
Contents

Introduction.....	1
Purpose and Scope	1
Definitions	1
History	1
Sources of Financial Data.....	4
Summary of Findings.....	4
Water Department.....	5
Sewerage Department.....	6
Drainage Department.....	7
Other Findings	8
Water Department.....	10
Adherence to Water Revenue Bond Resolution Requirements	10
Powers as to Bonds and Pledge	10
The Extension of Payment of Bonds	10
The Establishment of Rates and Charges	10
The Sale, Lease, and Encumbrance of the System	11
The Operation, Maintenance, and Reconstruction of the System.....	11
Insurance and Condemnation.....	11
The Preparation of an Annual Operating Budget	12
The Preparation of the Capital Improvement Budget.....	12
Employment of Consulting Engineer.....	13
The Maintenance of Accounts and Reports	13
Issuance of Additional Bonds	13
2004 Water Department Operations	14
Water Use.....	14
Operating Revenues	15
Nonoperating Revenues	15
Operation and Maintenance Expenses.....	15
Capital Budget and Expenditures	16
Summary of Operations	16
Proposed Capital Improvement Program.....	16
Ability to Finance Proposed Capital Expenditures.....	17
Operating Revenues	17
Other Revenue Sources.....	17
Operation and Maintenance Expenses.....	17

Debt Service Requirements	18
Adequacy of Revenues to Finance Proposed Capital Improvements	18
Sewerage Department	31
Adherence to Sewerage Service Revenue Bond Resolution	31
2004 Sewerage Department Operations	31
Operating Revenues	31
Nonoperating Revenues	32
Operation and Maintenance Expenses	32
Capital Budget and Expenditures	33
Summary of Operations	33
Proposed Capital Improvement Program.....	33
Ability to Finance Proposed Capital Expenditures.....	34
Operating Revenues	34
Other Revenue Sources.....	34
Operation and Maintenance Expense	34
Debt Service Requirements	35
Adequacy of Revenues to Finance Proposed Capital Improvements	35
Drainage Department.....	47
2004 Drainage Department Operations	47
Revenues	47
Operation and Maintenance Expenses	48
Capital Budget and Expenditures	48
Summary of Operations	48
Proposed Capital Improvement Program.....	48
Ability to Finance Proposed Capital Expenditures.....	49
Revenues	49
Operation and Maintenance Expenses	50
Debt Service Requirements	50
Adequacy of Revenues to Finance Proposed Capital Improvements	50
Engineering Evaluation.....	62
Operation, Maintenance, and Reconstruction.....	62
Introduction.....	62
Operations	62
Water and Wastewater Treatment Plants	62
East Bank Wastewater Treatment Plant.....	62
West Bank Wastewater Treatment Plant	64

Water Plants	64
Water Laboratories	66
Drainage and Sewage Pumping and Power Distribution.....	67
Water Pumping and Power	68
Maintenance.....	69
Networks	69
Engineering.....	70
Support Services	71
Summary of Findings.....	71

List of Tables

Table 1	Insurance in Force as of December 31, 2004.....	20
Table 2	Water Department - Historical Sales and Average Number of Customers	21
Table 3	Water Department - Existing Water Rates.....	22
Table 4	Water Department - Statement of Historical Revenues.....	23
Table 5	Water Department - Historical Operation and Maintenance Expenses	24
Table 6	Water Department - Capital Expenditures - 2004	25
Table 7	Water Department - Proposed Capital Improvements	26
Table 8	Water Department - Projected Operating Revenues.....	27
Table 9	Water Department - Projected Operation and Maintenance Expenses.....	28
Table 10	Water Department - Water Revenue Bond - Debt Service Requirements.....	29
Table 11	Water Department - Analysis of Ability of Present Revenue Sources to Finance Projected Revenue Requirements	30
Table 12	Sewerage Department - Annual Sewerage Volumes and Average Number of Customers	36
Table 13	Sewerage Department - Existing Sewerage Service Charges.....	37
Table 14	Sewerage Department - Statement of Historical Revenues	38
Table 15	Sewerage Department - Historical Operation and Maintenance Expenses	39
Table 16	Sewerage Department - Capital Expenditures - 2004.....	40
Table 17	Sewerage Department - Proposed Capital Improvements	41
Table 18	Sewerage Department - Projected Revenues from Sewerage Service Charges and Delinquent Fees.....	42
Table 19	Sewerage Department - Projected Participation by EPA.....	43
Table 20	Sewerage Department - Projected Operation and Maintenance Expenses	44
Table 21	Sewerage Department - Debt Service Requirements.....	45
Table 22	Sewerage Department - Analysis of Ability of Present Revenue Sources to Finance Projected Revenue Requirements	46
Table 23	Drainage Department - Rainfall.....	52

Table 24	Drainage Department - Historical Revenues Received	53
Table 25	Drainage Department - Historical Operation and Maintenance Expenses	54
Table 26	Drainage Department - Capital Expenditures - 2004.....	55
Table 27	Drainage Department - Proposed Capital Improvements	56
Table 28	Drainage Department - Projected Participation by Others	57
Table 29	Drainage Department - Projected Operating Revenues	58
Table 30	Drainage Department - Projected Operation and Maintenance Expenses	59
Table 31	Drainage Department - Debt Service Requirements.....	60
Table 32	Drainage Department - Analysis of Ability of Present Revenue Sources to Finance Projected Revenue Requirements	61

**Report on Operations
for 2004
Sewerage and Water Board
of New Orleans**

Introduction

Purpose and Scope

This report covers operations of the Sewerage and Water Board of New Orleans for the year ended December 31, 2004. The report presents findings of studies made in compliance with covenants of the 1998 and Supplemental Water Revenue Bond Resolutions and the 1997 and Supplemental Sewerage Revenue Bond Resolutions. The report includes recommendations designed to assist the Sewerage and Water Board of New Orleans and its staff in planning future operational policies. Subjects covered include the following:

1. Adherence to covenants of the Water Revenue Bond Resolutions and the Sewerage Revenue Bond Resolutions.
2. Ability to finance projected revenue requirements including proposed capital improvements.
3. Operations of the water, sewerage, and drainage systems.

Definitions

In this report, "Sewerage and Water Board of New Orleans," "Sewerage and Water Board," and "Board" are used synonymously. "General Resolution" refers to either the 1998 and Supplemental Water Revenue Bond Resolution or the 1997 and Supplemental Sewerage Revenue Bond Resolutions.

"Water Department" is the Sewerage and Water Board organization providing domestic water service to residents of the City of New Orleans. "Sewerage Department" is the organization providing wastewater service, and "Drainage Department" is the organization providing stormwater conveyance and pumping. The Board organization includes some groups who participate in two or more operational activities.

History

The Sewerage and Water Board of New Orleans was created by Act No. 6 of the Louisiana Legislature in 1899 as a special board independent of City government to develop, operate, and maintain the water and sewerage systems in the City of New Orleans. In 1903, the

Louisiana Legislature gave control of the City's drainage system to the Board. Since that time growth of the service area and increased service requirements have expanded the magnitude and complexity of operations.

Available sources of funds prior to 1958 for financing utility operations and improvements included ad valorem taxes, contributions-in-aid-of-construction, general obligation bonds of the City of New Orleans, and water revenues.

Act No. 541 increased the Board's ability to finance needed water system improvements by authorizing the Board to issue water revenue bonds. Subsequently, water revenue bonds in the amounts of \$6,200,000 in 1960, \$1,500,000 in 1961, \$2,500,000 in 1964, \$4,000,000 in 1971, \$6,000,000 in 1978, \$17,000,000 in 1980, \$3,000,000 in 1981, and \$5,000,000 in 1982 were issued. All water system revenue bonds outstanding in 1986 were defeased by the \$31,350,000 Series 1986 Water Revenue Refunding bond issue. Additional revenue bonds in the amount of \$16,000,000 were issued in 1998 and \$34,000,000 were issued in 2002. As of December 31, 2004, \$45,900,000 remains outstanding on the 1998 and 2002 issues.

In 1966 three constitutional amendments, Acts No. 565, 566, and 567 were enacted by the Louisiana Legislature and subsequently approved by the State's voters. Act No. 565 authorized the City of New Orleans to levy a three-mill ad valorem tax, effective January 1, 1967, to be used solely for operations and capital costs of the drainage system. Provision for issuance of bonds repayable solely from the three-mill tax was also included in the Act. In 1967, the Board issued \$15,000,000 of three-mill tax bonds. These bonds were fully retired in 1992.

Under the Louisiana State Constitution, all assessments beginning in 1978 were equalized, with residential property assessed at 10 percent of its market value and commercial and personal property assessed at 15 percent of market value. The constitution also provides that no tax revenues shall be lost by reassessments; thus, it has been necessary to revise the millage rates in effect at various times. If reassessment results in a lower tax base, the millage rate may be adjusted upward. If a larger tax base results, the millage rates must be rolled back. However, by state law, the City Council, upon request and after a public hearing, may increase the millage rates to the prior year's level. The three-mill tax rate, 6.01 mills since 1988, was increased to 6.40 mills in 1992 due to reassessment, and will remain at that level at least through 2005.

Passage of a referendum in April 1977, authorized the collection of an additional six-mill, ad valorem tax for drainage purposes, effective January 1, 1978. The six-mill ad valorem tax was increased to 6.09 mills in 1988 and to 6.48 mills in 1992 due to reassessment. In 1978, the State Legislature authorized a debt limit of \$18,000,000 as sought by the Board of Liquidation, City Debt. That debt limit was eliminated by Legislative action in 2003. The Board issued \$18,000,000 in Series A, six-mill tax bond in November 1978. During 1994 the Board issued Drainage System Refunding Bonds, Series 1994, for the purpose of refunding the

six-mill 1978 bonds. The 1994 bonds were considered to be an obligation of the six-mill ad valorem tax revenue and have been repaid.

In 1981, a nine-mill ad valorem tax was approved and became effective January 1, 1982. The purpose of the nine-mill tax levy is to provide funds for the operation, maintenance, and construction of the drainage system. State law set the authorized debt limit for nine-mill bonds at \$68,000,000. That debt limit was eliminated by Legislative action in 2003. The Board sold nine-mill bond issues of \$22,000,000 in 1982 and \$30,000,000 in 1983. In 1986, \$12,525,000 Drainage System Bonds Series 1986A and \$15,755,000 Drainage System Bonds Series 1986B were authorized and sold for the purpose of refunding the 1982 nine-mill bonds and the 1983 nine-mill bonds, respectively.

In 1992 the Drainage System Bonds, Issue of 1982, was fully refunded, and beginning in 1993, debt service payments on the Drainage System Bonds, Series 1986A was paid from nine-mill tax revenue. In 1993, proceeds from the Drainage System Bonds, Series 1986B fully refunded the Drainage System Bonds, issue of 1983, and the debt service on these bonds became the obligation of nine-mill tax revenue. All Series 1986A and Series 1986B bonds have been retired. In 1998 nine-mill bonds in the amount of \$10,000,000 were issued and as of December 31, 2004, the outstanding balance was \$7,930,000. Additional nine-mill bonds in the amount of \$20,000,000 were issued in 2002, bringing the total of six-mill and nine-mill Drainage System Bonds outstanding as of December 31, 2004 to \$26,855,000.

In 1988, reassessment caused the nine-mill ad valorem tax to be increased to 9.13 mills, and it was increased due to reassessment again in 1992 to 9.71 mills and remains at this level at least through 2004. A reassessment occurred in 1999, which effectively increased millage receipts by approximately 10 percent.

Act No. 566 reauthorized the Board to fix and administer a schedule of water rates to meet the operational and capital costs of the public water system, to issue water revenue bonds, and discontinue the free water allowance for sewerage purposes effective November 9, 1966.

Act No. 567 gave the Board authority to set and collect sewerage service charges, to be used for operational and capital costs of the Sewerage Department, and to issue sewerage service revenue bonds. This Act permitted the Board, for the first time in its history, to charge users of the sewerage system directly for related costs. Under the authority of Act No. 567, sewerage service charges were implemented May 1, 1967; and subsequently, sewerage service revenue bonds totaling \$33,000,000 were sold in 1968, 1976, 1982 (2 issues), and 1983. All sewerage system revenue bonds outstanding in 1986 were defeased by the \$21,280,000 Series 1986 Sewerage Service Revenue bonds. These bonds were fully retired in 1994. Sewerage system revenue bonds in the amount of \$30,000,000 were issued in 1997, \$25,000,000 in 1998, \$47,100,000 in 2000 (two issues), \$32,720,000 in 2001, \$57,000,000 in 2002, \$5,500,000

revenue bonds plus \$111,800,000 Bond Anticipation Notes in 2003, and \$33,000,000 revenue bonds plus \$25,200,000 Bond Anticipation Notes were issued in 2004. Outstanding principal on revenue bonds totaled \$206,415,000 as of December 31, 2004.

In 1980, a constitutional amendment, Act No. 844, authorized an increase in the exemption of each homestead from ad valorem taxes from \$5,000 to \$7,500, and periodic reassessment.

In 1974, the American Institute of Certified Public Accountants expanded their reporting guidelines for government operated utilities to include depreciation accounting. As a result, the Board initiated a preliminary system of accounting recognizing estimated historical investment as a basis for annual depreciation accruals. Implementation of the detailed plant accounting and record keeping required was started in 1979.

The Board's computer based budget code system provides a method of identification of operation and maintenance expenses for the Water, Sewerage, and Drainage Departments. Allocation of expenses is based upon actual or direct expenses of each Department together with an apportionment of joint expenses. The procedures permit utility plant accounting with annual costs charged to the appropriate property account instead of being charged to current Department income. In accounting for debt service, interest is charged to current year's income and principal and debt service reserve payments are charged to the respective account balances. Historical operating costs, discussed later in this report, reflect the functional classifications.

The Sewerage and Water Board and the Orleans Parish School Board (OPSB) reached an agreement effective July 1, 1992, whereby the schools would be charged for any water exceeding an allowance of six gallons per day, for 365 days per year, for each student enrolled and any other person regularly assigned to that campus or facility. The allowance was lowered to four gallons per day effective July 1, 1993.

Sources of Financial Data

Financial information included in this report is obtained from audited financial reports provided by the Board.

Summary of Findings

This section contains a summary of the financial operations of the Water, Sewerage, and Drainage Departments for the year 2004. Projections of future operations are also presented as a basis for determining the adequacy of present revenue sources to finance projected operating expenses and proposed capital program costs of the respective departments.

The statistical data maintained by the Board includes the compilation of detailed information on water sales and revenues. Information provided for 2004 includes a summary of

the number of bills issued, billed volume, and revenues by customer class for both the Water and Sewerage Departments.

Under the current budget code system, costs are identified by general functional categories. Supplemental accounts are used for internal purposes to identify the cost in each functional category that is incurred for personal services, services and utilities, material and supplies, replacement and maintenance, and other special charges.

Water Department

Water Revenue Bond Resolution Requirements

Sewerage and Water Board financial operations for 2004 have complied with the requirements set forth in the 1998 and Supplemental Water Revenue Bond Resolutions.

Summary of 2004 Operations

Based upon a tabulation of water bills rendered during the year, the Water Department provided water service to an average of 140,502 regular billed customers and 700 governmental accounts which are served without charge. According to the December 31, 2004 Comprehensive Annual Financial Report, of the 47,068.2 million gallons of water pumped by the Department during the year, 20,744.9 million gallons were sold, 1,153.6 million gallons were metered to customers without charge, treatment plant process water totaled 748.2 million gallons, and unmetered uses accounted for about 24,421.5 million gallons. Unmetered water uses include fire protection; flushing streets, sewers, and drains; chlorinating and flushing new water mains; construction of streets; Sewerage and Water Board plant uses; and unaccounted for system losses.

It should be noted that the Board curtailed the use of free water with the passage of Act No. 627, which in essence, limited free water to the City of New Orleans and its public institutions from which no revenue is derived. During 1982, the state legislature placed maximum limits on free water to City and Audubon Parks and the City Art Museum. In 2004, City and other governmental agencies' free water use increased about 52.2 million gallons compared with 2003. The Board advises such agencies on monthly and year-to-date usage and provides memo bills to encourage conservation.

The total revenue from water sales, delinquent fees, interest income and other income decreased slightly from \$56,909,400 in 2003 to \$56,905,250 in 2004. Operation and maintenance expenses (excluding claims paid) increased from \$47,805,476 in 2003 to \$51,694,506 in 2004. After debt service payments of \$2,213,948 and claims of \$54,648, a balance of \$2,942,148 was available for capital related expenditures in 2004, unadjusted for depreciation.

Ability to Finance Future Operations and Proposed Improvements

A summary of projected financial operations of the Water Department for the period 2005 through 2009 is shown in Table 11. Revenues shown on Line 1 of Table 11 are based on rates that became effective July 18, 2002. This analysis illustrates that additional sources of revenues will be required to meet revenue requirements during the study period. Future annual revenue increases of 21 percent effective October 1, 2005, 17 percent effective July 1, 2006, 5 percent effective July 1, 2007 and July 1, 2008, and 4 percent effective July 1, 2009 are indicated. Long term debt financing of \$27,000,000 in 2007, \$39,000,000 in 2008, and \$50,000,000 in 2009 are indicated to fund the proposed capital improvement program.

Because the amount of bonds that can be issued is limited by the debt service coverage tests, issuance of Bond Anticipation Notes (BANs) is required to fund the adopted capital program. Revenue from issuance of BANs is shown on Line 27 of Table 11. Interest paid on outstanding BANs is shown on Line 20, costs associated with issuance of BANs are shown on Line 34, and redemption of the BANs is shown on Line 36.

