REPORT ON OPERATIONS FOR 2014

BLACK & VEATCH PROJECT NO. 188511

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PREPARED FOR

Sewerage and Water Board of New Orleans

19 NOVEMBER 2015

JULIEN ENGINEERING & CONSULTING

Bruno & Tervalon LLP Certified Public Accountants

BLACK & VEATCH Building a world of difference.

MISSION STATEMENT

Our mission is to provide safe drinking water to everyone in New Orleans;
To remove waste water for safe return to the environment;
To drain away storm water;
To provide water for fire protection;
To provide information about products and services;
And to do all of this continuously at a reasonable cost to the community

VISION STATEMENT

Our vision is to have the trust and confidence of our customers
for reliable and sustainable water services

OUR VALUES

We will focus on our customer and stakeholders
We will teach each customer and employee with dignity and respect
We will value each employee, their work, and their commitment
We will be trustful, trustworthy and transparent
We will be knowledgeable and diligent in the performance of our duties
We will use financial resources prudently
We will be accountable for our performance
We will continuously improve our performance
We will ensure that the systems that provide our services remain viable for future generations
We will remain on the job and will be prepared for storms and other risks

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Introduction

PURPOSE AND SCOPE

This report covers operations of the Sewerage and Water Board of New Orleans for the year ended December 31, 2014. The report presents findings of studies made in compliance with covenants of the 2014 General Water Revenue Bond Resolution and the 2014 General Sewerage Service Revenue Bond Resolution. 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 General Water Revenue Bond Resolution and the General Sewerage Service Revenue Bond Resolution.
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 2014 General Water Revenue Bond Resolution or 2014 General Sewerage Service 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. In 2014, the Board issued Water Revenue and Refunding Bonds in the amount of $103,525,000. A portion of the proceeds were used to defease Series 1998 in the amount of $5,570,000 and Series 2002 in the amount of $22,085,000. As of December 31, 2014, $103,525,000 remained outstanding on the 2014 issue.

In February 2010, the Department of Health and Hospitals (DHH) committed to loan to the Board up to $3,400,000 with a $1,000,000 principal forgiveness to fund the installation of a new sodium hypochlorite storage and feed facility as well as the installation of a new sludge line into the Mississippi River. A total of $3,346,418 was drawn from the loan fund and as of December 31, 2014, $1,546,418 has been repaid, $1,000,000 has been forgiven, and $800,000 was granted, resulting in the loan being paid in full.

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 to 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 2014, the Board

issued Sewerage Service Revenue and Refunding Bonds in the amount of $158,990,000. A portion of the proceeds were used to defease all outstanding bonds with the exception of the Series 2011 bonds.

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 assume a 20-year term with a 0.45 percent interest rate plus an administrative fee of 0.5 percent. The Board began drawing down the funds during the first quarter of 2012 and as of December 31, 2014, had received a total of $9,000,000 in disbursements. The Board began making principal payments in November of 2013. With the issuance of the Series 2014 bonds, the Series 2011 bonds became parity debt and entitled to the provisions of the General Sewerage Service Revenue Bond Resolution Total outstanding principal on all revenue bonds totaled $167,164,000 as of December 31, 2014.

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 additional nine-mill bonds in the amount of $20,000,000 were issued in 2002. In 2014, the Board issued Drainage System Refunding Bonds in the amount of $14,900,000 for the purpose of refunding Series 1998 and Series 2002. The total nine-mill Drainage System Bonds outstanding as of December 31, 2014 was $14,900,000.

In 1988, reassessment caused the nine-mill ad valorem tax to be increased to 9.13 mills, and it was increased due to reassessment again in 1992 to 9.71 mills, and 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. The Board has drawn down $61,956,747 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. In September of 2013, the Board was granted full forgiveness of the remaining balance of $25,166,747.

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 began in July 2012 and continue through July 2026. As of December 31, 2014, the amount outstanding was $60,197,596.

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 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 2016.

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 2014, the Board provided 618,096,800 gallons of water for public services to agencies of the City of New Orleans. The value of this water, at current rates, is $2,591,003. The value of the sewerage charges is $3,325,180.

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 456,500 gallons or 2,097,300 below its annual "cap" of 2,553,800 gallons. City Park used 12,504,800 gallons or 222,818,600 below its annual "cap" of 235,323,400 gallons. Audubon Park used 107,182,300 gallons or 132,817,700 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 2014. 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 2014 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 2014 have complied with the requirements set forth in the 2014 General Water Revenue Bond Resolution.

Summary of 2014 Operations

Based upon a tabulation of water bills rendered during the year, the Water Department provided water service to an average of 127,876 regular billed customers and 1,060 governmental accounts, the latter of which are served without charge. According to data provided by the Board, of the 51,936.9 million gallons of water pumped by the Department during the year, 13,352.9 million gallons were sold, 622.8 million gallons were metered to customers without charge, treatment plant process water totaled 791.9 million gallons, and unmetered uses accounted for the remaining 37,169.3 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 $70,257,896 in 2013 to $74,220,847 in 2014. In 2014, the Board indicated that operating and maintenance grants from FEMA for operating expenses incurred from sewer repairs performed by Board crews was mistakenly recorded as revenue for the Water Department, when it should have been recorded as revenue for the Sewerage Department. Following the correction, the net operating and maintenance grant for the Water Department was negative $381,876. This amount is included in other income. Operation and maintenance expenses (excluding claims paid) increased from $63,378,612 in 2013 to $68,462,520 in 2014. After adding claims of $1,143,350 and debt service payments of $2,829,414, a balance of $1,785,563 was available for capital related expenditures in 2014, unadjusted for depreciation.

Ability to Finance Future Operations and Proposed Improvements

A summary of projected financial operations of the Water Department for the period 2015 through 2019 is shown in Table 12 of the report. Revenues shown on Line 1 of Table 12 are based on rates that became effective January 1, 2015. Revenue from future annual water system revenue increases of 10 percent effective January 1, 2016 through January 1, 2019 are shown on Line 2 of Table 12.

The Board anticipates issuing approximately $100,000,000 in water revenue bonds in 2015. Additional long term debt financing of $25,000,000 in 2016, $63,000,000 in 2017, $55,800,000 in 2018, and $37,100,000 in 2019 is indicated to fund the proposed capital improvement program.

As demonstrated in Tables 11 and 12, 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 2015-2019 study period examined herein.

Sewerage Department

Sewerage Service Revenue Bond Resolution Requirements

Sewerage and Water Board financial operations for 2014 have complied with the requirements set forth in the 2014 General Sewerage Service Revenue Bond Resolution.

Summary of 2014 Operations

The total revenue from sewer charges, delinquent fees, interest income and other income increased from $80,080,101 in 2013 to $88,757,242 in 2014. In 2014, the Board received $383,354 in operating and maintenance grants from FEMA for operating expenses incurred from sewer repairs performed by Board crews. This amount is included in other income. Operation and maintenance expenses

(excluding claims paid) increased from $45,566,211 in 2013 to $47,955,827 in 2014. After adding claims of $565,222 and debt service payments of $20,217,148, a balance of $20,019,046 was available for capital related expenditures in 2014, unadjusted for depreciation.

Ability to Finance Future Operations and Proposed Improvements

A summary of projected financial operations of the Sewerage Department for the period 2015 through 2019 is shown in Table 24 of the report. Revenues shown on Line 1 of Table 24 are based on rates that became effective January 1, 2015. Revenue from future annual wastewater system revenue increases of 10 percent effective January 1, 2016 through January 1, 2019 are shown on Line 2 of Table 24.

The Board anticipates issuing approximately $93,345,000 in sewerage service revenue bonds in 2015. Additional long term debt financing of $10,000,000 in 2018 and $35,000,000 in 2019 is indicated to fund the proposed capital improvement program.

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 2015-2019 study period examined herein

Drainage Department

Summary of 2014 Operations

Total revenues received from all sources including interest income totaled $49,014,535 in 2014, an increase of approximately 2.9 percent from $47,647,853 reported for the same sources in 2013. Total operation and maintenance expenses decreased about 6.4 percent, from $31,893,808 in 2013 to $29,859,424 in 2014. After adding claims of $736,306 and debt service payments of $912,547, a balance of $17,506,258 was available for capital related expenditures in 2014.

Ability to Finance Future Operations and Proposed Improvements

An analysis of financial operations projected for the Drainage Department for the period 2015 through 2019 is summarized in Table 35 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; however the three-mill ad valorem tax will expire in 2017.

The analysis indicates that current revenue sources are not adequate to meet operation and maintenance expenses and total debt service on the proposed bond issues for each year of the study period. As indicated in the *Financial Plan and Rate Study 2011-2020* additional operating revenue is needed to help fund the capital program.

Until an alternative source of operating revenue is identified, the Drainage System does not have the ability to issue any future long term debt due to the fact that it will not have sufficient funds on hand to make the required debt service payments. Due to constraints on revenue, it is anticipated that capital projects during the 5-year period will exceed the amount of funding available from the Drainage Department. It is recommended that the Board defer capital projects until an additional source of operating revenue has been identified and the Board has the capacity to debt finance more projects. This deferment is shown on Line 10 of Table 34.

In addition, with the loss of revenue from the three-mill ad valorem tax beginning in 2018, operating revenue in 2019 will not be sufficient to fund projected operation and maintenance expenses unless an alternative source of operating revenue is identified or the three-mill ad valorem tax is reauthorized in 2017.

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 2014 Comprehensive Annual Financial Report. In 2014, approximately 68.6 million kilowatt hour (kWh) of power was purchased and 32.4 million kWh of power was generated.

On a unit cost basis, the average cost of purchased power has increased over the past five years from about 9.4¢ per kWh in 2010 to about 10.3¢ per kWh in 2014. During the same period, the Board's unit cost for generated power has increased from about 24.9¢ per kWh to about 38.4¢ per kWh. The cost of Board generated power is almost 3.7 times higher than that of purchased power; however, this higher cost is offset by the fact that the Board generated power is much more reliable that the purchased power from the local utility company.

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.

Facilities Evaluation - Operation, Maintenance, and Reconstruction

This evaluation summarizes the findings of the onsite assessments of the Sewerage and Water Board of New Orleans (SWBNO) facilities conducted by Black & Veatch from June 21 to June 26, 2015. 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 sewage and drainage pump stations were inspected to evaluate the condition of those facilities. Interviews were conducted with management and supervisory level SWBNO personnel during the site visit to assess the current operations statuses of the various facilities.

INTRODUCTION

The Operations Department of the SWBNO comprises four units: (1) Water Purification, (2) Sewage Treatment, (3) Water Pumping and Power, and (4) Sewerage and Drainage Pumping. The SWBNO operates the Carrollton and Algiers Water Purification Plants (WPPs), which purify raw water from the Mississippi River and supply potable water to New Orleans residents. The Carrollton plant currently purifies approximately 135 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 1,800 miles of mains to the service connections within the City, as well as to several customers in adjacent parishes.

The sewerage collection system includes several miles of lateral sewers, trunk sewers, and 83 electrically operated pump stations. Raw sewage is conveyed 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 24 hours a day.

The SWBNO operates two sewage treatment plants, one on the East Bank and one on the West Bank. The East Bank Sewage Treatment Plant has a treatment capacity of 122 mgd (dry weather) and treats sewage from the East Bank community. 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. Both plants were built or expanded in the 1970s and have been upgraded or expanded to increase reliability and capacity. The contract operator, Veolia Water, currently operates and maintains the plants for SWBNO.

In addition, the SWBNO is responsible for operating and maintaining the 24 major drainage pumping stations in New Orleans and 11 smaller but automatic underpass stations. 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 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 in the area.

The 25 cycle power plant operated by the SWBNO provides power for portions of the WPPs 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 several departments of the SWBNO.

STAFFING

Adequate staffing continues to be an issue for some departments of the SWBNO. Additional maintenance is required for the SWBNO facilities as equipment ages and more equipment is added at the facilities. Staffing levels have decreased as the system has aged and expanded within the SWBNO 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 mechanical maintenance, electrical maintenance, plant maintenance, welding and fabrication, and operations. Engineering is still understaffed but is improving due to the slowing of the private industry in the local area.

The SWBNO suspended the domicile policy following Hurricane Katrina, which required employees to live in the City of New Orleans. This suspension action allowed personnel hired by the SWBNO to live outside city limits, thus providing more housing options for employees. The City Council reinstated the residency requirements as of January 1, 2013 which has slowed the hiring of individuals with an interest in working for the SWBNO but live outside City limits. Departments within the SWBNO continue to actively recruit from local college campuses, career job fairs, and trade schools to fill vacancies.

In addition to those highly skilled positions, a significant portion of the SWBNO's leadership will retire within the next 5 years. Very few potential successors have been identified to assume those leadership positions facing retirement.

Most departments have staffing issues related to being inadequately staffed based on the current needs of the SWBNO. The table on the following page summarizes the number of staff on the payroll for each department and the percentage of staff eligible for retirement within the next 5 years as of May 2015. These conditions demonstrate the need for an effective succession action plan for the department heads and supervisors.

WATER PURIFICATION PLANTS

The Black & Veatch representative accompanied the WPP Superintendent on the facility tours of the Carrollton and Algiers WPPs. The Carrollton and Algiers WPPs are currently operational and producing water that meets or exceeds federal drinking water standards. Treatment systems at both plants are functioning well and continue to produce potable 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 complies with federal and state regulations and meets the capacity of the service population. The SWBNO is facing the industry-wide problem of an aging workforce; therefore, there is an immediate need to hire and train personnel for the future sustainability of plant operations. The SWBNO has hired entry level personnel and is in the process of hiring more to begin addressing those long-term needs. In addition, state licensed operators are in short supply and are required onsite at all times and are necessary to successfully operate the plants around the clock. The most senior operators will be retiring within the next few years and will need to be replaced in order to maintain compliance with the state requirements for operator certification in water treatment.

Current Number of Board Employees and Eligible for Retirement

DEPARTMENT	EMPLOYEES ON PAYROLL	ELIGIBLE FOR RETIREMENT	% ELIGIBLE FOR RETIREMENT
Operations - Water Purification Plants	61	18	29.5
Operations - Water Quality Laboratory at Carrollton Plant	11	2	18.2
Operations - Water Pumping and Power	79	18	22.8
Operations - Sewage and Drainage Pumping Stations	107	29	27.1
Facility Maintenance	62	15	24.2
Engineering	46	18	39.1
Networks	321	58	18.1
Support Services	96	30	31.3
Environmental Affairs	11	4	36.4
Total	**795**	**192**	**24.2**

Carrollton Water Purification Plant

The Carrollton WPP has a design capacity of 210 mgd. 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 sedimentation basins and traveling mechanical rakes remove the settled solids from the sedimentation basins for discharge to the Mississippi River.

Chlorine in the form of sodium hypochlorite is used to disinfect the clarified water. Anhydrous ammonia is then added to form chloramines for residual disinfection. Additional settling time and disinfection contact time occur 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 SWBNO 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 is then pumped to the populace through the distribution network.

The Carrollton WPP is currently treating approximately 135 mgd of water for the East Bank of Orleans Parish, partly due to leaks in the water distribution system. Leaks in the distribution network are a source of persistent problems. These leaks are currently being addressed under the water main replacement program funded by the Federal Emergency Management Agency (FEMA). The water delivery pressure at 70 psi has been consistent throughout the last year.

Sedimentation Basin Down for Repair

Filter Gallery Piping at Carrollton WPP

Figure 1 - Carrollton Water Purification Plant

Improvements completed at the Carrollton WPP during 2014 are listed below:

- The G4 sedimentation basin flocculator rehab and basin cleanout was completed but is still not in service. It is anticipated to be placed back into service in 2015.

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

- A filter rehabilitation program is needed for the Sycamore and Claiborne filter galleries. Valves, actuators, corroded piping supports, and leaking pipes associated with the filters need to be repaired or replaced.
- Media replacement for Claiborne filters is ongoing currently.
- The Sycamore wash water pump for the filters needs replacement. The packing seal was leaking during the site visit and the pump is nearing the end its service life. The project has gained approval from the Board and is waiting on a notice to proceed. Design will be completed by the end of 2015 with construction in 2016.
- The recycle basin pumps need to be replaced. Two of the four pumps are currently inoperable and the other two pumps are nearing the end of their service life. The design for the pump replacement is complete and construction will begin next year.
- Design for a new 30 inch sludge discharge line needs to be completed. This new line will provide for much needed capacity and redundancy improvements for the Carrollton WPP. This improvement was in design at time of site visit and will be installed in 2016.

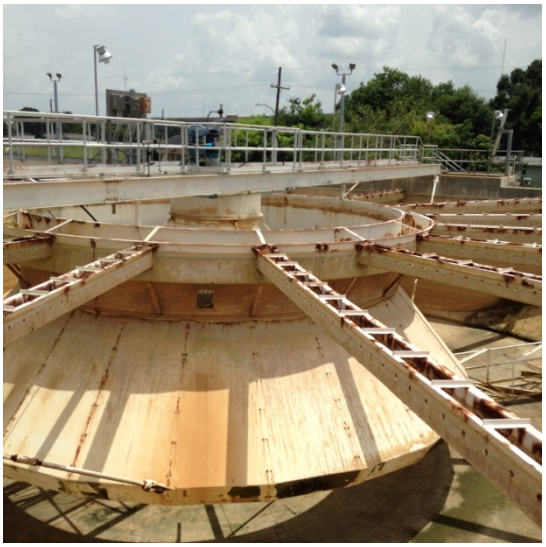
Algiers Water Purification Plant

The Algiers WPP has a design capacity of 40 mgd. The treatment process at the plant is similar to that of the Carrollton facility, which uses the same chemicals with a slightly modified application scheme in the upflow clarifiers. At present, the plant is treating approximately 10 mgd of water and is serving the predominantly residential West Bank portion of the Parish.

The facility has partially commissioned a new ferric storage and feed system for flocculation at the WPP. 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 2015 or early 2016.

Other improvements needed or ongoing at the plant include the following:

- The sodium hypochlorite generation system was decommissioned in early 2015 due to equipment issues and the cost of keeping the process online versus purchasing liquid sodium hypochlorite.
- Instrumentation was added to the filters to display flow (MGD) at each filter.
- The SCADA system is out of service and its absence is impacting plant monitoring capabilities. At the time of the visit, a Human Machine Interface was placed in the control room to help the lead operator monitor the turbidity readings from the filters and troubleshoot filter issues. Planned improvements to this system are on hold due to priority on infrastructure improvements.
- EIMCO Clarifier's No. 3 and 4 are under contract for design of replacement of launder troughs. EIMCO Clarifier 2 is scheduled to be painted by end of 2015.
- The raw water pumping and piping systems need to be improved in order to provide redundancy to the intake system.



Corrosion on Clarifier

New Instrumentation at Filter Galleries at Algiers WPP

Figure 2 - Algiers Water Purification Plant

WATER QUALITY LABORATORY

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

The laboratory collects samples for protozoan analysis in addition to coliform 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 (TSS) and total dissolved solids concentrations. The laboratory also analyzes river water and finished water samples 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 (LDEQ); 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 LDEQ if any of the 60 Environmental Protection Agency (EPA) listed pollutants are detected in the river water samples. The LDEQ disseminates the information to the program participants, allowing an early warning of possible problems. The LDEQ maintains EWOCDS equipment at all participating locations while the program participants provide the manpower to collect and analyze the samples.

The laboratory is currently adequately staffed with one supervisor, one microbiologist, four chemists, and four technicians. Much of the lab instrumentation and equipment is reaching or has reached the end of its service life and is in need of replacement. Newer 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. Repairs have been made to the some of the fume hoods and they are operational. Currently, the laboratory staff is working toward certification of TOC analysis in order for TOC analysis to be performed at the SWBNO facility.

