following:

1. **Sanitary sewer mainline closed-circuit camera television inspection.**
2. **Private property storm water infiltration/inflow inspections.**
3. **Sanitary manhole inspections.**

From the investigation phase of the project a detailed database of defects and sources of infiltration/inflow of storm water will be developed. A priority list of rehabilitation projects shall be scheduled and implemented once the database has been reviewed. The rehabilitation phase of the project will consist of the following:

1. **Sanitary sewer mainline replacement and/or rehabilitation.**
2. **Sanitary manhole replacement and/or rehabilitation.**
3. **Property owner notice to disconnect sump pump, foundation drains, and other sources of storm water from the sanitary sewer.**

4. **Replacement/rehabilitation of private property service laterals.**

The department has estimated the cost to complete the projects to be $1.3 million. The project is to be funded by issuance of long-term Sewer Revenue Bonds, or Ohio Environmental Protection Agency (OEPA), Division of Environmental Financial Assistance (DEFA) funds. In either case increased sanitary sewer rates will be required to pay back all debt incurred for the project.

Shawnee Sewer Sub-District Trunk Sewer Reconstruction

The Shawnee Sewer Sub-District Trunk Sewer Reconstruction is a project to replace approximately three (3) miles of 21-inch sanitary trunk sewer with a 48-inch sewer. The replacement of the sanitary trunk sewer will allow for additional growth and development in the Shawnee Sewer Sub-District, and be used as equalization of storm water infiltration/inflow during rain events. Design and construction of the improvement is estimated to be $3.0 million. The project is to be funded by issuance of long-term Sewer Revenue Bonds, or Ohio Environmental Protection Agency (OEPA), Division of Environmental Financial Assistance (DEFA) funds. In either case increased sanitary sewer rates will be required to pay back all debt incurred for the project.

Operation and Maintenance Expenditures

The operation and maintenance of the ACSED is governed by the Rules and Regulations as established by the Board of County Commissioners, Allen County, Ohio. The regulations define how the system is to be utilized, and sewer use charges provide for the operation, maintenance, and management of the facilities.

The highest cost for operation of most organizations is personnel, utility related expenses, and chemicals. The complexity of the wastewater treatment plants and collection systems will determine what staffing is required for day-to-day operations. Utility costs include electric to power pump stations and blowers, cellular telephone service for pump station communications, and natural gas for backup generators and heat. Chemicals are widely used for the treatment of wastewater, and control of odor at pump stations.

Maintenance-related expenses are those cost associated with maintaining the treatment plants and collection systems. These expenses include the labor for cleaning sewers, repairing sewers, inspecting sewers, maintaining all equipment at the wastewater treatment plants, and management of the department. It is imperative that all of these operation and maintenance functions be carefully budgeted and scheduled to ensure continued reliable cost effective service to the customer.

Therefore, the ACSED conducts a thorough budgeting process allowing all levels of employment to participate in assigning annual cost for operation and maintenance. The ACSED's budget team uses a 3% to 8% guideline for an allowable increase to

the previous years operation and maintenance budget. Further discussion of the department's budget with the Sanitary Engineer is required in the event the budget team is unable to stay within the allowable guidelines. Historically, the ACSED has been able to absorb the increased cost of operation and maintenance through additional revenue generated from expanding customer base due to new development. The proposed 10-year funding program continues to assume additional revenues generated from the growing customer base will keep pace with increased operation and maintenance expenditures.

10-Year CIP Funding Program

All public wastewater utilities are organized and recognized as a specific form of entity under the Ohio Revised Code. Although the makeup of the governing entity and management structure may vary, the basic necessity of having a sound management structure an adequate financial resources to construct needed infrastructure, and operate and maintain existing infrastructure is essential. The sewer use charge defines what they are to connect and use the system. With the County, these documents will appear in the form of a Resolution with an attachment laying out the annual user charge fee schedule, and connection charges. Federal Government Accounting Standards Board (GASB) require governmental entities to maintain financial records which document the value of their existing infrastructure and annually confirm whether or not funds are being committed to increase, maintain, or decrease value of that infrastructure. The value of the of the community's infrastructure is required to be provided in its Annual Financial Report. As the County makes decisions relative to the system's expansion and maintenance, we need to work towards maintaining and/or improving the overall value of the community's assets.