A Report on Revenue Requirements, Costs of Service and Rates for Water Service was issued in April of 2005 and was based on preliminary audited financial reports which differ slightly from the audited financial reports that were used for this report. Additionally, the April 2005 report assumed the 2005 rate schedule would be effective August 1.

Sewerage Department***Sewerage Service Revenue Bond Resolution Requirements***

Sewerage and Water Board financial operations for 2004 have complied with the requirements set forth in the 1997 and Supplemental Sewer Revenue Bond Resolutions.

Summary of 2004 Operations

Sewerage Department revenues for 2004 of \$75,739,839 increased approximately 18.2 percent from \$64,106,845 for 2003, primarily due to increased sewer rates. Operation and maintenance expenses (excluding claims paid) increased slightly from \$36,420,174 in 2003 to \$38,379,620 in 2004. After debt service payments of \$17,058,878 and restated claims of \$1,079,493, a balance of \$19,221,848 was available for capital related expenditures in 2004, unadjusted for depreciation.

Ability to Finance Future Operations and Proposed Improvements

The 2005 through 2009 Capital Improvement Budget provides for total Sewerage System Improvements of \$851,056,000, as shown in Table 17. This construction is anticipated to be

financed with \$15,000,000 of participation by others (federal government); funds on hand at the beginning of the period; \$784,000,000 in new bonded debt; and, the remainder from annual revenues of the Sewerage Department.

A summary of projected financial operations for the period 2005 to 2009 is shown in Table 22. This table illustrates that the adopted revenue increase of 14 percent effective July 1, 2006; and proposed increases of 7 percent effective July 1, 2007, July 1, 2008, and July 1, 2009; will generate sufficient revenue to meet required debt service coverage tests and projected operating and capital expenditures during the study period.

Because the amount of bonds that can be issued is limited by the debt service coverage tests, issuance of BANs is required to fund the adopted capital program. Revenue from issuance of BANs is shown on Line 26 of Table 22. Interest paid on outstanding BANs is shown on Line 20, costs associated with issuance of BANs are shown on Line 36, and redemption of the BANs is shown on Line 38.

Drainage Department

Summary of 2004 Operations

Total revenues received from all sources including interest income and two-mill ad valorem tax receipts totaled \$45,295,792 in 2004, an increase of approximately 11 percent from \$40,747,292 reported for the same sources in 2003. Total operation and maintenance expenses increased about 15 percent from \$17,643,314 in 2003 to \$20,258,705 in 2004. After debt service payments of \$2,213,948 and claims of \$1,752,753, a balance of \$21,070,386 was available for capital related expenditures in 2004, unadjusted for depreciation.

Ability to Finance Future Operations and Proposed Improvements

An analysis of financial operations projected for the Drainage Department for the period 2005 through 2009 is summarized in Table 32. Revenue from the three-mill, six-mill, and nine-mill ad valorem taxes may be used for operating expenses, debt service, or capital expenditures. Beginning in mid-1992, by Board policy, revenue from plumbing fees was redirected from the Drainage Department to the Water and Sewerage departments.

The analysis indicates that current revenue sources are adequate to meet operation and maintenance expenses and total debt service on the 1998 and 2002 bond issues for each year of the study period as well as debt service on new bond issues of \$51,000,000 in 2005, \$110,000,000 in 2006, \$46,000,000 in 2007, \$21,000,000 in 2008, and \$14,000,000 in 2009. The limits on bonds that can be outstanding under the 6 and 9 mill levies were removed by the State Legislature in 2003.

Other Findings

The Board's analysis of power purchased and produced is shown in the supplemental section of the 2004 Comprehensive Annual Financial Report. In 2004, approximately 75.5 million kWh of power was purchased and 38 million kWh of power was generated.

On a unit cost basis, the average cost of purchased power has increased over the past five years from 7.98¢ per kWh in 2000 to about 8.01¢ per kWh in 2003. During the same period, the Board's unit cost for generated power has decreased from about 34.82¢ per kWh to about 33.1¢ per kWh. The cost of Board generated power is almost 4.0 times higher than that of purchased power. The cost of fuel used to generate power in 2004 amounted to approximately 31.3¢ per kWh or about 95 percent of the total unit cost.

In conducting our analyses and in forming an opinion of the projection of future operations summarized in this report, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology utilized by Black & Veatch in performing the analysis follows generally accepted practices for such projections. Such assumptions and methodologies are summarized in this report and are reasonable and appropriate for the purpose for which they are used. While Black & Veatch believes the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur.

Water Department

Adherence to Water Revenue Bond Resolution Requirements

In 1998, the Sewerage and Water Board sold \$16,000,000 of Water Revenue Bonds. The sale of these bonds, as well as the 2002 Series Water Revenue bonds, has obligated the Board to fulfill the covenants of the current bond resolutions. The covenants are designed to protect the interests of the bond holders. Particular covenants of the Board in the General Water Revenue Bond Resolution pertain to the power as to bonds and pledge; the extension of payment of bonds; the establishment of rates and charges; the sale, lease, and encumbrance of the system; the operation, maintenance, and reconstruction of the system; insurance; the preparation of an annual operating budget; the preparation of the capital improvements budget; the maintenance of accounts and reports; further assurances; and the issuance of additional bonds. The Requirements of the 1998 General Water Revenue Bond Resolution and Supplemental Resolutions adopted on August 21, 2002, (hereafter collectively called the General Resolution) are discussed in this section.

The Board is in compliance with the 1998 General Water Revenue Bond Resolution and subsequent amendments.

Powers as to Bonds and Pledge

The General Resolution gives the Board the power to issue bonds and to pledge the revenues according to the resolution. "The revenues and other monies, securities and funds so pledged are and will be free and clear of any pledge, lien, charge or encumbrance thereon with respect thereto prior to, or of equal rank with, the pledge created by the resolution except to the extent expressly permitted hereby. The Board shall at all times, to the extent permitted by law, defend, preserve and protect the pledge of the revenue and other monies, securities and lands pledged under the resolution and all the rights of the bondholders under the resolution against all claims and demands of all persons whomsoever."

The Extension of Payment of Bonds

The Board is obligated not to extend the maturity of the bonds. The Board still has the right to issue refunding bonds because the issuance of refunding bonds shall not constitute an extension of maturity of the bonds.

The Establishment of Rates and Charges

The General Resolution obligates the Board to establish and maintain rates and charges at levels sufficient so that total revenues over and above the amount required for operation and

maintenance of the system be at least one hundred thirty percent (130%) of the bond debt service requirement.

The Board must engage a Consulting Engineer to annually review the adequacy of the rates and charges to satisfy the requirements of the resolution for the next succeeding year.

In addition, "...the Board shall not... furnish or supply any facilities, services or commodities afforded by it in connection with the system free of charge (except as required by law). The Board will promptly enforce in the manner and to the extent provided by law the payment of any and all delinquent accounts except when the Board determines that such enforcement is no longer practicable or economically justified."

The Sale, Lease, and Encumbrance of the System

The General Resolution requires that, with exceptions, "... no part of the System shall be sold, mortgaged, leased (with the Board as lessor) or otherwise disposed of or encumbered." However, the Board may sell, mortgage, or lease any property that has become worn out or that is not useful.

The Operation, Maintenance, and Reconstruction of the System

The Board is obligated to "... operate, or cause to be operated, the System properly and in a sound, efficient and economical manner and shall maintain, preserve, and keep the same or cause the same to be maintained, preserved, and kept in good repair, working order and condition, and shall from time to time make, or cause to be made, all necessary and proper repairs, replacements and renewals so that the operation of the System may be properly and advantageously conducted . . ." The Board must reconstruct damaged or destroyed parts of the system, except in those cases where the market value of that part of the system is more than \$100,000 and a Consulting Engineer certifies that the abandonment is economically justified and is not prejudicial to the interest of the bond owners and that failure to reconstruct the part will not impair the Board's ability to comply with the requirements of the rates and charges covenant in the current or any future fiscal year.

Insurance and Condemnation

The Board agrees to "... keep all property which is a part of the System and which is of an insurable nature and of the character usually insured by operating systems similar to the Board insured against loss or damage by fire and from other causes customarily insured against and in such relative amounts as are customary. The Board will also at all times maintain insurance against loss or damage from such hazards and risks to the persons and property of others as are usually insured against by those operating systems similar to the Board."

The Board also agrees that all insurance proceeds shall be applied to the restoration of the lost or damaged facilities, unless the Board determines not to replace the facilities according to the previous covenant. Any excess proceeds not applied to the reconstruction of facilities or remaining after the work is complete shall be deposited into the Water System Account.

The Board may also elect to insure itself if it determines that any policies required are not reasonably obtainable or may not be obtained at a reasonable cost.

The Board carries fire and extended coverage insurance on buildings connected with the treatment and supplying of water, and the collection and treatment of sewage. In addition, the Board carries the generally accepted coverage for water and wastewater utilities. This coverage consists of personal liability and property damage liability coverage; forgery, money, and securities dishonesty and disappearance coverage; and employees faithful performance bonds. The Board also carries coverage on vehicles and equipment used in the operation of the water, sewerage and drainage systems. A summary of the insurance program of the Board is shown in Table 1.

The Board is self-insured for worker's compensation and comprehensive general liability. In addition, the Board maintains a self-insurance program of hospitalization benefits. Anticipated expenditures are budgeted annually.

The Preparation of an Annual Operating Budget

The Board agrees to prepare and adopt an annual operating budget not less than one day prior to the beginning of each fiscal year. The Board may adopt an amended or supplemental budget from time to time but not more than once a month. The Board is required not to ". . . incur aggregate Operating Expenses in any Fiscal Year in excess of the aggregate amount of Operating Expenses shown in the Annual Budget as amended and supplemented for such Fiscal Year except in case of emergency or as required by law."

The Board agrees that the ". . . amounts expended by the Board in any Fiscal Year for Current Expenses shall not exceed the reasonable and necessary amounts thereof and such amounts so expended in any Fiscal Year from Revenues shall not exceed the amounts provided therefore in the Annual Budget for such Fiscal Year as amended and supplemented from time to time."

The Preparation of the Capital Improvement Budget

The Board is required to prepare a proposed program of Capital Improvements for the current and next two fiscal years prior to the beginning of each fiscal year. The program must identify the capital improvements to be carried out, the estimated costs of the improvements, the period of construction, and a proposed budget for the capital improvements to be undertaken in

the first fiscal year of the budget period. The capital improvements budget is to be prepared showing projected quarterly requirements and can be amended or supplemented from time to time, but not more than once a month for the fiscal year in progress.

Employment of Consulting Engineer

The General Resolution requires the Board to employ a Consulting Engineer no later than the last day of each third full fiscal year following the delivery of the initial bonds to report on the properties and operations of the System. However, any report prepared by the Consulting Engineers for the issuance of additional bonds within a three year period will satisfy this requirement.

The Maintenance of Accounts and Reports

The Board is required to ". . . maintain its books and accounts in accordance with generally accepted accounting principles and in accordance with such other principles of accounting as the Board shall deem appropriate."

The Board is also required to file with the Board of Liquidation, City Debt an annual report with financial statements audited by and containing the report of a nationally recognized independent public accountant. The auditor's report is to include a statement that during their examination, made in accordance with generally accepted auditing standards, nothing came to their attention that would lead them to believe that a default had occurred under the resolution, or to state the nature of the default.

The Board engaged the firms of Postlethwaite & Netterville and Bruno & Tervalon to comply with this covenant. Financial reports with the Accountants' Certificate have been furnished to the Board of Liquidation, City Debt and have been reproduced for public distribution in the form of Sewerage and Water Board Comprehensive Annual Financial Report for the year ended December 31, 2004. In each of the past 20 years, the Government Finance Officers Association (GFOA) has awarded to the Board the "Award of Financial Reporting Achievement" for their annual financial reports.

Issuance of Additional Bonds

Additional bonds may be issued, but only after certain conditions have been met. These conditions are described in the following paragraphs.

The Board must deliver to the Board of Liquidation, City Debt a certificate of an authorized officer stating that the Resolution has not been repealed, and a certified copy of every supplemental resolution previously adopted by the Sewerage and Water Board.

The Board must deliver to the Board of Liquidation, City Debt the documents and monies, if any, required by this resolution and any applicable supplemental resolution.

The Board must provide to the Board of Liquidation, City Debt a certificate of an authorized officer stating that as of the delivery of the additional bonds no event of default has occurred.

The Board of Liquidation, City Debt is required to have a certificate of an authorized officer stating that for the two full fiscal years prior to the year of issuance, the average net revenues were equal to at least (1) the amount required by Louisiana law, and (2) 110 percent of the average bond debt service requirement on all bonds outstanding plus the average bond debt service requirement on the additional bonds.

The Board must provide to the Board of Liquidation, City Debt a certificate of the Consulting Engineer stating that projected net revenues for each of the five fiscal years following issuance of the additional bonds will be at least 130 percent of the debt service reserve fund requirement.

2004 Water Department Operations

Funds for the operation and maintenance of Water Department properties were derived from sales of water, delinquent fees, plumbing inspection and license fees, charges for disconnections and reconnections, and from interest earned on available funds. A portion of the funds received was used for the construction of new plant additions. Analyses of the 2004 Water Department operations are discussed in the following paragraphs.

Water Use

According to statistics found in the December 31, 2004 Comprehensive Annual Financial Report, during the year, 47,068,200,000 gallons of water were pumped by the Water Department. Water sales accounted for 20,744,926,700 gallons; 1,153,575,300 gallons were metered to City departments without charge. Metered treatment plant process water totaled 748,213,900 gallons. The remaining 24,421,484,100 gallons resulted from unmetered uses, such as fire protection; flushing streets, sewers, drains, and gutters; and unaccounted for system losses.

Number of Customers

Based on year-end billing summaries, the number of monthly billed customers during 2004 averaged 140,502 compared with 143,312 for 2003.

In addition to regular customers, water is sold to construction contractors and other customers on an irregular basis. The Board also provides water service free of charge to certain

municipal and public connections including the Board itself. In 2004 there were 970 connections in this group, compared with 921 for 2003.

Billed Water Usage

Based on year-end billing summaries, a total of 20,355 million gallons of water sales were billed on a monthly basis in 2004, compared with a total of 20,963 million gallons in 2003. Table 2 presents a summary of the average number of customers served and billed water consumption by customer class for the past five years.

Operating Revenues

Existing water rates to general customers are shown in Table 3. Separate rate schedules, not shown, are used for billing water sold to construction projects and other purposes.

Operating revenues are derived from charges for sale of water and delinquent fees. Sales of water in 2004 were \$53,057,240 which, when compared with \$53,886,572 for 2003, shows a decrease of \$829,332. Historical revenues are shown in Table 4. Delinquent fee revenues were \$1,176,905 in 2004.

Nonoperating Revenues

Also shown in Table 4, nonoperating revenue of the Water Department includes interest earned on invested funds, and other income from miscellaneous sources. During 2004, nonoperating revenue included \$563,059 of interest earned from the investment of available funds in the Water System Fund and the Water Revenue Bond Account and \$2,108,046 from other sources.

Operation and Maintenance Expenses

The Sewerage and Water Board uses a system of accounts for budget purposes which groups expenses by water system function. Under the present system of accounts, expenses are categorized under the general classifications of management and general, operations expenses, and other expenses. Management and general expenses include wages, materials and supplies, services, and other costs of the Executive Director, Deputy Director, Office of the Management Services Director, Personnel Administration, Finance Department, Information Systems, Purchasing Administration, Customer Services Department, and Legal Department. Operations expenses encompass the costs of source of supply, treatment, and delivery of potable water. Other expenses include such items as general insurance, outside services employed, social security, pension and medical insurance contributions, and miscellaneous expenditures.

Table 5 presents a summary of historical expenses as recorded under the present system of accounts by the Sewerage and Water Board. Expenditures in 2004 increased about 8 percent from 2003 expenditures. The average annual increase in O&M expenses over the five years shown is about 3 percent. Historical operation and maintenance expenses shown in Table 5 do not include the non-cash portion of Provision for Claims as recorded in the Comprehensive Annual Financial Report. Estimates of future Water Department claims are included on Line 15 of Table 11.

Capital Budget and Expenditures

Capital expenditures of the Water Department include the cost of replacements and improvements to waterworks facilities, the water distribution system, and the Water Department pro rata share of power projects and general budget costs.

The Water Department's 2004 capital expenditures, exclusive of prorated interest, totaled \$14,457,290. The Water Department's capital improvement expenditures for the year are shown in Table 6.

Summary of Operations

The following tabulation shows a summary of the receipts and expenditures of the Water Department during 2004:

Total Revenues	\$56,905,250
Operation and Maintenance Expense	51,694,506
Claims	54,648
Debt Service Payments	<u>2,213,948</u>
Revenue Primarily Available for Capital Expenditures (a)	\$2,942,148

(a) Unadjusted for depreciation.

Proposed Capital Improvement Program

The staff of the Sewerage and Water Board has proposed expenditures for Water Department capital improvements totaling \$155,610,000 during the five years 2005 through 2009. About 85 percent of this amount, or \$132,363,000 is for recurring annual capital improvements, with the remaining \$23,247,000 for major improvements. For the purposes of this report, the Water System Replacement Program account, in the amount of \$355,000,000, has been removed from the schedule of proposed capital improvements in accordance with direction from City staff. The proposed improvements, summarized in Table 7, reflect current cost estimates and inflationary trends in construction costs. The proposed routine annual capital

expenditures for water system improvements and extensions include \$2,798,000 for the Water Department's share of power projects, and \$43,715,000 for its share of general budget items. These figures were taken from the Board's 2005 adopted Capital Budget, and the 2006-2009 proposed Capital Program.