WATER PUMPING AND POWER

The primary function of the Water Pumping and Power unit of the Operations Department is the production of steam for the generation of 25 hertz (Hz) power in addition to pumping potable water to the City of New Orleans. The facilities at the Carrollton power plant include three pumping 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. In addition to the 25 Hz turbine, newly installed Turbine No. 6 produces 15 MW of 60 Hz power, but is not yet fully operational.

The generating station at the Algiers facility is capable of generating 60 cycle power using a diesel generator. 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 Hz power supplied from the Carrollton power plant to 60 Hz power.

The current capacity of the Carrollton power plant is 40 MW, which is less than the 61 MW design capacity. Turbine No. 4 is currently out of service being repaired and is scheduled to be back in service by end of 2015. Boiler No. 5 is out of service and is currently being rehabbed. Boilers No. 1 and No. 3 will be rehabbed once Boilers No. 4 and No. 5 are completed.

A 200 psi high pressure natural gas line supplies fuel for the 15 MW 60 cycle, dual fuel generator turbine package (Turbine No. 6) and the existing Turbine No. 5. The 15 MW, 60 Hz generator facility

supplements the commercial power available from Entergy to provide power redundancy and continued service in the event of a commercial power loss due to storms, hurricanes, etc. The generator serves the majority of the plant and raw water intake stations and provides additional drainage station capacity.

Two steam-driven distribution pumps are located at the power plant. Pump A rehabilitation was completed in March 2014 and Pump B will be completed by the end of 2015. 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 (each with a 25 or 60 Hz motor), are usually adequate for pumping finished water to the distribution network. The 25 Hz pump at Panola Station has been converted to operate on both 25 and 60 Hz power for more pumping operation redundancy. The water hammer program will provide for the replacement of equipment and associated valves at the Panola, A & B Pump Room and Claiborne Pumping Stations. Two elevated tanks will also be installed to provide surge protection to the distribution system. These projects are currently in the design phase.

Storm-proofing projects for critical SWBNO facilities, including the power buildings, were recently completed by USACE. Improvements for the power buildings include reinforcing the walls, roofing, doors, and windows. Additional hurricane damage-related work primarily includes valve replacement and repair to electrical components and controls. Related items for the Water Pumping and Power unit are in various stages of design or construction.

The Water Pumping and Power unit has 79 current employees with 4 vacancies. Power for continued operations of the water, sewerage, and drainage 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 unit. In addition, approximately 18 senior operators or supervisors are set to retire in 5 years or less.

Central Control

The Central Control Power Dispatching Department is primarily responsible for the delivery of an adequate supply of Board generated electrical power, the continuous monitoring of the operational status of all electrical switchgear, and the testing of related electrical feeders and equipment. This Department also is responsible for verifying and enforcing the Board's safety clearance procedures and associated clearances within the power distribution system. In addition, this Department monitors local and regional weather to provide advance warning of storms which could affect power generation requirements for the drainage and sewerage systems. Coordination of various power supplies, including alternative backup power supplies such as diesel generators and frequency changers, also comprise part of this Department's responsibilities. The Central Control Power Dispatching Department plays a vital role in many emergency operational situations. Serving as a hub of communications, Central Control informs the Board's management and senior level staff of changes in conditions that will affect the Board's ability to provide adequate sewerage, water, and drainage services. Central Control also provides valuable information during emergencies such as hurricanes, floods, freezes, etc., to the Office of Emergency Preparedness (OEP) through established Board protocols. Lack of staffing continues to be a major issue for this Department.

SEWAGE TREATMENT PLANTS

Black & Veatch, accompanied by the Plant Superintendent, visited both the East Bank and West Bank sewage treatment plants. Operations and maintenance activities of both plants have been contracted to Veolia Water. A representative of the SWBNO is to oversee the contract operator. This representative works in the Engineering Department within the SWBNO for the Operations Department. Both treatment plants were operational at the time of the site visits and were meeting the discharge limits according to treatment plant personnel. The contract to operate both facilities was recently bid; Veolia won the contract and will continue to be the contract operator for the next 10 years.

East Bank Sewage Treatment Plant

The East Bank Plant has a treatment capacity of 122 mgd (dry weather). The plant is currently receiving approximately 90 mgd of flow. Average flow for the plant in 2014 was 93.5 mgd which was slightly less than 2013 average of 98.2 mgd. 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 (using belt filter presses), and finally incinerated. A new sludge dryer is currently under design as an alternative sludge treatment system to supplement the existing fluid bed incinerator (FBI).

New Flood Mitigation Wall

New Hydrogen Peroxide Odor Control System

Figure 3 - East Bank Sewage Treatment Plant

The following items summarize the improvements that will be or have been performed at the East Bank Plant:

- Reactors 1 and 4 were out of service during site visit. Trains 2 and 3 were online. Train 1 was down due to rehabilitation and reactor cleaning. The mixers will be replaced with 8 new mixers during the 2015-2016 time period. Reactor 4 will be rehabbed once Reactor 1 is completed and is currently scheduled to be rehabbed in 2016.

- LEL sensors will be installed in the reactors to monitor explosive gases along its automated valves to make the process safe to operate. This work will be completed by the end of 2015.
- There is no automation for mechanical rake on the bar screens and raking must be conducted manually at regular intervals. A project to install automated rakes with controls is currently being done in house and will be completed by the end of 2016.
- Cyclone grit separators exhibited corrosion.
- Return sludge line was corroded and out of service. A temporary, aboveground replacement line is being used to return sludge from the return activated sludge pump stations to the influent channel. Permanent repair design was completed this year and was awarded in February 2015 and the project is in construction.
- Scum arm on secondary clarifiers was not in operation at time of field visit; however the plant operator indicated it would be repaired this year.
- The operator noted the liquid oxygen tank is nearing the end of its useful life. High purity oxygen system components appeared in good condition. Tank replacement is not currently on the project list for 2015-2016.
- Several mechanical mixers on aerobic reactors were out of service, due to regular preventative maintenance.
- Four RAS pump motors were replaced this year.
- Effluent pumps appeared in fair condition. The operator noted there have been difficulties keeping these pumps operating reliably due to electrical system issues. The electrical system is being evaluated and will likely require upgrades to increase the reliability of the effluent pumps. A 2400 V Effluent Pump electrical distribution system along with switchgear and VFDs is in design phase and will go to bid at the end of 2015.
- A new hydrogen peroxide odor control system was installed and commissioned.
- The wetland project is still underway with piping installation from the clarifiers to the wetlands.
- A flood protection berm was completed at the plant to minimize future plant flooding.
- The minor cracks in the effluent line were repaired in August 2014.

The average influent TSS and BOD concentration for 2014 were approximately 108 milligrams per liter (mg/L) and 90 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 15.8 mg/L and an average effluent BOD concentration of 23 mg/L. Five permit violations occurred in 2014. Two fecal coliform permit limit violations occurred during January and December 2014. Additionally, two BOD violations occurred in February and April 2014 and one TSS violation in April 2014. The February 2014 BOD violation occurred due to issues with the bioreactor mixers. The mixers were repaired quickly by Veolia and placed back into service to meet permit. The April 2014 BOD violation and TSS violation were attributed to high flows and having several clarifiers down for maintenance. Within 10 days, the clarifiers were repaired and back online. The fecal violations in January and December of 2014 were

sampling errors. This facility's permit expired a year ago and a renewal was sent to DEQ. Environmental Affairs is awaiting a draft permit to review and accept.

West Bank Sewage Treatment Plant

The West Bank Plant has a treatment capacity of 20 mgd (dry weather). The plant is currently receiving approximately 9 mgd of flow. The West Bank treatment facility consists of bar screens, primary clarifiers, trickling filters, final clarifiers, and chlorine disinfection. Primary and secondary solids are co-thickened in a gravity thickener and hauled to the East Bank facility for incineration.

Effluent Pump 2 Check Valve Replacement System

Emergency Generator Intake Air Filtration

Figure 4 - West Bank Sewage Treatment Plant

A summary of findings for the West Bank Plant follows below:

- Concrete and pavement adjacent to the bar screens and aerated grit basins showed cracks and settling.
- The second bar screen (of four bar screens) is in need of an adjustment. Bar Screen 3 was inoperable at time of visit and will be completely rehabbed this year. Bar screens 1, 2 and 4 are operational.
- Grit cyclones for collecting grit from the grit basins exhibited significant corrosion. Two Grit Classifiers were replaced in 2014 and2015.
- Two grit pumps are in need of replacement.
- Aerated grit basin 1 was cleaned in early 2015 and Aerated grit basin 2 is scheduled to be cleaned this year.
- Weirs and rotating arms of primary sedimentation basins show significant corrosion.
- The West Primary Clarifier will be rehabbed and painted by the end of this year. A contractor is currently under contract to conduct the work. The Effluent well on the back of the West Primary Clarifier was recently repaired due to concrete cracking. The West Primary Clarifier also had a

leaking valve during the site visit. The Central Primary Clarifier will have center well repairs conducted, but the time frame was not yet known as of the site visit.

- New hydrogen peroxide odor control system was installed and commissioned in 2014-2015.
- Main Collection Basin Pumps 4 and 5 had impeller replacements and rehabilitation work completed in 2015. Pumps 1, 2 and 3 impellers will be checked and rehabbed later this year or early 2016.
- Main collection basin Pump 4 transformer was replaced.
- The structural condition of the trickling filters appeared to be good. Minor structural issues with Trickling Filter No. 1 were noted and are getting worse since the last site visit in 2014.
- The drive motor for the arms on the trickling filters is currently inoperable and operates based on hydraulics; however, treatment is still acceptable.
- Check valve on effluent pump 2 was replaced. Pump 2 is offline due to an additional inoperable valve. Maintenance is working on removing and repairing the valve in 2015.
- The standby generator is operational. An addition of an air filtration system was made to the generator, as well as a flap placed on the exhaust to prevent rain water from entering the generator.
- The SCADA system was down during site visit and has been down for most of 2015. SCADA is currently being reloaded and updated and should be completed by end of this year.

The monthly average TSS and BOD influent concentrations are approximately 86 and 79 mg/L, respectively. The monthly average effluent TSS and BOD concentrations for the last year have been approximately 10.8 and 8.8 mg/L, respectively. The average flow for 2014 was 9.2 mgd, which is slightly less than 2013 at 10.03 mgd. For 2014, this plant has met or exceeded all permitted effluent limits.

SEWAGE AND DRAINAGE PUMPING STATIONS

Inspections of the drainage pump stations (DPS) and sanitary sewer lift stations (SLS) of both the East and West banks of New Orleans were conducted over an eight (8) day period, beginning Monday, June 22, 2015 through Tuesday, July 7, 2015. The observation report details the operational status of each sewerage lift station (SLS) and drainage pump station (DPS) across the city of New Orleans. Pumps that were not turned on at the time of the observations were deemed to be either “in service” or “out of service” based on direction from Sewerage and Water Board supervisors or pump station operators.

Upon inspection, all DPSs and SLSs are considered operational either from permanent pumps or the use of temporary pumps. All stations have either completed or are still under storm related construction repair or upgrades. These repairs will increase the probability that the stations remain functional in the event of a major storm or power loss. The repairs include but are not limited to the installation of industrial capacity generators, fuel storage tanks, electrical transformers and storm proofing of pump motors. Several of the stations have undergone structural related storm proofing measures as well including new storm windows and doors. Finally, many station rooftops and wall framings have been reinforced to provide greater wind gust resistance.

A few stations still have not been repaired or are out of service due to pump maintenance issues. Seven SPSs, Burke, Lawrence, Station 6, Bullard, Dodt, Lake Forest, and Plum Orchard, are under construction and are using portable pumps at each of these locations. Two SPSs, Lamb and Victoria, have been recently completed and are now in service. No DPSs are under construction but 2 stations have been recently completed at Dwyer and Station 5. While all stations are operational, several stations are not at full capacity due to inoperable pumps or the use of temporary pumps due to preventative maintenance issues.

Current staffing levels are less than expected for the size and scope of the sewage and drainage stations due to retirements and lack of qualified candidates.

FACILITY MAINTENANCE

The Facility Maintenance Department consists of four units: (1) Plant Maintenance, (2) Welding & Fabrication, (3) Electrical Maintenance, and (4) Mechanical Maintenance. These units provide meter repairs, removals and installations, major electrical, welding, and fabrication, as well as mechanical maintenance for all SWBNO facilities throughout the system, with the exception of Veolia Water operated sewage treatment plants. The Facility Maintenance Department 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 such as gears and parts for older valves.

In addition, new facilities such as Turbine No. 6 have been built within the SWBNO system which requires additional staff to both operate and maintain. These additional assets prevent in house rehabilitation and preventative maintenance to be completed creating a large backlog of work for this department. Staff mentioned various emergencies that occurred this week such as outages to critical potable water pumps. Currently, one of their major rehab projects, L3 Sedimentation basin, includes a complete rebuild of gearboxes, drives, paddles, and other equipment and are planned to be completed in 6 months, but are not able to keep a schedule due to limited staff. Previous basins were contracted out; however, this department mentioned that many times that requires them to inspect and at times redo the work contractors have done to keep the system online.

Currently, the Facility Maintenance Department has 71 authorized positions with 63 positions currently staffed. Most of the highly skilled positions remain vacant. It was noted during the interview that the residency requirement as well as pay scales are preventing hiring permanent staff in this department. Additionally, staff mentioned equipment used to conduct work has reached its useful life such as equipment used to find high voltage lines, bucket truck, welding trucks, and other equipment used to conduct the work of the department.

Currently, overtime is necessary to compensate for the limited workforce and more work is currently being contracted out to subcontractors that was done in-house prior to Hurricane Katrina. The Department is presently facing a lack of qualified personnel to adequately supervise or oversee subcontractors. Approximately 24 percent of the Facility Maintenance employees are currently eligible for retirement or will be eligible to retire within 5 years, including the department head. The

department is actively recruiting at job fairs and trade schools to hire additional personnel. SWBNO is working actively with a local community college to start a trade program for skilled trades and plans on hiring from that pool of students. Staff noted that they are working with Civil Service Department to assist in creating more representational job descriptions to gain experience and interested personnel.

ENGINEERING

The Engineering Department includes Mechanical Engineering, Electrical Engineering, Civil Engineering, Construction Administration and Inspection, and Networks Engineering. The Engineering Department administers major contracts throughout the SWBNO facilities and coordinates with other agencies for the design and construction activities impacting SWBNO maintained facilities.

The status of major contracts administered through the Engineering Department is itemized in the following list:

- New sludge line to the river from the Carrolton WPP is at 80% Design. Construction should begin in 2016.
- Improvements to the L3 sedimentation Basins are ongoing, including replacement of static mixers to vertical mixers, addition of speed controllers, and repair of flocculator drives.
- The SWBNO plans on adding a sludge dryer at the East Bank plant. Part of that project is the addition of a new air emission system which is currently under design.
- An arc flash study will be conducted on electrical equipment for safety purposes.
- Chemical Feed Storage improvements to add additional chemical storage at the Carrolton WWP.
- Replacement of filter backwash pump is currently in design phase and will be in construction in 2016.
- Wash water pump improvements design is complete and construction will end this year.
- Rehabilitation of Turbine 4 is ongoing and will be completed by the end of this year.
- Filter media rehab at Algiers WWP is currently under design. New instrumentation was added to the filter galleries to display flow.
- Building or upgrading the City canal system at Florida and Louisiana Avenues is currently under construction.
- Flood mitigation contracts for nine sewage pump stations were awarded and the Engineering Department is supervising these contracts. Eight stations are currently under construction and one Station is currently under design.
- New Fuel tankage will be added to Carrolton WPP has been awarded and will be built this year.
- Power Plant Project to improve valves, steam line, auxiliary power and address steel was bid and work is ongoing.

- Replacement of 10 major underground electrical feeders throughout the SWBNO facilities. The project is currently in the design-build phase. This project will be the first design-build project for the SWBNO.

Additional projects planned by the Engineering Department include the following:

- Rehabilitation of Old River Intake Station.
- Rehabilitation of Turbines Nos. 5 and 3.
- New filter gallery addition at the Carrolton WWP.
- Various water projects, including filter rehab, valve rehab, and pump replacement.

In addition to contract administration, the Engineering Department is currently adding geographical information system (GIS) technology to further enhance tracking water distribution and sewer piping capabilities. 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. It was noted during the interview that funding for drainage improvements projects is needed.

NETWORKS

The Networks Department 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 WPP is currently purifying approximately 135 mgd of water while serving 91 percent of the pre-Katrina number of accounts. Prior to the levee failure caused by Hurricane Katrina, the plant was purifying approximately 115 mgd of water.

The Networks Department is divided into seven zones. Zone 2 operates the barricade unit making street and lane closures as well as providing visibility for safety around maintenance sites and performs preventive maintenance activities such exercising valves and fire hydrant maintenance. Zone 7 comprises the after-hours crews which respond to emergency calls and provides limited surface restorations for repair excavations. Zones 1, 3, 4, 5, and 6 represent geographical areas in New Orleans which provide repair services for their respective areas. Each zone has a staff of approximately 20 to 35 persons responsible for repairs within the designated areas. A three-man crew will typically complete a work order. More complex work orders may require additional crews on a single work order. Contractors are used to supplement repair work performed within each of the areas if sufficient manpower within the SWBNO is not available to perform necessary repairs.

According to SWBNO personnel, the biggest challenge in restoring normal operations at the WPPs has been managing all the projects and conducting line replacement/repair. The SWBNO is currently conducting a system evaluation of the piping system to detect leaks. Contractor Ecologic has been hired to use acoustic technology to determine leaks in larger water mains (those exceeding 16 inches in diameter as well as smaller diameter pipes). The effort of finding leaks is ongoing and the department stated that it is now in a state to focus more on lining and replacement as well as repair in both the water distribution system and sewer collection system. In terms of staffing, the department has hired staff to help capture the experience and knowledge that is about to retire. Retirement was still cited as an issue but SWBNO felt that staffing has improved over the last couple

of years. Networks has hired additional engineers in technical services to assist with emergency response efforts and managing more maintenance contracts.

Over 2,000 water mains were repaired in 2014. Identification of leaks is ongoing and will continue to incorporate identified leaks into the water main replacement program funded by FEMA. As part of the ESSA program, manholes are also being inspected as an ongoing inspection of the sewer system. Over 1,400 sewer repairs were completed in 2014. In addition to the FEMA funded projects, Networks also responds to requests for valve closures by contractors and the City.

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

The Networks Department completed over 5,502 paving projects in 2014, both in-house and in cooperation with Contractors. This Department 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. In terms of staffing, the department has hired staff to help capture the experience and knowledge that is about to retire. Networks has hired additional engineers in technical services to assist with emergency response efforts and managing more maintenance contracts.

SUPPORT SERVICES

The SWBNO owns 753 pieces of rolling stock, which includes trucks, backhoes, and sewer cleaning equipment. Approximately 117 pieces are at least 10 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 all departments.

The Support Services Department performs most all-ground maintenance functions. In addition, Support Services operates the warehouse which stores valves, pipe, hydrants, tools, etc., required by the Networks Department for repair of existing water distribution and sewer pipelines.

Support Services also operates garages for vehicle repair. The garage areas were heavily damaged during Hurricane Katrina. Garages 1 and 2 are scheduled to be rehabilitated this year. 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 which will be used to house locker rooms, shower facilities, training rooms, CDL training unit, etc. Garage 1 is currently being rehabbed. Rehabilitation on Garage 2 started in June. A new Site Relocation Facility was constructed in 2014 to house personnel until the garage renovations are completed. Currently staff and materials from both garages are being stored in the site relocation building currently. Ultimately, the Site Relocation Building will also be used to house the Body Repair Shop of Garage 2. Various other projects being completed or being conducted within Support Services are:

- GPS units in all rolling stock with tracking capabilities. Each department can track their fleet vehicles to ensure employees are using them for the correct purpose.

