

EXECUTIVE SUMMARY

# REPORT ON OPERATIONS FOR 2018

B&V PROJECT NO. 402592

PREPARED FOR

Sewerage and Water Board of New Orleans

9 MARCH 2020



## **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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March 9, 2020

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 Executive Summary for the Report on Operations of the Water, Sewerage, and Drainage Departments for the year 2018.

The detailed report contains analyses to confirm compliance with the covenants of the General Water Revenue Bond Resolution and the General Sewerage Revenue Bond Resolution.

Bound separately is the Report on Operations for 2018.

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



## Executive Summary

The Report on Operations of the Sewerage and Water Board of New Orleans presents findings of studies made in compliance with covenants of the General Water Revenue Bond Resolution and the General Sewerage Service Revenue Bond Resolution (General Resolution). The report includes recommendations designed to assist the Board and its staff in planning future operational policies. Subjects covered in the report include:

1. Adherence to covenants of the General Resolution.
2. Ability to finance projected revenue requirements including proposed capital improvements.
3. Operations of the water, sewerage, and drainage systems.

Findings of the report are summarized as follows:

### WATER DEPARTMENT

- Financial operations for 2018 have complied with the requirements of the General Water Revenue Bond Resolution.
- Total water revenues remained fairly constant from \$94,656,734 in 2017 to \$94,507,453 in 2018 despite a 10 percent water rate increase effective January 1, 2018. The decrease in total operating revenue in 2018 is likely due to the moratorium on water shut-offs which resulted in unpaid water bills. Operation and maintenance expenses (excluding claims) increased from \$76,415,700 in 2017 to \$85,996,300 in 2018. After debt service payments and claims, a deficit balance of \$5,306,838 was available for capital related expenditures in 2018, unadjusted for depreciation. The comparable figure for 2017 was \$1,174,787.
- Capital improvement expenditures totaled \$66,540,401 in 2018. The proposed capital improvement program for the five years 2019 through 2023 totals \$614,288,900.
- A projected cash flow statement showing the timing and magnitude of indicated revenue increases and additional debt financing is presented in Table A. Revenues shown on Line 1 of Table A are based on rates that reflect the approved increases for January 1, 2019 and 2020. It is projected that a 6 percent revenue increase will be necessary effective January 1, 2021, followed by a 3 percent revenue increase effective January 1, 2022 and January 1, 2023. The revenue from these proposed revenue increases are shown in Lines 4 through 6 of Table A.
- To adequately fund the proposed capital improvements, additional long term debt financing of \$60,000,000 in 2020, \$10,000,000 in 2021, and \$8,000,000 in 2022 is indicated to fund the proposed capital improvement program.
- As demonstrated in Table A, it is anticipated that current revenue sources and will be adequate to readily finance both projected capital program requirements and estimated future operation expenses of the Water Department during the 2019-2023 study period examined herein. In addition, it is anticipated that the required rate covenant coverage test and additional bond coverage test under the General Solution will be met for each year of the five-year period as shown in Table B.

## SEWERAGE DEPARTMENT

- Financial operations for 2018 have complied with the requirements of the General Sewerage Service Revenue Bond Resolution.
- Total sewerage revenues increased from \$114,321,779 in 2017 to \$118,029,792 in 2018 primarily due to the impact of a 10 percent sewerage rate increase effective January 1, 2018. Operation and maintenance expenses (excluding claims) increased from \$64,597,600 in 2017 to \$80,212,900 in 2018. After debt service payments and claims, a balance of \$12,708,440 was available for capital related expenditures in 2018, excluding depreciation. The comparable figure for 2017 was \$22,619,344.
- Capital improvement expenditures totaled \$58,409,594 in 2018. The proposed capital improvement program for the five years 2018 through 2022 totals \$418,768,500.
- A projected cash flow statement showing the timing and magnitude of indicated revenue increases and additional debt financing is presented in Table C. Revenues shown on Line 1 of Table C are based on rates that reflect the approved increases for January 1, 2019 and 2020. It is projected that a 3 percent revenue increase will be necessary effective January 1, 2021. The revenue from this proposed revenue increase is shown on Line 4 of Table C.
- To adequately fund the proposed capital improvements, additional long term debt financing of \$10,000,000 in 2019 and \$65,400,000 in 2020 is indicated to fund the proposed capital improvement program.
- As demonstrated in Table C, it is anticipated that current revenue sources will be adequate to readily finance both projected capital program requirements as currently scheduled and estimated future operation expenses of the Sewerage Department during the 2019-2023 study period. In addition, it is anticipated that the required rate covenant coverage test and additional bond coverage test under the General Solution will be met for each year of the five-year period as shown in Table D.

