



**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
256th MEETING OF THE BOARD OF DIRECTORS**

**Thursday, September 5, 2019**

**9:30 a.m.**

**Headquarters**

**1385 Canal Street, SE**

**2<sup>nd</sup> Floor-Board Room**

- I. **Call to Order (Acting Chairperson, Krystal Brumfield)**
- II. **Roll Call (Linda Manley, Board Secretary)**
- III. **Approval of July 11, 2019 Meeting Minutes and the August 1, 2019 - 17<sup>th</sup> Special Meeting Minutes**
- IV. **Chairman's Overview**
- V. **Committee Reports**
  1. **Governance Committee (Lavinia Baxter)**
  2. **Environmental Quality and Operations Committee (Adam Ortiz)**
  3. **DC Retail Water and Sewer Rates Committee – (Rachna Bhatt)  
July 23<sup>rd</sup> and August 27<sup>th</sup>**
  4. **Audit Committee (Anthony Giancola)**
  5. **Finance and Budget Committee (Major Riddick)**
- VI. **Issues of General Interest**
- VII. **CEO/General Manager's Report (David Gadis)**
- VIII. **Summary of Contracts (FYI)**
- IX. **Consent Items (Joint Use)**
  1. **Approval of Amendment to the By-Laws of the District of Columbia Water and Sewer Authority to Establish an Executive Committee and Reconfigure the Officers of the Board and other Conforming Revisions – Resolution No. 19-47 (Recommended by the Governance Committee 07/17/19)**
  2. **Approval to Execute Change Order No 04 of Contract No. 130090, E.E. Cruz & Company, Inc. – Resolution No. 19-48 (Recommended by the Environmental Quality and Operations Committee 07/18/19)**

3. [Authorize the Sale and Setting Terms and Details of the Series 2019A and Series 2019B Subordinate Bonds - Resolution No. 19-49](#) (Recommended by the Finance and Budget Committee 07/25/19)
4. [Authorize the Sale and Setting Terms and Details of the Series 2019C Subordinate Bonds – Resolution No. 19-50](#) (Recommended by the Finance and Budget Committee 07/25/19)

**X. Consent Items Non-Joint Use**

1. [Approval to Execute Contract No. 190020, Anchor Construction Corporation – Resolution No. 19-51](#) (Recommended by the Environmental Quality and Operations Committee 07/18/19)
2. [Approval to Execute Contract No. 190030, Anchor Construction Corporation – Resolution No. 19-52](#) (Recommended by the Environmental Quality and Operations Committee 07/18/19)
3. [Approval to Execute Contract No. 190050, Fort Myer Construction Corporation – Resolution No. 19-53](#) (Recommended by the Environmental Quality and Operations Committee 07/18/19)
4. [Approval to Execute Contract No. 170130, American Contracting & Environmental Services, Inc. – Resolution No. 19-54](#) (Recommended by the Environmental Quality and Operations Committee 07/18/19)
5. [Approval to Publish Notice of Final Rulemaking to Amend Regulations to Extend the Customer Assistance Program \(CAP\) to FY 2020, Effective October 1, 2019 – Resolution No. 19-55](#) (Recommended by the DC Retail Water and Sewer Rates Committee 08/27/19)
6. [Approval to Publish Notice of Final Rulemaking to Amend Retail Groundwater Amend Retail Groundwater Sewer Rate – Resolution No. 19-56](#) (Recommended by the DC Retail Water and Sewer Rates Committee 08/27/19)

**XI. Executive Session**

**XII. Adjournment (Acting Chairperson Krystal Brumfield)**

1 The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(2); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.

**Upcoming Committee Meetings – New Headquarters Building**

- Strategic Planning Committee – Thursday, September 5, 2019 (Following the Board Meeting)
- Governance Committee – Wednesday, September 11, 2019 @ 9:00 a.m.
- Human Resource and Labor Relations Committee – Wednesday, September 11, 2019 @ 11:00 a.m.
- Environmental Quality and Operations Committee – Thursday, September 19, 2019 @ 9:30 a.m.
- DC Retail Water and Sewer Rates Committee – Tuesday, September 24, 2019 @ 9:30 a.m.
- Finance and Budget Committee – Thursday, September 26, 2019 @ 11:00 a.m.
- General Manager's Performance Review Committee -
- 18<sup>th</sup> Special Meeting of the DC Water Board of Directors – Friday, September 27, 2019 @ 12 noon