Ability to Finance Proposed Capital Expenditures

This section of the report analyzes the adequacy of projected revenues to finance the proposed capital improvements shown in Table 7.

Operating Revenues

Operating revenues of the Water Department consist of revenues from water sales. Projected operating revenues for the years 2005 through 2009 are shown in Table 8. These estimates reflect the rate schedule effective July 18, 2002. Water sales revenues are projected to decrease, on average, about 0.7 percent per year throughout the study period.

Other Revenue Sources

Based upon past practices, the Water Department can expect to obtain revenues or funds from nonoperating sources. These include interest earned on available funds, participation by others, house connection charges, fire connections, fire hydrant relocations, and various other income sources. Also, by Board policy, the Water Department receives one-half of the plumbing inspection and license fees, currently projected at \$116,600 per year, and \$331,200 for three-mill revenue sharing.

Interest income from the investment of funds held for future use depends upon the level of water revenue available for investment and the amount of revenue accrued towards payment of future capital expenditures.

Participation by others represents payments made by developers and others, however, at this time, there are no participation funds anticipated during the five-year study period.

Because of the size of the upcoming capital improvements, issuance of additional debt will be required to minimize future rate increases.

Projections of other revenue sources are presented in a subsequent table, which summarizes the Department's financial position during the financing of projected operating and capital requirements.

Operation and Maintenance Expenses

Projections of operation and maintenance expenses are shown in Table 9. Expenses are categorized by system function as now reflected in the accounting system of the Sewerage and

Water Board. Estimates of future expenses are based on anticipated future operating conditions and allowances for inflationary factors.

Based on historical trends and conversations with utility staff, all costs are projected to increase 3.0 percent per year from the Board's budget for 2005. In addition, the 2005 budgeted expenses for Water Pumping & Power expenses have been increased \$1,108,900 for the Water Department's share of natural gas cost increases. Projected Water Pumping & Power costs have been reduced by \$3,000,000 beginning in 2007 to reflect savings from the new boiler.

Debt Service Requirements

Future debt service requirements of the Water Department are made up of principal, interest, and reserve fund payments for currently outstanding and future water revenue bond issues. As of December 31, 2004, outstanding debt obligations consisted of \$12,845,000 Water Revenue Bonds, Series 1998 and \$33,055,000 Water Revenue Bonds Series 2002.

Annual interest and principal payments on outstanding bonds in the ensuing five-year period average \$3,811,260. The debt service reserve balance of \$3,928,380 at the end of 2004 exceeds the requirements of the bond resolution for the currently outstanding bonds. Proposed bonds, shown in Table 10, are assumed to be sold at an average annual interest rate of 5.0 percent for a term of 30 years.

Adequacy of Revenues to Finance Proposed Capital Improvements

If the capital improvements proposed by the Sewerage and Water Board are to be constructed, water revenues must be adequate to meet operation and maintenance expenses, debt service charges on existing and proposed bonds, and other cash requirements.

Table 11 presents a summary of the adequacy of present revenue sources to finance projected operating and capital requirements of the Water System Fund. The revenue requirements include operation and maintenance expenditures, allowance for uncollectible accounts and claims, debt service and reserve payments, and capital requirements. Funds on hand and available to meet capital requirements at January 1, 2005, totaled \$9,115,700. This figure excludes the beginning balance for operations.

Based on projected operating and capital requirements to be funded during the five-year period 2005 through 2009, the cash flow analysis presented in Table 11 indicates that additional revenue sources will be required during the study period. Future annual revenue increases of 21 percent effective October 1, 2005, 17 percent effective July 1, 2006, 5 percent effective July 1, 2007, and July 1, 2008, and 4 percent effective July 1, 2009 are indicated. Additional debt financing of \$27,000,000 in 2007, \$39,000,000 in 2008, and \$50,000,000 in 2009 is also assumed to fund proposed capital improvements. Because the amount of bonds that can be

issued is limited by the debt service coverage tests, issuance of Bond Anticipation Notes (BANs) is required in each year of the study period to fund the adopted capital program.

A requirement of the Water Bond Resolution provides that rates must be adopted that will provide revenues in excess of operation and maintenance expense of at least 130 percent of the current year's Bond Debt Service Requirement. As shown on Line 39 of Table 11, the indicated revenue increases will provide sufficient net revenues to meet coverage requirements beginning in 2006.

Table 1**Insurance in Force as of December 31, 2004**

Carrier	Kind and / or Location	Amount of Coverage	Policy Period	
			From	To
		\$		
National Union Fire Insurance Co.		Primary: \$1,000,000 (530 Units)	06/20/04	06/20/05
Gulf Insurance Co.		Excess: \$9,000,000 CSL	06/20/04	06/20/05
Fidelity & Deposit Co.	Public Employees Blanket Bond	\$500,000 (\$10,000 Deductible)	05/01/02	05/01/05
CAN / American Casualty Insurance Company	Fire, Extended Coverage and Vandalism and Malicious Mischief	\$27,320,200 Building \$4,350,000 Contents (\$25,000)	09/01/04	09/01/05
Fidelity & Deposit Co.	Commercial Crime	\$25,000 (\$500 Deductible)	09/04/04	09/04/05
National Union Fire Insurance Co.	Public Officials and Employees Liability	\$5,000,000	11/20/04	11/20/05
Travelers Casualty & Surety	Travelers Casualty & Surety	\$1,000,000 (\$50,000 Deductible)	08/01/04	08/01/07

Table 2

**Water Department
Historical Sales and Average
Number of Customers (a)**

	2000	2001	2002	2003	2004
Single Family Residential (b)					
Customers	122,454	123,751	122,238	124,725	122,143
Sales (1,000,000 gal.)	10,693	10,002	9,868	9,473	9,163
Sales Per Customer (1,000 gal.)	87	81	81	76	75
Multi-family Residential					
Customers	5,680	5,634	5,549	5,605	5,423
Sales (1,000,000 gal.)	2,866	2,578	2,423	2,260	1,913
Sales Per Customer (1,000 gal.)	505	458	437	403	353
Commercial					
Customers	11,108	11,230	11,184	11,756	11,693
Sales (1,000,000 gal.)	6,329	6,088	5,912	5,643	5,623
Sales Per Customer (1,000 gal.)	570	542	529	480	481
Industrial					
Customers	29	27	26	25	24
Sales (1,000,000 gal.)	171	143	106	78	80
Sales Per Customer (1,000 gal.)	5,801	5,212	4,150	3,065	3,303
Dual Service & Metered Fire Service (c)					
Customers	1,112	1,137	1,168	1,200	1,220
Sales (1,000,000 gal.)	3,865	3,801	3,705	3,509	3,577
Sales Per Customer (1,000 gal.)	3,475	3,343	3,172	2,924	2,932
Total					
Customers	140,383	141,779	140,164	143,312	140,502
Sales (1,000,000 gal.)	23,924	22,612	22,013	20,963	20,355

(a) Excludes customers receiving free service.

(b) Includes duplex.

(c) Does not include flat rate fire protection customers.

Table 3

**Water Department
Existing Water Rates
(Effective July 18, 2002)**

	General Service	Dual Service (a)
	\$	\$
Monthly Water Service Charge		
<u>Meter Size</u>		
Inches		
5/8	3.50	4.80
3/4	4.30	5.90
1	5.50	7.70
1-1/2	9.00	12.00
2	12.00	17.00
3	27.00	38.00
4	47.00	66.00
6	92.00	129.00
8	137.00	192.00
10	186.00	260.00
12	218.00	306.00
16	290.00	407.00

Monthly Water Quantity Charge - per 1,000 Gallons

First	20,000 gallons	2.31	2.31
Next	980,000 gallons	2.07	2.07
Over	1,000,000 gallons	1.59	1.59

Flat Rate Fire Service

	Meter Size
	Inches
2	8.00
3	11.00
4	20.00
6	34.00
8	47.00

Table 4

**Water Department
Statement of Historical Revenues**

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
	\$	\$	\$	\$	\$
Operating Revenue					
Sales of Water	54,709,221	51,074,462	52,392,578	53,886,572	53,057,240
Delinquent Fee (a)	<u>0</u>	<u>796,750</u>	<u>1,020,472</u>	<u>1,111,260</u>	<u>1,176,905</u>
Total Operating Revenue	54,709,221	51,871,212	53,413,050	54,997,832	54,234,145
Nonoperating Revenue					
Interest Earned (b)	2,360,352	1,985,511	386,885	468,688	563,059
Plumbing Inspection and License Fees	152,387	106,918	109,685	107,822	116,574
Revenue Sharing	354,996	349,610	354,156	342,946	331,223
Other Income	<u>1,379,559</u>	<u>1,091,056</u>	<u>928,220</u>	<u>992,112</u>	<u>1,660,249</u>
Total Nonoperating Revenue	<u>4,247,294</u>	<u>3,533,095</u>	<u>1,778,945</u>	<u>1,911,568</u>	<u>2,671,105</u>
Total Revenues	58,956,515	55,404,307	55,191,995	56,909,400	56,905,250

(a) Prior to 2001 delinquent fees were included with sales of water.

(b) Beginning in 2000, interest income in the audit reflects net of interest expense.

Table 5

**Water Department
Historical Operation and Maintenance Expenses**

	2000	2001	2002	2003	2004
	\$	\$	\$	\$	\$
Management and General Expenses					
Administrative	2,730,902	2,392,478	2,662,584	1,428,644	1,994,969
Management Services Director	104,967	107,926	96,921	91,640	88,643
Building and Grounds and Support Services	1,504,013	942,247	933,702	1,007,156	1,017,743
Personnel Administration	392,315	429,668	392,522	437,976	452,757
Finance Administration	682,363	710,250	661,603	695,921	704,143
Information Systems	1,366,456	1,753,727	1,927,899	1,888,962	2,125,759
Revenue and Customer Service	2,964,573	3,050,233	2,790,947	2,911,598	3,078,314
Purchasing	303,214	283,217	276,535	259,125	262,234
Total Management and General	10,048,803	9,669,746	9,742,713	8,721,022	9,724,562
Operations Expenses					
General Superintendent	299,437	251,497	249,103	299,603	389,054
Chief of Operations	72,509	96,210	98,617	102,461	105,042
Water Pumping and Power	12,065,511	11,468,110	9,147,099	11,402,622	13,299,299
Central Control	530,395	550,634	528,880	579,450	620,571
Water Purification	5,989,591	6,661,471	5,983,264	6,295,805	6,180,711
Chief of Facilities Maintenance	79,382	90,744	182,311	115,828	112,109
Facilities Maintenance	2,708,565	2,868,048	2,958,421	2,912,654	2,950,542
Central Yard	2,077,398	2,005,278	1,964,767	2,303,389	2,424,053
Office of Chief of Networks	566,755	405,083	204,287	149,863	175,162
Networks	11,254,603	9,817,249	10,832,813	13,268,454	13,695,566
Engineering	1,249,408	1,193,262	1,066,639	1,245,919	1,315,150
Plumbing	387,303	338,787	383,661	448,181	433,282
Total Operations	37,280,857	35,746,373	33,599,862	39,124,229	41,700,541
Other Expenses					
Special Accounts	1,156,472	2,572,558	1,452,724	1,243,833	1,127,730
Payroll Related Expenses	1,101,314	1,108,234	2,877,195	2,580,955	3,083,796
Overhead Allocation	(3,614,086)	(3,737,937)	(3,375,586)	(3,864,563)	(3,942,123)
Total Other	(1,356,300)	(57,145)	954,333	(39,775)	269,403
Total Operation and Maintenance (a)	45,973,360	45,358,974	44,296,908	47,805,476	51,694,506

(a) Source: Expenditure Analysis by Group Report.

Note: Historical operation and maintenance expenses do not include the non-cash portion of provision for claims as recorded in the Comprehensive Annual Financial Report. Estimates of future Water Department claims payable are included in Table 11.

Table 6

**Water Department
Capital Expenditures (a)
2004**

C.P. #	Project	Actual Expenditures
		\$
	Waterworks	
110	Normal Extensions & Replacements	1,892,287
122	Filter Rehabilitation	370,640
135	Improvements to Chemical System	9,250
156	Advanced Carrollton Water Treatment	343,771
157	Advanced Water Treatment	26,165
159	Water Plant Security Improvements	<u>379,975</u>
	Total Waterworks	3,022,088
	Water Distribution	
214	Normal Extensions & Replacements	2,187,620
216	Water System Replacement Program	2,100
239	Mains In Street Department Contracts	<u>3,244,862</u>
	Total Water Distribution	5,434,582
600	Water Share of Power Projects	110,350
800	Water Share of General Budget Items	<u>5,890,271</u>
	Total Water Department	14,457,290

(a) Expenditures do not include proration of interest expense.

Table 7

**Water Department
Proposed Capital Improvements (a)**

C.P. #	Project	2005	2006	2007	2008	2009	Total
		\$	\$	\$	\$	\$	\$
Routine Capital Improvements							
110	Normal Extension & Replacement	5,900,000	2,300,000	2,300,000	2,300,000	2,300,000	15,100,000
122	Filter Rehabilitation	1,500,000	7,300,000	5,500,000	600,000	600,000	15,500,000
200	Eng. & Insp. of Devp. Installations	10,000	10,000	10,000	10,000	10,000	50,000
214	Normal Extensions & Replacements	2,700,000	2,800,000	3,100,000	3,200,000	3,300,000	15,100,000
215	Rehabilitation - Mains, Hydrants and Services	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	10,000,000
221	Feeder Main Extension, General	400,000	450,000	500,000	500,000	500,000	2,350,000
239	Mains In Streets Department Contracts	4,750,000	5,200,000	5,450,000	5,700,000	5,950,000	27,050,000
600	Water Share of Power Projects	883,000	1,135,000	660,000	60,000	60,000	2,798,000
701	Water Reserve for Emergencies	700,000	0	0	0	0	700,000
800	Water Share of General Budget Items	8,684,000	9,585,000	8,619,000	8,430,000	8,397,000	43,715,000
	Total Routine Capital Improvements	27,527,000	30,780,000	28,139,000	22,800,000	23,117,000	132,363,000
Major Capital Improvements							
135	Improvements to Chemical System	690,000	7,065,000	70,000	40,000	45,000	7,910,000
156	Advanced Carrollton Water Treatment	150,000	500,000	7,000,000	0	0	7,650,000
157	Advanced Algiers Water Treatment	1,250,000	40,000	10,000	8,000	7,000	1,315,000
159	Water Plant Security Improvements	1,135,000	2,437,000	2,600,000	100,000	100,000	6,372,000
216 (b)	Water System Replacement Program	0	0	0	0	0	0
	Total Major Capital Improvements	3,225,000	10,042,000	9,680,000	148,000	152,000	23,247,000
	Total Water Department Improvements	30,752,000	40,822,000	37,819,000	22,948,000	23,269,000	155,610,000

(a) The improvements for the 2005-2009 period are based on the budget dated December 15, 2004.

(b) CP 216 has been removed in accordance with direction from staff.

Table 8

**Water Department
Projected Operating Revenues**

<u>Year</u>	<u>Total Operating Revenues</u> \$
2005	53,374,900
2006	53,006,300
2007	52,642,300
2008	52,282,600
2009	51,927,100

Historical and Projected Operating Revenue

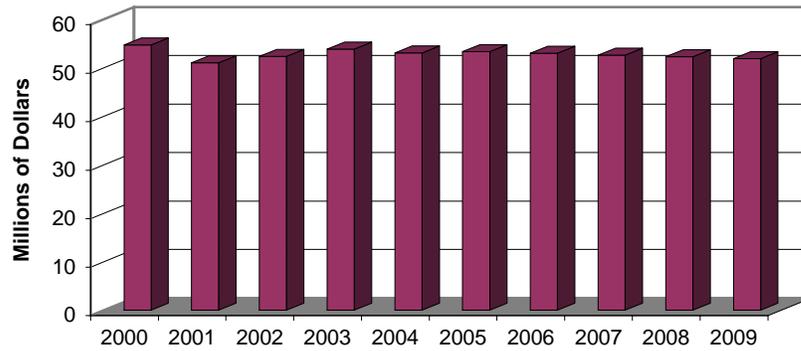


Table 9

**Water Department
Projected Operation and Maintenance Expenses**

	2005 (a)	2006	2007	2008	2009
	\$	\$	\$	\$	\$
Management and General Expenses					
Administrative	3,299,500	3,398,500	3,500,400	3,605,400	3,713,600
Management Services Director	99,200	102,100	105,200	108,300	111,600
Building and Grounds and Support Services	1,109,500	1,142,800	1,177,100	1,212,400	1,248,800
Personnel Administration	498,800	513,800	529,200	545,100	561,400
Finance Administration	725,200	747,000	769,400	792,500	816,200
Information Systems	2,279,200	2,347,600	2,418,000	2,490,600	2,565,300
Revenue and Customer Service	3,320,300	3,419,900	3,522,500	3,628,200	3,737,000
Purchasing	307,800	317,100	326,600	336,400	346,500
Total Management and General	11,639,500	11,988,800	12,348,400	12,718,900	13,100,400
Operations Expenses					
General Superintendent	323,900	333,600	343,600	353,900	364,500
Chief of Operations	86,700	89,300	92,000	94,800	97,600
Water Pumping and Power	13,457,100	13,860,800	11,186,600	11,522,200	11,867,900
Central Control	684,300	704,900	726,000	747,800	770,200
Water Purification	6,369,900	6,561,000	6,757,900	6,960,600	7,169,400
Chief of Facilities Maintenance	122,800	126,400	130,200	134,100	138,200
Facilities Maintenance	3,327,100	3,426,900	3,529,700	3,635,600	3,744,700
Central Yard	2,407,500	2,479,700	2,554,100	2,630,700	2,709,700
Office of Chief of Networks	129,000	132,900	136,900	141,000	145,200
Networks	12,338,700	12,708,900	13,090,100	13,482,800	13,887,300
Engineering	1,570,400	1,617,500	1,666,000	1,716,000	1,767,500
Plumbing	479,900	494,300	509,100	524,400	540,200
Total Operations	41,297,300	42,536,200	40,722,200	41,943,900	43,202,400
Other Expenses					
Special Accounts	1,799,800	1,853,800	1,909,400	1,966,700	2,025,700
Payroll Related Expenses	2,772,500	2,855,700	2,941,400	3,029,600	3,120,500
Overhead Allocation	(3,956,000)	(4,074,700)	(4,196,900)	(4,322,900)	(4,452,500)
Total Other	616,300	634,800	653,900	673,400	693,700
Total Operation and Maintenance	53,553,100	55,159,800	53,724,500	55,336,200	56,996,500

(a) Represents the adopted operating budget as of December 15, 2004.