- Purchasing six new vacuum trucks (currently leasing 6).
- Reduction in take home vehicles based on need (reduction from 135 trucks to 89 trucks).
- New contractor was assigned to mitigate problematic vegetation (lilies) in the canal systems.
- Hiring new employees in all areas of support services including mechanics etc. to help support all departments within SWBNO.

Future projects/concerns:

- HVAC system at St. Joseph building is in need of rehabilitation. Currently, it is not effective in keeping the building cool at all times.
- One elevator in St. Joseph building is inoperable. Repairs or replacement is needed.
- Installation of a new whole building generator at St. Joseph building.
- Adding additional parking lot at Central Yard Facility as well as fence replacement around the building.
- Support Services Phone system upgrade once Carrolton WPP is completed.

ENVIRONMENTAL AFFAIRS

The Environmental Affairs Department oversees the Consent Decree and all administrative orders. This department reports sewer bypasses and overflow to the Region 6 EPA. Some activities being undertaken by the department include those listed below:

- Continuing to monitor industrial users through the pretreatment program.
- Permit compliance in air, water, wastewater, storm water management, solid waste, and underground fuel storage tanks.

The East Bank Sewage Treatment Plant wetlands assimilation project site is still under construction. The construction of the effluent pipe has not been completed; currently there is a temporary line in place and installation of the permanent line should start in 2015.

The components of the pretreatment program include the discharge monitoring of the East and West Bank Sewage Treatment Plants in addition to other significant industrial users during the year. An annual report is also submitted to LDEQ to demonstrate pretreatment performance.

In addition, yearly revenue has been received from the following sources associated with the pretreatment program:

- Industrial users billed monthly for excess strength surcharges.
- Sanitary sewerage discharged to the wastewater plant from special events.
- Septage disposal program.

The total revenue received in 2014 from these sources was approximately $512,000.

No Air permits were obtained in 2014. The use of diesel powered units to provide emergency power to drainage pump stations and other SWBNO facilities required these facilities to meet air quality regulations.

Currently, the SWBNO has an engineering consultant under contract to provide engineering services to the Environmental Affairs Department for the air quality program. The scope of work includes conducting environmental compliance audits for 23 SWBNO facilities, preparing all required air compliance reports, developing an environmental management system, developing a web-based compliance system, and training the SWBNO on air compliance procedures and the compliance tools developed. This project was completed in 2014 and currently the Environmental Affairs Department is now doing all of these activities in house.

On November 27, 2012, the LDEQ proposed to reissue the Louisiana Pollutant Discharge Elimination System (LPDES) Permit No. LAS000301 issued for discharge from the regulated Municipal Separate Storm Sewer Systems (MS4) within Orleans Parish owned or operated by the SWBNO. The permit was issued for public notice on February 13, 2013; the public comment period ended March 20, 2013. The final permit was issued with an effective date of January 23, 2015. The department is currently working with the co-permit holders to meet permit requirements.

The Environmental Affairs Department appears to have adequate staffing to perform the tasks necessary to maintain compliance with all the various rules and regulations which apply to the SWBNO. They are in the process of hiring more staff such as Senior, Associate and Intern level City Planners, Environmental Technicians and inspectors to assist with ongoing tasks. The Department is in the process of obtaining training and software systems to better track compliance within the SWBNO facilities.

STATUS OF CONSENT DECREE FOR SEWERAGE SYSTEM

The SWBNO is complying with the 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.

Some provisions outlined in the Consent Decree include those listed below:

- Quarterly and annual reporting requirements are to be submitted to the regulatory agency.
- The SWBNO will meet the preventive maintenance requirements of the Consent Decree.
- Repair to the collection systems will begin once the sewage pump stations have been repaired from hurricane damage.

The SWBNO is in compliance with the 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 2014. The staff from the Environmental Affairs Department went to the Dallas EPA region 6 office and presented the 2014 reports.

SUMMARY OF FINDINGS

The following items comprise a summary of findings during the 2014 site inspections:

- The management team consists of individuals with significant water, sewerage, and drainage experience. This experience has been developed both internally at SWBNO and at other respected major water and sewer utilities.

- Similar to water and sewer utilities across the U.S., the departments that comprise SWBNO are faced with a significant number of pending retirements. Approximately 24 percent of current employees are either on the Deferred Retirement Option Plan (DROP) program or are eligible for retirement. Unless these employees are replaced with a steady influx of qualified replacements, these pending retirements pose a significant threat to SWBNO's ability to perform its core operational and administrative functions. Succession planning and recruitment of qualified employees will be a key element for SWBNO to mitigate the pending retirements.
- Several departments are experiencing vacancies, including the Water Purification unit of the Operations Department, as well as the Facilities Maintenance and Networks Departments. SWBNO needs to address these vacancies as soon as possible to ensure effective operational and maintenance performance and administrative oversight.
- The SWBNO has a clear understanding of the existing conditions of the drainage water and sewage facilities, and is aware of the immediate needs within each division and area; however, funding is needed for the SWBNO to address these issues. Water and sewer customer rates increases have been approved and the SWBNO is currently prioritizing immediate needs such as filter rehabilitation at the Carrollton WWP.
- The SWBNO should and has started to 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 being at the end of its expected service life.
- The recycle basin pumps at the Carrollton WPP need to be replaced and replacement for those pumps will be an upcoming construction project.
- The potable water distribution network and the sanitary sewer collection system present the two biggest challenges. Lines are being replaced where leaks have been detected by the contractor.
- The SWBNO is servicing 100 percent of the population within the collection system. Most of the sewer pump stations on the East and West Banks have been repaired and are operational.
- The sewage plants are meeting permit except for five excursion~~s~~ in 2014. Three excursions were due to high flows and maintenance being conducted on the clarifiers. The other excursion was attributed to a sampling error. The SWBNO and the contract operator, Veolia, have addressed each issue.

Water Department

ADHERENCE TO WATER REVENUE BOND RESOLUTION REQUIREMENTS

In 2014, the Sewerage and Water Board sold $103,525,000 of Water Revenue and Refunding Bonds. The sale of these 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 payment of indebtedness; limitations on indebtedness; covenants and representations of the Board; covenants with credit banks, insurers, etc.; operation and maintenance; free service, completing service, billing and enforcement of charges; sale or encumbrance of the system; insurance; damage, destruction, condemnation and loss of title; records and accounts, inspections and reports; and the capital budget. The Requirements of the 2014 General Water Revenue Bond Resolution adopted on May 21, 2014, (hereafter collectively called the General Resolution) are discussed in this section. Water Department tables are included at the end of this section.

The Board was in compliance with the 2014 General Water Revenue Bond Resolution in 2014.

Payment of Indebtedness; Limited Obligations

The General Resolution obligates the Board and the Board of Liquidation (BOL) to promptly pay the principal and interest on all senior and subordinate debt that are obligations payable from the net revenues of Board.

Limitations on Indebtedness

The Board must not issue bonds, other senior parity indebtedness or subordinate debt unless it complies with Sections 4.03, 4.04 or 4.05 of the General Resolution, as applicable.

Covenants and Representations of Board

The General Resolution gives the Board the power to issue bonds and pledge the revenues according to the resolution. In addition, the Board "… faithfully observe and perform all covenants, conditions and agreements on its part contained in this Resolution, in every issue of Indebtedness issued hereunder and in all proceedings of the Board pertaining thereto."

Covenants with Credit Banks, Insurers, etc.

The Board may make covenants and agreements in a supplemental resolution with any insurer, credit bank or other financial institution that agrees to insure or to provide a credit facility to the Board. These covenants and agreements shall be binding on the Board and all the holders of indebtedness the same as if such covenants were set forth in the General Resolution.

Operation and Maintenance

The Board "… shall establish and enforce reasonable rules and regulations governing the use of and the services furnished by the System, shall maintain and operate the System in an efficient and economical manner shall maintain the same in good repair and sound operating condition and shall make all necessary repairs, replacements and renewals." In addition, all compensation, salaries, fees and wages paid by the Board shall be reasonable. Finally, the Board shall observe and perform the terms and conditions contained in the Sewerage and Water Board Act (Part III of Chapter 9 of Titles

33 of the Revised Statutes of Louisiana, as amended), and "comply with all valid acts, rules, regulations, orders and directions of any legislative, executive, administrative, or judicial body applicable to the System or the Board."

Free Service, Competing Service, Billing and Enforcement of Charges

The Board shall not " … provide any services of the System without making a charge therefor in accordance with the Board's schedule of rates, fees and charges … other than those connections, use or services already in existence or as may be required by law …" In addition, the Board may not "… provide, grant any franchise to provide or give consent for anyone else to provide such services which would compete with the System unless the Board determines that such franchise … would provide services that the Board has determined are not in its best interest to provide and would not materially impair the interests of the holders of indebtedness."

The Board will bill customers for services on the regular basis and if the rates, fee or other charges are not paid when due, the Board shall " … to the extent permitted by applicable laws and regulations, disconnect the premises from the System or otherwise suspend service to such premises until …" delinquent rates, fees or other charges have been paid or a payment plan has become effective.

Sale or Encumbrance of System

The General Resolution requires that, with exceptions, "… neither the System nor any integral part thereof shall be leased, sold, mortgaged or otherwise disposed of …"

Insurance

The Board "… shall continuously maintain insurance with recognized responsible commercial insurance companies against such risks and in such amounts as are customary for public bodies owning and operating similar systems …"

Damage, Destruction, Condemnation and Loss of Title

The Board shall restore "… property destroyed or damaged to substantially the same condition as before such destruction, damage; condemnation or loss of title …"

Records and Accounts; Inspections and Reports

The Board is required to "… keep proper books of records and accounts … showing complete and correct entries of any transactions relating to the System…."

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 29 years.

Capital Budget

The Board is required to adopt an annual multi-year financial plan for capital expenses for a minimum of 5 future years.

2014 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 2014 Water Department operations are discussed in the following paragraphs.

Water Use

According to statistics provided by the Board during 2014 51,936,930,000 gallons of water were pumped by the Water Department. Water sales accounts for 13,352,983,200 gallons and 622,811,700 gallons were metered to City departments without charge. Metered treatment plant process water totaled 791,880,700 gallons. The remaining 37,169,254,400 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 2010 through 2019. Based on year-end billing summaries, the number of monthly billed customers during 2014 averaged 127,876 compared with 126,106 for 2013. It is projected that the Board will average approximately 129,109 open accounts in 2015 and that the number of accounts will continue to grow at approximately 1 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 2014 there were 1,060 connections in this group, compared with 1,128 for 2013.

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 13,504 million gallons of water sales were billed on a monthly basis in 2014, compared with a total of 13,573 million gallons in 2013. To reflect the anticipated price elasticity impact due to the approved annual revenue increases, projected water sales assume a 2 percent resistance factor in 2015 and 1 percent for 2016 through 2019. The resulting projected growth in water sales is approximately 0.13 percent per year.

Operating Revenues

The 2015 schedule of rates for retail treated water service is presented in Table 3 and reflects a 10 percent rate increase over 2014 rates. 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 2010 through 2014. 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 2014 were $69,601,809 which, when compared with $63,248,555 for 2013, shows an increase of approximately 10.0 percent. Delinquent fee revenues were $1,216,445 in 2014 which represent a 5.8 percent increase over 2013 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 2014, non-operating revenue included $349,607 of interest earned from the investment of available funds in the Water System Fund and the Water Revenue Bond Account and $3,052,987 from other sources.

In 2014, the Board indicated that operating and maintenance grants from FEMA for operating expenses incurred from sewer repairs performed by Board crews was mistakenly recorded as revenue for the Water Department, when it should have been recorded as revenue for the Sewerage Department. Following the correction, the net operating and maintenance grant for the Water Department was negative $381,876. 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 2014 increased about 8.0 percent from 2013 expenditures and increased about 10.8 percent from 2012 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 12 of Table 12.

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 2014 capital expenditures, exclusive of prorated interest expense, totaled $45,118,640. 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 2014:

Total Revenues [a]	$74,220,847
Operation and Maintenance Expense	68,462,520
Claims	1,143,350
Debt Service Payments	2,829,414
Revenue Primarily Available for Capital Expenditures [b]	**$1,785,563**

[a] Includes operating and maintenance grant of -$381,876.
[b] Excludes depreciation.

PROPOSED CAPITAL IMPROVEMENT PROGRAM

Table 7 presents a summary of the projected major capital improvement program for the period 2015 through 2019. Table 7 is based on the Board's 2015 -2024 Capital Program. The five-year major capital improvement program costs are estimated to total $516,074,000. About 62 percent of this amount, or $319,097,000, is for recurring annual capital improvements, with the remaining $196,977,000 for major improvements. The proposed routine annual capital expenditures for water system improvements and extensions include $55,338,000 for the Water Department's share of power projects, and $48,794,000 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 2015 through 2019 are shown in Table 8. These estimates reflect the rate schedule effective January 1, 2015 applied to the projected number of customers and water usage and are projected to increase, on average, about 0.5 percent per year throughout the study period due to growth in the customer base. Projected revenue from adopted revenue increases is also shown in Table 8.

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 $321,500 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 2015 through 2019 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 2015 reflect the Board's adopted 2015 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 2015.

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, 2014, outstanding debt obligations consisted of $103,525,000 Water Revenue and Refunding Bonds, Series 2014. In February 2010, the Department of Health and Hospitals (DHH) committed a loan to the Board up to $3,400,000 with a $1,000,000 principal forgiveness. A total of $3,346,418 was drawn from the loan fund and as of December 31, 2014, $21,548,418 has been repaid, $1,000,000 has been forgiven, $800,000 was granted, resulting in the loan being paid in full.

To adequately fund the proposed capital improvements, additional revenue bonds are indicated as shown in Table 10. It is anticipated that the Board will issue Water Revenue Bonds, Series 2015 in the amount of $100,000,000 in November 2015. The debt service on the 2015 bonds was provided by the Board's financial advisor and reflects an average annual interest rate of 5.0 percent for a term of 30 years and 1 year of capitalized interest. Based on information from the Board's financial advisor, projected bonds that are shown in Table 10 for 2016 through 2019 are assumed to be sold at an average annual interest rate of 5.5 percent for a term of 30 years with 1 year of capitalized interest.

The Water Department has borrowed from the City of New Orleans Department of Public Works (DPW) and 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 examines the financing of the major capital improvement program and Table 12 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.

Capital Projects Funding

Table 11 presents the major capital improvement financing plan which summarizes the projected source and application of funds over the five-year study period. The amount of Funds Available at Beginning of Year, shown on Line 1, is $78,855,100. This amount is based on audited data provided by the Board.

Projected revenue bond proceeds, totaling $280,100,000, are shown on Line 2. 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 $31,000,000 of operating revenue as shown on Line 3. 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 4 includes anticipated funding by the U.S. Army Corps of Engineers (COE) and FEMA. Interest earnings recognize an assumed 1.0 percent average annual interest rate and are shown on Line 6. Line 5 reflects the original issue premium related to the Series 2015 Bonds. Line 7 of the table shows the projected major capital improvement funds available each year.

As of December 31, 2014, the Board had $12,500,900 obligated for open contracts and capital jobs as shown on Line 8 of Table 11. Lines 9 and 10 show the projected Reinvestment in Assets and Major Capital Additions to be funded as shown in Table 7. Estimated issuance costs and capitalized interest related to the proposed bond issue amounts are shown on Lines 11 and 12.

Line 13 shows the required deposits into the Revenue Bond Reserve Fund associated with proposed bond issues. The debt service reserve on proposed debt is a three-prong test estimated as the lessor of (i) 10 percent of the original principal amount, (ii) the maximum annual debt service, or (iii) 125 percent of the average annual debt service.

The Total Application of Funds is shown on Line 14 of Table 11. The net End of Year Balance is shown on Line 15.

Operating Fund

Line 1 of Table 12 shows projected Revenue from Charges under 2015 rates as previously presented in Table 8. In 2012, the New Orleans City Council approved eight consecutive annual 10 percent water rate increases beginning January 1, 2013. Revenue from these future annual revenue increases of 10 percent effective January 1, 2016 through January 1, 2019 is shown on Line 2.

Other revenue available for system operations is shown on Lines 4 through 9. Interest Income available to the operating fund, shown on Line 4, 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. Revenue from Plumbing Inspection and License Fees and Other Miscellaneous Revenue are shown on Lines 5 and 6 of Table 12. The Board began conducting field account reviews in 2012 to determine whether meters are working accurately and bills are being computed correctly. Revenue from these reviews is shown on Line 7 and projected to be 1 percent of Total Service Charge Revenue on Line 3. The Board currently provides water service free of charge to the New Orleans School District; however, due to the amount

of lost revenue from this source, the Board is eliminating free water for the School District for water service. It is anticipated that the Board will begin to receive revenue from this source in 2016 which is shown on Line 8.

Interest from the Bond Reserve Fund, shown on Line 9, is estimated to be 1.0 percent. Total Operating Revenue is shown on Line 10.

Operation and Maintenance expense, previously projected in Table 9, is shown on Line 11 of Table 12. Bad debt expense is assumed to be 2 percent of projected revenue and is shown on Line 13. Projected Net Operating Revenue from system operations is shown on Line 14.

Lines 15 through 17 present debt service requirements on currently outstanding and proposed senior revenue bonds. Existing debt includes the Series 2014 bonds. Line 16 reflects projected principal and interest payments on the Series 2015 revenue bonds as well as additional revenue bond debt financing of $25,000,000 in 2016, $63,000,000 in 2017, $55,000,000 in 2018, and $37,100,000 in 2019. Based on information provided by the Board's financial advisor, this debt is assumed to be 30 year, 5.5 percent fixed interest rate bonds issued in November, with 1 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. The Board has borrowed $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 in July 2012 and are shown on Line 18 of Table 12 as subordinate debt.

Anticipated non-operating revenue is shown on Line 20 and consists of reimbursement from FEMA and other miscellaneous non-operating revenue.

Line 21 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 22 reflects repayment to the Department of Public Works and the Drainage Department as well as claimants.

The General Resolution sets forth the requirement to maintain an operating reserve equal to 90 days of the previous year's operation and maintenance expense. Line 23 indicates the amount needed to fully fund the operating reserve in 2015 followed by projected annual transfers to meet this requirement throughout the study period. It is anticipated that the balance in the reserve in 2015 will equal approximately 133 days of 2014 operation and maintenance expense. The general bond resolution also sets forth the option to maintain a rate stabilization fund. The amount to be transferred to this fund, as well as the timing, is determined by the Executive Director. There are no transfers currently anticipated during the study period as shown on Line 24 of Table 12.

Line 25 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 2015, shown on Line 26, is comprised of the current cash assets and reflects a balance of $20,119,900. The End of Year Balance, which is exclusive of the operating reserve fund and rate stabilization fund, is shown on Line 27.

Lines 28 through 33 demonstrate that the Board is maintaining an operating reserve equal to at least 90 days of the previous year's operation and maintenance expense.

As demonstrated in Tables 11 and 12, 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 2015-2019 study period examined herein.

Bond Coverage Requirements

An additional consideration in measuring the adequacy of revenues is the provision of sufficient debt service coverage to meet the bond covenant requirements for the issuance of parity revenue bonds. The General Resolution provides that rates shall be maintained at levels which are expected to yield net revenues (as defined in the resolution) equal to at least 125 percent of the annual principal and interest requirement for senior debt and 110 percent for senior and subordinate debt in each fiscal year. In addition, net revenue excluding transfers from the rate stabilization fund and the proceeds of grants shall be equal to at least 100 percent of the annual principal and interest requirement for senior and subordinate debt in each fiscal year.

