

# REPORT ON OPERATIONS FOR 2011

B&V PROJECT NO. 176596

PREPARED FOR

Sewerage and Water Board of New Orleans

25 OCTOBER 2012

## **MISSION STATEMENT**

To be one of the best and most respected suppliers of sewer, water, and drainage services in the south-central United States by providing quality, reliable, and cost effective services to our Customers while maintaining fair and ethical treatment of our well-trained and highly motivated employees.

## **OUR VALUES**

Open, honest communication  
Trust and respect for each other  
Offering and encouraging education and opportunity to employees  
Fostering enthusiasm among employees through example of the managers/supervisors  
Providing direction and planning and encouraging interdepartmental team work  
Assuring reliability in providing services to customers

## **KEY RESULT AREAS**

Customer Satisfaction  
Cost Effectiveness  
Employee Satisfaction  
Capabilities Improvement through Training

25 October 2012

Sewerage & Water Board of New Orleans  
625 St. Joseph Street  
New Orleans, LA 70165

Dear Board Members:

In accordance with our agreement, we are submitting this Report on Operations of the Water, Sewerage, and Drainage Departments for the year 2011. The report presents the findings of our analysis to confirm compliance with the covenants of the General Water Revenue Bond Resolution and the General Sewerage Revenue Bond Resolution.

The report also contains projections of expected future financial activity for the three departments for the period 2012 through 2016. These projections are based upon historical trends and the Board's operating and capital budgets. Projected costs include an allowance for anticipated future price inflation.

Bound separately is the Executive Summary for the Report on Operations for 2011.

We wish to acknowledge the cooperation and assistance of utility staff in providing guidance and information for the study.

We appreciate the opportunity to be of service to the Sewerage and Water Board.

Very truly yours,  
BLACK & VEATCH CORPORATION



John Kersten  
Vice President



Anna White  
Project Manager

Enclosure



# Table of Contents

<b>Table of Contents</b> .....	<b>i</b>
<b>Introduction</b> .....	<b>1</b>
Purpose and Scope .....	1
Definitions.....	1
History.....	1
Water Department .....	2
Drainage Department.....	3
General .....	5
Sources of Financial Data .....	6
Summary of Findings .....	6
Water Department .....	6
Sewerage Department .....	7
Drainage Department.....	8
Other Findings.....	9
<b>Facilities Evaluation - Operation, Maintenance, and Reconstruction</b> .....	<b>11</b>
Introduction .....	11
Staffing Issues.....	12
Water Purification Plants .....	13
Carrollton Water Purification Plant .....	13
Algiers Water Purification Plant.....	14
Water Quality Laboratory at the Carrollton Plant.....	15
Water Pumping and Power.....	16
Sewage Treatment Plants.....	18
East Bank Wastewater Treatment Plant.....	18
West Bank Wastewater Treatment Plant .....	20
Sewage and Drainage Pumping Stations.....	21
Facility Maintenance .....	21
Engineering .....	22
Networks.....	23
Support Services .....	24
Environmental Affairs Department.....	24
Status of Consent Decree .....	25
Summary of Findings .....	26
<b>Water Department</b> .....	<b>27</b>
Adherence to Water Revenue Bond Resolution Requirements.....	27
Powers as to Bonds and Pledge .....	27

The Extension of Payment of Bonds .....	27
The Establishment of Rates and Charges.....	27
The Sale, Lease, and Encumbrance of the System.....	28
The Operation, Maintenance, and Reconstruction of the System.....	28
Insurance and Condemnation .....	28
The Preparation of an Annual Operating Budget.....	29
The Preparation of the Capital Improvement Budget.....	29
Employment of Consulting Engineer.....	29
The Maintenance of Accounts and Reports .....	29
Issuance of Additional Bonds .....	30
2011 Water Department Operations.....	30
Water Use.....	30
Operating Revenues .....	31
Non-Operating Revenues .....	31
Operation and Maintenance Expenses .....	31
Capital Budget and Expenditures .....	32
Summary of Operations .....	32
Proposed Capital Improvement Program .....	32
Ability to Finance Proposed Capital Expenditures .....	32
Operating Revenues .....	33
Other Revenue Sources .....	33
Operation and Maintenance Expenses .....	33
Debt Service Requirements.....	33
Adequacy of Revenues to Finance Proposed Capital Improvements.....	34
<b>Sewerage Department.....</b>	<b>49</b>
Adherence to Sewerage Service Revenue Bond Resolution .....	49
2011 Sewerage Department Operations .....	49
Wastewater Volumes .....	49
Operating Revenues .....	50
Non-Operating Revenues .....	50
Operation and Maintenance Expenses .....	50
Capital Budget and Expenditures .....	51
Summary of Operations .....	51
Proposed Capital Improvement Program .....	51
Ability to Finance Proposed Capital Expenditures .....	51
Operating Revenues .....	52
Other Revenue Sources.....	52

Operation and Maintenance Expense.....	52
Debt Service Requirements .....	52
Adequacy of Revenues to Finance Proposed Capital Improvements.....	53
<b>Drainage Department .....</b>	<b>67</b>
2011 Drainage Department Operations.....	67
Revenues .....	67
Operation and Maintenance Expenses.....	67
Capital Budget and Expenditures.....	68
Summary of Operations .....	68
Proposed Capital Improvement Program.....	68
Ability to Finance Proposed Capital Expenditures .....	69
Revenues .....	69
Operation and Maintenance Expenses.....	69
Debt Service Requirements .....	69
Adequacy of Revenues to Finance Proposed Capital Improvements.....	69
Assessment of East Bank Sewage Stations.....	82
Assessment of West Bank Sewage Stations .....	85
Assessment of East Bank Drainage Stations.....	86
Assessment of West Bank Drainage Stations .....	87

**LIST OF TABLES**

Table 1 Insurance in Force as of December 31, 2011..... 37

Table 2 Water Department – Historical and Projected Sales and Average Number of Customers..... 38

Table 3 Water Department – Existing Water Rates..... 39

Table 4 Water Department – Statement of Historical Revenues..... 40

Table 5 Water Department – Historical Operation and Maintenance Expenses..... 41

Table 6 Water Department – Capital Expenditures – 2011..... 42

Table 7 Water Department – Proposed Capital Improvements ..... 43

Table 8 Water Department – Projected Operating Revenues ..... 44

Table 9 Water Department – Projected Operation and Maintenance Expenses ..... 45

Table 10 Water Department – Debt Service Requirements..... 46

Table 11 Water Department – Analysis of Ability of Forecasted Revenue to Finance Projected Revenue Requirements ..... 47

Table 12 Sewerage Department – Historical and Projected Billed Volumes and Average Number of Customers..... 57

Table 13 Sewerage Department – Existing Sewer Rates..... 58

Table 14 Sewerage Department – Statement of Historical Revenues ..... 59

Table 15 Sewerage Department – Historical Operation and Maintenance Expenses ..... 60

Table 16 Sewerage Department – Capital Expenditures – 2011 ..... 61

Table 17 Sewerage Department – Proposed Capital Improvements ..... 62

Table 18 Sewerage Department – Projected Operating Revenues ..... 63

Table 19 Sewerage Department – Projected Operation and Maintenance Expenses ..... 64

Table 20 Sewerage Department – Debt Service Requirements..... 65

Table 21 Sewerage Department – Analysis of Ability of Forecasted Revenue to Finance Projected Revenue Requirements ..... 66

Table 22 Drainage Department - Rainfall..... 72

Table 23 Drainage Department – Historical Revenues Received ..... 73

Table 24 Drainage Department – Historical Operation and Maintenance Expenses ..... 74

Table 25 Drainage Department – Capital Expenditures - 2011 ..... 75

Table 26 Drainage Department – Proposed Capital Improvements ..... 76

Table 27 Drainage Department – Projected Participation by Others ..... 77

Table 28 Drainage Department – Projected Operating Revenues..... 78

Table 29 Drainage Department – Projected Operation and Maintenance Expenses..... 79

Table 30 Drainage Department – Debt Service Requirements..... 80

Table 31 Drainage Department – Analysis of Ability of Forecasted Revenue to Finance Projected Revenue Requirements ..... 81

**LIST OF FIGURES**

Figure 1. Carrollton Water Purification Plant..... 13  
New 15 MW Generator                      Storm Proofing Construction on Power Plant..... 17  
Figure 2. Power Plant..... 17  
Figure 3. Site of Septage Receiving Station at the East Bank WWTP ..... 19  
Figure 4. Oxygen Plant at the East Bank WWTP..... 19  
Figure 5. Refurbished Influent Screen ..... 20



## Introduction

### PURPOSE AND SCOPE

This report covers operations of the Sewerage and Water Board of New Orleans for the year ended December 31, 2011. The report presents findings of studies made in compliance with covenants of the 1997 and Supplemental Sewerage Revenue Bond Resolutions and the 1998 and Supplemental Water 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 1997 and Supplemental Sewerage Revenue Bond Resolutions or the 1998 and Supplemental Water Revenue Bond Resolution.

“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.

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.

### Water Department

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, 2011, \$32,415,000 remains outstanding on the 1998 and 2002 issues, as shown in the table below.

#### Outstanding Water Utility Debt Issues

DESCRIPTION	ISSUE AMOUNT	AMOUNT OUTSTANDING <sup>a</sup>
Series 1998	\$16,000,000	\$7,460,000
Series 2002	\$34,000,000	\$24,955,000
<b>Total</b>	<b>\$50,000,000</b>	<b>\$32,415,000</b>

<sup>a</sup> As of December 31, 2011

In February 2010, the Department of Health and Hospitals (DHH) provided a \$3,400,000 loan to the Board with a \$1,000,000 principal forgiveness. As of September 30, 2011, the Board had withdrawn \$2,825,553 on the 2010 issue. Of this amount, \$663,877 has been forgiven and \$25,000 has been repaid.

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. Sewerage Department

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; and \$5,500,000 in 2003. \$33,000,000 in revenue bonds, \$25,200,000 in Bond Anticipation Notes (BANs), and \$111,800,000 in Refunding BANs were issued in 2004. The 2004 BANs were defeased by the \$137,000,000 Refunding BANs Series 2005A. A portion of the 2005 BANs was refinanced with the Refunding BANs Series 2006. The remaining balance on the 2005 BANs were paid from funds on hand. The Refunding BANs Series 2006 were due July 15, 2009 and were paid in full by the issuance of Refunding Bonds Series 2009 in the amount of \$23,375,000.

In November 2011, the Board and Louisiana Department of Environmental Quality (LADEQ) entered into a loan agreement whereby \$9,000,000 of proceeds from the Revolving Loan Fund were borrowed through the issuance of Sewerage Service Subordinate Revenue Bonds, Series 2011. Debt service payments will begin approximately one year after the projects are complete and assume a 20-year term with a 0.45 percent interest rate plus an administrative fee of 0.5 percent. The first principal payment is due November 1, 2013. The Board began drawing down the funds during the first quarter of 2012 and anticipates drawing the remainder of the funds during the first quarter of 2013.

Outstanding principal on revenue bonds totaled \$160,985,000 as of December 31, 2011 and is summarized in the table below.

### Outstanding Sewerage Utility Debt Issues

DESCRIPTION	ISSUE AMOUNT	AMOUNT OUTSTANDING <sup>a</sup>
Series 1997	\$30,000,000	\$12,715,000
Series 1998	\$25,000,000	\$11,660,000
Series 2000A	\$26,800,000	\$15,890,000
Series 2000B	\$20,300,000	\$12,055,000
Series 2001	\$37,720,000	\$19,985,000
Series 2002	\$57,000,000	\$38,595,000
Series 2003	\$5,500,000	\$3,780,000
Series 2004	\$33,000,000	\$24,315,000
Series 2009	\$23,375,000	\$21,990,000
Series 2011 <sup>b</sup>	\$9,000,000	\$9,000,000
<b>Total</b>	<b>\$267,695,000</b>	<b>\$169,985,000</b>

<sup>a</sup> As of December 31, 2011

<sup>b</sup> The LADEQ has committed \$9,000,000, the actual amount outstanding will be based on the project costs incurred.

### Drainage Department

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 remained at that level through 2007. In 2007, it was reduced to 4.544 and in 2010 it was increased to the current rate of 4.66 mills.

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 and remained at that level through 2007. In 2007, it was reduced to 4.60 and in 2010 it was increased to the current rate of 4.71 mills. 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 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 provided for periodic reassessment.

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 a portion the 1982 nine-mill bonds and a portion of the 1983 nine-mill bonds, respectively. In 1992 the Drainage System Bonds, Series 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, 2011, the outstanding balance was \$4,610,000. 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, 2011 to \$18,990,000 as shown in the table on the following page.

### Outstanding Drainage Utility Debt Issues

DESCRIPTION	ISSUE AMOUNT	AMOUNT OUTSTANDING <sup>a</sup>
Series 1998	\$10,000,000	\$4,610,000
Series 2002	\$20,000,000	\$14,380,000
<b>Total</b>	<b>\$30,000,000</b>	<b>\$18,990,000</b>

<sup>a</sup> As of December 31, 2011

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 remained at this level through 2007. In 2007, it was reduced to 6.89 and in 2010 it was increased to the current rate of 7.06 mills.

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.

#### General

During January 2006, the Board entered into a long-term agreement with the Federal Emergency Management Agency (FEMA) under the Community Disaster Loan Act of 2005. As of December 31, 2011, the Board has drawn down \$64,956,747 of the funds available. In December 2010, the Board was granted a partial forgiveness in the amount of \$36,790,000 of principal and \$4,648,410 of accrued interest, leaving a balance of \$25,166,747 in principal. Payments are to begin in August 2016 with a 5-year term and a 2.93 percent interest rate.

In July of 2006 the Board entered into a Cooperative Endeavor Agreement with the State of Louisiana to secure proceeds from the State's Gulf Opportunity Tax Credit Bond Loan Program to assist in payment of debt service requirements from 2006 through 2008. The Board has borrowed \$77,465,247, which was the total amount available to the Board. Of that amount, \$31,500,000 was used to make a partial payment on the Sewerage Service Refunding BANs Series 2005A that matured on July 26, 2006. The remainder was used to make debt service payments on the Drainage System special tax bonds, the Sewerage Service revenue bonds, and the Water revenue bonds that were due on December 1, 2006; June 1, 2007; December 1, 2007; and June 1, 2008. Principal payments on the bonds are scheduled to begin in July 2012.

The Board is currently receiving funds from the U.S. Army Corps of Engineers (COE) sponsored and congressionally authorized Southeast Louisiana Urban Flood Control (SELA) Project. This funding will allow additional construction projects which were identified in the 1970's, but which have not been completed because of funding limitations. The identified projects are to be funded either 10 percent from federal funds or 65 percent from federal funds and 35 percent from local funds. The payback period for the local share is 30 years and is anticipated to begin in 2013.

The Board provides water and sewer for public services to the City of New Orleans and its public institutions as mandated by state law in accordance with R.S. 33:4096 and R.S. 33:4121, respectively. During 2011, the Board provided 736,493,900 gallons of water for public services to agencies of the

City of New Orleans. The value of this water, at current rates, is \$2,199,684. The value of the sewerage charges is \$2,860,995.

The three revenue-generating public agencies - the New Orleans Museum of Art, City Park, and Audubon Park – continued to receive water for public services under “caps”, or maximum annual limits, established by the Legislature in 1982. The Museum of Art used 3,983,100 gallons or 1,429,300 above its annual “cap” of 2,553,800 gallons. City Park used 88,119,600 gallons or 147,203,800 below its annual “cap” of 235,323,400 gallons. Audubon Park used 93,002,000 gallons or 146,998,000 gallons below its annual “cap” of 240,000,000 gallons.

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 2012. 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 2011 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 2011 have complied with the requirements set forth in the 1998 and Supplemental Water Revenue Bond Resolutions.

### Summary of 2011 Operations

Based upon a tabulation of water bills rendered during the year, the Water Department provided water service to an average of 118,745 regular billed customers and 944 governmental accounts, the latter of which are served without charge. According to the December 31, 2011 Comprehensive Annual Financial Report, of the 54,458.3 million gallons of water pumped by the Department during the year, 14,082.7 million gallons were sold, 736.5 million gallons were metered to customers

without charge, treatment plant process water totaled 686 million gallons, and unmetered uses accounted for the remaining 38,953.1 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.

The total revenue from water sales, delinquent fees, interest income and other income increased from \$65,131,445 in 2010 to \$76,398,912 in 2011. In 2011, the Board received \$11,514,936 in operating and maintenance grants from FEMA for operating expenses incurred from water repairs performed by Board crews. This amount is included in other income. Operation and maintenance expenses (excluding claims paid) increased from \$52,348,178 in 2010 to \$64,556,538 in 2011. After adding claims of \$120,697 and debt service payments of \$3,905,618, a balance of \$7,816,059 was available for capital related expenditures in 2011, unadjusted for depreciation.

### Ability to Finance Future Operations and Proposed Improvements

A summary of projected financial operations of the Water Department for the period 2012 through 2016 is shown in Table 11 of the report. Revenues shown on Line 1 of Table 11 are based on rates that became effective July 1, 2011. A revised *Financial Plan and Rate Study 2011-2020* (2012 Rate Study) was issued April 30, 2012. Board staff presented resolutions to the Board of Directors in July for the proposed water and sewerage charges proposed in the 2012 Rate Study. The study is currently being reviewed by the City Council. Per direction by Board staff, the proposed revenue increases presented in the 2012 Rate Study are reflected in this report. Future annual water system revenue increases of 12 percent effective December 1, 2012 and July 1 of 2013 through 2016 are shown on Lines 3 through 6 of Table 11.

Additional long term debt financing of \$76,500,000 in 2013 and \$8,500,000 in 2014 is indicated to fund the proposed capital improvement program.

It is anticipated that the capital projects in 2012 will exceed the amount of funding available and some projects will need to be deferred until 2013. Assuming that these projects are deferred as shown on Line 40 of Table 11, it is anticipated that current revenue sources will be adequate to readily finance both projected capital program requirements and estimated future operation expenses of the Water Department during the 2012-2016 study period examined herein.

## Sewerage Department

### Sewerage Service Revenue Bond Resolution Requirements

Sewerage and Water Board financial operations for 2011 have complied with the requirements set forth in the 1997 and Supplemental Sewer Revenue Bond Resolutions.

### Summary of 2011 Operations

The total revenue from sewer charges, delinquent fees, interest income and other income increased from \$73,386,257 in 2010 to \$74,175,294 in 2011. Operation and maintenance expenses (excluding claims paid) decreased from \$43,777,876 in 2010 to \$43,147,792 in 2011. After adding claims of \$25,847 and debt service payments of \$20,250,057, a balance of \$10,751,598 was available for capital related expenditures in 2011, unadjusted for depreciation.

## Ability to Finance Future Operations and Proposed Improvements

A summary of projected financial operations of the Sewerage Department for the period 2012 through 2016 is shown in Table 21 of the report. Revenues shown on Line 1 of Table 21 are based on rates that became effective July 1, 2006. Proposed revenue increases, as presented in the 2012 Rate Study, are shown on Lines 3-6 and reflect annual increase of 13 percent effective December 1, 2012 and July 1 of 2013 through 2015.

In November of 2011, the Louisiana Department of Environmental Quality (LADEQ) provided a \$9,000,000 subordinate loan to the Board. Additional long term debt financing of \$115,000,000 in 2013, \$90,000,000 in 2014, and \$4,000,000 in 2015 is indicated to fund the proposed capital improvement program.

The Board's ability to issue additional debt is restricted due to the requirements of the additional bonds test as described later in this report. As a result, it is anticipated that the capital projects in 2012 and 2013 will exceed the amount of funding available and some projects will need to be deferred to 2014 and 2015. Assuming that these projects are deferred as shown on Line 41 of Table 21, it is anticipated that current revenue sources will be adequate to readily finance both projected capital program requirements and estimated future operation expenses of the Sewerage Department during the 2012-2016 study period examined herein.

## Drainage Department

### Summary of 2011 Operations

Total revenues received from all sources including interest income totaled \$40,468,555 in 2011, an increase of approximately 6.7 percent from \$37,912,872 reported for the same sources in 2010. Total operation and maintenance expenses increased about 2.7 percent from \$31,242,040 in 2010 to \$32,080,419 in 2011. After adding claims reflecting a credit of \$4,826,998 and debt service payments of \$2,196,892, a balance of \$11,018,242 was available for capital related expenditures in 2011.

### Ability to Finance Future Operations and Proposed Improvements

An analysis of financial operations projected for the Drainage Department for the period 2012 through 2016 is summarized in Table 31 of the report. Revenue from the three-mill, six-mill, and nine-mill ad valorem taxes may be used for operating expenses, debt service, and capital expenditures.

The analysis indicates that current revenue sources are adequate to meet operation and maintenance expenses and total debt service on the existing 1998 and 2002 bond issues for each year of the study period; however, current revenue sources are not adequate to fund the capital projects. As indicated in the 2012 Rate Study additional operating revenue is needed to help fund the capital program. The alternative source of operating revenue is shown on Line 6 of Table 31 and reflects the amount proposed in the 2012 Rate Study.

Additional long term debt financing of \$160,000,000 in 2013, \$160,000,000 in 2014, \$124,000,000 in 2015, and \$97,000,000 in 2016 is indicated to fund the proposed capital improvement program.

