



Wastewater Superintendent.....Kevin Babinski

Service Statement

The City of Midland Wastewater Treatment Plant is a "Class A" sewage treatment plant and has been issued a National Pollution Discharge Elimination System (NPDES) permit by the EPA and MDEQ. The treatment plant has a design capacity of 10.0 million gallons a day (MGD) and a hydraulic capacity of 18.0 MGD. Samples are collected during each shift and analyzed daily by the operational staff in the wastewater laboratory. Process adjustments for each phase of treatment are made based on the analytical results in comparison to permit limitation of each pollutant. Daily reports are generated and compiled into a monthly operating report, which is submitted to the State of Michigan.

Sludge is a waste product that is generated from solids removed during the cleaning of the wastewater. It is stabilized through a biological process referred to as anaerobic digestion. In this process, microorganisms destroy pathogens and viruses while reducing the volatile content, creating a safe recyclable product called bio-solids. Bio-solids are used as a fertilizer throughout the farming industry and contain nitrogen, phosphorus and many micro-nutrient and organic solids that enrich the soil. The City of Midland recycles approximately 3.5 million gallons of bio-solids each year.

Staff monitors plant equipment using a SCADA system and performs inspections of all equipment and structures daily. An intensive preventive maintenance program keeps equipment operating at peak efficiency.

A computerized work order system tracks equipment maintenance costs. Most repairs to equipment are done in-house.

The treatment plant has a standby diesel generator sized to run critical loads during a power outage.

Staff, working with an engineering firm, is implementing an asset management program to review and prioritize capital expenditures for the next 20 years. The development of a comprehensive plan for wastewater improvements will allow for orderly and cost-effective improvements.

The sewer maintenance staff is responsible for maintaining nearly 200 miles of sanitary sewers. The sanitary system is cleaned on a two-year rotation. Computerized work orders track progress. Staff will respond to service requests 24 hours a day. The staff conducts regular inspections and is responsible for repairs to damaged structures and lines. Recently purchased equipment allows us to repair some defects in-house using a form of trenchless sewer technology called "spot liners". Larger defects that require a full-length liner or a dig and repair method are contracted out.

The storm maintenance staff is responsible for maintaining nearly 180 miles of storm sewer. The storm system is cleaned on a four-year rotation. Progress is tracked using a computerized work order system. Open drains throughout the city are inspected for debris after major rainfalls.

Functions

Sewer Maintenance

- Maintains and repairs the sanitary sewer system on a two-year rotation
- Maintenance includes cleaning, televising and repairing sanitary sewers and manholes
- Responds to service request calls related to the sanitary sewer system
- Inspects, assists and supervises subcontractors in the maintenance of the sanitary sewer system

Storm Maintenance

- Maintains and repairs the storm sewer systems
- Cleans storm sewers on a four-year rotation including catch basins
- Inspects, removes debris and supervises subcontractors in the maintenance of open drains and outfalls

Plant Operations

- Maintains National Pollutant Discharge Elimination System Permit, effluent limits and compliance schedule
- Removes non-recyclable material from wastewater and dispose
- Removes solids from wastewater and stabilizes for recycling
- Monitors biological treatment systems processes for cleaning wastewater
- Collects daily samples and performs daily analytical on all phases of the water recycling process and discharge requirements
- Adjusts process controls of each phase of treatment based on analytical results
- Maintains quality control and quality assurance of laboratory
- Inspects all plant equipment to ensure it is properly running and reports any malfunctioning equipment
- Generates daily report on all processes
- Monitors pumping stations via computer system communication
- Maintains storm water compliance permit as required by the State of Michigan, which includes bi-weekly storm water inspections, bi-annual inspections and annual reports

Pump Station Maintenance

- Monitors 40 pump stations via telemetry and computer system
- Performs weekly inspections as part of preventative maintenance program
- Utilizes in-house staff for pump, motor, electrical and structural repairs
- Researches new technology as it becomes available and implements this technology after it has been tested and proven, i.e., PLC control
- Installs equipment to help increase efficiency and reliability of pump station, i.e., variable frequency drives, flow meters and standby generators
- Assists in design and construction of new pump stations
- Documents improvements and/or repairs to keep history to assist PM program
- All maintenance staff are members of MWEA and receive information on training and latest technology used in the wastewater industry