## DRAINAGE DEPARTMENT

- Total drainage revenues increased from \$56,882,973 in 2017 to \$57,734,583 in 2018. Operation and maintenance expenses (excluding claims) decreased from \$54,848,500 in 2017 to \$51,347,300 in 2018. After debt service payments and claims, a balance of \$14,015,197 was available for capital related expenditures in 2018, excluding depreciation. The comparable figure for 2017 was \$22,619,344.
- Capital improvement expenditures totaled \$50,598,092 in 2018. The proposed capital improvement program for the five years 2019 through 2023 totals \$245,648,300.
- As demonstrated in Table E, projected financial operations for the period 2019 through 2023 indicate that current revenue sources are not adequate to meet operation and maintenance expenses beginning in 2020. In addition, the balance of operating funds available to fund operation and maintenance expenses and debt service will decrease to a deficit balance by the end of 2022.
- Due to the constraints to meet operation and maintenance expense and required debt service payments on existing debt during the study period, the Drainage Department does not have the revenue capacity to issue additional debt.

- It is recommended that the Board defer capital projects until an additional source of operating revenue has been identified.

## OTHER FINDINGS

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

- The management team is losing individuals with significant water, sewerage, and drainage experience due to retirement. This experience has been developed both internally at SWBNO and at other respected water and sewer utilities. This concern was also noted by LDEQ as a major deficiency at both of the WPPs during their 2017 and 2018 WPP inspections.
- During 2018, the department of logistics was dismantled, and departments now report to a more stable leadership structure under a permanent general superintendent.
- Staffing remains a key item of concern for the SWB. Like many water and sewer utilities across the United States, the SWBNO departments are faced with a significant number of pending retirements. Approximately 17 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 at the time of the visit, as well as previous years' reports, especially for Water Operations, Control Center, and Facility Maintenance.
- 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 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 2018. At the time of the visit, both towers were online.
- The Operations department was made aware of a cross connection to the cooling systems for Turbine 1 and 3 and the Carrollton WPP clearwell. To address this issue, the department is planning to retire Turbine 1 and 3 as soon as possible. Steam Pumps A and B also contribute to the cross connection, but recent conversion of the drive to electric on Pump A has eliminated that contribution to the cross connection. Pump B will be converted to an electric drive in 2019 and will no longer be a contributor. Approximately 11 senior operators or supervisors are set to retire in 5 years or less. In 2018, 5 senior operators have left and took voluntary retirement. Retirement was mentioned as a continuous staffing problem in this department, especially at higher pay levels, such as turbine and boiler operations

positions. Additionally, it was also noted that the Chief of Operations will be retiring in September 2020 and a successor is currently not in place to take over.

- It was noted during the site visit that Central Control still did not have enough trained and experience staff. This staffing situation was cited as the Center's largest issue.
- 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. This was still the case in 2018 and at the time of the visit. Many projects are on hold due to funding, such as the new chemical building at the Carrolton WPP and other sewerage and WWP improvements.
- The SWBNO continued and completed emergency filter repairs in 2018 that included a rehab of 4 filters in the Sycamore filter gallery, including replacing pipe supports, valves, and actuators, and construction of a new filter backwash station. The station was online at the time of the visit.
- Aging infrastructure and lack of equipment needed to make repairs was noted as Networks main concern. It was noted that the Networks work backlog has been significantly reduced since August 2018 due to change in how Network staff are utilized. It was also noted that paving work order projects were completed. Emergency response time was also noted to have improved significantly
- Many SLSs are slated to be demolished and re-built, including Station 1, Shorewood station, Weber station, and more. Within the last year, the only SLS that was re-built was Station 8 at the corner of Toulouse and N. Broad. This station was re-built entirely with new pumps, a new structure, transformer, site paving, etc. The Sewerage and Water Board has installed nearly all required Emergency Discharge Connections (EDC) to older above ground stations where they deemed necessary (at some stations, an EDC is not required if it is a gravity-flow station).
- The East bank WWTP had one exceedance in February 2018.

