

Section V

Sewer Fund

Program Description

In 1976, Annual Town Meeting established a separate Sewer Fund to ensure that the operation, maintenance and capital improvement of the sewer system would be a financially viable enterprise. As such, all expenses incurred for the system are covered entirely by user fees. The Water/Sewer Division of Concord Public Works is responsible for managing the day-to-day operations of the sewer infrastructure, with a book value of over \$17 million dollars.

Concord's sewer system was originally established in 1900. By the end of FY2006, the system will include a 1.2-million gallon-per-day centralized wastewater treatment facility, two sewer pumping stations, six sewer lift stations, and approximately 29 miles of sewer collection system. The system currently serves 1,692 customers, or approximately one-third of the Town.

FY2006 Program Highlights

Phase 1 Sewer Project

In accordance with the funding plan and construction schedule approved at the 2004 Town Meeting, sewer extension activities continued in the East Concord (Elm Brook) neighborhoods as part of the Phase 1 Sewer Project. Albanese Brothers, Inc. of Dracut, Massachusetts, working under a multi-year contract, installed approximately 11,095 linear feet of gravity sewers (ranging from 8 to 10 inches in diameter). A sewer lift station, to be located on the former Ammendolia property, is also scheduled to be installed before the end of FY2006. Earth Tech, Inc. of Concord, Massachusetts, has provided engineering support services.

Inflow/Infiltration

The wastewater treatment plant (WWTP) currently receives about one million gallons per day of wastewater. An ongoing inflow and infiltration (I/I) program has been developed to reduce the groundwater/stormwater presently entering the collection system through deteriorating pipes or illicit stormwater connections. National Water Main Cleaning Company of Hyde Park, Massachusetts is working under a three-year contract to perform sewer system inspection and rehabilitation activities, including TV inspections of pipes, joint testing and sealing, root control treatment, manhole inspections, cementitious lining of leaky manholes, and miscellaneous cleaning services.

Wastewater Treatment Plant Facilities Improvements

In 2005, Town Meeting authorized borrowing 12 million dollars for the design and construction of treatment plant facility improvements. The project involves replacement of equipment that is nearing the end of its useful life, upgrades to a new headworks and UV disinfection system, and installation of the proprietary CoMag system for tertiary treatment. The Town retained Camp Dresser & McKee of Cambridge, Massachusetts to design these improvements to the WWTP. The final design is near completion, with construction scheduled to begin by end of FY2006.

The separately funded CoMag treatment system developed by Cambridge Water Technology of Cambridge, Massachusetts will be the first of its kind in the world. Once in operation, this system will allow the Town to discontinue use of sand filters currently used for final effluent polishing. The new system will provide an extremely high level of treatment, including phosphorus removal, to levels that will benefit the ecosystem in the Concord River.

FY2007 Capital Plan

COLLECTION SYSTEM

Pumping Station Structures: \$10,000

Annual capital outlay for improvements and replacement of structures associated with four ejector stations and two main pump stations.

Pumping Station Equipment: \$25,000

Annual capital outlay for improvements and replacement of equipment housed within four ejector stations and two main pump stations. This equipment, including motors, pumps, motor control panels, and air compressors, is required to control, monitor, pump, store, and treat wastewater in route to the WWTP.

Inflow/Infiltration: \$100,000

The wastewater treatment plant currently receives about one million gallons of waste per day. An annual inflow and infiltration (I/I) program has been developed to reduce the groundwater/stormwater presently entering the collection system through deteriorating pipes or illicit stormwater connections. An active annual I/I program is also a requirement of the WWTP NPDES permit.

Meter Replacement Program: \$29,000

Sewer fund portion of costs associated with system-wide meter replacement efforts. The effort has expanded in coordination with CMLP to allow for inclusion of radio-read technology and more progressive meter-reading capabilities.

Services: \$4,000

Costs associated with the replacement/installation of approximately 2-3 new sewer service connections (street to property line) to the collection system.

WASTE WATER TREATMENT PLANT

Structures: \$12,000

Annual capital outlay for improvement and replacement of WWTP structures, including rehabilitation of partial flume concrete, as well as miscellaneous structural and roof improvements.

Equipment: \$35,000

Annual cost to replace equipment presently in use beyond its recommended service life. Equipment includes motors, pumps, motor control panels, chemical feed systems, and process instrumentation, including routine maintenance of trickling filters (bearings, seals, and distributors).