Plant Maintenance

- Monitors plant equipment via computer and associated instruments
- Performs weekly inspections of plant equipment and structures
- Administers intensive preventative maintenance program
- Utilizes in-house staff for pump, motor, electrical, and structural repairs
- Works in cooperation with operations staff utilizing a trouble area work order program
- Annually tests thermography on critical equipment
- Annually calibrates meters
- Prioritizes equipment replacement using an asset management plan
- All maintenance staff are members of MWEA and receive information on training and latest technology used in the wastewater industry

Department at a Glance

Funding Level Summary	2006-07 Actual	2007-08 Actual	Adjusted 2008-09 Budget	Estimated 2008-09 Budget	Adopted 2009-10 Budget	% of Change
Administration	\$ 666,705	\$ 693,407	\$ 889,155	\$ 888,323	\$ 938,750	5.7%
Operations	1,103,363	1,162,046	1,284,828	1,355,068	1,436,216	6.0%
Maintenance	1,486,579	1,550,216	1,750,265	1,694,337	1,716,834	1.3%
Miscellaneous	471,402	621,563	50,500	50,405	64,500	28.0%
Debt Service	1,396,347	1,427,254	1,391,607	1,391,607	1,403,742	0.9%
Capital Outlay	295,642	451,278	1,304,111	1,713,672	1,190,280	-30.5%
Operating Transfers Out	140,000	73,960	-	-	-	0.0%
Total Department	\$ 5,560,038	\$ 5,979,724	\$ 6,670,466	\$ 7,093,412	\$ 6,750,322	-4.8%

Personal Services	\$ 1,680,441	\$ 1,882,616	\$ 1,841,745	\$ 1,841,236	\$ 1,888,006	2.5%
Supplies	367,835	369,148	425,250	494,329	466,345	-5.7%
Other Services/Charges	1,679,773	1,775,468	1,707,753	1,652,568	1,801,949	9.0%
Debt Service	1,396,347	1,427,254	1,391,607	1,391,607	1,403,742	0.9%
Capital Outlay	295,642	451,278	1,304,111	1,713,672	1,190,280	-30.5%
Operating Transfers Out	140,000	73,960	-	-	-	0.0%
Total Department	\$ 5,560,038	\$ 5,979,724	\$ 6,670,466	\$ 7,093,412	\$ 6,750,322	-4.8%

Personnel Summary

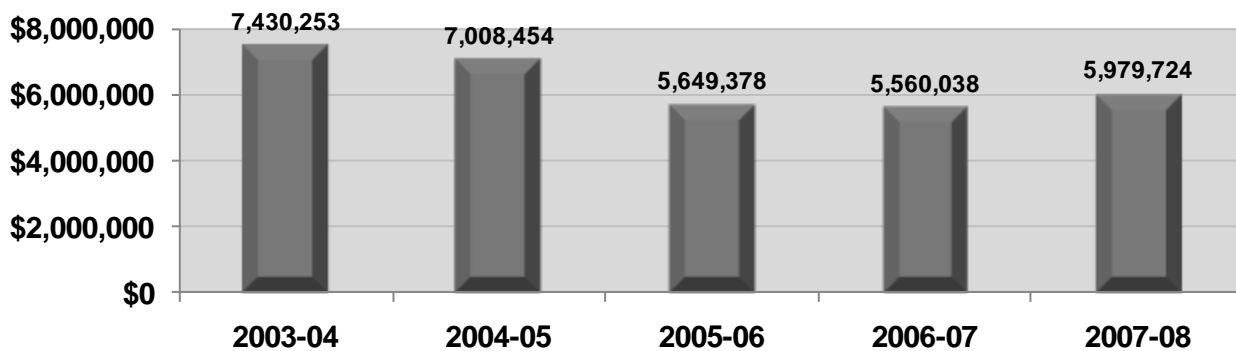
Full-Time	22	22	22	22	20
Regular Part-Time	1	1	1	1	1
Total Department	23	23	23	23	21