It is anticipated that even with the additional operating revenue and bond issues, the capital projects in 2012 will exceed the amount of funding available. As a result, some projects will need to be deferred to 2013, 2014, and 2015. This deferral is shown on Line 31 of Table 31.

### Other Findings

The Board operates a power plant at the Carrollton Water Purification Plant which provides power for the water purification process as well backup power in the event that commercial power fails or becomes unavailable. The Board's analysis of power purchased and produced is shown in the supplemental section of the 2010 Comprehensive Annual Financial Report. In 2011, approximately 70.1 million kilowatt hour (kWh) of power was purchased and 27.4 million kWh of power was generated.

On a unit cost basis, the average cost of purchased power has decreased over the past five years from about 10.6¢ per kWh in 2007 to about 8.82¢ per kWh in 2011. During the same period, the Board's unit cost for generated power has increased from about 38.4¢ per kWh to about 39.2¢ per kWh. The cost of Board generated power is almost 4.4 times higher than that of purchased power.

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.

This page intentionally left blank.

## Facilities Evaluation - Operation, Maintenance, and Reconstruction

This evaluation summarizes the findings of the onsite assessments of the Sewerage and Water Board of New Orleans (Board) facilities conducted by the Black & Veatch (B&V) from April 23 to April 27, 2012. Site visits were conducted at the water and wastewater treatment plants, Carrollton power plant facilities, and Central Yard facilities to evaluate the condition and operational capabilities of these facilities. In addition, the sewer and drainage pump stations were visited at a later date by a representative of Julien Engineering to evaluate the condition of those facilities. Interviews were also conducted with management and supervisory level Board personnel to assess the current operations status of the various facilities.

### INTRODUCTION

The Operations Division of the Board is comprised of four departments: (1) Water Purification, (2) Sewage Treatment, (3) Water Pumping and Power, and (4) Drainage and Sewage Pumping. The Board operates the Carrollton and Algiers Water Purification Plants (WPPs), which purify raw water from the Mississippi River and supply potable water to the City's residents. The Carrollton plant currently purifies approximately 138 million gallons per day (mgd) of water for the East Bank of Orleans Parish. The Algiers plant, which serves the predominantly residential West Bank portion of the parish, purifies roughly 11 mgd of water. The treated water from the two plants is pumped through approximately 1,610 miles of mains to the service connections within the City, as well as to a few customers in adjacent parishes.

The collection system includes several miles of lateral sewers, trunk sewers, and 84 electrically operated pump stations. Sewage is conveyed to the two treatment plants through a force main system. Sewage Pumping Stations (SPSs) A and D on the East Bank and SPS C on the West Bank are attended stations. SPS A houses a supervisory control and data acquisition (SCADA) system which monitors operation of all other sewage stations.

The Board also owns two sewage treatment plants, one on the East Bank and one on the West Bank. The West Bank Sewage Treatment Plant has a treatment capacity of 20 mgd (dry weather) and serves the West Bank community of New Orleans, as well as a few customers in Plaquemine Parish. The East Bank Sewage Treatment Plant has a treatment capacity of 122 mgd (dry weather), and treats sewage from the East Bank community. Both plants were built or expanded in the 1970s, and have been upgraded or expanded to increase reliability and meet the growing population demands within the community. The plants are currently operated and maintained by a contract operator, Veolia Water.

In addition, the Board is responsible for operating and maintaining the 23 major drainage pumping stations in New Orleans. The majority of those stations are manned 24 hours per day, 7 days per week. Each station is equipped with multiple pumps which are activated manually in response to increasing water levels. Personnel monitor these pumps and the numerous miles of drainage canals on a routine basis to ensure proper drainage of the area.

The 25 cycle power plant operated by the Board provides power for portions of the WPP and approximately 60 percent of the drainage pumps. Two large vertical sewage pumping units at Station A are also run on 25 cycle power. The following sections summarize key issues within each operation department within the Board.

## STAFFING ISSUES

Adequate staffing continues to be an issue for the Board in some departments. Additional maintenance is required for the Board facilities as equipment ages or more equipment is added. Staffing levels have decreased as the system has aged and expanded within the Board owned facilities. Vacancies still exist in several departments, especially those departments requiring highly educated and skilled personnel. These shortages are reflected within the more technical disciplines such as engineering, mechanical maintenance, electrical maintenance, plant maintenance, welding and fabrication, and operations.

Following Hurricane Katrina, the Board suspended the Domicile Policy, which required Board employees to live in the City of New Orleans. This action allows personnel hired by the Board to live outside city limits, thus providing employees with a greater sense of stability. The City Council waived the Domicile Policy in 2005 and, at present, the policy has not been reinstated. Departments within the Board continue to actively recruit from local college campuses, career job fairs, and trade schools to fill vacancies.

In addition to those highly skilled positions mentioned a significant portion of the Board's leadership will retire within the next 5 years. For those leadership positions facing retirement, very few potential successors have been identified to take over those positions.

All Divisions have staffing issues with regards to being inadequately staffed based on the current needs of the Board. The table below summarizes the number of staff on the payroll for each division and the percentage of staff that is eligible for retirement within the next 5 years. These conditions demonstrate the need for an effective succession action plan for the division heads and supervisors.

DIVISION	EMPLOYEES ON PAYROLL	ELIGIBLE FOR RETIREMENT	% ELIGIBLE FOR RETIREMENT
Water Purification Plants	59	32	54.2%
Water Quality Laboratory at the Carrollton Plant	8	3	37.5%
Water Pumping and Power	77	31	40.3%
Sewage Treatment Plants	1	1	100%
Sewage and Drainage Pumping Stations	92	47	51.1%
Facility Maintenance	62	30	48.4%
Engineering	41	24	58.5%
Networks	263	98	37.3%
Support Services	77	47	61.0%
Environmental Affairs	10	7	70.0%
<b>Total</b>	<b>690</b>	<b>320</b>	<b>46.4%</b>

## WATER PURIFICATION PLANTS

The WPP Superintendent accompanied the B&V representative on the facility tours of the Carrollton and Algiers WPPs. The Carrollton and Algiers WPPs are currently operational and producing water that meets the Federal Drinking Water Standards. Treatment systems at both plants are functioning well, and continue to produce water for the East and West Banks.

The staffing levels at the Carrollton and Algiers WPPs have been able to consistently produce finished water that both complies with regulations and meets the needs of the service population. However, the Board is facing the industry-wide problem of an aging workforce; there is a need to hire and train now for future sustainability of plant operations. The Board is in the process of hiring utility service workers to begin addressing those long-term needs.

### Carrollton Water Purification Plant

The Carrollton WPP, which has a design capacity of 232 mgd, is currently treating approximately 140 mgd of water for the East Bank of Orleans Parish. The water treatment processes at the plant consist of flocculation with a polymer and ferric sulfate, followed by pH adjustment with lime. The flocculated particles are allowed to settle in two sedimentation basins; traveling mechanical rakes remove the settled from the sedimentation basins for discharge to the Mississippi River.

The clarified water is disinfected by adding chlorine. Anhydrous ammonia is then added to aid in the formation of chloramines for residual disinfection. Additional settling time and disinfection contact time is achieved in the secondary settling basins. The clarified water is also treated with sodium hexametaphosphate for calcium sequestration and hydrofluorosilicic acid for fluoride addition. At present, the Board is feeding all chemicals at appropriate dosages and maintaining adequate chemical storage at each site.

Filtration is the final step in the treatment process, where the water is filtered through rapid sand filters. Finished water from the plant is then pumped out to the distribution network.



Chlorine Basin C5 Water Leak at Carrollton



New Sodium Hypochlorite Facility at Carrollton

**Figure 1. Carrollton Water Purification Plant**

Due to leaks in the water distribution system, the Carrollton plant is currently treating approximately 140 mgd of water in spite of serving only 80 percent of the pre-Katrina population. Leaks in the distribution network are a source of persistent problems. The water delivery pressure has been consistent throughout the last year at 70 psi.

Improvements completed during 2011 at the Carrollton WPP are listed below:

- The G3 basin was placed back in to service, while the G4 basin has been removed from service for rehabilitation. Due to problems with the gearboxes on G3, the Board has purchased four new gearboxes manufactured by Philadelphia, Inc. for the G4 basin, which should be more robust and reliable.
- A new storage and feed facility for sodium hypochlorite is under construction, along with a second chlorine and ammonia addition point. This project, valued at \$3,300,000, will be completed by the end of 2012 and is funded by proceeds from a loan provided by the Department of Health and Hospitals.

Maintenance and/or improvement projects the Board has planned for existing facilities include the following:

- Investigation and mitigation of a hydraulic leak between Sedimentation Basin L4 and Chlorine Contact Basin C5.
- A SCADA system is scheduled to be installed at the plant to control and monitor chemical feed and raw water pumping. Currently, this project is under construction, and is scheduled for completion by the end of 2012.
- Repairs from Katrina-related damage are to be completed in 2012 on the Carrollton Chemical Building and filter galleries. The contract for this work is currently out to bid.
- Resumption of the filter rehabilitation program is needed. Valves, actuators, corroded piping supports, and leaking pipes associated with the filters need to be repaired or replaced. In addition, the media within the filters has reached the end of its service life and requires replacement. These activities are being hampered due to limited funds.
- The recycle basin pumps need to be replaced. One of the four pumps is currently inoperable and, the other three are nearing the end of their service life. The design for the pump replacement is complete, and the project is awaiting funds prior to sending the project to bid.
- Complete the design for a new 30 to 36 inch sludge discharge line. This new line will provide for much needed capacity and redundancy improvements for the Carrollton Plant. Construction is delayed due to limited funds.
- The plant, at times, is not effectively treating total organic carbon (TOC). A study was performed by a local engineering firm to optimize current TOC treatment. The engineering firm recommended increasing the dosage of the coagulant used at the plant.

### Algiers Water Purification Plant

The Algiers plant has a design capacity of 40 mgd. The treatment process at the plant is similar to that of the Carrollton facility, which utilizes the same chemicals with a slightly modified application

scheme in the upflow clarifiers. At present, the plant is treating approximately 11 mgd of water and is serving the predominantly residential West Bank portion of the Parish.

The onsite hypochlorite generating system, which was commissioned in April of 2009, has been operating well and, with some minor modifications this year, is now fully supporting plant needs. The facility has partially commissioned a new ferric storage and feed system for flocculation at the WTP; this equipment, along with the existing temporary ferric storage and feed equipment, is supporting the needs of the plant, with the goal of complete transition to the new facility by the end of the year. Other improvements needed or ongoing at the plant include the following:

- The SCADA system is out of service, and its absence is impacting plant monitoring capabilities. Planned improvements to this system are on hold due to insufficient funding.
- One of the finished water tanks has been cleaned, disinfected, and placed back in service. The cleaning of the tank did not eliminate nitrification in the tank. The Board believes there is insufficient mixing within the finished water tanks. New mixers should be installed in the tanks to promote tank turnover and eliminate nitrification in the tanks.
- One EIMCO clarifier needs to be refurbished. A second EIMCO clarifier serves as a standby unit following some minor in-house repairs.
- The raw water pumping and piping systems need to be improved to provide redundancy to the intake system.
- Improvements to the fluorosilicic acid storage and feed system will be completed by the end of 2012, including new metering pumps and accessories, and a State mandated day storage tank.
- Two of the four ammonia feed systems have been replaced. The other two ammonia feed panels will be replaced in 2012.
- The plant, at times, is not effectively treating total organic carbon (TOC). A study was performed by a local engineering firm to optimize current TOC treatment. The engineering firm recommended the plant add a rapid mixer to improve chemical dispersion. This engineering firm also recommended moving the lime slurry injection point farther downstream from the current location to improve TOC removal efficiency.

## **WATER QUALITY LABORATORY AT THE CARROLLTON PLANT**

The water quality laboratory conducts daily analyses of river water quality and purified water at the Carrollton WPP. Water samples from the distribution network are also analyzed at the laboratory facility. The lab continues to meet the mandated analytical requirements of the water plants, and is certified by the Louisiana Department of Health and Hospitals for analysis of coliform bacteria.

In addition to coliform analysis, the lab collects samples for protozoan analysis. Other regular analyses include hardness, turbidity, fluoride, ammonia, pH, alkalinity, total organic carbon (TOC), dissolved organic carbon (DOC), phosphorus, corrosion monitoring, and chlorine residual at different stages of treatment. The solids are analyzed for total suspended solids and total dissolved solids concentrations. River water and finished water samples are analyzed for volatile organic compounds.

The laboratory continues to maintain its involvement in the Early Warning Organics Contamination Detection System (EWOCDS) run by the State Department of Environmental Quality (DEQ); however,

several upstream stations have proved unreliable. The EWOCDS program has also been underfunded by the State of Louisiana, which has caused a reduction in sampling and analysis.

Monitoring stations connected by telecommunications notify DEQ if any of the 60 listed pollutants are detected in the river water samples. The DEQ disseminates the information to the program participants, allowing an early warning of possible problems. The DEQ maintains EWOCDS equipment at all participating locations; the program participants provide the manpower to collect and analyze the samples.

The laboratory is currently minimally staffed with one supervisor, one microbiologist, three chemists, and three technicians. Much of the instrumentation and equipment in the lab is reaching or has reached the end of its service life and is in need of replacement. Analytical instruments and equipment, such as a new gas chromatograph/mass spectrometer (GC/MS), autoclaves for the microbiology lab, and fume hoods in the chemistry lab are needed to perform other analysis. A new TOC analyzer was purchased for the lab in 2011. Other instruments have remained idle due to reduced staffing levels. Additional staffing would allow for the resumption of discontinued water quality testing regiments, as well as provide additional operational and quality control oversight.

## **WATER PUMPING AND POWER**

The primary function of the Water Pumping and Power Department is steam production and the generation of 25 hertz power, as well as the provision of potable water to the City of New Orleans. The facilities at the Carrollton power plant include three steam turbines and one gas turbine for a total theoretical capacity of 61 megawatts (MW). The steam required for the turbines is generated in the six boilers at a total capacity of 650,000 pounds of steam per hour.

The generating station at the Algiers facility is capable of generating 60 cycle power using diesel generators. The power generation facility can generate enough power to support operations at the Algiers plant. This station is also capable of performing a frequency change from 25 cycle power supplied from the Carrollton power plant to 60 cycle power.

The current capacity of the Carrollton power plant is presently 40 MW, less than the 61 MW design capacity. Turbine No. 4 was repaired following Hurricane Katrina, but has since been de-rated and is only permitted to be used during emergencies. Turbine 4 is under rehabilitation to its full design capacity in by 2013. Boiler No. 6 and its associated pumps are scheduled to be rehabbed; the work will be put out to bid at the end of 2012.

One major improvement at the Carrollton power plant includes the installation of a new 200 psi high pressure natural gas line to supply fuel for the new 15 MW 60 cycle, dual fuel generator turbine package (Turbine No. 6) and the existing Turbine No. 5. Entergy completed installation of the new natural gas line in 2010, and is currently procuring supplies of natural gas to feed the new generator. The Army Corps of Engineers (Corps) is installing a new 15 MW, 60 Hz generator facility to supplement the current commercial power available from Entergy in order to provide power redundancy and continued service in the event of a commercial power loss due to storms, hurricanes, etc. The generator will serve the majority of the plant and raw water intake stations and provide additional drainage station capacity. This project is currently under construction, and scheduled to be completed by the end of 2012.



New 15 MW Generator



Storm Proofing Construction on Power Plant

**Figure 2. Power Plant**

Two steam-driven distribution pumps are located at the power plant. Both pumps (A and B) will be rehabilitated. Pump A will be completed by November 2012, and Pump B will be completed in the spring of 2013. The Claiborne Pumping Station, consisting of four water distribution pumps (two 60 Hz drive and two 25 Hz drive), and Panola Station, consisting of two pumping units (one with a 25 or 60 Hz motor, and the other 25 Hz motor), are typically adequate for pumping finished water to the distribution network. Pumps at the Panola Station typically serve as a backup.

The Board has begun investigating the effects of water hammer on the distribution system. The water hammer program will provide for the replacement of pumps at the Panola and Claiborne pumping stations. In addition, it is possible that two low lift pumps in the power plant would be replaced.

Storm-proofing projects for critical Board facilities, including the power buildings by the Corps, are currently under construction. Improvements for the power buildings include reinforcing the walls and roofing systems. The Board is also repairing valves and piping at the Old and New River Intake structures. Debris has been removed from the intake structure at the Old River Station. Contractors will continue to remove debris as they work on the various areas and sections of each intake structure. All water intake and effluent pumping stations are currently operational.

Additional hurricane damage related work primarily includes valve replacement and repair to electrical components and controls. Related items for the Water Pumping and Power Department are in various stages of design or construction.

The Water Pumping and Power Department has 77 current employees, with 42 vacancies. Power for continued operations of the water, drainage, and sewage systems requires staffing 24 hours per day, 7 days a week. Given the current levels of staffing, overtime is required to cover all the necessary areas within the Pumping and Power Department, although overtime requirements have been reduced this past year. In addition, there are approximately 10 of the senior operators or supervisors set to retire in 5 years or less.

## SEWAGE TREATMENT PLANTS

B&V, accompanied by the Plant Superintendent, visited both the East Bank and West Bank Wastewater Treatment Plants (WWTP). Operations and maintenance of both plants has been contracted to Veolia Water. Currently there is no onsite representative from the Board to oversee the contractor operator. Both WWTPs were operational at the time of the site visits and were meeting the discharge limits, according to treatment plant personnel.

### East Bank Wastewater Treatment Plant

The East Bank WWTP has a treatment capacity of 122 mgd (dry weather). Due to the efforts of inflow and infiltration mitigation by the Board, as well as fewer customers, the plant is currently receiving approximately 86 mgd of flow, which is 7.5 percent less than the amount of flow received in 2010. The treatment facilities at the plant include bar screens, grit removal, a pure oxygen activated sludge system, final clarification, and disinfection. The solids generated during sewage treatment are thickened, dewatered in belt filter presses, and incinerated. A new sludge dryer is currently under design as an alternative sludge treatment system to supplement the fluid bed incinerator (FBI).

The following items summarize the improvements and recommendations at the East Bank WWTP:

- Eight mixers in Reactor No. 1 will be refurbished in 2012.
- A waste heat recovery system for the FBI has been evaluated. Waste heat from the new sludge dryer system, which is currently under design, will be used in the FBI.
- The oxygen generation system has been installed, and has been online since July 2011. The plant uses approximately 33 tons of oxygen per day. The new oxygen generation system is rated for 70 tons of oxygen per day.
- At the time of the inspections, the FBI was out of service due to failure of the heat exchanger; however, a new heat exchanger arrived in May and was installed in early June restoring operation of the fluid bed incinerator. The sludge is hauled to the landfill for disposal.
- A new 4 MW diesel driven generator has been purchased and delivered to power the effluent pumps in the event of a power outage. Currently, the building to house the generator is under construction and is expected to be completed by the end of 2012.
- In 2011, the Board bid a project to raise the height of the berm (barrier) that protects the plant from flooding. This project, with an estimated cost of \$31 million, will be reimbursed by FEMA. This work will start in 2012 and end in 2014.
- A new Administration Building to replace the one damaged by Hurricane Katrina is under construction.
- Effluent Pumps Nos. 1 and 3 were rebuilt in 2011. Effluent Pump No. 2 will be rebuilt in June of 2012.
- The plant began accepting septage from truck haulers starting in May 2012 which will increase revenues for the Board. Testing and tracking of haulers will be performed by the contract operator.
- Two new storm water pumps were installed in 2011.



**Figure 3. Site of Septage Receiving Station at the East Bank WWTP**



**Figure 4. Oxygen Plant at the East Bank WWTP**

- The ash from the FBI has been approved for industrial use as a supplement to fillers in cement or soil amendment, and has been used at the West Bank plant as filler to minimize drainage problems at the site.
- The new wetlands project is currently under construction at the East Bank WWTP.

At present, the influent total suspended solids (TSS) and biochemical oxygen demand (BOD) concentration are approximately 147 milligrams per liter (mg/L) and 105 mg/L, respectively. These concentrations are significantly lower than normal, which is likely the result of a significant increase in the amount of inflow and infiltration in the collection system requiring treatment at the plant. Effluent quality has been adequate over the last year, with an average effluent TSS concentration of 14.5 mg/L and an average effluent BOD concentration of 16.4 mg/L. No permit violations were reported at the plant in 2011.

### West Bank Wastewater Treatment Plant

The West Bank facility has a treatment capacity of 20 mgd (dry weather). Currently, the plant is receiving approximately 9 mgd flow. The West Bank treatment facility consists of bar screens, primary clarifiers, trickling filters, final clarifiers, and disinfection. Primary and secondary solids are co-thickened in a gravity thickener and hauled to the East Bank facility for further dewatering using belt filter presses. A summary of findings for the West Bank treatment plant follows below:

- The center well and arms for Final Clarifiers Nos. 1 and 2 have been replaced in 2011.
- The walkway for Primary Clarifier No. 1 will be replaced in 2012.
- The scum trough in Primary Clarifier No. 2 will be replaced in 2012.
- Influent Screen No. 3 was refurbished in 2011.
- The Board would like to convert from gaseous chlorine to sodium hypochlorite. Currently, this conversion is in design but, with limited funds, the project will not be constructed at this time.
- Corrosion was noted on the trickling filter structure located to the west.