The calculation of net revenue is shown on Lines 1 through 14 of Table 13. The ability of the Water Department revenues to meet revenue bond coverage requirements is shown on Lines 15 through 24. The Adjusted Rate Covenant Coverage test reflects the exclusion of transfers from the rate stabilization fund and grant proceeds. As shown on Lines 17, 19, 20, and 24, the indicated projected revenue and revenue increases will provide sufficient net revenue to meet coverage requirements during the study period.

The General Resolution further prescribes that additional parity revenue bonds may be issued if net revenue from a previous test year (any 12 consecutive months of the last 24 months) is equal to at least 125 percent of the maximum annual principal and interest requirement for senior debt and 110 percent for senior and subordinate debt. For purposes of the additional bonds test, net revenue may be adjusted to reflect any increases not in effect during the selected test year but have been approved by the Board, Board of Liquidation and City Council and will go into effect within the following five years.

The results of the additional bonds test are shown on Lines 25 through 31 of Table 13. Lines 29 and 31 of the table indicate that with the magnitude of the adopted annual revenue increases, required minimum levels of coverage are met in each year with indicated coverage levels ranging from 162 percent to 343 percent.

Table 1

Insurance in Force as of December 31, 2014

Insurer	Coverage	Amount of Coverage	Expiration Date
		$	
Lexington Insurance Company	Fleet Physical Damage	$18,942,139 ($250,000 Deductible)	05/20/15
Zurich	Commercial Crime	$1,000,000 ($5,000 Deductible)	05/01/15
Swiss Re Westchester	Property - Building, Contents, Mobile Equipment, Boiler/Machinery/ Gross Earnings/Extra Expense	$100,000,000 Building and Contents $6,568,829 Mobile Equipment, $25,000 Boiler/Machinery, $9,000,000 Gross Earnings/Extra Expense ($1,000,000 Deductible)	05/20/2015
Travelers/RSUI	Automobile Liability	Limit: $6,000,000 ($350,000 Deductible) ($200,000 Deductible)	06/20/15
Travelers	Fiduciary Liability	$3,000,000 ($50,000 Deductible)	08/01/15
Wright Flood	Flood	$1,000,000,000	08/01/2015
ACE Mun. Adv.	Public Officials/ Employees Liability Insurance	$10,000,000 ($250,000 Deductible)	11/20/15

Table 2

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

Customer Class	Historical					Projected				
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Single Family Residential (b)										
Customers	100,798	102,979	105,537	109,836	111,421	112,536	113,661	114,798	115,946	117,105
Sales (1,000,000 gal.)	6,276	6,592	6,461	6,475	6,421	6,356	6,355	6,355	6,354	6,353
Sales Per Customer (1,000 gal.)	62	64	61	59	58	56	56	55	55	54
Multi-family Residential										
Customers	4,416	4,439	4,467	4,549	4,533	4,533	4,533	4,533	4,533	4,533
Sales (1,000,000 gal.)	810	788	767	731	686	672	665	659	652	646
Sales Per Customer (1,000 gal.)	183	177	172	161	151	148	147	145	144	142
Commercial										
Customers	9,872	9,918	9,969	10,193	10,328	10,431	10,535	10,640	10,746	10,853
Sales (1,000,000 gal.)	3,682	3,683	3,694	3,681	3,656	3,619	3,618	3,618	3,617	3,617
Sales Per Customer (1,000 gal.)	373	371	371	361	354	347	343	340	337	333
Industrial										
Customers	20	17	19	20	20	20	20	20	20	20
Sales (1,000,000 gal.)	53	42	44	46	52	51	51	50	50	49
Sales Per Customer (1,000 gal.)	2,674	2,407	2,343	2,324	2,620	2,570	2,540	2,515	2,490	2,465
Dual Service & Metered Fire Service (c)										
Customers	1,321	1,392	1,443	1,509	1,574	1,589	1,621	1,653	1,686	1,720
Sales (1,000,000 gal.)	2,832	2,821	2,786	2,640	2,688	2,661	2,687	2,713	2,739	2,766
Sales Per Customer (1,000 gal.)	2,144	2,027	1,931	1,750	1,708	1,674	1,658	1,641	1,625	1,608
Total										
Customers	116,426	118,745	121,435	126,106	127,876	129,109	130,370	131,644	132,931	134,231
Sales (1,000,000 gal.)	13,653	13,925	13,752	13,573	13,504	13,359	13,377	13,394	13,412	13,431

(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 January 1, 2015)

Rate Components		General Service	Dual Service (a)
		$	$
Monthly Water Service Charge			
Meter Size Inches			
5/8		5.40	7.33
3/4		6.60	8.92
1		8.38	11.72
1-1/2		13.84	18.24
2		18.24	26.09
3		41.26	57.90
4		71.87	101.16
6		141.09	196.99
8		208.97	292.82
10		283.50	396.64
12		332.75	465.85
16		443.22	620.25
Monthly Water Quantity Charge - per 1,000 Gallons			
First	3,000 gallons	3.59	3.59
Next	17,000 gallons	6.13	6.13
Next	980,000 gallons	4.82	4.82
Over	1,000,000 gallons	4.04	4.04
Flat Rate Fire Service			
Meter Size Inches			
2		12.24	
3		16.64	
4		30.61	
6		53.24	
8		70.54	
10		111.80	
12		145.08	
16		199.65	

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

Table 4

Water Department
Statement of Historical Revenue

Revenue Source	2010	2011	2012	2013	2014
	$	$	$	$	$
Operating Revenue					
Sales of Water	54,013,282	58,804,719	59,208,198	63,248,555	69,601,809
Delinquent Fee	1,066,491	1,085,593	1,048,107	1,150,054	1,216,445
Total Operating Revenue	55,079,773	59,890,312	60,256,305	64,398,610	70,818,254
Nonoperating Revenue					
Interest Earned	32,383	44,752	92,849	82,893	349,607
Plumbing Inspection and License Fees	373,213	379,036	343,903	321,518	339,176
Revenue Sharing	148,528	140,655	123,885	219,877	254,577
Other Income (a)	9,497,548	15,944,157	10,851,066	5,234,998	2,459,234
Total Nonoperating Revenue	10,051,672	16,508,600	11,411,703	5,859,286	3,402,593
Total Revenue	65,131,445	76,398,912	71,668,008	70,257,896	74,220,847

(a) Includes $6,251,855 in operating and maintenance grants in 2010, $11,514,936 in 2011, $7,617,063 in 2012, $1,981,568 in 2013 and -$381,876 in 2014.

Table 5

Water Department
Historical Operation and Maintenance Expenses (a)

Department	2010	2011	2012	2013	2014
	$	$	$	$	$
Management and General Expenses					
Administrative	4,063,842	4,432,935	3,086,750	3,030,392	4,149,077
Management Services Director	23,226	23,619	24,351	26,912	21,699
Building and Grounds and Support Services	1,035,972	1,146,187	1,145,004	1,243,462	1,295,390
Personnel Administration	284,354	276,123	349,217	313,814	564,663
Finance Administration	785,102	847,924	829,391	778,042	951,041
Information Systems	1,421,701	1,491,718	1,429,881	1,412,490	1,410,563
Revenue and Customer Service	4,072,735	3,990,470	4,028,447	4,127,219	4,266,404
Purchasing	225,852	212,508	204,325	208,849	313,788
Total Management and General	11,912,784	12,421,483	11,097,366	11,141,180	12,972,626
Operations Expenses					
General Superintendent	178,217	172,673	182,266	197,524	256,414
Chief of Operations	67,543	68,776	137,430	62,056	62,065
Water Pumping and Power	11,142,039	12,092,473	11,422,585	14,464,899	12,557,018
Central Control	670,229	651,457	673,444	650,391	0
Water Purification	9,955,835	9,192,313	10,386,299	10,107,199	10,574,235
Chief of Facilities Maintenance	92,316	130,206	252,134	128,281	132,236
Facilities Maintenance	2,904,614	2,997,107	3,234,867	3,630,021	5,472,548
Central Yard	1,789,058	1,935,170	2,234,033	2,188,673	2,629,566
Office of Chief of Networks	142,919	255,061	179,573	191,238	211,100
Networks	8,586,257	19,866,368	18,062,377	15,374,918	19,292,073
Engineering	1,014,126	1,080,169	1,105,298	1,444,644	1,607,977
Plumbing	469,925	450,070	523,151	542,937	561,728
Total Operations	37,013,077	48,891,843	48,393,458	48,982,782	53,356,959
Other Expenses					
Special Accounts	932,188	897,154	926,912	1,122,683	1,152,094
Payroll Related Expenses	5,548,877	5,759,876	4,984,381	5,876,697	5,222,554
Overhead Allocation	(3,058,748)	(3,413,817)	(3,640,334)	(3,744,731)	(4,241,712)
Total Other	3,422,317	3,243,212	2,270,958	3,254,649	2,132,936
Total Operation and Maintenance (b)	52,348,178	64,556,538	61,761,783	63,378,612	68,462,520

(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 included in Table 11.

(b) Source: Expenditure Analysis by Group Report.

Table 6

Water Department
Capital Expenditures (a)
2014

C.P. #	Project	Actual Expenditures
		$
	Waterworks	
110	Normal Extensions & Replacements	2,321,770
122	Sycamore and Claiborne Filter Rehabilitation	10,150
135	Improvements to Chemical System	32,507
160	SELA Water Relocation Costs	6,718,171
175	Water Hurricane Recovery Bonds	13,391,998
180	FEMA Review of Change Orders - Water	10,228,008
	Total Waterworks	32,702,603
	Water Distribution	
214	Normal Extensions & Replacements	1,475,494
216	Water Systems Replacement Program	125,160
239	Mains DPW Contracts	915,557
	Total Water Distribution	2,516,210
	Power Projects and General Budget	
600	Water Share of Power Projects	1,543,634
700	Water Reserve for Emergencies	461,082
800	Water Share of General Budget Items	7,895,110
	Total Power Projects and General Budget	9,899,826
	Total Water Department	45,118,640

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

Table 7

Water Department
Projected Capital Improvements (a)

C.P. #	Project	2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
	Reinvestment in Assets						
110	Normal Extension & Replacement	13,169,000	23,420,000	22,020,000	15,845,000	14,745,000	89,199,000
112	Modification to Oak St. Raw Water Intake Station	1,200,000	5,500,000	5,000,000	0	0	11,700,000
122	Sycamore and Claiborne Filter Rehabilitation	1,490,000	3,000,000	0	30,000,000	0	34,490,000
160	SELA Water Relocation Costs	843,000	660,000	898,000	2,145,000	0	4,546,000
182	Water Paving Repair Contracts	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	20,000,000
214	Normal Extensions & Replacements	3,400,000	3,420,000	3,420,000	3,445,000	3,445,000	17,130,000
216	Water System Replacement Program	4,100,000	2,100,000	2,200,000	2,000,000	2,000,000	12,400,000
239	Mains In Streets Department Contracts	5,200,000	3,200,000	3,200,000	3,200,000	3,200,000	18,000,000
600	Water Share of Power Projects	41,341,000	5,875,000	6,252,000	280,000	1,590,000	55,338,000
701	Water Reserve for Emergencies	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000
800	Water Share of General Budget Items	14,455,000	9,440,000	9,316,000	7,971,000	7,612,000	48,794,000
	Total Routine Capital Improvements	90,698,000	62,115,000	57,806,000	70,386,000	38,092,000	319,097,000
	Major Capital Improvements						
135	Improvements to Chemical System	370,000	1,400,000	3,000,000	0	0	4,770,000
156	Advanced Carrollton Water Treatment	6,815,000	200,000	20,120,000	120,000	120,000	27,375,000
157	Advanced Algiers Water Treatment	1,940,000	3,250,000	175,000	2,750,000	0	8,115,000
159	Water Plant Security Improvements	0	2,000,000	0	2,000,000	0	4,000,000
175	Water Hurricane Recovery Bonds	69,717,000	20,000,000	20,000,000	20,000,000	20,000,000	149,717,000
221	Feeder Main Extension, General	600,000	600,000	600,000	600,000	600,000	3,000,000
	Total Major Capital Improvements	79,442,000	27,450,000	43,895,000	25,470,000	20,720,000	196,977,000
	Total Water Department Improvements	170,140,000	89,565,000	101,701,000	95,856,000	58,812,000	516,074,000

(a) The improvements for 2015-2019 are based on the Amended 2015 Capital Budget and 2015-2024 Capital Program approved August 19, 2015.

Table 8

Water Department
Projected Operating Revenue

	(1)	(2)	(3)
Year	Revenue From Charges	Additional Revenue (a)	Total Service Charge Revenue
	$	$	$
2015	76,126,100	0	76,126,100
2016	77,101,600	7,615,800	84,717,400
2017	77,311,400	15,985,500	93,296,900
2018	77,527,900	25,239,800	102,767,700
2019	77,750,200	35,539,000	113,289,200

(a) Reflects additional revenue from adopted revenue increases.

Table 9

Water Department
Projected Operation and Maintenance Expenses

Department	2015 (a)	2016	2017	2018	2019
	$	$	$	$	$
Management and General Expenses					
Administrative	3,207,400	3,303,600	3,402,700	3,504,800	3,610,000
Management Services Director	0	0	0	0	0
Building and Grounds and Support Services	1,542,200	1,588,500	1,636,100	1,685,200	1,735,800
Personnel Administration	1,103,300	1,136,400	1,170,500	1,205,600	1,241,800
Finance Administration	1,042,400	1,073,700	1,105,900	1,139,100	1,173,300
Information Systems	2,234,500	2,301,500	2,370,600	2,441,700	2,514,900
Revenue and Customer Service	4,723,200	4,864,900	5,010,800	5,161,200	5,316,000
Purchasing	279,000	287,300	296,000	304,800	314,000
Total Management and General	14,132,000	14,555,900	14,992,600	15,442,400	15,905,800
Operations Expenses					
General Superintendent	268,300	276,300	284,600	293,100	301,900
Chief of Operations	323,000	332,700	342,700	353,000	363,500
Water Pumping and Power	10,218,800	10,525,400	10,841,200	11,166,400	11,501,400
Central Control	0	0	0	0	0
Water Purification	11,714,800	12,066,300	12,428,300	12,801,100	13,185,200
Chief of Facilities Maintenance	394,800	406,600	418,800	431,400	444,300
Facilities Maintenance	5,276,900	5,435,200	5,598,300	5,766,200	5,939,200
Central Yard	2,267,800	2,335,900	2,406,000	2,478,100	2,552,500
Office of Chief of Networks	370,600	381,700	393,200	405,000	417,100
Networks	20,509,900	21,125,200	21,758,900	22,411,700	23,084,000
Engineering	2,121,000	2,184,700	2,250,200	2,317,700	2,387,300
Plumbing	616,600	635,100	654,200	673,800	694,000
Total Operations	54,082,500	55,705,100	57,376,400	59,097,500	60,870,400
Other Expenses					
Special Accounts	1,994,200	2,054,000	2,115,600	2,179,100	2,244,500
Payroll Related Expenses	3,831,900	3,946,900	4,065,300	4,187,200	4,312,800
Overhead Allocation	(3,471,000)	(3,568,700)	(3,675,800)	(3,786,000)	(3,899,600)
Total Other	2,355,100	2,432,200	2,505,100	2,580,300	2,657,700
Total Operation and Maintenance	70,569,600	72,693,200	74,874,100	77,120,200	79,433,900

(a) Represents the adopted operating budget as of January 1, 2015.

Table 10

Water Department
Debt Service Requirements

Debt Issue		2015	2016	2017	2018	2019
		$	$	$	$	$
Existing Bonds						
Series 2014		5,176,300	5,501,300	7,700,000	7,693,000	7,700,000
Total Existing Debt Service		5,176,300	5,501,300	7,700,000	7,693,000	7,700,000
Projected Bonds						
	Amount of Issue					
	$					
2015	100,000,000	0	0	6,605,000	6,604,800	6,605,500
2016	25,000,000		0	756,125	1,814,700	1,814,700
2017	63,000,000			0	1,905,500	4,573,200
2018	55,000,000				0	1,663,500
2019	37,100,000					0
Total Projected Debt Service		0	0	7,361,125	10,325,000	14,656,900
Total Debt Service		5,176,300	5,501,300	15,061,125	18,018,000	22,356,900

Table 11

Water Department
Capital Improvement Program Financing

Line No.	Description	Fiscal Year Endiing December 31, 2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
1	Funds Available at Beginning of Year	78,855,100	102,334,100	65,849,000	46,657,300	23,599,700	78,855,100
2	Revenue Bond Proceeds	100,000,000	25,000,000	63,000,000	55,000,000	37,100,000	280,100,000
3	Operation Fund Transfers	1,000,000	5,000,000	5,000,000	10,000,000	10,000,000	31,000,000
4	Participation By Others	111,291,000	28,421,800	29,062,300	24,116,500	24,840,000	217,731,600
5	Net Original Issue Premium	6,514,100	0	0	0	0	6,514,100
6	Interest Income	849,500	909,800	623,800	412,800	277,500	3,073,400
7	Total Funds Available	298,509,700	161,665,700	163,535,100	136,186,600	95,817,200	617,274,200
8	Obligated Contracts & Capital Jobs	(12,500,900)	0	0	0	0	(12,500,900)
9	Reinvestment in Assets	(90,698,000)	(63,978,500)	(61,326,400)	(76,912,700)	(42,872,900)	(335,788,500)
10	Major Capital Additions	(79,442,000)	(28,273,500)	(46,568,200)	(27,831,800)	(23,320,500)	(205,436,000)
11	Bond Issuance Expense	(1,733,300)	(375,000)	(945,000)	(825,000)	(556,500)	(4,434,800)
12	Capitalized Interest Requirement	(5,194,400)	(1,375,000)	(3,465,000)	(3,025,000)	(2,040,500)	(15,099,900)
13	Revenue Bond Reserve Fund	(6,607,000)	(1,814,700)	(4,573,200)	(3,992,400)	(2,693,100)	(19,680,400)
14	Total Application of Funds	(196,175,600)	(95,816,700)	(116,877,800)	(112,586,900)	(71,483,500)	(592,940,500)
15	End of Year Balance	102,334,100	65,849,000	46,657,300	23,599,700	24,333,700	24,333,700

Table 12

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

Line No.	Description	Fiscal Year Ending December 31, 2015	2016	2017	2018	2019
		$	$	$	$	$
1	Revenue from Charges	76,126,100	77,101,600	77,311,400	77,527,900	77,750,200
2	Total Additional Revenue (a)	0	7,615,800	15,985,500	25,239,800	35,539,000
3	Total Service Charge Revenue	76,126,100	84,717,400	93,296,900	102,767,700	113,289,200
4	Interest Income	303,500	127,000	134,000	131,400	148,200
5	Plumbing Insp. & License Fees	321,500	321,500	321,500	321,500	321,500
6	Other Miscellaneous Income	3,232,500	3,232,500	3,232,500	3,232,500	3,232,500
7	Revenue from Internal field Review (b)	761,300	847,200	933,000	1,027,700	1,132,900
8	Sale of Water to School District	0	350,000	385,000	423,500	465,900
9	Interest from Bond Reserve Fund	136,000	179,000	211,000	254,000	287,000
10	Total Operating Revenue	80,880,900	89,774,600	98,513,900	108,158,300	118,877,200
11	Operation & Maintenance	(70,569,600)	(72,693,200)	(74,874,100)	(77,120,200)	(79,433,900)
12	Provision for Claims	(742,100)	(764,400)	(787,300)	(810,900)	(835,300)
13	Provision for Doubtful Accounts	(1,522,500)	(1,542,000)	(1,546,200)	(1,550,600)	(1,555,000)
14	Net Operating Revenue	8,046,700	14,775,000	21,306,300	28,676,600	37,053,000
	Debt Service					
	Senior Lien Revenue Bonds					
15	Existing	(5,176,300)	(5,501,300)	(7,700,000)	(7,693,000)	(7,700,000)
16	Projected	0	0	(7,361,100)	(10,325,000)	(14,656,900)
17	Total Senior Lien Revenue Bonds	(5,176,300)	(5,501,300)	(15,061,100)	(18,018,000)	(22,356,900)
18	Gulf Opportunity Zone Act Loan	(639,900)	(639,900)	(639,900)	(639,900)	(639,900)
19	Total Debt Service	(5,816,200)	(6,141,200)	(15,701,000)	(18,657,900)	(22,996,800)
20	Other Non-Operating Revenue	400,500	400,500	400,500	400,500	400,500
21	Transfer to Construction	(1,000,000)	(5,000,000)	(5,000,000)	(10,000,000)	(10,000,000)
22	Due from/(to) Other Departments	(3,891,000)	(2,186,000)	(436,000)	(436,000)	0
23	Transfer to Operating Reserve Fund	(17,447,100)	(512,000)	(533,900)	(544,400)	(560,700)
24	Transfer from/(to) Rate Stabilization Fund	0	0	0	0	0
25	Net Annual Balance	(19,707,100)	1,336,300	35,900	(561,200)	3,896,000
26	Beginning of Year Cash Balance (c)	20,119,900	412,800	1,749,100	1,785,000	1,223,800
27	End of Year Balance	412,800	1,749,100	1,785,000	1,223,800	5,119,800
28	Beginning of Year Cash Balance (c)	20,119,900	28,561,800	30,410,100	30,979,900	30,963,100
29	Customer Deposits	10,701,900				
30	Operating Reserve Fund	17,447,100	512,000	533,900	544,400	560,700
31	Net annual Balance	(19,707,100)	1,336,300	35,900	(561,200)	3,896,000
32	End of Year Balance	28,561,800	30,410,100	30,979,900	30,963,100	35,419,800
33	Days of O&M Cash on Hand	143	148	146	142	158

(a) Reflects revenue from an eight-year series of annual 10% rate increases effective January 1, 2013; adopted by the City Council in 2012.
(b) Estimated as 1% of Total Service Charge Revenue.
(c) Reflects beginning of year balance in unrestricted and undesignated cash and cash equivalents and cash and cash equivalents designated for capital projects, less operating reserve requirement.