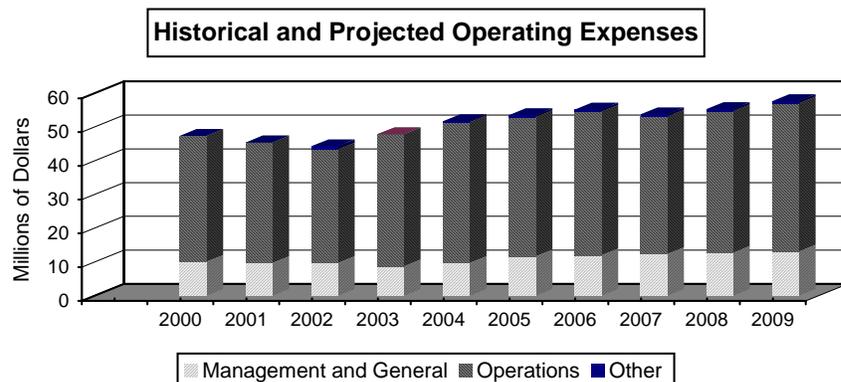


Table 10**Water Revenue Bond
Debt Service Requirements**

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
	\$	\$	\$	\$	\$
Existing Bonds					
Series 1998	1,262,200	1,253,200	1,260,400	1,274,700	1,281,700
Series 2002	<u>2,503,800</u>	<u>2,523,800</u>	<u>2,542,800</u>	<u>2,565,100</u>	<u>2,588,600</u>
Total Existing Debt Service	3,766,000	3,777,000	3,803,200	3,839,800	3,870,300
Proposed Bonds (a)					
	Amount of Issue				
	\$				
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	27,000,000		439,100	1,756,400	1,756,400
2008	39,000,000			634,300	2,537,000
2009	50,000,000				<u>813,200</u>
Total Proposed Debt Service	<u>0</u>	<u>0</u>	<u>439,100</u>	<u>2,390,700</u>	<u>5,106,600</u>
Total Debt Service	<u>3,766,000</u>	<u>3,777,000</u>	<u>4,242,300</u>	<u>6,230,500</u>	<u>8,976,900</u>

(a) Proposed bonds are assumed to be issued on October 1 of the year shown.

Table 11

**Water Department
Analysis of Ability of Forecasted Revenue to
Finance Projected Revenue Requirements**

Line No.				2005	2006	2007	2008	2009
				\$	\$	\$	\$	\$
Operating Fund								
1	Revenue from Charges			53,374,900	53,006,300	52,642,300	52,282,600	51,927,100
	Additional Revenue Required							
	Year	Revenue Increase	Months Effective					
2	2005	21.0%	2.0	1,868,100	11,131,300	11,054,900	10,979,300	10,904,700
3	2006	17.0%	5.0		4,543,100	10,828,500	10,754,500	10,681,400
4	2007	5.0%	5.0			1,552,600	3,700,800	3,675,700
5	2008	5.0%	5.0				1,619,100	3,859,400
6	2009	4.0%	5.0					1,350,800
7	Total Additional Revenue			1,868,100	15,674,400	23,436,000	27,053,700	30,472,000
8	Total Service Charge Revenue			55,243,000	68,680,700	76,078,300	79,336,300	82,399,100
9	Interest Income			172,700	184,900	346,200	389,500	397,100
10	Three-Mill Revenue Sharing			331,200	331,200	331,200	331,200	331,200
11	Plumbing Insp. & License Fees			116,600	116,600	116,600	116,600	116,600
12	Other Miscellaneous Income			1,660,200	1,660,200	1,660,200	1,660,200	1,660,200
13	Transfer from Bond Reserve Fund			117,900	117,900	144,200	208,600	295,400
14	Operation & Maintenance			53,553,100	55,159,800	53,724,500	55,336,200	56,996,500
15	Provision for Claims			3,316,000	2,634,000	2,704,000	2,776,100	2,550,400
16	Net Operating Revenue			772,500	13,297,700	22,248,200	23,930,100	25,652,700
Debt Service								
17	Existing			3,766,000	3,777,000	3,803,200	3,839,800	3,870,300
18	Proposed (a)			0	0	439,100	2,390,700	5,106,600
19	Total Debt Service			3,766,000	3,777,000	4,242,300	6,230,500	8,976,900
20	Interest Expense on BAN's			265,000	1,200,000	1,550,000	1,200,000	585,000
21	Transfer to Construction			0	0	14,000,000	16,000,000	16,000,000
22	Net Annual Balance			(3,258,500)	8,320,700	2,455,900	499,600	90,800
23	Beginning of Year Balance			(349,200)	(3,607,700)	4,713,000	7,168,900	7,668,500
24	End of Year Balance			(3,607,700)	4,713,000	7,168,900	7,668,500	7,759,300
Capital Projects Funding								
25	Funds Available at Beginning of Year			9,115,700	31,139,600	18,583,800	5,432,700	6,323,100
26	Revenue Bond Proceeds			0	0	27,000,000	39,000,000	50,000,000
27	Revenue from BAN's			53,000,000	28,000,000	39,000,000	0	0
28	Operation Fund Transfers			0	0	14,000,000	16,000,000	16,000,000
29	Participation By Others			0	0	0	0	0
30	Interest Income			305,900	546,200	354,300	155,400	184,900
	Total Funds Available			62,421,600	59,685,800	98,938,100	60,588,100	72,508,000
31	Routine Annual Additions			27,527,000	30,780,000	28,139,000	22,800,000	23,117,000
32	Major Capital Additions			3,225,000	10,042,000	9,680,000	148,000	152,000
	Issuance Costs							
33	Bond Issuance Expense			0	0	540,000	780,000	1,000,000
34	BAN Issuance Expense			530,000	280,000	390,000	0	0
35	Revenue Bond Reserve Fund			0	0	1,756,400	2,537,000	3,252,600
36	Redemption of BAN's			0	0	53,000,000	28,000,000	39,000,000
37	Total Application of Funds			31,282,000	41,102,000	93,505,400	54,265,000	66,521,600
38	End of Year Balance			31,139,600	18,583,800	5,432,700	6,323,100	5,986,400
Debt Service Coverage								
39	Annual Test			20.5%	352.1%	524.4%	384.1%	285.8%
40	Prior Two-Year Test			77.3%	31.5%	131.2%	221.6%	203.4%
41	Maximum Future Debt Test			27.5%	352.4%	397.6%	292.9%	225.2%

(a) Assumed term is 5.0 percent, 30 years.

Sewerage Department

Adherence to Sewerage Service Revenue Bond Resolution

In 1997, the Board issued \$30,000,000 Sewerage Service Revenue Bonds. Issuance of these bonds obligated the Board to adhere to the covenants of the Bond Resolution. Briefly, the covenants are concerned with:

- Powers as to bonds and pledge.
- Extension of payment of bonds.
- Establishment of rates and charges.
- Sale, lease, and encumbrance of the system.
- Operation, maintenance, and reconstruction of the system.
- Insurance and condemnation.
- Preparation of an annual operating budget.
- Preparation of the capital improvement budget.
- Maintenance of accounts and reports.
- Issuance of additional bonds.

The provisions of the Sewerage Service Revenue Bond Resolution are virtually identical to those of the Water Revenue Bond Resolution described in the preceding section of this report. The Board has complied with these covenants in the same manner as for the Water Revenue Bond covenants.

2004 Sewerage Department Operations

Customers and sales for 2000 through 2004 are shown in Table 12. Funds for the operation, maintenance, and debt service requirements of the Sewerage Department are obtained from sewerage service charges. The balance of revenue remaining after meeting these costs may be used for cash financing capital improvements as required. Other fund sources include participation by others, interest earned on invested funds, and other minor sources.

Revenues and expenditures related to the 2004 operations of the Sewerage Department are discussed in the following paragraphs.

Operating Revenues

Sewerage Department operating revenue for 2004 consisted of sales revenues based on the schedule of sewerage service charges shown in Table 13. Quantity charges for single family residential and multi-residential customers are based on 85 percent of the metered water consumption to allow 15 percent for lawn watering and other uses, which contribute no flow to

the sanitary sewer. All other classes are based on 100 percent of water consumption. Water from private wells or other non-Board sources that is discharged to the sanitary sewer system is to be metered and the consumption included in computing sewerage service charges. Any customer who can show that only a portion of his metered water usage is discharged to the sanitary sewer system is to be charged for only that portion of the total water quantity. A residential customer may have either the 15 percent allowance or a special exemption, but not both.

Operating revenues are derived from sewerage service charge revenue, which includes excess strength charges, and delinquent fees. Sewerage service charge revenues in 2004 were \$71,465,136 which, when compared with \$61,585,345 for 2003, shows an increase of \$9,879,791. The increase in revenues is primarily due to increased sewer rates. Delinquent fee revenues were \$786,979 in 2004.

Nonoperating Revenues

Sewerage Department nonoperating revenue includes interest earned on the investment of available funds and other minor items of revenue. Interest earned in 2004 consisted of \$2,673,124 from investments in the Sewerage System fund, the capital projects and construction fund. Miscellaneous income was \$814,600 for 2004. Historical nonoperating revenues are also shown in Table 14.

Operation and Maintenance Expenses

As previously discussed in the section of this report covering Water Department Operation and Maintenance Expenses, the Sewerage and Water Board utilizes a system of accounts designed to group expenses by function for budget purposes. Under the present system of accounts, expenses are categorized under the general classifications of management and general, operations expenses, and other expenses. Management and general expenses include wages, materials and supplies, services, and other costs of operating the Office of the Management Services Director, Personnel Administration, Finance Department, Information Systems, Purchasing Administration, Customer Services Department, and other administrative services including the Deputy Director, Executive Director, and Legal Department. Operations expenses encompass the costs of collecting, transporting, treating, and disposing of wastewater. Other expenses include such items as general insurance, outside services employed, social security, worker's compensation insurance, pension and medical insurance contributions, and miscellaneous expenditures.

Table 15 presents a summary of 2000 through 2004 historical operation and maintenance expenses of the Sewerage Department. Expenditures for 2004 increased slightly over 2003

expenditures. The average annual increase in O&M expenses over the five years shown is about 5.7 percent. Historical operation and maintenance expenses shown in Table 15 do not include the non-cash portion of Provision for Claims as recorded in the Comprehensive Annual Financial Report. Estimates of future Sewerage Department claims are shown on Line 15 in Table 22.

Capital Budget and Expenditures

Capital expenditures of the Sewerage Department include the cost of replacements and improvements to wastewater treatment and collection facilities. Total expenditures of \$63,074,107 were made in 2004. Capital improvement expenditures for 2004 are shown in Table 16.

Summary of Operations

The following tabulation shows a summary of the receipts and expenditures of the Sewerage Department during 2004:

Total Revenue	\$75,739,839
Operation and Maintenance Expense	38,379,620
Claims	1,079,493
Bond Debt Service	<u>17,058,878</u>
Revenue Available for Capital Expenditures (a)	\$19,221,848

(a) Unadjusted for depreciation.

Proposed Capital Improvement Program

The Sewerage and Water Board staff has prepared a Capital Improvement Program calling for expenditures, exclusive of prorated interest, of \$851,056,000 in the five-year period 2005 through 2009. The program includes additional sewage treatment capacity, pumping stations, force mains, gravity mains, and other improvements. The new or expanded facilities are necessary to provide for future growth and to provide adequate treatment of the sewage before it is discharged to the Mississippi River. The proposed Capital Improvement Program, shown in Table 17, reflects current cost estimates and inflationary trends in construction costs.

Of the projected total, \$346,405,000 is considered to be for recurring annual capital improvements. About 65 percent of this cost, or \$255,010,000, is for normal extensions and replacements of gravity mains, as the Board embarks on a very aggressive program of replacing older mains. The remaining \$504,651,000 is for proposed major capital expenditures. Costs of power projects and general budget items are prorated between the Water, Sewerage and Drainage Departments on the basis of relative use. The projected Sewerage Department pro rata

share of power project and general budget item costs for the five-year period 2005 through 2009 total \$1,391,000 and \$36,609,000, respectively.

Ability to Finance Proposed Capital Expenditures

Future operation, maintenance, and capital costs of the Sewerage Department will be financed with funds from the operating and nonoperating revenue sources.

The proposed program of capital improvements to Sewerage Department facilities, shown in Table 17, anticipates average expenditures of \$170,211,200 annually through 2009. Participation by others, in the form of grants from the Environmental Protection Agency, is projected to offset some of the capital program costs.

Operating Revenues

Future operating revenues of the Sewerage Department consist of sewerage service charge revenues which are summarized for 2005 through 2009 in Table 18. Future revenues reflect the existing rate schedule, which became effective July 1, 2005.

Other Revenue Sources

Based upon past practices, the Sewerage Department can expect to obtain revenues or funds from nonoperating sources. These include interest earned from the investment of available funds, participation by others, and miscellaneous other income. Also, by Board policy, the Sewerage Department receives one-half of the plumbing inspection and license fees, currently projected at \$116,600 per year, and about \$413,100 is currently anticipated for three-mill revenue sharing.

Interest income from the investment of funds held for future use depends upon the amount of funds accumulated for payment of future capital expenditures. Projections of interest income are presented in a subsequent table which summarizes the Department's financial position, and recognizes the financing of proposed capital improvements.

Participation by others consists of monies collected from developers and individuals for the extension of sewerage service to new customers and from governmental agencies for replacement and expansion of system facilities. As shown in Table 19, future revenues from EPA are estimated by the Board in the 2005 through 2009 Capital Budget to total \$15,000,000.

Operation and Maintenance Expense

Projections of operation and maintenance expenses are shown in Table 20 and are categorized by the present system of accounts. Estimates of future expenses are based on 2005 budgeted expenses with an allowance for continued inflation. Based on historical trends and

conversations with utility staff, all costs are projected to increase 3.0 percent per year. In addition, the 2005 budgeted expenses for Water Pumping & Power expenses have been increased about \$15,000 for the Sewerage Department's share of natural gas cost increases.

Debt Service Requirements

Sewerage Service Revenue Bonds in the amount of \$30,000,000 in 1997, \$25,000,000 in 1998, two issues totaling \$47,100,000 in 2000, \$32,720,000 in 2001, \$57,000,000 in 2002, \$5,500,000 in 2003, and 33,000,000 in 2004 have been issued. To adequately fund the proposed capital improvements, additional bonded debt is indicated as follows: \$120,000,000 in 2006; \$150,000,000 in 2007; \$120,000,000 in 2008; and \$114,000,000 in 2009. Debt service for the period 2005 through 2009 is shown in Table 21. It is assumed that the terms of new debt incurred will be 5.0 percent for a term of 30 years.

Adequacy of Revenues to Finance Proposed Capital Improvements

The capital improvements proposed by the Sewerage and Water Board are to be financed primarily from the issuance of new debt and participation by others. Operating and nonoperating revenue, after meeting the requirements of operation and maintenance and debt service expenses, must make up the balance of funds for capital improvements.

Table 22 presents a summary of the adequacy of anticipated revenue sources to finance projected operating and capital requirements of the Sewerage System Fund. Total revenue requirements consist of operation and maintenance expenditures, claims, debt service, and capital requirements.

Funds on hand and available to meet capital requirements at January 1, 2005, totaled \$142,077,000, which excludes an amount that is assumed to be available as a beginning balance for operations. Because of the magnitude of the amount needed to fund the capital improvements, it is estimated that additional bond issues in the amounts indicated above will be required during the study period. The adopted and proposed revenue increases shown in Table 22, combined with the additional bond issues and other revenue sources indicated, will be sufficient to meet projected revenue requirements through 2009.

Table 12

**Sewerage Department
Historical Billed Volumes
and Average Number of Customers (a)**

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Single Family Residential (b)					
Customers	121,883	123,162	121,645	124,122	121,524
Sales (1,000,000 gal.)	8,937	8,364	8,255	7,918	7,653
Sales Per Customer (1,000 gal.)	73	68	68	64	63
Multifamily Residential					
Customers	5,678	5,629	5,543	5,599	5,414
Sales (1,000,000 gal.)	2,458	2,219	2,112	1,954	1,635
Sales Per Customer (1,000 gal.)	433	394	381	349	302
Commercial					
Customers	11,365	11,473	11,416	11,984	11,897
Sales (1,000,000 gal.)	8,694	8,449	8,147	7,813	7,786
Sales Per Customer (1,000 gal.)	765	736	713	651	654
Industrial					
Customers	43	43	40	39	37
Sales (1,000,000 gal.)	134	117	110	88	86
Sales Per Customer (1,000 gal.)	3,138	2,743	2,743	2,292	2,348
Total					
Customers	138,968	140,306	138,645	141,743	138,871
Sales (1,000,000 gal.)	20,223	19,149	18,624	17,773	17,160

(a) Excludes customers receiving free service.