**Figure 5. Refurbished Influent Screen**

The monthly average TSS and BOD influent concentrations are approximately 106 mg/L and 105 mg/L, respectively. The monthly average effluent TSS and BOD concentrations have been approximately 7.7 mg/L and 8.3 mg/L, respectively.

## SEWAGE AND DRAINAGE PUMPING STATIONS

Each drainage pump station (DPS) and sewerage lift station (SLS) located in the East and West Banks was visited. The repairs to strengthen DPS No. 6 have been completed. Additional roof and wall bracing was added to this station, giving it greater capability to handle intense storms. Two new generators have also been added to this station. Several additional East bank drainage pumping stations have also completed storm mitigation construction projects. Some of the construction includes, but is not limited to, strengthening the roof and structural walls, and the addition of elevated generators and fuel storage tanks which provide the ability to run the stations in the event of a major storm, such as Hurricane Katrina.

In spite of all the repairs and upgrades of the DPS and SPSs, a few stations still have not been repaired or are out of service due to maintenance issues. East Bank Sewerage Stations Nos. 1, 3, 6, 8, and 15 are still running on portable pumps, and repairs at these stations are ongoing since suffering the effects of Hurricane Katrina. Aurora, the West Bank sewerage station, has one pump currently being rebuilt; a temporary is pump is being used to provide redundancy until the replacement of the pump is complete. At Lower Coast, also at the West Bank sewerage station, the slab around the pump is sinking. At this time, there are no apparent impacts to the pumps. All East and West Bank facilities are in good condition and, aside from normal maintenance requirements; there are no major concerns with the equipment. Staffing continues to be an issue. Current staffing levels are lower than one would expect for the size and scope of the sewer and drainage stations due to retirements and lack of qualified candidates.

## FACILITY MAINTENANCE

The Facility Maintenance Division provides meter repairs, removals and installations, major electrical, welding, and fabrication, as well as mechanical maintenance for all Board facilities throughout the system, with the exception of Veolia Water operated WWTPs. The Facility Maintenance Division possesses the specialized equipment and technology necessary to maintain the plant process equipment, drainage pumping stations, sewage pump stations, power generation equipment, and water meter servicing. Automated lathes and mills located in the machine shop and break press, as well as shear and other specialized repair equipment located in the welding and fabrication shop, provide the ability to fabricate parts when replacement parts are excessively expensive or no longer available due to equipment vintage.

In addition, new facilities are being built within the S&WB system such as turbine No. 6 which will require additional staff to not only operate, but maintain. While the Facility Maintenance Division is well equipped, the lack of adequate numbers of trained personnel has hindered the Division's ability to perform in-house repairs. The Facility Maintenance Division has 80 authorized positions; however, only 57 positions are currently staffed, with most of the highly skilled positions remaining vacant. Overtime is necessary to compensate for the limited workforce and, more work is currently being contracted out to subcontractors than previously. The Division is presently facing a lack of qualified personnel to adequately supervise or oversee subcontractors. Currently, 23 percent of the

Facility Maintenance employees are eligible for retirement, with an additional 19 percent of the staff eligible to retire within 5 years. The Division is actively recruiting at job fairs and trade schools to hire additional personnel.

## ENGINEERING

The Engineering Division includes Mechanical Engineering, Electrical Engineering, Civil Engineering, Construction Administration and Inspection, and Networks Engineering. The Division administers major contracts throughout the Board facilities, and coordinates with other agencies for the design and construction activities impacting Board maintained facilities. There is a critical shortage of licensed Professional Engineers at this time.

The present status of some contracts administered through the Engineering Division is itemized in the following list:

- Contracts issued for repairing roofs of non-critical facilities.
- Construction oversight of the sodium hypochlorite storage and pumping system at the Carrollton WPP. This \$2.8 million project is nearing completion of construction, and should be online by the middle of 2012.
- Currently, the Board plans on adding a sludge dryer at the East Bank plant. The sludge dryer project is currently in the design phase.
- Refurbishment of steam driven pumps (A and B) in the Power Generation Facility by the end of 2013.
- Installation of a new steam turbine and natural gas compressor located in the Power Building.
- Flood mitigation for 10 sewerage pump stations will go to bid by the end of 2012. A couple of the stations may be delayed due to access and/or funds deficiencies to complete the flood mitigation. This will not impede the function of the station, only the facilities' storm proofing.

Currently, the Engineering Division is in the process of working with the Corps on storm proofing projects for the most critical drainage pump stations. Approximately 10 storm proofing projects have been identified, and are in various stages of design at present. The following is a list of the most critical projects and projects to be completed as funding becomes available from the Corps:

- A 15 MW generator package is currently in construction at the Carrollton facility to provide additional power to the Carrollton WPP and power plant.
- The provision of an underground electrical feeder power line from the Carrollton power plant to Drainage Pump Station No. 1. This project has been designed and is waiting for funding from the Corps of Engineers.
- Storm proofing of the Power Building and river pumping stations which supply water to the Carrollton plant. The project is under construction and is valued at approximately \$30 million.
- Drainage Pump Station No. 5 will have additional pumps and emergency power generation installed; additional storm proofing of the existing building will protect the building from water infiltration. The project is currently under construction.

- Storm proofing of buildings and/or backup generator power for Drainage Pump Stations Nos. 3, 6, and 20 is currently under construction.
- A new backup generator installed at Pump Station No. 7 is currently in the testing and commissioning phase of construction. Storm proofing of the facility is under construction.
- Drainage Pumping Station No. 13 storm proofing, as well as backup power generation, is under construction. Currently the construction is 90 percent complete.

In addition to contract administration, the engineering department has added geographical information system (GIS) technology to further enhance capabilities in tracking water distribution and sewer piping. The FEMA funded water main replacement and emergency sewer system assessment require GIS to identify and fix broken or leaking pipes in the water distribution and collection system.

## NETWORKS

The Networks Division is charged with maintaining the sanitary sewer system and the potable water distribution system. The water distribution network damaged by uprooted trees and other debris during Katrina still has not been fully repaired. Consequently, the Carrollton plant is currently purifying approximately 140 mgd of water despite serving almost 80 percent of the pre-Katrina population.

The Networks department is divided into seven zones. Zone 2 performs preventive maintenance activities such as exercising valves and fire hydrant maintenance. Zone 7 comprises the after hour crews which respond to emergency calls. Zones 1, 3, 4, 5, and 6 represent geographical areas in New Orleans. Each zone has a staff of approximately 20 to 35, who are responsible for repairs within the designated areas. Typically, a three-man crew will complete a work order. More complex work orders may require additional crews on a single work order. The level of manpower is reasonable for the type of work done by the Networks department. Contractors are used to supplement repair work performed within each of the areas if sufficient manpower within the Board is not available to perform necessary repairs.

According to Board personnel, the biggest challenge in restoring normal operations at the water purification plants has been the detection and repair of leaks in the distribution system. The Board, with the aid of contractors, is currently conducting a system evaluation of the piping system to detect leaks. A contractor, Ecologic, has been hired to use acoustic technology to determine leaks in larger water mains (those exceeding 16 inches in diameter). Over 13,500 leaks have been repaired in the last year. Manholes are also being inspected as an ongoing inspection of the sewer system. In addition, over 1,800 sewer repairs were completed in 2011. Identification of leaks is ongoing, and will continue to incorporate identified leaks into the water main replacement program funded by FEMA.

The Networks Division works in conjunction with the Fire Department to monitor and maintain all fire hydrants located in the Board's service area. The Networks Division inspects all fire hydrants within the system. All hydrants in the City have been assigned an identification number and have been mapped. The fire hydrants program requires the 16,500 fire hydrants in the database to be inspected once every 2 years to supplement the biannual inspection cycle of the Fire Department.

The Networks Division completed over 5,100 paving projects in 2010, both in-house and in cooperation with contractors. This Division has several maintenance contracts to assist with the maintenance of the water distribution, wastewater collection, and drainage stations. These contracts have subsequently increased the amount of work accomplished within the division.

Staffing, in combination with overtime and FEMA funded contracts, has been able to perform the work required and address the needs of area customers. However, approximately 10 percent of the staff within this division is eligible for retirement within the next 5 years, including nearly all departmental management positions. This is not a unique problem for the Networks Division, as all Divisions have similar staffing issues. These conditions demonstrate the need for an effective succession action plan for the division heads and supervisors.

## **SUPPORT SERVICES**

The Board owns 746 pieces of rolling stock, which includes trucks, backhoes, and sewer cleaning equipment. Approximately 88 pieces are at least 15 years old, and will require replacement in the next few years. The available equipment is being assigned to the various divisions based on the needs of the Operations and Networks Divisions.

Large mechanical work, such as vehicle tire repair and some ground maintenance functions have been contracted out to other firms in the past. This work is now completed by the Support Services department.

Garages 1 and 2 are scheduled to be rehabilitated in 2012. The new warehouse rehab was completed in 2012. FEMA will be reimbursing equipment and tools for each garage lost to the hurricane in addition to replacing some of the buildings, such as the Annex Building. A new Site Relocation Facility will be constructed to house personnel until the garage renovations have been completed. The old Warehouse Building will not be rebuilt.

New tracking systems have been implemented for equipment usage, accident reporting, and personnel qualifications. Training programs have been updated for commercial drivers' licensing and operation of heavy equipment.

## **ENVIRONMENTAL AFFAIRS DEPARTMENT**

The Environmental Affairs Department oversees the consent decree and all administrative orders. This department also undertakes special projects for the Executive Director's office and reports sewer bypasses and overflow to the Region 6 Environmental Protection Agency (EPA). Some activities being undertaken by the department include those listed below:

- Taking the lead among other agencies to ensure wastes are disposed of in an environmentally friendly manner and assisting State agencies with environmental cleanup.
- Providing technical assistance to the pumping station crews.
- Permit compliance in air, water, wastewater, storm water management, solid waste, and underground fuel storage tanks.

The department head has recently retired, and the duties of the department head are currently being performed by several individuals within the department. The interim plan is to use these individuals

until the Board is able to hire a department head either through an internal promotion or by going outside the Board to fill the vacancy.

The Environmental Affairs Department was able to obtain a \$10 million grant from the state's Coastal Impact Assistance Program (CIAP) for construction of the first phase of the estimated \$65 million wetlands assimilation project. A 20 acre demonstration project adjacent to the East Bank Sewage Treatment Plant is currently under construction. In addition, the evaluation of ferrate as an alternative disinfectant is included in the wetlands assimilation program. This evaluation shows promise not only as a disinfectant alternative, but as a treatment for emerging pollutants of concern, such as trace pharmaceuticals in the wastewater.

In 2011, the department adopted an amendment to the plumbing code in order to meet guidelines set forth by the LADEQ. The department has recently completed the 5 year renewal of the storm water management plan. The draft has been sent to the EPA and the Board is waiting for approval of the plan. Approval of the plan is expected in 2012. The department has purchased additional software to make it easier to track discharge compliance of industries within the New Orleans area.

There were several violations of the Title V Air compliance permit in 2011. Those violations are as follows:

- High beryllium concentration at the East Bank WWTP.
- Faulty reading from the Venturi scrubber located at the East Bank WWTP.
- Reports submitted late to the EPA.

Corrective action has been initiated by the Board for each of the violations listed above.

## **STATUS OF CONSENT DECREE**

The Board is complying with the Environmental Protection Agency (EPA) Region 6 and Department of Justice Consent Decree, which requires cessation of unauthorized discharges and the development of a schedule for repairs to both the collection system and the treatment plant.

In January of 2010, the Board successfully completed negotiations for a modification of the Consent Decree. A phased approach in response to unanticipated delays and violations of the Decree due to the hurricane has been accepted. Some provisions outlined in the document include those listed below:

- Quarterly and annual reporting requirements will continue to be submitted to the regulatory agency.
- Preventive maintenance requirements of the Consent Decree will continue to be met by the Board.
- Repair to the collection systems will begin once the sewage pump stations have been repaired from hurricane damage.

The Board is in compliance with the EPA Consent Decree, as it has met every construction and reporting deadline in the decree and has had no fines relative to construction or reporting schedules in 2011.

## SUMMARY OF FINDINGS

- The Board has a clear understanding of the existing condition of the water and sewage treatment facilities, and is aware of the immediate needs within each division and area. However, funding is needed for the Board to address these issues. A customer rate increase is currently before the council and, if approved, will address the immediate needs of the water department, such as filter rehabilitation.
- The Board should initiate the filter rehabilitation program at the Carrollton WPP, as the filter system is in need of extensive repairs due to leaking pipes, broken valves, broken actuators, and filter media at the end of its expected service life.
- Improvements to the water treatment systems should be implemented to optimize TOC removal.
- The recycle basin pumps at the Carrollton WPP need to be replaced; however, replacement is hampered by limited funding.
- The potable water distribution network and the sanitary sewer collection system present the two biggest challenges, and are being addressed in a systematic manner with the aid of contractors to identify leaks within each system. Continuation of the water main replacement program through FEMA will reduce the number of major leaks in the water system.
- The Board is servicing 100 percent of the population within the collection system. Most of the sewerage pump stations on the East and West Banks have been repaired and are operational. The remaining stations will be completed in 2012.
- A \$10 million pilot study was awarded by the Coastal Impact Assistance Program to the Board for the wetlands assimilation program. Twenty acres of wetlands is currently under construction, and includes construction of the wetland cells and planting of cypress trees. Once construction is complete, approximately 0.12 mgd of final effluent flow from the East Bank Wastewater Treatment Plant will be pumped to the wetlands area.
- The Board should continue efforts to storm proof critical facilities as funding becomes available.
- In an effort to alleviate personnel issues, the Board has suspended the Domicile Policy, which required Board employees to live in the City of New Orleans. This change in policy will allow personnel hired by the Board to live outside the City and retain the right to promotions. In addition, it would be beneficial if the Board would consider succession planning for key areas of operations, where personnel are close to retirement age, to allow for easier transition of daily responsibilities once retirements are announced.
- It is important that the Board concentrate on filling vacancies of highly skilled technical positions such as engineers, machinists, and electricians, especially during this economic downturn, as it may be easier to recruit staff with the required skills.

## 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 to issue bonds and the pledge of system revenues; 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. Water Department tables are included at the end of 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 Resolution states that "... 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. The Board is continuing to repair or replace facilities damaged in 2005 by Hurricane Katrina.

### **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. The Government Finance Officers Association (GFOA) has awarded to the Board the “Certificate of Achievement for Excellence in Financial Reporting” for their annual financial reports for 27 years.

### 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.

## 2011 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. Analyses of the 2011 Water Department operations are discussed in the following paragraphs.

### Water Use

According to statistics found in the December 31, 2011 Comprehensive Annual Financial Report, during the year, 54,458,330,000 gallons of water were pumped by the Water Department. Water sales accounts for 14,082,685,300 gallons and 736,493,900 gallons were metered to City departments without charge. Metered treatment plant process water totaled 686,024,100 gallons. The remaining 38,953,126,700 gallons resulted from unmetered uses, such as fire protection; flushing streets, sewers, drains, and gutters; and unaccounted for system losses.

### Number of Customers

Table 2 presents a summary of the historical and projected average number of treated water customers for the period 2007 through 2016. Based on year-end billing summaries, the number of monthly billed customers during 2011 averaged 118,745 compared with 116,426 for 2010. It is

projected that the Board will average approximately 120,230 open accounts in 2012 and that the number of accounts will continue to grow at approximately 1.25 percent each year.

In addition to regular customers, water is sold to construction contractors and other customers on an irregular basis. The Board, by law, also provides water service free of charge to certain municipal and public connections including the Board itself. In 2011 there were 944 connections in this group, compared with 922 for 2010.

### Billed Water Usage

Table 2 also presents a summary of historical and projected treated water sales. Based on year-end billing summaries, a total of 13,925 million gallons of water sales were billed on a monthly basis in 2011, compared with a total of 13,653 million gallons in 2010. Projected water sales assume a growth rate of approximately 1.25 percent per year.

### Operating Revenues

The 2011 schedule of rates for retail treated water service is presented in Table 3. The rates consist of monthly service charges, which vary by meter size, plus a 4-step declining block volume charge, with the exception of the first block, which is a life-line related charge. Current rates for flat rate fire service are also shown in Table 3. Separate rate schedules, not shown, are used for billing water sold to construction projects and other purposes.

A summary of historical treated water billings and other Water Department revenue is presented in Table 4 for the period 2007 through 2011. The historical revenues shown in Table 4 were developed from detailed records provided by Board Staff. Operating revenues are derived from charges for sale of water and delinquent fees. Sales of water in 2011 were \$58,804,719 which, when compared with \$54,013,282 for 2010, shows an increase of approximately 8.9 percent. Delinquent fee revenues were \$1,085,593 in 2011 which represent a 1.8 percent decrease over 2010 delinquent fees.

### Non-Operating Revenues

Also shown in Table 4, non-operating revenue of the Water Department includes interest earned on invested funds, and other income from miscellaneous sources. During 2011, non-operating revenue included \$44,752 of interest earned from the investment of available funds in the Water System Fund and the Water Revenue Bond Account and \$16,463,848 from other sources.

In 2011, the Board received \$11,514,936 in operating and maintenance grants from FEMA for operating expenses incurred from water repairs performed by Board crews. This revenue is included as Other Income in Table 4.

### 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 2011 increased about 23.3 percent from 2010 expenditures and about 24.4 percent from 2009 expenditures. 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 16 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 2011 capital expenditures, exclusive of prorated interest expense, totaled \$19,426,109. 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 2011:

Total Revenues <sup>a</sup>	\$76,398,912
Operation and Maintenance Expense	64,556,538
Claims	120,697
Debt Service Payments	3,905,618
<b>Revenue Primarily Available for Capital Expenditures <sup>b</sup></b>	<b>\$7,816,059</b>

<sup>a</sup> Includes operating and maintenance grant of \$11,514,936.

<sup>b</sup> Excludes depreciation.

### PROPOSED CAPITAL IMPROVEMENT PROGRAM

Table 7 presents a summary of the projected major capital improvement program for the period 2012 through 2016. Table 7 is based on the Board's 2012 adopted Capital Budget and the 2012-2021 proposed Capital Program. The five-year major capital improvement program costs are estimated to total \$498,001,000. About 31.5 percent of this amount, or \$156,851,000, is for recurring annual capital improvements, with the remaining \$341,150,000 for major improvements. The proposed routine annual capital expenditures for water system improvements and extensions include \$10,192,000 for the Water Department's share of power projects, and \$37,533,000 for its share of general budget items.

### 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 2012 through 2016 are shown in Table 8. These estimates reflect the rate schedule effective July 1, 2011 applied to the projected number of customers and water usage and are projected to increase, on average, about 1.2 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 non-operating 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 \$378,000 per year and \$114,500 for three-mill revenue sharing. Operating and maintenance grants are projected at an average of about \$9,800,000 per year.

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.

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

A summary of projected operation and maintenance expense for the period 2012 through 2016 is 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.

Projected expenses shown for 2012 reflect the Board's adopted 2012 operating budget. Based on historical trends and conversations with utility staff, all costs are projected to increase 3.0 percent per year from the Board's recommended budget for 2012.

## 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, 2011, outstanding debt obligations consisted of \$7,460,000 Water Revenue Bonds, Series 1998 and \$24,955,000 Water Revenue Bonds Series 2002 for a total of \$32,415,000. In February 2010, the Department of Health and Hospitals (DHH) provided a \$3,400,000 loan to the Board with a \$1,000,000 principal forgiveness. As of December 31, 2011, the Board had withdrawn \$2,825,553 on the 2010 issue. Of this amount, \$663,877 has been forgiven and \$25,000 has been repaid.

To adequately fund the proposed capital improvements, additional revenue bonds are indicated as shown in Table 10. Projected bonds that are shown in Table 10 are assumed to be sold at an average annual interest rate of 6.0 percent for a term of 20 years with 3 years of capitalized interest.

The Water Department has borrowed \$7,000,000 from the City of New Orleans Department of Public Works (DPW), \$8,400,000 from the Sewerage Department, and \$4,700,000 from the Drainage Department. It is anticipated that these funds will be reimbursed during the study period.

### Adequacy of Revenues to Finance Proposed Capital Improvements

Total revenue requirements for the Water Department recognized for purposes of this report include operation and maintenance expense, allowance for claims, debt service costs on major capital improvements financed through the sale of bonds, and expenditures for capital improvements not financed from bond proceeds. Table 11 summarizes the financing of operation and maintenance expense, debt service costs on outstanding and proposed bonds, and the transfer of operating funds for major capital improvement financing. It also examines the financing of the major capital improvement program.

### Operating Fund

Line 1 of Table 11 shows projected Revenue from Charges under 2011 rates as previously presented in Table 8.

Lines 2 through 6 show any indicated increases in water revenues associated with rate increases assumed to be in effect the number of months shown. A revised *Financial Plan and Rate Study 2011-2020* (2012 Rate Study) was issued in April of 2012. Board staff presented resolutions to the Board of Directors in July for the proposed water and sewerage charges proposed in the 2012 Rate Study. The study is currently being reviewed by the City Council. Per direction by Board staff, the proposed revenue increases presented in the 2012 Rate Study are reflected in this report. Future annual water system revenue increases of 12 percent effective December 1, 2012 and July 1 of 2013 through 2016 are shown on Lines 3 through 6 of Table 11.