Table 13

Water Department
Coverage Requirements

Line No.	Coverage Requirements	2014	2015	2016	2017	2018	2019
		$	$	$	$	$	$
	Projected Net Revenues						
1	Revenue Under Existing Rates	70,818,300	76,126,100	77,101,600	77,311,400	77,527,900	77,750,200
2	Additional Revenue Under Proposed Rates		0	7,615,800	15,985,500	25,239,800	35,539,000
3	Interest Income	349,600	1,289,000	1,215,800	968,800	798,200	712,700
4	Plumbing and Inspection Fees	339,200	321,500	321,500	321,500	321,500	321,500
5	Revenue Sharing	254,600					
6	Other Miscellaneous Revenue	2,841,100	3,232,500	3,232,500	3,232,500	3,232,500	3,232,500
7	Revenue from Internal field Review		761,300	847,200	933,000	1,027,700	1,132,900
8	Sale of Water to School District		0	350,000	385,000	423,500	465,900
9	Operation & Maintenance Grants	(381,900)	0	0	0	0	0
10	Transfer from Rate Stabilization Fund		0	0	0	0	0
11	Operation & Maintenance	(68,462,500)	(70,569,600)	(72,693,200)	(74,874,100)	(77,120,200)	(79,433,900)
12	Claims	(1,143,400)	(742,100)	(764,400)	(787,300)	(810,900)	(835,300)
13	Provision for Doubtful Accounts	(1,151,800)	(1,522,500)	(1,542,000)	(1,546,200)	(1,550,600)	(1,555,000)
14	Net Revenue	3,463,200	8,896,200	15,684,800	21,930,100	29,089,400	37,330,500
	Rate Covenant Coverage						
15	Projected Net Revenues		8,896,200	15,684,800	21,930,100	29,089,400	37,330,500
	Annual Debt Service						
16	Senior Debt		5,176,300	5,501,300	15,061,100	18,018,000	22,356,900
17	Coverage (a)		172%	285%	146%	161%	167%
18	All Debt		5,816,200	6,141,200	15,701,000	18,657,900	22,996,800
19	Coverage (b)		153%	255%	140%	156%	162%
	Adjusted Rate Covenant Coverage						
20	Projected Net Revenues (c)		8,896,200	15,684,800	21,930,100	29,089,400	37,330,500
	Annual Debt Service						
21	Senior Debt		5,176,300	5,501,300	15,061,100	18,018,000	22,356,900
22	Coverage (d)		172%	285%	146%	161%	167%
23	All Debt		5,816,200	6,141,200	15,701,000	18,657,900	22,996,800
24	Coverage (d)		153%	255%	140%	156%	162%
	Additional Bond Coverage						
25	Preceding Year Projected Net Revenues		3,463,200	8,896,200	15,684,800	21,930,100	29,089,400
26	Future Additional Revenue (e)		43,235,300	46,475,700	35,782,900	25,590,100	16,280,900
27	Adjusted Projected Net Revenues		46,698,500	55,371,900	51,467,700	47,520,200	45,370,300
	Maximum Debt Service						
28	Senior Debt		14,305,500	16,120,200	20,693,400	24,677,300	27,364,900
29	Coverage (a)		326%	343%	249%	193%	166%
30	All Debt		14,945,400	16,760,100	21,333,300	25,317,200	28,004,800
31	Coverage (b)		312%	330%	241%	188%	162%

(a) The General Bond Resolution requires net revenue to equal or exceed 125% of debt service.
(b) The General Bond Resolution requires net revenue to equal or exceed 110% of debt service.
(c) Net Revenue excludes transfers from the Rate Stabilization Fund and proceeds of Operation & Maintenance Grants.
(d) The General Bond Resolution requires net revenue to equal or exceed 100% of debt service.
(e) Reflects revenue from an eight-year series of annual 10% rate increases effective January 1, 2013; adopted by the City Council in 2012.

Sewerage Department

ADHERENCE TO SEWERAGE SERVICE REVENUE BOND RESOLUTION

In 2014, the Board issued $158,990,000 Sewerage Service Revenue and Refunding Bonds. Issuance of these bonds obligated the Board to adhere to the covenants of the Bond Resolution. Briefly, the covenants are concerned with:

- Payment of indebtedness; limited obligations.
- Limitations on indebtedness.
- Covenants and representations of Board.
- Covenants with credit banks, insurers, etc.
- Operation and maintenance.
- Free service, competing service, billing and enforcement of charges.
- Sale or encumbrance of system.
- Insurance
- Damage, destruction, condemnation and loss of title.
- Records and accounts; inspections and reports.
- Capital budget.

The provisions of the General Sewerage Service Revenue Bond Resolution are virtually identical to those of the General Water Revenue Bond Resolution described in the preceding section of this report. The Board was in compliance with these covenants in 2014. Sewerage Department tables are included at the end of this section.

2014 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 2014 operations of the Sewerage Department are discussed in the following paragraphs.

Wastewater Volumes

Number of Customers

Table 14 presents a summary of the historical and projected average number of sewer customers for the period 2010 through 2019. Based on year-end billing summaries, the number of monthly billed customers during 2014 averaged 125,303 compared with 123,701 for 2013. It is projected that the Board will average approximately 126,557 open accounts in 2015 and that the number of accounts will continue to grow at approximately 0.9 percent each year.

Billed Wastewater Volume

Table 14 also presents a summary of historical and projected billed wastewater volumes. Based on year-end billing summaries, a total of 11,223 million gallons of wastewater volume was billed in 2014, compared with a total of 11,317 million gallons in 2013. To reflect the anticipated price

elasticity impact due to the approved annual revenue increases, projected wastewater volume assumes a 2 percent resistance factor in 2015 and 1 percent for 2016 through 2019. The resulting projected contributed wastewater volume reflects a decrease of approximately 0.5 percent per year.

Operating Revenues

The 2015 schedule of rates for retail sewerage service is presented in Table 15 and reflects a 10 percent rate increase over 2014 rates. 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 16 for the period 2010 through 2014. The historical revenues shown in Table 16 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 2014 were $85,740,367 which, when compared with $77,767,114 for 2013, shows an increase of approximately 10.3 percent. Delinquent fee revenues were $812,895 in 2014 which represent an increase of approximately 5.8 percent over 2013 delinquent fees.

Non-Operating Revenues

Also shown in Table 16, Sewerage Department non-operating revenue includes interest earned on the investment of available funds and other minor items of revenue. Interest earned in 2014 consisted of $257,824 from investments in the Sewerage System fund, the capital projects and construction fund. Miscellaneous income was $1,946,156 for 2014.

In 2014, the Board received $383,354 in operating and maintenance grants from FEMA for operating expenses incurred from sewer repairs performed by Board crews. This revenue is included as Other Income in Table 16.

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 17 presents a summary of 2010 through 2014 historical operation and maintenance expenses of the Sewerage Department. Expenditures for 2014 increased about 5.2 percent from 2013 expenditures and about 8.3 percent from 2012 expenditures. Historical operation and maintenance expenses shown in Table 17 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 13 in Table 24.

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 2014 capital expenditures, exclusive of prorated interest expense, totaled $51,844,272. Capital improvement expenditures for the year are shown in Table 18.

Summary of Operations

The following tabulation shows a summary of the receipts and expenditures of the Sewerage Department during 2014:

Total Revenues [a]	$88,757,242
Operation and Maintenance Expense	47,955,827
Claims	565,222
Debt Service Payments	20,217,148
Revenue Primarily Available for Capital Expenditures [b]	**$20,019,046**

[a] Includes operating and maintenance grant of $383,354.
[b] Excludes depreciation.

PROPOSED CAPITAL IMPROVEMENT PROGRAM

Table 19 presents a summary of the projected major capital improvement program for the period 2015 through 2019. Table 19 is based on the Board's 2015-2024 Capital Program. The five-year major capital improvement program costs are estimated to total $338,766,000. Of the projected total, $251,606,000 is considered to be for recurring annual capital improvements. The remaining $87,160,000 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 2015 through 2019 total $28,627,000 and $43,980,000, 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 19 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 19.

Operating Revenues

Future operating revenues of the Sewerage Department consist of sewerage service charge revenues which are summarized for 2015 through 2019 in Table 20. These estimates reflect the rate schedule effective January 1, 2015 applied to the projected number of customers and contributed wastewater flow. Projected revenue from adopted revenue increases is also shown in Table 20.

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 $321,500 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 2015 through 2019 is shown in Table 21 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 2015 reflect the Board's adopted 2015 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 2015.

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, 2014 outstanding debt obligations consisted of $8,174,000 Sewerage Revenue Bonds Series 2011, and $158,990,000 Sewerage Service Revenue and Refunding Bonds Series 2014.

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 assume a 20-year term with a 0.45 percent interest rate plus an administrative fee of 0.5 percent. The Board began drawing down the funds during the first quarter of 2012 and as of December 31, 2014, had received a total of $9,000,000 in disbursements. The Board began making principal payment in November 2013. With the issuance of the Series 2014 bonds, the Series 2011

bonds became parity debt and entitled to the provisions of the General Sewerage Service Revenue Bond Resolution. Total outstanding debt obligation on the Sewerage Revenue Bonds Series 2011 was $8,174,000 as of December 31, 2014.

To adequately fund the proposed capital improvements, additional revenue bonds are indicated as shown in Table 22. It is anticipated that the Board will issue Sewerage Revenue Bonds, Series 2015 in the amount of $93,345,000 in November 2015. The debt service on the 2015 bonds was provided by the Board's financial advisor and reflects an average annual interest rate of 5.0 percent for a term of 30 years. Based on information from the Board's financial advisor, projected bonds that are shown in Table 22 for 2016 through 2019 are assumed to be sold at an average annual interest rate of 5.5 percent for a term of 30 years.

The Sewerage Department has borrowed 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 23 examines the financing of the major capital improvement program and Table 24 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.

Capital Projects Funding

Table 23 presents the major capital improvement financing plan which summarizes the projected source and application of funds over the six-year study period. The amount of Funds Available at Beginning of Year, shown on Line 1, is $75,675,100. This amount is based on audited data provided by the Board.

Projected revenue bond proceeds are shown on Line 2. The amounts and years of issue are developed by the Board's financial advisor and consider 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 $109,000,000 of operating reserves as shown on Line 3. 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 4 includes anticipated funding by the COE and FEMA. Line 5 reflects the original issue premium related to the Series 2015 Bonds. Interest earnings recognize an assumed 1.0 percent average annual interest rate and are shown on Line 6. Line 7 of the table shows the projected major capital improvement funds available each year.

As of December 31, 2014, the Board had $17,888,500 obligated for open contracts and capital jobs as shown on Line 8 of Table 23. Lines 9 and 10 show the projected Reinvestment in Assets and Major Capital Additions to be funded as shown in Table 19. Estimated issuance costs related to the proposed bond issue amounts are shown on Line 11.

Line 12 shows the required deposits into the Revenue Bond Reserve Fund associated with proposed bond issues. The debt service reserve on proposed debt is a three-pronged test estimated as the lessor of (i) 10 percent of the original principal amount, (ii) the maximum annual debt service, or (iii) 125 percent of the average annual debt service.

The Total Application of Funds is shown on Line 13 of Table 23. The net End of Year Balance is shown on Line 14.

Operating Fund

Line 1 of Table 24 shows projected Revenue from Charges under 2015 rates as previously presented in Table 20. In 2012, the New Orleans City Council approved eight consecutive annual 10 percent sewer rate increases beginning January 1, 2013. Revenue from these future annual revenue increases of 10 percent effective January 1, 2015 through January 1, 2019 is shown on Line 2.

Other revenue available for system operations is shown on Lines 4 through 10. Interest Income available to the operating fund, shown on Line 4, 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. Revenue from Plumbing Inspection and License Fees and Other Miscellaneous Revenue are shown on Lines 5 and 6 of Table 24. Board began conducting field account reviews in 2012 to determine whether meters are working accurately and bills are being computed correctly. Projected revenue from these reviews is shown on Line 7 and projected to be 1 percent of Total Service Charge Revenue on Line 3. The Board currently provides sewer service free of charge to the New Orleans School District; however, due to the amount of lost revenue from this source, the Board is eliminating free sewage treatment for the School District. It is anticipated that the Board will begin to receive revenue from this source in 2016 which is shown on Line 8.

The Board has submitted Project Worksheets to FEMA for operating expenses incurred from sewer repairs performed by Board crews. Line 9 indicates the amount projected to be reimbursed by FEMA for these repairs during the study period. Interest from the Bond Reserve Fund, shown on Line 10, is estimated to be 1.0 percent. Total Operating Revenue is shown on Line 11.

Operation and Maintenance expense, previously projected in Table 21, is shown on Line 12 of Table 24. Line 13 shows the estimated allowance for claims. Bad debt expense is assumed to be 2 percent of projected revenue and is shown on Line 14. Projected Net Operating Revenue from system operations is shown on Line 15.

Lines 16 through 18 present debt service requirements on currently outstanding and proposed senior revenue bonds. Existing bonds include the Series 11 and Series 2014 bonds. Line 17 reflects projected principal and interest payment on the Series 2015 revenue bonds as well as additional revenue bond debt financing of $10,000,000 in 2018 and $35,000,000 in 2019. Based on information provided by the Board's financial advisor, this debt is assumed to be 30 year, 5.5 percent fixed interest rate bonds issued in November.

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 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 in July 2012 and are shown on Line 19 of Table 24 as subordinate debt.

Anticipated non-operating revenue is shown on Line 21 and consists of reimbursement from FEMA and other miscellaneous non-operating revenue.

Line 22 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 23 reflects payment to the Department of Public Works as well as claimants.

The General Resolution sets forth the requirement to maintain an operating reserve equal to 90 days of the previous year's operation and maintenance expense. Line 24 indicates the amount needed to fully fund the operating reserve in 2015 followed by projected annual transfers to meet this requirement throughout the study period. It is anticipated that the balance in the reserve in 2015 will equal approximately 192 day of 2014 operation and maintenance expense. The general bond resolution also sets for the option to maintain a rate stabilization fund. The amount to be transferred to this fund, as well as the timing, is determined by the Executive Director. There are not transfers currently anticipated during the study period as shown on Line 25 of Table 24.

Line 26 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 2015, shown on Line 27, is comprised of the current cash assets and reflects a balance of $25,554,400. The End of Year Balance is shown on Line 28.

Lines 29 through 32 demonstrate that the Board is maintaining an operating reserve equal to at least 90 days of the previous year's operation and maintenance expense.

As demonstrated in Tables 23 and 24, 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 2015-2019 study period examined herein.

Bond Coverage Requirements

An additional consideration in measuring the adequacy of revenues is the provision of sufficient debt service coverage to meet the bond covenant requirements for the issuance of parity revenue bonds. The General Resolution provides that rates shall be maintained at levels which are expected to yield net revenues (as defined in the resolution) equal to at least 125 percent of the annual principal and interest requirement for senior debt and 110 percent for senior and subordinate debt in each fiscal year. In addition, net revenue excluding transfers from the rate stabilization fund and the proceeds of grants shall be equal to at least 100 percent of the annual principal and interest requirement for senior and subordinate debt in each fiscal year.

The calculation of net revenue is shown on Lines 1 through 13 of Table 25. The ability of the Sewerage Department revenues to meet revenue bond coverage requirements is shown on Lines 14 through 23. The Adjusted Rate Covenant Coverage test reflects the exclusion of transfers from the rate stabilization fund and grant proceeds. As shown on Lines 16, 19, 21, and 23, the indicated projected revenue and revenue increases will provide sufficient net revenue to meet coverage requirements during the study period.

The General Resolution further prescribes that additional parity revenue bonds may be issued if net revenue from a previous test year (any 12 consecutive months of the last 24 months) is equal to at least 125 percent of the maximum annual principal and interest requirement for senior debt and 110 percent for senior and subordinate debt. For purposes of the additional bonds test, net revenue may be adjusted to reflect any increases not in effect during the selected test year but have been approved by the Board, Board of Liquidation and City Council and will go into effect within the following five years.

The results of the additional bonds test are shown on Lines 24 through 30 of Table 25. Lines 28 and 30 of the table indicate that with the magnitude of the adopted annual revenue increases, required minimum levels of coverage are met in each year with indicated coverage levels ranging from 282 percent to 436 percent.

