

REPORT ON OPERATIONS FOR 2017

B&V PROJECT NO. 199395

PREPARED FOR

Sewerage and Water Board of New Orleans

22 JULY 2019



MISSION STATEMENT

We serve the people of New Orleans and improve their quality of life by providing safe drinking water, removing waste water for safe return to the environment and draining storm water to protect our community. Our team of experts do this reliably, continuously, and at a reasonable cost.

VISION STATEMENT

Our vision is to earn and hold the trust and confidence of our customers and community for reliable and sustainable water services and to be a model utility in the water industry.

OUR GUIDING PRINCIPLES

Team Work
Customer Focus
Honesty & Integrity
Service Excellence
Safety
Workplace Climate
Accountability



BLACK & VEATCH

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July 22, 2019

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

Dear Board Members:

In accordance with our agreement, we are submitting this Report on Operations of the Water, Sewerage, and Drainage Departments for the year 2017. The report presents the findings of our analysis to confirm compliance with the covenants of the General Water Revenue Bond Resolution and the General Sewerage Revenue Bond Resolution.

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

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

Very truly yours,
BLACK & VEATCH MANAGEMENT CONSULTING, LLC

A handwritten signature in blue ink that reads "Anna White".

Anna White
Principal Consultant

Enclosure



Table of Contents

Table of Contents	i
Introduction	1
Purpose and Scope.....	1
Definitions.....	1
History.....	1
Water Department.....	2
Sewerage Department.....	2
Drainage Department.....	2
General.....	3
Sources of Financial Data.....	4
Summary of Findings.....	4
Water Department.....	4
Sewerage Department.....	5
Drainage Department.....	5
Other Findings.....	5
2017 Power and Pumping Emergency Event.....	6
Facilities Evaluation – Operation, Maintenance, and Reconstruction	7
Introduction.....	7
Staffing.....	8
Water Purification Plants.....	9
Carrollton Water Purification Plant.....	9
Algiers Water Purification Plant.....	11
Water Quality Laboratory.....	12
Water Pumping and Power.....	13
Central Control.....	15
Sewage Treatment Plants.....	16
East Bank Sewage Treatment Plant.....	16
West Bank Sewage Treatment Plant.....	17
Sewerage and Drainage Pumping Stations.....	19
Facility Maintenance.....	19
Engineering.....	21
Networks.....	23
Support Services.....	25
Environmental Affairs.....	27
Status of Consent Decree for Sewerage System.....	30

Summary of Findings.....	31
Water Department	33
Adherence to Water Revenue Bond Resolution Requirements	33
Payment of Indebtedness; Limited Obligations.....	33
Limitations on Indebtedness.....	33
Covenants and Representations of Board	33
Covenants with Credit Banks, Insurers, etc.	33
Operation and Maintenance.....	33
Free Service, Competing Service, Billing and Enforcement of Charges	34
Sale or Encumbrance of System.....	34
Insurance.....	34
Damage, Destruction, Condemnation and Loss of Title	34
Records and Accounts; Inspections and Reports.....	34
Capital Budget.....	35
2017 Water Department Operations.....	35
Operating Revenues.....	35
Non-Operating Revenues.....	35
Operation and Maintenance Expenses.....	35
Capital Budget and Expenditures.....	36
Summary of Operations.....	37
Sewerage Department	37
Adherence to Sewerage Service Revenue Bond Resolution	37
2017 Sewerage Department Operations	37
Operating Revenues.....	38
Non-Operating Revenues.....	38
Operation and Maintenance Expenses.....	38
Capital Budget and Expenditures.....	39
Summary of Operations.....	39
Drainage Department	40
2017 Drainage Department Operations.....	40
Revenues.....	40
Operation and Maintenance Expenses.....	41
Capital Budget and Expenditures.....	41
Summary of Operations.....	42
Appendix.....	43

LIST OF TABLES

Table 1 - Current Number of Board Employees and Employees Eligible for Retirement8

Table 2 - Statement of Historical Revenue 35

Table 3 - Historical Operation and Maintenance Expense 36

Table 4 - 2017 Capital Expenditures 36

Table 5 - Statement of Historical Revenue 38

Table 6 - Historical Operation and Maintenance Expense 38

Table 7 – 2017 Capital Expenditures..... 39

Table 8 - Statement of Historical Revenue 40

Table 9 - Historical Operation and Maintenance Expense 41

Table 10 - 2017 Capital Expenditures 42

Table 11 - Assessment of East Bank Sewage Stations 43

Table 12 - Assessment of West Bank Sewage Stations..... 48

Table 13 - Assessment of East Bank Drainage Stations 50

Table 14 - Assessment of West Bank Drainage Stations..... 52

LIST OF FIGURES

Figure 1 Carrollton Water Purification Plant..... 10

Figure 2 Algiers Water Purification Plant 12

Figure 3 East Bank Sewage Treatment Plant..... 16

Figure 4 West Bank Sewage Treatment Plant 18

Introduction

PURPOSE AND SCOPE

This report covers operations of the Sewerage and Water Board of New Orleans for the year ending December 31, 2017. This report presents findings of studies made in compliance with covenants of the General Water Revenue Bond Resolution and the General Sewerage Service Revenue Bond Resolution. 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. 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 General Water Revenue Bond Resolution adopted on May 21, 2014 by the Board or the General Sewerage Service Revenue Bond Resolution adopted on May 21, 2014 by the Board.

“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. In 2014, the Board issued Water Revenue and Refunding Bonds in the amount of \$103,525,000 and established the existing General Bond Resolution under which all debt is issued. A portion of the proceeds were used to defease all outstanding bonds. In 2015, the Board issued Water Revenue Bonds in the amount of \$100,000,000. Principal payments will begin in 2018. As of December 31, 2017, total outstanding debt service on all outstanding revenue bonds totaled \$200,660,000.

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 were sold. In 2014, the Board issued Sewerage Service Revenue and Refunding Bonds in the amount of \$158,990,000 and established the existing General Bond Resolution under which all debt is issued. 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 Senior Parity Debt under the General Bond Resolution and entitled to the provisions of the General Sewerage Service Revenue Bond Resolution. In 2015, the Board issued Sewerage Service Revenue Bonds in the amount of \$100,000,000. Principal payments will begin in 2021. Total outstanding principal on all revenue bonds totaled \$229,271,000 as of December 31, 2017.

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.

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 1981, a nine-mill ad valorem tax was approved and became effective January 1, 1982. It was reauthorized in December 2016. The purpose of the nine-mill tax levy is to provide funds for the operation, maintenance, and construction of the drainage system. 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, 2017 was \$9,410,000.

In 1988, reassessment caused the nine-mill ad valorem tax to be increased to 9.13 mills. 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 through 2046; six-mill tax through 2026; and nine-mill tax through 2031. At the expiration date of the millages draws closer, the Board will need to consider identification of other possible sources of revenue to maintain the future sustainability of the Drainage system in the event that that the millages are not renewed.

General

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, 2017, the amount outstanding was \$52,604,006.

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 1970s, 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 2020.

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. 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 2017.

The statistical data maintained by the Board includes the compilation of detailed information on water sales and revenues. Operation and maintenance expenses are summarized by supplemental accounts that 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 2017 have complied with the requirements set forth in the General Water Revenue Bond Resolution.

Summary of 2017 Operations

The total revenue from water sales, delinquent fees, interest income and other income increased from \$89,168,153 in 2016 to \$94,641,920 in 2017. Operation and maintenance expenses (excluding claims paid) increased from \$76,886,448 in 2016 to \$77,981,915 in 2017. After adding claims of \$2,844,668 and debt service payments of \$10,640,500, a balance of \$1,174,787 was available for capital related expenditures in 2017.

Sewerage Department

Sewerage Service Revenue Bond Resolution Requirements

Sewerage and Water Board financial operations for 2017 have complied with the requirements set forth in the General Sewerage Service Revenue Bond Resolution.

Summary of 2017 Operations

The total revenue from sewer charges, delinquent fees, interest income and other income increased from \$108,233,756 in 2016 to \$114,337,538 in 2017. Operation and maintenance expenses (excluding claims paid) increased from \$58,240,656 in 2016 to \$65,592,971 in 2017. After adding claims of \$1,318,735 and debt service payments of \$24,806,488, a balance of \$22,619,344 was available for capital related expenditures in 2017.

Drainage Department

Summary of 2017 Operations

Total revenues received from all sources including interest income totaled \$56,885,708 in 2017, a decrease of approximately 0.08 percent from \$57,356,842 reported for the same sources in 2016. Total operation and maintenance expenses increased about 66.2 percent, from \$33,523,624 in 2016 to \$55,694,577 in 2017. After adding claims of \$41,109,418 and debt service payments of \$2,024,050, a negative balance of \$41,945,073 was available for capital related expenditures in 2017.

Ability to Finance Future Operations and Proposed Improvements

Black & Veatch has been preparing this report for the Board for over five decades, which has included an analysis of the Board's ability to finance projected revenue requirements, including proposed capital improvements. However, due to unusual circumstances that the Board experienced in late 2017 and 2018 which delayed the release of financial results to support the projections of revenue and revenue requirements for 2018 and beyond and their accuracy, a joint decision was made by Black & Veatch and the Board to not include projections for 2018 and beyond in this report. The 2018 Report on Operations will include an analysis of the projected financial plan for 2019 through 2023.

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 2017 Comprehensive Annual Financial Report. In 2017, approximately 70.7 million kilowatt hour (kWh) of power was purchased and 32.5 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 9.9¢ per kWh in 2013 to about 11.3¢ per kWh in 2017. During the same period, the Board's unit cost for generated power has decreased from about 33.3¢ per kWh to about 31.3¢ per kWh. In 2017, the cost of Board generated power was 2.8 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 than the purchased power from the local utility company.

2017 POWER AND PUMPING EMERGENCY EVENT

The City of New Orleans experienced heavy rains on August 5, 2017 that resulted in flooding events throughout the City. At the time of the rain event, several drainage pump stations were down for repairs or not operating due to limited staffing availability. In addition, repairs necessary at the Carrollton power plant resulted in power limitations to some of the operable drainage pumps. On August 9th, the existing Executive Director of the SWBNO declared a state of emergency and authorized the purchase of necessary materials and furnishing of the labor necessary to make all emergency repairs to the system. On August 10th, the Board of Directors unanimously adopted a motion to repair the power and pumping facilities, conduct an independent analysis of the power generation and drainage systems, and provide for interim management of the SWBNO. On August 22nd City officials named an interim emergency management team to focus on the SWBNO's pumping and power capabilities.

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 onsite assessment findings of the Sewerage and Water Board of New Orleans (SWBNO) facilities conducted by Black & Veatch from June 18 to June 22 of 2018. Site visits were conducted at the water and wastewater treatment plants, Carrollton Power Plant facilities, and Central Yard facilities to evaluate their condition and operational capabilities. In addition, the sewage and drainage pump stations (DPSs) were inspected to evaluate their condition. Interviews were conducted with SWBNO management and supervisors during the site visit to assess the current operations status of the various facilities.

INTRODUCTION

The Operations Department of the SWBNO is comprised of four units: (1) Water Purification, (2) Sewage Treatment, (3) Water Pumping and Power, and (4) Sewage 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 the Orleans Parish. The Algiers Plant, which serves the predominantly residential west bank portion of the parish, purifies roughly 10 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 and 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, 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 (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 routinely monitor these pumps and the numerous miles of drainage canals to ensure proper drainage in the area.