Table A

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

| Line No. | Description                                  | Fiscal Year Ending December 31, |                  |              |              |              |
|----------|--|---------------------------------|------------------|--------------|--------------|--------------|
|          |  | 2019                            | 2020             | 2021         | 2022         | 2023         |
|          |  | \$                              | \$               | \$           | \$           | \$           |
| 1        | Revenue from Charges                         | 112,313,400                     | 118,952,400      | 118,952,400  | 118,952,400  | 118,952,400  |
|          | Additional Revenue Required                  |                                 |                  |              |              |              |
|          | Year   | Revenue Increase                | Months Effective |              |              |              |
| 2        | 2019   | 0.0%                            | 11.0             | 0            | 0            | 0            |
| 3        | 2020   | 0.0%                            | 11.0             | 0            | 0            | 0            |
| 4        | 2021   | 6.0%                            | 11.0             | 6,542,400    | 7,137,100    | 7,137,100    |
| 5        | 2022   | 3.0%                            | 11.0             |              | 3,467,500    | 3,782,700    |
| 6        | 2023   | 3.0%                            | 11.0             |              |              | 3,571,500    |
| 7        | Total Additional Revenue                     | 0                               | 0                | 6,542,400    | 10,604,600   | 14,491,300   |
| 8        | Total Service Charge Revenue                 | 112,313,400                     | 118,952,400      | 125,494,800  | 129,557,000  | 133,443,700  |
| 9        | Interest Income                              | 318,000                         | 308,600          | 417,600      | 454,100      | 460,200      |
| 10       | Plumbing Insp. & License Fees                | 293,200                         | 310,400          | 310,400      | 310,400      | 310,400      |
| 11       | Revenue Sharing                              | 132,300                         | 259,600          | 259,600      | 259,600      | 259,600      |
| 12       | Other Miscellaneous Income                   | 2,883,400                       | 0                | 0            | 0            | 0            |
| 13       | FEMA Reimbursement                           | 1,356,900                       | 756,900          | 756,900      | 756,900      | 756,900      |
| 14       | Interest from Bond Reserve Fund              | 169,000                         | 169,000          | 172,000      | 178,000      | 181,000      |
| 15       | Total Operating Revenue                      | 117,466,200                     | 120,756,900      | 127,411,300  | 131,516,000  | 135,411,800  |
| 16       | Operation & Maintenance (a)                  | (76,277,300)                    | (91,681,000)     | (93,973,000) | (96,322,200) | (98,730,400) |
| 17       | Provision for Claims                         | (1,257,100)                     | (1,288,500)      | (1,320,700)  | (1,353,700)  | (1,387,500)  |
| 18       | Provision for Doubtful Accounts              | (6,007,100)                     | (5,947,600)      | (5,019,800)  | (3,886,700)  | (4,003,300)  |
| 19       | Net Operating Revenue                        | 33,924,700                      | 21,839,800       | 27,097,800   | 29,953,400   | 31,290,600   |
|          | Debt Service                                 |                                 |                  |              |              |              |
|          | Senior Lien Revenue Bonds                    |                                 |                  |              |              |              |
| 20       | Existing                                     | (13,394,600)                    | (13,473,600)     | (13,471,300) | (13,470,400) | (13,470,000) |
| 21       | Projected                                    | 0                               | (735,000)        | (4,469,100)  | (4,979,900)  | (4,979,900)  |
| 22       | Total Senior Lien Revenue Bonds              | (13,394,600)                    | (14,208,600)     | (17,940,400) | (18,450,300) | (18,449,900) |
|          | Subordinate State Revolving Fund Loans       |                                 |                  |              |              |              |
| 23       | Projected                                    | 0                               | 0                | 0            | 0            | 0            |
| 24       | Total Subordinate State Revolving Fund Loans | 0                               | 0                | 0            | 0            | 0            |
| 25       | Gulf Opportunity Zone Act Loan               | (639,900)                       | 0                | 0            | 0            | 0            |
| 26       | Total Debt Service                           | (14,034,500)                    | (14,208,600)     | (17,940,400) | (18,450,300) | (18,449,900) |
| 27       | Other Non-Operating Revenue                  | 5,511,900                       | 2,501,000        | 2,501,000    | 2,501,000    | 2,501,000    |
| 28       | Transfer to Construction                     | (36,000,000)                    | 0                | 0            | (13,000,000) | (14,000,000) |
| 29       | Transfer to Operating Reserve Fund           | (704,700)                       | 0                | (2,673,200)  | (565,200)    | (579,300)    |
| 30       | Net Annual Balance                           | (11,302,600)                    | 10,132,200       | 8,985,200    | 438,900      | 762,400      |
| 31       | Beginning of Year Cash Balance (b)           | 12,092,600                      | 790,000          | 10,922,200   | 19,907,400   | 20,346,300   |
| 32       | End of Year Balance                          | 790,000                         | 10,922,200       | 19,907,400   | 20,346,300   | 21,108,700   |
| 33       | Beginning of Year Cash Balance (b)           | 12,092,600                      | 28,150,501       | 38,282,701   | 49,941,101   | 50,945,201   |
| 34       | Customer Deposits                            | 7,427,400                       |                  |              |              |              |
| 35       | Operating Reserve Fund                       | 19,933,101                      | 0                | 2,673,200    | 565,200      | 579,300      |
| 36       | Net annual Balance                           | (11,302,600)                    | 10,132,200       | 8,985,200    | 438,900      | 762,400      |
| 37       | End of Year Balance                          | 28,150,501                      | 38,282,701       | 49,941,101   | 50,945,201   | 52,286,901   |
| 38       | Days of O&M Cash on Hand                     | 123                             | 141              | 182          | 183          | 183          |