Other revenue available for system operations, shown on Lines 9 through 14, consist of Interest Income on operating funds, Three-Mill Revenue Sharing, Plumbing Inspection and License Fees, Other Miscellaneous Income, Operating and Maintenance Grants and Interest from Bond Reserve Fund. Interest Income available to the operating fund, shown on Line 9, is estimated to be 1.0 percent of the average of the beginning and end of year Net Annual Balance, except as the average is affected by identifiable nonrecurring major receipts, transfers, or expenditures during the year.

The Board has submitted Project Worksheets to FEMA for operating expenses incurred from water repairs performed by Board crews. Line 13 indicates the amount projected to be reimbursed by FEMA for these repairs during the study period. Total Operating Revenue is shown on Line 15.

Operation and Maintenance expense, previously projected in Table 9, is shown on Line 16 of Table 11. Line 17 shows the estimated allowance for claims. Bad debt expense is assumed to be 2 percent of projected revenue and is shown on Line 18. Projected Net Operating Revenue from system operations is shown on Line 19.

Lines 20 through 22 present debt service requirements on currently outstanding and proposed revenue bonds. Additional revenue bond debt financing of \$76,500,000 in 2013 and \$8,500,000 in 2014 is assumed. This debt is assumed to be 20 year, 6.0 percent fixed interest rate bonds issued in October, with 3 years of capitalized interest and equal annual payments of principal and interest.

In July of 2006, the Board entered into a Cooperative Endeavor Agreement with the State of Louisiana to secure proceeds from the State's Gulf Opportunity Tax Credit Bond Loan Program to assist in payment of debt service requirements from 2006 through 2008. As of December 31, 2011, the Board has drawn down \$77,465,247 on this agreement. No principal or interest was payable during the initial five-year period of the loan, but after that period, the loan began to bear an interest rate of 4.64 percent. Payments for the water portion of principal and interest began July 2012 and are shown on Line 23 of Table 11.

During January 2006, the Board entered into a long-term agreement with FEMA under the Community Disaster Loan Act of 2005. As of December 31, 2011, the Board has drawn down \$64,956,747 of the funds available. In December 2010, the Board was granted a partial forgiveness in the amount of \$36,790,000 of principal and \$4,648,410 of accrued interest, leaving a balance of \$25,166,747 in principal. Payments are to begin in August 2016 with a 5-year term and a 2.93 percent interest rate. The water portion of the payments is shown on Line 24.

Line 26 reflects the projected transfer of accumulated net earnings from system operations to assist in major capital financing. Typically, such accumulated net earnings may be used to help recover portions of the annual costs of system operations or to assist in major capital improvement financing. Line 27 reflects repayment to the DPW and Sewerage and Drainage Departments.

Line 28 indicates the estimated Net Annual Balance from operations remaining at the end of each year.

The balance of operating funds available at the beginning of the year 2012, shown on Line 29, is comprised of the current cash assets and reflects a balance of \$9,645,100.

The End of Year Balance is shown on 30. It is intended that, in all years of the period 2012 through 2016, the End of Year Balance should equal or exceed the assumed adequate emergency capital reserve of 45 days operation and maintenance expense. It is anticipated that the End of Year Balance will be equal to or greater than the targeted emergency capital reserve for each year of the study period.

### Capital Projects Funding

Major capital improvement financing is examined in Lines 31 through 45 of Table 11. The amount of Funds Available at Beginning of Year, shown on Line 31, is \$30,912,300. This amount is based on audited data provided by the Board.

Projected revenue bond proceeds are shown on Line 32. The amounts and years of issue are developed considering capital program needs, current policies, other sources of major capital improvement financing, and the debt service coverage requirements of the bond covenants regarding the issuance of parity revenue bonds.

Financing of the major capital improvement program anticipates the transfer of a total of \$125,000,000 of operating revenue as shown on Line 33. Other sources of funds available to meet major capital improvement expenditures are Participation by Others and interest income. Participation by Others, as shown on Line 34 includes anticipated funding by the EPA, U.S. Army Corps of Engineers (COE), the Department of Health and Hospitals, and FEMA. Interest earnings

recognize an assumed 1.0 percent average annual interest rate and are shown on Line 35. Line 36 of the table shows the projected major capital improvement funds available each year.

As of December 31, 2011, the Board had \$11,527,800 obligated for open contracts and capital jobs as shown on Line 37 of Table 11. Lines 38 and 39 show the projected Reinvestment in Assets and Major Capital Additions to be funded as shown in Table 7. It is anticipated that the capital projects in 2012 will exceed the amount of funding available and some projects will need to be deferred until 2013. This deferral is shown on Line 40 and assumes 3 percent inflation each year the projects are deferred.

Estimated issuance costs and capitalized interest related to the proposed bond issue amounts are shown on Lines 41 and 42. Line 43 shows the required deposits into the Revenue Bond Reserve Fund associated with proposed bond issues.

The Total Application of Funds is shown on Line 44 of Table 11. The net End of Year Balance is shown on Line 45.

As demonstrated in Table 11, it is anticipated that current revenue sources will be adequate to readily finance both projected capital program requirements as currently scheduled and estimated future operation expenses of the Water Department during the 2012-2016 study period examined herein.

### **Bond Coverage Requirements**

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 46 of Table 11, the indicated revenue increases will provide sufficient net revenues to meet coverage requirements during the study period.

The results of the Additional Bonds Test, described in an earlier section of this report, are shown on Lines 47 through 49 of Table 11. All of these tests will be met during the study period with the proposed revenue increases.

While Table 11 indicates that the Board will meet the minimum requirements to issue additional revenue bonds, it is not clear whether the Board will be able to meet the increased key performance indicators that the market is currently requiring. Without a strong service area economy, healthy debt service coverage, and strong liquidity, the Board may be required to pay a premium to issue additional debt.

### **Summary of Findings**

- As demonstrated in Table 11, it is anticipated that the capital projects in 2012 will exceed the amount of funding available and some projects will need to be deferred until 2013. Assuming that these projects are deferred as shown on Line 40 of Table 11, it is anticipated that current revenue sources will be adequate to readily finance both projected capital program requirements and estimated future operation expenses of the Water Department through the 2012-2016 study period examined herein.

**Table 1**  
**Insurance in Force as of December 31, 2011**

Coverage	Kind and / or Location	Amount of Coverage	Policy Period	
			From	To
Travelers/St. Paul Ins. Co.	Primary Fleet Liability	Limit: \$1,000,000 (\$200,000 Deductible)	06/20/11	06/20/12
RSUI Indemnity Company	Excess Fleet Liability	Limit \$5,000,000 (\$1,200,000 Deductible)	06/20/11	06/20/12
Westport/RSUI Indemnity/Sompo Japan Ins. Co.	Property - Building, Contents, and Mobile Equipment	\$46,401,255 Building \$22,114,000 Contents \$5,137,808 Mobile Equipment (\$100,000 Deductible)	03/20/11	03/20/12
Alterra Excess & Surplus Ins. Co.	Fleet Physical Damage	\$17,337,960 (\$250,000 Deductible)	03/20/11	03/20/12
Fidelity National Flood Indemnity Ins. Co.	Flood	\$16,101,800 Building \$13,732,000 Contents	08/06/2011 & 08/17/2011	08/06/2012 & 08/17/2012
Fidelity & Deposit Company of Maryland	Commercial Crime and Employee Theft	\$525,000 (\$10,500 Deductible)	05/01/11	05/01/12
National Union Fire Ins. Co. of PA	Public Officials D & O	\$5,000,000 (\$100,000 Deductible)	11/20/10	11/20/11
Travelers Casualty & Surety Co. of America	Pension Fund Liability	\$1,000,000 (\$50,000 Deductible)	08/01/10	08/01/13

**Table 2**  
**Water Department**  
**Historical and Projected Sales and**  
**Average Number of Customers (a)**

	Historical							Projected			
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
<b>Single Family Residential (b)</b>											
Customers	97,218	87,691	94,547	100,798	102,979	104,267	105,570	106,890	108,226	109,579	
Sales (1,000,000 gal.)	6,110	5,734	6,196	6,276	6,592	6,675	6,758	6,843	6,928	7,015	
Sales Per Customer (1,000 gal.)	63	65	66	62	64	64	64	64	64	64	
<b>Multi-family Residential</b>											
Customers	4,626	4,194	4,267	4,416	4,439	4,494	4,550	4,607	4,665	4,723	
Sales (1,000,000 gal.)	887	825	832	810	788	797	807	817	828	838	
Sales Per Customer (1,000 gal.)	192	197	195	183	177	177	177	177	177	177	
<b>Commercial</b>											
Customers	10,448	9,475	9,558	9,872	9,918	10,042	10,168	10,295	10,424	10,554	
Sales (1,000,000 gal.)	4,144	4,070	3,570	3,682	3,683	3,729	3,776	3,823	3,871	3,919	
Sales Per Customer (1,000 gal.)	397	430	374	373	371	371	371	371	371	371	
<b>Industrial</b>											
Customers	24	22	21	20	17	18	18	18	18	18	
Sales (1,000,000 gal.)	123	91	80	53	42	43	43	43	43	43	
Sales Per Customer (1,000 gal.)	5,086	4,222	3,771	2,674	2,407	2,406	2,406	2,406	2,406	2,406	
<b>Dual Service &amp; Metered Fire Service (c)</b>											
Customers	1,197	1,193	1,247	1,321	1,392	1,409	1,427	1,445	1,463	1,481	
Sales (1,000,000 gal.)	2,663	2,718	2,630	2,832	2,821	2,857	2,893	2,930	2,966	3,003	
Sales Per Customer (1,000 gal.)	2,225	2,278	2,109	2,144	2,027	2,027	2,027	2,027	2,027	2,027	
<b>Total</b>											
Customers	113,513	102,575	109,640	116,426	118,745	120,230	121,733	123,255	124,796	126,355	
Sales (1,000,000 gal.)	13,927	13,438	13,309	13,653	13,925	14,101	14,277	14,455	14,636	14,817	

(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 1, 2011)**

		General Service	Dual Service (a)
		\$	\$
<b>Monthly Water Service Charge</b>			
<u>Meter Size</u>			
Inches			
	5/8	4.05	5.50
	3/4	4.95	6.75
	1	6.30	8.80
	1-1/2	10.40	13.70
	2	13.70	19.60
	3	31.00	43.50
	4	54.00	76.00
	6	106.00	148.00
	8	157.00	220.00
	10	213.00	298.00
	12	250.00	350.00
	16	333.00	466.00
<b>Monthly Water Quantity Charge - per 1,000 Gallons</b>			
First	3,000 gallons	2.69	2.69
Next	17,000 gallons	4.60	4.60
Next	980,000 gallons	3.62	3.62
Over	1,000,000 gallons	3.04	3.04
<b>Flat Rate Fire Service</b>			
<u>Meter Size</u>			
Inches			
	2	9.20	
	3	12.50	
	4	23.00	
	6	40.00	
	8	53.00	
	10	84.00	
	12	109.00	
	16	150.00	

(a) Includes Dual Service and all metered fire services.

Table 4

### Water Department Statement of Historical Revenue

	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
	\$	\$	\$	\$	\$
<b>Operating Revenue</b>					
Sales of Water	36,198,631	42,913,744	49,689,747	54,013,282	58,804,719
Delinquent Fee	1,596,891	1,081,988	987,307	1,066,491	1,085,593
Total Operating Revenue	<u>37,795,522</u>	<u>43,995,732</u>	<u>50,677,054</u>	<u>55,079,773</u>	<u>59,890,312</u>
<b>Nonoperating Revenue</b>					
Interest Earned	493,003	302,558	84,560	32,383	44,752
Plumbing Inspection and License Fees	271,170	295,302	242,224	373,213	379,036
Revenue Sharing	197,190	229,502	165,098	148,528	140,655
Other Income (a)	<u>1,281,819</u>	<u>974,578</u>	<u>18,382,186</u>	<u>9,497,548</u>	<u>15,944,157</u>
Total Nonoperating Revenue	<u>2,243,181</u>	<u>1,801,940</u>	<u>18,874,068</u>	<u>10,051,672</u>	<u>16,508,600</u>
Total Revenue	40,038,704	45,797,672	69,551,122	65,131,445	76,398,912

(a) Includes 16,600,790 in operating and maintenance grants in 2009, \$6,251,855 in 2010, and \$11,514,936 in 2011.

**Table 5**  
**Water Department**  
**Historical Operation and Maintenance Expenses (a)**

	2007	2008	2009	2010	2011
	\$	\$	\$	\$	\$
<b>Management and General Expenses</b>					
Administrative	2,056,157	3,696,400	(1,754,217)	4,063,842	4,432,935
Management Services Director	26,676	31,034	24,121	23,226	23,619
Building and Grounds and Support Services	1,383,923	1,554,301	1,095,617	1,035,972	1,146,187
Personnel Administration	372,108	393,557	261,102	284,354	276,123
Finance Administration	741,562	835,575	713,007	785,102	847,924
Information Systems	2,037,654	1,933,589	1,487,421	1,421,701	1,491,718
Revenue and Customer Service	2,746,344	3,482,268	3,774,758	4,072,735	3,990,470
Purchasing	235,090	269,051	206,955	225,852	212,508
Total Management and General	9,599,514	12,195,776	5,808,764	11,912,784	12,421,483
<b>Operations Expenses</b>					
General Superintendent	196,374	236,623	148,527	178,217	172,673
Chief of Operations	77,769	62,507	75,851	67,543	68,776
Water Pumping and Power	14,866,810	17,695,920	14,393,332	11,142,039	12,092,473
Central Control	431,312	573,855	619,641	670,229	651,457
Water Purification	8,199,532	10,313,493	9,566,964	9,955,835	9,192,313
Chief of Facilities Maintenance	66,631	76,786	94,029	92,316	130,206
Facilities Maintenance	3,326,563	3,846,125	3,086,098	2,904,614	2,997,107
Central Yard	2,499,556	2,511,570	1,617,507	1,789,058	1,935,170
Office of Chief of Networks	357,326	120,178	143,700	142,919	255,061
Networks	12,490,047	12,324,603	11,091,848	8,586,257	19,866,368
Engineering	1,184,106	1,401,279	1,038,809	1,014,126	1,080,169
Plumbing	441,830	499,622	477,796	469,925	450,070
Total Operations	44,137,856	49,662,562	42,354,102	37,013,077	48,891,843
<b>Other Expenses</b>					
Special Accounts	1,661,998	1,292,730	1,081,741	932,188	897,154
Payroll Related Expenses	7,629,127	8,002,409	5,725,534	5,548,877	5,759,876
Overhead Allocation	(4,271,666)	(4,374,549)	(3,080,380)	(3,058,748)	(3,413,817)
Total Other	5,019,459	4,920,590	3,726,895	3,422,317	3,243,212
Total Operation and Maintenance (b)	58,756,829	66,778,929	51,889,761	52,348,178	64,556,538

(a) 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

(b) Source: Expenditure Analysis by Group Report.

**Table 6**

**Water Department  
Capital Expenditures (a)  
2011**

C.P. #	Project	Actual Expenditures
		\$
	<b>Waterworks</b>	
135	Improvements to Chemical System	298,846
156	Advanced Water Treatment	1,410,805
175	Water Hurricane Recovery Bonds	8,992,914
	Total Waterworks	10,702,564
	<b>Water Distribution</b>	
214	Normal Extensions & Replacements	1,739,309
239	Mains DPW Contracts	2,625,434
	Total Water Distribution	4,364,743
	<b>Power Projects and General Budget</b>	
800	Water Share of General Budget Items	4,358,802
	Total Water Department	19,426,109

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

**Table 7**  
**Water Department**  
**Projected Capital Improvements (a)**

C.P. #	Project	2012	2013	2014	2015	2016	Total
		\$	\$	\$	\$	\$	\$
<b>Reinvestment in Assets</b>							
110	Normal Extension & Replacement	8,211,000	14,920,000	6,720,000	7,070,000	6,770,000	43,691,000
112	Modification to Oak St. Raw Water Intake Station	4,850,000	25,000				4,875,000
122	Filter Rehabilitation	2,500,000	4,100,000	6,800,000	6,500,000	10,200,000	30,100,000
214	Normal Extensions & Replacements	1,400,000	1,400,000	1,430,000	1,430,000	1,450,000	7,110,000
216	Water System Replacement Program	1,900,000	1,750,000	1,000,000	1,000,000	1,000,000	6,650,000
239	Mains In Streets Department Contracts	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	16,000,000
600	Water Share of Power Projects	2,626,000	4,398,000	1,470,000	1,068,000	630,000	10,192,000
701	Water Reserve for Emergencies	700,000					700,000
800	Water Share of General Budget Items	6,478,000	7,184,000	8,670,000	7,148,000	8,053,000	37,533,000
	Total Routine Capital Improvements	31,865,000	36,977,000	29,290,000	27,416,000	31,303,000	156,851,000
<b>Major Capital Improvements</b>							
135	Improvements to Chemical System	500,000	2,050,000	1,250,000	100,000	150,000	4,050,000
156	Advanced Carrollton Water Treatment	1,200,000	17,000,000	4,560,000	120,000	120,000	23,000,000
157	Advanced Algiers Water Treatment	3,050,000	9,000,000	1,200,000			13,250,000
159	Water Plant Security Improvements	3,170,000	4,520,000	2,000,000	2,000,000	2,000,000	13,690,000
175	Water Hurricane Recovery Bonds	61,610,000	87,550,000	45,000,000	45,000,000	45,000,000	284,160,000
221	Feeder Main Extension, General	600,000	600,000	600,000	600,000	600,000	3,000,000
	Total Major Capital Improvements	70,130,000	120,720,000	54,610,000	47,820,000	47,870,000	341,150,000
	Total Water Department Improvements	101,995,000	157,697,000	83,900,000	75,236,000	79,173,000	498,001,000

(a) The improvements for 2012-2016 are based on the 2012 Capital Budget and 2012-2021 Capital Program approved December 21, 2011.

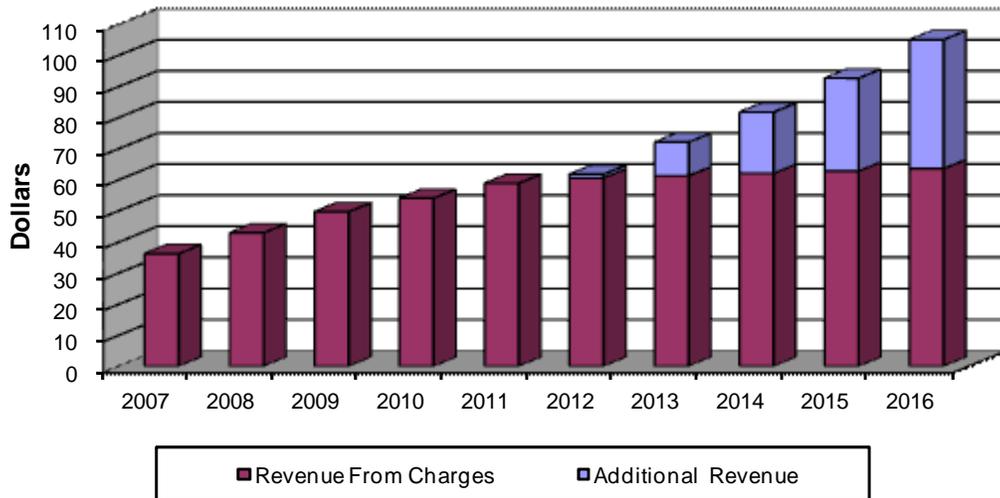
**Table 8**

**Water Department  
Projected Operating Revenue**

Year	(1)	(2)	(3)
	Revenue From Charges	Additional Revenue (a)	Total Service Charge Revenue
	\$	\$	\$
2012	60,540,900	1,210,800	61,751,700
2013	61,283,200	10,785,900	72,069,100
2014	62,032,400	19,671,800	81,704,200
2015	62,790,200	29,836,300	92,626,500
2016	63,554,400	41,449,800	105,004,200

(a) Reflects additional revenue from proposed revenue increases.

**Historical and Projected Operating Revenue**



**Table 9**

**Water Department  
Projected Operation and Maintenance Expenses**

	2012 (a)	2013	2014	2015	2016
	\$	\$	\$	\$	\$
<b>Management and General Expenses</b>					
Administrative	2,594,700	2,672,500	2,752,700	2,835,300	2,920,300
Management Services Director	23,400	24,100	24,900	25,600	26,400
Building and Grounds and Support Services	1,119,900	1,153,500	1,188,100	1,223,700	1,260,400
Personnel Administration	402,900	415,000	427,400	440,200	453,500
Finance Administration	987,600	1,017,300	1,047,800	1,079,200	1,111,600
Information Systems	1,957,700	2,016,400	2,076,900	2,139,200	2,203,400
Revenue and Customer Service	3,865,800	3,981,800	4,101,300	4,224,300	4,351,000
Purchasing	298,000	306,900	316,100	325,600	335,300
Total Management and General	11,250,000	11,587,500	11,935,200	12,293,100	12,661,900
<b>Operations Expenses</b>					
General Superintendent	282,800	291,200	300,000	309,000	318,200
Chief of Operations	69,700	71,700	73,900	76,100	78,400
Water Pumping and Power	11,982,500	12,342,000	12,712,200	13,093,600	13,486,400
Central Control	284,200	292,800	301,600	310,600	319,900
Water Purification	10,818,200	11,142,700	11,477,000	11,821,300	12,176,000
Chief of Facilities Maintenance	136,100	140,100	144,300	148,700	153,100
Facilities Maintenance	4,272,700	4,400,900	4,532,900	4,668,900	4,809,000
Central Yard	2,261,800	2,329,700	2,399,600	2,471,500	2,545,700
Office of Chief of Networks	172,400	177,600	182,900	188,400	194,100
Networks	10,585,600	10,903,200	11,230,300	11,567,200	11,914,200
Engineering	1,515,100	1,560,500	1,607,300	1,655,500	1,705,200
Plumbing	466,500	480,400	494,900	509,700	525,000
Total Operations	42,847,600	44,132,800	45,456,900	46,820,500	48,225,200
<b>Other Expenses</b>					
Special Accounts	1,673,200	1,723,400	1,775,100	1,828,300	1,883,200
Payroll Related Expenses	3,500,800	3,605,800	3,714,000	3,825,400	3,940,200
Overhead Allocation	(2,800,000)	(2,884,000)	(2,970,500)	(3,059,600)	(3,151,400)
Total Other	2,374,000	2,445,200	2,518,600	2,594,100	2,672,000
Total Operation and Maintenance	56,471,600	58,165,500	59,910,700	61,707,700	63,559,100

(a) Represents the adopted operating budget as of December 21, 2011.