(b) Includes duplex.

Table 13

**Sewerage Department
Existing Sewer Rates
(Effective July 1, 2005)**

Monthly Sewerage Service Charge

<u>Meter Size</u>	<u>Total Monthly Charge</u>
Inches	\$
5/8	10.20
3/4	14.50
1	20.75
1-1/2	37.75
2	55.25
3	131.00
4	220.00
6	435.00
8	650.00
10	875.00
12	1,000.00
16	1,350.00

Monthly Quantity Charge

Per 1,000 Gallons	3.54
-------------------	------

Excessive Strength Charge per Pound

BOD	0.2415
TSS	0.1461

Table 14

Sewerage Department
Statement of Historical Revenues

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
	\$	\$	\$	\$	\$
Operating Revenue					
Sewerage Service Charges	48,324,698	48,769,092	52,772,374	61,585,345	71,465,136
Delinquent Fee (a)	<u>0</u>	<u>533,241</u>	<u>682,918</u>	<u>743,351</u>	<u>786,979</u>
Total Operating Revenue	48,324,698	49,302,333	53,455,292	62,328,696	72,252,115
Nonoperating Revenue					
Interest Income (b)	3,634,674	4,534,672	1,462,951	1,185,918	2,673,124
Plumbing Inspection and License Fees	152,387	106,918	109,685	107,822	116,574
Revenue Sharing	442,747	436,030	438,727	427,719	413,099
Other Income	<u>156,136</u>	<u>299,954</u>	<u>19,101</u>	<u>56,690</u>	<u>284,927</u>
Total Nonoperating Revenue	4,385,944	5,377,574	2,030,464	1,778,149	3,487,724
Total Revenue	<u>52,710,642</u>	<u>54,679,907</u>	<u>55,485,756</u>	<u>64,106,845</u>	<u>75,739,839</u>

(a) Prior to 2001 delinquent fees were included with sewerage service charges.

(b) Beginning in 2000, interest income in the audit reflects net of interest expense.

Table 15

**Sewerage Department
Historical Operation and Maintenance Expenses**

	2000	2001	2002	2003	2004
	\$	\$	\$	\$	\$
Management and General Expenses					
Administrative	1,147,520	2,072,416	2,268,730	2,289,479	2,528,091
Management Services Director	76,540	78,696	70,672	66,820	64,635
Building and Grounds and Support Services	1,133,030	694,571	687,555	743,855	752,517
Personnel Administration	286,065	313,301	286,214	319,356	330,135
Finance Administration	514,450	536,690	500,411	528,126	534,728
Information Systems	996,374	1,278,760	1,405,759	1,377,367	1,550,033
Revenue and Customer Service	2,964,555	3,050,216	2,790,941	2,911,581	3,078,293
Purchasing	221,094	206,512	201,641	188,945	191,210
Total Management and General	<u>7,339,628</u>	<u>8,231,162</u>	<u>8,211,923</u>	<u>8,425,529</u>	<u>9,029,642</u>
Operations Expenses					
General Superintendent	218,340	183,383	181,638	218,460	283,685
Drainage Pumping and Central Control	399,081	438,680	323,560	298,867	343,313
Sewerage Pumping	2,331,529	2,573,073	2,254,523	2,327,686	2,349,727
Chief of Operations	52,870	70,154	71,908	74,711	76,593
Water Pumping and Power	344,677	326,565	278,014	337,290	379,879
Sewerage Treatment	10,187,049	10,580,587	10,966,747	12,317,374	12,525,522
Chief of Facilities Maintenance	61,742	70,579	141,797	84,459	81,746
Facilities Maintenance	2,138,253	2,263,343	2,334,960	2,302,474	2,336,736
Central Yard	1,593,327	1,509,136	1,493,809	1,742,439	1,827,746
Office of Chief of Networks	413,259	295,374	148,960	109,275	127,722
Networks	6,207,838	6,115,744	5,897,656	7,278,889	7,533,371
Engineering	911,021	870,086	777,758	908,482	958,961
Plumbing	387,300	338,784	383,656	448,178	433,278
Total Operations	<u>25,246,286</u>	<u>25,635,488</u>	<u>25,254,986</u>	<u>28,448,584</u>	<u>29,258,279</u>
Other Expenses					
Special Accounts	1,023,170	2,013,328	1,253,069	1,067,861	1,404,331
Payroll Related Expenses	618,480	796,354	1,704,457	1,637,674	1,910,252
Overhead Allocation	(2,954,693)	(3,055,952)	(2,759,710)	(3,159,474)	(3,222,884)
Total Other	<u>(1,313,043)</u>	<u>(246,270)</u>	<u>197,816</u>	<u>(453,939)</u>	<u>91,699</u>
Total Operation and Maintenance (a)	<u>31,272,871</u>	<u>33,620,380</u>	<u>33,664,725</u>	<u>36,420,174</u>	<u>38,379,620</u>

(a) Source: Expenditure Analysis by Group Report.

Note: Historical operation and maintenance expenses do not include the non-cash portion of provision for claims as recorded in the Comprehensive Annual Financial Report. Estimates of future Water Department claims payable are included in Table 11.

Table 16

**Sewerage Department
Capital Expenditures (a)
2004**

C.P. #	Project	Actual Expenditures
		\$
	Sewerage Systems	
308	Sewer Rehab - "DPR Solutions"	719,540
313	Force Mains	618,025
317	Normal Extensions & Replacement of Gravity Mains	39,024,520
318	Rehabilitation Gravity Sewer System	863,703
326	Extensions & Replacements to Sewer Pump Stations	1,425,025
339	Mains in Street Dept. Contracts	2,380,044
347	Second Raw Sewage Channel, EBSTP	7,809,271
358	EBSTP Expansion	1,298,300
367	Collection System Eval/Survey Uptown	3,649,504
	Total Sewerage System	<u>57,787,933</u>
381	Modification & Extension of WBSTP to 20/50 MGD	89,102
	Total Sewerage Treatment	<u>89,102</u>
600	Sewerage Share of Power Projects	31,534
800	Sewerage Share of General Budget Items	5,165,538
	Total Sewerage Department	<u>63,074,107</u>
(a)	Expenditures do not include proration of interest expense.	

Table 17

**Sewerage Department
Proposed Capital Improvements (a)**

C.P. #	Project	2005	2006	2007	2008	2009	Total
		\$	\$	\$	\$	\$	\$
Routine Annual Capital Improvements							
317	Extensions and Replacements - Gravity Mains	92,500,000	44,860,000	32,630,000	29,060,000	25,960,000	225,010,000
326	Extensions and Replacements to Pumping Stations	9,750,000	2,400,000	8,800,000	10,000,000	3,000,000	33,950,000
339	Mains in Streets Department Contracts	3,250,000	3,500,000	3,750,000	4,000,000	4,250,000	18,750,000
348	Extensions and Replacements - Treatment Plants	6,250,000	7,115,000	6,310,000	4,010,000	4,010,000	27,695,000
600	Sewer Share of Power Projects	466,000	730,000	165,000	15,000	15,000	1,391,000
702	Sewer Reserve for Emergencies	0	0	0	0	0	0
800	Sewer Share of General Budget Items	7,686,000	8,797,000	7,844,000	7,657,000	7,625,000	39,609,000
	Total Routine Annual Improvements	119,902,000	67,402,000	59,499,000	54,742,000	44,860,000	346,405,000
Major Capital Improvements							
300	Engineering/Inspection of Developer Installations	10,000	10,000	10,000	10,000	10,000	50,000
313	Extensions and Replacements - Sewer Force Mains	25,500,000	50,610,000	19,660,000	23,110,000	0	118,880,000
318	Rehabilitation Gravity Sewer System	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	15,000,000
347	Second Raw Sewage Channel, EBSTP	0	0	0	0	0	0
358	EBSTP Expansion	10,000,000	5,870,000	63,750,000	275,800,000	0	355,420,000
367	Sewer System Evaluation Study	3,000,000	3,000,000	0	0	0	6,000,000
381	Modification and Expansion of WBSTP to 20/50 MGD	4,301,000	0	0	0	0	4,301,000
308	Rehabilitation of Sewer Mains in Central Busines District	5,000,000	0	0	0	0	5,000,000
	Total Major Improvements	50,811,000	62,490,000	86,420,000	301,920,000	3,010,000	504,651,000
	Total Sewerage System Improvements	170,713,000	129,892,000	145,919,000	356,662,000	47,870,000	851,056,000

(a) The improvements for the 2005-2009 period are based on the budget dated December 15, 2004.

Table 18

**Sewerage Department
Projected Operating Revenues**

<u>Year</u>	<u>Amount</u> \$
2005	81,856,700
2006	87,230,000
2007	87,311,700
2008	87,393,400
2009	87,475,100

Historical and Projected Operating Revenue

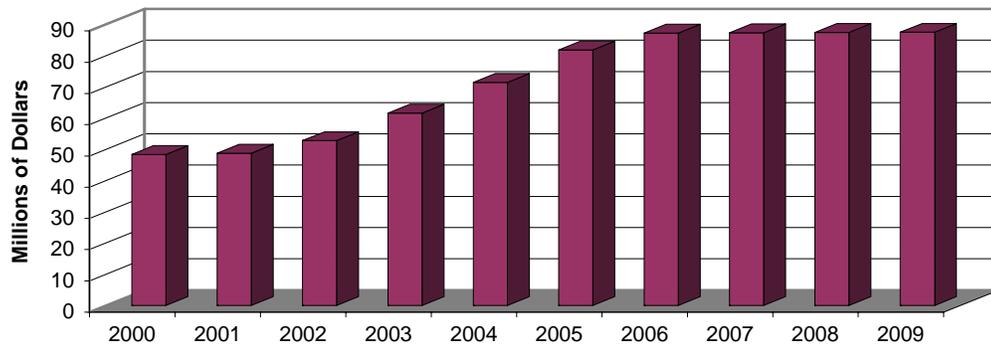


Table 19
Sewerage Department
Projected Participation by EPA

C.P. #	Project	2005	2006	2007	2008	2009	Total
		\$	\$	\$	\$	\$	\$
313	Extensions and Replacements - Sewer Force Mains	570,800	1,454,700	909,600	1,047,700	0	3,982,800
317	Extensions and Replacements - Gravity Mains	2,070,900	1,289,500	1,509,700	1,317,500	2,345,100	8,532,700
326	Extensions and Replacements to Pumping Stations	218,300	69,000	407,200	453,400	271,000	1,418,900
339	Mains in Streets Department Contracts	72,800	100,600	173,500	181,400	383,900	912,200
367	Sewer System Evaluation Study	67,200	86,200	0	0	0	153,400
	Total Participation By EPA	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	15,000,000

Table 20

**Sewerage Department
Projected Operation and Maintenance Expenses**

	2005 (a)	2006	2007	2008	2009
	\$	\$	\$	\$	\$
Management and General Expenses					
Administrative	2,892,500	2,979,300	3,068,700	3,160,800	3,255,600
Management Services Director	72,300	74,500	76,700	79,000	81,400
Building and Grounds and Support Services	820,300	844,900	870,300	896,400	923,300
Personnel Administration	363,700	374,600	385,900	397,500	409,400
Finance Administration	551,400	567,900	585,000	602,500	620,600
Information Systems	1,661,900	1,711,800	1,763,100	1,816,000	1,870,500
Revenue and Customer Service	3,320,300	3,419,900	3,522,500	3,628,200	3,737,000
Purchasing	224,500	231,200	238,100	245,300	252,600
Total Management and General	9,906,900	10,204,100	10,510,300	10,825,700	11,150,400
Operations Expenses					
General Superintendent	236,200	243,200	250,500	258,100	265,800
Drainage Pumping and Central Control	444,800	458,200	471,900	486,100	500,700
Sewerage Pumping	2,524,900	2,600,600	2,678,600	2,759,000	2,841,800
Chief of Operations	63,200	65,100	67,100	69,100	71,200
Water Pumping and Power	372,800	384,000	395,500	407,300	419,600
Sewerage Treatment	12,113,500	12,476,900	12,851,300	13,236,800	13,633,900
Chief of Facilities Maintenance	89,500	92,200	95,000	97,800	100,700
Facilities Maintenance	2,641,900	2,721,100	2,802,700	2,886,800	2,973,400
Central Yard	1,812,000	1,866,400	1,922,300	1,980,000	2,039,400
Office of Chief of Networks	94,100	96,900	99,800	102,800	105,900
Networks	7,507,400	7,732,600	7,964,600	8,203,500	8,449,600
Engineering	1,145,100	1,179,400	1,214,800	1,251,200	1,288,800
Plumbing	479,900	494,300	509,100	524,400	540,200
Total Operations	29,525,300	30,410,900	31,323,200	32,262,900	33,231,000
Other Expenses					
Special Accounts	1,939,800	1,998,000	2,058,000	2,119,700	2,183,300
Payroll Related Expenses	1,753,500	1,806,100	1,860,300	1,916,100	1,973,600
Overhead Allocation	(3,182,000)	(3,277,500)	(3,375,800)	(3,477,100)	(3,581,400)
Total Other	511,300	526,600	542,500	558,700	575,500
Total Operation and Maintenance	39,943,500	41,141,600	42,376,000	43,647,300	44,956,900

(a) Represents the adopted operating budget as of December 15, 2004.

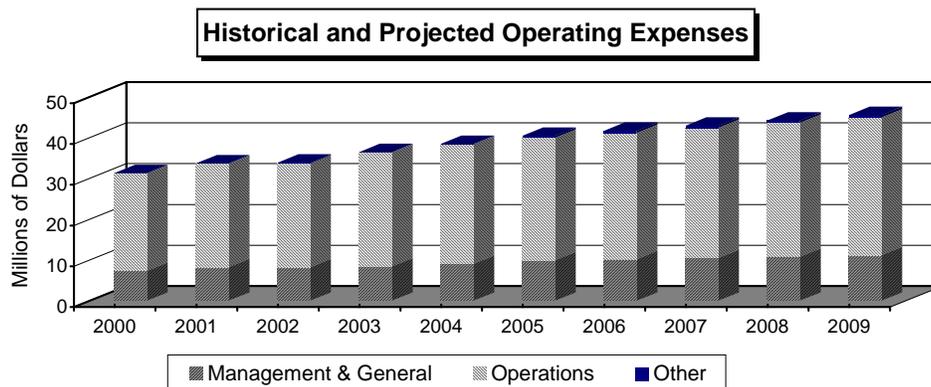


Table 21

**Sewerage Service Revenue Bond
Debt Service Requirements**

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
	\$	\$	\$	\$	\$
Existing Bonds					
Series 1997	2,511,200	2,515,300	2,508,300	2,505,900	2,511,000
Series 1998	1,964,100	1,966,300	1,982,900	1,998,300	2,003,900
Series 2000A	2,336,500	2,337,300	2,336,700	2,335,400	2,335,300
Series 2000B	1,690,800	1,681,000	1,681,300	1,686,900	1,692,600
Series 2001	2,669,900	2,657,400	2,649,500	2,629,800	2,617,500
Series 2002	4,384,900	4,420,300	4,449,000	4,481,200	4,516,000
Series 2003	408,200	406,900	406,600	406,900	406,500
Series 2004	2,617,000	2,520,700	2,487,800	2,451,800	2,438,700
Total Existing Debt Service	<u>18,582,600</u>	<u>18,505,200</u>	<u>18,502,100</u>	<u>18,496,200</u>	<u>18,521,500</u>
Proposed Bonds					
	Amount of Issue				
	<u>\$</u>				
2005	0	0	0	0	0
2006	120,000,000	1,951,600	7,806,200	7,806,200	7,806,200
2007	150,000,000		2,439,400	9,757,700	9,757,700
2008	120,000,000			1,951,600	7,806,200
2009	114,000,000				<u>1,854,000</u>
Total Proposed Debt Service		<u>0</u>	<u>1,951,600</u>	<u>10,245,600</u>	<u>19,515,500</u>
			<u>10,245,600</u>	<u>19,515,500</u>	<u>27,224,100</u>