The 25 cycle power plants operated by the SWBNO provides power to 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

At December 31, 2017, the total number of SWBNO employees was 1,199, 80 more than the previous year; however, the number of employees related to operations and maintenance decreased from 175 to 172 over that same period. Adequate staffing continues to be an issue for most departments at the SWBNO. Additional maintenance is required for the SWBNO facilities as equipment ages and more equipment is added. Vacancies still exist in several departments, especially the ones that require 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. The Engineering department is still understaffed, especially at the senior level (most staff has less than 10 years of experience), but it is improving due to additional part time senior level staff hired in the Civil and Electrical engineering department. Some of the senior level department heads have retired and there is an effort to promote internally to fill those position.

The SWBNO has a domicile policy which requires employees to live in New Orleans. Departments within the SWBNO are currently actively recruiting from local college campuses, career 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 five years. Very few successors have been identified to assume the leadership positions of those personnel.

Most departments have staffing issues related to inadequate personnel to fulfill the current needs of the SWBNO. **Error! Reference source not found.** summarizes the staff on the payroll for each department related to operations and maintenance and the percentage of staff eligible for retirement within the next five years, as of December 31, 2017. These conditions demonstrate the need for an effective succession plan for the department heads and supervisors.

Table 1 - Current Number of Board Employees and Employees Eligible for Retirement

DEPARTMENT	EMPLOYEES ON PAYROLL	ELIGIBLE FOR RETIREMENT	% ELIGIBLE FOR RETIREMENT
Operations – WPPs	66	15	22.7%
Operations - Water Quality Laboratory at Carrollton Plant	8	3	37.5%
Operations - Water Pumping and Power	79	20	25.3%
Operations - Sewage and Drainage Pumping Stations	128	33	25.8%
Facility Maintenance	58	15	25.9%
Engineering	47	10	21.3%
Networks	298	45	15.1%

DEPARTMENT	EMPLOYEES ON PAYROLL	ELIGIBLE FOR RETIREMENT	% ELIGIBLE FOR RETIREMENT
Support Services	120	25	20.8%
Environmental Affairs	13	6	46.2%
Total	817	172	21.1%

WATER PURIFICATION PLANTS

The Black & Veatch representative accompanied the superintendent of the WPP's on facility tours of the Carrollton and Algiers WPPs. The Carrollton and Algiers WPPs were operational and producing water that meets or exceeds federal drinking water standards. Treatment systems at both plants function well and continue to produce potable water for the east bank and west bank.

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. Due to retirements in 2017, the department lost various management personnel and their internal water treatment plant knowledge, however, the department has continued to hire more entry level staff. The department would like to hire experienced operators, ideally with certifications in hand, but has difficulty due to the residency requirements and pay rates. Staff feel that there is not an incentive to become certified, and there is a lack of certified operators state-wide. It was noted that operators received pay increases in late 2017 to help retain and attract talent.

The SWBNO internal operator training program has stopped due to a retirement within the department. This training program assisted operations staff with passing state certification exams and with job training. The SWBNO is using Delgado Community College operator certification classes and it pays for staff to take the class to obtain a license. SWBNO will pay for additional classes as part of ongoing training and it assigns operations staff higher level certifications once training has been completed. The most senior operators have or will be retiring within the next few years and will need to be replaced to maintain compliance. The supervisor of operations retired in December 2017, which left the department with limited staff with water treatment experience. A few senior operators have also retired including the Carrollton filter gallery supervisor and the chemical house supervisor. Their replacements are already in the deferred retirement option plan (DROP) program and will be retired within 5 years with few candidates to promote within the department. At the time of the visit, there were not enough certified water plant operators to cover all the shifts and the department was using overtime to ensure compliance is maintained. In the Louisiana Department of Health's (LDH) 2017 plant inspection of both plants, it was noted that a lack of managers and certified operators was a major deficiency that needed to be addressed by the SWB.

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.

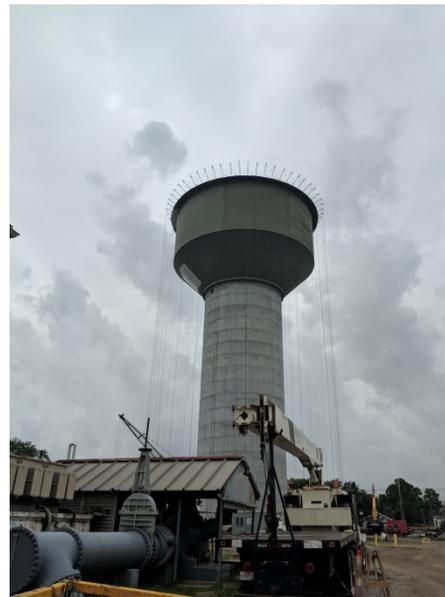
Chlorine in the form of sodium hypochlorite is used to disinfect the clarified water. Anhydrous ammonia is then added to form chloramines for residual disinfection. Additional settling time and disinfection contact time occur in the secondary settling basins. The clarified water is also treated with sodium hexametaphosphate for calcium sequestration and hydrofluorosilicic acid for fluoride addition. The SWBNO is feeding all chemicals at appropriate dosages and maintains adequate chemical storage at each site.

Filtration is the final step in the treatment process, which is 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 an average of approximately 134 mgd of water for the east bank of the Orleans Parish, partly because of leaks in the water distribution system. Leaks in the distribution network are a persistent problem. 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 the WPP was between 65 and 70 pounds per square inch (psi) during the inspection, which was consistent throughout the last year.



New Filter Compressed Air System



Water Tower Construction

Figure 1 Carrollton Water Purification Plant

Improvements initiated and/or completed at the Carrollton WPP during 2017 include:

- Leaks in the G4 sedimentation basin were sealed while it was out of service in 2017 for other maintenance. The basin was placed back into service but was still leaking during the time of the inspections and requires replacement. G3 was out of service at the time of the visit. Routine maintenance was initiated in 2017 and will continue in 2018. LDH communicated that leaks in the G and L basins must be fixed and was noted as a major deficiency in its 2017 inspection.

- The flocculator rehab and maintenance of L3 sedimentation basin's mechanical components was completed in 2017 and the basin has been placed back into service.
- The last two concrete storage tanks were painted, and all tanks are functional and were back in service at the time of the inspections.
- As part of the water hammer project, construction of two elevated storage tanks began in late 2016 to assist with maintaining adequate distribution pressure in case of a line break. Construction of both of the elevated water tanks was ongoing in 2017. The water tower in front of the WPP is scheduled to finish in fall of 2018 and the second tank will be completed in 2019.

The following maintenance and/or improvement projects for existing facilities at the SWBNO are planned or ongoing:

- A filter rehabilitation program is planned 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. LDH determined during its 2017 inspection that the Sycamore filter had 12 out of 28 filters out of service due to age and because they needed preventive maintenance. In 2017, an emergency contract was issued to repair 4 filters.
- The Sycamore filter wash water pump for the filters will be replaced. The packing seal was leaking during the last and current site visit and the pump was nearing the end of its service life. The pump broke in 2017 and maintenance repaired it. A temporary backwash pumping system was installed in 2017 as a result. A new project to build a new filter backwash station started construction in 2018 and should be completed in 2019.
- A new chemical storage and feed facility is currently under design with 90 percent design phase completed in 2017. The facility will house most of the chemicals onsite.
- The Oak Street pump station is being replaced, including complete pump replacement and other improvements.

In terms of compliance, the Carrollton WPP had no compliance issues in 2017.

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 and uses the same chemicals with a slightly modified application scheme in the upflow clarifiers. The plant is treating approximately 10 mgd of water and is serving the predominantly residential west bank portion of the parish.

Improvements that are needed or ongoing at the plant include the following:

- A large CIP project including SCADA upgrade, rehab of clarifiers 2, 3 and 4, a complete replacement of Clarifier 1 including adding flash mixing to assist with total organic carbon (TOC) removal and upgrading the fluoride chemical feed system is in the near future. The contract was awarded in 2017 and construction is expected to start in 2018.
- Filter rehab (valves, filter media, air scour system) is needed on all filters and should be scheduled in 2020. The Engineering department is still working on specs and those should go out to bid in late 2020.

- EIMCO clarifiers 3 and 4 are under contract for the replacement of the launder troughs. The troughs and steel structures have significant corrosion. No rehab work was done in 2017 but the contract is going out in 2018 as part of the SCADA and clarifier project previously mentioned.
- In addition to the rehab and painting the EIMCO clarifiers, flash mixing will be added to assist with better TOC removal in the clarifiers. The existing clarifiers will be modified to include an additional mixer near the chemical injection point. This effort is part of the SCADA and clarifier project previously mentioned.
- The fluoride storage and feed system needs to be upgraded to meet state requirements. The fluoride system will consist of a bulk storage tank, a day tank, and metering pumps and it will be located in an existing sodium hypochlorite generating process room. This project was delayed due to the need to have fire suppression in place. This effort is part of the SCADA and clarifier project projected to start construction in 2018.
- Lime is currently slaked at the WPP. SWBNO is considering replacing the lime equipment pending a decision to change the process (different type of lime) or replace the existing slaking equipment. A study must be conducted to establish which option will be selected. No work was completed on this process in 2017.
- The raw water pumping and piping systems need to be improved in order to provide redundancy to the intake system. No work in 2017 was conducted to address this concern.



Clarifier 3 awaiting rehab



Future location of Fluoride Storage and Feed System

Figure 2 Algiers Water Purification Plant

In terms of compliance, the Algiers WPP had no compliance issues in 2017.

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 federally mandated analytical requirements of the water plants, and it 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, TOC, dissolved organic carbon, 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), but despite that several of the LDEQ upstream stations are unreliable. The EWOCDS program has been underfunded by Louisiana, which has caused a reduction in sampling and analysis; however, SWBNO plans on being involved in this program.

The remaining reliable monitoring stations are connected by telecommunications to 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 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.

At the time of the inspections, the laboratory was understaffed. Pay increases were implemented in 2017 to help retain and attract new laboratory talent. A chemist was hired in 2017 and it is anticipated that additional lab staff will be hired in 2018. During the visit, there was one microbiologist, two chemists, and four technicians. The lab supervisor position was vacant, with the head of the WPPs filling the role. The laboratory staff had obtained certification to analyze TOC at the SWBNO facility in the past; however, the certification has lapsed due to a lack of lab staff (mainly chemists) to maintain the QA/QC requirements for TOC analysis and was not reestablished in 2017.

Some of the lab instrumentation and equipment is reaching or has reached the end of its service life and should be replaced. Newer analytical instruments and equipment are needed, such as a new gas chromatograph/mass spectrometer (GC/MS) and fume hoods in the chemistry lab. A new autoclave was purchased in 2017. The SWBNO would like to purchase a GC/MS but had to reject a bid in 2017. No other major purchases are planned for 2018.

WATER PUMPING AND POWER

The primary function of the water pumping and power unit of the operations department is to produce 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 of 25 cycle power). The steam required for the turbines is generated in the 6 boilers at a total capacity of 650,000 pounds of steam per hour. In addition to the 25 Hz turbine, the newly-installed Turbine 6 produces 15 MW of 60 Hz power and was

made operational in early 2016. The turbine only serves as backup, but it is run weekly to ensure it is working properly.

The generating station at the Algiers Plant is capable of producing 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 Plant to 60 Hz power.