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

	2012	2013	2014	2015	2016
	\$	\$	\$	\$	\$
<b>Existing Bonds</b>					
Series 1998	1,283,400	1,281,000	1,284,500	1,281,500	1,280,800
Series 2002	2,634,900	2,646,600	2,633,300	2,621,900	2,612,300
Total Existing Debt Service	3,918,300	3,927,600	3,917,800	3,903,400	3,893,100
<b>Projected Bonds (a)</b>					
	Amount of Issue				
	\$				
2012	0	0	0	0	0
2013	76,500,000	0	0	0	3,935,050
2014	8,500,000		0	0	0
2015	0			0	0
2016	0				0
Total Projected Debt Service	0	0	0	0	3,935,050
Total Debt Service	3,918,300	3,927,600	3,917,800	3,903,400	7,828,150

(a) Projected bonds are assumed to be issued in October of indicated year.

Table 11

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

Line No.		2012	2013	2014	2015	2016
		\$	\$	\$	\$	\$
<b>Operating Fund</b>						
1	Revenue from Charges	60,540,900	61,283,200	62,032,400	62,790,200	63,554,400
	Additional Revenue Required					
	Year	Revenue Increase	Months Effective			
2	2012	12.0%	2.0	1,210,800	7,354,000	7,443,900
3	2013	12.0%	5.0		3,431,900	8,337,200
4	2014	12.0%	5.0			3,890,700
5	2015	12.0%	5.0			4,410,800
6	2016	12.0%	5.0			5,000,200
7	Total Additional Revenue	1,210,800	10,785,900	19,671,800	29,836,300	41,449,800
8	Total Service Charge Revenue	61,751,700	72,069,100	81,704,200	92,626,500	105,004,200
9	Interest Income	192,600	185,900	146,800	148,100	147,300
10	Three-Mill Revenue Sharing	114,500	114,500	114,500	114,500	114,500
11	Plumbing Insp. & License Fees	378,000	378,000	378,000	378,000	378,000
12	Other Miscellaneous Income	5,157,100	5,157,100	5,157,100	5,157,100	5,157,100
13	Operating & Maintenance Grants	10,266,800	9,942,600	9,726,400	9,186,100	0
14	Interest from Bond Reserve Fund	74,000	108,000	145,000	148,000	148,000
15	Total Operating Revenue	77,934,700	87,955,200	97,372,000	107,758,300	110,949,100
16	Operation & Maintenance	(56,471,600)	(58,165,500)	(59,910,700)	(61,707,700)	(63,559,100)
17	Provision for Claims	(716,800)	(716,800)	(716,800)	(436,000)	(436,000)
18	Provision for Doubtful Accounts	(1,210,800)	(1,225,700)	(1,240,600)	(1,255,800)	(1,271,100)
19	Net Operating Revenue	19,535,500	27,847,200	35,503,900	44,358,800	45,682,900
<b>Debt Service</b>						
<b>Senior Lien Revenue Bonds</b>						
20	Existing	(3,918,300)	(3,927,600)	(3,917,800)	(3,903,400)	(3,893,100)
21	Projected	0	0	0	0	(3,935,100)
22	Subtotal	(3,918,300)	(3,927,600)	(3,917,800)	(3,903,400)	(7,828,200)
23	Gulf Opportunity Zone Act Loan	(639,900)	(639,900)	(639,900)	(639,900)	(639,900)
24	Special Community Disaster Loan Payable	0	0	0	0	(2,440,200)
25	Total Debt Service	(4,558,200)	(4,567,500)	(4,557,700)	(4,543,300)	(10,908,300)
26	Transfer to Construction	0	(23,000,000)	(29,000,000)	(38,000,000)	(35,000,000)
27	Due from (to) Other Departments	(8,300,000)	(8,300,000)	(1,750,000)	(1,750,000)	0
28	Net Annual Balance	6,677,300	(8,020,300)	196,200	65,500	(225,400)
29	Beginning of Year Cash Balance	9,645,100	16,322,400	8,302,100	8,498,300	8,563,800
30	End of Year Balance	16,322,400	8,302,100	8,498,300	8,563,800	8,338,400
<b>Capital Projects Funding</b>						
31	Funds Available at Beginning of Year	30,912,300	642,600	454,700	481,200	11,799,700
32	Revenue Bond Proceeds	0	76,500,000	8,500,000	0	0
33	Operation Fund Transfers	0	23,000,000	29,000,000	38,000,000	35,000,000
34	Participation By Others	69,011,000	93,822,000	48,762,000	48,430,000	49,110,000
35	Interest Income	242,100	194,200	63,100	124,500	210,600
36	Total Funds Available	100,165,400	194,158,800	86,779,800	87,035,700	96,120,300
37	Obligated Contracts & Capital Jobs	(11,527,800)	0	0	0	0
38	Reinvestment in Assets	(31,865,000)	(36,977,000)	(29,290,000)	(27,416,000)	(31,303,000)
39	Major Capital Additions	(70,130,000)	(120,720,000)	(54,610,000)	(47,820,000)	(47,870,000)
40	Deferred Capital Improvements	14,000,000	(14,420,000)	0	0	0
41	Bond Issuance Expense	0	(1,147,500)	(127,500)	0	0
42	Capitalized Interest Requirement	0	(13,770,000)	(1,530,000)	0	0
43	Revenue Bond Reserve Fund	0	(6,669,600)	(741,100)	0	0
44	Total Application of Funds	(99,522,800)	(193,704,100)	(86,298,600)	(75,236,000)	(79,173,000)
45	End of Year Balance	642,600	454,700	481,200	11,799,700	16,947,300
<b>Debt Service Coverage</b>						
46	Annual Test	429%	610%	779%	976%	419%
<b>Additional Bonds Test</b>						
47	Prior Two-Year Test	430%	123%	189%	252%	317%
48	Maximum Future Debt Service Test	503%	239%	282%	352%	363%
49	Coverage 5 Years after Sale	414%	413%	408%	403%	397%

This page intentionally left blank.

## 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.
- Employment of Consulting Engineer
- 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 is in compliance with these covenants with the exception of debt service coverage in 2011. Sewerage Department tables are included at the end of this section.

### 2011 SEWERAGE DEPARTMENT OPERATIONS

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 2011 operations of the Sewerage Department are discussed in the following paragraphs.

#### Wastewater Volumes

##### Number of Customers

Table 12 presents a summary of the historical and projected average number of sewer customers for the period 2007 through 2016. Based on year-end billing summaries, the number of monthly billed customers during 2011 average 116,581 compared with 114,385 for 2010. It is projected that the Board will average approximately 118,038 open accounts in 2012 and that the number of accounts will continue to grow at approximately 1.25 percent each year.

##### Billed Wastewater Volume

Table 12 also presents a summary of historical and projected billed wastewater volumes. Based on year-end billing summaries, a total of 11,454 million gallons of wastewater volume was billed in 2011, compared with a total of 11,270 million gallons in 2010.

## Operating Revenues

Sewerage Department operating revenue for 2011 consisted of sales revenues based on the schedule of sewerage service charges shown in Table 13. The rates consist of monthly service charges, which vary by meter size, plus a volume charge. 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.

A summary of historical sewer billings and other Sewerage Department revenue is presented in Table 14 for the period 2007 through 2011. The historical revenues shown in Table 14 were developed from detailed records provided by Board staff. Operating revenues are derived from sewerage service charge revenue, which includes excess strength charges, and delinquent fees. Sewerage service charge revenues in 2011 were \$69,632,459 which, when compared with \$68,821,844 for 2010, shows an increase of approximately 1.2 percent. Delinquent fee revenues were \$725,617 in 2011 which represent an increase of 1.8 percent over 2010 delinquent fees.

## Non-Operating Revenues

Also shown in Table 14, Sewerage Department non-operating revenue includes interest earned on the investment of available funds and other minor items of revenue. Interest earned in 2011 consisted of \$253,547 from investments in the Sewerage System fund, the capital projects and construction fund. Miscellaneous income was \$3,563,671 for 2011.

## 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 2007 through 2011 historical operation and maintenance expenses of the Sewerage Department. Expenditures for 2011 decreased about 1.4 percent from 2010 expenditures and decreased about 12.7 percent from 2009 expenditures. 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 16 in Table 21.

### Capital Budget and Expenditures

Capital expenditures of the Sewerage Department include the cost of replacements and improvements to wastewater treatment and collection facilities and the Sewerage Department pro rata share of power projects and general budget costs.

The Sewerage Department's 2011 capital expenditures, exclusive of prorated interest expense, totaled \$45,836,269. Capital improvement expenditures for the year are shown in Table 16.

### Summary of Operations

The following tabulation shows a summary of the receipts and expenditures of the Sewerage Department during 2011:

Total Revenues <sup>a</sup>	\$74,175,294
Operation and Maintenance Expense	43,147,792
Claims	25,847
Debt Service Payments	20,250,057
<b>Revenue Primarily Available for Capital Expenditures <sup>b</sup></b>	<b>\$10,751,598</b>

<sup>a</sup> Includes operating and maintenance grant of \$2,772,395.

<sup>b</sup> Excludes depreciation.

### PROPOSED CAPITAL IMPROVEMENT PROGRAM

Table 17 presents a summary of the projected major capital improvement program for the period 2012 through 2016. Table 17 is based on the Board's 2012 adopted Capital Budget and the 2012-2021 proposed Capital Program. The five-year major capital improvement program costs are estimated to total \$394,709,000. Of the projected total, \$300,626,000 is considered to be for recurring annual capital improvements. The remaining \$94,083,000 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 2012 through 2016 total \$2,478,000 and \$34,435,000, respectively.

The Board is currently complying with the EPA Region 6 Administrative Order. In January of 2010, the Board successfully completed negotiations for a modification of the Consent Decree. The Capital Improvement Program shown in Table 17 represents the schedule for complying with the modified Consent Decree.

### 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 17.

## Operating Revenues

Future operating revenues of the Sewerage Department consist of sewerage service charge revenues which are summarized for 2012 through 2016 in Table 18. Future revenues reflect the existing rate schedule, which became effective July 1, 2006 applied to the projected number of customers and water usage.

## Other Revenue Sources

Based upon past practices, the Sewerage Department can expect to obtain revenues or funds from non-operating sources. These include interest earned from the investment of available funds, participation by others, and miscellaneous other income. By Board policy, the Sewerage Department receives one-half of the plumbing inspection and license fees, currently projected at \$378,000 per year. Additionally, about \$142,800 is currently anticipated for three-mill revenue sharing. Operating and maintenance grants are projected at an average of about \$5,970,000 per year.

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

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 Expense

A summary of projected operation and maintenance expense for the period 2012 through 2016 is shown in Table 19 and is categorized by the present system of accounts. Estimates of future expenses are based on anticipated future operating conditions and allowances for inflationary factors.

Projected expenses shown for 2012 reflect the Board's adopted 2012 operating budget. Based on historical trends and conversations with utility staff, all costs are projected to increase 3.0 percent per year from the Board's recommended budget for 2012.

## Debt Service Requirements

Future debt service requirements of the Sewerage Department are made up of principal, interest, and reserve fund payments for currently outstanding and future sewerage revenue bond issues. As of December 31, 2011 outstanding debt obligations consisted of \$12,715,000 Sewerage Revenue Bonds Series 1997, \$11,660,000 Sewerage Revenue Bonds Series 1998, \$15,890,000 Sewerage Revenue Bonds Series 2000A, \$12,055,000 Sewerage Revenue Bonds Series 2000B, \$19,985,000 Sewerage Revenue Bonds Series 2001, \$38,595,000 Sewerage Revenue Bonds Series 2002, \$3,780,000 Sewerage Revenue Bonds Series 2003, \$24,315,000 Sewerage Revenue Bonds Series 2004, and \$21,990,000 Sewerage Revenue Bonds Series 2009.

In November 2011, the Board and Louisiana Department of Environmental Quality (LADEQ) entered into a loan agreement whereby \$9,000,000 of proceeds from the Revolving Loan Fund were borrowed through the issuance of Sewerage Service Subordinate Revenue Bonds, Series 2011. Debt service payments will begin approximately one year after the projects are complete and assume a 20-year term with a 0.45 percent interest rate plus an administrative fee of 0.5 percent. The first

principal payment is due November 1, 2013. The Board began drawing down the funds during the first quarter of 2012 and anticipates drawing the final funds during the first quarter of 2013.

To adequately fund the proposed capital improvements, additional revenue bonds are indicated as shown in Table 20. It is assumed that the terms of the new debt incurred will be 6.0 percent for a term of 30 years with 3 years of capitalized interest.

The Sewerage Department has borrowed \$9,700,000 from the City of New Orleans Department of Public Works (DPW). It is anticipated that this amount will be reimbursed during the study period.

### Adequacy of Revenues to Finance Proposed Capital Improvements

Total revenue requirements for the Sewer Department recognized for purposes of this report include operation and maintenance expense, allowance for claims, debt service costs on major capital improvements financed through the sale of bonds, and expenditures for capital improvements not financed from bond proceeds. Table 21 summarizes the financing of operation and maintenance expense, debt service costs on outstanding and proposed bonds, and the transfer of operating funds for capital improvement financing. It also examines the financing of the major capital improvement program.

### Operating Fund

Line 1 of Table 21 shows projected Revenue from Charges under 2011 rates as previously presented in Table 18.

Lines 2 through 6 show indicated increases in sewer revenues associated with rate increases assumed to be in effect the number of months shown. Proposed revenue increases, as presented in the 2012 Rate Study, are shown on Lines 3-6 and reflect annual increase of 13 percent effective December 1, 2012 and 13 percent effective July 1 of 2013 through 2015.

Other revenue available for system operations, shown on Lines 9 through 14, consist of Interest Income on operating funds, Three-Mill Revenue Sharing, Plumbing Inspection and License Fees, Miscellaneous Revenue, Operating and Maintenance Grants, and Interest from Bond Reserve Fund. Interest Income available to the operating fund, shown on Line 9, is estimated to be 1.0 percent of the average of the beginning and end of year Net Annual Balance, except as the average is affected by identifiable nonrecurring major receipts, transfers, or expenditures during the year.

The Board has submitted Project Worksheets to FEMA for operating expenses incurred from sewer repairs performed by Board crews. Line 13 indicates the amount projected to be reimbursed by FEMA for these repairs during the study period. Total Operating Revenue is shown on Line 15.

Operation and Maintenance expense, previously projected in Table 19, is shown on Line 16 of Table 21. Line 17 shows the estimated allowance for claims. Bad debt expense is assumed to be 2 percent of projected revenue and is shown on Line 18. Projected Net Operating Revenue from system operations is shown on Line 19.

Lines 20 through 22 present debt service requirements on currently outstanding and proposed revenue bonds. Additional revenue bond debt financing of \$115,000,000 in 2013, \$90,000,000 in 2014 and \$4,000,000 in 2015 is assumed. Debt service requirements for the proposed bonds reflect a

20-year term and 6.0 percent fixed interest rate. It is assumed the proposed bonds will be issued in October with 3 years of capitalized interest and equal annual payments of principal and interest.

Payments on the Series 2011 subordinate revenue bonds issued in November of 2011 are shown in Line 23.

In July of 2006, the Board entered into a Cooperative Endeavor Agreement with the State of Louisiana to secure proceeds from the State's Gulf Opportunity Tax Credit Bond Loan Program to assist in payment of debt service requirements from 2006 through 2008. As of December 31, 2011, the Board has drawn down \$77,465,247 on this agreement. No principal or interest was payable during the initial five-year period of the loan, but after that period, the loan began to bear an interest rate of 4.64 percent. Payments for the sewerage portion of principal and interest began July 2012 and are shown on Line 24 of Table 21.

During January 2006, the Board entered into a long-term agreement with FEMA under the Community Disaster Loan Act of 2005. As of December 31, 2011, the Board has drawn down \$64,956,747 of the funds available. In December 2010, the Board was granted a partial forgiveness in the amount of \$36,790,000 of principal and \$4,648,410 of accrued interest, leaving a balance of \$25,166,747 in principal. Payments are to begin in August 2016 with a 5-year term and 2.93 percent interest rate. The sewerage portion of the payments is shown on Line 25.

Line 27 reflects the projected transfer of accumulated net earnings from system operations to assist in major capital financing. Typically, such accumulated net earnings may be used to help recover portions of the annual costs of system operations or to assist in major capital improvement financing. Line 28 reflects payments due to and from other department and includes repayment of \$9,700,000 to the DPW and repayment of \$8,400,000 from the Water Department.

Line 29 indicates the estimated Net Annual Balance from operations remaining at the end of each year.

The balance of operating funds available at the beginning of year 2012, shown on Line 30, is comprised of the current cash assets and reflects a balance of \$2,083,100.

The End of Year Balance is shown on Line 31. It is intended that, in all years of the period 2012 through 2016, the End of Year Balance should equal or exceed the assumed adequate emergency capital reserve of 45 days of operation and maintenance expense. It is anticipated that the End of Year Balance will be equal to or greater than the targeted emergency capital reserve for each year of the study period.

### Capital Projects Funding

Major capital improvement financing is examined in Lines 32 through 46 of Table 21. The amount of Funds on Hand, shown on Line 32, is \$19,726,700. This amount is based on audited data provided by the Board.

Projected revenue bond proceeds are shown on Line 33. The amounts and years of issue are developed considering capital program needs, current policies, other sources of major capital improvement financing, and the debt service coverage requirements of the bond covenants regarding the issuance of parity revenue bonds.

Financing of the major capital improvement program anticipates the transfer of a total of \$149,500,000 of operating reserves as shown on Line 34. Other sources of funds available to meet major capital improvement expenditures are Participation by Others and interest income. Participation by Others, as shown on Line 35, includes anticipated funding by the COE and FEMA. Interest earnings recognize an assumed 1.0 percent average annual interest rate. Line 37 of the table shows the projected major capital improvement funds available each year.

As of December 31, 2011, the Board had \$18,339,300 obligated for open contracts and capital jobs as shown on Line 38 of Table 21. Lines 39 and 40 show the projected Reinvestment in Assets and Major Capital Additions to be funded. The projected capital projects shown for 2012 and 2013 exceed the amount of funding available shown on Line 37; therefore \$53,000,000 in capital projects will need to be deferred. This deferral is shown on Line 41 and assumes 3 percent inflation each year the projects are deferred.

Estimated issuance costs and capitalized interest requirements related to the proposed bond issue amounts are shown on Lines 42 and 43. Line 44 shows the required deposits into the Revenue Bond Reserve Fund associated with proposed bond issues.

The Total Application of Funds is shown on Line 45 of Table 21. The net End of Year Balance is shown on Line 46.

As demonstrated in Table 21, it is anticipated that current revenue sources will be adequate to readily finance both projected capital program requirements as currently scheduled and estimated future operation expenses of the Sewerage Department during the 2012-2016 study period examined herein.

### **Bond Coverage Requirements**

A requirement of the Sewerage Service Revenue 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 Requirements. As shown on Line 47 of Table 21, the indicated revenue increases will provide sufficient net revenues to meet coverage requirements during the study period.

The results of the Additional Bonds Test, described in an earlier section of this report, are shown on Lines 48 through 50 of Table 21. All of these tests will be met during the study period with the proposed revenue increases.

While Table 21 indicates that the Board will meet the minimum requirements to issue additional revenue bonds, it is not clear whether the Board will be able to meet the increased key performance indicators that the market is currently requiring. Without a strong service area economy, healthy debt service coverage, and strong liquidity, the Board may be required to pay a premium to issue additional debt.

### **Summary of Findings**

- As demonstrated in Table 21, it is anticipated that the capital projects in 2012 and 2013 will exceed the amount of funding available and some projects will need to be deferred to 2014 and 2015. Assuming that these projects are deferred as shown on Line 41 of Table 21, it is anticipated

that current revenue sources will be adequate to readily finance both projected capital program requirements and estimated future operation expenses of the Sewerage Department during the 2012-2016 study period examined herein.