Summary of Budget Changes

Significant Notes – 2009-10 Budget Compared to 2008-09 Budget

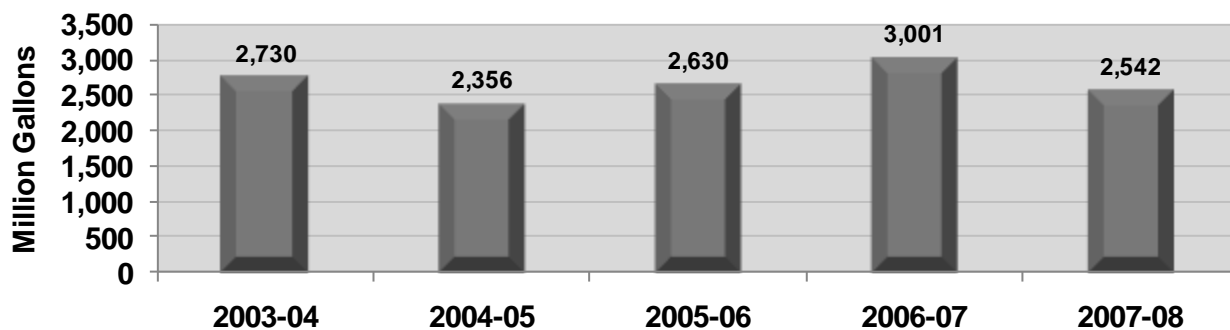
Repairs to infrastructure at the wastewater plant will include concrete repairs to the main pump house, equalization basin hatches, primary treatment building, flow split building and the tunnel. Manhole rehabilitation will continue on older deteriorating block manholes in the downtown area. Rehabilitation of the sanitary sewer using trenchless technologies on Fournie and North Street is scheduled. Two new pump stations will be added at Contractor Drive and Sandow Road.