(a) Excludes non-cash expenses of depreciation and allowances, pension liability adjustment, and pension contributions.

(b) Reflects beginning of year balance in unrestricted and undesignated cash and cash equivalents and cash and cash equivalents designated for capital projects, less operating reserve requirement.

**Table B**  
**Water Department**  
**Coverage Requirements**

| Line No.                        | Coverage Requirements                   | 2018         | 2019         | 2020         | 2021         | 2022         | 2023         |
|---------------------------------|---|--------------|--------------|--------------|--------------|--------------|--------------|
|                                 |   | \$           | \$           | \$           | \$           | \$           | \$           |
| <b>Projected Net Revenues</b>   |   |              |              |              |              |              |              |
| 1                               | Revenue Under Existing Rates (a)        | 99,293,900   | 112,313,400  | 118,952,400  | 118,952,400  | 118,952,400  | 118,952,400  |
| 2                               | Additional Revenue Under Proposed Rates |              | 0            | 0            | 6,542,400    | 10,604,600   | 14,491,300   |
| 3                               | Interest Income                         | 1,723,900    | 944,600      | 1,206,400    | 860,900      | 812,600      | 688,500      |
| 4                               | Plumbing and Inspection Fees            | 319,100      | 293,200      | 310,400      | 310,400      | 310,400      | 310,400      |
| 5                               | Revenue Sharing                         | 264,600      | 132,300      | 259,600      | 259,600      | 259,600      | 259,600      |
| 6                               | Other Miscellaneous Revenue             | 0            | 2,883,400    | 0            | 0            | 0            | 0            |
| 7                               | Operation & Maintenance Grants          | 1,912,700    | 1,356,900    | 756,900      | 756,900      | 756,900      | 756,900      |
| 8                               | Transfer from Rate Stabilization Fund   |              | 0            | 0            | 0            | 0            | 0            |
| 9                               | Operation & Maintenance (b)             | (80,839,800) | (76,277,300) | (91,681,000) | (93,973,000) | (96,322,200) | (98,730,400) |
| 10                              | Net Revenue                             | 22,674,400   | 41,646,500   | 29,804,700   | 33,709,600   | 35,374,300   | 36,728,700   |
|                                 |   |              | 5,610,400    |              |              |              |              |
| <b>Rate Covenant Coverage</b>   |   |              |              |              |              |              |              |
| 11                              | Projected Net Revenues                  | 22,674,400   | 41,646,500   | 29,804,700   | 33,709,600   | 35,374,300   | 36,728,700   |
|                                 | Annual Debt Service                     |              |              |              |              |              |              |
| 12                              | Senior Debt                             | 13,333,550   | 13,394,600   | 14,208,600   | 17,940,400   | 18,450,300   | 18,449,900   |
| 13                              | Coverage (c)                            | 170%         | 311%         | 210%         | 188%         | 192%         | 199%         |
| 14                              | All Debt                                | 13,973,495   | 14,034,500   | 14,208,600   | 17,940,400   | 18,450,300   | 18,449,900   |
| 15                              | Coverage (d)                            | 162%         | 297%         | 210%         | 188%         | 192%         | 199%         |
| <b>Additional Bond Coverage</b> |   |              |              |              |              |              |              |
| 16                              | Preceding Year Projected Net Revenues   |              | 22,674,400   | 41,646,500   | 29,804,700   | 33,709,600   | 35,374,300   |
| 17                              | Future Additional Revenue               |              | 12,367,500   | 16,515,100   | 20,220,200   | 14,968,400   | 13,668,200   |
| 18                              | Adjusted Projected Net Revenues         |              | 35,041,900   | 58,161,600   | 50,024,900   | 48,678,000   | 49,042,500   |
|                                 | Maximum Debt Service                    |              |              |              |              |              |              |
| 19                              | Senior Debt                             |              | 13,473,550   | 17,304,173   | 17,942,573   | 18,453,373   | 18,453,373   |
| 20                              | Coverage (c)                            |              | 260%         | 336%         | 279%         | 264%         | 266%         |
| 21                              | All Debt                                |              | 14,034,450   | 17,304,173   | 17,942,573   | 18,453,373   | 18,453,373   |
| 22                              | Coverage (d)                            |              | 250%         | 336%         | 279%         | 264%         | 266%         |