**Table 12**  
**Sewerage Department**  
**Historical and Projected Billed Volumes**  
**and Average Number of Customers (a)**

	Historical										Projected			
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016				
<b>Single Family Residential (b)</b>														
Customers	96,611	87,079	93,901	100,108	102,265	103,543	104,837	106,147	107,474	108,817				
Sales (1,000,000 gal.)	5,096	4,770	5,145	5,203	5,433	5,501	5,570	5,640	5,710	5,782				
Sales Per Customer (1,000 gal.)	53	55	55	52	53	53	53	53	53	53				
<b>Multifamily Residential</b>														
Customers	4,616	4,187	4,260	4,406	4,429	4,484	4,540	4,597	4,654	4,712				
Sales (1,000,000 gal.)	747	703	710	693	672	681	689	698	707	715				
Sales Per Customer (1,000 gal.)	162	168	167	157	152	152	152	152	152	152				
<b>Commercial</b>														
Customers	10,513	9,514	9,574	9,841	9,861	9,984	10,109	10,235	10,363	10,493				
Sales (1,000,000 gal.)	5,529	5,393	5,109	5,304	5,292	5,358	5,425	5,492	5,561	5,631				
Sales Per Customer (1,000 gal.)	525	566	533	538	536	536	536	536	536	536				
<b>Industrial</b>														
Customers	35	32	30	29	27	27	27	27	27	27				
Sales (1,000,000 gal.)	94	287	87	70	57	57	57	57	57	57				
Sales Per Customer (1,000 gal.)	2,675	8,889	2,847	2,417	2,123	2,122	2,122	2,122	2,122	2,122				
<b>Total</b>														
Customers	111,775	100,812	107,765	114,385	116,581	118,038	119,513	121,006	122,518	124,049				
Sales (1,000,000 gal.)	11,466	11,152	11,050	11,270	11,454	11,597	11,741	11,887	12,035	12,185				

(a) Excludes customers receiving free service.

(b) Includes duplex.

**Table 13**

**Sewerage Department  
Existing Sewer Rates  
(Effective July 1, 2006)**

**Monthly Sewerage Service Charge**

<u>Meter Size</u>	<u>Total Monthly Charge</u>
Inches	\$
5/8	11.60
3/4	16.50
1	23.50
1-1/2	43.25
2	63.25
3	150.00
4	250.00
6	500.00
8	750.00
10	1,000.00
12	1,150.00
16	1,550.00

**Monthly Quantity Charge**

Per 1,000 Gallons 4.04

**Excessive Strength Charge per Pound**

BOD 0.2619

TSS 0.1494

Table 14

### Sewerage Department Statement of Historical Revenue

	2007	2008	2009	2010	2011
	\$	\$	\$	\$	\$
<b>Operating Revenue</b>					
Sewerage Service Charges	67,236,089	61,154,472	65,442,893	68,821,844	69,632,459
Delinquent Fee	1,068,458	722,775	660,053	712,935	725,617
Total Operating Revenue	68,304,547	61,877,246	66,102,946	69,534,779	70,358,076
<b>Nonoperating Revenue</b>					
Interest Income	1,273,048	1,094,327	326,075	74,774	253,547
Plumbing Inspection and License Fees	271,170	295,302	242,224	373,213	379,036
Revenue Sharing	245,933	286,233	205,908	185,243	175,424
Other Income (a)	266,798	288,674	3,160,923	3,218,248	3,009,211
Total Nonoperating Revenue	2,056,949	1,964,536	3,935,130	3,851,478	3,817,218
Total Revenue	70,361,496	63,841,782	70,038,076	73,386,257	74,175,294

(a) Includes \$2,772,395 in operating and maintenance grants in 2009 and \$2,957,463 in 2010.

Table 15

### Sewerage Department Historical Operation and Maintenance Expenses (a)

	2007	2008	2009	2010	2011
	\$	\$	\$	\$	\$
<b>Management and General Expenses</b>					
Administrative	2,341,636	2,710,619	5,635,970	2,332,598	1,602,429
Management Services Director	19,451	22,630	23,641	23,225	23,618
Building and Grounds and Support Services	1,020,976	1,148,020	1,063,852	1,035,972	1,146,188
Personnel Administration	271,329	286,969	255,645	284,354	276,123
Finance Administration	546,981	617,079	701,627	785,102	847,924
Information Systems	1,485,788	1,409,909	1,479,827	1,421,701	1,491,718
Revenue and Customer Service	2,746,331	3,482,253	3,774,740	4,072,717	3,990,453
Purchasing	171,419	196,183	203,652	225,851	212,508
Total Management and General	8,603,911	9,873,660	13,138,954	10,181,521	9,590,960
<b>Operations Expenses</b>					
General Superintendent	143,189	172,537	136,268	178,217	172,673
Drainage Pumping and Central Control	333,390	335,881	253,466	284,458	282,983
Sewerage Pumping	2,962,907	3,530,071	2,991,929	2,994,092	2,761,304
Chief of Operations	56,706	45,578	70,309	67,543	68,777
Water Pumping and Power	342,093	1,931,804	351,013	897,824	910,258
Sewerage Treatment	9,989,978	10,001,042	12,384,026	11,219,427	10,953,890
Chief of Facilities Maintenance	48,584	55,990	87,943	92,316	130,206
Facilities Maintenance	2,607,184	3,035,342	2,915,271	2,904,608	2,997,106
Central Yard	1,876,880	1,879,518	1,591,341	1,789,445	1,935,487
Office of Chief of Networks	260,551	87,629	104,781	104,212	185,982
Networks	7,494,584	7,713,092	9,881,454	8,514,449	8,767,792
Engineering	863,407	1,021,766	962,712	1,014,125	1,080,168
Plumbing	441,827	499,620	477,792	469,921	450,067
Total Operations	27,421,280	30,309,870	32,208,305	30,530,637	30,696,692
<b>Other Expenses</b>					
Special Accounts	1,420,981	937,175	1,081,546	932,188	897,154
Payroll Related Expenses	4,815,145	4,823,058	6,301,921	5,522,151	5,710,844
Overhead Allocation	(3,492,313)	(3,576,413)	(3,328,966)	(3,388,621)	(3,747,859)
Total Other	2,743,813	2,183,819	4,054,501	3,065,718	2,860,139
Total Operation and Maintenance (b)	38,769,004	42,367,349	49,401,760	43,777,876	43,147,792

(a) 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

(b) Source: Expenditure Analysis by Group Report.

**Table 16**

**Sewerage Department  
Capital Expenditures (a)  
2011**

C.P. #	Project	Actual Expenditures
		\$
	<b>Sewerage Systems</b>	
317	Normal Extensions & Replacement of Gravity Mains	2,904,544
318	Rehabilitation Gravity Sewer System	2,333,817
326	Extensions & Replacements to Sewer Pumping Stations	158,275
339	Mains in Street Dept. Contracts	4,240,849
348	Normal Extensions & Replacements	1,263,656
368	Wetlands Assimilation Project	1,177,741
381	Modification & Extension of WBSTP to 20/50 MGD	29,091,186
	Total Sewerage System	41,170,067
	<b>Power Projects and General Budget</b>	
800	Sewerage Share of General Budget Items	4,666,201
	Total Sewerage Department	45,836,269

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

**Table 17**  
**Sewerage Department**  
**Projected Capital Improvements (a)**

C.P. #	Project	2012	2013	2014	2015	2016	Total
		\$	\$	\$	\$	\$	\$
<b>Reinvestment in Assets</b>							
317	Extensions and Replacements - Gravity Mains	40,138,000	97,985,000	3,750,000	1,450,000	1,500,000	144,823,000
318	Rehabilitation Gravity Sewer System	6,300,000	6,300,000	7,300,000	6,600,000	6,600,000	33,100,000
319	Extension and Replacements - Sanitary Sewer Mains Algiers			10,650,000	10,225,000		20,875,000
326	Extensions and Replacements to Pumping Stations	3,293,000	1,660,000	8,467,000	1,560,000	7,000,000	21,980,000
339	Mains in Streets Department Contracts	5,000,000	5,000,000	5,300,000	5,300,000	5,300,000	25,900,000
348	Extensions and Replacements - Treatment Plants	2,779,000	2,224,000	2,290,000	5,380,000	4,362,000	17,035,000
600	Sewer Share of Power Projects	282,000	243,000	1,710,000	153,000	90,000	2,478,000
800	Sewer Share of General Budget Items	5,878,000	6,683,000	8,647,000	6,147,000	7,080,000	34,435,000
	Total Routine Annual Improvements	63,670,000	120,095,000	48,114,000	36,815,000	31,932,000	300,626,000
<b>Major Capital Improvements</b>							
313	Extensions and Replacements - Sewer Force Mains	300,000	2,000,000	2,000,000	2,000,000	2,250,000	8,550,000
368	Wetland Assimilation	9,100,000					9,100,000
375	Sewerage Hurricane Recovery Bonds	46,070,000	7,000,000	5,000,000	5,000,000	5,000,000	68,070,000
381	Modification and Expansion of WBSTP to 20/50 MGD	516,000	2,447,000	1,240,000	450,000	3,710,000	8,363,000
	Total Major Improvements	55,986,000	11,447,000	8,240,000	7,450,000	10,960,000	94,083,000
	Total Sewerage System Improvements	119,656,000	131,542,000	56,354,000	44,265,000	42,892,000	394,709,000

(a) The improvements for 2012-2016 are based on the 2012 Capital Budget and 2012-2021 Capital Program approved December 21, 2011.

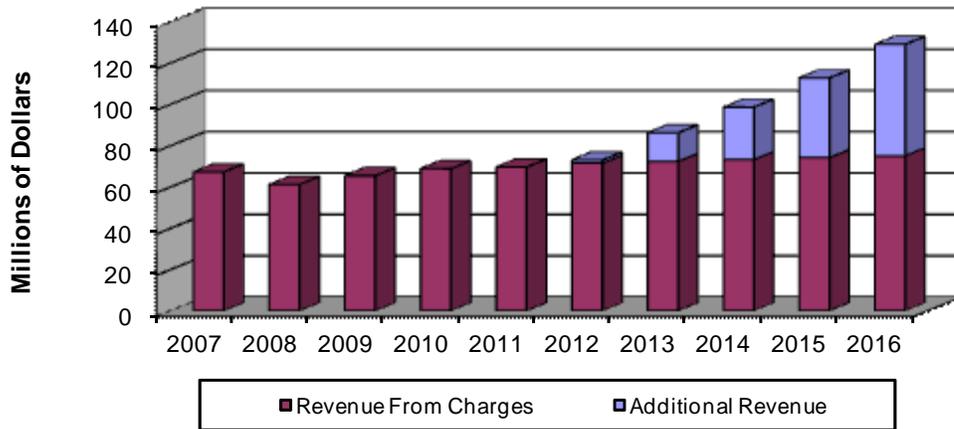
**Table 18**

**Sewerage Department  
Projected Operating Revenue**

Year	(1)	(2)	(3)
	Revenue From Charges	Additional Revenue (a)	Total Service Charge Revenue
	\$	\$	\$
2012	71,480,900	1,548,800	73,029,700
2013	72,360,800	13,836,000	86,196,800
2014	73,250,100	25,349,300	98,599,400
2015	74,151,900	38,637,100	112,789,000
2016	75,065,900	53,956,700	129,022,600

(a) Reflects additional revenue from proposed revenue increases.

**Historical and Projected Operating Revenue**

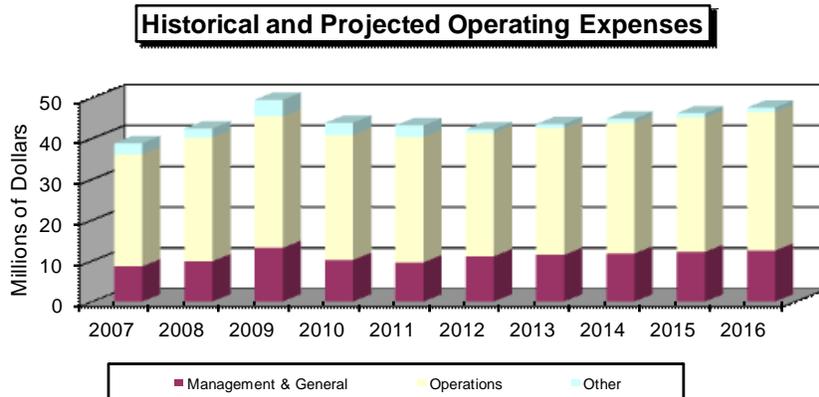


**Table 19**

**Sewerage Department  
Projected Operation and Maintenance Expenses**

	2012 (a)	2013	2014	2015	2016
	\$	\$	\$	\$	\$
<b>Management and General Expenses</b>					
Administrative	2,850,700	2,936,200	3,024,300	3,115,100	3,208,500
Management Services Director	23,400	24,100	24,900	25,600	26,400
Building and Grounds and Support Services	1,120,300	1,153,900	1,188,500	1,224,100	1,260,900
Personnel Administration	256,700	264,400	272,300	280,500	288,900
Finance Administration	750,400	772,900	796,100	820,000	844,600
Information Systems	1,945,800	2,004,200	2,064,300	2,126,200	2,190,000
Revenue and Customer Service	3,890,200	4,006,900	4,127,100	4,250,900	4,378,400
Purchasing	248,200	255,700	263,300	271,200	279,400
<b>Total Management and General</b>	<b>11,085,700</b>	<b>11,418,300</b>	<b>11,760,800</b>	<b>12,113,600</b>	<b>12,477,100</b>
<b>Operations Expenses</b>					
General Superintendent	197,300	203,300	209,400	215,600	222,100
Drainage Pumping and Central Control	0	0	0	0	0
Sewerage Pumping	2,557,100	2,633,800	2,712,900	2,794,200	2,878,100
Chief of Operations	69,700	71,700	73,900	76,100	78,400
Water Pumping and Power	476,100	490,400	505,100	520,300	535,900
Sewerage Treatment	12,145,500	12,509,900	12,885,200	13,271,700	13,669,900
Chief of Facilities Maintenance	136,100	140,100	144,300	148,700	153,100
Facilities Maintenance	1,755,900	1,808,600	1,862,800	1,918,700	1,976,300
Central Yard	2,271,900	2,340,100	2,410,300	2,482,600	2,557,100
Office of Chief of Networks	120,400	124,000	127,700	131,500	135,500
Networks	8,931,900	9,199,800	9,475,800	9,760,100	10,052,900
Engineering	1,015,500	1,046,000	1,077,400	1,109,700	1,143,000
Plumbing	466,500	480,400	494,900	509,700	525,000
<b>Total Operations</b>	<b>30,143,900</b>	<b>31,048,100</b>	<b>31,979,700</b>	<b>32,938,900</b>	<b>33,927,300</b>
<b>Other Expenses</b>					
Special Accounts	1,556,400	1,603,100	1,651,200	1,700,700	1,751,800
Payroll Related Expenses	2,230,400	2,297,400	2,366,300	2,437,300	2,510,400
Overhead Allocation	(2,800,000)	(2,884,000)	(2,970,500)	(3,059,600)	(3,151,400)
<b>Total Other</b>	<b>986,800</b>	<b>1,016,500</b>	<b>1,047,000</b>	<b>1,078,400</b>	<b>1,110,800</b>
<b>Total Operation and Maintenance</b>	<b>42,216,400</b>	<b>43,482,900</b>	<b>44,787,500</b>	<b>46,130,900</b>	<b>47,515,200</b>

(a) Represents the adopted operating budget as of December 21, 2011.



**Table 20**

**Sewerage Service Revenue Bond  
Debt Service Requirements**

	2012	2013	2014	2015	2016
	\$	\$	\$	\$	\$
<b>Existing Bonds</b>					
Series 1997	2,522,400	2,528,600	2,537,700	2,543,400	2,551,200
Series 1998	2,007,500	2,009,100	2,007,700	2,005,800	2,006,300
Series 2000A	2,252,400	2,261,300	2,269,800	2,279,200	2,290,600
Series 2000B	1,709,900	1,717,500	1,725,600	1,731,100	1,734,600
Series 2001	2,609,600	2,603,700	2,597,600	2,594,900	2,591,100
Series 2002	4,582,200	4,596,500	4,613,400	4,629,200	4,644,600
Series 2003	405,500	402,700	401,600	401,700	403,900
Series 2004	2,461,900	2,463,500	2,453,700	2,452,800	2,461,900
Series 2009	2,078,300	2,021,100	2,023,500	2,026,200	2,029,400
Series 2011 (LADEQ)	155,300	534,800	530,500	526,200	522,000
Total Existing Debt Service	20,785,000	21,138,800	21,161,100	21,190,500	21,235,600
<b>Projected Bonds</b>					
	Amount of Issue				
	\$				
2012	0	0	0	0	0
2013	115,000,000	0	0	0	2,957,725
2014	90,000,000		0	0	0
2015	4,000,000			0	0
2016	0				0
Total Projected Debt Service	0	0	0	0	2,957,725
Total Debt Service	20,785,000	21,138,800	21,161,100	21,190,500	24,193,325

(a) Projected bonds are assumed to be issued in October of indicated year.

Table 21

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

Line No.		2012	2013	2014	2015	2016
		\$	\$	\$	\$	\$
<b>Operating Fund</b>						
1	Revenue from Charges	71,480,900	72,360,800	73,250,100	74,151,900	75,065,900
	Additional Revenue Required					
	Revenue					
	Year					
	Increase					
	Months					
2	2012	1,548,800	9,406,900	9,522,500	9,639,700	9,758,600
3	2013		4,429,100	10,760,400	10,892,900	11,027,200
4	2014			5,066,400	12,309,000	12,460,700
5	2015				5,795,500	14,080,600
6	2016					6,629,600
7	Total Additional Revenue	1,548,800	13,836,000	25,349,300	38,637,100	53,956,700
8	Total Service Charge Revenue	73,029,700	86,196,800	98,599,400	112,789,000	129,022,600
9	Interest Income	122,500	140,500	118,900	120,600	125,600
10	Three-Mill Revenue Sharing	142,800	142,800	142,800	142,800	142,800
11	Plumbing Insp. & License Fees	378,000	378,000	378,000	378,000	378,000
12	Other Miscellaneous Income	1,040,100	1,040,100	1,040,100	1,040,100	1,040,100
13	Operating & Maintenance Grants	6,267,400	6,069,400	5,937,500	5,607,600	0
14	Interest from Bond Reserve Fund	258,000	308,000	398,000	439,000	441,000
15	Total Operating Revenue	81,238,500	94,275,600	106,614,700	120,517,100	131,150,100
16	Operation & Maintenance	(42,216,400)	(43,482,900)	(44,787,500)	(46,130,900)	(47,515,200)
17	Provision for Claims	(341,000)	(341,000)	(486,000)	(486,000)	(486,000)
18	Provision for Doubtful Accounts	(1,460,600)	(1,723,900)	(1,972,000)	(2,255,800)	(2,580,500)
19	Net Operating Revenue	37,220,500	48,727,800	59,369,200	71,644,400	80,568,400
<b>Debt Service</b>						
<b>Senior Lien Revenue Bonds</b>						
20	Existing	(20,629,700)	(20,604,000)	(20,630,600)	(20,664,300)	(20,713,600)
21	Projected	0	0	0	0	(2,957,700)
22	Subtotal	(20,629,700)	(20,604,000)	(20,630,600)	(20,664,300)	(23,671,300)
<b>Subordinate Revenue Bonds</b>						
23	Existing	(155,300)	(534,800)	(530,500)	(526,200)	(522,000)
24	Gulf Opportunity Zone Act Loan	(6,235,200)	(6,235,200)	(6,235,200)	(6,235,200)	(6,235,200)
25	Special Community Disaster Loan Payal	0	0	0	0	(2,440,200)
26	Total Debt Service	(27,020,200)	(27,374,000)	(27,396,300)	(27,425,700)	(32,868,700)
27	Transfer to Construction	(4,000,000)	(27,500,000)	(29,500,000)	(41,500,000)	(47,000,000)
28	Due from (to) Other Departments	1,775,000	1,775,000	(2,425,000)	(2,425,000)	0
29	Net Annual Balance	7,975,300	(4,371,200)	47,900	293,700	699,700
30	Beginning of Year Cash Balance	2,083,100	10,058,400	5,687,200	5,735,100	6,028,800
31	End of Year Balance	10,058,400	5,687,200	5,735,100	6,028,800	6,728,500
<b>Capital Projects Funding</b>						
32	Funds Available at Beginning of Year	19,726,700	183,500	869,900	490,700	627,973
33	Revenue Bond Proceeds	0	115,000,000	90,000,000	4,000,000	0
34	Operation Fund Transfers	4,000,000	27,500,000	29,500,000	41,500,000	47,000,000
35	Participation by Others	67,352,000	16,143,000	7,843,000	7,486,000	8,360,000
36	Interest Income	100,100	36,600	28,400	3,100	69,200
37	Total Funds Available	91,178,800	158,863,100	128,241,300	53,479,800	56,057,173
38	Obligated Contracts & Capital Jobs	(18,339,300)	0	0	0	0
39	Reinvestment in Assets	(63,670,000)	(120,095,000)	(48,114,000)	(36,815,000)	(31,932,000)
40	Major Capital Additions	(55,986,000)	(11,447,000)	(8,240,000)	(7,450,000)	(10,960,000)
41	Deferred Capital Improvements	47,000,000	6,000,000	(46,000,000)	(7,458,127)	0
42	Bond Issuance Expense	0	(1,725,000)	(1,350,000)	(60,000)	0
43	Capitalized Interest Requirement	0	(20,700,000)	(16,200,000)	(720,000)	0
44	Revenue Bond Reserve Fund	0	(10,026,200)	(7,846,600)	(348,700)	0
45	Total Application of Funds	(90,995,300)	(157,993,200)	(127,750,600)	(52,851,827)	(42,892,000)
46	End of Year Balance	183,500	869,900	490,700	627,973	13,165,173
<b>Debt Service Coverage</b>						
47	Annual Test	137.8%	178.0%	216.7%	261.2%	245.1%
<b>Additional Bonds Test</b>						
48	Prior Two-Year Test	191%	112%	111%	138%	168%
49	Maximum Future Debt Service Test	276%	205%	234%	282%	318%
50	Coverage 5 Years after Sale	379%	438%	503%	576%	746%

## Drainage Department

### 2011 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. Rainfall in 2007 was 6.11 inches below average annual rainfall. Rainfall in 2008 and 2009 was 2.27 inches and 5.11 inches, respectively, above average annual rainfall while rainfall in 2010 and 2011 was 10.72 inches and 17.02 inches, respectively, below average annual rainfall. A summary of rainfall for 2007 through 2011 is shown in Table 22 at the end of this section.