At the time of the inspections, the capacity of the Carrollton Power Plant was 43 MW, which is less than the 73.5 MW design capacity. Repairs to Turbine 4 were ongoing in 2017 and the turbine was undergoing testing at the time of site visit. Turbine 3 was online until early 2016 when it was taken offline for emergency rehab which continued during 2017. At the time of the inspections, Turbine 3 was offline, Turbine 1 was online and Turbine 5 was being used as needed. The rehab on Boiler 1 started in early 2017 and was completed. Additional boiler piping is scheduled for repair and replacement and will occur once all the boilers are rehabbed and operational. The bid for this work should go out in 2018. Additional work includes a large portion of work to burners, fuel skids, all boilers except for two, additional metering to assist with data collection and monitoring (tie in to SCADA for power house as well as the major pumping stations such as Oak Street). Also, a new boiler water treatment system will be added to help reduce required chemical dosing to the boilers.

A 200 psi high pressure natural gas line supplies fuel for the 15 MW 60 cycle, dual fuel generator turbine package (Turbine 6) and the existing Turbine 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 from 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 was completed at the end of 2015. Pump B was tested in 2016. Both were in service during 2017 without any major issues. The Claiborne Pumping Station, which consists of 4 water distribution pumps (2, 60 Hz drive and 2, 25 Hz drive), and the Panola Station, which consists of two pumping units (each with a 25 and 60 Hz motor), are usually adequate (with 100 percent redundancy) 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. Future work for the pump stations is part of the water hammer program, which will include replacing equipment and associated valves at the Panola A and B pump room and Claiborne pumping stations. These projects were currently in construction at the time of the visit. SELA project completion is holding up work on the Claiborne project, largely due to road work. Both of the elevated water towers at the Carrollton WPP were under construction at the time of the visit.

Generator 5 underwent major repairs in 2017 and was placed back into service in early 2018. Generator 4 rehab is needed and planned for the near future. Five additional diesel generators (2.5 MW each) have been added and four of the five were in service at the time of the inspections. These additional generators add 12.5 MW of power.

Storm-proofing projects for critical SWBNO facilities, including the power buildings, were completed by USACE in 2017. Improvements for the power buildings included reinforcing the walls, roofing, doors, and windows. Additional damage-related work from Hurricane Katrina 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. Additional projects include replacing the diesel storage tank with 2 new above-ground tanks that have a total capacity of 250,000 gallons. This project was under construction in 2017 and was still ongoing at the time of inspections. A new fuel day tank was installed in early 2017 including concrete foundation work for the new storage tanks.

At the time of the visit, the water pumping and power unit had 92 employees, which provides for continued operations of the water, sewerage, and drainage systems that require 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/power unit and for emergency response. The department is improving on reducing overtime, focusing on training operators and using overtime to bridge the gap in knowledge. Approximately 14 senior operators or supervisors are set to retire in 5 years or less. Retirement was mentioned as the main staffing problem in this department, especially at higher pay levels, such as turbine and boiler operations positions. It is anticipated that additional staff will be hired and trained to fill the vacancies due to retirement. It was noted that more technically-advanced staff was needed to operate and maintain Turbine 4 and future upgrades to the powerhouse. In August 2017, the SWBNO experienced a rain event that caused flooding throughout the city. It was noted that the 2017 flooding was due to the limits of the powerhouse's ability to provide power to the drainage stations. Following the flooding, a new manager of pumping and power was put in place from Central Control.

Central Control

The Central Control Power Dispatching Department (Central Control) 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 is also responsible for verifying and enforcing the SWBNO'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 plays a vital role in many emergency operational situations. Serving as a hub of communications, Central Control informs the SWBNO's management and senior level staff of changes in conditions that will affect the SWBNO's ability to provide adequate sewerage, water, and drainage services. Central Control provides valuable information during emergencies such as hurricanes, floods, freezes, etc. to the Office of Emergency Preparedness through established SWBNO protocols.

During the inspections, it was noted that Central Control had an appropriate number of staff, but not enough experienced staff. As a result, the department has made training a focus. It was noted that 3 of the 4 most senior staff members are in DROP, making training of new staff very critical. Additionally, it was noted that the department's responsibility has expanded. A new platform was implemented and becoming familiar with that platform, as well as work related to Generator 4, has created a learning

curve for the department. It was noted that more technically-savvy staff and I&C technicians are needed to work with the new technology.

SEWAGE TREATMENT PLANTS

Operations and maintenance activities of both plants have been contracted to Veolia Water. A representative of the SWBNO oversees the contract operator. This representative works for the Operations department, which is within the SWBNO. Both treatment plants were operational at the time of the site visits and met the discharge limits according to treatment plant personnel. Veolia will continue to be the contract operator for the next six years.

East Bank Sewage Treatment Plant

The East Bank Plant has a treatment capacity of 122 mgd (dry weather). At the time of the inspections, the plant was receiving approximately 90 mgd of flow. In 2017, average flow for the plant was 100.5 mgd, which was greater than the 2016 average of 96.46 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 incinerated. A new sludge dryer is under design as an alternative sludge treatment system to supplement the existing fluid bed incinerator (FBI).



Underground RAS Line Replacement



New Bleach Storage and Feed System

Figure 3 East Bank Sewage Treatment Plant

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

- Reactor 1 was not placed online in 2017 because of issues with the mixers. New mixers are being installed and should be online by end of 2018. Reactor 4 will be cleaned out in 2018 and mixers will be installed in 2020.

- Lower explosive limit (LEL) sensors were installed in the reactors in 2016 to monitor explosive gases along its automated valves to make the process safe to operate. The LEL sensors were tied into SCADA in 2017.
- It was noted in 2016 that no automation existed for the mechanical rake on the bar screens and raking must be conducted manually at regular intervals. The bar screen rakes were automated and were fully operational at the time of the inspections.
- A 2400 V effluent pump electrical distribution system, a switchgear, and effluent pump variable frequency drives (VFDs) started construction phase in 2016 and was ongoing in 2017. The last VDF was being installed at the time of the inspections.
- The FBI wet scrubber was replaced in 2016 and put online in March 2017.
- Clarifier 2 rehabilitation was ongoing in 2017 and, at the time of the inspection, was scheduled to be completed in 2018. Clarifier 8 will be next to be rehabbed once Clarifier 2 is back online.
- Replacing the vacuum swing absorption (VSA) oxygen system equipment (blowers, motors) is being solicited for quotes by the contract operator. Most equipment was ordered and is being stored. At the time of the inspections, the project was on hold until the booster skid arrived on site.
- A new bleach storage and feed system was put into service in 2017, which was comprised of three bleach tanks and a chemical skid. The chemical feed system was operational at the time of the visit.
- An underground return activated sludge (RAS) line was replaced in 2017, another WAS pump was added for redundancy, and the RAS pump motors were upgraded to high efficiency motors.
- Trees were planted in demonstration cell.
- The electrical phase 2 project, which includes a new 480-volt MCC in the solids building, went out to bid in 2017 and work is expected to start in 2018.
- The sludge dryer project went out to bid in 2017 and is expected to be constructed in 2019.
- The complete plant was painted during 2017, except for the solids handling building.

Effluent quality has been adequate over the last year with an average effluent TSS concentration of 9.9mg/L and an average effluent BOD concentration of 13.2 mg/L. No compliance issues were noted in 2017.

West Bank Sewage Treatment Plant

The West Bank Plant has a treatment capacity of 20 mgd (dry weather). At the time of the inspections, the plant was receiving approximately 8 mgd of flow. In 2017, average flow for the plant was 10.9 mgd. 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.



New Bar Screen



New Automatic Switchgear

Figure 4 West Bank Sewage Treatment Plant

The following items summarize the improvements that will be made or were recently made at the West Bank Plant:

- Bar Screen 1 was completely replaced in 2017 and was operational at the time of the inspections. It is anticipated that Bar Screen 2 will be replaced in 2018.
- Three grit pumps were replaced in 2016 and started becoming clogged in 2017. It was determined the coating in the grit basins was coming off in sheets and clogging up the pumps. In 2018, Grit Basin 1 was pumped down and is scheduled to be recoated. Additional future work planned is replacement of all 8 gear boxes on the sluice gates on the influent side.
- Plant structures painting occurred during 2017.
- Main collection basin pumps 1 and 2 rehab was not completed in 2017 but is anticipated to occur in 2018.
- The operator noted during the field visit that the effluent flowmeter stopped communicating to SCADA in 2017 and flow is now estimated. It is expected that this issue will be corrected in 2018.
- The auto transfer switch installation was completed in 2017.
- It was noted that a new bleach system was added in 2016 with additional work planned to tie the system into SCADA in 2017. The bleach system was not tied into SCADA in 2017.
- The operator noted that changing the SCADA system to a different platform is anticipated to occur in 2018.

The monthly average effluent TSS and BOD concentrations for 2017 were approximately 13.1 and 8.0 mg/L, respectively. The average flow for 2017 was 10.9 mgd, which was slightly higher than in 2016, which was 10.3 mgd. For 2017, this plant met or exceeded all permitted effluent limits.

SEWERAGE AND DRAINAGE PUMPING STATIONS

Site assessments of the DPSs and sanitary sewer lift stations (SLSs) at both the east bank and west bank of New Orleans were conducted from June 19 to June 27, 2018. A Black & Veatch operations specialist was present for the inspections conducted with a Julien Engineering representative and SWBNO staff on June 21. The observation report and accompanying table detail the operational status of each SLS and DPS on both the east and west banks of New Orleans. Pumps that were not operational at the time of the observations were deemed to be either “in service” or “out of service” based on direction from SWBNO supervisors or pump station operators. Refer to the tables in the Appendix for details on each station.

At the time of the inspection, it was noted that many SLSs were slated to be demolished and rebuilt, including Station 1, Shorewood Station, Weber Station, and others. These stations are older, and many are below ground with an above ground steel and concrete access hatch. Station 8 had been demolished and was in the process of being rebuilt at the time of inspections. It is anticipated that new stations will be constructed with similar layouts to the recently rebuilt stations such as Lake Forest Pumping Station and Bullard Pumping Station, which are above-ground concrete and steel stations with below-ground self-priming centrifugal pumps. The SWBNO was also in the process of installing emergency discharge connections to older above-ground stations to provide redundancy in the event of a station failure during the time of the inspections.

All previously-planned DPS construction projects have been completed within the last few years. Maintenance and repair of pumps, screens, and generators are the only items planned for the DPSs for now. Pumps at several DPSs have been out of service and awaiting repair without a change in status over the last few years. There were a few new issues noted during this year’s assessment such as pumps out of service or broken screens, although the majority of items noted were carried over from last year’s report. The pending repairs are deemed non-priority due to adequate capacity provided by other pumps at the stations. Station 3 appeared to be in the worst condition with many of the discharge gates requiring repair to function properly. Suction basins at several DPSs needed to have vegetation removed to prevent blockage and the debris screens at Station 11 were found to be ineffective with 3 out of 4 racks not operational at the time of the visit.

FACILITY MAINTENANCE

The Facility Maintenance department has 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, and mechanical maintenance for all SWBNO facilities throughout the system with the exception of Veolia Water-operated sewage treatment plants. The department has the specialized equipment and technology necessary to maintain the plant process equipment, drainage pump stations, sewage pump stations, power generation equipment, and water meter servicing. Automated lathes and mills are located in the machine shop and break press, as well as shear and other specialized repair equipment that is located in the welding and fabrication shop, which 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 6 have been built within the SWBNO system, which requires additional staff to operate and maintain it. In 2017, the underpass stations had backup generators

added so more maintenance and upkeep for those facilities are required by the Maintenance department.