- (a) 2018 revenue reflects preliminary budget amount and does not reflect actual revenue collected which may be less than the amount shown.
- (b) Reflects 2018 audited operating expenses for debt service coverage.
- (c) The General Bond Resolution requires net revenue to equal or exceed 125% of debt service, however, the Board's Financial Management Policy aims for 150% coverage.
- (d) The General Bond Resolution requires net revenue to equal or exceed 110% of debt service, however the Board's Financial Management Policy aims for 125% coverage.

Table C

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

| Line No. | Description                        | Fiscal Year Ending December 31, |               |               |               |               |
|----------|------------------------------------|---------------------------------|---------------|---------------|---------------|---------------|
|          |                                    | 2019                            | 2020          | 2021          | 2022          | 2023          |
|          |                                    | \$                              | \$            | \$            | \$            | \$            |
| 1        | Revenue from Charges               | 142,155,600                     | 148,910,500   | 148,910,500   | 148,910,500   | 148,910,500   |
|          | Additional Revenue Required        |                                 |               |               |               |               |
|          | Revenue                            |                                 |               |               |               |               |
|          | Months                             |                                 |               |               |               |               |
|          | Effective                          |                                 |               |               |               |               |
| 2        | Year                               |                                 |               |               |               |               |
| 2        | 2019                               | 0                               | 0             | 0             | 0             | 0             |
| 3        | 2020                               |                                 | 0             | 0             | 0             | 0             |
| 4        | 2021                               |                                 |               | 4,095,000     | 4,467,300     | 4,467,300     |
| 5        | 2022                               |                                 |               |               | 0             | 0             |
| 6        | 2023                               |                                 |               |               |               | 0             |
| 7        | Total Additional Revenue           | 0                               | 0             | 4,095,000     | 4,467,300     | 4,467,300     |
| 8        | Total Service Charge Revenue       | 142,155,600                     | 148,910,500   | 153,005,500   | 153,377,800   | 153,377,800   |
| 9        | Interest Income                    | 445,300                         | 646,400       | 787,200       | 867,300       | 883,100       |
| 10       | Plumbing Insp. & License Fees      | 288,700                         | 311,100       | 311,100       | 311,100       | 311,100       |
| 11       | Revenue Sharing                    | 165,000                         | 323,800       | 323,800       | 323,800       | 323,800       |
| 12       | Other Miscellaneous Income         | 943,000                         | 0             | 0             | 0             | 0             |
| 13       | FEMA Reimbursement                 | 2,261,500                       | 1,261,600     | 1,261,600     | 1,261,600     | 1,261,600     |