Capacity/Treatment Assessment and Optimization : \$7,850,000

Design, construction, and construction administration/inspection services for major WWTP rehabilitation and improvement needs as defined in the 2004 Facility Plan, and further refined in a Design Basis Report giving specific consideration to the condition and age of existing facilities, future increases in wastewater loading, and anticipated regulatory requirements.

GENERAL PLANT

Keyes Road Facility: \$7,000

Capital outlay for improvements to Water/Sewer Administration and Garage facilities, including a minor addition required to accommodate the new electrical system configuration.

Miscellaneous Field Equipment and Tools: \$2,000

Miscellaneous equipment not included in the five-year capital equipment/vehicle plan.

Geographic Information System: \$4,000

Sewer Fund contribution to the Town-wide GIS initiative.

Vehicles: \$20,000

Replacement of vehicles or service equipment in accordance with CPW criteria utilizing industry-accepted useful life measures. The Water/Sewer fleet consists of 15 vehicles and miscellaneous service equipment, such as compressor and vacuum equipment.

Town of Concord, Massachusetts

SEWER FUND	FUND 60
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OPERATING REVENUES (\$)

	FY2004 <u>Actual</u>	FY2005 <u>Actual</u>	FY2006 <u>Rev. Budget</u>	FY2007 <u>Estimate</u>
Sewer User Fees	1,607,260	1,712,446	1,720,000	1,872,000
Sewer Service Charges	6,246	4,597	9,000	9,000
Septage Fees	45,823	36,827	47,000	48,000
Liens & Tax Titles	8,539	7,802	9,000	9,000
Other Revenue	2,274	2,556	3,000	3,000
Operating Revenues Totals	1,670,142	1,764,228	1,788,000	1,941,000

OPERATING EXPENSES (\$)

	FY2004 <u>Actual</u>	FY2005 <u>Actual</u>	FY2006 <u>Rev. Budget</u>	FY2007 <u>Estimate</u>
DIVISION - Sewer Collection System:				
Personal Services	187,839	213,382	203,571	213,022
Purchased Services	116,780	80,967	85,543	105,506
Supplies & Materials	28,935	34,261	33,911	39,242
Other Charges & Expenses	10,402	11,351	11,950	13,811
General Fund Services	75,507	73,263	75,043	75,141
Collection System Subtotals	419,463	413,224	410,018	446,722
DIVISION - Wastewater Treatment Plant:				
Personal Services	34,031	36,566	39,786	42,866
Purchased Services	24,967	75,877	20,500	10,400
Management Contract	430,413	459,134	480,823	515,200
Supplies & Materials	0	388	375	375
Other Charges & Expenses	3,145	3,225	3,275	3,445
General Fund Services	75,507	74,777	75,043	75,141
Treatment Plant Subtotals	568,063	649,967	619,802	647,427
Depreciation Expense	570,981	628,376	679,145	773,493
Audit Adjustment	(49)	(1,077)	0	0
Operating Expenses Totals	1,558,458	1,690,490	1,708,965	1,867,642

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AUTHORIZED POSITIONS (\$)

<u>Code</u>	<u>Position Title</u>	<u>Grade</u>	Fiscal Year 2006		Fiscal Year 2007	
			<u># Positions</u>	<u>\$ Amount</u>	<u># Positions</u>	<u>\$ Amount</u>
DIVISION - Sewer Collection System:						
5111	W/S Superintendent	MP-10	0.20	16,661	0.20	16,677
	Asst. to Superintendent	MP-5	0.20	13,070	0.20	13,070
	Environmental Analyst	MP-3	0.20	8,960	0.20	8,960
	Administrative Assistant	ACL-5	0.20	8,993	0.20	9,165
	Public Works Superv.	LA-7	0.40	22,663	0.40	23,097
	Crew Leader	LA-5	0.40	20,382	0.40	20,772
	Treatment Syst. Oper.	LA-4	0.40	15,972	0.40	16,560
	System Maintainer	LA-3	1.00	37,093	1.00	37,848
	IS Support:					
	Technical Admin.	MP-8	0.01	675	0.01	675
	Info. Systems Asst.	MP-2	0.01	453	0.01	453
	Subtotals		3.02	144,922	3.02	147,277
	Standby Pay		680 hrs.	15,825	680 hrs.	17,857
5120	GIS Intern	\$10/hr.	160 hrs.	1,600	160 hrs.	1,600
5130	Overtime		400 hrs.	12,508	400 hrs.	12,836
5131	Police Details		180 hrs.	7,200	180 hrs.	7,200
517X	Group Insurance:					
		Health, Life, Dental		11,147		12,575
		Retirement		7,848		8,460
		Soc. Sec. & Medicare Tax		1,652		1,954
51XX	Salary Reserve:					
		Regular Pay		0		6,500
		Overtime Pay		0		400
		Budgeted Charges				
		to Snow Account	170 hrs.	(3,400)	170 hrs.	(3,637)
		Vacancy Savings		2,068		0
	Salary Totals			201,370		213,022