These additional assets prevent in-house rehabilitation and preventative maintenance from being completed, which creates a large backlog of work for this department. Additional project delays, such as needed repairs to various issues with Drainage Pump Station 6 pumps add to the maintenance back log.

Maintenance did a full basin cleanup of L3 sedimentation basin and placed it into service in 2017. The department has been working on G3 basin since 2017 but it is scheduled to be placed in service in 2018 pending arrival of needed materials. Previous basins were contracted out; however, it was noted that many times work that was contracted out required the department to inspect and, at times, redo to keep the system online. Additional rehab work completed in 2017 included bearing work on DPS 11 and DPS 6.

The department continues to assist engineering with pulling together and reviewing contracts due to new hires in engineering. Much of the feedback provided to engineering does not usually make it into the bid documents, which makes maintaining equipment more difficult. At the time of the inspections, the department had 64 authorized positions; with most of the highly skilled positions (welding and fabrication, electrical, mechanical maintenance) remaining vacant. Some of these vacancies have been opened through Civil Service to try to find skilled staff. It was noted that the department had 60 requisitions in to hire employees; however, 23 positions were recently closed due to job duplications. The residency requirement and pay scales are still a major problem for hiring permanent and retaining staff, especially higher-level skill level. It was also mentioned that harder, more skilled positions were often paid similar or the same as less skilled positions, which does not assist in keeping higher skilled staff. It was noted in 2017 that several maintenance shop supervisors had retired leaving a shortage of experience with no up-and-coming candidates to fill those positions. In the next 5 years, this problem will be even worse with almost all the senior staff retiring and will be gone as a resource.

It was noted that overtime is necessary to compensate for the limited workforce. The City reduced the amount of overtime each department can exceed (750 hours) and maintenance expressed that not being able to use overtime and being understaffed is delaying its ability to keep on top of equipment maintenance. Despite this limitation, the department has rarely exceeded overtime limit. Work that was usually done in-house prior to Hurricane Katrina is still being contracted out to subcontractors. Many of these contractors are not local and are not always able to provide timely service for critical pieces of equipment.

During the visit, the department noted that it is facing a lack of qualified personnel to adequately supervise or oversee subcontractors. At the time of the inspections, approximately 36 percent of the maintenance employees were eligible for retirement or will be eligible to retire within 5 years. Thirteen positions (mostly high level senior supervisors in the machine shop) are in DROP and could leave in the next five years. Three supervisors have retired leaving only one supervisor in the machine shop. Maintenance has tried unsuccessfully to rehire recent retirees. Currently, the rehire must be hired back into his or her original position or a position he or she held previously, however, if those positions are filled, then the retiree cannot be rehired. Because of the lack of experienced people left to assist with training, training of lower level staff is not occurring. The department is actively recruiting at job fairs

and trade schools. SWBNO is working on a partnership with a local community college to start a trade program for skilled trades and plans on hiring from that pool of students. The department still does internships with a college but noted that the community college is not producing the skilled labor required of entry level candidates and the department is using the labor contract to find staff.

It was noted that Maintenance could benefit from the purchase a new testing unit and a new bucket truck and other additional equipment needed to do tasks in 2018 Equipment was not cited as a huge issue in 2017.

Lastly, due to the flooding in August 2017, it was noted that Maintenance has become more proactive on documenting repairs. Normally, departments do not write work orders, but call Maintenance instead; however, Maintenance is now creating work orders for these requests. Maintenance mentioned that the current work order system is very outdated and needs upgrades. Having the new software accessible on laptops or at the station computers would be very helpful to make sure work orders are closed out and documented correctly.

ENGINEERING

The Engineering department includes mechanical engineering, electrical engineering, civil engineering, construction administration and inspection, and networks engineering. The Engineering department administrators typically contracts throughout the SWBNO facilities and coordinates with other agencies for the design and construction activities impacting SWBNO-maintained facilities. At the time of the inspections, the department was managing 217 project contracts for FEMA and capital improvement projects.

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

- New sludge line from the Carrollton WPP to the river is at 90 percent design, however it is currently on hold due to permitting issues and a lack of available funding.
- Sycamore filter has two emergency contracts opened recently to repair the offline filters. A master plan is underway to look into technology alternatives, such as membranes, to replace the filters in the future.
- Chemical feed storage improvements to add additional chemical storage at the Carrollton WPP are in 95 percent design phase, however, this project was on hold at the time of inspections due to lack of funding.
- The filter backwash pump replacement is in construction and was about 25 percent complete at the time of the visit.
- The fuel tanks at Carrollton WPP are being replaced with a 250,000 gallon above-ground storage tank, which is currently under construction. This project is ongoing and scheduled to be completed in early 2019.
- The water hammer project, which includes installing two new elevated tanks at Carrollton WPP, is currently under construction and will be completed in 2018/2019.

- Rehabilitation of Turbine 4 was completed in 2018 and has passed testing. It was operational and available for use at the time of the inspections.
- Turbine 3 and 5 major repairs were completed 2017/2018 and were operational and available for use at the time of the visit.
- Filter media rehab at Algiers WPP is currently scheduled but has not yet begun. This work is part of a larger project mentioned in the Algiers WPP section update.
- A contract was issued to rehab one of the clarifiers at Algiers WPP and is scheduled to go to construction in July.
- Two major uptown roadway drainage projects were ongoing at the time of the inspections. These two projects include Jefferson Ave. phase 1 and Louisiana Ave., both scheduled to finish in 2018.
- Contracts for the water line replacement program with the City of New Orleans were awarded in 2016 / 2017 and the program is moving forward for the next several years.
- Flood mitigation contracts for nine sewage pump stations were awarded and the Engineering department is supervising these contracts. Eight station construction projects were completed in 2016 and one station started construction in 2017. Sewerage Pump Station 8 was approximately 90 percent complete at the time of the visit.
- Ten major underground 25-cycle electrical feeders are being replaced throughout the SWBNO facilities. The project is under construction and was about 50 percent complete at the time of the visit. This project is the first design-build project for the SWBNO.
- The Old River Intake Station rehabilitation project was awarded in 2016 and remained in construction in 2018 because of delays related to high river water levels.
- Florida Ave. phase 4 project is still in construction with a scheduled complete date in 2021.
- The SWBNO plans to add a sludge dryer, including a new air emission system, to the East Bank Plant. Equipment is onsite and in storage. A contract to install the equipment was issued in 2018.
- East Bank WWTP effluent pump motors and VFDs replacement was completed in 2017/2018 and the project hit substantial completion in July 2018.
- The East Bank WWTP system completed construction of its bleach system in 2017/2018 and was in operation at the time of the inspections.

Additional projects planned by the Engineering department include the following:

- There will be new lime storage and feed facilities at both WPPs. This project is on hold due to lack of funding.
- Design of a new chemical storage and feed facility at Carrollton WPP. This project is on hold currently due to lack of funding.
- Design of a new filter gallery addition at the Carrollton WPP. This is a long-term design and construction project (next 10 years).

- There are various water projects that include filter rehab, valve rehab, and pump replacement as well as a master plan to determine the future treatment technology option for filtration at the Carrollton WPP.
- Rehab of the head house building is planned to convert the building into the SWBNO's new resiliency complex. As part of the resiliency complex project, a new infield building is being planned for additional office space at Carrollton WPP. Both the infield and the resiliency complex will meet FEMA's safe house requirements for a hurricane shelter. The engineering building will be rehabilitated to replace the roof, windows, and doors to make them withstand a higher wind rating. This project is on hold due to lack of funding.

In addition to contract administration, the Engineering department is adding geographical information system (GIS) technology to enhance the ability to track the water distribution and sewer pipes. The FEMA-funded water main replacement and emergency sewer system assessment requires GIS 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. In addition, it was noted that the department needs to hire more electrical engineers, due to upcoming retirements, to manage electrical contracts and review electrical design work

NETWORKS

The Networks department is charged with maintaining the sanitary sewer system and the potable water distribution system. The capital replacement to portions of the water distribution network funded by FEMA in response to damage associated with Hurricane Katrina remains ongoing.

The Networks department is divided into nine operational units. Field Services coordinates Networks' first response to service requests and manages the data entry for closing work orders. Zones 1, 3, 4, 5, and 6 are responsible for sewer and water infrastructure maintenance in assigned geographical areas in New Orleans. Zone 2 operates the barricade unit that provides safe lane closures and visibility for Networks' work areas. Zone 2 also performs preventive maintenance activities, including exercising and inspecting valves and fire hydrants as well as sewer smoke testing required to maintain EPA consent decree compliance. Zone 7 provides limited surface restorations following repair excavations by Networks' crews, conducts sewer video and manhole inspections, and provides staff for after-hours crews that respond to emergency calls for service. Each zone has a staff of approximately 35 to 45 people who are responsible for repairs within the designated areas and/or other assigned responsibilities. Technical Services manages Networks' contracts including leak detection, sewer video inspection, operations and maintenance repair contracts, and contracts to perform capital rehabilitation, replacement, and modifications required to improve system performance. Repair and capital contracts are used to manage the backlog of repairs, preserve the staff resources required to provide emergency response, and address repairs requiring additional resources. It was noted by the department that cooperation from contractors has been a good resource for the Networks department and the contractors are performing above the contract requirements. The use of contractors is the only way the Networks department can complete its work as it addresses the loss of skills and experience from retirement and other attrition. The Networks department expressed concern about the long-term risk to the Network department's capabilities from dependency on contractors for large projects and the department has prioritized development of additional resources to reduce risk. This includes focus on

hiring and training staff as well as procurement of equipment necessary to adequately resource larger projects.

According to department personnel, the biggest challenge is keeping up with the backlog created from an observed increase in the rate of failure in the distribution and collection systems as well as the loss of skills and experience due to retirement and attrition. While loss of staff to retirement continues to present a challenge, it was noted that compensation adjustments approved at the very end of 2017 have reversed the attrition trending in staff not yet eligible for retirement and may provide some additional relief in incentivizing those eligible to delay retirement. Compensation adjustments and a significant increase in support from Human Resources and Civil Service, as well as a departmental focus on hiring, has improved staffing levels, which were trending downward in 2017. The specialized set of knowledge and skills required by the department necessitates a significant investment in on-the-job training and formal instruction in a variety of subjects such as safe handling of asbestos-containing materials, safe excavation and shoring, confined space entry, etc. The department noted that certification testing and certification classes for distribution and collection operators are offered at Delgado Community College for any staff requiring operator licenses and particularly those struggling to pass the required tests. This additional resource will greatly supplement departmental test preparation and help the department ensure its staff obtains sufficient operator licenses to remain compliant.

The Networks department continues to face challenges to keep up with the pace of reactive repairs, which has increased in the last few years and is not anticipated to decline until significantly more of the coordinated capital replacement projects reach completion. The increase in residential and commercial development (new installations) and increase in city events (festivals, runs, bike-a-thons, etc.) has created additional scheduling pressures and workload, as well as delays in completing work within the systems. An increased focus on replacing lead water services along with additional precautions, notice to the public and coordination represents an increase in resources required to maintain the distribution system. Lastly, while access to equipment (backhoes, excavators, flush trucks) has improved, equipment availability remains a concern as Networks prioritizes the development of additional crews to address increased need and reduce the repair backlog to an acceptable level.