**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**Board of Directors**

*Governance Committee*

*Wednesday, July 17, 2019*

*9:00 a.m.*

**MEETING MINUTES**

**Committee Members**

Ellen O. Boardman, Chairperson  
Lavinia A. Baxter  
David Franco (by phone)  
Ivan Frishberg (by phone)  
Emile C. Thompson

**DC Water Staff**

David L. Gadis, CEO/General Manager (by phone)  
Gregory Hope, Interim Executive Vice President, Office of Legal Affairs  
Alfonzo Kilgore-Stukes, Board Administrative Specialist

**Call to Order**

Chairperson Boardman called the meeting to order at 9:01 a.m.

**Agenda Item #1 – Amendment to DC Water Board By-Laws**

Gregory Hope, Interim Executive Vice President, Office of Legal Affairs, presented Agenda Item #1 – Amendment to DC Water Board of Directors By-Laws.

**Overview**

Before Mr. Hope presented the proposed amendments to the By-Laws, Chairperson Boardman explained the dual purpose: 1) to create a new Executive Committee to review and discuss issues and provide advice and/or direction to the Chairperson when exigent circumstances require quick action, and 2) to reconfigure the Officers of the Board. The proposed changes to the Bylaws are attached to these Minutes showing the proposed changes in redlining/striking.

Mr. Hope began by identifying the non-substantive “housekeeping” changes to the By-Laws: 1) to clarify the numbering of principal and alternate Board members; 2) to clarify the number of days that approved meeting minutes and copies of the full record of meetings are to be made available for public inspection; 3) to normalize the nomenclature of the term Chairperson; 4) to correct a few grammatical and clerical

changes; 5) to change “Chair” and “Chairman” to “Chairperson” throughout the By-Laws; and 6) change the title “General Counsel” to the current title of “Executive Vice President, Legal Affairs.”

Mr. Hope then reviewed the following substantive changes to the Bylaws:

#### Article III (Meetings)

In Sections 3.02 (Regular Meetings) and 3.06(b) and (d) (Notice of Meetings to the Public), the location of Board and Committee meetings will be changed from Blue Plains Wastewater Treatment to DC Water’s new Headquarters, 1385 Canal Street, S.E., Washington, D.C. 20003.

#### Article IV (Officers of the Board)

In Section 4.01 (Appointment), the Board’s officers will consist of the Chairperson, First Vice-Chairperson, Second Vice-Chairperson; and Vice-Chairperson and Alternate Vice-Chairperson for each participating jurisdiction.

Next, Mr. Hope described the manner in which the Officers of the Board are initially appointed/recommended. Specifically, effective September 5, 2019, the initial appointment of the First Vice-Chairperson and Second Vice-Chairperson shall be nominated by the Chairperson and, by resolution, approved by the Board; thereafter, these Officers shall be nominated by the Executive Committee and, by resolution, approved by the Board. The appointment of alternates for the Vice-Chairpersons are also addressed.

Then, Mr. Hope described the manner in which the Vice-Chairperson and Alternate Vice-Chairperson are appointed, by nomination by members from their respective jurisdiction, and, by resolution, approved by the Board. Other than for the Executive Committee, whose members consist of the Board’s Officers, other committee members are appointed by the Chairperson and members of standing and ad-hoc Committees of the Board, as recommended by the Executive Committee.

In Section 4.03 (Term) of the By-Laws, the period of an Officer’s term is one (1) year, and the dates that term commences upon approval of the Board, beginning January 1<sup>st</sup>, and terminating on December 31<sup>st</sup>, of each calendar year, unless the Officer resigns or is removed.

#### Article V (Committees)

Section 5.01 (Establishment) establishes the Executive Committee, which consists of the Officers of the Board. The Strategic Planning Committee includes all Board members.

Committee Questions

1. In response to Committee Member Franco's inquiry about the effective date of the By-Laws, Mr. Hope explained the By-Laws would be effective after they are presented to the Board for approval, by resolution, at the September 5<sup>th</sup> Board meeting.
2. In response to Committee Member Franco's inquiry as to the impact of the changes to the By-Laws on current Committee assignments, Chairperson Boardman explained that current assignments, as appointed by the Chairperson will stand until changed pursuant to the new Bylaws.