Table 22

**Sewerage Department
Analysis of Ability of Forecasted Revenue to
Finance Projected Revenue Requirements**

Line No.		2005	2006	2007	2008	2009
		\$	\$	\$	\$	\$
Operating Fund						
1	Revenue from Charges	81,856,700	87,230,000	87,311,700	87,393,400	87,475,100
	Additional Revenue Required					
	Revenue					
	Months					
	Year					
	Increase					
	Effective					
2	2005	0	0	0	0	0
3	2006		5,088,400	12,223,600	12,235,100	12,246,500
4	2007			2,903,100	6,974,000	6,980,500
5	2008				3,109,200	7,469,100
6	2009					3,330,000
7	Total Additional Revenue	0	5,088,400	15,126,700	22,318,300	30,026,100
8	Total Service Charge Revenue	81,856,700	92,318,400	102,438,400	109,711,700	117,501,200
9	Interest Income	199,800	220,000	259,600	234,600	232,100
10	Three-Mill Revenue Sharing	413,100	413,100	413,100	413,100	413,100
11	Plumbing Insp. & License Fees	116,600	116,600	116,600	116,600	116,600
12	Miscellaneous Revenue	100,000	100,000	100,000	100,000	100,000
13	Transfer from Bond Reserve Fund	513,800	2,159,200	(561,954)	1,193,800	1,422,100
14	Operation & Maintenance	39,943,500	41,141,600	42,376,000	43,647,300	44,956,900
15	Provision for Claims	1,236,000	1,273,100	1,311,300	1,350,600	1,391,100
16	Net Operating Revenue	42,020,500	52,912,600	59,078,446	66,771,900	73,437,100
Debt Service						
17	Existing	18,582,600	18,505,200	18,502,100	18,496,200	18,521,500
18	Proposed (a)	0	1,951,600	10,245,600	19,515,500	27,224,100
19	Total Debt Service	18,582,600	20,456,800	28,747,700	38,011,700	45,745,600
20	Interest Expense on BAN's	5,390,000	5,513,800	13,351,300	19,648,800	18,741,300
21	Transfer to Construction	15,000,000	27,000,000	17,000,000	9,000,000	9,000,000
22	Net Annual Balance	3,047,900	(58,000)	(20,554)	111,400	(49,800)
23	Beginning of Year Balance	2,723,600	5,771,500	5,713,500	5,692,946	5,804,346
24	End of Year Balance	5,771,500	5,713,500	5,692,946	5,804,346	5,754,546
Capital Projects Funding						
25	Funds on Hand	142,077,000	74,420,900	94,039,900	256,207,500	26,649,600
26	Revenue Bond Proceeds	0	120,000,000	150,000,000	120,000,000	114,000,000
27	Revenue from BAN's	196,000,000	107,000,000	356,000,000	361,000,000	280,000,000
28	Operation Fund Transfers	15,000,000	27,000,000	17,000,000	9,000,000	9,000,000
29	Participation by EPA	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
30	Participation by Others	0	0	0	0	0
31	Interest Income	4,295,100	1,787,200	3,404,300	3,920,300	888,800
32	Total Funds Available	360,372,100	333,208,100	623,444,200	753,127,800	433,538,400
33	Routine Annual	119,902,000	67,402,000	59,499,000	54,742,000	44,860,000
34	Major Capital Additions	50,811,000	62,490,000	86,420,000	301,920,000	3,010,000
Issuance Costs						
35	Bond Issuance Expense	0	2,400,000	3,000,000	2,400,000	2,280,000
36	BAN Issuance Expense	1,960,000	1,070,000	3,560,000	3,610,000	2,800,000
37	Revenue Bond Reserve Fund	0	7,806,200	9,757,700	7,806,200	7,415,900
38	Redemption of BAN's	113,278,200	98,000,000	205,000,000	356,000,000	361,000,000
39	Total Application of Funds	285,951,200	239,168,200	367,236,700	726,478,200	421,365,900
40	End of Year Balance	74,420,900	94,039,900	256,207,500	26,649,600	12,172,500
Debt Service Coverage						
41	Annual Test	226.1%	258.7%	205.5%	175.7%	160.5%
42	Prior Two-Year Test	164.1%	156.3%	140.6%	134.0%	130.2%
43	Maximum Future Debt Service Test	252.2%	209.0%	173.9%	161.6%	145.3%

(a) Assumed term is 5.00 percent, 30 years.

Drainage Department

2004 Drainage Department Operations

The Sewerage and Water Board has provided for the drainage needs of New Orleans since 1903. The City encompasses a saucer-shaped depression between the Mississippi River and Lake Pontchartrain on the East Bank and an area bordered by the river and adjoining wet lands on the West Bank. Prior to January 1, 1967, when the three-mill drainage tax became effective, the City of New Orleans was obligated to reimburse the Board for the cost of operating and maintaining drainage facilities.

In 1969, studies of projected capital improvement financing needs and revenue requirements indicated the need for additional sources of funds. Constitutional amendments, which would have provided the required funds from an additional three-mill ad valorem tax, were offered in 1970, and again in 1972. The State's electorate rejected both amendments. However, an additional six-mill ad valorem tax was approved April 16, 1977 and became effective January 1, 1978. Subsequently, a nine-mill property tax increase was approved May 16, 1981 and implemented January 1, 1982. The nine-mill tax is to be used for operation and maintenance, as well as funding of capital improvements.

Water entering the City in the form of rain or underground flow must be continually removed by pumping to minimize the danger of flooding, and pumping costs are significantly impacted by rainfall events. Following a relatively dry year in 2000, rainfall in 2001, 2002, 2003, and 2004 was 8.83 inches, 15.63 inches, 2.65 inches and 3.55 inches, respectively, above average annual rainfall. A summary of rainfall for 2000 through 2004 is shown in Table 23.

The Board is charged with the operating, maintaining, repairing, and expanding the major drainage system located throughout the City.

Revenues

Revenues that were available to the Drainage Department for operation and maintenance expenses, and capital additions, consisted of proceeds from the three-mill, six-mill, and nine-mill ad valorem tax, interest on investments, and miscellaneous income. Other revenues available for Drainage Department capital improvements included interest income and other miscellaneous sources.

A comparative summary of revenues received by source from 2000 through 2004 is shown in Table 24.

Operation and Maintenance Expenses

The present system of accounts categorizes expenses under the functional classifications of management and general expenses, operations expenses, and other expenses, including such items as general insurance, outside services employed, social security, worker's compensation insurance, pension and medical insurance contributions, and miscellaneous expenditures.

Table 25 presents a summary of 2000 through 2004 operation and maintenance expenses of the Drainage Department. Expenditures for 2004 increased about 15 percent from 2003 expenditures. Operation and maintenance expenses have increased an average of 4 percent per year over the five year period shown. Historical operation and maintenance expenses shown in Table 25 do not include the non-cash portion of Provision for Claims as recorded in the Comprehensive Annual Financial Report. Estimate of future Drainage Department claims are included on Line 8 in Table 32.

Capital Budget and Expenditures

Capital expenditures of the Drainage Department include the cost of replacements and improvements to pumping stations and canals, and the Drainage Department's pro rata share of power projects and general budget costs.

The Drainage Department capital improvement expenditures for 2004, shown in Table 26, amounted to \$19,739,883.

Summary of Operations

The following tabulation shows a summary of receipts and expenditures of the Drainage Department during 2003:

Total Revenues	\$45,295,792
Operation and Maintenance Expense	20,258,705
Claims	1,752,753
Bond Debt Service	<u>2,213,948</u>
Revenue Available for Capital Expenditures (a)	\$20,070,386

(a) Unadjusted for depreciation

Proposed Capital Improvement Program

The Sewerage and Water Board staff has prepared a Capital Improvement Program calling for expenditures of \$614,856,000 for the five years 2005 through 2009. Proposed projects, shown in Table 27, reflect current cost estimates and inflationary trends in construction

costs. Major budget items include extension and enlargement of canals plus increased pumping capacity.

Participation by others consists of monies collected from developers and individuals for the extension of drainage service to new customers and from governmental agencies for replacement and expansion of system facilities. As shown in Table 28, future revenues from these sources are estimated by the Board in the 2005 through 2009 Capital Budget according to capital project and amount to \$318,464,000, most of which is provided by the United States Corps of Engineers.

The Sewerage and Water Board is currently receiving funds from the Corps of Engineers sponsored and Congressionally authorized Southeast Louisiana Urban Flood Control (SELA) Project. This funding will allow additional construction of projects which were identified in the 1970's, but which have not been completed because of funding limitations. Approximately \$238,000,000 of drainage projects have recently been completed or are under construction for the City of New Orleans. Approximately \$196,720,000 of design changes are being added to the authorized projects to enhance their benefits. The total amount of the authorized projects (including design changes) is estimated at \$434,720,000. The Sewerage and Water Board has identified approximately \$140,000,000 of additional projects which meet the federal criteria for the SELA program.

Ability to Finance Proposed Capital Expenditures

Drainage Department future operating and capital cost requirements are to be met by the revenue sources previously discussed. In 2004, the three-mill, six-mill, and nine-mill ad valorem taxes were the principal source of operating funds for the Drainage Department.

Revenues

Projected operating income of the drainage system is shown in Table 29. Projections include proceeds from the three-mill, the six-mill, and the nine-mill ad valorem tax and other revenue.

Other sources of income include interest earned from the investment of funds held for future use; sales of three-mill, six-mill, and nine-mill ad valorem tax bonds; and participation by others. Projections of interest income, which vary according to the balance of funds held for future use, are shown in a later section of this report.

The projection of millage revenue for 2005 through 2009 is based on 6.40, 6.48, and 9.71 mills for three-mill, six-mill, and nine-mill taxes, respectively.

Operation and Maintenance Expenses

Projections of Drainage Department operation and maintenance expenses are based upon analyses of historical cost trends, modified to recognize anticipated future operating conditions, the proposed 2005 operating budget, and inflationary factors. Under the present system of accounts, expenses are categorized under the general classifications of management and general, operations expenses, and other expenses. Management and general expenses include wages, materials and supplies, services, and other costs of operating the Office of the Management Services Director, Personnel Administration, Finance Department, Information Systems, Purchasing Administration, and other administrative services including the Deputy Director, Executive Director and Legal Department. Operations expenses encompass the costs of operating and maintaining the drainage network. Other expenses include such items as general insurance, outside services employed, social security, worker's compensation insurance, pension contributions, medical insurance contributions, and miscellaneous expenditures. Projections of future Drainage Department operation and maintenance expenses for the period 2005 through 2009 are summarized in Table 30. Based on historical trends and conversations with utility staff, all costs are projected to increase 3.0 percent per year from 2005. In addition, the 2005 budgeted expenses for Water Pumping & Power expenses have been increased about \$360,000 for the Drainage Department's share of natural gas cost increases.

Debt Service Requirements

Nine-mill bonds in the amount of \$10,000,000 were issued in 1998, and as of December 31, 2004, \$7,930,000 remained outstanding. Additional nine-mill bonds in the amount of \$20,000,000 were issued in 2002, and as of December 31, 2004, \$18,955,000 remained outstanding.

Collection of the three-mill ad valorem tax levy is authorized until the year 2017; six-mill tax until 2028; and nine-mill tax until 2032.

A summary of existing and proposed debt service requirements of the Drainage Department for the next five years is shown in Table 31. There are no debt service reserve requirements for the drainage tax bonds.

Adequacy of Revenues to Finance Proposed Capital Improvements

The proposed Drainage Department Capital Improvement Program for 2005 through 2009 totals \$614,856,000. The proceeds to finance this program are to come from the Drainage System Fund, Construction and Extension Fund, the Drainage System Bond Proceeds Fund, and participation by others.

Money deposited in the Drainage System Fund is obtained from the three-mill, six-mill, and nine-mill ad valorem tax, and other miscellaneous sources. After meeting operation and maintenance expenses and debt service requirements, money in the Drainage System Fund may be expended for capital improvements.

A summary of projected Drainage Department income and expenditures is shown in Table 32. Based upon the projections, current revenue sources will be adequate to pay debt service on outstanding bonds, as well as debt service on proposed bonds and operation and maintenance requirements through the study period. Projected total capital funds available will be able to meet the Capital Improvement Program for 2005 through 2009 assuming debt financing in the amount of \$51,000,000 in 2005, \$110,000,000 in 2006, \$46,000,000 in 2007, \$21,000,000 in 2008, and \$14,000,000 in 2009.

Table 23
Drainage Department
Rainfall

Year	Year to Date (inches)												Deviation from Average
	January	February	March	April	May	June	July	August	September	October	November	December	
2000	2.60	3.46	5.21	6.57	6.94	13.63	15.34	18.61	25.00	27.53	40.96	44.23	(14.78)
Average (a)	4.59	9.22	14.37	19.30	24.16	29.61	36.06	41.92	47.51	50.61	54.34	59.01	
2001	3.02	4.06	15.50	16.03	18.05	37.13	44.60	51.64	57.26	61.61	64.90	67.92	8.83
Average (a)	4.58	9.18	14.38	19.27	24.10	29.68	36.13	42.01	47.60	50.71	54.44	59.09	
2002	3.97	6.20	10.97	14.47	16.74	22.23	28.06	33.69	56.11	65.89	69.88	74.86	15.63
Average (a)	4.57	9.15	14.35	19.23	24.03	29.61	36.06	41.93	47.68	50.85	54.58	59.23	
2003	0.12	6.20	10.85	16.24	18.56	36.35	45.52	49.05	51.55	54.79	59.80	61.91	2.65
Average (a)	4.53	9.12	14.32	19.20	23.98	29.67	36.15	42.00	47.71	50.88	54.63	59.26	
2004	3.34	11.44	12.43	20.73	28.11	38.42	43.20	47.38	48.45	54.00	60.08	62.84	3.55
Average (a)	4.52	9.14	14.30	19.21	24.02	29.75	36.21	42.05	47.72	50.91	54.67	59.29	

(a) Average of Year 1894 to Date.

Table 24**Drainage Department
Historical Revenues Received**

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
	\$	\$	\$	\$	\$
Three-mill Ad Valorem Tax	10,282,702	10,531,749	10,312,636	11,031,057	12,199,559
Six-mill Ad Valorem Tax	10,411,336	10,401,634	10,567,048	11,169,140	12,352,092
Nine-mill Ad Valorem Tax	15,600,065	15,780,366	15,946,585	16,735,885	18,508,104
Two-mill Ad Valorem Tax	6,348	10,726	5,059	7,424	5,192
Plumbing License and Inspection Fees	0	0	0	0	0
Interest Earned	3,257,777	3,779,489	1,594,758	966,684	1,259,621
Other	972,807	958,387	878,022	857,102	971,224
Total Revenue	<u>40,531,035</u>	<u>41,462,351</u>	<u>39,304,108</u>	<u>40,767,292</u>	<u>45,295,792</u>
Total Less Interest	37,273,258	37,682,862	37,709,350	39,800,608	44,036,171

Table 25

**Drainage Department
Historical Operation and Maintenance Expenses**

	2000	2001	2002	2003	2004
	\$	\$	\$	\$	\$
Management and General Expenses					
Administrative	1,232,516	974,431	813,384	761,832	1,417,324
Management Services Director	37,176	38,224	34,327	32,456	31,395
Building and Grounds and Support Services	600,192	1,540,480	1,456,467	2,012,076	2,142,492
Personnel Administration	138,945	152,174	139,018	155,117	160,352
Finance Administration	219,580	226,964	210,791	219,425	221,540
Information Systems	483,953	621,111	682,798	669,008	752,874
Purchasing	107,390	100,305	97,941	91,772	92,872
Total Management and General	2,819,752	3,653,689	3,434,726	3,941,686	4,818,849
Operations Expenses					
General Superintendent	106,051	89,072	88,224	106,109	137,791
Drainage Pumping and Central Control	5,229,832	5,537,401	4,993,778	5,198,587	5,448,217
Chief of Operations	25,681	34,074	34,927	36,287	37,202
Water Pumping and Power	3,241,995	3,053,806	2,472,849	3,308,905	4,260,920
Chief of Facilities Maintenance	35,281	40,331	81,027	41,022	39,706
Facilities Maintenance	1,140,598	1,209,386	1,246,930	1,220,339	1,227,592
Central Yard	778,908	736,004	729,464	850,339	891,602
Office of Chief of Network	200,726	143,467	72,353	53,077	62,037
Networks	3,592,178	3,705,831	3,474,597	2,221,412	2,283,389
Engineering	620,649	550,594	554,462	650,068	607,271
Total Operations	14,971,899	15,099,966	13,748,611	13,686,145	14,995,727
Other Expenses					
Special Accounts	382,900	495,901	482,325	524,886	634,506
Payroll Related Expenses	567,032	574,202	1,318,780	942,252	1,293,774
Overhead Allocation	(1,357,564)	(1,404,087)	(1,267,978)	(1,451,655)	(1,484,151)
Total Other	(407,632)	(333,984)	533,127	15,483	444,129
Total Operation and Maintenance (a)	17,384,019	18,419,671	17,716,464	17,643,314	20,258,705

(a) Source: Expenditure Analysis by Group Report.

Note: Historical operation and maintenance expenses do not include the non-cash portion of provision for claims as recorded in the Comprehensive Annual Financial Report. Estimates of future Water Department claims payable are included in Table 11.

Table 26
Drainage Department
Capital Expenditures (a)
2004

C.P. #	Project	Actual Expenditures \$
Canals		
403	Improvements to Vehicular Bridges	140,716
404	Washington Ave. Canal Improvements	32,600
418	Normal Extensions & Replacements	64,808
439	SWB Part Drng Tchoupitoulas Paving Project	1,091,275
471	C.O.E. Drainage Study	2,119,682
474	Terpsichore Canal	1,699,325
476	Hollygrove Canals	1,896,102
477	Eng. Design - Claiborne Manifold	1,838,676
478	S. Claiborne - Lowerline to Monticello Street	402,191
486	Napoleon Canal Improvements	963,202
496	General DeGaulle Canal	247,037
497	Florida Ave. Canal - Mazant to Peoples	245,504
498	Dwyer Canal (St. Charles to Dwyer DPS)	1,300
499	Jefferson Avenue Canal	59,844
	Total Drainage Canals	10,802,261
Pumping Stations		
511	Normal Extensions & Rep./Stations	574,528
546	DPS #4 West-Build A 1000 CFS Station	77,468
550	Additions to Drainage Pumping Station #1	795,746
554	Expansion of Dwyer DPS	916,377
570	Pritchard DPS	200,629
	Total Drainage Pumping Stations	2,564,749
600	Drainage Share of Power Projects	3,712,543
703	Drainage Reserve for Emergency	142,515
800	Drainage Share of General Budget Items	2,517,814
	Total Drainage Department	19,739,883

(a) Expenditures do not include proration of interest expense.