Table 14

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

	Historical					Projected				
Customer Class	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Single Family Residential (b)										
Customers	100,108	102,265	104,782	109,036	110,599	111,705	112,822	113,950	115,090	116,241
Sales (1,000,000 gal.)	5,203	5,433	5,374	5,392	5,323	5,269	5,269	5,268	5,268	5,267
Sales Per Customer (1,000 gal.)	52	53	51	49	48	47	47	46	46	45
Multifamily Residential										
Customers	4,406	4,429	4,455	4,534	4,514	4,559	4,559	4,559	4,559	4,559
Sales (1,000,000 gal.)	693	672	655	621	587	581	575	569	563	558
Sales Per Customer (1,000 gal.)	157	152	147	137	130	127	126	125	124	122
Commercial										
Customers	9,841	9,861	9,897	10,101	10,161	10,263	10,263	10,263	10,263	10,263
Sales (1,000,000 gal.)	5,304	5,292	5,312	5,258	5,265	5,212	5,159	5,108	5,057	5,006
Sales Per Customer (1,000 gal.)	538	536	536	520	518	507	502	497	492	487
Industrial										
Customers	29	27	28	30	29	30	30	30	30	30
Sales (1,000,000 gal.)	70	57	151	47	48	48	48	47	47	46
Sales Per Customer (1,000 gal.)	2,417	2,123	5,389	1,559	1,644	1,610	1,597	1,580	1,563	1,547
Total										
Customers	114,385	116,581	119,162	123,701	125,303	126,557	127,674	128,802	129,942	131,093
Sales (1,000,000 gal.)	11,270	11,454	11,491	11,317	11,223	11,110	11,051	10,992	10,935	10,877

(a) Excludes customers receiving free service.
(b) Includes duplex.

Table 15

Sewerage Department
Existing Sewer Rates
(Effective January 1, 2015)

Rate Components	General Service
	$
Monthly Sewerage Service Charge	
Meter Size Inches	
5/8	15.44
3/4	21.97
1	31.28
1-1/2	57.57
2	84.19
3	199.65
4	332.75
6	665.50
8	998.25
10	1,331.00
12	1,530.65
16	2,063.05
Monthly Quantity Charge	
Per 1,000 Gallons	5.37
Excessive Strength Charge per Pound	
BOD	0.35
TSS	0.21

Table 16

Sewerage Department
Statement of Historical Revenue

Revenue Source	2010	2011	2012	2013	2014
	$	$	$	$	$
Operating Revenue					
Sewerage Service Charges	68,821,844	69,632,459	70,707,230	77,767,114	85,740,367
Delinquent Fee	712,935	725,617	700,605	768,670	812,895
Total Operating Revenue	69,534,779	70,358,076	71,407,835	78,535,785	86,553,262
Nonoperating Revenue					
Interest Income	74,774	253,547	194,080	178,122	257,824
Plumbing Inspection and License Fees	373,213	379,036	343,903	321,518	339,176
Revenue Sharing	185,243	175,424	154,509	274,229	317,506
Other Income (a)	3,218,248	3,009,211	296,406	771,397	1,289,474
Total Nonoperating Revenue	3,851,478	3,817,218	988,898	1,545,265	2,203,980
Total Revenue	73,386,257	74,175,294	72,396,734	80,081,050	88,757,242

(a) Includes $2,957,463 in operating and maintenance grants in 2010 , $7,463 in 2012, $5,367 in 2013 and $383,354 in 2014.

Table 17

Sewerage Department
Historical Operation and Maintenance Expenses (a)

Department	2010	2011	2012	2013	2014
	$	$	$	$	$
Management and General Expenses					
Administrative	2,332,598	1,602,429	2,604,097	3,035,796	4,358,890
Management Services Director	23,225	23,618	24,350	26,912	21,700
Building and Grounds and Support Services	1,035,972	1,146,188	1,145,005	1,243,463	1,295,584
Personnel Administration	284,354	276,123	349,216	313,814	359,639
Finance Administration	785,102	847,924	829,390	778,041	727,052
Information Systems	1,421,701	1,491,718	1,429,882	1,412,491	1,398,322
Revenue and Customer Service	4,072,717	3,990,453	4,028,431	4,127,203	4,298,533
Purchasing	225,851	212,508	204,325	208,850	268,230
Total Management and General	10,181,521	9,590,960	10,614,697	11,146,570	12,727,950
Operations Expenses					
General Superintendent	178,217	172,673	182,265	197,524	179,012
Drainage Pumping and Central Control	284,458	282,983	305,901	305,531	208,242
Sewerage Pumping	2,994,092	2,761,304	3,125,171	3,101,431	3,028,969
Chief of Operations	67,543	68,777	137,430	62,056	62,065
Water Pumping and Power	897,824	910,258	360,672	375,849	1,663,857
Sewerage Treatment	11,219,427	10,953,890	10,770,661	10,337,838	11,010,064
Chief of Facilities Maintenance	92,316	130,206	252,133	128,279	132,235
Facilities Maintenance	2,904,608	2,997,106	3,234,864	3,630,021	1,953,485
Central Yard	1,789,445	1,935,487	2,234,033	2,188,672	2,629,653
Office of Chief of Networks	104,212	185,982	130,939	139,444	147,377
Networks	8,514,449	8,767,792	9,388,251	9,566,363	11,191,893
Engineering	1,014,125	1,080,168	1,105,298	1,444,644	1,066,872
Plumbing	469,921	450,067	523,148	542,934	561,724
Total Operations	30,530,637	30,696,692	31,750,766	32,020,587	33,835,447
Other Expenses					
Special Accounts	932,188	897,154	926,912	1,122,683	1,149,394
Payroll Related Expenses	5,522,151	5,710,844	5,008,698	5,396,131	4,306,685
Overhead Allocation	(3,388,621)	(3,747,859)	(4,007,841)	(4,119,759)	(4,063,649)
Total Other	3,065,718	2,860,139	1,927,769	2,399,055	1,392,430
Total Operation and Maintenance (b)	43,777,876	43,147,792	44,293,232	45,566,211	47,955,827

(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

(b) Source: Expenditure Analysis by Group Report.

Table 18

Sewerage Department
Capital Expenditures (a)
2014

C.P. #	Project	Actual Expenditures
		$
	Sewerage Systems	
313	Extensions & Replacements - Sewer Force Mains EPA Consent Decree	
317	Normal Extensions & Replacement of Gravity Mains	1,693,411
318	Rehabilitation Gravity Sewer System	1,942,479
339	Mains in Street Dept. Contracts	231,984
340	Sewerage Hurricane Recovery Bonds (FEMA)	1,644,080
348	Normal Extensions & Replacements	2,703,685
360	SELA Sewerage Relocation Costs	8,898,653
368	Wetlands Assimilation Project	414,892
375	Sewerage Hurricane Recovery Bonds	15,044,953
380	FEMA Review of Change Orders-Sewer	11,767,351
	Total Sewerage System	44,341,487
	Power Projects and General Budget	
600	Sewerage Share of Power Projects	590,213
700	Sewer Reserve for Emergencies	736,184
800	Sewerage Share of General Budget Items	6,176,388
	Total Power Projects and General Budget	7,502,785
	Total Sewerage Department	51,844,272

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

Table 19

Sewerage Department
Projected Capital Improvements (a)

C.P. #	Project	2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
	Reinvestment in Assets						
317	Extensions and Replacements - Gravity Mains	1,817,000	19,969,000	7,085,000	16,893,000	13,754,000	59,518,000
318	Rehabilitation Gravity Sewer System	7,435,000	5,035,000	6,435,000	5,035,000	8,435,000	32,375,000
319	Extension and Replacements - Sanitary Sewer Mains Algiers	0	0	500,000	0	0	500,000
326	Extensions and Replacements to Pumping Stations	3,935,000	4,760,000	5,550,000	2,500,000	5,800,000	22,545,000
339	Mains in Streets Department Contracts	6,800,000	5,300,000	5,300,000	5,300,000	5,300,000	28,000,000
348	Extensions and Replacements - Treatment Plants	5,860,000	4,805,000	4,495,000	3,925,000	3,930,000	23,015,000
360	SELA Sewerage Relocation Costs	1,043,000	643,000	337,000	578,000	1,945,000	4,546,000
382	Paving Repair Contracts	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000
600	Sewer Share of Power Projects	17,991,000	2,483,000	7,943,000	40,000	170,000	28,627,000
702	Sewer Reserve for Emergencies	700,000	700,000	700,000	700,000	700,000	3,500,000
800	Sewer Share of General Budget Items	16,236,000	7,729,000	7,615,000	6,387,000	6,013,000	43,980,000
	Total Routine Annual Improvements	62,817,000	52,424,000	46,960,000	42,358,000	47,047,000	251,606,000
	Major Capital Improvements						
313	Extensions and Replacements - Sewer Force Mains	7,000,000	2,000,000	12,950,000	3,000,000	12,950,000	37,900,000
358	WWTP Normal Extensions & Replacements	0	0	10,000	0	0	10,000
368	Wetland Assimilation	8,400,000	200,000	0	0	0	8,600,000
375	Sewerage Hurricane Recovery Bonds	15,610,000	5,000,000	5,000,000	7,000,000	0	32,610,000
381	Modification and Expansion of WBSTP to 20/50 MGD	1,270,000	355,000	4,170,000	245,000	0	6,040,000
383	Sewerage Hurricane Recovery Bonds (Non FEMA)	2,000,000	0	0	0	0	2,000,000
	Total Major Improvements	34,280,000	7,555,000	22,130,000	10,245,000	12,950,000	87,160,000
	Total Sewerage System Improvements	97,097,000	59,979,000	69,090,000	52,603,000	59,997,000	338,766,000

(a) The improvements for 2015-2019 are based on the Amended 2015 Capital Budget and 2015-2024 Capital Program approved August 19, 2015.

Table 20

Sewerage Department
Projected Operating Revenue

	(1)	(2)	(3)
Year	Revenue From Charges	Additional Revenue (a)	Total Service Charge Revenue
	$	$	$
2015	92,500,700	0	92,500,700
2016	93,364,800	9,301,600	102,666,400
2017	93,299,600	19,372,400	112,672,000
2018	93,241,000	30,555,000	123,796,000
2019	93,189,600	42,807,100	135,996,700

(a) Reflects additional revenue from adopted revenue increases.

Table 21

Sewerage Department
Projected Operation and Maintenance Expenses

Department	2015 (a)	2016	2017	2018	2019
	$	$	$	$	$
Management and General Expenses					
Administrative	3,817,400	3,931,900	4,049,900	4,171,400	4,296,500
Management Services Director	0	0	0	0	0
Building and Grounds and Support Services	1,458,000	1,501,700	1,546,800	1,593,200	1,641,000
Personnel Administration	703,000	724,000	745,800	768,100	791,200
Finance Administration	795,100	819,000	843,500	868,800	894,900
Information Systems	2,170,600	2,235,700	2,302,800	2,371,800	2,443,000
Revenue and Customer Service	4,754,400	4,897,100	5,044,000	5,195,300	5,351,100
Purchasing	235,700	242,800	250,100	257,600	265,300
Total Management and General	13,934,200	14,352,200	14,782,900	15,226,200	15,683,000
Operations Expenses					
General Superintendent	187,200	192,800	198,600	204,600	210,700
Drainage Pumping and Central Control	284,200	292,800	301,600	310,600	319,900
Sewerage Pumping	2,879,000	2,965,400	3,054,400	3,146,000	3,240,400
Chief of Operations	323,000	332,700	342,700	353,000	363,500
Water Pumping and Power	637,600	656,700	676,400	696,700	717,600
Water Purification	230,400	237,400	244,500	251,800	259,400
Sewerage Treatment	11,363,200	11,704,100	12,055,200	12,416,900	12,789,400
Chief of Facilities Maintenance	394,800	406,600	418,800	431,400	444,300
Facilities Maintenance	1,993,100	2,052,900	2,114,500	2,177,900	2,243,300
Central Yard	2,277,900	2,346,300	2,416,700	2,489,200	2,563,900
Office of Chief of Networks	258,600	266,400	274,400	282,600	291,100
Networks	16,267,000	16,755,000	17,257,700	17,775,400	18,308,700
Engineering	1,437,800	1,481,000	1,525,400	1,571,200	1,618,300
Plumbing	616,600	635,100	654,200	673,800	694,000
Total Operations	39,150,400	40,325,200	41,535,100	42,781,100	44,064,500
Other Expenses					
Special Accounts	3,525,000	3,630,700	3,739,600	3,851,800	3,967,400
Payroll Related Expenses	2,441,400	2,514,600	2,590,100	2,667,800	2,747,800
Overhead Allocation	(3,909,000)	(4,017,800)	(4,138,400)	(4,262,500)	(4,390,400)
Total Other	2,057,400	2,127,500	2,191,300	2,257,100	2,324,800
Total Operation and Maintenance	55,142,000	56,804,900	58,509,300	60,264,400	62,072,300

(a) Represents the adopted operating budget as of January 1, 2015.

Table 22

Sewerage Department
Debt Service Requirements

Debt Issue		2015	2016	2017	2018	2019
		$	$	$	$	$
Existing Bonds						
Series 2014		18,498,500	19,342,700	19,309,800	17,642,500	16,217,500
Total Existing Debt Service		18,498,500	19,342,700	19,309,800	17,642,500	16,217,500
Projected Bonds						
	Amount of Issue					
	$					
2015	100,000,000	0	6,519,400	6,518,800	6,519,500	6,516,300
2016	0		0	0	0	0
2017	0			0	0	0
2018	10,000,000				286,708	688,100
2019	35,000,000					1,003,417
Total Projected Debt Service		0	6,519,400	6,518,800	6,806,208	8,207,817
Total Debt Service		18,498,500	25,862,100	25,828,600	24,448,708	24,425,317

Table 23

Sewerage Department
Capital Improvement Program Financing

Line No.	Description	Fiscal Year Ending December 31, 2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
1	Funds Available at Beginning of Year	75,675,100	117,070,300	85,033,500	41,265,200	27,062,200	75,675,100
2	Revenue Bond Proceeds	100,000,000	0	0	10,000,000	35,000,000	145,000,000
3	Operation Fund Transfers	14,000,000	20,000,000	20,000,000	25,000,000	30,000,000	109,000,000
4	Participation by Others	42,434,000	8,726,200	8,894,600	8,780,100	1,164,900	69,999,800
5	Net Original Issue Premium	7,230,200	0	0	0	0	7,230,200
6	Interest Income	967,400	1,015,400	634,700	335,700	224,500	3,177,700
7	Total Funds Available	240,306,700	146,811,900	114,562,800	85,381,000	93,451,600	410,082,800
8	Obligated Contracts & Capital Jobs	(17,888,500)	0	0	0	0	(17,888,500)
9	Reinvestment in Assets	(62,817,000)	(53,996,700)	(49,819,900)	(46,285,700)	(52,951,800)	(265,871,100)
10	Major Capital Additions	(34,280,000)	(7,781,700)	(23,477,700)	(11,195,000)	(14,575,300)	(91,309,700)
11	Bond Issuance Expense	(1,731,400)	0	0	(150,000)	(525,000)	(2,406,400)
12	Revenue Bond Reserve Fund	(6,519,500)	0	0	(688,100)	(2,408,200)	(9,615,800)
13	Total Application of Funds	(123,236,400)	(61,778,400)	(73,297,600)	(58,318,800)	(70,460,300)	(387,091,500)
14	End of Year Balance	117,070,300	85,033,500	41,265,200	27,062,200	22,991,300	22,991,300

Table 24

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

Line No.	Description	Fiscal Year Ending December 31, 2015	2016	2017	2018	2019
		$	$	$	$	$
1	Revenue from Charges	92,500,700	93,364,800	93,299,600	93,241,000	93,189,600
2	Total Additional Revenue (a)	0	9,301,600	19,372,400	30,555,000	42,807,100
3	Total Service Charge Revenue	92,500,700	102,666,400	112,672,000	123,796,000	135,996,700
4	Interest Income	222,000	132,000	92,300	144,200	255,400
5	Plumbing Insp. & License Fees	321,500	321,500	321,500	321,500	321,500
6	Other Miscellaneous Income	288,900	288,900	288,900	288,900	288,900
7	Revenue from Internal field Review (b)	925,000	1,026,700	1,126,700	1,238,000	1,360,000
8	Sale of Water to School District	0	380,000	418,000	459,800	505,800
9	Operating & Maintenance Grants	7,858,000	0	0	0	0
10	Interest from Bond Reserve Fund	239,000	272,000	272,000	275,000	291,000
11	Total Operating Revenue	102,355,100	105,087,500	115,191,400	126,523,400	139,019,300
12	Operation & Maintenance	(55,142,000)	(56,804,900)	(58,509,300)	(60,264,400)	(62,072,300)
13	Provision for Claims	(327,600)	(337,400)	(347,600)	(358,000)	(368,700)
14	Provision for Doubtful Accounts	(1,017,500)	(1,129,300)	(1,239,400)	(1,361,800)	(1,496,000)
15	Net Operating Revenue	45,868,000	46,815,900	55,095,100	64,539,200	75,082,300
	Debt Service					
	Senior Lien Revenue Bonds					
16	Existing	(19,015,600)	(19,877,100)	(19,843,100)	(18,173,600)	(16,746,400)
17	Projected	0	(6,519,400)	(6,518,800)	(6,806,200)	(8,207,800)
18	Subtotal	(19,015,600)	(26,396,500)	(26,361,900)	(24,979,800)	(24,954,200)
19	Gulf Opportunity Zone Act Loan	(6,235,200)	(6,235,200)	(6,235,200)	(6,235,200)	(6,235,200)
20	Total Debt Service	(25,250,800)	(32,631,700)	(32,597,100)	(31,215,000)	(31,189,400)
21	Other Non-Operating Revenue	470,900	470,900	470,900	470,900	470,900
22	Transfer to Construction	(14,000,000)	(20,000,000)	(20,000,000)	(25,000,000)	(30,000,000)
23	Due from/(to) Other Departments	(2,911,000)	(2,911,000)	(486,000)	0	0
24	Transfer to Operating Reserve Fund	(12,196,900)	(1,731,400)	(440,000)	(449,900)	(465,500)
25	Transfer from/(to) Rate Stabilization Fund	0	0	0	0	0
26	Net Annual Balance	(8,019,800)	(9,987,300)	2,042,900	8,345,200	13,898,300
27	Beginning of Year Cash Balance (c)	25,554,400	17,534,600	7,547,300	9,590,200	17,935,400
28	End of Year Balance	17,534,600	7,547,300	9,590,200	17,935,400	31,833,700
29	Beginning of Year Cash Balance (c)	25,554,400	29,731,500	21,475,600	23,958,500	32,753,600
30	Operating Reserve Fund	12,196,900	1,731,400	440,000	449,900	465,500
30	Net annual Balance	(8,019,800)	(9,987,300)	2,042,900	8,345,200	13,898,300
31	End of Year Balance	29,731,500	21,475,600	23,958,500	32,753,600	47,117,400
32	Days of O&M Cash on Hand	192	135	146	193	269

(a) Reflects revenue from an eight-year series of annual 10% rate increases effective January 1, 2013; adopted by the City Council in 2012.
(b) Estimated as 1% of Total Service Charge Revenue.
(c) Reflects beginning of year balance in unrestricted and undesignated cash and cash equivalents and cash and cash equivalents designated for capital projects, less operating reserve requirement.