5-Year Operating Budget History



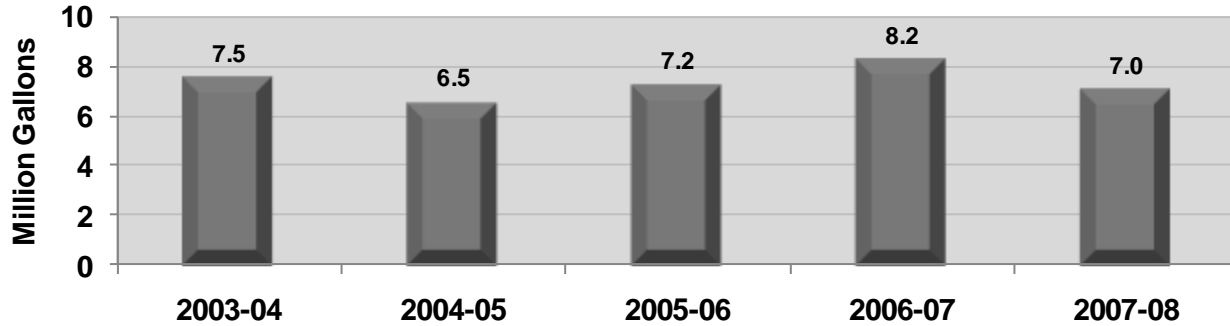
Key Departmental Trends

Sewer Treated

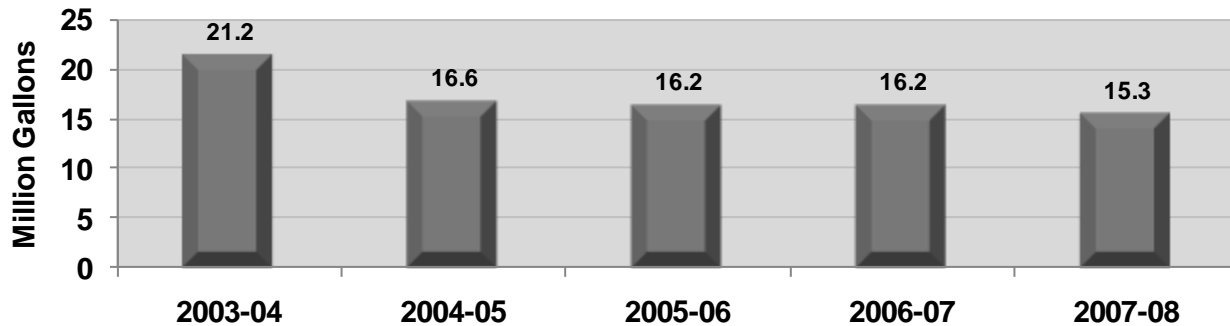


Key Departmental Trends (cont.)