Next, Chairperson Boardman clarified the structure and composition of the Executive Committee, as a new committee, by virtue of the By-Laws. She explained the Officers are identified, by virtue of Section 5.02 of the By-Laws. Thereafter, the appointment/recommendation goes to the Board for approval, by resolution. All new appointments/recommendations by the Chair for the First and Second Vice-Chair positions will be selected from each of the participating jurisdictions, and each will have an alternate. Chairperson Boardman added that a Board member serving as a county executive or chief officer will serve in the Vice-Chairperson position for that jurisdiction.

Then Chairperson Boardman explained that initial First and Second Vice-Chairperson positions appointments will take place by recommendation from the Chairperson to the full Board, approved by resolution at the September 5<sup>th</sup> Board meeting. Subsequent appointments to the First and Second Vice-Chair positions will be designated thereafter, by the Executive Committee's recommendation to the Board.

Moreover, Chairperson Boardman clarified that the Board Chairperson serves in that position by virtue of his office.

3. In response to Committee Member Baxter's inquiry, Chairperson Boardman explained that the Vice and Alternate Vice-Chairpersons for each participating jurisdiction shall be nominated by the members from their respective jurisdiction, and upon resolution approved by the Board.
4. In response to Committee Member Frishberg's inquiry about the duties and scope of work of the Executive Committee, Chairperson Boardman explained the purpose of the Executive Committee is to provide the Board Chairperson with support, guidance and input in making the decisions that impact the Authority. All recommendations of the Executive Committee will be presented to the full Board for adoption by resolution.

5. In response to Committee Member Frishberg's inquiry about the distinction between potentially conflicting lines of authority by, between and among the Executive Committee, other standing Committees and the Board, Chairperson Boardman explained that the Board makes final decisions based on the recommendations of the Board Chairperson and the Executive Committee. The exception is that the Executive Committee's recommendations to the Board Chairperson regarding the appointment of the members of the standing Committees is not subject to Board approval.
6. Committee Member Frishberg asked if the Executive Committee will follow the same process to notice meetings and discuss organizational issues, and Mr. Hope answered affirmatively.

Committee Member Thompson asked if the appointments to the Vice-Chair and Alternate Vice-Chair positions were restricted to DC Board members, Chairperson Boardman explained that the Bylaws on their face do not mandate that selection.

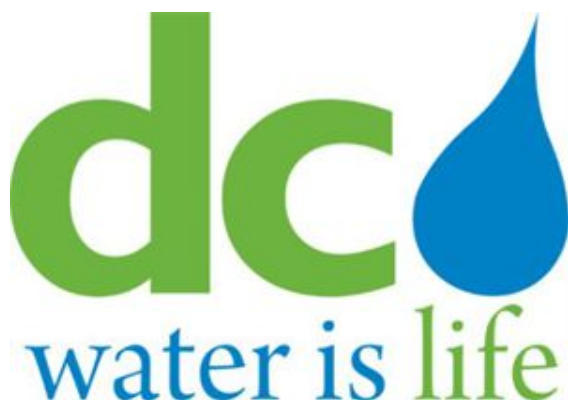
7. In response to Committee Member Baxter, Chairperson Boardman explained the Board Chairperson serves by virtue of the statute, but the First and Second Vice-Chairs, will be nominated, recommended or appointed by the Board Chairperson for the initial appointment; and the Vice-Chairperson and Alternate Vice-Chairperson from each participating jurisdiction will be selected by the Board Chairperson. All Executive Committee candidates will then be presented to and approved by the Board, effective January 1.

### Recommendation

Chairperson Boardman asked for a consensus from the Committee Members to move the proposed amendments to the full Board for approval at the September 5<sup>th</sup> meeting. The Committee members agreed.

### Adjournment

There being no further business, the meeting was adjourned at approximately 9:35 a.m.



**District of Columbia  
Water and Sewer Authority**

**Board of Directors**

**Environmental Quality and Operations  
Meeting**

Thursday, July 18, 2019

9:30 a.m.

**MEETING SUMMARY**

**Committee Members**

Adam Ortiz, Chairperson  
Howard Gibbs  
Randy Bartlett  
Joseph Gill  
Steven Shofar  
Ivan Frishberg (tele)

**DC Water Staff Present**

David Gadis, Chief Executive Officer  
Leonard Benson, Sr. VP & Chief Engineer  
Meena Gowda, Deputy General Counsel  
Linda Manley, Board Secretary (tele)  
Alfonzo Kilgore Stukes, Board  
Administrative Specialist

**I. CALL TO ORDER**

Mr. Ortiz called the meeting to order at 9:30 A.M.