| 14       | Interest from Bond Reserve Fund    | 293,000                         | 298,000       | 302,000       | 302,000       | 302,000       |
| 15       | Total Operating Revenue            | 146,552,100                     | 151,751,400   | 155,991,200   | 156,443,600   | 156,459,400   |
| 16       | Operation & Maintenance (a)        | (72,132,400)                    | (103,623,900) | (106,214,700) | (108,869,900) | (111,591,700) |
| 17       | Provision for Claims               | (1,257,100)                     | (1,288,500)   | (1,320,700)   | (1,353,700)   | (1,387,500)   |
| 18       | Provision for Doubtful Accounts    | (10,314,700)                    | (7,445,500)   | (6,120,200)   | (4,601,300)   | (4,601,300)   |
| 19       | Net Operating Revenue              | 62,847,900                      | 39,393,500    | 42,335,600    | 41,618,700    | 38,878,900    |
|          | Debt Service                       |                                 |               |               |               |               |
|          | Senior Lien Revenue Bonds          |                                 |               |               |               |               |
| 20       | Existing                           | (21,680,800)                    | (21,699,500)  | (20,523,800)  | (18,408,400)  | (14,501,300)  |
| 21       | Projected                          | 0                               | (968,900)     | (3,513,500)   | (5,261,600)   | (6,577,200)   |
| 22       | Total Senior Lien Revenue Bonds    | (21,680,800)                    | (22,668,400)  | (24,037,300)  | (23,670,000)  | (21,078,500)  |
|          | Subordinate WIFIA Loans            |                                 |               |               |               |               |
| 23       | Projected                          | 0                               | (5,700)       | (827,400)     | (1,863,300)   | (2,193,100)   |
| 24       | Total Subordinate WIFIA Loans      | 0                               | (5,700)       | (827,400)     | (1,863,300)   | (2,193,100)   |
| 25       | Gulf Opportunity Zone Act Loan     | (6,235,200)                     | (4,136,600)   | (3,641,300)   | (3,641,300)   | (3,641,300)   |
| 26       | Total Debt Service                 | (27,916,000)                    | (26,810,700)  | (28,506,000)  | (29,174,600)  | (26,912,900)  |
| 27       | Other Non-Operating Revenue        | 6,820,200                       | 873,700       | 873,700       | 873,700       | 873,700       |
| 28       | Transfer to Construction           | (15,000,000)                    | 0             | 0             | (12,000,000)  | (11,000,000)  |
| 29       | Transfer to Operating Reserve Fund | 0                               | 0             | 0             | 0             | 0             |
| 30       | Net Annual Balance                 | 26,752,100                      | 13,456,500    | 14,703,300    | 1,317,800     | 1,839,700     |
| 31       | Beginning of Year Cash Balance (b) | 1,268,600                       | 28,020,700    | 41,477,200    | 56,180,500    | 57,498,300    |
| 32       | End of Year Balance                | 28,020,700                      | 41,477,200    | 56,180,500    | 57,498,300    | 59,338,000    |
| 33       | Beginning of Year Cash Balance (b) | 1,268,600                       | 28,020,700    | 41,477,200    | 56,180,500    | 57,498,300    |
| 34       | Operating Reserve Fund             | 0                               | 0             | 0             | 0             | 0             |
| 35       | Net annual Balance                 | 26,752,100                      | 13,456,500    | 14,703,300    | 1,317,800     | 1,839,700     |
| 36       | End of Year Balance                | 28,020,700                      | 41,477,200    | 56,180,500    | 57,498,300    | 59,338,000    |
| 37       | Days of O&M Cash on Hand           | 122                             | 146           | 180           | 183           | 184           |