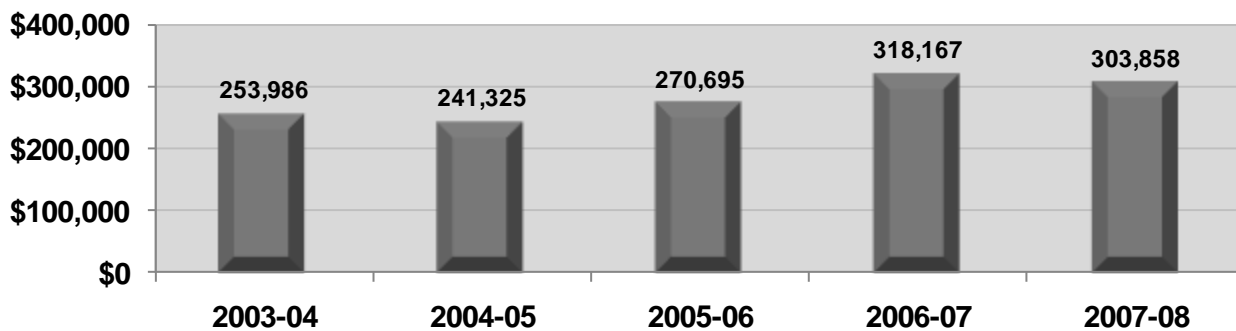
Sewer Treated Avg Day



Sewer Treated Max Day

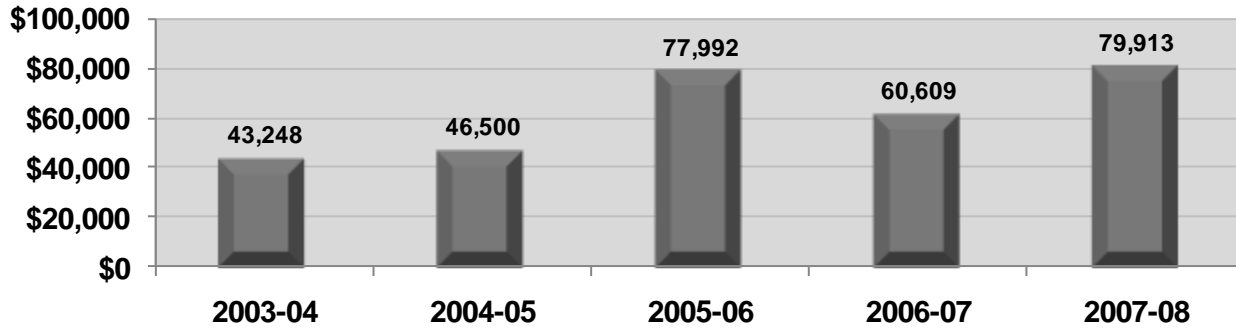


Electric Costs

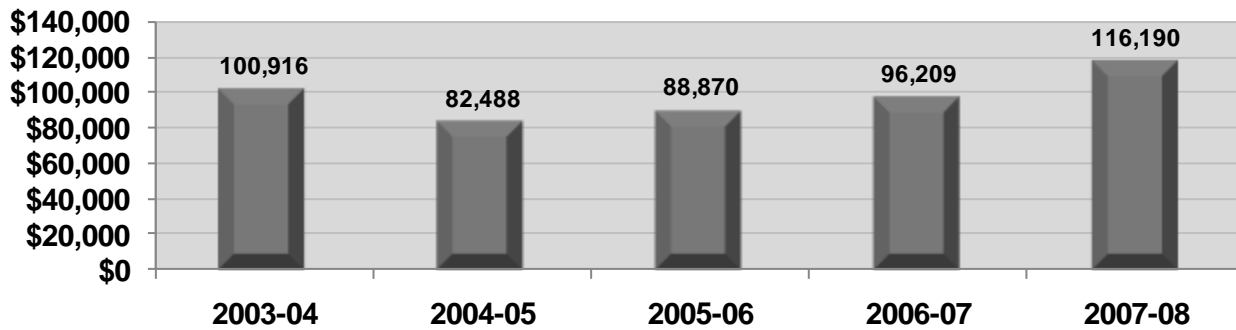


Key Departmental Trends (cont.)

Natural Gas Costs



Chemical Costs

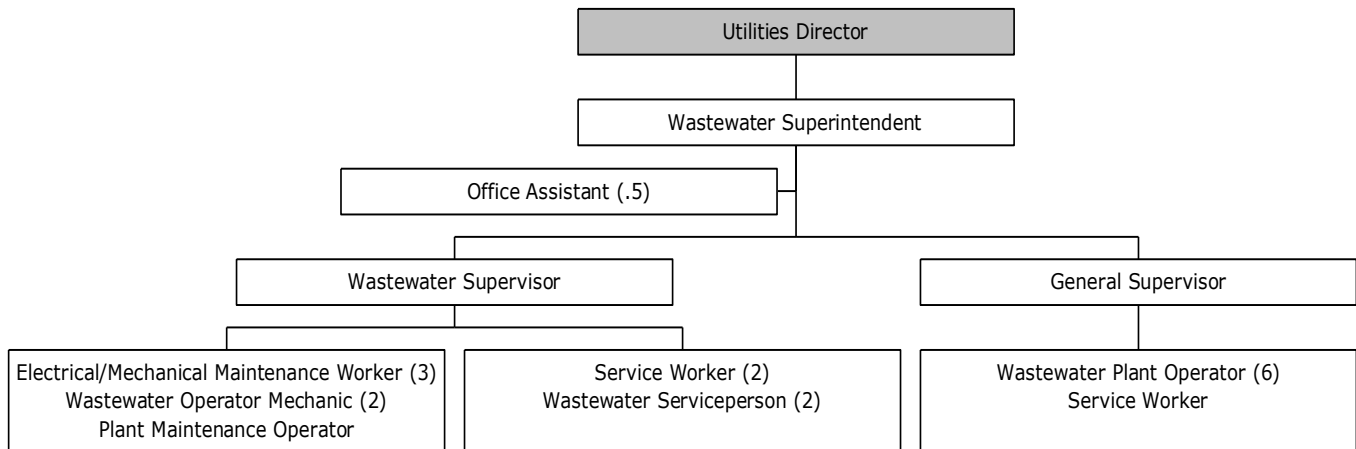


Performance Objectives

Performance Indicators (OUTPUT)	2006-07 Actual	2007-08 Actual	% Change
Annual Treatment (MG)	3,000.6	2,541.6	-15.3%
Max Day Treatment (MG)	16.2	15.3	-5.6%
Average Day Treatment (MG)	8.2	7.0	-14.6%
Miles of Pipe	193.1	193.6	0.3%
Feet of Pipe Cleaned	460,949	457,878	-0.7%
Collection Failures (#)	4	14	250.0%
Inches of Rain per Year	32.9	33.7	2.3%
Inches of Rain Max Month	4.5	5.4	19.1%

Performance Indicators (EFFICIENCY)	2006-07 Actual	2007-08 Actual	% Change
MG Treated Per Employee	130.5	110.5	-15.3%
Cost per MG Collected/Treated	\$1,774	\$2,238	26.2%
Chemical Cost per MG Treated	\$20.20	\$31.44	55.7%
Collection Failures per Mile of Pipe	0.02	0.07	261.6%
Average Residential Sewer Cost/Quarter	\$76.10	\$79.62	4.6%
Non-Compliance Days	0	0	N/A

Organizational Chart



Shaded boxes indicate a reporting structure to a department head that is funded outside of this budget.