The SWBNO has conducted an evaluation of the piping system to detect leaks. The effort to find leaks is ongoing and the department is trying to extend the serviceable life of the infrastructure by performing more capital upgrades such as lining and full-line replacement in addition to point repairs in both the water distribution system and sewer collection system. The department has conducted several large-diameter pipe lining projects on critical large diameter lines that have experienced cracking and failure from excessive corrosion. An increased focus on rehabilitating and replacing valves in the water distribution system continues in an effort to improve system performance and minimize community impact during anticipated water main tie-ins associated with a major increase in coordinated capital projects city-wide.

In terms of engineering staff, Technical Services lost two engineers and hired one engineering intern over the last year. It was noted by the department that productivity in engineering has continued to improve since last year due to lower level staff continuing to build on their experience and eligible staff achieving PE licensure. Staff retention is critical to the department. The department has experienced

improved support from Human Resources and Civil Service in addressing timely promotions for eligible staff to improve retention.

Approximately 1,084 water mains were repaired in 2017. Identifying leaks is ongoing and SWBNO 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 a part of the ongoing inspection of the sewer system. Approximately 1,216 sewer repairs were completed in 2017. In addition to the FEMA-funded projects, the Networks department 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 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 fire hydrants in the database to be inspected. In 2017, the department inspected 7,351 hydrants. The Networks Department is assisting the city with hydrant capacity color coding to comply with the new hydrant rating standards required for the city's insurance rating. It also conducted flow testing on critical hydrants to find leaks, ensure they meet the rating, and are operational.

The Networks Department completed paving project work orders were 4,757 in 2017, both in-house and in cooperation with contractors. This department has several contracts to assist with maintenance of the water distribution, wastewater collection, and drainage stations. These contracts have increased the amount of work accomplished within the division.

SUPPORT SERVICES

The SWBNO owns approximately 944 pieces of rolling stock, which includes trucks, backhoes, and sewer cleaning equipment. The available equipment is being assigned to the various divisions based on the needs of the departments. Approximately 231 pieces of new stock were obtained in 2017.

The Support Services department performs most all-ground maintenance functions. In addition, Support Services department operates the warehouse that stores valves, pipes, hydrants, tools, etc., required by the Networks department for repair of existing water distribution and sewer pipelines. Support Services department also operates garages for vehicle repair.

The garage areas were heavily damaged during Hurricane Katrina. Garage 1 was rehabbed in 2015 and 2016. In late Fall 2017, Garage 1 became fully operational and is currently occupied with SWBNO Automotive staff.

At the time of the inspections, Garage 2 was being rehabbed but had been delayed due to necessary electrical work. It is anticipated that the project will be completed in mid-2018. Garage 2 electrical work was still pending and was scheduled to be completed in July. Office supplies, shelving, and items for Garage 2 were in the process of being ordered and installed. Once Garage 2 is completed, the support services staff and MIS staff will move its offices into Garage 2.

A new Site Relocation building (new body shop) was constructed in 2014 to house personnel until the garage renovations are completed. Staff and materials from Garage 2 are being stored in the Site

Relocation building. Ultimately, the Site Relocation building will be used to house the body repair shop, which is now a separate entity from Garage 2 due to organizational restructuring. The old body shop will be converted into the tire shop.

FEMA continues to reimburse 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. It was noted that Support Services has been able to purchase and use diagnostic equipment in-house, reducing the dependency on vendor services. Projects being completed or conducted within Support Services include the following:

- Take home vehicles were reduced to 44 as of 2017.
- The contractor assigned to mitigate problematic vegetation (lilies) in the canal systems since 2015 is no longer affiliated with the SWBNO. This function is estimated to go out to bid no later than August 2018, however, the department is continuing to use this contractor for mitigation until then. Support Services was considering a non-chemical option to help reduce invasive species in canals and lagoons in the near future.
- A major change to the janitorial services contract occurred in 2016 to include more facilities, however it did not go out to bid in 2017. The current janitorial services company is still working on a month-to-month basis with its contract. Solicitation will go out this year.
- In 2017, new employees were hired in all areas of support services, including mechanics, laborers, and public utility workers etc., to help support all departments within SWBNO. At the same time, three upper/middle management staff retired. Their successors have been determined and promoting those staff into those positions was ongoing at the time of the inspections. If internal candidates are not promoted, the department will look at outside options.
- Additional staffing changes that occurred in 2017 included the ability to rehire retirees part time. Support Services utilized this option for one position to assist with maintaining the level of service and training of existing employees. It was noted during the interview with Support Services that merit raises were not awarded to its staff in 2017 along with other departments except for the clerical staff. The department feels it has lost staff to other departments because it can't compete with pay and pay increases, especially for lower level staff.
- The department noted that most of the staff is approaching retirement age, including the director of the department, and, as a result, it will be short-staffed. Many senior level staff, including several successors, are in DROP or retiring within the next 5 years. The department continues to actively identify candidates to replace staff close to retirement. Ground maintenance continues to have high labor turnover because of the nature of the work and a lack of pay increases. The department is focused on filling vacancies and getting promotions awarded through Human Resources. Additionally, the department is looking to create positions under Support Services that interface with Networks to better serve that department and better control services to that department. Currently, Networks has staff members in its department that interfaces with Support Services about their needs.
- To comply with the reduced overtime requirement, the department has continued using its established procedures for vetting overtime requests by department employees. Staff must fill out an

overtime authorization form including projected overtime for the task and submit the form a week ahead of time. The forms are reviewed every week and then updated based on the actual work done.

- The computer center HVAC in the St. Joseph office was replaced in the summer of 2017. The new system has four units (2 units run and 2 are backup and alternate monthly). This replacement was needed due to some computer/system-related issues that were causing IT limitations for the SWB.
- Additionally, the HVAC system for the St. Joseph Building Annex was also replaced in late summer of 2017. It was noted by Support Services that major rehab of the St. Joseph building is needed due to the age of the building and building components.
- In 2017, Support Services internally revamped the department's policy and procedures and were projected to complete these in 2018.

Future projects/concerns:

- One elevator in the St. Joseph building is inoperable and repair or replacement is needed. The Engineering department is working on bid documents and the project is scheduled to be completed in 2018. The Peoples Avenue building elevator design is also complete but not out to bid yet. The project still resides within Engineering.
- A new building generator will be installed at the St. Joseph building. The building is currently on a portable generator. The project will include a new generator with an automatic transfer switch.
- The Central Yard facility plans to add two additional parking lots and replace the parameter fence around the entire Central yard. The fence project is on hold due to planned street work for the Florida Avenue Canal ELA activity.
- Support Services Department phone system will be upgraded in the future.
- Modular units that act as temporary offices will be moved off site once Garage 2 is done.
- Support Services department noted that the Networks department is conducting training sessions in conjunction with the CDL unit, on how to operate heavy equipment to help support the department's efforts to keep the equipment in better condition. Additionally, the CDL unit is offering defensive driving courses to help decrease preventable accidents.

ENVIRONMENTAL AFFAIRS

The Environmental Affairs department oversees the consent decree and all administrative orders. The department reports sewer bypasses and overflow to the Region 6 EPA. Some activities being undertaken by the department include the following:

- Continuing to monitor industrial users through the pretreatment program and the fats, oil and grease (FOG) program.
- Permit compliance in air, water, wastewater, storm water management, solid waste, and underground fuel storage tanks.
- Community outreach programs that focus on environmental education in the areas of water, wastewater and drainage.

The construction of the piping for the East Bank Sewage Treatment Plant wetlands assimilation has been completed. The piping allows treated effluent to be discharged to the demonstration and expansion cells. SWBNO has a permit from LDEQ to discharge to the demonstration cells, but no permit has been issued to discharge into the expansion cells. No trees were planted in the cells in 2017 due to high water levels in the demonstration project cells. Like 2016, additional fill was added to the cells in 2017.

LDEQ has had the East Bank WWTP permit application for 5 years without response, but a draft permit was created in 2018. The draft permit has not been released for public comment. It is more likely the permit will be issued in 2019 rather than 2018. Until LDEQ processes the permit application for the East Bank WWTP, there can be no discharge into the expansion cells. Tree planting cannot start until the final permit is issued and the effluent can be discharged to the cells.

The components of the pretreatment program include monitoring the discharge of the East and West Bank Sewage Treatment Plants in addition to other significant industrial users during the year. No additional users were permitted in 2017. An annual report was 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.
- Food service establishments are billed for permit fees for the FOG program.

East Bank WWTP obtained its air permit in 2016. This permit regulates emissions from the FBI and the use of the emergency generator during times when power is not available from Entergy.

The East Bank WWTP is in compliance with section 129 of the Clean Water Act which regulates mercury emissions from the sewage sludge incinerators.

The Power Plant located at the Main Water Purification Plant uses diesel and natural gas-powered units to provide power to DPSs and other SWBNO facilities. The Power Plant is required to meet air quality regulations found in the facility's Title V Air Permit. Emergency back-up generators are also located at DPSs and other SWBNO facilities. These units are permitted by emergency engine permits.

The permit renewal of the power plant was submitted in 2016. LDEQ reviewed the application in 2017 and issued the permit in February 2018. SWBNO continues to utilize compliance software for air quality programs at the Carrolton WPP.

All Title V Air Permit reports for the East Bank Sewage Treatment Plant and the Main Water Purification Plant were filed on time and there were no permit violations in 2017.

The Municipal Separate Storm Sewer System (MS4) Permit for the Orleans Parish is managed by the SWBNO. The SWBNO, along with co-permittees, met the requirements found in the permit and it was documented in the annual report filed on May 1, 2017. This permit is up for renewal in 2018. The department submitted the application by the July 1 due date.

Prior to 2015, the Environmental Affairs department used a contractor for stormwater sampling required for the M4 permit. In 2017, stormwater sampling was still done completely in-house by the department's staff. All required samples were successfully collected by the department's staff to meet 2017 permit requirements.

The department has implemented a comprehensive FOG monitoring and permitting program. The program has identified approximately 3,000 food service facilities such as schools, restaurants, daycare centers, hospitals, convenience stores and other facilities that prepare food. Each facility which has a food permit from the Department of Health and Hospitals is required to have a grease trap/grease interceptor. The department tracks all permits, trap pumping records, and applications using a database, and it proactively works with facilities to prevent improper disposal of grease to the collection system. The department held meetings and community outreach events in 2017 to assist the public and businesses in being more aware of the impacts of FOG on the collection system.

The department has provided training and certification to grease trap pumping companies to make sure their staff are consistently cleaning the traps properly. Training was also provided for the inspection of grease traps, which is required to be submitted with the FOG permit application. Certified technicians from the grease trap cleaning companies or licensed plumbers can inspect grease trap/interceptor. Approximately 550 FOG permits were issued in 2017.

Department staff use database software to manage the permitting process and are able to track noncompliance, permit applications, and grease trap pumping records. The department noted that there was a noticeable decrease in SSOs, which was attributed to the success of the FOG program. The excessive strength program and FOG program generated \$84,664.89 and \$47,352.00 (permit fees), respectively.