(a) Excludes non-cash expenses of depreciation and allowances, pension liability adjustment, and pension contributions.

(b) Reflects beginning of year balance in unrestricted and undesignated cash and cash equivalents and cash and cash equivalents designated for capital projects, less operating reserve requirement.

Table D

**Sewerage Department  
Coverage Requirements**

| Line No.                        | Coverage Requirements                   | 2018         | 2019         | 2020          | 2021          | 2022          | 2023          |
|---------------------------------|---|--------------|--------------|---------------|---------------|---------------|---------------|
|                                 |   | \$           | \$           | \$            | \$            | \$            | \$            |
| <b>Projected Net Revenues</b>   |   |              |              |               |               |               |               |
| 1                               | Revenue Under Existing Rates (a)        | 114,614,100  | 142,155,600  | 148,910,500   | 148,910,500   | 148,910,500   | 148,910,500   |
| 2                               | Additional Revenue Under Proposed Rates |              | 0            | 0             | 4,095,000     | 4,467,300     | 4,467,300     |
| 3                               | Interest Income                         | 1,922,200    | 935,500      | 1,421,200     | 1,602,100     | 1,714,100     | 1,607,300     |
| 4                               | Plumbing and Inspection Fees            | 329,200      | 288,700      | 311,100       | 311,100       | 311,100       | 311,100       |
| 5                               | Revenue Sharing                         | 330,000      |              |               |               |               |               |
| 6                               | Other Miscellaneous Revenue             | 0            | 943,000      | 0             | 0             | 0             | 0             |
| 7                               | Operation & Maintenance Grants          | 834,300      | 2,261,500    | 1,261,600     | 1,261,600     | 1,261,600     | 1,261,600     |
| 8                               | Transfer from Rate Stabilization Fund   |              | 0            | 0             | 0             | 0             | 0             |
| 9                               | Operation & Maintenance (b)             | (81,271,000) | (72,132,400) | (103,623,900) | (106,214,700) | (108,869,900) | (111,591,700) |
| 10                              | Net Revenue                             | 36,758,800   | 74,451,900   | 48,280,500    | 49,965,600    | 47,794,700    | 44,966,100    |
|                                 |   |              | 4,428,700    |               |               |               |               |
| <b>Rate Covenant Coverage</b>   |   |              |              |               |               |               |               |
| 11                              | Projected Net Revenues                  | 36,758,800   | 74,451,900   | 48,280,500    | 49,965,600    | 47,794,700    | 44,966,100    |
|                                 | Annual Debt Service                     |              |              |               |               |               |               |
| 12                              | Senior Debt                             | 23,139,113   | 21,680,800   | 22,668,400    | 24,037,300    | 23,670,000    | 21,078,500    |
| 13                              | Coverage (c)                            | 159%         | 343%         | 213%          | 208%          | 202%          | 213%          |
| 14                              | All Debt                                | 29,374,293   | 27,916,000   | 26,810,700    | 28,506,000    | 29,174,600    | 26,912,900    |
| 15                              | Coverage (d)                            | 125%         | 267%         | 180%          | 175%          | 164%          | 167%          |
| <b>Additional Bond Coverage</b> |   |              |              |               |               |               |               |
| 16                              | Preceding Year Projected Net Revenues   |              | 36,758,800   | 74,451,900    | 48,280,500    | 49,965,600    | 47,794,700    |
| 17                              | Future Additional Revenue               |              | 3,438,400    | 4,264,700     | 4,467,300     | 0             | 0             |
| 18                              | Adjusted Projected Net Revenues         |              | 40,197,200   | 78,716,600    | 52,747,800    | 49,965,600    | 47,794,700    |
|                                 | Maximum Debt Service                    |              |              |               |               |               |               |
| 19                              | Senior Debt                             |              | 21,749,900   | 24,037,300    | 24,037,300    | 23,669,900    | 21,078,500    |
| 20                              | Coverage (c)                            |              | 185%         | 327%          | 219%          | 211%          | 227%          |
| 21                              | All Debt                                |              | 27,916,000   | 29,174,600    | 29,174,600    | 29,174,600    | 27,295,900    |
| 22                              | Coverage (d)                            |              | 144%         | 270%          | 181%          | 171%          | 175%          |

(a) 2018 revenue reflects preliminary budget amount and does not reflect actual revenue collected which may be less than the amount shown.

(b) Reflects 2018 audited operating expenses for debt service coverage.

(c) The General Bond Resolution requires net revenue to equal or exceed 125% of debt service, however, the Board's Financial Management Policy aims for 150% coverage.

(d) The General Bond Resolution requires net revenue to equal or exceed 110% of debt service, however the Board's Financial Management Policy aims for 125% coverage.