Staff Summary	Approved 2007-08	Approved 2008-09	Adopted 2009-10
<u>Full-Time</u>			
Wastewater Superintendent	1	1	1
Wastewater Supervisor	1	1	1
General Supervisor	1	1	1
Electrical/Mechanical Maintenance Worker II	3	3	3
Plant Maintenance Operator	1	1	1
Service Worker	4	4	3
Wastewater Operator Mechanic	2	2	2
Wastewater Plant Operator	6	6	6
Wastewater Serviceperson	3	3	2
Total Full-Time	22	22	20
<u>Regular Part-Time</u>			
Office Assistant	1	1	1
Total Regular Part-Time	1	1	1
Department Total	23	23	21

FUND 590 - WASTEWATER FUND
DETAIL OF BUDGET APPROPRIATIONS AND REVENUES
 Fiscal Year Ending June 30, 2010

	2007-08	2008-09		2009-10
	Actual	Budget	Estimate	Adopted
Operating Revenues				
Sewer service charges	\$ 4,827,045	\$ 5,133,620	\$ 5,044,183	\$ 5,295,925
Forfeited discounts	72,362	60,580	70,631	65,590
Total operating revenues	4,899,407	5,194,200	5,114,814	5,361,515
Operating Expenses				
Administration	693,407	889,155	888,323	938,750
Operations				
Wastewater operations	891,776	1,013,659	1,094,129	1,125,520
Residuals processing	160,444	157,216	146,583	152,343
Digester operations	76,811	70,111	71,547	121,127
Maintenance				
Pump stations	428,096	485,577	448,872	466,566
Sewer plant	520,051	509,254	505,155	475,671
Janitorial	65,137	74,311	79,339	75,515
Sanitary sewer cleaning	230,374	254,533	253,975	227,965
Digester maintenance	10,151	19,442	18,703	19,803
Residuals process	4,539	14,457	9,735	13,817
Motor equipment	168,863	211,855	186,997	224,393
Sanitary sewer repair	109,481	147,288	167,233	181,569
Instrumentation	13,524	33,548	24,328	31,535
Safety	33,015	43,842	42,809	37,226
Reserve for contingencies	-	50,000	50,000	50,000
Total operating expenses	3,405,669	3,974,248	3,987,728	4,141,800
Net Operating Income	1,493,738	1,219,952	1,127,086	1,219,715
Non-operating Revenues (Expenses)				
Capital charges	16,540	12,300	7,210	4,600
Investment earnings	94,551	50,000	44,654	44,000
Miscellaneous revenues	37,272	32,000	27,224	24,000
Miscellaneous expenses	(666,005)	(500)	(405)	(14,500)
Interest expense	(567,812)	(536,607)	(536,607)	(503,742)
Total non-operating revenues (expenses)	(1,085,454)	(442,807)	(457,924)	(445,642)
Other Financing Sources (Uses)				
Investment in assets	(451,278)	(1,304,111)	(1,713,672)	(1,190,280)
Interfund loan proceeds	-	-	-	374,000
Operating transfers in	972,170	834,964	1,249,755	836,395
Operating transfers out	(73,960)	-	-	-
Retirement of debt	(815,000)	(855,000)	(855,000)	(900,000)
Total other financing sources (uses)	(368,068)	(1,324,147)	(1,318,917)	(879,885)
Excess of Revenues and Other Sources Over (Under) Expenditures and Other Uses	40,216	(547,002)	(649,755)	(105,812)
Working Capital - beginning of year	1,965,009	2,005,225	2,005,225	1,355,470
Working Capital - end of year	\$ 2,005,225	\$ 1,458,223	\$ 1,355,470	\$ 1,249,658