Over time things change. There is no exception when it comes to the cost associated with the operating and maintaining wastewater facilities. Thus, the ACSED has taken a 10-year outlook for all required infrastructure additions and improvements, and have generated a capital improvement program to be funded through increased user charges. The ACSED proposes to use a combination of short-term, one-year notes; mid-term, five to seven year loans; and long-term, twenty-year loans or bonds, and operating revenue to fund the various improvements to the system. With the revenue generated through rate adjustments over the next ten-years, the short-term borrowings and approximately one third of the long-term borrowings will be repaid by 2015.

<u>Short-Term Borrowing</u>

The costs associated with the storm water infiltration and inflow elimination, pump station improvements and Eastown Road Sanitary Sewer Replacement totaling $13,230,000 will be funded with short-term debt increasing from approximately $2,000,000 in 2005 to a high of $6,200,000 in 2009. Conversion of the short-term note to a five to seven year loan will be considered at that time after review of exact funding needs and rate environment. Income from operations will be used eliminate

this debt by 2015. For planning purposes, the debt service calculation assumes an interest rate of 3.25% on these borrowings.

Long-Term Borrowing – American No. 2 Wastewater Treatment Plant

The American No. 2 Wastewater Treatment Plant reconstruction design will be funded with an $800,000 short-term design loan through the Ohio EPA, DEFA in 2005, which will be rolled into a twenty-year construction loan for $9,300,000 in 2006. The Ohio EPA loans are at 1% interest with a .0035% origination fee.

Long-Term Borrowing – Shawnee No. 2 Wastewater Treatment Plant

The Shawnee No. 2 Wastewater Treatment design will be funded with a $400,000 short-term design loan in 2007, which will be rolled into a twenty-year construction loan for $4,400,000 in 2008. If the Ohio EPA loans described above are available in that time frame that will be the intended source. With uncertainty regarding this availably, the ten-year plan has assumed conventional financing through a 5% bond.

Long-Term Borrowing – Shawnee Trunk Sewer and Westminster Sewer Project

The Shawnee Trunk Sewer Reconstruction at $3,000,000 and the Westminster Wastewater Improvement Area Project at $2,000,000 are to be funded with a $5,000,000 twenty-year construction loan in 2010. The intended source of funds is the Ohio EPA loans, DEFA described. With uncertainty regarding this availably, the ten-year plan has assumed conventional financing through a 5% bond.

Revenue Bond and 0% Interest Loans

The existing Revenue Bond issued for the construction of the American-Bath Wastewater Treatment Plant has a current balance at October 31, 2005 of $6,455,000. The balances for two, zero interest, OWPC loans for relining and sludge control total $230,911 at the same date. All will continue to be paid from operations revenue with the Revenue Bond scheduled to pay out in December 2018, the OWPC loans in December 2011 and 2016. While not new issues, the debt service requirement and balances are calculated into the debt totals on the following charts.

Summary

In conclusion, the ACSED will need to complete $35 million of capital improvements with the majority of those projects being funded through borrowing short-term and long-term money to be paid back by increased user charges beginning fourth quarter 2005. The customers of the sewer district are projected to experience a doubling of sewer user charges over the next ten years to pay back the long-term debt incurred to pay for the projects. However, as may be seen from the table below the ACSED will have reduced the encumbered debt from $9,115,911 at the end of 2006 to $8,182,449 in 2020 while completing all $35 million worth of projects. The

method of short-term and long-term borrowing to repay the debt places the department in a stable financial position after completion of the projects.