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AUTHORIZED POSITIONS (\$) (cont.)

<u>Code</u>	<u>Position Title</u>	<u>Grade</u>	Fiscal Year 2006		Fiscal Year 2007	
			<u># Positions</u>	<u>\$ Amount</u>	<u># Positions</u>	<u>\$ Amount</u>
DIVISION - Wastewater Treatment Plant:						
5111	Operations Engineer	MP-7	0.60	35,808	0.60	35,856
517X	Group Insurance:					
	Health, Life, Dental			2,776		3,124
	Retirement			1,950		2,101
	Medicare Tax			410		485
51XX	Salary Reserve:					
	Regular Pay			0		1,300
	Subtotals			40,944		42,866
	Sewer Fund Totals			242,314		255,888

DEBT SERVICE (\$)

Long-term Debt Repayment Schedule:				
	FY2004	FY2005	FY2006	FY2007
	<u>Actual</u>	<u>Actual</u>	<u>Budget</u>	<u>Estimate</u>
DIVISION - Sewer Collection System:				
Principal	0	0	0	100,000
Interest	0	0	0	38,100
Subtotals	0	0	0	138,100
Add:				
BAN Interest	0	0	29,917	0
Debt Issuance Expense	0	0	8,333	66,000
Totals	0	0	38,250	204,100

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PAYMENTS TO THE GENERAL FUND (\$)

	<u>FY2004 Actual</u>	<u>FY2005 Actual</u>	<u>FY2006 Rev. Budget</u>	<u>FY2007 Estimate</u>
Management & Engineering Svcs.	55,355	55,197	53,852	54,188
Financial & Administrative Svcs.	64,899	62,543	64,511	64,252
Natural Resource Protection	<u>30,760</u>	<u>30,300</u>	<u>31,723</u>	<u>31,842</u>
Totals	151,014	148,040	150,086	150,282

NET INCOME (\$)

	<u>FY2004 Actual</u>	<u>FY2005 Actual</u>	<u>FY2006 Rev. Budget</u>	<u>FY2007 Estimate</u>
Statement of Net Income:				
Operating Revenues	1,670,142	1,764,228	1,788,000	1,941,000
Less Operating Expenses	<u>(1,558,458)</u>	<u>(1,690,490)</u>	<u>(1,708,965)</u>	<u>(1,867,642)</u>
Operating Income	111,684	73,738	79,035	73,358
Add:				
Investment Income	66,126	117,792	200,000	100,000
Sewer Improvement Fees	<u>107,340</u>	<u>108,948</u>	<u>575,000</u>	<u>150,000</u>
Gross Income	285,150	300,478	854,035	323,358
Less:				
Debt Interest Expense (BANs)	0	0	(29,917)	0
Debt Interest Expense (Bonds)	0	0	0	(38,100)
Other Adjustments	<u>3,478</u>	<u>3,480</u>	<u>4,317</u>	<u>0</u>
Net Income	288,628	303,958	828,435	285,258

Town of Concord, Massachusetts

SEWER FUND	FUND 60
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AVAILABLE RESOURCES (\$)

Resources Available from Current Operations for Replacement & Renewal of Plant:

	FY2004 <u>Actual</u>	FY2005 <u>Actual</u>	FY2006 <u>Rev. Budget</u>	FY2007 <u>Estimate</u>
From:				
Depreciation Expense	570,981	628,376	679,145	773,493
Net Income	<u>288,628</u>	<u>303,958</u>	<u>828,435</u>	<u>285,258</u>
Subtotals	859,609	932,334	1,507,580	1,058,751
Add:				
Bond Proceeds	0	0	1,000,000	0
CWMP Bridge Loan/Bond Proc. - WPAT	0	1,414,000	2,776,000	0
Sewage Treatment Plant - WPAT	0	0	0	7,900,000
Less:				
Debt Principal Repayment	<u>0</u>	<u>0</u>	<u>0</u>	<u>(100,000)</u>
Net Available for Capital Purposes	<u><u>859,609</u></u>	<u><u>2,346,334</u></u>	<u><u>5,283,580</u></u>	<u><u>8,858,751</u></u>
Recap				
From Operations	859,609	932,334	1,507,580	958,751
From Debt	0	1,414,000	3,776,000	7,900,000

Town of Concord, Massachusetts

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CAPITAL SPENDING PLAN (\$)

Uses of Resources:	<u>FY2004 Actual</u>	<u>FY2005 Actual</u>	<u>FY2006 Rev. Budget</u>	<u>FY2007 Estimate</u>
DIVISION - Sewer Collection System:				
<u>Vehicle Purchase/Replacement:</u>				
Unit #3: 1997 Sedan (Lum.)/SUV Esc.	0	0	6,000	0
Unit #A1: 1995 Sedan (Crown Vic.)	4,039	0	0	0
Unit #81: 1996 1-ton Pickup (3500)	4,743	0	0	0
Unit #82 1999 1-Ton Pickup (3500)			0	5,080
Unit #83 1999 Rack (3500, Compr. Truck)			0	4,020
Unit #87 1999 1-Ton Dump (3500)			0	10,900
Unit #89: 1996 1-ton Pickup (2500)	4,743	0	0	0
Unit #88: 1996 Pick-up (Enclosed Bed)	0	11,793	0	0
Unit #92: 1990 Backhoe Loader	0	12,046	0	0
Unit #99 2005 Pickup (Ext. Cap Colorado)	0	0	4,000	0
<u>Pumping Plant:</u>				
Station Structures	63	0	25,000	10,000
SCADA Upgrade	6,379	858	0	0
Station Equipment	12,845	11,950	15,000	25,000
<u>Collection Plant:</u>				
Meter Replacement Program	8,242	6,158	19,000	29,000
New/Replacement Mains	3,637	2,796	0	0
Infiltration/Inflow Remediation	43,976	28,026	75,000	100,000
Service Connections	817	0	4,000	4,000
<u>Misc. Capital Costs:</u>				
Keyes Road Facility	0	0	20,000	7,000
Computer Software & Hardware	0	750	2,500	4,000
Miscellaneous Equipment	13,090	1,504	2,000	2,000
Ammendolia Land Purchase	100,000	0	0	0

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Town of Concord, Massachusetts

SEWER FUND	FUND 60
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CAPITAL SPENDING PLAN (\$) (cont'd)

Uses of Resources (continued)	<u>FY2004 Actual</u>	<u>FY2005 Actual</u>	<u>FY2006 Rev. Budget</u>	<u>FY2007 Estimate</u>
*Wastewater Management Project:				
Wastewater Management Plan	78,608	1,989	143,000	0
Total Phase 1 Construction Cost	<u>0</u>	<u>1,414,000</u>	<u>2,776,000</u>	<u>0</u>
Subtotals	78,608	1,415,989	2,919,000	0
DIVISION - Wastewater Treatment Plant:				
<u>Structures:</u>				
Building Equipment Replacement	0	42,512	0	12,000
<u>Equipment:</u>				
Plant Equipment Replacement	299,727	254,826	50,000	35,000
Co-Mag Equipment	0	667,700	2,310,300	0
<u>Improvements:</u>				
Design	0	0	1,000,000	1,000,000
Construction	<u>0</u>	<u>0</u>	<u>0</u>	<u>6,900,000</u>
Treatment Plant Subtotals	299,727	965,038	3,360,300	7,947,000
Grand Totals	580,909	2,456,908	6,451,800	8,148,000

*** NOTES ON THE FUNDING FOR PHASE I OF THE WASTEWATER MANAGEMENT PROJECT**

Phase I construction was financed by a subsidized loan through the Massachusetts Water Pollution Abatement Trust (WPAT) executed in November 2005 for \$4,190,000.