Table 27

**Drainage Department
Proposed Capital Improvements (a)**

C.P.#	Project	2005	2006	2007	2008	2009	Total
		\$	\$	\$	\$	\$	\$
Routine Capital Improvements							
400	Eng. & Insp. of Devlp. Installations	10,000	10,000	10,000	10,000	10,000	50,000
418	Normal Ext. & Replacements	1,975,000	400,000	400,000	400,000	400,000	3,575,000
511	Normal Ext. & Replacement - Stations	2,580,000	1,200,000	1,100,000	1,100,000	1,100,000	7,080,000
600	Drainage Share of Power Projects	5,726,000	5,335,000	8,525,000	2,975,000	225,000	22,786,000
703	Drainage Reserve for Emergencies	0	0	0	0	0	0
800	Drainage Share of General Budget Items	4,266,000	3,421,000	2,552,000	2,503,000	2,498,000	15,240,000
	Total Routine Capital Improvements	14,557,000	10,366,000	12,587,000	6,988,000	4,233,000	48,731,000
Major Capital Improvements							
403	Improvements to Vehicular Bridges	100,000	0	0	0	0	100,000
404	Washington Avenue Canal Improvements						0
439	Mains, Over 36" in Street Dept. Contracts	2,080,000	1,580,000	1,580,000	1,580,000	1,580,000	8,400,000
453	Improvements to Metairie Relief Canal	275,000	4,300,000	0	0	0	4,575,000
466	Louisiana Ave. Canal	250,000	50,000	24,550,000	1,000,000	1,600,000	27,450,000
471	SELA Program Management	3,100,000	1,750,000	2,850,000	2,950,000	2,925,000	13,575,000
472	Tchoupitoulas Corridor	100,000	2,750,000	1,750,000	0	0	4,600,000
474	Melpomene Street Canal	100,000	0	0	0	0	100,000
476	Hollygrove Canals	2,400,000	0	0	0	0	2,400,000
477	S. Claib Manifold - LA Ave. to Nashville Ave.	1,300,000	0	0	0	0	1,300,000
478	S. Claib - Lowerline to Monticello St.	0	44,000,000	3,000,000	2,800,000	0	49,800,000
483	Airline & Monticello Canal Improvements	150,000	1,900,000	0	0	0	2,050,000
486	Napoleon Canal Improvements	0	25,575,000	22,200,000	3,500,000	3,000,000	54,275,000
490	Orleans Ave. Canal	3,000,000	43,500,000	0	0	0	46,500,000
492	Donner Canal Improvements	0	1,300,000	0	19,050,000	750,000	21,100,000
495	Florida Ave. Canal, Peoples to Elysian Fields	0	1,500,000	0	19,400,000	1,500,000	22,400,000
496	De Gaulle Canal	1,500,000	0	49,600,000	1,000,000	1,100,000	53,200,000
497	Florida Ave. Canal, DPS #19 to Peoples	39,300,000	1,300,000	800,000	24,500,000	800,000	66,700,000
498	Dwyer Canal - Lamb to Jourdan	13,950,000	1,100,000	0	0	0	15,050,000
499	Jefferson Ave. Canal	200,000	200,000	23,500,000	1,200,000	19,600,000	44,700,000
512	Expansion of DPS #15	0	8,000,000	0	0	0	8,000,000
535	DPS #6	1,700,000	1,000,000	31,300,000	1,300,000	1,000,000	36,300,000
546	Expansion of DPS #4 West	250,000	17,000,000	0	0	0	17,250,000
550	Additions to DPS #1						0
554	Expansion of Dwyer DPS	4,600,000	600,000	0	0	0	5,200,000
555	DPS #7 Improvements	100,000	0	0	0	0	100,000
557	Flood Gate - DPS #16 Discharge Tunnel	0	2,050,000	0	0	0	2,050,000
568	Lakefront Pumping Station	0	0	4,200,000	0	0	4,200,000
570	Pritchard DPS	100,000	0	0	0	0	100,000
571	Harrison Ave. DPS	0	1,000,000	0	8,200,000	600,000	9,800,000
572	Robert E. Lee DPS	0	1,000,000	0	8,200,000	600,000	9,800,000
573	DPS #13 Improvements	2,200,000	0	32,050,000	800,000	0	35,050,000
	Total Major Capital Improvements	76,755,000	161,455,000	197,380,000	95,480,000	35,055,000	566,125,000
	Total Drainage Department Improvements	91,312,000	171,821,000	209,967,000	102,468,000	39,288,000	614,856,000

(a) The improvements for the 2005-2009 period are based on the budget dated December 15, 2004.

Table 28

**Drainage Department
Projected Participation by Others (a)**

C.P.#	Project	2005	2006	2007	2008	2009	Total
		\$	\$	\$	\$	\$	\$
453	Improvements to Metairie Relief Canal	0	1,150,000	0	0	0	1,150,000
466	Louisiana Ave. Canal			17,180,000		120,000	17,300,000
472	Tchoupitoulas Corridor	1,000,000	850,000	0	0	0	1,850,000
476	Hollygrove Canals	1,800,000	0	0	0	0	1,800,000
477	S. Claib - Manifold-Louisiana Ave to Nashville	600,000	0	0	0	0	600,000
478	S. Claib - Lowerline to Monticello St.	0	31,500,000	0	600,000	0	32,100,000
486	Napoleon Canal Improvements	0	18,750,000	15,000,000	0	0	33,750,000
490	Orleans Ave. Canal	0	32,625,000	0	0	0	32,625,000
492	Donner Canal Improvements	0	0	0	13,500,000	0	13,500,000
496	De Gaulle Canal	0	0	0	42,000,000	0	42,000,000
497	Florida Ave. Canal, DPS #19 to Peoples	26,100,000	0	0	16,650,000	0	42,750,000
498	Dwyer Canal - Lamb to Jourdan	9,375,000	0	0	0	0	9,375,000
499	Jefferson Ave. Canal	0	0	16,500,000	0	12,000,000	28,500,000
535	DPS #6	405,000	238,000	7,450,000	309,000	238,000	8,640,000
546	Expansion of DPS #4 West	0	12,750,000	0	0	0	12,750,000
554	Expansion of Dwyer DPS	3,000,000	0	0	0	0	3,000,000
568	Lakefront Pumping Station	0	0	3,024,000	0	0	3,024,000
571	Harrison Ave. DPS	0	0	0	5,250,000	0	5,250,000
572	Robert E. Lee DPS	0	0	0	5,250,000	0	5,250,000
573	DPS #13 Improvements	0	0	23,250,000	0	0	23,250,000
	Total	42,280,000	97,863,000	82,404,000	83,559,000	12,358,000	318,464,000

(a) The improvements for the 2005-2009 period are based on the budget dated December 15, 2004.

Table 29

**Drainage Department
Projected Operating Revenues**

Year	Ad Valorem Tax Revenue				Total
	Three-Mill	Six-Mill	Nine-Mill	Other	
	\$	\$	\$	\$	
2005	10,987,800	11,100,700	16,679,600	950,000	39,718,100
2006	11,343,800	11,460,400	17,220,000	950,000	40,974,200
2007	11,711,400	11,831,700	17,777,900	950,000	42,271,000
2008	12,090,900	12,215,100	18,353,900	950,000	43,609,900
2009	12,482,700	12,610,900	18,948,600	950,000	44,992,200

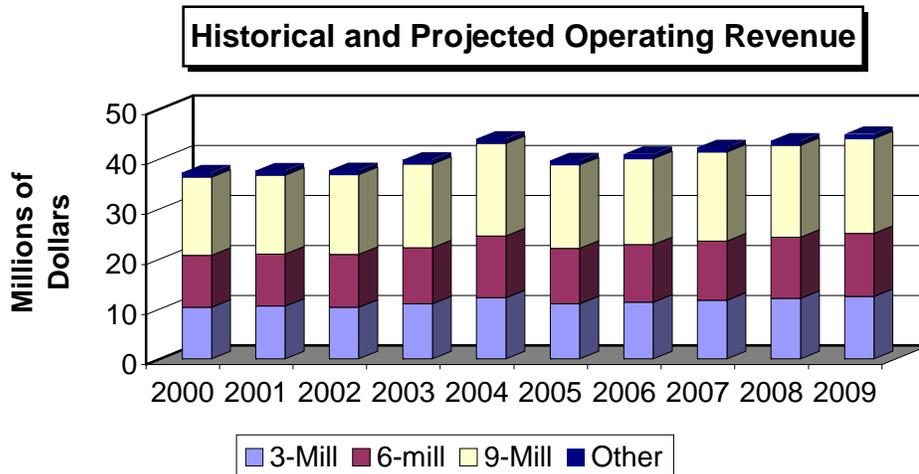


Table 30

**Drainage Department
Projected Operation and Maintenance Expenses**

	2005 (a)	2006	2007	2008	2009
	\$	\$	\$	\$	\$
Management and General Expenses					
Administrative	1,402,400	1,444,500	1,487,800	1,532,400	1,578,400
Management Services Director	35,100	36,200	37,300	38,400	39,500
Building and Grounds and Support Services	2,206,000	2,272,200	2,340,400	2,410,600	2,482,900
Personnel Administration	176,700	182,000	187,400	193,000	198,800
Finance Administration	227,300	234,100	241,100	248,400	255,800
Information Systems	807,200	831,400	856,400	882,100	908,500
Purchasing	109,000	112,300	115,700	119,100	122,700
Total Management and General	4,963,700	5,112,700	5,266,100	5,424,000	5,586,600
Operations Expenses					
General Superintendent	114,700	118,100	121,700	125,300	129,100
Drainage Pumping and Central Control	6,181,200	6,366,600	6,557,600	6,754,400	6,957,000
Chief of Operations	30,700	31,600	32,600	33,600	34,600
Water Pumping and Power	3,902,900	4,020,000	4,140,600	4,264,800	4,392,800
Chief of Facilities Maintenance	43,500	44,800	46,100	47,500	48,900
Facilities Maintenance	1,370,400	1,411,500	1,453,900	1,497,500	1,542,400
Central Yard	883,700	910,200	937,500	965,700	994,600
Office of Chief of Network	45,700	47,100	48,500	49,900	51,400
Networks	2,170,900	2,236,000	2,303,100	2,372,200	2,443,400
Engineering	717,000	738,500	760,700	783,500	807,000
Total Operations	15,460,700	15,924,400	16,402,300	16,894,400	17,401,200
Other Expenses					
Special Accounts	1,217,300	1,253,900	1,291,500	1,330,200	1,370,100
Payroll Related Expenses	1,167,000	1,202,000	1,238,100	1,275,200	1,313,500
Overhead Allocation	(1,462,000)	(1,505,900)	(1,551,100)	(1,597,600)	(1,645,500)
Total Other	922,300	950,000	978,500	1,007,800	1,038,100
Total Operation and Maintenance	21,346,700	21,987,100	22,646,900	23,326,200	24,025,900

(a) Represents the adopted operating budget as of December 15, 2004.

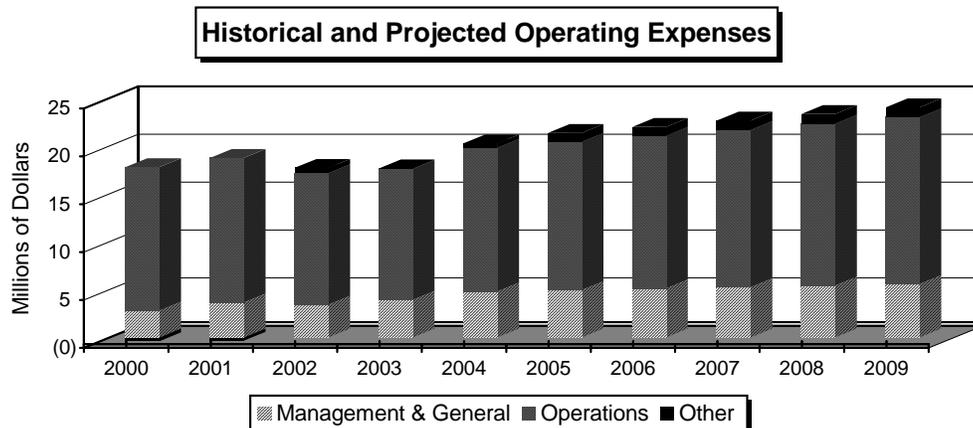


Table 31

**Drainage Department
Debt Service Requirements**

	2005	2006	2007	2008	2009
	\$	\$	\$	\$	\$
Nine-Mill Tax Bonds					
Series 1998	776,700	776,000	783,600	789,700	794,500
Series 2002	1,421,300	1,417,700	1,412,300	1,405,100	1,401,100
Total Nine-Mill Debt Service	2,198,000	2,193,700	2,195,900	2,194,800	2,195,600
Proposed Bond Issues					
	Amount of Issue				
	\$				
2005	51,000,000	829,400	3,317,600	3,317,600	3,317,600
2006	110,000,000		1,788,900	7,155,700	7,155,700
2007	46,000,000			748,100	2,992,400
2008	21,000,000				341,500
2009	14,000,000				1,366,100
					227,700
Total Proposed Debt Service		829,400	5,106,500	11,221,400	13,807,200
Total Debt Service		3,027,400	7,300,200	13,417,300	16,002,000
				16,002,000	17,255,100

Table 32

**Drainage Department
Analysis of Ability of Forecasted Revenue to
Finance Projected Revenue Requirements**

Line No	2005	2006	2007	2008	2009	
	\$	\$	\$	\$	\$	
Operating Fund						
1	Three-Mill Ad Valorem Tax Revenue	10,987,800	11,343,800	11,711,400	12,090,900	12,482,700
2	Six-Mill Ad Valorem Tax Revenue	11,100,700	11,460,400	11,831,700	12,215,100	12,610,900
3	Nine-Mill Ad Valorem Tax Revenue	16,679,600	17,220,000	17,777,900	18,353,900	18,948,600
4	Other	950,000	950,000	950,000	950,000	950,000
5	Interest Income	152,400	204,200	222,500	209,800	186,500
6	Total Operating Revenue	39,870,500	41,178,400	42,493,500	43,819,700	45,178,700
7	Operation & Maintenance	21,346,700	21,987,100	22,646,900	23,326,200	24,025,900
8	Provision for Claims	5,678,000	4,258,300	2,841,100	2,926,300	3,014,100
9	Net Operating Revenue	12,845,800	14,933,000	17,005,500	17,567,200	18,138,700
Debt Service						
10	Existing	2,198,000	2,193,700	2,195,900	2,194,800	2,195,600
11	Proposed (a)	829,400	5,106,500	11,221,400	13,807,200	15,059,500
12	Total Debt Service	3,027,400	7,300,200	13,417,300	16,002,000	17,255,100
13	Transfer to Construction	7,000,000	7,000,000	3,000,000	3,000,000	1,000,000
14	Net Annual Balance	2,818,400	632,800	588,200	(1,434,800)	(116,400)
15	Beginning of Year Balance	669,400	3,487,800	4,120,600	4,708,800	3,274,000
16	End of Year Balance	3,487,800	4,120,600	4,708,800	3,274,000	3,157,600
Capital Projects Funding						
17	Funds on Hand	41,461,300	50,425,600	92,619,100	14,426,900	19,456,300
18	Bond Proceeds	51,000,000	110,000,000	46,000,000	21,000,000	14,000,000
19	Operation Fund Transfers	7,000,000	7,000,000	3,000,000	3,000,000	1,000,000
20	Participation by Others	42,280,000	97,863,000	82,404,000	83,559,000	12,358,000
21	Interest Income	1,016,300	1,351,500	1,290,800	358,400	307,300
22	Total Funds Available	142,757,600	266,640,100	225,313,900	122,344,300	47,121,600
23	Routine Annual	14,557,000	10,366,000	12,587,000	6,988,000	4,233,000
24	Major Capital Additions	76,755,000	161,455,000	197,380,000	95,480,000	35,055,000
25	Bond Issuance Expense	1,020,000	2,200,000	920,000	420,000	280,000
26	Total Application of Funds	92,332,000	174,021,000	210,887,000	102,888,000	39,568,000
27	End of Year Balance	50,425,600	92,619,100	14,426,900	19,456,300	7,553,600

(a) Assumed term is 5.00 percent, 30 years.

Engineering Evaluation Operation, Maintenance, and Reconstruction

Introduction

Utility Revenue Bond Covenants applicable to the operation, maintenance, and reconstruction of water and sewer departments' facilities include the following excerpt of Section 605 of the Authorizing Act:

SECTION 605. Operation, Maintenance, and Reconstruction. The Board shall operate, or cause to be operated, the System properly and in a sound, efficient, and economical manner and shall maintain, preserve, and keep the same or cause the same to be maintained, preserved, and kept in good repair, working order and condition, and shall from time to time make, or cause to be made, all necessary and proper repairs, replacements and renewals so that the operation of the system may be properly and advantageously conducted.

On site inspections of Sewerage and Water Board facilities were conducted by a representative of Black & Veatch during the week of July 18, 2005. Inspections included the water and wastewater treatment plants, Central Yard facilities, Carrollton power plant facilities, and a sampling of drainage and sewerage pumping stations. On site interviews were conducted with management and supervisory level Board personnel to explore perceived concerns in the operation and maintenance of the facilities and to review operation of the facilities.