In addition, the following table show the anticipated Long-Term principal by year with increases in the outstanding reflecting the assumptions listed above for new borrowings in 2006, 2007 and 2010 less the normal principal reductions. The Short-Term Principal reflects the principal balance with the New/(Paid) column indicating additional net borrowings in positive years, net reductions in negative years. The interest column is for short term only. The Total Principal Balance is the total principal of both Short and Long Term borrowings.

The Debt Service column shows the total amount required to make contractual principal and interest payments on both Short and Long Term debt plus the amount of principal reduction needed to eliminate the Short Term debt (Paid).

Year	Long-Term Principal Bal	Short-Term Principal Bal	Principal New / (Paid)	Interest	Total Principal Balance	Debt Service Annual P & I
2005	7,155,911	2,000,000	2,000,000		9,155,911	633,791
2006	15,190,276	2,000,000	-	97,550	17,190,276	738,941
2007	18,746,642	4,200,000	2,200,000	136,500	22,946,642	1,289,843
2008	17,788,777	5,200,000	1,000,000	169,000	22,988,777	1,642,008
2009	21,811,640	6,200,000	1,000,000	201,500	28,011,640	1,672,508
2010	20,694,938	5,700,000	(500,000)	185,250	26,394,938	2,523,138
2011	19,547,615	5,400,000	(300,000)	175,500	24,947,615	2,313,938
2012	18,389,232	4,000,000	(1,400,000)	130,000	22,389,232	3,357,515
2013	17,193,987	2,750,000	(1,250,000)	142,500	19,943,987	3,223,180
2014	15,966,214	1,150,000	(1,600,000)	34,500	17,116,214	3,461,180
2015	14,700,216	-	(1,150,000)	34,500	14,700,216	3,011,580
2016	13,395,497	-			13,395,497	1,820,071
2017	11,914,398	-			11,914,398	1,816,750
2018	10,387,667	-			10,387,667	1,822,031
2019	9,290,543	-			9,290,543	1,201,000
2020	8,182,449	-			8,182,449	1,201,000

APPENDIX A
Allen County Sanitary Engineering Department

Ten Year Capital Needs Assessment

Overview Projection

Capital Projects	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Totals
Replacement & Improvement	402,742	239,325	517,976	350,000	350,000	350,000	350,000	350,000	500,000	500,000	500,000	500,000	4,910,043
Shawnee #2 WWTP CIP	-	10,000	20,000	400,000	4,000,000	-	-	-	-	-	-	-	4,430,000
Waste Water Collection CIP	90,503	495,000	180,000	800,000	-	-	-	-	-	-	-	-	1,565,503
American #2 WWTP CIP	61,465	675,000	6,010,000	2,450,000	-	-	-	-	-	-	-	-	9,196,465
Westminster	-	-	-	-	-	-	2,000,000	-	-	-	-	-	2,000,000
Bath I & I Remediation	-	-	-	-	250,000	750,000	-	-	-	-	-	-	1,000,000
Shawnee I & I Remediation	270,733	689,373	1,196,354	1,901,394	2,041,935	1,616,073	876,961	1,462,500	-	375,000	175,000	-	10,605,323
Shawnee Relief Sewer	-	-	-	-	-	-	3,000,000	-	-	-	-	-	3,000,000
Admin / Service Building	-	2,250,000	960,000	-	-	-	-	-	-	-	-	-	3,210,000
Total	**825,443**	**4,358,698**	**8,884,330**	**5,901,394**	**6,641,935**	**2,716,073**	**6,226,961**	**1,812,500**	**500,000**	**875,000**	**675,000**	**500,000**	**39,917,334**
Borrowed Funds - New													
Long Term - Bond	-	-	6,675,000	2,625,000	4,400,000	-	5,000,000	-	-	-	-	-	18,700,000
Short Term - Notes	-	2,000,000	-	2,200,000	1,000,000	1,000,000	(500,000)	(300,000)	(1,400,000)	(1,250,000)	(1,600,000)	(1,150,000)	-
Proposed Quarterly Rate													
	$75	$75	$94	$108	$119	$130	$143	$146	$149	$152	$155	$155	