Article 47 of the 2004 Annual Town Meeting was approved with the following WWMP Phase 1 design and construction funding percentages: 12% from the Sewer Fund, 38% from property taxes, and 50% from betterments. Betterments will be invoiced at the conclusion of the Phase 1 project, expected in fall of 2006. Property owners will have the option of apportioning the betterment repayment over 20 years at the same 2% interest rate as the Town is paying.

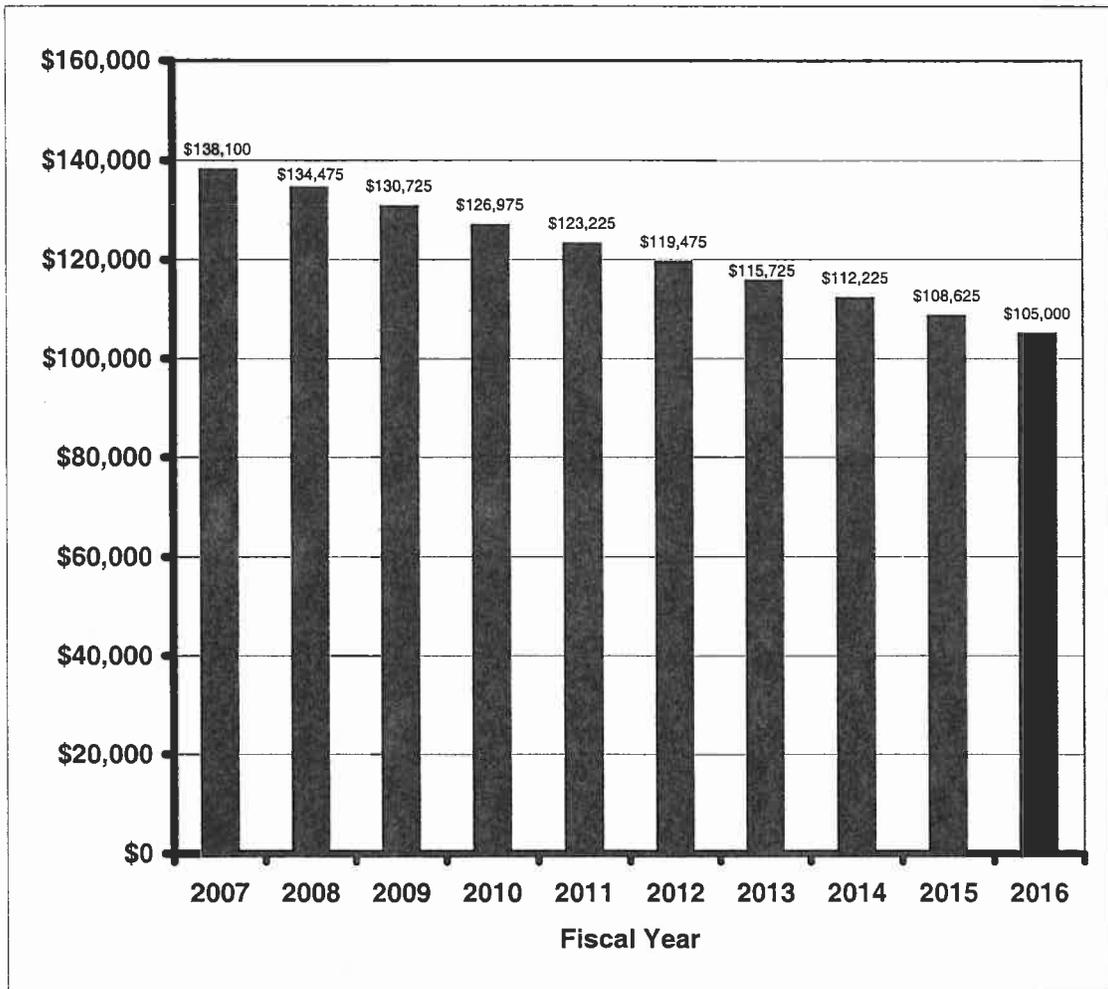
SEWER FUND	FUND 60
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USE OF BORROWED FUNDS (\$)