In 2017, the SWBNO continued with its green infrastructure pilot program, which focuses on community outreach and education. Program accomplishments for last year included:

- 3,009 community members reached directly through outreach activities and events.
- 59 community-based outreach and education events were hosted.
- 23 school-based outreach and education events were hosted.
- 20 schools were reached, some schools visited multiple times.
- 3,344 students taught in a formal class setting or field trip environment.
- All grades were reached (pre-kindergarten to undergraduate).
- 50 teachers were provided with watershed training, curricula, and supplies.
- 12 MS4/Orleans Parish Water Quality Task Force meetings were hosted and/or attended.
- 2 tours were conducted of SWBNO facilities; Drainage Pump Station 6 and Carrollton Water Plant.
- 211 catch basins were cleaned and/or marked in 5 separate events by 48 people.
- 4 professional trainings were attended and 7 trainings were facilitated by SWBNO staff.
- 8 Environmental Affairs employees attended Greater New Orleans Water Week.
- Global Learning and Observations to Benefit the Environment (GLOBE) Young Environmental Scientist Workshop for 19 teachers.
- Mississippi River Delta Institute reached 12 teachers. Keep Louisiana Beautiful Environmental Education Workshop trained 11 teachers.

The Environmental Affairs department continues to hire more staff for the tasks necessary to maintain compliance with all the rules and regulations that apply to the SWBNO. In 2017, the department lost three senior city planners and one environmental technician in the stormwater area. Two senior city planners have since been hired. The department continues to actively hire and fill vacancies and requested additional positions during the 2018 budget process, which was submitted for consideration in 2017. The department did not express concerns about finding qualified candidates for these vacancies. Currently, one employee is in DROP and will be gone within a year. Additional positions requested in the 2018 budget include 1 clerical position, 1 city planner, 2 environmental technicians, 1 analyst, and 4 environmental technicians.

Currently information for the manifest of the FOG program is hand written. The department currently has the equipment to scan information but doesn't have the software or manifests yet, as there was a delay in ordering both the software and manifests until funding became available in mid-2018. Most NPDES stormwater stations were upgraded in 2017 and continue to be upgraded in 2018. Additional funding was spent on equipment such as pH probes, DO probes, computers, and desks for new staff.

As a result of the flooding in August 2015, the department had to take on more responsibility such as conducting monthly Spill Prevention, Control, and Countermeasure (SPCC) inspections at the drainage stations and emergency generator locations. Environmental Affairs has updated all existing SPCC plans as required by the regulations. The SPCC plans for new sites where emergency generators were placed as the result of the flooding experienced in August 2017, which was completed by consultants. It was noted by the department that the volume of diesel necessary increased because of the increased number and use of emergency generators. This increased the likelihood of spills associated with fueling more often and during inclement weather, night, etc. Several diesel spills occurred in 2017. The cleanup of these spills was coordinated with Environmental Affairs and contractors.

Additional duties of the department included environmental consulting with other SWBNO departments to advise the SWBNO on Asbestos abatement, RECAP investigations and removal of contaminated soil at various SWBNO-related construction projects. The SWBNO hired environmental personnel for the Project Delivery Unit (PDU) section. This resulted in better response to environmental issues for SWBNO construction projects.

STATUS OF CONSENT DECREE FOR SEWERAGE SYSTEM

The SWBNO complies with the EPA Region 6 and Department of Justice consent decree, which requires cessation of unauthorized discharges and developing 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.

The SWBNO is in compliance with the consent decree. It has met every construction and reporting deadline in the decree and has had no fines related to construction or reporting schedules in 2017.

SUMMARY OF FINDINGS

The following items are a summary of the findings during the 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 water and sewer utilities. Following the August 2017 flooding event, several key SWBNO staff left the organization, which resulted in limited staff with water treatment experience. This staff concern was noted by LDEQ as a major deficiency at both of the WPPs during their 2017 plant inspections.
- It was noted during the interviews that many department heads felt the interim leadership has not provided much in terms of stability and assistance. Stable, permanent leadership is needed.
- In addition to funding, it was noted that lack of land or footprint to build new transformers, sedimentation basins and other much-needed upgrades at the Carrolton WPP. Acquiring land in the area will not be economical because surrounding property values increased.
- Staffing remains a key item of concern for the SWB. Similar to water and sewer utilities across the United States, the SWBNO departments are faced with a significant number of pending retirements. Approximately 20 percent of current employees are either in DROP or are eligible for retirement. Unless these employees are replaced with qualified individuals, 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 to mitigate the pending retirements will be a key element for SWBNO. This problem was noted by each department.
- Several departments are experiencing vacancies, including the water purification unit of the Operations department, as well as the Facilities Maintenance and Networks departments. Within the last year, one high level department head has retired (supervisor of operations of both WPPs) and a new department head for power pumping was assigned. SWBNO needs to address these vacancies as soon as possible to ensure effective operational and maintenance performance and administrative oversight. It was noted by every department that during the last year, the high turnover within the SWBNO's Human Resources group along with new human resource procedures hindered efforts to hire and promote staff in a timely fashion. This situation has improved slightly with each department being assigned a Human Resource representative to provide more support.
- Construction of the two 2 MG water towers, as part of the water hammer project, started in late 2016 and contractors continued to work on both towers in 2017, with completion scheduled near year.
- Turbine rehab work is ongoing and Turbine 4 testing to ensure power capacity is restored at the power house was occurring during the site visit.
- 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.
- The SWBNO has started to initiate emergency filter repairs including building a new filter backwash station.
- The rate of decay of the potable water distribution network and the sanitary sewer collection system presents the two biggest challenges. Lines are being replaced or repaired where leaks have been

detected by the contractor. The Networks department has experienced high turnover rates in field staff due to the reduction in allowable overtime and are now relying more on contractors to perform work the department normally does in house. This situation continues to add to the stress of dealing with the rate of decay and system needs.

- East WWTP was fully converted to sodium hypochlorite during 2017 and was operational at time of visit. West Bank WWTP fully converted to sodium hypochlorite during 2016/2017. This conversion from gas to sodium hypochlorite ensures the safety of the neighboring communities, as well as the operators at each location.
- All previously-planned DPS construction projects have been completed within the last few years. Maintenance and repair of pumps, screens and generators are the only items planned for the DPSs at this time. Pumps at several DPSs have been out of service and awaiting repair without a change in status over the last few years; however, there were a few instances where new issues including pumps out of service or broken screens were noted during this year's assessment. The majority of items noted were carry overs from last year's report. The pending repairs are deemed non-priority due to adequate capacity provided by other pumps at the stations. Lastly it was noted during inspections that many SLSs are slated to be demolished and rebuilt, including Station 1, Shorewood Station, Weber Station, and others.
- The sewage plants met permit requirements in 2017.

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 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 General Water Revenue Bond Resolution in 2017.

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.

2017 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 2017 Water Department operations are discussed in the following paragraphs.

Operating Revenues

A summary of historical treated water billings and other Water Department revenue is presented in Table 2 for the period 2013 through 2017. The historical revenues shown in Table 2 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 2017 were \$88,626,216 which, when compared with \$82,060,525 for 2016, shows an increase of approximately 8.0 percent. Delinquent fee revenues were \$1,838,594 in 2017 which represent a 3.6 percent decrease over 2016 delinquent fees.

Table 2 - Statement of Historical Revenue

Revenue Source	2013	2014	2015	2016	2017
	\$	\$	\$	\$	\$
Operating Revenue					
Sales of Water	63,248,555	69,601,809	76,719,113	82,060,525	88,626,216
Delinquent Fee	<u>1,216,445</u>	<u>1,288,824</u>	<u>1,098,415</u>	<u>1,907,750</u>	<u>1,838,594</u>
Total Operating Revenue	64,465,000	70,890,633	77,817,528	83,968,276	90,464,810
Nonoperating Revenue					
Interest Earned	82,893	349,607	966,017	2,097,442	1,907,750
Plumbing Inspection and License Fees	321,518	339,176	305,384	319,991	297,215
Revenue Sharing	219,877	254,577	258,721	251,002	264,074
Other Income	<u>5,234,998</u>	<u>2,459,234</u>	<u>3,418,560</u>	<u>2,531,442</u>	<u>1,708,071</u>
Total Nonoperating Revenue	<u>5,859,286</u>	<u>3,402,593</u>	<u>4,948,682</u>	<u>5,199,877</u>	<u>4,177,110</u>
Total Revenue	70,324,286	74,293,226	82,766,210	89,168,153	94,641,920

Non-Operating Revenues

Also shown in Table 2, non-operating revenue of the Water Department includes interest earned on invested funds, and other income from miscellaneous sources. During 2017, non-operating revenue included \$1,907,750 of interest earned from the investment of available funds in the Water System Fund and the Water Revenue Bond Account and \$2,269,360 from other sources.

Operation and Maintenance Expenses

Table 3 presents a summary of historical expenses. Expenditures in 2017 increased about 1.4 percent from 2016 expenditures and decreased about 0.4 percent from 2015 expenditures. Historical operation and

maintenance expenses shown in Table 3 do not include the non-cash portion of Provision for Claims as recorded in the Comprehensive Annual Financial Report.

Table 3 - Historical Operation and Maintenance Expense (a)

Description	2013	2014	2015	2016	2017
	\$	\$	\$	\$	\$
Personal Services	32,375,467	34,802,991	42,333,498	39,659,020	37,297,239
Services & Utilities	15,964,882	16,936,254	17,408,686	17,603,566	18,857,858
Supplies & Materials	14,229,820	14,998,094	18,276,404	19,143,488	21,166,372
Special Current Charges	1,304,502	2,357,932	(103,530)	248,523	389,167
Furniture & Equipment	233,244	298,973	349,610	231,850	271,279
Repairs & Facility Maintenance	0	0	0	0	0
Total Operation and Maintenance	64,107,915	69,394,244	78,264,668	76,886,448	77,981,915

(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.

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 2017 capital expenditures totaled \$84,092,139. The Water Department's capital improvement expenditures for the year are shown in Table 4.

Table 4 - 2017 Capital Expenditures

C.P. #	Project	Actual Expenditures
		\$
Waterworks		
110	Normal Extensions & Replacements	7,489,397
112	Modification to Oak St Raw Water Intake Station	
122	Sycamore and Claiborne Filter Rehabilitation	
156	Advanced Water Treatment	648,925
160	SELA Water Relocation Costs	
175	Water Hurricane Recovery Bonds	10,350,422
180	FEMA Review of Change Orders - Water	23,902,425
	Total Waterworks	42,391,169
Water Distribution		
214	Normal Extensions & Replacements	4,351,365
215	Rehabilitation - Mains, Hydrants & Services	
216	Water Systems Replacement Program	253,875
239	Mains DPW Contracts	2,570,549
	Total Water Distribution	7,175,788
Power Projects and General Budget		
600	Water Share of Power Projects	17,273,345
700	Water Reserve for Emergencies	5,074,499
800	Water Share of General Budget Items	12,177,338
	Total Power Projects and General Budget	34,525,182
	Total Water Department	84,092,139

Summary of Operations

The following tabulation shows a summary of the receipts and expenditures of the Water Department during 2017:

Total Revenues	\$94,641,920
Operation and Maintenance Expense	77,981,915
Claims	2,844,668
Debt Service Payments	10,640,500
Revenue Primarily Available for Capital Expenditures ^a	1,174,787

^a Excludes depreciation.

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 2017. Sewerage Department tables are included at the end of this section.

2017 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 2017 operations of the Sewerage Department are discussed in the following paragraphs.

Operating Revenues

A summary of historical sewer billings and other Sewerage Department revenue is presented in Table 5 for the period 2013 through 2017. The historical revenues shown in Table 5 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 2017 were \$108,810,410 which, when compared with \$104,060,458 for 2016, shows an increase of approximately 4.6 percent. Delinquent fee revenues were \$2,253,310 in 2017 which represent an increase of approximately 6 percent over 2016 delinquent fees.