**II. AWTP STATUS UPDATES**

**1. BPAWTP Performance**

Mr. Aklile Tesfaye, Vice President, Wastewater Operations, DC Water, noted the performance of the Plant was excellent with all effluent quality requirements well below or within NPDES permit limits. The Wet Weather Treatment facility performed well, capturing nearly 5,805 MG total from March 2018 to June 2019. During the July 8, 2019 wet weather event, the facility captured approximately 170 MG.

Committee inquired as to what the liabilities would be per the consent decree if such wet weather events increased over time. Mr. Tesfaye and Mr. Carlton Ray, Director, DC Clean Rivers project, stated that the wet weather facilities, including the diversion structures and the tunnel were designed with a safety factor of approximately 20%. In addition, the wet weather treatment facility was designed to be expandable from the current 225 mgd to 500 mgd in the event additional CSO control is needed. These factors provide flexibility to meet performance objectives despite climate change. The performance of the system will be compared back to the design basis of the system which is based on the average hydrologic year, defined as the rainfall in the years 1988, 1989 and 1990. Use of an average year is consistent with EPA's CSO policy and was approved by EPA and the District when the Long-Term Control Plan was developed. The comparison back to average year conditions is performed as part of post



construction monitoring which will begin on the Anacostia after the Northeast Boundary Tunnel is in service in 2023.

Regarding Class A Biosolids quality, Mr. Tesfaye noted that fecal coliform values on daily process monitoring samples have remained below 10 MPN/gram since May 7, 2019 and none of the compliance samples analyzed by a certified laboratory exceeded the Class A limit. Bloom marketing resumed on May 21, 2019 after two weeks of non-detect results observed beginning May 7, 2019. During the month of June, 5,389 tons were marketed. Based on progress to-date, the Authority anticipates achieving the marketing goals for the fiscal year. The Committee expressed its desire to see a presentation on the root-cause that led to the elevated levels of fecal coliform in March, April and the first week of May 2019 and the controls implemented to prevent recurrence.

Mr. Tesfaye next spoke on the recently conducted workforce development and training for front line employees of the Wet Weather Treatment Facility (WWTF). He invited two of the team members that were involved in conducting the training to relate their experiences to the Committee. The objective of the training was to engage staff to learn process intent, operating philosophy and control strategies. A total of 44 employees were engaged in the training that employed a “train the trainer” strategy with five sessions conducted per employee.

### **III. WASTEWATER ENGINEERING OVERVIEW**

Mr. Algynon Collymore, Acting Director, Department of Wastewater Engineering, gave an overview to the Committee of the mission, functions, initiatives and projects conducted by the Wastewater Engineering Department at DC Water. He stated that the Department’s mission is to plan and deliver a capital improvement plan that supports DC Water’s vertical assets, including the Blue Plains Treatment Plant, is closely aligned with the overall mission of DC Water to advance the health and well-being of its workforce and the community at-large.

The functions of the department can be broadly grouped into the missions of two branches, namely, the Program and Construction Branch:

#### Program Branch –

- Provide staff support for environmental policy issues affecting DC Water
- Technical and policy coordination with other jurisdictions and federal agencies
- Provide engineering data for development and maintenance of the CIP
- Generate bid documents for construction and rehabilitation projects
- Review and approve PCS, SCADA, and I&C engineering documents for compliance
- Manage the engineering responsibilities for all PCS and SCADA related projects
- Coordinate with all DC Water user and customer groups on all SCADA, PCS and I&C matters
- Explore new technologies that can be used to increase operational efficiency of the wastewater treatment and sewer collection system.

#### Construction Branch –

- Administer contracts for construction management, new construction, major repairs, modifications and start-ups to the Blue Plains Treatment Plant and other vertical infrastructure
- Perform design review and coordinate construction work with other operating departments at Blue Plains

Some of the initiatives the department is undertaking include:

- Capital Cost Reduction
  - Transitioning to in-house resources for design and construction management
  - Implementing a new Program Management contract with reduced scope
  - Implementing alternative contracting mechanisms
  - Designing with efficient O&M features
  - Extending the asset useful life
  
- O&M Cost Reduction
  - Implement energy efficient O&M practices
  - Reduction of chemical use
  - Increase use of automation
  - Designing with efficient O&M features

Some active construction projects at the Blue Plains Treatment Plant include:

- Gravity Thickener Upgrades – Phase II
  - \$60M construction
  - NTP expected September 2019
- Filter Influent Pumps 1-10
  - \$18M construction
  - NTP expected August 2019
- Miscellaneous Facilities Upgrades 6
  - \$25M construction
  - NTP expected July 2019
  - Includes refurbishment of raw wastewater influent screens

Some projects currently in design include:

- COF Switchgear Replacement
- High and Low Pressure PSW Pump Systems
- Screens, Grit and Primary Facilities Upgrades (aka Headworks Electrical Upgrades)

#### **IV. ACTION ITEMS**

##### **JOINT USE**

1. Contract No.: 130090 – Division Z – Poplar Point Pumping Station Replacement and Main Outfall Sewers Diversion, E.E. Cruz & Company, Inc.,

##### **NON-JOINT USE**

1. Contract No. 190020 – Sanitary Sewer Lateral Replacement, Anchor Construction Corporation
2. Contract No. 190030 – Lead Service Line Replacement, Anchor Construction Corporation
3. Contract No. 190050 – Water Main Infrastructure Repair and Replacement, Fort Myer Construction Corporation
4. Contract No. 170130 – Soldier's Home Reservoir Upgrades, American Contracting & Environmental Services, Inc.,

Mr. Len Benson, Chief Engineer, DC Water, presented all joint use and non-joint use Actions Items.

## **JOINT USE**

**Action Item 1:** The Committee discussed this Action Item in an executive session.

Subsequent to the executive session, the Committee recommended this joint use Action Item to the full Board.

## **NON-JOINT USE**

**Action Item 1:** Request to execute construction contract for Sanitary Sewer Lateral Replacement for FY20 – FY22. The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity (IDIQ) emergency and scheduled repairs to the sewer lateral system on an as-needed basis during normal work hours, after-hours, weekends and holidays.

**Action Item 2:** Request to execute construction contract for Lead Service Line Replacement for FY20 – FY22. The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity (IDIQ) services for lead service line replacements and temporary pavement restoration at various locations within the District of Columbia. The contract will also consist of providing private property side agreements and documentation.

The Committee inquired if the Authority had any concerns with the same construction contractor having multiple IDIQ contracts to be executed in similar time frames. Mr. Benson replied that DC Water had confidence in the contractor's capabilities to manage multiple construction contracts. The Committee also inquired whether engineer's fee estimates were prepared prior to bidding and if so, whether received bids were within a comparative range to the estimates. Mr. Benson replied in the affirmative to both inquiries.

**Action Item 3:** Request to execute the Water Infrastructure Repair & Replacement construction contract for FY20 – FY22. The purpose of this contract is to provide Indefinite Delivery and Indefinite Quantity (IDIQ) services for emergency water main repair and replacement of water service lines in public and private space at various locations in Washington, D.C.

The Committee inquired as to how DC Water follows up on whether MBE/WBE participation goals are met when dealing with such contracts where jobs are handed out on individual task order basis. Mr. Benson replied that DC Water has a process in place that checks the status of MBE/WBE utilization when monthly invoices are submitted and informs the prime contractor if it believes there is a possibility that MBE/WBE participation goals may not be met. The Committee requested to see DC Water's MBE/WBE participation track record for previous years' contracts. Mr. Benson replied the information will be sent before the next Committee meeting.

**Action Item 4:** Request to execute the Soldier's Home Reservoir Upgrade construction contract. The purpose of the contract is to rehabilitate the Soldier's Home Reservoir located at Armed Forces Retirement Home Golf Course, based on inspection report recommendations and US EPA Sanitary Survey noted deficiencies.

The Committee recommended the non-joint use Action Items to the full Board.

## **V. WATER DISTRIBUTION**

Mr. Jason Hughes, Senior Director, Water Operations, DC Water, gave a brief update regarding water quality monitoring, specifically, Total Coliform (TCR) and Lead and Copper Rule (LCR) testing, and the Fire Hydrant Upgrade Program. Mr. Hughes mentioned that DC Water completed the January – June 2019 LCR monitoring period with a total of 109 residences tested and the 90th percentile for lead were 2ppb (1<sup>st</sup> Draw) and 4ppb (2<sup>nd</sup> draw). A total of 255 samples were collected for Total Coliform testing with 2 samples (0.8%) testing positive in the first round of tests but were negative in repeat testing. Overall, tests showed excellent performance of the water distribution system.