	<u>FY2004 Actual</u>	<u>FY2005 Actual</u>	<u>FY2006 Rev. Budget</u>	<u>FY2007 Estimate</u>
<u>Capital Projects:</u>				
Wastewater Treatment Plant	0	0	1,000,000	7,900,000
Wastewater Management Project	0	1,414,000	2,776,000	0
Totals	0	1,414,000	3,776,000	7,900,000

Sewer Debt Service (\$)

Fiscal Year	Principal	Interest	Total
2007	\$100,000	\$38,100	\$138,100
2008	\$100,000	\$34,475	\$134,475
2009	\$100,000	\$30,725	\$130,725
2010	\$100,000	\$26,975	\$126,975
2011	\$100,000	\$23,225	\$123,225
2012	\$100,000	\$19,475	\$119,475
2013	\$100,000	\$15,725	\$115,725
2014	\$100,000	\$12,225	\$112,225
2015	\$100,000	\$8,625	\$108,625
2016	\$100,000	\$5,000	\$105,000
Totals	\$1,000,000	\$214,550	\$1,214,550



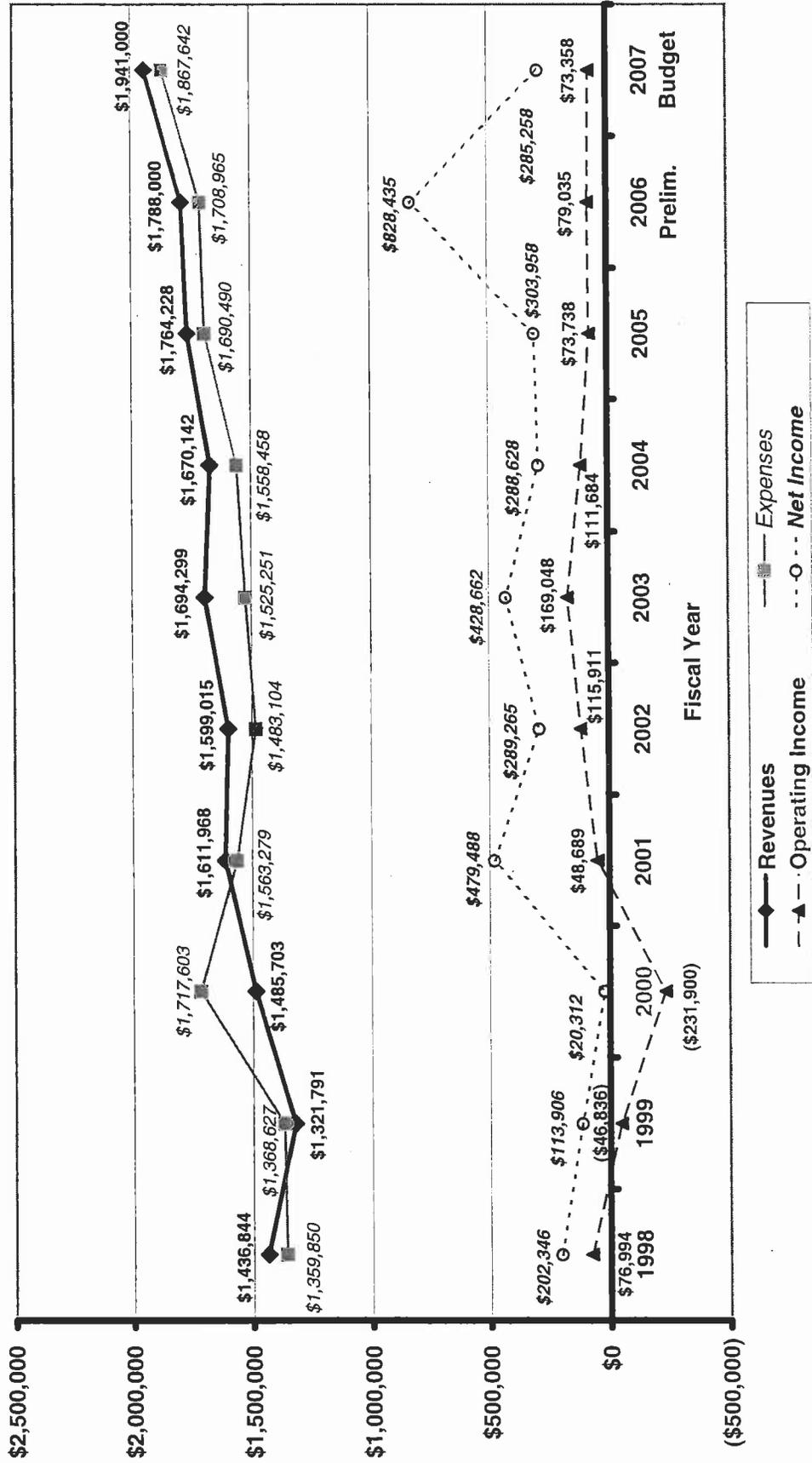
**DETAIL OF GENERAL FUND SERVICES
PROVIDED TO SEWER FUND (\$)**

	<u>FY2004 Actual</u>	<u>FY2005 Actual</u>	<u>FY2006 Rev. Budget</u>	<u>FY2007 Estimate</u>
Management & Engineering Services:				
Highway Maintenance	3,531	3,418	3,426	3,182
133/135 Keyes Road Facilities	11,356	11,527	10,131	11,867