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

| Line No | Description                                      | Fiscal Year Ending December 31, |              |              |              |              |
|---------|--|---------------------------------|--------------|--------------|--------------|--------------|
|         |  | 2019                            | 2020         | 2021         | 2022         | 2023         |
|         |  | \$                              | \$           | \$           | \$           | \$           |
| 1       | Three-Mill Ad Valorem Tax Revenue (4.66 Mills)   | 15,316,900                      | 18,013,000   | 18,013,000   | 18,013,000   | 18,013,000   |
| 2       | Six-Mill Ad Valorem Tax Revenue (4.71 Mills)     | 16,149,000                      | 19,022,700   | 19,022,700   | 19,022,700   | 19,022,700   |
| 3       | Nine-Mill Ad Valorem Tax Revenue (7.06 Mills)    | 24,206,700                      | 28,513,900   | 28,513,900   | 28,513,900   | 28,513,900   |
| 4       | Other Miscellaneous Income                       | 0                               | 0            | 0            | 0            | 0            |
| 5       | Interest Income                                  | 8,300                           | 8,400        | 0            | 0            | 0            |
| 6       | FEMA Reimbursement                               | 904,600                         | 504,600      | 504,600      | 504,600      | 504,600      |
| 7       | Total Operating Revenue                          | 56,585,500                      | 66,062,600   | 66,054,200   | 66,054,200   | 66,054,200   |
| 8       | Operation & Maintenance (a)                      | (38,457,000)                    | (69,942,600) | (71,691,100) | (73,483,500) | (75,320,500) |
| 9       | Provision for Claims                             | (630,900)                       | (646,700)    | (662,900)    | (679,500)    | (696,500)    |
| 10      | Provision for Doubtful Accounts                  | (11,700)                        | (13,100)     | (13,100)     | (13,100)     | (13,100)     |
| 11      | Net Operating Revenue                            | 17,485,900                      | (4,539,800)  | (6,312,900)  | (8,121,900)  | (9,975,900)  |
| 12      | Debt Service                                     |                                 |              |              |              |              |
| 13      | Senior Lien Revenue Bonds                        |                                 |              |              |              |              |
| 14      | Existing   | (2,028,550)                     | (2,035,950)  | (2,039,100)  | (2,045,000)  | 0            |
| 15      | Projected  | 0                               | 0            | 0            | 0            | 0            |
| 16      | Total Senior Lien Revenue Bonds                  | (2,028,550)                     | (2,035,950)  | (2,039,100)  | (2,045,000)  | 0            |
| 17      | Gulf Opportunity Zone Act Loan                   | (407,600)                       | 0            | 0            | 0            | 0            |
| 18      | SELA Capital Repayment                           | (2,341,000)                     | (7,611,800)  | (8,460,400)  | (8,460,400)  | (8,460,400)  |
| 19      | Total Debt Service                               | (4,777,150)                     | (9,647,750)  | (10,499,500) | (10,505,400) | (8,460,400)  |
| 20      | Other Non-Operating Revenue                      | 18,984,100                      | 512,900      | 512,900      | 512,900      | 512,900      |
| 21      | Transfer to Construction                         | (18,000,000)                    | 0            | 0            | 0            | 0            |
| 22      | Transfer to Operating Reserve Fund               | 0                               | 0            | (470,600)    | (215,600)    | (221,000)    |
| 23      | Net Annual Balance                               | 13,692,850                      | (13,674,650) | (16,770,100) | (18,330,000) | (18,144,400) |
| 24      | Beginning of Year Cash Balance (b)               | (6,770,200)                     | 6,922,650    | (6,752,000)  | (23,522,100) | (41,852,100) |
| 25      | End of Year Balance                              | 6,922,650                       | (6,752,000)  | (23,522,100) | (41,852,100) | (59,996,500) |
| 26      | Beginning of Year Cash Balance (b)               | (6,770,200)                     | 15,075,150   | 9,553,000    | 1,406,000    | (8,085,400)  |
| 27      | Operating Reserve Fund                           | 8,152,500                       | 8,152,500    | 8,623,100    | 8,838,600    | 9,059,600    |
| 28      | Net annual Balance                               | 13,692,850                      | (13,674,650) | (16,770,100) | (18,330,000) | (18,144,400) |
| 29      | End of Year Balance                              | 15,075,150                      | 9,553,000    | 1,406,000    | (8,085,400)  | (17,170,200) |
| 30      | Days of O&M Cash on Hand                         | 143                             | 50           | 7            | (40)         | (83)         |
|         | Debt Service Coverage                            |                                 |              |              |              |              |
|         | Reflecting Nine-Mill Ad Valorem Tax Revenue Only |                                 |              |              |              |              |
| 31      | Annual Test (c)                                  | 731.3%                          | 858.3%       | 857.0%       | 854.5%       | N/A          |
| 32      | Additional Bonds Test (d)                        | 725.4%                          | 854.5%       | 854.5%       | 854.5%       | N/A          |
|         | Reflecting All Ad Valorem Tax Revenue            |                                 |              |              |              |              |
| 33      | Annual Test (c)                                  | 1193.3%                         | 1400.5%      | 1398.4%      | 1394.3%      | N/A          |
| 34      | Additional Bonds Test (d)                        | 1183.7%                         | 1394.3%      | 1394.3%      | 1394.3%      | N/A          |

(a) Excludes non-cash expenses of depreciation and allowances, pension liability adjustment, and pension contributions.

(b) Reflects beginning of year balance in unrestricted and undesignated cash and cash equivalents and cash and cash equivalents designated for capital projects, less operating reserve requirement.

(c) The General Bond Resolution requires Nine-Mill Ad Valorem Tax Revenue to equal or exceed 100% of annual debt service.

(d) The General Bond Resolution requires Nine-Mill Ad Valorem Tax Revenue to equal or exceed 133% of maximum annual debt service.