The Board is charged with 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 summary of historical revenues received by source is shown in Table 23 for the period 2007 through 2011. The historical revenue shown in Table 23 was developed from detailed records provided by Board Staff.

#### 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 24 presents a summary of 2007 through 2011 operation and maintenance expenses of the Drainage Department. Expenditures for 2011 increased about 2.7 percent from 2010 expenditures. Operation and maintenance expenses have increased an average of 4.9 percent per year over the five-

year period shown. Historical operation and maintenance expenses shown in Table 24 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 9 in Table 31.

**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 2011, exclusive of prorated interest expenses totaled \$26,478,021. The Drainage Department's capital improvement expenditures for the year are shown in Table 25.

**Summary of Operations**

The following tabulation shows a summary of receipts and expenditures of the Drainage Department during 2011:

Total Revenues	\$40,468,555
Operation and Maintenance Expense	32,080,419
Claims	-4,826,998
Debt Service Payments	2,196,892
<b>Revenue Primarily Available for Capital Expenditures <sup>a</sup></b>	<b>\$11,018,242</b>

<sup>a</sup> Excludes depreciation.

**PROPOSED CAPITAL IMPROVEMENT PROGRAM**

Table 26 presents a summary of the projected major capital improvement program for the period 2012 through 2016. Table 26 is based on the Board's 2012 adopted Capital Budget and the 2012-2021 proposed Capital Program. The five-year major capital improvement program costs are expected to total \$2,068,926,000. 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 27, future revenues from these sources are estimated by the Board in the 2012 through 2016 Capital Budget according to capital project and amount to \$1,521,375,000, most of which is provided by the COE.

The Sewerage and Water Board is currently receiving funds from the COE 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. The identified projects are to be funded either 100 percent from federal funds or 65 percent from federal funds and 35 percent from local funds. The payback period for the local share is 30 years and is anticipated to begin in 2013.



## 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 2011, 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 28. Projections include proceeds from the three-mill, the six-mill, and the nine-mill ad valorem tax and other revenue and are based on the 2012 assessed taxable value.

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 2012 through 2016 is based on 4.66, 4.71, and 7.06 mills for three-mill, six-mill, and nine-mill taxes, respectively.

### Operation and Maintenance Expenses

A summary of projected operation and maintenance expenses is shown in Table 29. 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.

Projected expenses shown for 2012 reflect the Board's adopted 2012 operating budget. Based on historical trends and conversations with utility staff, all costs are projected to increase 3.0 percent per year from the Board's recommended budget for 2012.

### Debt Service Requirements

Nine-mill bonds in the amount of \$10,000,000 were issued in 1998, and as of December 31, 2011, \$4,610,000 remained outstanding. Additional nine-mill bonds in the amount of \$20,000,000 were issued in 2002, and as of December 31, 2011, \$14,380,000 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.

To adequately fund the proposed capital improvements, additional revenue bonds are indicated as shown in Table 30. It is assumed that the terms of new debt incurred will be 6.0 percent for a term of 30 years.

The Drainage Department has borrowed \$5,100,000 from the City of New Orleans Department of Public Works (DPW). It is anticipated that this amount will be reimbursed during the study period.

### Adequacy of Revenues to Finance Proposed Capital Improvements

Total revenue requirements for the Drainage Department recognized for purposes of this report include operation and maintenance expense, allowance for claims, debt service costs on major capital improvements financed through the sale of bonds, and expenditures for capital improvements not

financed from bond proceeds. Table 31 summarizes the financing of operation and maintenance expense, debt service costs on outstanding and proposed bonds, and the transfer of operating funds for major capital improvement financing. It also examines the financing of the major capital improvement program.

### Operating Fund

Money deposited in the Drainage System Fund is obtained primarily from the three-mill, six-mill, and nine-mill ad valorem tax as shown on Lines 1 through 3 of Table 31.

Other revenue available for system operations, shown on Lines 4 and 5, consist of other income and interest income. Interest Income available to the operating fund, shown on Line 5, is estimated to be 1.0 percent of the average of the beginning and end of year Net Annual Balance, except as the average is affected by identifiable nonrecurring major receipts, transfers, or expenditures during the year.

Additional operating revenue is needed to help fund the capital program. The 2012 Rate Study proposes that a new Drainage Fee be considered as an alternate source of revenue. The estimated revenue from this alternative source of operating revenue is shown on Line 6 of Table 31.

Operation and Maintenance expense, previously projected in Table 29, is shown on Line 8 of Table 31. Line 9 shows the estimated allowance for claims. Projected Net Operating Revenue from system operations is shown on Line 10.

Lines 11 through 13 present debt service requirements on currently outstanding and proposed revenue bonds. Additional debt financing as shown in Table 30 is assumed to fund proposed capital improvements. These bonds are assumed to be 30 year, 6.0 percent fixed interest rate bonds issued in October of each year, with equal annual payments of principal and interest.

During January 2006, the Board entered into a long-term agreement with FEMA under the Community Disaster Loan Act of 2005. As of December 31, 2011, the Board has drawn down \$64,956,747 of the funds available. In December 2010, the Board was granted a partial forgiveness in the amount of \$36,790,000 of principal and \$4,648,410 of accrued interest, leaving a balance of \$25,166,747 in principal. Payments are to begin in August 2016 with a 5-year term and 2.93 percent interest rate. The drainage portion of the payments is shown on Line 14.

Line 15 reflects the estimated SELA repayments that will begin in 2013.

Line 17 reflects the projected transfer of accumulated net earnings from system operations to assist in major capital financing. Typically, such accumulated net earnings may be used to help recover portions of the annual costs of system operations or to assist in major capital improvement financing. Line 18 reflects repayment from the Water Department and repayment to the DPW.

Line 19 indicated the estimated Net Annual Balance from operations remaining at the end of each year. The \$4,431,200 net balance of operating funds available at the beginning of the year 2012, shown on Line 20, is comprised of the current cash assets.

The End of Year Balance is shown on Line 21. It is intended that, in all years of the period 2012 through 2016, the End of Year Balance should equal or exceed the assumed adequate emergency capital reserve of 45 days operation and maintenance expense. It is anticipated that the End of Year

Balance will be equal to or greater than the targeted emergency capital reserve for each year of the study period.

### Capital Projects Funding

Major capital improvement financing is examined in Lines 22 through 35 of Table 31. The amount of Funds on Hand, shown on Line 20, is \$50,036,100. This amount is based on audited data provided by the Board.

Bond issue amounts for a total of \$541,000,000 are projected and shown on Line 23 of Table 31. The amounts and year of issue are developed considering capital program needs, current policies, and other sources of major capital improvement financing.

Financing of the major capital improvement program anticipates the transfer of a total of \$30,500,000 of operating reserves as shown on Line 24. Other sources of funds available to meet major capital improvement expenditures are Participation by Others and Interest Income. Interest earnings recognize an assumed 1.0 percent average annual interest rate. Lines 25 and 26 indicate the estimated annual funds from each of these sources. Line 27 of the table shows the projected major capital improvement funds available each year.

As of December 31, 2011, the Board had \$20,992,200 obligated for open contracts and capital jobs as shown on Line 28 of Table 31. Lines 29 and 30 show the projected Reinvestment of Assets and Major Capital Additions to be funded. The projected capital projects shown exceed the amount of funding available shown on Line 27; therefore capital projects will need to be deferred until a funding source can be identified. This deferral is shown on Line 31 and assumes 3 percent inflation each year the projects are deferred.

Estimated issuance costs related to the proposed bond issue amounts are shown on Line 32. Line 33 shows the required deposits into the Revenue Bond Reserve Fund associated with proposed bond issues. The net End of Year Balance is shown on Line 35.

As demonstrated in Table 31, it is anticipated that current revenue sources will not be adequate to readily finance both projected capital program requirements as currently scheduled and estimated future operation expenses of the Drainage Department during the 2012-2016 study period examined herein and that an additional source of operating revenue will need to be identified.

### Summary of Findings

- It is anticipated that even with the additional operating revenue and bond issues, the capital projects in 2012 will exceed the amount of funding available. As a result, some projects will need to be deferred to 2013, 2014, and 2015. This deferral is shown on Line 31 of Table 31.

**Table 22**  
**Drainage Department**  
**Rainfall**

Year	Year to Date (inches)												Deviation from Average
	January	February	March	April	May	June	July	August	September	October	November	December	
2007	4.12	5.93	7.31	9.12	17.63	22.06	29.72	31.36	35.78	47.40	48.61	53.13	(6.11)
Average (a)	4.58	9.20	14.27	19.15	23.95	29.63	36.16	42.04	47.64	50.87	54.58	59.24	
2008	6.32	11.96	14.53	22.41	30.17	36.69	40.60	48.37	56.24	57.60	59.66	61.52	2.27
Average (a)	4.60	9.22	14.27	19.18	24.01	29.69	36.20	42.09	47.71	50.93	54.63	59.25	
2009	5.16	8.13	14.30	15.51	17.96	20.36	24.18	28.80	36.25	43.82	44.60	64.41	5.11
Average (a)	4.60	9.21	14.27	19.15	23.95	29.61	36.09	41.98	47.61	50.87	54.54	59.30	
2010	1.75	7.66	10.40	13.37	19.49	26.73	32.35	41.93	44.19	44.58	46.90	48.49	(10.72)
Average (a)	4.58	9.20	14.24	19.10	23.92	29.58	36.06	41.98	47.58	50.82	54.48	59.21	
2011	2.99	4.59	11.08	11.35	12.25	16.42	27.91	29.48	39.47	39.61	41.27	42.04	(17.02)
Average (a)	4.56	9.16	14.21	19.04	23.82	29.47	35.99	41.87	47.51	50.72	54.36	59.06	

(a) Average of Year 1894 to Date.

**Table 23****Drainage Department  
Statement of Historical Revenue**

	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
	\$	\$	\$	\$	\$
Three-mill Ad Valorem Tax	11,388,731	11,294,822	10,302,545	10,378,060	11,129,376
Six-mill Ad Valorem Tax	11,525,043	11,406,361	10,410,524	10,498,580	11,242,927
Nine-mill Ad Valorem Tax	17,271,271	17,001,253	15,485,030	15,672,791	16,855,081
Two-mill Ad Valorem Tax	120	0	0	0	7,870
Plumbing License and Inspection Fees	0	0	0	0	0
Interest Earned	4,663,955	2,148,679	475,088	167,166	128,571
Other	1,378,453	1,224,732	1,704,640	1,196,275	1,104,731
Total Revenue	<u>46,227,574</u>	<u>43,075,847</u>	<u>38,377,827</u>	<u>37,912,872</u>	<u>40,468,555</u>
Total Less Interest	41,563,618	40,927,168	37,902,739	37,745,706	40,339,984

Table 24

### Drainage Department Historical Operation and Maintenance Expenses (a)

	2007	2008	2009	2010	2011
	\$	\$	\$	\$	\$
<b>Management and General Expenses</b>					
Administrative	2,026,248	1,442,470	1,641,001	1,504,269	2,374,723
Management Services Director	9,447	10,991	22,977	23,226	23,619
Building and Grounds and Support Services	1,536,920	2,222,454	3,773,499	3,505,448	3,608,126
Personnel Administration	131,787	139,385	248,085	284,354	276,123
Finance Administration	254,449	285,726	677,215	785,102	847,924
Information Systems	721,668	684,813	1,469,310	1,437,571	1,523,561
Purchasing	83,257	95,289	199,076	225,852	212,508
Total Management and General	4,763,776	4,881,129	8,031,163	7,765,821	8,866,583
<b>Operations Expenses</b>					
General Superintendent	69,548	83,804	119,297	178,217	172,673
Drainage Pumping and Central Control	5,994,057	6,810,440	6,525,528	6,466,087	6,047,653
Chief of Operations	27,543	22,138	62,634	67,543	68,776
Water Pumping and Power	7,797,775	8,722,654	4,628,952	5,354,188	5,319,545
Chief of Facilities Maintenance	23,597	27,195	79,517	92,316	130,206
Facilities Maintenance	1,438,726	1,621,548	2,296,478	2,586,461	2,614,209
Central Yard	915,088	915,986	1,554,592	1,788,429	1,934,652
Office of Chief of Network	126,553	42,563	50,894	50,617	90,334
Networks	2,272,004	2,332,643	3,750,657	2,176,076	2,074,839
Engineering	626,482	743,445	1,198,838	1,352,670	1,406,861
Total Operations	19,291,373	21,322,417	20,267,387	20,112,603	19,859,748
<b>Other Expenses</b>					
Special Accounts	831,999	593,650	954,917	932,188	897,176
Payroll Related Expenses	3,471,996	3,350,223	6,583,416	5,509,813	5,790,140
Overhead Allocation	(1,617,116)	(1,655,889)	(2,919,381)	(3,078,386)	(3,333,228)
Total Other	2,686,879	2,287,984	4,618,952	3,363,616	3,354,088
Total Operation and Maintenance (b)	26,742,028	28,491,530	32,917,502	31,242,040	32,080,419

(a) 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

(b) Source: Expenditure Analysis by Group Report.

**Table 25**

**Drainage Department  
Capital Expenditures (a)  
2011**

C.P. # Project	Actual Expenditures
	\$
<b>Canals</b>	
418 Normal Extensions & Replacements	119,606
439 Major Drainage Participation in DPW Projects	3,107,401
466 Louisiana Avenue Canal	117,117
471 SELA Program Management	1,203,469
476 Hollygrove Canals (SELA-A)	137,771
478 S. Claiborne-Lowerline to Monticello Street	3,093,694
486 Napoleon Canal Improvements 9 SELA-B)	7,210,699
496 General DeGaulle Canal (SELA-C)	78,722
497 Florida Ave. Canad - DPS#19 to Peoples Ave. (SELA-B)	385,415
498 Dwyer Intake Canal (St. Charles to Dwyer DPS) (SELA-A)	303,904
499 Jefferson Avenue Canal	1,281,697
Total Drainage Canals	17,039,495
<b>Pumping Stations</b>	
511 Normal Extensions & Rep./Stations	5,236,451
554 Expansion of Dwyer DPS (SELA-A)	516
575 Drainage Hurricane Recovery Bonds	657,813
Total Drainage Pumping Stations	5,894,781
<b>Power Projects and General Budget</b>	
800 Drainage Share of General Budget Items	3,543,745
Total Drainage Department	26,478,021

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

Table 26

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

C.P.#	Project	2012	2013	2014	2015	2016	Total
		\$	\$	\$	\$	\$	\$
<b>Reinvestment in Assets</b>							
418	Normal Ext. & Replacements	800,000	800,000	820,000	870,000	890,000	4,180,000
511	Normal Ext. & Replacement - Stations	9,013,000	9,000,000	24,060,000	6,940,000	2,000,000	51,013,000
600	Drainage Share of Power Projects	25,237,000	9,085,000	7,095,000	6,780,000	5,680,000	53,877,000
800	Drainage Share of General Budget Items	4,892,000	3,994,000	5,478,000	4,715,000	5,775,000	24,854,000
	<b>Total Routine Capital Improvements</b>	<b>39,942,000</b>	<b>22,879,000</b>	<b>37,453,000</b>	<b>19,305,000</b>	<b>14,345,000</b>	<b>133,924,000</b>
<b>Major Capital Improvements</b>							
439	Mains, Over 36" in Street Dept. Contracts	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000	21,500,000
453	Improvements to Metairie Relief Canal			450,000	6,100,000	100,000	6,650,000
466	Louisiana Ave. Canal		103,974,000	1,924,000			105,898,000
471	SELA Program Management	1,500,000	1,500,000	1,500,000	1,500,000		6,000,000
472	Tchoupitoulas Corridor				250,000	12,000,000	12,250,000
474	Melpomene Street Canal	50,000					50,000
476	Hollygrove Canals	50,000					50,000
478	S. Claib - Lowerline to Monticello St.	99,964,000					99,964,000
483	Airline & Monticello Canal Improvements			50,000	475,000	8,400,000	8,925,000
486	Napoleon Canal Improvements	73,652,000	47,757,000				121,409,000
492	Donner Canal Improvements			50,000	1,750,000	116,500,000	118,300,000
496	De Gaulle Canal	550,000	550,000	2,500,000	73,000,000	72,200,000	148,800,000
497	Florida Ave. Canal, DPS #19 to Peoples	111,390,000	4,032,000	122,558,000	696,000	2,358,000	241,034,000
498	Dwyer Canal - Lamb to Jourdan	250,000					250,000
499	Jefferson Ave. Canal	127,639,000	4,014,000				131,653,000
512	Expansion of DPS #15	750,000	500,000	14,500,000			15,750,000
535	DPS #6			400,000	1,000,000		1,400,000
573	DPS #13 Improvements		1,500,000				1,500,000
575	Drainage Hurricane Recovery Bonds	3,660,000					3,660,000
576	COE Storm Proofing Projects	72,038,000	16,071,000	1,250,000			89,359,000
578	Permanent Pump Stations at the Laek Elaine DPS Repair	800,200,000	200,000	200,000			800,600,000
	<b>Total Major Capital Improvements</b>	<b>1,295,993,000</b>	<b>184,398,000</b>	<b>149,682,000</b>	<b>89,071,000</b>	<b>215,858,000</b>	<b>1,935,002,000</b>
	<b>Total Drainage Department Improvements</b>	<b>1,335,935,000</b>	<b>207,277,000</b>	<b>187,135,000</b>	<b>108,376,000</b>	<b>230,203,000</b>	<b>2,068,926,000</b>

(a) The improvements for 2012-2016 are based on the 2012 Capital Budget and 2012-2021 Capital Program approved December 21, 2011.

**Table 27**  
**Drainage Department**  
**Projected Participation by Others (a)**

C.P.#	Project	2012	2013	2014	2015	2016	Total
		\$	\$	\$	\$	\$	\$
418	Normal Extensions & Replacements	300,000	300,000	300,000	350,000	350,000	1,600,000
453	Improvements to Metairie Relief Canal			108,000	1,464,000	24,000	1,596,000
466	Louisiana Ave. Canal		65,082,000				65,082,000
472	Tchoupitoulas Corridor					1,850,000	1,850,000
478	S. Claib - Lowerline to Monticello St.	61,585,000					61,585,000
483	Airline & Monticello Canal Improvements				114,000	2,016,000	2,130,000
486	Napoleon Canal Improvements	44,902,000	29,966,000				74,868,000
492	Donner Canal Improvements					82,500,000	82,500,000
496	De Gaulle Canal				52,500,000	52,500,000	105,000,000
497	Florida Ave. Canal, DPS #19 to Peoples	65,549,000		75,504,000			141,053,000
499	Jefferson Ave. Canal	75,292,000					75,292,000
511	Normal Ext. & Replacement - Stations	750,000					750,000
535	DPS #6			128,000	320,000		448,000
575	Hurricane Recovery Bonds	3,660,000					3,660,000
576	COE Storm Proofing Projects	61,788,000	14,421,000	1,250,000			77,459,000
578	Permanent Pump Stations at the Laek Elaine DPS Repai	800,000,000					800,000,000
601	Earhart Corridor	800,000					800,000
613	Modifications to Power Generating System	22,537,000	1,100,000				23,637,000
807	Improvements to Central Yard and St. Joseph St	1,048,000		330,000		660,000	2,038,000
810	Major Equipment Purchases	2,000					2,000
843	Minor Equipment Purchases	25,000					25,000
	<b>Total</b>	<b>1,138,238,000</b>	<b>110,869,000</b>	<b>77,620,000</b>	<b>54,748,000</b>	<b>139,900,000</b>	<b>1,521,375,000</b>

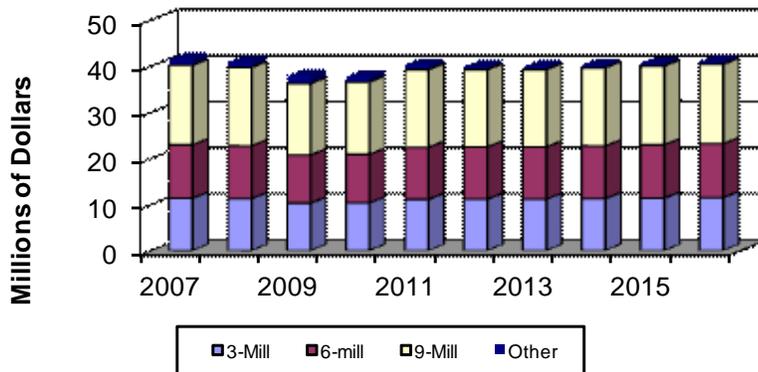
(a) The improvements for 2012-2016 are based on the 2012 Capital Budget and 2012-2021 Capital Program approved December 21, 2011.