Operations

Water and Wastewater Treatment Plants

The Operations Division is comprised of four departments: Wastewater Treatment, Water Purification, Water Pumping and Power, and Drainage and Sewerage Pumping. The two wastewater plants are operated by a contract operator and are monitored by the Operations Division. Superintendents, all of whom report to the Chief of Operations, head the remaining three departments.

East Bank Wastewater Treatment Plant

We were accompanied on our tour of the facilities by the temporary acting Chief of Operations and the Project Manager.

The headworks facility has been rehabilitated and preventive maintenance is ongoing at the mechanically operated bar screens. The aerated grit system was working well and has not experienced any problems as of late. All air drop legs were functioning as intended.

Three of four oxygen reactors were in service at the time of the visit. The fourth reactor was out of service due to leak from the side wall. The leak was repaired during the week of the site visit. All reactors were cleaned during the past year. Large amounts of grit and other material were removed from the reactors at a substantial cost. The grit removal system has been improved by decreasing air flows and performing a sieve analysis to regulate the air flow to allow the grit to be captured in the aerated grit chambers. Improved operation of the aerated grit chamber will decrease the necessity to clean the oxygen reactors as often.

Four of eight mixers in each of the operating oxygen reactors were in service. We suspect, as stated in previous reports, that running only 50 percent of the mixers probably exacerbates the solids accumulation problem in the oxygen reactors. It is recommended that the impact of operating only 50 percent of the mixers be quantified. The number of mixers running and when they are rotated should remain the same as the current practice during the running period.

One of the eight final clarifiers is operated as a sludge thickener. The clarifier overflow is pumped back to the head of the plant. The thickened solids are then pumped to one of three online belt filter presses.

Six of the seven final clarifiers were relatively free of floating scum. One clarifier had a significant percentage of the surface area covered with scum. The scum pump had been down, but was brought back online and the scum should dissipate. On another clarifier the scum pump line had broken. The line had been repaired just before the site visit. No noticeable scum was observed on the clarifier.

Algae cleaning mechanisms were functional and have been upgraded over the past year. No noticeable algae growth was seen on any of the final clarifiers.

It was stated by the project manager that the plant has not had any violations of the total suspended solids, biological oxygen demand, or fecal coliform limits since early last year. The plant effluent looked clear and from visual observations there appeared to be no large amount of solids in the final effluent.

Two of the three belt filter presses were in operation at the time of the visit. One unit was operational, but on standby. The lead operator expressed concern about the age of the belt filter presses and from visual observations the electrical system is antiquated and the presses are functional, but require significant amounts of maintenance. The belt filter presses should be replaced and upgraded to provide adequate capacity and decrease the downtime necessary to maintain the presses.

No objectionable odors were detected during the site visit. The grounds and buildings were reasonably neat and clean with the exception of weeds growing on top of the return activated sludge pump building. The overall impression is that plant operations and maintenance has improved relative to that observed during previous site visits.

Oxygen required for the activated sludge process continues to be trucked into the plant. This has been the practice since the oxygen production equipment failed.

No violations have occurred in the past year and the plant continues to improve operations through equipment replacement and regular routine maintenance checks.

West Bank Wastewater Treatment Plant

The West Bank Wastewater treatment plant visit was conducted with the Project Manager. The project manager stated there have been no permit violations in the past year.

All systems have been working well and there is adequate capacity to treat the flow coming to the plant. Hydrogen peroxide is added at the Blair lift station to minimize odors in the plant. The appearance of the influent water is gray due to the addition of hydrogen peroxide. U.S. Peroxide maintains and changes dosages as required at the lift station to minimize odors.

Ozone is now being used for odor control in the gravity thickener. The packed tower scrubber is no longer being used. The headworks area, as well as the rest of the plant, was free of noticeable odors.

The turntable and mixer for the thickener are scheduled to be replaced soon. This should increase the capability and solids concentration in the thickener. At present, five truckloads per day of thickened waste activated solids are trucked from the West Bank facility to the East Bank facility for further solids processing.

The use of sodium hypochlorite (12.5 percent bleach) at the West Bank Wastewater Treatment Plant is still in design and is slated to be built in late 2005 or early 2006. This will eliminate the dangers, although minor, associated with storing large amounts of chlorine on-site.

Water Plants

Both the Carrollton and Algiers Water Treatment plants have continued to produce water that meets or exceeds Federal Drinking Water Standards. Both plants are similar, employing conventional and reliable processes to meet water quality standards and production requirements.

During the site visit to the Carrollton Water Plant, the facilities were found to be in fair condition. Parts of the facilities are in excess of 100 years old; however, the staff does an excellent job of maintaining and operating the process equipment. Visual observations showed vegetation and algae growth in the Carrollton and Algiers flocculation and sedimentation basins.

Currently, the flocculation and sedimentation basins at the Carrollton plant are undergoing rehab. The rehab work has caused a delay in cleaning of some of the flocculation and sedimentation basins. Once the rehab work is complete routine maintenance will be implemented at a faster pace to control vegetation growth.

Mechanical mixers have been added to the inlet of C Basin to reduce lime consumption. Significant savings have been realized due to the implementation of this plant design change. The addition of static mixers to all four flocculation and sedimentation basins to incorporate ferric sulfate and polymer to the raw water is ongoing. Improved settled water quality has been realized due to this addition to the process.

All of the aboveground steel water storage tanks were repainted in 2004 and are all in service.

The major leak repairs performed 4 years ago in the Algiers distribution system continues to provide dividends. Water produced at the Algiers plant remains well below the 15 mgd it was required to produce prior to the leak repair program.

Water samples from each plant tested for *Giardia* and *cryptosporidium* were all below detectable limits in 2004. None of the samples taken since 1993, when monitoring began, has been positive for either of these organisms.

On-site chlorine generation equipment has been purchased and will be installed in 2005 at the Algiers Water Plant. Bulk sodium hypochlorite will be delivered to the Carrollton WTP once the chemical storage and pumping systems are installed. Switching from gaseous chlorine to sodium hypochlorite at the water treatment plants will reduce dangers associated with storing large amounts of chlorine on site.

The following table lists the total water, in million gallons, pumped from both water purification plants for the past five fiscal years:

Water Pumped and Consumed

	2000	2001	2002	2003	2004
Free Metered Water	1,036.5	1,309.9	1,135.7	1,101.4	1,153.6
Process Water	792.1	775.5	579.8	678.9	748.2
Allowance for Leaks on Private Property	482.0	1,205.3	1,683.9	401.5	446.1
Unmetered Use (a)	22,342.9	21,906.5	22,211.7	22,103.9	23,975.4
Water Sold	24,886.2	23,004.9	22,267.3	21,041.1	20,744.9
Total Water Pumped	49,539.7	48,202.1	47,878.4	45,326.8	47,068.2
Unmetered Use (%)	45.1	45.4	46.4	48.8	50.9

(a) Extinguishment of fires; cleaning streets; flushing sewers, drains, and gutters; cleaning markets and other public buildings; plus leaks in distribution system as measured by Sonar Survey Technique.

Source: Comprehensive Annual Financial Reports, Supplemental Information.

There was a significant increase in the detection of leaks in the distribution system due to the use of the sonar survey technique. The major leaks in the distribution network should be repaired to control the loss of water in the system.

Water Laboratories

The water laboratories continue to meet the mandated analytical requirements of the water plants. The laboratory retained its bacteriological certification from the Louisiana Department of Health and Hospitals. In addition to bacteriological tests, the laboratory conducts tests for inorganic compounds such as heavy metals and organic compounds, including pesticides and herbicides.

The Water Purification Laboratory maintained its involvement in the State's early warning system along the Mississippi River. Eight monitoring stations connected by telecommunications disseminate information on chemical spills along the river, providing early warning of possible problems. This advanced warning system allows Board personnel to take steps to protect the water quality of its system by isolating the water intakes from the river until the spill passes by.

The laboratory manager retired recently, and a microbiology technician is scheduled to retire later this year. Uncertainty over the past few years created by the privatization issue in conjunction with residency requirements and low pay has made it impossible to hire and retain

qualified staff. Currently, the laboratory has three vacant chemist positions with no future prospects of hiring anyone due to the pay and residency requirements. Testing frequency could be increased if these positions were filled. If the Board is unable to fill vacant microbiologist positions, it will no longer be able to maintain State certification for bacteriological sampling.

Drainage and Sewerage Pumping and Power Distribution

Several drainage and sewerage pump stations were visited. The drainage and sewerage pump stations appear to be properly operated and well maintained.

Mounds Street Drainage Pump Station. The Sewage and Water Board has agreed to operate and maintain the new I-10 underpass drainage pump station currently under construction by the State of Louisiana. This pump station is critical to the evacuation of the area when a hurricane landfall in this area is probable. The rated capacity of the pump station is 850 cubic feet per second (cfs). The station will be equipped with four pumps and two standby generators.

Drainage Station No. 6. Two of the smallest drainage pumps were out of service for modifications. New gates on the discharge side of pumps and bulk head gates have been installed under SELA Project through COE. The discharge gates are electrically operated with the bulk head gates being manually operated. The gates are used to stop reverse flow through the pump station. Overall, the pump station appears to be in good condition.

Sewerage Pump Station A. One pump was out of service at the time of visit. The pump is out to be refurbished and should be put back in service by the end of 2005. Other items that are needed at the lift station include a larger capacity vacuum pump to allow the system to start more efficiently. The grounds were well maintained and pumps were painted and in good working order.

Lakeland Terrace Sewerage Pump Station. The interior of the pump station was clean and dry. Both pumps were available for service. The building appeared to be in reasonably good condition. Currently the wetwell is being rehabbed by spraying a coating on the concrete to protect the concrete from corrosion. Also an emergency discharge valve is being installed at the station force main.

Lake Forrest Sewerage Pump Station. The equipment was in poor condition. The electrical system had noticeable corrosion. The grounds were well maintained.

Other Sewerage Pump Stations. Several other sewerage pump stations were visited. Several of the stations were under repair for various reasons. Overall, the pump stations appeared to be properly maintained. The repairs are the result of equipment selection, structure subsidence, or pump station upgrade.

General comments on all the sewage pump stations visited is that due to lack of personnel, the inside housekeeping maintenance needs improvement. Major equipment, as well as the interior of each station, should be cleaned and painted.

The Sewerage and Water Board is still operating under an EPA consent decree that requires a certain level of preventive maintenance be performed. The Operations Division met 100 percent of the required preventive maintenance activities in 2004. Weekly, monthly, quarterly, semi-annual and annual tasks were all completed.

Water Pumping and Power

The primary function of the Water Pumping and Power department is steam generation used in the production of power. Power production is meeting the demands of the system. Plans to replace Boiler No. 2 are well behind schedule due to design modifications and the bids coming in over budget. Boiler No. 2 is not available for service; therefore, the steam available for power production has been reduced by 130,000 lbs/hr. If the boiler is replaced, the resulting efficiency increase will significantly reduce the cost of operating the system.

Evidence of two leaks, one roof and one pipe, was observed last year during the annual visit. Repairs have yet to be made. Other roof leaks in the building were reported. Currently, a contractor is removing asbestos material, and soon after, roof repair will begin.

All fuel tanks are in need of preventive maintenance. The tanks should be painted. Last year the following activities to improve pumping and power were completed.

- No.1 and No. 3 boilers were inspected and rated at 226 psi.
- Instrumentation upgrades to No. 1 turbine.
- Upgrading auxiliary systems for water distribution pumps A and B.
- Installed new hydraulic governor on No. 3 turbine

In general most of the equipment is old. The following are items that should be considered.

- Recondition pumps A, B, and C at the Oak Street River Station.
- Repair and replace all broken water valves.
- Recondition all turbines.
- New governor control system for No. 5 turbine.

Personnel issues consist of position vacancies requiring overtime to meet the staffing requirements. Additional personnel should be hired to meet the required staffing levels.

Maintenance

Facility Maintenance provides major electrical and mechanical maintenance for all Board facilities except the contract operated wastewater treatment plants. The inability to hire qualified staff is eroding the capabilities of the department. Overtime is used as a method to provide the minimum manpower hours required. The department managers and supervisors reiterated the same views noted in previous reports, which is that pay levels and residency requirements have made it impossible to hire staff and maintain employee morale. This opinion was voiced throughout the other divisions, as well.

The maintenance staff has the specialized equipment to maintain the plants' process equipment. Automated laths and mills provide the department with the ability to manufacture needed parts when lead times are excessive or replacement parts are no longer available. Currently, the maintenance staff is building parts for some of the older drainage pumps as they are not available elsewhere.

The maintenance department completed 100 percent of the required preventive maintenance requirements for the sewage pump stations required under the Consent Decree. Most of these semi-annual and annual tasks are performed by the mechanical and electrical units of the Department.

Networks

The Networks Division is charged with maintaining both the sanitary sewer system and potable water distribution system. Due to the age, topography, soil composition and water level, the wastewater and water networks require continuous repair.

The equipment in this department is aging and in need of replacement. Several pieces of equipment were purchased in 2004 and more are scheduled in 2005. Unfortunately, this replacement pace does not meet the department's needs.

During 2004, there were 235 unauthorized discharges from the gravity system mains, sewer force mains and sewer pump stations. The EPA Consent Decree requires the Board to respond to all reported sewerage overflows and bypasses within 4 hours of receiving the call. This time limit was not exceeded during 2004. All consent decrees requirements have been met for 2004.

Engineering

The division includes mechanical, civil, electrical, construction administration and inspection, drainage, and network engineering.

The engineering department administers major contracts throughout the City. Following is a sampling of the contracts administered by the department:

- Melpomene Box Canal.
- Napoleon Box Canal.
- Dwyer Pumping Station.
- Henderson Street Canal.
- Sodium Hypochlorite System for Carrollton WTP.
- Conventional Activated Sludge Treatment at East Bank WWTP.

The Engineering Department oversees the Sanitary Sewer Evaluation and Remediation Program (SSERP). The SSERP is the \$640 million dollar program to evaluate and upgrade facilities within the sanitary sewage network for the City of New Orleans. The program is approximately 38% complete and is scheduled to continue until the end of calendar year 2018. All consent decree issues within the SSERP must be resolved by the end of calendar year 2010. To date, the Board has met all 427 SSERP related consent decree objectives on schedule, achieving 100% compliance. There are an additional 703 SSERP related consent decree objectives scheduled to be met between now and the end of the consent decree.

The Engineering Department also coordinates with other agencies for the design and construction activities impacting Board maintained facilities. Traditionally, this involved coordinating with various private developers, as well as public and private utilities. Within the past year, however, this has also meant coordinating rehabilitation efforts during the aggressive construction efforts of three separate organizations: the City of New Orleans Department of Public Works, the Regional Transit Authority, and the Housing Authority of New Orleans.

Due to low pay scales and the uncertainty caused by the privatization issue, the Engineering Department cannot normally compete in the marketplace for engineers and technicians. For example, the starting pay for Board employed construction inspectors is \$7 per hour; this salary is less than one-half the private sector rate of \$20 per hour. The inspectors still employed by the Board cannot inspect all the construction projects that are normally active. Private sector inspectors are hired through engineering firms at a cost in excess of \$45 per hour to supplement the Board employees.

Support Services

Support Services provides a central storage facility for disposable goods such as paper products, cleaners, batteries, and other goods frequently used by the Board. Hard goods such as pipe, fire hydrants vehicle parts and construction material are also inventoried by Support Services. New vehicle acquisition and repair is also provided through this department.

In 2004, 26 pieces of rolling stock, which included trucks, backhoes, and sewer cleaning equipment, were purchased. It is expected that 45 pieces of equipment will be purchased in 2005 and more purchases will be made in 2006. With approximately 860 pieces of rolling stock in inventory, maintaining a quality fleet is impossible at this rate of replacement.

The Board is continuing to experience high turnover in those crews charged with maintaining the grounds at the Board's various facilities.

Summary of Findings

The findings of this report are based on field observations and discussions with management and supervisory personnel regarding operation and maintenance practices. Our observations indicate that, in general, facilities are adequately operated and maintained.

Areas of Observed Improvement and Continued Excellence

- The quality of water produced by the Board facilities remains very good, meeting or exceeding all drinking water requirements.
- Odor complaints from residents in the vicinity of the West Bank WWTP have ceased since adding the hydrogen peroxide system.
- Sludge thickener odor control using ozone has been studied and found to be effective. This method will continue to be used.
- On-site chlorine generation equipment has been purchased for the Algiers Water Purification Plant, but not installed at this time. If this system proves reliable, storing cylinders of chlorine on-site will no longer be required.
- Sodium hypochlorite will be utilized at the Board's two wastewater plants to provide disinfection. This will eliminate the need for on-site chlorine storage.
- Networks Division is maintaining a reasonable backlog level of primary work orders.

- One hundred percent of the EPA decreed preventive maintenance tasks were completed by the Facility Maintenance, Operations Divisions, and Networks.
- EPA decreed response time for reported overflows was met for all of 2004.

Areas for Continuing Improvement

- System-wide replacement of rolling stock should be accelerated.
- Painting, general housekeeping, and preventive maintenance need to be increased at both the water plants and sewerage pump stations.
- Steam Boiler No. 2 should be replaced immediately.
- The flocculation and sedimentation basins at the Algiers water treatment plant should be cleaned on a routine basis.
- Once the rehab work is complete on the flocculation and sedimentation basins at the Carrollton plant then the basins should be kept free of vegetated growth as much as possible.
- Sample each active reactor at East Bank WWTP for solids accumulation.
- Remove impediments to hiring qualified personnel, including the residency requirements and low pay scales.