Public Works Engineering	12,771	13,608	13,741	13,802
Public Works Administration	<u>27,697</u>	<u>26,644</u>	<u>26,554</u>	<u>25,337</u>
Subtotal	55,355	55,197	53,852	54,188
Financial & Administrative Services:				
Town Manager	21,609	20,878	21,930	21,717
Town Accountant:				
General Services	10,940	10,553	10,359	9,969
Audit Services	5,461	5,160	5,400	5,640
Treasurer-Collector	10,279	9,880	9,971	9,928
Finance Administration	11,083	10,764	11,299	11,372
Personnel Administration	2,669	2,542	2,707	2,746
Town House Facilities	<u>2,858</u>	<u>2,766</u>	<u>2,845</u>	<u>2,880</u>
Subtotal	64,899	62,543	64,511	64,252
Natural Resource Protection:				
Planning	4,838	4,800	4,959	4,983
Natural Resources	4,471	4,449	4,584	4,643
Health	<u>21,451</u>	<u>21,051</u>	<u>22,180</u>	<u>22,216</u>
Subtotal	30,760	30,300	31,723	31,842
Total	151,014	148,040	150,086	150,282

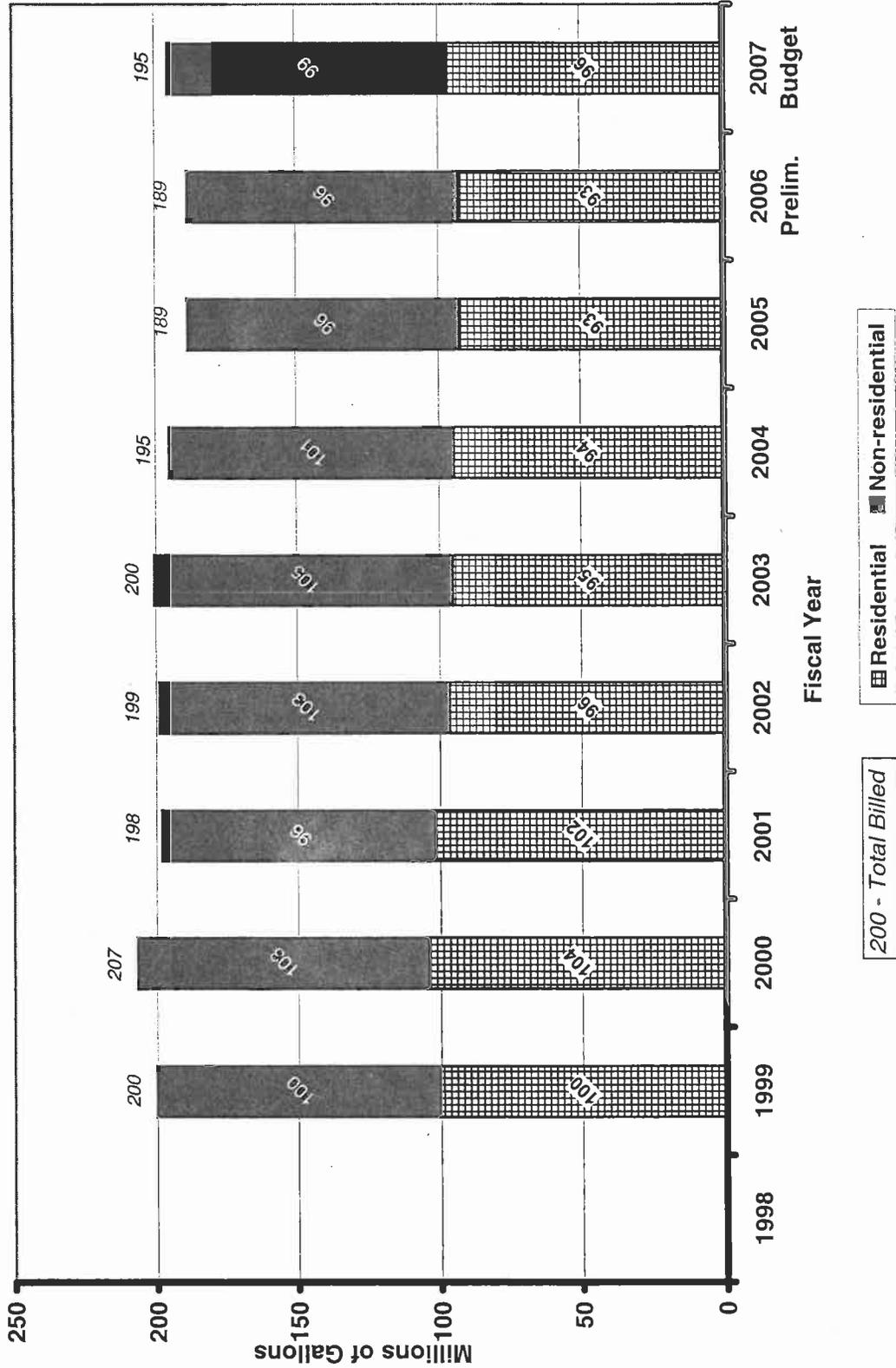
Sewer Fund
Sewage Billed, Revenues, Expenses, & Net Income,
Operating Income, & Net Income
FY1998 - FY2007