Next, Mr. Hughes gave an update on the status of public fire hydrants in the District. He stated that of the approximately 9,802 public service hydrants, 42 were out of service as of July 02, 2019. Of the 42 that are currently not operational, 26 were operationally defective while 16 were out of service because of either nearby water main repairs, non-DC Water construction activities or other hydrant obstructions.

The Committee inquired whether DC Water’s hydrant replacement Program is still ongoing. Mr. Hughes replied in the affirmative and added that the Program is now performed in-house by DC Water personnel. The Committee further inquired as to why there was a variation in the total of number of public service hydrants as reported from April to July 2019. Mr. Hughes responded that because of ongoing efforts to refine inventory data, some assets that were incorrectly identified as “hydrants” were removed from the inventory list resulting in the numerical discrepancy. The Committee requested an update of the total number of public hydrants for the next Committee meeting.

## **II. OTHER BUSINESS/EMERGING ISSUES**

None.

## **III. EXECUTIVE SESSION**

The Committee went into executive session to discuss joint use Action Item 1.

## **IV. ADJOURNMENT**

Meeting adjourned at 10:45 a.m.

### **Follow-up Items**

1. Vice President, Wastewater Operations: Provide a presentation on the root-cause and solution of the digester failure that led to elevated levels of fecal coliform in March, April and the first week of May 2019.
2. Vice President, Wastewater Operations: Provide a presentation on proposed biosolids Curing Pad at September 2019 committee.
3. Senior Vice President & Chief Engineer: Provide DC Water’s MBE/WBE participation track

- record for previous years' contracts.
4. Senior Director, Water Operations: Provide an update regarding the total number of Public Service Fire Hydrants.



**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**Board of Directors**

*DC Retail Water and Sewer Rates Committee*

Tuesday, July 23, 2019

9:30 a.m.

**MEETING MINUTES**

**Committee Members in Attendance**

Rachna Bhatt, Chairperson  
Reverend Dr. Kendrick Curry  
Howard Gibbs  
Ellen Boardman  
Ivan Frishberg

**DC Water Staff**

Matthew Brown, CFO/EVP Finance & Procurement  
Gregory Hope, Interim EVP, Office of Legal Affairs  
Linda Manley, Secretary to the Board

**Via Telephone**

Emile Thompson, Committee Member  
Mr. David Gadis, CEO & General Manager

**Call to Order**

Chairperson Rachna Bhatt convened the meeting at 9:30 a.m.

**AMI Meter Project Update (Attachment A)**

Mr. Matthew T. Brown, CFO/EVP greeted the Board and called their attention to the two presentations on the agenda: 1) Automated Metering Infrastructure (AMI) project update and 2) Customer Assistance Programs (CAP) update. Mr. Brown explained that it was appropriate for the presentations to be presented during the Retail Rates Committee meeting because of its responsibility for rate setting. After providing a brief background of the AMI project, including its challenges, successes and feedback from residents, CFO Brown asked Ms. April Bingham, Customer Service Manager, Meter and Field Services to provide the AMI update. Ms. Bingham provided a background of the project and its stated goal of successfully replacing 85,000 meters and meter transmitting units (MTU's), which will help improve timely and accurate billing. The project started in 2016 and the reason for replacing 85,000 meters instead of the total population of 126,000 meters that we currently serve is logistical because the DC Water crews also provide routine meter replacements on an ongoing basis. Criteria used for the 85,000 list include: 1)

devices near the end of their useful life 2) first time generation meters 3) devices that the batteries had stopped transmitting usage and 4) those meters estimating over a specific period.

In response to Mr. Gibbs question regarding when the remaining one-third of the meters will be replaced, Ms. Bingham explained that there is a second phase in planning which will address approximately 11,000 meters that are hard to reach because of logistical challenges. Ms. Bingham cited examples of challenges encountered including, meters covered up because of landscaping or other devices covering the meter. The holistic approach to the project included making sure the batteries for the data collection units which transmit reads to the billing system accurately are in good standing. Ms. Bingham reported that five out of the ninety data collection units that are currently not transmitting belong to the DC Public Schools and that a MOU has been worked out with them to ensure timely reporting of a specific device due to renovations or relocations so that the redundancy within the system can pick up the reads.