Table 25

Sewerage Department
Coverage Requirements

Line No.	Coverage Requirements	2014	2015	2016	2017	2018	2019
		$	$	$	$	$	$
	Projected Net Revenues						
1	Revenue Under Existing Rates (a)	86,553,300	92,500,700	102,666,400	112,672,000	123,796,000	135,996,700
2	Additional Revenue Under Proposed Rates		0	9,301,600	19,372,400	30,555,000	42,807,100
3	Interest Income	257,800	1,428,400	1,419,400	999,000	754,900	770,900
4	Plumbing and Inspection Fees	339,200	321,500	321,500	321,500	321,500	321,500
5	Revenue Sharing	317,500					
6	Other Miscellaneous Revenue	906,100	288,900	288,900	288,900	288,900	288,900
7	Revenue from Internal field Review		925,000	1,026,700	1,126,700	1,238,000	1,360,000
8	Sale of Water to School District		0	380,000	418,000	459,800	505,800
9	Operation & Maintenance Grants	383,400	7,858,000	0	0	0	0
10	Transfer from Rate Stabilization Fund		0	0	0	0	0
10	Operation & Maintenance	(47,955,800)	(55,142,000)	(56,804,900)	(58,509,300)	(60,264,400)	(62,072,300)
11	Claims	(565,200)	(327,600)	(337,400)	(347,600)	(358,000)	(368,700)
12	Provision for Doubtful Accounts	(944,200)	(1,017,500)	(1,129,300)	(1,239,400)	(1,361,800)	(1,496,000)
13	Net Revenue	39,292,100	46,835,400	57,132,900	75,102,200	95,429,900	118,113,900
	Rate Covenant Coverage						
14	Projected Net Revenues		46,835,400	57,132,900	75,102,200	95,429,900	118,113,900
	Annual Debt Service						
15	Senior Debt		19,015,600	26,396,500	26,361,900	24,979,800	24,954,200
16	Coverage (a)		246%	216%	285%	382%	473%
17	All Debt		25,250,800	32,631,700	32,597,100	31,215,000	31,189,400
18	Coverage (b)		185%	175%	230%	306%	379%
	Adjusted Rate Covenant Coverage						
19	Projected Net Revenues (c)		38,977,400	57,132,900	75,102,200	95,429,900	118,113,900
	Annual Debt Service						
20	Senior Debt		19,015,600	26,396,500	26,361,900	24,979,800	24,954,200
21	Coverage (d)		205%	216%	285%	382%	473%
22	All Debt		25,250,800	32,631,700	32,597,100	31,215,000	31,189,400
23	Coverage (d)		154%	175%	230%	306%	379%
	Additional Bond Coverage						
24	Preceding Year Projected Net Revenues		39,292,100	46,835,400	57,132,900	75,102,200	95,429,900
25	Future Additional Revenue (e)		52,841,700	56,472,600	43,330,600	30,882,200	19,580,600
26	Adjusted Projected Net Revenues		92,133,800	103,308,000	100,463,500	105,984,400	115,010,500
	Maximum Debt Service						
27	Senior Debt		26,396,500	26,396,500	26,361,900	24,979,800	26,376,000
28	Coverage (a)		349%	391%	381%	424%	436%
29	All Debt		32,631,700	32,631,700	32,597,100	31,215,000	32,611,200
30	Coverage (b)		282%	317%	308%	340%	353%

(a) The General Bond Resolution requires net revenue to equal or exceed 125% of debt service.
(b) The General Bond Resolution requires net revenue to equal or exceed 110% of debt service.
(c) Net Revenue excludes transfers from the Rate Stabilization Fund and proceeds of Operation & Maintenance Grants.
(d) The General Bond Resolution requires net revenue to equal or exceed 100% of debt service.
(e) Reflects revenue an eight-year series of annual 10% rate increases effective January 1, 2013; adopted by the City Council in 2012.

Drainage Department

2014 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.

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 26 for the period 2010 through 2014. The historical revenue shown in Table 26 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 27 presents a summary of 2010 through 2014 operation and maintenance expenses of the Drainage Department. Expenditures for 2014 decreased about 6.4 percent over 2013 expenditures. Operation and maintenance expenses have decreased an average of 1.1 percent per year over the five-year period shown. Historical operation and maintenance expenses shown in Table 27 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 13 in Table 35.

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 2014, exclusive of prorated interest expenses totaled $47,956,239. The Drainage Department's capital improvement expenditures for the year are shown in Table 28.

Summary of Operations

The following tabulation shows a summary of receipts and expenditures of the Drainage Department during 2014:

Total Revenues	$49,014,535
Operation and Maintenance Expense	29,859,424
Claims	736,306
Debt Service Payments	912,547
Revenue Primarily Available for Capital Expenditures [a]	**$17,506,258**

[a] Excludes depreciation.

PROPOSED CAPITAL IMPROVEMENT PROGRAM

Table 29 presents a summary of the projected major capital improvement program for the period 2015 through 2019. Table 29 is based on the Board's 2015-2024 Capital Program. The five-year major capital improvement program costs are expected to total $619,812,000. 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 30, future revenues from these sources are estimated by the Board in the 2015 through 2024 Capital Program according to capital project and amount to $354,499,000, 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 2016.

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 2014, 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 31. 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 2014 assessed taxable value. The three-mill ad valorem tax will expire in 2017.

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 2015 through 2019 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 32. 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 2015 reflect the Board's adopted 2015 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 2015.

Debt Service Requirements

Nine-mill bonds in the amount of $14,900,000 were issued in 2014, and as of December 31, 2014, $14,900,000 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.

The Drainage Department has borrowed 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 34 examines the financing of the major capital improvement program and Table 35 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.

Capital Projects Funding

Table 34 presents the major capital improvement financing plan which summarizes the projected source and application of funds over the five-year study period. The amount of Funds Available at Beginning of Year, shown on Line 1, is $20,866,300. This amount is based on audited data provided by the Board.

Projected revenue bond proceeds are shown on Line 2; however, it is projected that the Board will not have the capacity to issue additional bonds during the study period. In addition, it is anticipated that the Board will not have the capacity to finance the major capital improvement program with operating revenue as shown on Line 3.

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 4 includes anticipated funding by the U.S. Army Corps of Engineers (COE) and FEMA as well as others. Interest earnings recognize an assumed 1.0 percent average annual interest rate and are shown on Line 6. Line 6 of the table shows the projected major capital improvement funds available each year.

As of December 31, 2014, the Board had $13,387,300 obligated for open contracts and capital jobs as shown on Line 7 of Table 34. Lines 8 and 9 show the projected Reinvestment in Assets and Major Capital Additions to be funded as shown in Table 29. Due to constraints on revenue, it is anticipated that the capital projects during the 5-year period will exceed the amount of funding available and some projects will need to be deferred until an additional revenue source has been identified. This deferral is shown on Line 10.

The Total Application of Funds is shown on Line 13 of Table 11. The net End of Year Balance is shown on Line 14.

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 35. The three-mill ad valorem tax will expire in 2017.

Other revenue available for system operations is shown on Lines 4 through 6. Miscellaneous revenue on Line 4 includes rental income, gain or loss on the sale of assets and other miscellaneous 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. Interest from the Bond Reserve Fund, shown on Line 6, is estimated to be 1.0 percent. Total Operating Revenue is shown on Line 7 of Table 35.

Operation and Maintenance expense, previously projected in Table 32, is shown on Line 8 of Table 35. Line 9 shows the estimated allowance for claims. Bad debt expense is assumed to be 0.5 percent of projected revenue and is shown on Line 10. Projected Net Operating Revenue from system operations is shown on Line 11.

As previously mentioned, the *Financial Plan and Rate Study 2011-2020* indicated that additional operating revenue is needed to help fund the capital program. With the loss of revenue from the three-mill ad valorem tax beginning in 2018, operating revenue in 2018 and 2019 will not be sufficient to fund projected operation and maintenance expenses in those years.

Lines 12 through 14 present debt service requirements on currently outstanding and proposed senior revenue bonds. Existing debt includes the Series 2014 bonds. As previously mentioned, it is projected that the Board will not have the capacity to issue additional bonds during the study period.

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 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 in July 2012 and are shown on Line 15 of Table 35.

Line 16 reflects the estimated SELA repayments that will begin in 2018. Total debt service is shown on Line 17.

Anticipated non-operating revenue is shown on Line 18 and consists of reimbursements from Jefferson Parish for drainage pump stations #6 and #11 and FEMA. Line 19 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 20 reflects repayment from the Water Department and repayment to the Department of Public Works as well as repayment to claimants.

It is intended that the Drainage Department maintain an operating reserve equal to 45 days of the previous year's operation and maintenance expense. Line 21 indicates the amount needed to fully fund the operating reserve in 2015 followed by projected annual transfers to meet this goal throughout the study period. While the balance in the operating reserve can be used to help fund the unfunded operating expenses in 2018, it will not be sufficient to completely eliminate the deficit in net operating revenue shown on Line 11.

Line 22 indicated the estimated Net Annual Balance from operations remaining at the end of each year. The net balance of operating funds available at the beginning of the year 2014, shown on Line 23, is comprised of current cash assets and reflects a balance of $15,453,600.

The End of Year Balance, which is exclusive of the operating reserve fund, is shown on Line 24 and indicates that operating revenue will not be sufficient beginning in 2018 to fund the revenue requirements projected for the Drainage System.

Lines 25 through 29 demonstrate that the Board will not be able to maintain an operating reserve equal to at least 45 days of the previous year's operation and maintenance expense unless an alternative source of operating us identified or the three-mill ad valorem tax is reauthorized in 2017.

Bond Coverage Requirements

A requirement of the Drainage Bond Resolution provides that revenues derived from the nine-mill ad valorem tax should provide an amount sufficient to provide for the interest and principle payment on the Series 2014 bonds. As shown on Line 30 of Table 35 the projected revenue from the nine-mill ad valorem tax will provide sufficient revenue to meet coverage requirements on existing debt during the study period.

The Drainage Bond Resolution also provides that additional parity bonds may be issued, but only after certain conditions have been met. One condition is that the revenues derived from the nine-mill

ad valorem tax for the most recently completed calendar year prior to the year of issuance are equal to at least one and one-third (1-1/3) times the maximum debt service on all bonds outstanding and the additional bonds. In order to meet this requirement, a significant portion of capital improvements must be deferred as previously mentioned. Black & Veatch suggests that when a new funding source is developed, the Board work with its bond counsel and financial advisor to refund all outstanding debt at that time and issue new debt reflecting a general bond resolution that includes the new funding source and all other revenue in the coverage calculation and reflects covenants more consistent with the 2014 water and sewerage resolutions. It is anticipated that the Board will have the capacity to debt finance more projects under the new resolution.

Table 26

Drainage Department
Statement of Historical Revenue

Revenue Source	2010	2011	2012	2013	2014
	$	$	$	$	$
Three-mill Ad Valorem Tax	10,378,060	11,129,376	12,497,723	13,175,711	13,481,526
Six-mill Ad Valorem Tax	10,498,580	11,242,927	12,630,977	13,317,505	13,626,539
Nine-mill Ad Valorem Tax	15,672,791	16,855,081	18,933,290	19,962,114	20,425,388
Two-mill Ad Valorem Tax	1,045	4,870	0	0	0
Interest Earned	167,166	128,571	109,748	92,615	203,832
Other	1,196,275	1,107,419	1,103,330	1,099,908	1,277,250
Total Revenue	37,913,917	40,468,244	45,275,067	47,647,853	49,014,535

Table 27

Drainage Department
Historical Operation and Maintenance Expenses (a)

Department	2010	2011	2012	2013	2014
	$	$	$	$	$
Management and General Expenses					
Administrative	1,504,269	2,374,723	2,787,387	2,667,971	2,739,737
Management Services Director	23,226	23,619	24,351	26,912	21,699
Building and Grounds and Support Services	3,505,448	3,608,126	3,111,286	2,819,352	1,886,304
Personnel Administration	284,354	276,123	349,217	313,814	284,568
Finance Administration	785,102	847,924	829,391	778,042	491,229
Information Systems	1,437,571	1,523,561	1,429,881	1,440,642	1,408,737
Purchasing	225,852	212,508	204,325	208,849	197,402
Total Management and General	7,765,821	8,866,583	8,735,837	8,255,582	7,029,676
Operations Expenses					
General Superintendent	178,217	172,673	182,266	197,524	132,867
Drainage Pumping and Central Control	6,466,087	6,047,653	6,190,023	6,207,029	7,194,427
Chief of Operations	67,543	68,776	137,430	62,056	62,065
Water Pumping and Power	5,354,188	5,319,545	5,157,859	4,803,226	6,217,290
Chief of Facilities Maintenance	92,316	130,206	252,134	128,281	132,236
Facilities Maintenance	2,586,461	2,614,209	2,881,080	3,277,534	3,666,058
Central Yard	1,788,429	1,934,652	2,234,033	2,188,673	1,719,460
Office of Chief of Network	50,617	90,334	63,599	67,731	109,386
Networks	2,176,076	2,074,839	2,250,380	2,138,902	598,018
Engineering	1,352,670	1,406,861	1,439,825	1,764,068	1,081,752
Total Operations	20,112,603	19,859,748	20,788,628	20,835,024	20,913,560
Other Expenses					
Special Accounts	932,188	897,176	901,912	1,060,183	1,023,857
Payroll Related Expenses	5,509,813	5,790,140	4,979,183	5,397,924	3,959,586
Overhead Allocation	(3,078,386)	(3,333,228)	(3,573,827)	(3,654,904)	(3,067,254)
Total Other	3,363,616	3,354,088	2,307,268	2,803,202	1,916,188
Total Operation and Maintenance (b)	31,242,040	32,080,419	31,831,734	31,893,808	29,859,424

(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

(b) Source: Expenditure Analysis by Group Report.

Table 28

Drainage Department
Capital Expenditures (a)
2014

C.P. #	Project	Actual Expenditures
		$
	Canals	
418	Normal Extensions & Replacements	160,347
439	Major Drainage Participation in DPW Projects	3,844
466	Louisiana Avenue Canal (SELA)	548,180
471	SELA Program Management	2,107,472
478	S. Claiborne-Lowerline to Monticello Street	2,121,032
480	FEMA Review of Change Orders-Drainage	12,494,056
486	Napoleon Canal Improvements (SELA-B)	1,698,525
497	Florida Ave. Canad - DPS#19 to Peoples Ave. (SELA-B)	12,379,021
498	Dwyer Intake Canal (St. Charles to Dwyer DPS) (SELA-A)	901,604
499	Jefferson Avenue Canal	6,122,638
	Total Drainage Canals	38,536,721
	Pumping Stations	
511	Normal Extensions & Rep./Stations	7,795
574	Hurricane Katrina Expenses for Drainage System	(605)
575	Drainage Hurricane Recovery Bonds	467,935
	Total Drainage Pumping Stations	475,125
	Power Projects and General Budget	
600	Drainage Share of Power Projects	2,491,420
703	Drainage Reserve for Emergency	2,884,371
800	Drainage Share of General Budget Items	3,568,602
	Total Power Projects and General Budget	8,944,393
	Total Drainage Department	47,956,239

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

Table 29

Drainage Department
Projected Capital Improvements (a)

C.P.#	Project	2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
	Reinvestment in Assets						
418	Normal Ext. & Replacements	750,000	750,000	770,000	770,000	790,000	3,830,000
511	Normal Ext. & Replacement - Stations	17,498,000	39,010,000	18,225,000	30,156,000	8,803,000	113,692,000
600	Drainage Share of Power Projects	87,189,000	2,093,000	10,157,000	10,480,000	6,140,000	116,059,000
703	Drainage Reserve for Emergencies	700,000	700,000	700,000	700,000	700,000	3,500,000
800	Drainage Share of General Budget Items	10,973,000	7,428,000	6,534,000	4,692,000	4,362,000	33,989,000
	Total Routine Capital Improvements	117,110,000	49,981,000	36,386,000	46,798,000	20,795,000	271,070,000
	Major Capital Improvements						
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	5,992,000	0	15,000,000	100,000	0	21,092,000
466	Louisiana Ave. Canal	600,000	600,000	600,000			1,800,000
471	SELA Program Management	1,500,000	1,500,000	1,500,000			4,500,000
472	Tchoupitoulas Corridor	0	0	250,000	12,000,000	0	12,250,000
478	S. Claib - Lowerline to Monticello St.	220,000	220,000	0	0	0	440,000
483	Airline & Monticello Canal Improvements	50,000	948,000	30,000,000	500,000	0	31,498,000
486	Napoleon Avenue Canal Improvements	450,000	300,000	0	0	0	750,000
492	Donner Canal Improvements	0	17,000	595,000	84,710,000	0	85,322,000
496	General De Gaulle Canal	0	0	52,500,000	70,000,000	0	122,500,000
497	Florida Avenue Canal - DPS #19 to Peoples	950,000	300,000	0	0	0	1,250,000
498	Dwyer Intake Canal	50,000	0	0	0	0	50,000
499	Jefferson Avenue Canal	910,000	910,000	510,000	0	0	2,330,000
512	Expansion of DPS #15	1,220,000	14,500,000	0	0	0	15,720,000
535	DPS #6	0	0	500,000	1,000,000	1,000,000	2,500,000
573	DPS #13 Improvements	0	440,000	6,000,000	1,000,000	11,000,000	18,440,000
575	Drainage Hurricane Recovery Bonds	6,600,000	0	0	0	0	6,600,000
578	Permanent Pump Stations at the Laek Elaine DPS Repairs	0	0	200,000	0	0	200,000
	Total Major Capital Improvements	22,842,000	24,035,000	111,955,000	173,610,000	16,300,000	348,742,000
	Total Drainage Department Improvements	139,952,000	74,016,000	148,341,000	220,408,000	37,095,000	619,812,000

(a) The improvements for 2015-2019 are based on the Amended 2015 Capital Budget and 2015-2024 Capital Program approved August 19, 2015.

Table 30

Drainage Department
Projected Participation by Others (a)

C.P.#	Project	2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
418	Normal Extensions& Replacements	230,000	230,000	230,000	230,000	230,000	1,150,000
453	Improvements to Metairie Relief Canal	5,992,000	0	15,000,000	100,000	0	21,092,000
472	Tchoupitoulas Corridor	0	0	0	1,850,000	0	1,850,000
483	Airline & Monticello Canal Improvements	50,000	948,000	30,000,000	500,000	0	31,498,000
492	Donner Canal Improvements	0	0	0	82,500,000	0	82,500,000
496	General De Gaulle Canal	0	0	52,500,000	52,500,000	0	105,000,000
511	Normal Ext. & Replacement -DPS	1,013,000	13,458,000	0	0	0	14,471,000
535	DPS #6	0	0	160,000	320,000	320,000	800,000
575	Hurricane Recovery Bonds	6,600,000	0	0	0	0	6,600,000
613	Modifications to Power Generating System	5,330,000	0	0	0	0	5,330,000
676	Modifications to Power Generating System HMGP	74,692,000	571,000	8,299,000	0	0	83,562,000
807	Improvements to Central Yard and St. Joseph St	646,000	0	0	0	0	646,000
	Total	94,553,000	15,207,000	106,189,000	138,000,000	550,000	354,499,000

(a) The improvements for 2015-2019 are based on the Amended 2015 Capital Budget and 2015-2024 Capital Program approved August 19, 2015.