WASTEWATER FUND FIVE-YEAR FINANCIAL PLAN

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Operating Revenues	<u>\$ 5,114,814</u>	<u>\$ 5,361,515</u>	<u>\$ 5,633,015</u>	<u>\$ 5,914,660</u>	<u>\$ 6,210,396</u>	<u>\$ 6,520,907</u>
Operating Expenses						
Administration	888,323	938,750	964,378	990,706	1,017,752	1,045,537
Operations	1,312,259	1,398,990	1,447,815	1,498,344	1,550,636	1,604,753
Maintenance	1,694,337	1,716,834	1,776,752	1,838,761	1,902,934	1,969,346
Safety	42,809	37,226	38,678	40,186	41,753	43,381
Reserve for contingencies	50,000	50,000	25,000	50,000	50,000	25,000
Total operating expenses	<u>3,987,728</u>	<u>4,141,800</u>	<u>4,252,623</u>	<u>4,417,997</u>	<u>4,563,075</u>	<u>4,688,017</u>
Net Operating Income	<u>1,127,086</u>	<u>1,219,715</u>	<u>1,380,392</u>	<u>1,496,663</u>	<u>1,647,321</u>	<u>1,832,890</u>
Non-operating Revenues (Expenses)						
Capital charges	7,210	4,600	6,660	6,660	6,660	6,660
Investment earnings	44,654	44,000	17,000	16,000	13,000	11,000
Miscellaneous revenues	27,224	24,000	24,720	25,462	26,226	27,013
Miscellaneous expenses	(405)	(14,500)	(14,935)	(15,383)	(15,844)	(16,319)
Interest expense	(536,607)	(503,742)	(469,021)	(432,182)	(399,485)	(364,457)
Total non-operating revenues (expenses)	<u>(457,924)</u>	<u>(445,642)</u>	<u>(435,576)</u>	<u>(399,443)</u>	<u>(369,443)</u>	<u>(336,103)</u>
Other Financing Sources (Uses)						
Investment in assets	(1,713,672)	(1,190,280)	(1,009,500)	(1,006,500)	(1,163,000)	(1,106,000)
Interfund loan proceeds	-	374,000	-	-	-	-
Operating transfers in	1,249,755	836,395	848,413	856,309	863,691	875,674
Retirement of debt	(855,000)	(900,000)	(1,045,000)	(1,095,000)	(1,140,000)	(1,195,000)
Total other financing sources (uses)	<u>(1,318,917)</u>	<u>(879,885)</u>	<u>(1,206,087)</u>	<u>(1,245,191)</u>	<u>(1,439,309)</u>	<u>(1,425,326)</u>
Excess of Revenues and Other Sources Over (Under) Expenditures and Other Uses	(649,755)	(105,812)	(261,271)	(147,971)	(161,431)	71,461
Working Capital - beginning of year	<u>2,005,225</u>	<u>1,355,470</u>	<u>1,249,658</u>	<u>988,387</u>	<u>840,416</u>	<u>678,985</u>
Working Capital - end of year	<u>\$ 1,355,470</u>	<u>\$ 1,249,658</u>	<u>\$ 988,387</u>	<u>\$ 840,416</u>	<u>\$ 678,985</u>	<u>\$ 750,446</u>

ASSUMPTIONS:

Working capital goal	600,000
Sewer revenue increases:	
2009-10	5.00%
2010-11	5.00%
2011-12	5.00%
2012-13	5.00%
2013-14	5.00%
Personnel services increase per year	4.50%
Other operating expenses increase per year	2.25%
Investment earnings on working capital	1.50%
Miscellaneous income increase per year	3.00%
Miscellaneous expense increase per year	3.00%
Retirement of debt - actual	
Investment in assets: five-year capital plan	