Table 5 - Statement of Historical Revenue

Revenue Source	2013	2014	2015	2016	2017
	\$	\$	\$	\$	\$
Operating Revenue					
Sewerage Service Charges	77,767,114	85,740,367	94,775,797	104,060,458	108,810,410
Delinquent Fee	812,895	861,169	734,725	2,125,115	2,253,310
Total Operating Revenue	78,580,009	86,601,536	95,510,521	106,185,572	111,063,719
Nonoperating Revenue					
Interest Income	178,122	257,824	1,340,586	2,301,168	2,125,115
Plumbing Inspection and License Fees	321,518	339,176	305,384	318,511	291,215
Revenue Sharing	274,229	317,506	322,674	313,048	329,350
Other Income	771,397	1,289,474	560,157	505,847	528,139
Total Nonoperating Revenue	1,545,265	2,203,980	2,528,801	3,438,574	3,273,819
Total Revenue	80,125,274	88,805,516	98,039,322	109,624,146	114,337,538

Non-Operating Revenues

Also shown in Table 5, Sewerage Department non-operating revenue includes interest earned on the investment of available funds and other minor items of revenue. Interest earned in 2017 consisted of \$2,125,115 from investments in the Sewerage System Fund and the Sewerage Revenue Bond Account. Miscellaneous income was \$1,148,704 for 2017.

Operation and Maintenance Expenses

Table 6 presents a summary of 2013 through 2017 historical operation and maintenance expenses of the Sewerage Department. Expenditures for 2017 increased about 12.6% percent from 2016 expenditures. Historical operation and maintenance expenses shown in Table 6 do not include the non-cash portion of Provision for Claims as recorded in the Comprehensive Annual Financial Report.

Table 6 - Historical Operation and Maintenance Expense (a)

Description	2013	2014	2015	2016	2017
	\$	\$	\$	\$	\$
Personal Services	24,785,716	23,301,162	30,903,283	27,619,358	27,022,675
Services & Utilities	17,463,783	18,342,982	17,148,698	20,269,282	26,270,235
Supplies & Materials	3,201,309	4,946,831	9,090,197	10,205,920	11,790,097
Special Current Charges	588,515	1,762,961	617,675	(56,248)	337,882
Furniture & Equipment	199,073	205,113	268,870	202,343	172,082
Repairs & Facility Maintenance	0	0	0	0	0
Total Operation and Maintenance	46,238,396	48,559,050	58,028,723	58,240,656	65,592,971

(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.

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.

Table 7 – 2017 Capital Expenditures

C.P. #	Project	Actual Expenditures
		\$
	Sewerage Systems	
313	Extensions & Replacements - Sewer Force Mains EPA Consent Decree	123,664
317	Normal Extensions & Replacement of Gravity Mains	24,121,231
318	Rehabilitation Gravity Sewer System	6,279,806
326	Extensions & Replacements to Sewer Pumping Stations	623,696
339	Mains in Street Dept. Contracts	959,124
340	Sewerage Hurricane Recovery Bonds (FEMA)	
348	Normal Extensions & Replacements	4,546,136
368	Wetlands Assimilation Project	177,511
375	Sewerage Hurricane Recovery Bonds	684,395
380	FEMA Review of Change Orders-Sewer	10,203,715
	Total Sewerage System	50,577,528
	Power Projects and General Budget	
600	Sewerage Share of Power Projects	13,593,257
700	Sewer Reserve for Emergencies	
800	Sewerage Share of General Budget Items	11,878,163
	Total Power Projects and General Budget	25,471,420
	Total Sewerage Department	76,048,949

The Sewerage Department's 2017 capital expenditures totaled \$76,048,949. The Sewerage Department's capital improvement expenditures for the year are shown in Table 7.

Summary of Operations

The following tabulation shows a summary of the receipts and expenditures of the Sewerage Department during 2017:

Total Revenues	\$114,337,538
Operation and Maintenance Expense	65,592,971
Claims	1,318,735
Debt Service Payments	24,806,488
Revenue Primarily Available for Capital Expenditures ^a	22,619,344

^a Excludes depreciation.

Drainage Department

2017 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, which is to be used for operation and maintenance as well as funding of capital improvements, was reauthorized in December 2016.

The Board is charged with operating, maintaining, repairing, and expanding the major drainage system located throughout the City. Revenues and expenditures related to the 2017 operations of the Drainage Department are discussed in the following paragraphs.

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 8 for the period 2013 through 2017. The historical revenue shown in Table 8 was developed from detailed records provided by Board Staff.

Table 8 - Statement of Historical Revenue

Revenue Source	2013	2014	2015	2016	2017
	\$	\$	\$	\$	\$
Two-mill Ad Valorem Tax	0	0	0	7,526	2,735
Three-mill Ad Valorem Tax	13,175,711	13,481,526	14,139,193	16,043,825	15,309,309
Six-mill Ad Valorem Tax	13,317,505	13,626,539	14,290,667	16,215,799	16,229,098
Nine-mill Ad Valorem Tax	19,962,114	20,425,388	21,421,102	23,762,398	23,881,671
Two-mill Ad Valorem Tax	0	0	0	7,526	2,735
Interest Earned	92,615	203,832	202,579	253,938	244,250
Other	1,099,908	1,277,250	4,313,845	1,065,829	1,215,909
Total Revenue	47,647,853	49,014,535	54,367,386	57,356,842	56,885,708

Operation and Maintenance Expenses

Table 9 presents a summary of 2013 through 2017 operation and maintenance expenses of the Drainage Department. Expenditures for 2017 increased about 66% percent over 2016 expenditures due to emergency spending resulting from the August 2017 flood event. Historical operation and maintenance expenses shown in Table 9 do not include the non-cash portion of Provision for Claims as recorded in the Comprehensive Annual Financial Report.

Table 9 - Historical Operation and Maintenance Expense (a)

Description	2013	2014	2015	2016	2017
	\$	\$	\$	\$	\$
Personal Services	18,836,845	17,096,914	25,494,930	21,132,530	21,251,555
Services & Utilities	11,258,057	11,460,611	10,324,968	10,240,962	10,991,721
Supplies & Materials	1,937,679	1,523,346	1,511,946	1,682,711	22,903,440
Special Current Charges	578,960	756,295	372,914	364,893	457,340
Furniture & Equipment	91,674	62,057	109,745	102,528	90,522
Repairs & Facility Maintenance	0	0	0	0	0
Total Operation and Maintenance	32,703,215	30,899,222	37,814,502	33,523,624	55,694,577

(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.

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 2017 totaled \$52,384,979. The Drainage Department's capital improvement expenditures for the year are shown in Table 10.

Table 10 - 2017 Capital Expenditures

C.P. #	Project	Actual Expenditures
		\$
	Canals	
418	Normal Extensions & Replacements	53,315
439	Major Drainage Participation in DPW Projects	602,736
466	Louisiana Avenue Canal (SELA)	9,571,511
471	SELA Program Management	1,838,487
476	Hollygrove Canals (SELA-A)	
478	S. Claiborne-Lowerline to Monticello Street	144,721
480	FEMA Review of Change Orders-Drainage	7,129,227
486	Napoleon Canal Improvements (SELA-B)	13,415
497	Florida Ave. Canal - DPS#19 to Peoples Ave. (SELA-B)	1,477,024
498	Dwyer Intake Canal (St. Charles to Dwyer DPS) (SELA-A)	49,722
499	Jefferson Avenue Canal	139,975
	Total Drainage Canals	21,020,131
	Pumping Stations	
511	Normal Extensions & Rep./Stations	361,275
574	Hurricane Katrina Expenses for Drainage System	5,262,701
575	Drainage Hurricane Recovery Bonds	(326,001)
	Total Drainage Pumping Stations	5,297,974
	Power Projects and General Budget	
600	Drainage Share of Power Projects	15,673,355
703	Drainage Reserve for Emergency	113,762
800	Drainage Share of General Budget Items	10,279,756
	Total Power Projects and General Budget	26,066,873
	Total Drainage Department	52,384,979

Summary of Operations

The following tabulation shows a summary of receipts and expenditures of the Drainage Department during 2017:

Total Revenues	\$56,882,973
Operation and Maintenance Expense	55,694,577
Claims	41,109,418
Debt Service Payments	2,024,050
Revenue Primarily Available for Capital Expenditures ^a	-41,945,073

^a Excludes depreciation.

Appendix

Table 11 - Assessment of East Bank Sewage Stations

	DATE	FACILITY NAME	LOCATION	STATUS
1	06/19/18	Chickasaw	Chickasaw at Metropolitan	Two (2) pumps total; both operational
2	06/19/18	K-Mart	Desire at Gentilly	Two (2) pumps total; both operational
3	06/19/18	Station 23	4500 Mithra	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> • Pump #1 temporarily out of service due to electrical issues. Should be repaired by day's end.
4	06/19/18	Station 17	4975 Spain at Selma	Two (2) pumps total; both operational
5	06/19/18	Station 22	5705 Perlita	Two (2) pumps total; both operational
6	06/19/18	Station 19	3730 Jumonville at Milton	Two (2) pumps total; both operational
7	06/19/18	Station 21	6670 Memphis At Filmore	Two (2) pumps total; both operational
8	06/19/18	Station 18	Vicksburg at Florida	Two (2) pumps total; both operational
9	06/19/18	City Park	5701 Marconi Drive	Two (2) pumps total; both operational
10	06/19/18	Station 20	328 37th Street	Two (2) pumps total; both operational
11	06/19/18	Station 4	5899 Fleur de Lis	Two (2) pumps total; both operational
12	06/19/18	Lakewood South	Country Club Drive near Marconi	Two (2) pumps total; both operational
13	06/19/18	Station 6	242 S Solomon at Palmyra	Three (3) pumps total; all operational
14	06/19/18	Station 3	8720 Olive near Eagle	Two (2) pumps total; both operational
15	06/19/18	Station 1	7336 Cohn	Two (2) pumps total; both operational <ul style="list-style-type: none"> • Older station that is planned to be rebuilt in future.
16	06/19/18	Station 14	4000 Clara	Two (2) pumps total; both operational

	DATE	FACILITY NAME	LOCATION	STATUS
				<ul style="list-style-type: none"> No emergency discharge connection.
17	06/19/18	Station 5	3912 Erato St	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> Pump #1 out of service temporarily while impeller is being replaced. Should be back operational within a week.
18	06/19/18	Station 15	2431 Palmyra near Rocheblave	Three (3) pumps; each operational
19	06/19/18	Station 8	Corner of N. Broad and Toulouse	Two (2) portable pumps total; both operational: <ul style="list-style-type: none"> Former station being demolished and rebuilt. Two (2) portable pumps on-site, one in use and the other on stand-by.
20	06/19/18	Station 9	2540 Annette at Law	Two (2) pumps total; both operational
21	06/20/18	Station 16	3751 N Miro at Pauline	Two (2) pumps total; both operational
22	06/20/18	Station 24	5027 N Tonti at Forstall	Two (2) pumps total; both operational <ul style="list-style-type: none"> Belt guard on Pump #1 needs to be modified to run properly
23	06/20/18	Station 25	2245 Charbonnet	Two (2) pumps total; both operational <ul style="list-style-type: none"> Surrounding soils eroding, potential issues from settling may occur. Yard needs to be mowed.
24	06/20/18	Station 26	2244 St Maurice at Tonti	Two (2) pumps total; both operational
25	06/20/18	Station B	4725 St Claude Avenue	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> At Pump #1, it is suspected that the disc in the suction valve has dropped. Pump will be out indefinitely until a special diver is hired to make necessary repair.
26	06/20/18	Southern Scrap	Southern Scrap Rd	Two (2) pumps total; both operational
27	06/20/18	France & Florida	Harbor Rd	Two (2) pumps total; both operational
28	06/20/18	MECO	2701 France Road	Two (2) pumps total; both operational
29	06/20/18	American Marine	3855 France Road	Two (2) pumps total; both out of service: <ul style="list-style-type: none"> One (1) portable pump in-use. At both pumps the check valves failed last week. Repair time has not yet been determined.