**Table 28**

**Drainage Department  
Projected Operating Revenue**

Year	Ad Valorem Tax Revenue				Total
	Three-Mill	Six-Mill	Nine-Mill	Other	
	\$	\$	\$	\$	
2012	10,727,500	10,849,000	16,081,700	599,302	38,257,502
2013	10,727,500	10,849,000	16,081,700	599,302	38,257,502
2014	10,834,800	10,957,400	16,242,500	599,302	38,634,002
2015	10,943,100	11,067,000	16,405,000	599,302	39,014,402
2016	11,052,600	11,177,700	16,569,000	599,302	39,398,602

**Historical and Projected Operating Revenue**



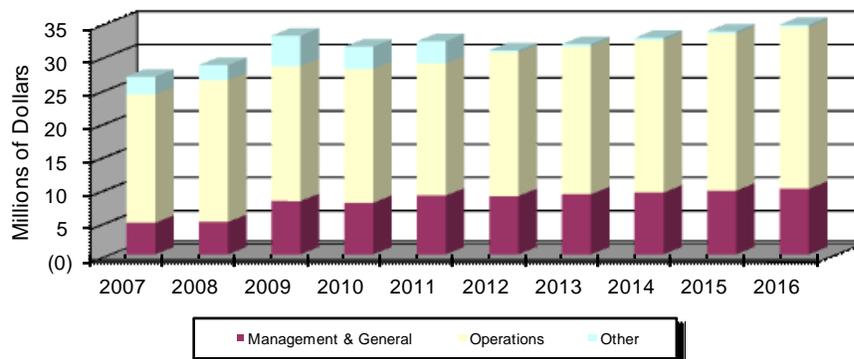
**Table 29**

**Drainage Department  
Projected Operation and Maintenance Expenses**

	2012 (a)	2013	2014	2015	2016
	\$	\$	\$	\$	\$
<b>Management and General Expenses</b>					
Administrative	2,314,400	2,383,800	2,455,300	2,529,000	2,604,900
Management Services Director	23,400	24,100	24,900	25,600	26,400
Building and Grounds and Support Services	3,432,500	3,535,500	3,641,600	3,750,800	3,863,400
Personnel Administration	203,000	209,100	215,400	221,900	228,500
Finance Administration	514,000	529,400	545,300	561,700	578,500
Information Systems	2,008,700	2,069,000	2,131,000	2,195,000	2,260,800
Revenue and Customer Service	100,100	103,100	106,200	109,400	112,600
Purchasing	183,700	189,200	194,900	200,800	206,800
<b>Total Management and General</b>	<b>8,779,800</b>	<b>9,043,200</b>	<b>9,314,600</b>	<b>9,594,200</b>	<b>9,881,900</b>
<b>Operations Expenses</b>					
General Superintendent	146,500	150,900	155,400	160,100	164,900
Drainage Pumping and Central Control	7,466,400	7,690,400	7,921,100	8,158,700	8,403,500
Chief of Operations	69,700	71,700	73,900	76,100	78,400
Water Pumping and Power	7,716,000	7,947,400	8,185,900	8,431,400	8,684,400
Chief of Facilities Maintenance	136,100	140,100	144,300	148,700	153,100
Facilities Maintenance	2,851,600	2,937,100	3,025,200	3,116,000	3,209,500
Central Yard	1,460,700	1,504,500	1,549,700	1,596,200	1,644,100
Office of Chief of Network	89,400	92,000	94,800	97,600	100,600
Networks	559,300	576,100	593,300	611,100	629,500
Engineering	1,101,700	1,134,700	1,168,800	1,203,800	1,240,000
<b>Total Operations</b>	<b>21,597,400</b>	<b>22,244,900</b>	<b>22,912,400</b>	<b>23,599,700</b>	<b>24,308,000</b>
<b>Other Expenses</b>					
Special Accounts	1,372,900	1,414,100	1,456,500	1,500,200	1,545,200
Payroll Related Expenses	1,764,300	1,817,200	1,871,700	1,927,900	1,985,700
Overhead Allocation	(2,800,000)	(2,883,900)	(2,970,400)	(3,059,600)	(3,151,500)
<b>Total Other</b>	<b>337,200</b>	<b>347,400</b>	<b>357,800</b>	<b>368,500</b>	<b>379,400</b>
<b>Total Operation and Maintenance</b>	<b>30,714,400</b>	<b>31,635,500</b>	<b>32,584,800</b>	<b>33,562,400</b>	<b>34,569,300</b>

(a) Represents the adopted operating budget as of December 21, 2011.

**Historical and Projected Operating Expenses**



**Table 30**
**Drainage Department  
Debt Service Requirements**

	2012	2013	2014	2015	2016
	\$	\$	\$	\$	\$
<b>Nine-Mill Tax Bonds</b>					
Series 1998	794,700	793,400	795,000	794,900	793,300
Series 2002	1,412,300	1,423,400	1,425,100	1,425,800	1,430,000
Total Nine-Mill Debt Service	2,207,000	2,216,800	2,220,100	2,220,700	2,223,300
<b>Projected Bonds</b>					
	Amount of Issue				
	\$				
2012	0	0	0	0	0
2013	160,000,000	2,906,000	11,623,800	11,623,800	11,623,800
2014	160,000,000		2,906,000	11,623,800	11,623,800
2015	124,000,000			2,252,100	9,008,500
2016	97,000,000				1,761,700
Total Projected Debt Service	0	2,906,000	14,529,800	25,499,700	34,017,800
Total Debt Service	2,207,000	5,122,800	16,749,900	27,720,400	36,241,100

(a) Projected bonds are assumed to be issued in October of indicated year.

Table 31

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

Line No		2012	2013	2014	2015	2016
		\$	\$	\$	\$	\$
<b>Operating Fund</b>						
1	Three-Mill Ad Valorem Tax Revenue (4.66 Mills)	10,727,500	10,727,500	10,834,800	10,943,100	11,052,600
2	Six-Mill Ad Valorem Tax Revenue (4.71 Mills)	10,849,000	10,849,000	10,957,400	11,067,000	11,177,700
3	Nine-Mill Ad Valorem Tax Revenue (7.06 Mills)	16,081,700	16,081,700	16,242,500	16,405,000	16,569,000
4	Other Miscellaneous Income	599,302	599,302	599,302	599,302	599,302
5	Interest Income	62,400	61,600	61,600	63,200	62,200
6	Alternative Source of Operating Revenue	0	11,750,000	23,500,000	35,250,000	49,350,000
7	Total Operating Revenue	38,319,902	50,069,102	62,195,602	74,327,602	88,810,802
8	Operation & Maintenance	(30,714,400)	(31,635,500)	(32,584,800)	(33,562,400)	(34,569,300)
9	Provision for Claims	(357,600)	(357,600)	(921,000)	(921,000)	(921,000)
10	Net Operating Revenue	7,247,902	18,076,002	28,689,802	39,844,202	53,320,502
<b>Debt Service</b>						
<b>Senior Lien Revenue Bonds</b>						
11	Existing	(2,207,000)	(2,216,800)	(2,220,100)	(2,220,700)	(2,223,300)
12	Projected	0	(2,906,000)	(14,529,800)	(25,499,700)	(34,017,800)
13	Subtotal	(2,207,000)	(5,122,800)	(16,749,900)	(27,720,400)	(36,241,100)
14	Special Community Disaster Loan Payable	0	0	0	0	(2,440,200)
15	SELA Capital Repayment	0	(1,300,000)	(3,900,000)	(7,800,000)	(12,875,000)
16	Total Debt Service	(2,207,000)	(6,422,800)	(20,649,900)	(35,520,400)	(51,556,300)
17	Transfer to Construction	(6,000,000)	(13,000,000)	(6,500,000)	(3,000,000)	(2,000,000)
18	Due from (to) Other Departments	1,075,000	1,075,000	(1,275,000)	(1,275,000)	0
19	Net Annual Balance	115,902	(271,798)	264,902	48,802	(235,798)
20	Beginning of Year Cash Balance	4,431,200	4,547,102	4,275,304	4,540,206	4,589,008
21	End of Year Balance	4,547,102	4,275,304	4,540,206	4,589,008	4,353,210
<b>Capital Projects Funding</b>						
22	Funds Available at Beginning of Year	50,036,100	601,700	216,400	224,000	478,661
23	Revenue Bond Proceeds	0	160,000,000	160,000,000	124,000,000	97,000,000
24	Operation Fund Transfers	6,000,000	13,000,000	6,500,000	3,000,000	2,000,000
25	Participation by Others	1,138,238,000	110,869,000	77,620,000	54,748,000	139,900,000
26	Interest Income	254,800	46,500	46,400	36,600	29,500
27	Total Funds Available	1,194,528,900	284,517,200	244,382,800	182,008,600	239,408,161
28	Obligated Contracts & Capital Jobs	(20,992,200)	0	0	0	0
29	Reinvestment in Assets	(39,942,000)	(22,879,000)	(37,453,000)	(19,305,000)	(14,345,000)
30	Major Capital Additions	(1,295,993,000)	(184,398,000)	(149,682,000)	(89,071,000)	(215,858,000)
31	Deferred Capital Improvements	163,000,000	(63,000,000)	(43,000,000)	(62,285,439)	0
32	Bond Issuance Expense	0	(2,400,000)	(2,400,000)	(1,860,000)	(1,455,000)
33	Revenue Bond Reserve Fund	0	(11,623,800)	(11,623,800)	(9,008,500)	(7,046,900)
34	Total Application of Funds	(1,193,927,200)	(284,300,800)	(244,158,800)	(181,529,939)	(238,704,900)
35	End of Year Balance	601,700	216,400	224,000	478,661	703,261

Assessment of East Bank Sewage Stations

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
1	05/07/2012	Chickasaw	A	Chickasaw at Metropolitan	Two pumps total; both working
2	05/07/2012	K-Mart	A	Desire at Gentilly	Two pumps total; both working
3	05/07/2012	Station 23	A	4500 Mithra	Two pumps total; both working
4	05/07/2012	Station 17	A	4975 Spain at Selma	Two pumps total; both working
5	05/07/2012	Station 22	A	5705 Perlita	Two pumps total; both working
6	05/07/2012	Station 19	A	3730 Jumonville at Milton	Two pumps total; both working
7	05/07/2012	Station 21	A	6670 Memphis At Filmore	Two pumps total; both working
8	05/07/2012	Station 18	A	Vicksburg at Florida	Two pumps total; both working
9	05/07/2012	City Park	A	5701 Marconi Drive	Two pumps total; both working
10	05/07/2012	Station 20	A	328 37th Street	Two pumps total; both working
11	05/07/2012	Station 4	A	5899 Fleur de Leis	Two pumps total; both working
12	05/07/2012	Lakewood South	A	Country Club Drive near Marconi	Two pumps total; both working
13	05/07/2012	Station 6	A	242 S Solomon at Palmyra	Both pumps out of service, portable pump in use
14	05/07/2012	Station 3	A	8720 Olive near Eagle	Both pumps out of service, portable pump in use
15	05/07/2012	Station 1	A	7336 Cohn	Both pumps out of service, portable pump in use
16	05/07/2012	Station 14	A	4000 Clara	Five total pumps; all pumps working
17	05/07/2012	Station 5	A	3912 Erato St	Two pumps total; both working
18	05/07/2012	Station 15	A	2431 Palmyra near Rocheblave	All pumps are out of service; portable pumps in use
19	05/07/2012	Station 8	A	Corner of N Broad and Toulouse	Both pumps out of service , working on the station; portable pumps in use

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
20	05/07/2012	Station 9	A	2540 Annette at Law	Two pumps total; both working
21	04/26/2012	Station 16	B	3751 N Miro at Pauline	Two pumps total; both working
22	04/26/2012	Station 24	B	5027 N Tonti at Forstall	Two pumps total; both working.
23	04/026/2012	Station 25	B	2245 Charbonnet	Two pumps total; both working
24	04/26/2012	Station 26	B	2244 St Maurice at Tonti	Two pumps total; both working
25	04/26/2012	Southern Scrap	B	Southern Scrap Rd Harbor Rd	Two pumps total; both working
26	04/26/2012	France and Florida	B	2701 France Road	Two pumps total; both working
27	04/027/2012	MECO-Mechanical Equipment Company	B	3855 France Road	Two pumps total; both working
28	04/27/2012	Victoria at Gentilly	B	3620 Victoria	Two pumps total; one has a broken discharge line but it's being repaired
29	04/27/2012	American Marine	B	4045 Jourdan Rd	Two pumps total; both working
30	04/27/2012	Plum Orchard	B	7300 Chef Menteur Highway	Two pumps total; both working
31	04/27/2012	Dodt	B	8118 Chef Menteur Highway	Two pumps total; both working
32	04/27/2012	Castle Manor	B	4950 Gwain at Dwyer	Two pumps total; both working
33	04/27/2012	Cerise	B	5001 Cerise	Two pumps total; both working
34	04/27/2012	McCoy	B	McCoy at Gentilly	Two pumps total; both working
35	04/27/2012	Amid	B	6800 Almonaster Road	Two pumps total; both working
36	04/27/2012	Lakeland Terrace	B	5057 Warren Drive	Two pumps total; both working
37	04/27/2012	Lake Forest	B	10451 Lake Forest Blvd	Two pump total; both working

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
38	04/27/2012	Wright Road	B	Wright Road at Lake Forest	Two pumps total; both working
39	04/27/2012	Bullard	B	5501 Bullard Road	Two pumps total; both working
40	04/27/2012	Wilson	B	7709 Wilson Avenue	Two pumps total; both working
41	04/27/2012	America	B	6789 Dwyer Road at Westlake	Two pumps total; both working
42	04/27/2012	Pines Village	B	6155 Dwyer Road at Foch	Two pumps total; both working
43	04/27/2012	Crowder	B	5500 Crowder Road	Two pumps total; both working
44	04/27/2012	Station B	B	4725 St Claude Avenue	One pump out of service, two pumps total
45	04/27/2012	Station A Municipal Auditorium	B	1321 Orleans Avenue	6 pumps total, pump #2 out of service
46	04/30/2012	Venetian Isles # 2	C	20711 Old Spanish Trail	Two pumps total; both working
47	04/30/2012	Industrial Parkway	C	4200 Industrial Parkway	Two pumps total; both working
48	04/30/2012	Folgers	C	14601 Gentilly Boulevard	Two pumps total; both working
49	04/30/2012	Michoud	C	4400 Michoud Boulevard	Two pumps total; both working
50	04/30/2012	Blvd "X"	C	4433 Chef Menteur Highway	Portable pumps outside
51	04/30/2012	Alcee Fortier	C	Alcee Fortier Blvd at the Levee	Two pumps total; both working
52	004/30/2012	Village De Lest	C	11324 Dwyer	Two pumps total; both working
53	04/30/2012	Willow Brook	C	Willowbrook off of Michoud	Two pumps total; both working
54	04/30/2012	Oak Island	C	14201 Michoud Blvd	Two pumps total; both working
55	04/30/2012	Eastover	C	6051 Eastover Drive	Two pumps total; both working

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
56	04/30/2012	Paris Road	C	Dwyer West of Paris Road	Two pumps total; both working
57	04/30/2012	Shorewood	C	14441 Morrison Road	Two pumps total; both working
58	04/30/2012	Briarwood Station	C	13701 Morrison Road	Two pumps total; both working
59	04/30/2012	Liggett	C	12501 Morrison Road	Two pumps total; both working
60	04/30/2012	Berg	C	11501 Morrison Road	Two pumps total; both working
61	04/30/2012	Weber	C	10141 Morrison Road	Two pumps total; both working
62	04/30/2012	Burke	C	9001 Morrison Road	Two pumps total; both working
63	04/30/2012	Lawrence	C	7900 Morrison Road	Two pumps total; both working
64	04/30/2012	Lamb	C	6450 Morrison Road	Two pumps total; both working
65	04/30/2012	Gentilly Oaks	C	5000 Papania Road at Vienna	Two pumps total; both working

### Assessment of West Bank Sewage Stations

	DATE	FACILITY NAME	LOCATION	STATUS
1	05/15/2012	Horace	3301 Lawrence Street	Both pumps in service
2	05/15/2012	Holiday	2799 Holiday Drive	Both pumps in service
3	05/15/2012	Huntlee	3201 Huntlee	Both pumps in service
4	05/15/2012	Eton	3440 Eton Street	Both pumps in service
5	05/15/2012	Aurora	6000 Carlisle Court	Two pumps total; rebuilding one
6	05/15/2012	Blair	3800 Blair Street	Both pumps in service
7	05/15/2012	Lower Coast	3700 Old Woodland	Both pumps in service; ground sinking
8	05/15/2012	English Turn I	2201 Stanton Road	Both pumps in service
9	05/15/2012	English Turn II	123 ½ Oak Alley	Both pumps in service
10	05/15/2012	English Turn III		Both pumps in service
11	05/15/2012	Woodland	4150 Woodland Drive	Both pumps in service

	DATE	FACILITY NAME	LOCATION	STATUS
12	05/15/2012	Park Timbers	4100 Lennox Blvd	Both pumps in service
13	05/15/2012	Tall Timbers	3800 Tall Pines Drive	Both pumps in service
14	05/15/2012	Forest Isle	5631 West Forest Park Drive	Both pumps in service
15	05/15/2012	Garden Oaks	3201 Memorial Park Drive	Both pumps in service
16	05/15/2012	Memorial	2501 Memorial Park Drive	Two pumps total; leaking pipe
17	05/15/2012	Bridge Plaza	2914 Vespasian Street	Both pumps in service

**Assessment of East Bank Drainage Stations**

	DATE	FACILITY NAME	LOCATION	STATUS	STORM RELATED UPGRADES UPGRADE
1	04/23/2012	Station 6	345 Orpheum	14 pumps total, 1 out of service	(2) 3750 KW, 200 KW House Generator^
2	04/23/2012	Station 4	5700 Warrington Drive	6 pumps total, all in service	67 hp, 100 KW House Generator^
3	04/23/2012	Station 12	Robert E Lee and Ponchartrain Boulevard	1 pump total, in service	
4	04/23/2012	I-10 Pump Station	I-10 Service Road	4 pumps total, all in service	^250 KW House Generator, (2) 2435 KW
5	04/23/2012	St. Charles Station 16	Danube Road at Wales	4 pumps total, all in service	3800 hp, 2665 KW
6	04/26/2012	Citrus Station 10		4 pumps total, all in service	
7	04/26/2012	Station 14	Oneida at Haynes	4 pumps total, all in service	3800 hp, 2665 KW
8	04/26/2012	Maxent	Alcee Fortier	2 pumps total, both in service	
9	04/26/2012	Industrial Boulevard	Industrial Boulevard	3 pumps total, all in service	
10	04/26/2012	Grant Street	Grant Street at Gentilly Boulevard	6 pumps total, No. 4 is out of service	
11	04/26/2012	Amid Station 20	6300 Intercoastal Waterway at Terminal Road	2 pumps total, both in service	2100 hp, 1500 KW^200 KW House Generator
12	04/26/2012	Elaine		2 pumps total, both in service	

	DATE	FACILITY NAME	LOCATION	STATUS	STORM RELATED UPGRADES UPGRADE
13	04/26/2012	Station 5	Florida Avenue	6 pumps total, all in service	4023 hp, 3 MW^ 400 KW House Generator^, Diesel Blower
14	04/26/2012	Station 3	2251 N Broad Street	9 pumps total, all in service	hp HP, 125 KW House Generator^, 80 KW(mainly for 2-way radio)
15	04/26/2012	Station 7	5741 Orleans Avenue at Marconi Drive	5 pumps total, all in service	4023 hp, 3 MW^, 400 KW Houser Generator^
16	04/26/2012	Station 2	444 N Broad Street	6 pumps total, all in service	67 hp, 250 KW House Generator^
17	04/26/2012	Station 1	2501 S Broad Street	11 pumps total, 3 are out of service; (pump "G" and 1 & 2 constant duty pumps)	67 hp, 250 KW House Generator^
18	004/26/2012	Oleander	9400 Oleander	3 pumps total, all in service	
19	04/26/2012	Pritchard	2901 Monticello	2 pumps total, all in service	1720 hp, 1285 KW
20	04/26/2012	Station 19	4500 Florida Avenue	5 pumps total, all in service	(2)3353 hp, (2)2500 KW
21	04/26/2012	Station 17	2801 Florida Avenue	5 pumps total, 1 out of service; ("E")	

### Assessment of West Bank Drainage Stations

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
1	03/11/2010	Station 11	5301 East Sixth Street	5 pumps total, 3 out of service	670 hp, 500 KW, 25 Hz 1945 hp, 1450 KW
2	03/11/2010	Station 13	4201 Tall Spruce Drive	7 pumps total, all in service	(2) 4023 hp, 3MW^ Pump No. 5, 2000 hp, 1492 KW, Pump No. 4, 2000 hp, 1492 KW, Engine 1, 349 hp, 260 KW, Engine 2, 349 hp, 260 KW

#### Notes:

1. All 60 Hz Generators, except where shown otherwise.
2. All fuel tanks are aboveground, except where shown otherwise (^ =Currently under Construction)