<u>Fiscal Year</u>	<u>Sewage Billed</u> <u>(Millions of Gallons)</u>		<u>Operating</u> <u>Revenues</u>	<u>Less Oper</u> <u>Expenses</u>	<u>= Operating</u> <u>Income</u>	<u>Net</u> <u>Income</u>
	<u>Resid</u>	<u>Non-resid</u>				
1998			\$1,436,844	\$1,359,850	\$76,994	\$202,346
1999	100	100	\$1,321,791	\$1,368,627	(\$46,836)	\$113,906
2000	104	103	\$1,485,703	\$1,717,603	(\$231,900)	\$20,312
2001	102	96	\$1,611,968	\$1,563,279	\$48,689	\$479,488
2002	96	103	\$1,599,015	\$1,483,104	\$115,911	\$289,265
2003	95	105	\$1,694,299	\$1,525,251	\$169,048	\$428,662
2004	94	101	\$1,670,142	\$1,558,458	\$111,684	\$288,628
2005	93	96	\$1,764,228	\$1,690,490	\$73,738	\$303,958
2006 Prelim.	93	96	\$1,788,000	\$1,708,965	\$79,035	\$828,435
2007 Budget	96	99	\$1,941,000	\$1,867,642	\$73,358	\$285,258

Sewer Fund
Operating Revenues, Expenses, & Income;
Net Income (\$)
FY1998 - FY2007



**Sewer Fund
Sewage Billed by Customer Class
(Millions of Gallons)
FY1998 - FY2007**



Sewer Rates
(Per 100 Cubic Feet)

Class of Customer	Current	Proposed	% Chg.
S-06			
1 Residential Service Rate billed year around but uses wintertime average consumption for non-wintertime months.	\$ 6.87	\$ 7.21	4.9%
2 Non-Residential Service Rate billed year around using actual readings for each billing period.	\$ 6.87	\$ 7.21	4.9%

Sample Impacts	Current Annual	Proposed Annual	Annual Change	Monthly Change	% Chg.
1 Average Residential Customer (1,666 cubic feet bimonthly wintertime use)	\$ 687	\$ 721	\$ 34.00	\$ 2.83	4.9%
2 Typical Non-Residential Customer (1,800 cubic feet bimonthly)	\$ 742	\$ 779	\$ 36.72	\$ 3.06	4.9%

Comprehensive Wastewater Management Plan

Phase 1 Sewer Extensions