	DATE	FACILITY NAME	LOCATION	STATUS
30	06/20/18	Victoria @ Gentilly	3620 Victoria	Two (2) pumps total; both operational
31	06/21/18	Dotd	8118 Chef Menteur Highway	Two (2) pumps total; both operational
32	06/21/18	Plum & Orchid	7300 Chef Menteur Highway	Two (2) pumps total; both operational
33	06/20/18	Wilson	7709 Wilson Avenue	Two (2) pumps total; both operational
34	06/20/18	Crowder	5500 Block of Crowder	Two (2) pumps total; both operational: <ul style="list-style-type: none"> Large tree on sidewalk needs to be cut back.
35	06/21/18	Castle Manor	4950 Gawain at Dwyer	Two (2) pumps total; both operational <ul style="list-style-type: none"> Crew on-site repair leak in backflow preventer.
36	06/21/18	Cerise	5001 Cerise	Two (2) pumps total; both operational
37	06/21/18	Lakewood Terrace	5057 Warren Drive	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> Pump #2 has been out of service for several months. The issue and solution are unknown at this time.
38	06/21/18	McCoy	McCoy at Gentilly	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at station
39	06/21/18	Amid	6800 Almonaster Road	Two (2) pumps total; both operational
40	06/20/18	Lake Forest	10451 Lake Forest Blvd	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> Belt is slipping at Pump #2. Repair time unknown.
41	06/20/18	Wright Road	Wright Road at Lake Forest	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at station
42	06/20/18	Bullard	5501 Bullard Road	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No placard at this location.
43	06/20/18	Pines Village	6155 Dwyer Road at Foch	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> Pump #1 out due to the flap mechanism not functioning properly. Repair time unknown.
44	06/20/18	America	6789 Dwyer Road at Westlake	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> Vacuum pump out at Pump #1. Repair time unknown.
45	06/25/18	Station A	1321 Orleans Avenue	Six (6) pumps total; all operational

	DATE	FACILITY NAME	LOCATION	STATUS
46	06/25/18	Shorewood	14441 Morrison Road	Two (2) pumps total; both operational
47	06/25/18	Briarwood	13701 Morrison Road	Two (2) pumps total; both operational
48	06/25/18	Liggett	12501 Morrison Road	Two (2) pumps total; both operational
49	06/25/18	Berg	11501 Morrison Road	Two (2) pumps total; both operational
50	06/25/18	Weber	10141 Morrison Road	Two (2) pumps total; both operational
51	06/21/18	Burke	9001 Morrison Road	Two (2) pumps total; both operational
52	06/21/18	Lawrence	8001 Morrison Road	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No placard at this location.
53	06/21/18	Lamb	6450 Morrison Road	Two (2) pumps total; both operational
54	06/25/18	Gentilly Oaks	5000 Papania Road at Vienna	Two (2) pumps total; one (1) in service: Pump #2 is out of service while the bearings are being replaced. Should be repaired and back operational by the end of the week.
55	06/25/18	Eastover	6051 Eastover Drive	Two (2) pumps total; both operational
56	06/25/18	Paris Road	Dwyer West of Paris Road	Two (2) pumps total; both operational
57	06/25/18	Venetian Isles #2	20711 Old Spanish Trail	Two (2) pumps total; both operational
58	06/25/18	Industrial Parkway	4200 Industrial Parkway	Two (2) pumps total; both operational
59	06/25/18	Blvd X	4433 Chef Menteur Highway	Two (2) pumps total, both operational

	DATE	FACILITY NAME	LOCATION	STATUS
60	06/25/18	Alcee Fortier	Alcee Fortier Blvd at the Levee	Two (2) pumps total; both operational
61	06/25/18	Willow Brook	Willowbrook off of Michoud	Two (2) pumps total; both operational: <ul style="list-style-type: none"> • New emergency discharge connection installed at station. Also new concrete driveway put in. • There is some leaking around the O-ring at Pump #2.
62	06/25/18	Oak Island	14201 Michoud Blvd	Two (2) pumps total; both operational
63	06/25/18	Village de Lest	11324 Dwyer	Two (2) pumps total; both operational
64	06/25/18	Michoud	4400 Michoud Blvd	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> • Flap is going bad at Pump #2. Should be repaired and back operational in a couple weeks.
65	06/25/18	Folgers	14601 Gentilly Blvd	Two (2) pumps total; one (1) in service: <ul style="list-style-type: none"> • Pump #2 is reportedly out indefinitely. The check valve is broken and the gate valve is damaged and ineffective. Both valves need to be replaced.

Table 12 - Assessment of West Bank Sewage Stations

	DATE	FACILITY NAME	LOCATION	STATUS
1	06/22/18	Memorial	2501 Memorial Park Dr.	Two (2) pumps total; both operational
2	06/22/18	Garden Oaks	3201 Memorial Park Dr.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station, foundation appears to be wilting
3	06/22/18	Park Timbers	4100 Lennox Blvd.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station.
4	06/22/18	Tall Timbers	3800 Tall Pines Dr.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station.
5	06/22/18	Forest Isle	5631 West Forest Park Dr.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station.
6	06/22/18	Blair	3800 Blair St	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station. Soils around station are eroding, causing settlement around station
7	06/22/18	Aurora	6000 Carlisle Ct	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station.
8	06/22/18	English Turn I	2201 Stanton Rd.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station.
9	06/22/18	English Turn II	123 ½ Oak Alley	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this location.
10	06/22/18	English Turn III	400 English Turn Parkway	Two (2) pumps total; both operational
11	06/22/18	Lower Coast	3700 Old Woodland	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station.
12	06/22/18	Woodland	4150 Woodland Dr.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> No emergency discharge connection at this station
13	06/22/18	Eton	3440 Eton St	Two (2) pumps total; both operational: <ul style="list-style-type: none"> New fencing and driveway installed at station. New emergency discharge connection being installed within the last year.
14	06/22/18	Huntlee	3201 Huntlee Dr.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> New fencing and driveway installed at station. New emergency discharge connection being installed within the last year.
15	06/22/18	Holiday	2799 Holiday Dr.	Two (2) pumps total; both operational: <ul style="list-style-type: none"> New fencing and driveway installed at station. New emergency discharge connection being installed within the last year.
16	06/22/18	Bridge Plaza	2914 Vespasian St	Two (2) pumps total; both operational
17	06/22/18	Horace	3301 Lawrence St	Two (2) pumps total; one (1) in service:

	DATE	FACILITY NAME	LOCATION	STATUS
				<ul style="list-style-type: none"> • New perimeter fencing, and concrete driveway installed. • Two (2) emergency discharge connections installed at this location within the last year. • Pump #2 is out of service while the bearings are being replaced. Should be back operational shortly.

Table 13 - Assessment of East Bank Drainage Stations

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
1	06/21/18	Station 1	2501 S. Broad St.	Eleven (11) pumps total; ten (10) operational, Constant Duty No. 1 not in service.	Constant duty No. 1 has been out of service for the past couple years because the brushes are bad. No timetable is established for repair. New meters are also being installed at this station.
2	06/21/18	Station 6	345 Orpheum	Thirteen (13) pumps total; all operational.	
3	06/21/18	I-10 Station	I-10 Service Road	Four (4) pumps total; all operational.	
4	06/21/18	Station 7	5741 Orleans Ave at Marconi Dr.	Five (5) pumps total; all operational.	
5	06/21/18	Canal Blvd	5500 Canal Blvd	Three (3) pumps total; all operational.	
6	06/21/18	Station 2	444 N. Broad St.	Six (6) pumps total, 2 are constant duty; all operational.	
7	06/26/18	Station 3	2251 N. Broad St.	Nine (9) pumps total; four (4) pumps out of service.	Constant duty pumps 1, 2, 3 & 4 are out of service since last year. Constant duties can't pump because of issues at the discharge gates. The "lake" gate will not seal properly and must remain open. As a result, the Marigny gate must stay close at all times. The four constant duty pumps cannot be run and are useless until the discharge gates are repaired and functional. Major vegetation in basins needs to be removed as well.
8	06/27/18	Pritchard	2901 Monticello	Three (3) pumps total; all operational.	Crews currently working on anti-reverse mechanism for Pump #1. Pump is still operational during repairs.
9	06/27/18	Oleander	9400 Oleander	Three (3) pumps total; all operational.	
10	06/26/18	Station 4	5700 Warrington Dr.	Six (6) pumps total; four (4) pumps in service.	Pump C is being re-built and should be back operational in about a month. Also, a constant duty pump is suffering from overheating and should be repaired by the end of the week. Two vacuum pumps are out of service for regular maintenance and should be back operational in the coming days. There are 2 large chlorine tanks on-site that are no longer being utilized.
11	06/26/18	Station 12	Robert E Lee and Pontchartrain Blvd	One (1) pump total, one (1) in service.	

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
12	06/27/18	Station 16	Danube Rd. at Wales	Four (4) pumps total; all operational.	
13	06/27/18	Station 10	Citrus 9600 Haynes	Four (4) pumps total; all operational.	
14	06/27/18	Station 14	Oneida at Haynes	Four (4) pumps total; all operational.	
15	06/26/18	Grant	Grant St. at Gentilly Blvd.	Six (6) pumps total; all operational.	
16	06/26/18	Elaine	3100 Elaine St.	Two (2) pumps total; both operational.	
17	06/26/18	Station 17 (D)	2801 Florida Ave.	Two (2) pumps total; both operational.	
18	06/27/18	Station 5	Florida Ave.	Eight (8) pumps total, all operational.	Two vertical pumps housed in separate building.
19	06/27/18	Station 19	4500 Florida Ave.	Five (5) pumps total; all operational.	
20	06/26/18	Station 20 (AMID)	6300 Intercoastal Waterway at Terminal Rd.	Two (2) pumps total; both operational.	Trash needs to be cleaned from debris screens at suction basin.
21	06/26/18	Maxent	Alcee Fortier	Two (2) pumps total; both operational.	Overgrown vegetation is causing severe blockage at suction basin.
22	06/26/18	Station 15	Industrial Parkway	Three (3) pumps total; all operational.	Overgrown vegetation is causing severe blockage at suction basin.
23	06/26/18	Dwyer	5801 Dwyer Rd.	Three (3) pumps total; all operational.	

Table 14 - Assessment of West Bank Drainage Stations

	DATE	FACILITY NAME	LOCATION	STATUS	NOTES
1	06/27/18	Station 11	5301 East Sixth St.	Five (5) pumps total; all operational.	3 out of 4 debris screens are not working.
2	06/27/18	Station 13	4201 Tall Spruce Dr.	Seven (7) pumps total; five (5) pumps operational.	Pumps #4 and #5 are out of service while they are being repaired or replaced for something regarding asbestos. Repair time unknown.