Table 31

Drainage Department
Projected Operating Revenue

Year	Ad Valorem Tax Revenue			Other	Total
	Three-Mill	Six-Mill	Nine-Mill		
	$	$	$	$	$
2015	14,052,600	14,201,900	21,240,400	581,700	50,076,600
2016	14,052,600	14,201,900	21,240,400	588,000	50,082,900
2017	14,333,700	14,485,900	21,665,200	594,000	51,078,800
2018	0	14,775,600	22,098,500	600,000	37,474,100
2019	0	15,071,100	22,540,500	606,000	38,217,600

Table 32

Drainage Department
Projected Operation and Maintenance Expenses

Department	2015 (a)	2016	2017	2018	2019
	$	$	$	$	$
Management and General Expenses					
Administrative	3,011,600	3,102,000	3,195,000	3,290,900	3,389,600
Management Services Director	0	0	0	0	0
Building and Grounds and Support Services	4,198,700	4,324,600	4,454,400	4,588,000	4,725,700
Personnel Administration	556,000	572,700	589,900	607,600	625,800
Finance Administration	543,100	559,400	576,200	593,400	611,200
Information Systems	2,193,500	2,259,300	2,327,100	2,396,900	2,468,800
Revenue and Customer Service	129,100	132,900	136,900	141,000	145,300
Purchasing	173,900	179,200	184,500	190,100	195,800
Total Management and General	10,805,900	11,130,100	11,464,000	11,807,900	12,162,200
Operations Expenses					
General Superintendent	139,000	143,200	147,500	151,900	156,500
Drainage Pumping and Central Control	7,996,100	8,236,000	8,483,100	8,737,600	8,999,700
Chief of Operations	323,000	332,700	342,700	353,000	363,500
Water Pumping and Power	12,028,200	12,389,100	12,760,800	13,143,600	13,537,900
Water Purification	171,100	176,200	181,500	187,000	192,600
Chief of Facilities Maintenance	394,800	406,600	418,800	431,400	444,300
Facilities Maintenance	3,553,600	3,660,200	3,770,000	3,883,100	3,999,600
Central Yard	1,470,100	1,514,200	1,559,700	1,606,400	1,654,600
Office of Chief of Network	192,000	197,800	203,700	209,800	216,100
Networks	529,100	545,000	561,300	578,200	595,500
Engineering	1,354,100	1,394,700	1,436,600	1,479,700	1,524,000
Total Operations	28,151,100	28,995,700	29,865,700	30,761,700	31,684,300
Other Expenses					
Special Accounts	1,718,200	1,769,700	1,822,800	1,877,500	1,933,800
Payroll Related Expenses	1,931,100	1,989,000	2,048,700	2,110,200	2,173,500
Overhead Allocation	(3,390,000)	(3,482,700)	(3,587,100)	(3,694,800)	(3,805,500)
Total Other	259,300	276,000	284,400	292,900	301,800
Total Operation and Maintenance	39,216,300	40,401,800	41,614,100	42,862,500	44,148,300

(a) Represents the adopted operating budget as of January 1, 2015.

Table 33

Drainage Department
Debt Service Requirements

Debt Issue		2015	2016	2017	2018	2019
		$	$	$	$	$
Nine-Mill Tax Bonds						
Series 2014		2,014,400	2,037,600	2,051,900	2,063,400	2,069,200
Total Nine-Mill Debt Service		2,014,400	2,037,600	2,051,900	2,063,400	2,069,200
Projected Bonds						
	Amount of Issue					
	$					
2015	0	0	0	0	0	0
2016	0		0	0	0	0
2017	0			0	0	0
2018	0				0	0
2019	0					0
Total Projected Debt Service		0	0	0	0	0
Total Debt Service		2,014,400	2,037,600	2,051,900	2,063,400	2,069,200

Table 34

Drainage Department
Capital Improvement Program Financing

Line No	Description	Fiscal Year Endiing December 31, 2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$
1	Funds Available at Beginning of Year	20,866,300	186,000	9,662,100	996,800	957,000	20,866,300
2	Revenue Bond Proceeds	0	0	0	0	0	0
3	Operation Fund Transfers	0	0	0	0	0	0
4	Participation by Others	94,553,000	15,663,200	112,655,900	150,796,300	619,000	374,287,400
5	Interest Income	106,000	49,400	53,800	9,600	9,000	227,800
6	Total Funds Available	115,525,300	15,898,600	122,371,800	151,802,700	1,585,000	395,381,500
7	Obligated Contracts & Capital Jobs	(13,387,300)	0	0	0	0	(13,387,300)
8	Revinvestment in Assets	(117,110,000)	(51,480,400)	(38,601,900)	(51,137,400)	(23,405,000)	(281,734,700)
9	Major Capital Additions	(22,842,000)	(24,756,100)	(118,773,100)	(189,708,300)	(18,345,800)	(374,425,300)
10	Deferred Capital Improvements	38,000,000	70,000,000	36,000,000	90,000,000	41,000,000	275,000,000
11	Bond Issuance Expense	0	0	0	0	0	0
12	Revenue Bond Reserve Fund	0	0	0	0	0	0
13	Total Application of Funds	(115,339,300)	(6,236,500)	(121,375,000)	(150,845,700)	(750,800)	(394,547,300)
14	End of Year Balance	186,000	9,662,100	996,800	957,000	834,200	834,200

Table 35

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

Line No	Description	Fiscal Year Endiing December 31, 2015	2016	2017	2018	2019
		$	$	$	$	$
1	Three-Mill Ad Valorem Tax Revenue (4.66 Mills) (a	14,052,600	14,052,600	14,333,700	0	0
2	Six-Mill Ad Valorem Tax Revenue (4.71 Mills)	14,201,900	14,201,900	14,485,900	14,775,600	15,071,100
3	Nine-Mill Ad Valorem Tax Revenue (7.06 Mills)	21,240,400	21,240,400	21,665,200	22,098,500	22,540,500
4	Other Miscellaneous Income	581,700	588,000	594,000	600,000	606,000
5	Interest Income	178,900	213,900	259,400	204,200	34,000
6	Interest from Bond Reserve Fund	0	0	0	0	0
7	Total Operating Revenue	50,255,500	50,296,800	51,338,200	37,678,300	38,251,600
8	Operation & Maintenance	(39,216,300)	(40,401,800)	(41,614,100)	(42,862,500)	(44,148,300)
9	Provision for Claims	(995,900)	(1,025,800)	(1,056,500)	(1,088,200)	(1,120,900)
10	Provision for Doubtful Accounts	(247,500)	(247,500)	(252,400)	(184,400)	(188,100)
11	Net Operating Revenue	9,795,800	8,621,700	8,415,200	(6,456,800)	(7,205,700)
	Debt Service					
	Senior Lien Revenue Bonds					
12	Existing	(2,014,400)	(2,017,100)	(2,024,100)	(2,028,400)	(2,028,600)
13	Projected	0	0	0	0	0
14	Subtotal	(2,014,400)	(2,017,100)	(2,024,100)	(2,028,400)	(2,028,600)
15	Gulf Opportunity Zone Act Loan	(407,600)	(407,600)	(407,600)	(407,600)	(407,600)
16	SELA Capital Repayment	0	0	0	(8,300,000)	(8,300,000)
17	Total Debt Service	(2,422,000)	(2,424,700)	(2,431,700)	(10,736,000)	(10,736,200)
18	Other Non-Operating Revenue	701,700	701,700	701,700	701,700	701,700
19	Transfer to Construction	0	0	0	0	0
20	Due from (to) Other Departments	(771,800)	(2,196,000)	(921,000)	0	0
21	Transfer to Operating Reserve Fund	(3,752,900)	(1,235,200)	(149,800)	(153,900)	(149,400)
22	Net Annual Balance	3,550,800	3,467,500	5,614,400	(16,645,000)	(17,389,600)
23	Beginning of Year Cash Balance (b)	15,453,600	19,004,400	22,471,900	28,086,300	11,441,300
24	End of Year Balance	19,004,400	22,471,900	28,086,300	11,441,300	(5,948,300)
25	Beginning of Year Cash Balance	15,453,600	22,757,300	26,224,800	31,839,200	15,194,200
26	Operating Reserve Fund	3,752,900				
27	Net annual Balance	3,550,800	3,467,500	5,614,400	(16,645,000)	(17,389,600)
28	End of Year Balance	22,757,300	26,224,800	31,839,200	15,194,200	(2,195,400)
29	Days of O&M Cash on Hand	212	237	279	129	(18)
30	Annual Test (c)	1054.4%	1053.0%	1070.4%	1089.5%	1111.1%
31	Additional Bonds Test (d)	1038.7%	1038.7%	1059.4%	1080.6%	1102.2%

(a) The Three-Mill Ad Valorem Tax will expire at the end of 2017.
(b) Reflects beginning of year balance in unrestricted and undesignated cash and cash equivalents and cash and cash equivalents designated for capital projects, less operating reserve requirement.
(c) The General Bond Resolution requires Nine-Mill Ad Valorem Tax Revenue to equal or exceed 100% of annual debt service.
(d) The General Bond Resolution requires Nine-Mill Ad Valorem Tax Revenue to equal or exceed 133% of maximum annual debt service.

Appendix

Assessment of East Bank Sewage Stations

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
1	06/25/15	Chickasaw	A	Chickasaw at Metropolitan	Two (2) pumps total; both operational
2	06/25/15	K-Mart	A	Desire at Gentilly	Two (2) pumps total; both operational
3	06/25/15	Station 23	A	4500 Mithra	Three (3) pumps total, one portable pump outside; two (2) operational, Pump #1 out of service
4	06/25/15	Station 17	A	4975 Spain at Selma	Two (2) pumps total; both operational
5	06/25/15	Station 22	A	5705 Perlita	Two (2) pumps total; both operational
6	06/25/15	Station 19	A	3730 Jumonville at Milton	Two (2) pumps total; both operational
7	06/25/15	Station 21	A	6670 Memphis At Filmore	Three (3) pumps total, one portable pump outside; one (1) operational, Pump #1 out of service, portable pump not in use
8	06/25/15	Station 18	A	Vicksburg at Florida	Two (2) pumps total; Pump #1 out of service
9	06/25/15	City Park	A	5701 Marconi Drive	Two (2) pumps total; both operational
10	06/25/15	Station 20	A	328 37th Street	Two (2) pumps total; one (1) operational, one (1) out of service
11	06/25/15	Station 4	A	5899 Fleur de Leis	Two (2) pumps total; both operational
12	06/25/15	Lakewood South	A	Country Club Drive near Marconi	Two (2) pumps total; both operational
13	06/25/15	Station 6	A	242 S Solomon at Palmyra	Station being re-built. One (1) pump total; portable pump outside operational
14	06/25/15	Station 3	A	8720 Olive near Eagle	Two (2) pumps total; both operational
15	06/25/15	Station 1	A	7336 Cohn	Two (2) pumps total; both operational
16	06/25/15	Station 14	A	4000 Clara	Two (2) pumps total; both operational
17	06/25/15	Station 5	A	3912 Erato St	Two (2) pumps total; both operational

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
18	06/25/15	Station 15	A	2431 Palmyra near Rocheblave	Three (3) pumps; two (2) operational, Pump #1 out of service
19	06/25/15	Station 8	A	Corner of N Broad and Toulouse	Two (2) pumps total; both operational
20	06/25/15	Station 9	A	2540 Annette at Law	Two (2) pumps total; both operational
21	06/29/15	Station 16	B	3751 N Miro at Pauline	Two (2) pumps total; both operational
22	06/29/15	Station 24	B	5027 N Tonti at Forstall	Two (2) pumps total; both operational
23	06/29/15	Station 25	B	2245 Charbonnet	
24	06/29/15	Station 26	B	2244 St Maurice at Tonti	Two (2) pumps total; both operational
25	06/29/15	Station B	B	4725 St Claude Avenue	Two (2) pumps total; both operational
26	06/29/15	Southern Scrap	B	Southern Scrap Rd	Two (2) pumps total; both operational
27	06/29/15	France & Florida	B	Harbor Rd	Two (2) pumps total; both operational
28	06/29/15	MECO	B	2701 France Road	Two (2) pumps total; both operational
29	06/29/15	American Marine	B	3855 France Road	Two (2) pumps total; both operational
30	06/29/15	Victoria @ Gentilly	B	3620 Victoria	Two (2) pumps total; both operational
31	06/29/15	Dodt	B	8118 Chef Menteur Highway	Station being re-built. One (1) pump total; portable pump outside operational
32	06/29/15	Plum & Orchid	B	7300 Chef Menteur Highway	Station being re-built. One (1) pump total; portable pump outside operational
33	06/29/15	Wilson	B	7709 Wilson Avenue	Two (2) pumps total; both operational
34	06/29/15	Crowder	B	5500 Crowder Road	Two (2) pumps total; both operational
35	06/29/15	Castle Manor	B	4950 Gawain at Dwyer	Two (2) pumps total; both operational
36	06/29/15	Cerise	B	5001 Cerise	Two (2) pumps total; both operational

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
37	06/29/15	Lakewood Terrace	B	5057 Warren Drive	Two (2) pumps total; both operational
38	06/29/15	McCoy	B	McCoy at Gentilly	Two (2) pumps total; both operational
39	06/29/15	Amid	B	6800 Almonaster Road	Two (2) pumps total; both operational
40	06/29/15	Lake Forest	B	10451 Lake Forest Blvd	Station being re-built. One (1) pump total; portable pump outside operational
41	06/29/15	Wright Road	B	Wright Road at Lake Forest	Two (2) pumps total; both operational
42	06/29/15	Bullard	B	5501 Bullard Road	Station being re-built. One (1) pump total; portable pump outside operational
43	06/29/15	Pines Village	B	6155 Dwyer Road at Foch	Two (2) pumps total; both operational
44	06/29/15	America	B	6789 Dwyer Road at Westlake	Two (2) pumps total; both operational
45	06/29/15	Station A	B	1321 Orleans Avenue	Six (6) pumps total; all operational
46	06/22/15	Shorewood	C	14441 Morrison Road	Two (2) pumps total; both operational
47	06/22/15	Briarwood	C	13701 Morrison Road	Two (2) pumps total; both operational
48	06/22/15	Liggett	C	12501 Morrison Road	Two (2) pumps total; both operational
49	06/22/15	Berg	C	11501 Morrison Road	Two (2) pumps total; both operational
50	06/22/15	Weber	C	10141 Morrison Road	Two (2) pumps total; both operational
51	06/22/15	Burke	C	9001 Morrison Road	One portable pump (diesel powered); pump station being re-built
52	06/22/15	Lawrence	C	7900 Morrison Road	One portable pump (electric powered); pump station being re-built
53	06/22/15	Lamb	C	6450 Morrison Road	Two (2) pumps total; both operational
54	06/22/15	Gentilly Oaks	C	5000 Papania Road at Vienna	Two (2) pumps total; both operational
55	06/22/15	Eastover	C	6051 Eastover Drive	Two (2) pumps total; both operational
56	06/22/15	Paris Road	C	Dwyer West of Paris Road	Two (2) pumps total; both operational

	DATE	FACILITY NAME	ROUTE	LOCATION	STATUS
57	06/22/15	Venetian Isles #2	C	20711 Old Spanish Trail	Two (2) pumps total; both operational
58	06/22/15	Industrial Parkway	C	4200 Industrial Parkway	Two (2) pumps total; Pump #2 not working
59	06/22/15	Blvd X	C	4433 Chef Menteur Highway	Four (4) pumps total; two (2) temporary pumps operational, two (2) pumps out of service
60	06/22/15	Alcee Fortier	C	Alcee Fortier Blvd at the Levee	Two (2) pumps total; both operational
61	06/22/15	Willow Brook	C	Willowbrook off of Michoud	Two (2) pumps total; both operational
62	06/22/15	Oak Island	C	14201 Michoud Blvd	Two (2) pumps total; both operational
63	06/22/15	Village de Lest	C	11324 Dwyer	Two (2) pumps total; both operational
64	06/22/15	Michoud	C	4400 Michoud Blvd	Two (2) pumps total; both operational
65	06/22/15	Folgers	C	14601 Gentilly Blvd	Two (2) pumps total; both operational

Assessment of West Bank Sewage Stations

	DATE	FACILITY NAME	LOCATION	STATUS
1	06/23/15	Memorial	2501 Memorial Park Dr	Two (2) pumps total; both operational
2	06/23/15	Garden Oaks	3201 Memorial Park Dr	Two (2) pumps total; both operational
3	06/23/15	Park Timbers	4100 Lennox Blvd	Two (2) pumps total; both operational
4	06/23/15	Tall Timbers	3800 Tall Pines Dr	Two (2) pumps total; both operational
5	06/23/15	Forest Isle	5631 West Forest Park Dr	Two (2) pumps total; one (1) pump operational
6	06/23/15	Blair	3800 Blair St	Two (2) pumps total; both operational
7	06/23/15	Aurora	6000 Carlisle Ct	Two (2) pumps total; both operational
8	06/23/15	English Turn I	2201 Stanton Rd	Two (2) pumps total; both operational
9	06/23/15	English Turn II	123 ½ Oak Alley	Two (2) pumps total; both operational
10	06/23/15	English Turn III		Two (2) pumps total; both operational
11	06/23/15	Lower Coast	3700 Old Woodland	Two (2) pumps total; both operational
12	06/23/15	Woodland	4150 Woodland Dr	Two (2) pumps total; both operational
13	06/23/15	Eton	3440 Eton St	Two (2) pumps total; both operational
14	06/23/15	Huntlee	3201 Huntlee Dr	Two (2) pumps total; both operational

	DATE	FACILITY NAME	LOCATION	STATUS
15	06/23/15	Holiday	2799 Holiday Dr	Two (2) pumps total; both operational
16	06/23/15	Bridge Plaza	2914 Vespasian St	Two (2) pumps total; both operational
17	06/23/15	Horace	3301 Lawrence St	Two (2) pumps total; both operational

Assessment of East Bank Drainage Stations

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
1	07/07/15	Station 1	2501 S. Broad St	Eleven (11) pumps total; ten (10) operational, No. 1 constant duty pump not in service	
2	07/06/15	Station 6	345 Orpheum	Fourteen (14) pumps total; twelve (12) pumps operational, 2 constant duty pumps out of service	New house generator & transformer. New storm windows, doors, and new roof constructed
3	07/06/15	I-10 Station	I-10 Service Road	Four (4) pumps total; four (4) pumps operational	
4	07/06/15	Station 7	5741 Orleans Ave at Marconi Dr	Five (5) pumps total; five (5) pumps operational	
5	07/06/15	Canal Blvd	5500 Canal Blvd	Three (3) pumps total; two (2) pumps operational, one (1) is being refurbished	
6	07/07/15	Station 2	444 N. Broad St	Six (6) pumps total; all operational	
7	07/06/15	Station 3	2251 N Broad St	Nine (9) pumps total; all in service	
8	07/06/15	Pritchard	2901 Monticello	Three (3) pumps total; all in service	Diesel engine not in service.
9	07/06/15	Oleander	9400 Oleander	Three (3) pumps total; three (3) in service	
10	07/01/15	Station 4	5700 Warrington Dr	Six (6) pumps total; one (1) in service	Pump E out of service
11	07/06/15	Station 12	Robert E Lee and Ponchartrain Blvd	One (1) pump total, one (1) in service	
12	07/01/15	Station 16	Danube Rd at Wales	Four (4) pumps total; all in service	

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
13	07/01/15	Station 10		Four (4) pumps total; all in service	
14	07/02/15	Station 14	Oneida at Haynes	Four (4) pumps total; Two (2) out of service	
15	07/02/15	Grant	Grant St at Gentilly Blvd	Six (6) pumps total; five (5) in service	Two (2) pumps inside, both operational;
16	Four (4) pumps outside, Three (3) operational				
17	07/02/15	Elaine		Two (2) pumps total; both operational	
18	07/07/15	Station 17	2801 Florida Ave	Two (2) pumps total; all in service	Two (2) drainage pumps operating on one motor. Three (3) sewage pumps also at this facility; all operational
19	07/01/15	Station 5	Florida Ave	Eight (8) pumps total; all operational	Six (6) pumps at old station, Two (2) pumps at new station
20	07/01/15	Station 19	4500 Florida Ave	Five (5) pumps total; all in service	
21	07/02/15	Station 20	6300 Intercostal Waterway at Terminal Rd	Two (2) pumps total; one (1) operational, one (1) out of service	Pump #1 out of service
22	07/02/15	Station 15	Industrial Parkway	Three (3) pumps total; all in service	
23	07/01/15	Dwyer	5801 Dwyer Rd	Three (3) pumps total; all in service	Newly constructed pump station

Assessment of West Bank Drainage Stations

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
1	07/07/15	Station 11	5301East Sixth St	Five (5) pumps total; four (4) pumps operational	Stations has four (4) major pumps and one (1) constant duty pump, one (1) major pump out of service
2	07/07/15	Station 13	4201 Tall Spruce Dr	Seven (7) pumps total; all in service	