Next, Ms. Bingham discussed accomplishments of the project, which includes increased overall AMI transmission from 70% to 92.4%, reduced estimated bills from project start date and improved transmission and redundancy efforts through ninety upgraded Data Collection Units. There were minimal customer inquiries and a low number of potential risk management claims. In response to Ms. Boardman's question regarding the timeframe for correcting a true up estimate, Ms. Carolyn Mackool, Director of Customer Care responded that if DC Water gave a lower estimate to the customer, the adjustment was corrected for three months and if was a higher estimate the adjustment was for the lifetime of the estimate.

Ms. Bingham further explained how HUNA (High Usage Notification Application) works, which includes enhanced customer experience by allowing them to view hourly, daily or monthly usage and the ability to download detailed read data for offline analysis. Mr. Gibbs suggested consideration of a "catchier" name than HUNA.

Ms. Bingham reported lessons learned and achievements of the project including advanced planning, executive oversight, blended program management and adequate customer outreach efforts. Future projects will utilize single contractors and the next steps in the project include a close out with the vendor, resolve locations not transmitting, develop a process to address the hard to resolve accounts and continue the ongoing replacement of the remainder of small and large meters that are not currently transmitting. In response to Ms. Boardman's inquiries, Ms. Bingham confirmed that all the equipment in the project had warranties.

### **CAP Program Update (Attachment B)**

Mr. John Lisle, VP Office of Marketing and Communications (OMAC) gave a detailed update on the CAP expansion Implementation. He explained the customer outreach method, beginning with the history of the program and outreach efforts. Further, he explained the multiple outreach methods that DC Water has pursued as well as the new methods that are being considered and added to the Outreach Plan. Current methods include TV/Radio broadcast, news print, press releases, community meetings, social media and DC Water web updates. Also, the Department of Energy and Environment (DOEE) has collaborated with DC Water's staff in these efforts. On January 11, 2019, DC Water fully executed a Memorandum of Understanding (MOU) with DOEE, which states DC Water's obligations. Ms. Mackool outlined the roles and responsibilities of both, DOEE and DC Water, as it pertains to CAP. She discussed the operational efforts and challenges of the CAP, which began in September 2018 and were addressed and resolved. Mr. Lisle, VP addressed the communication gap between Customer Care and the selected vendor regarding the distribution of the CAP bill inserts. The communicated time line and requirements of the vendor began on February 4, 2019. Requirements stated that for one full bill cycle, a CAP bill insert would be sent to all residential customers. Further, the requirements stated that any residential customer who was a receiving a non-pay disconnect notice were to continue receiving a bill insert until all bill inserts ran out. On March 12, 2019, bill inserts were delivered to vendor. On March 18, 2019, the bill inserts began to be included in customer bills. On March 25, 2019, Customer Care received an email from

DOEE stating that they had received a bill without the insert. On this same day, Customer Care contacted the vendor regarding the issue, which resulted in the vendor acknowledging the mistake and later that evening, correcting it. These details were communicated and shared with DOEE along the correction process. The following day, March 26, 2019, the Board Chair inquired about the bill inserts. A response was sent two days later, which explained the vendor error and the corrective action taken.

Mr. Lisle, VP presented graphical depictions of the enrollment statistics for the CAP2 and CAP3 programs. Ms. Bhatt inquired about the low enrollment in comparison to previous projections. Mr. Brown responded and highlighted the different data sets the estimates from DOEE and an economist working for DC Water. In response to Mr. Lisle's Marketing and Outreach Plan, Mr. Jedd Ross stated that gaining participants should be the focus. Mr. Gibbs expressed his concerns on the longevity and viability of the programs in correlation to its low enrollment. Mr. Lisle, VP stated the objectives and key messages of his expanded Marketing and Outreach Plan. The new plan consists of a combination of current efforts and new, creative ideas from his team and other major collaborators. The Plan includes outreach through metro station pop-ups, senior wellness centers, and direct mail of applications to list a few. Reverend Dr. Kendrick Curry suggested that the Outreach Plan should also target AARP, houses of worship and other associations that have direct access and relations with senior citizens. Chairperson Bhatt commended Mr. Lisle and his team for their exceptional detailed work in highlighting the outreach for the CAP programs.

#### **DC Retail Water and Sewer Rates Committee Workplan (Attachment C)**

Mr. Brown, CFO/EVP updated the Committee on the Workplan. He reported that DC Water is on target to implement the rates on October 1, 2019. Responses have been provided, as required by law, to the Office of the People's Counsel (OPC) regarding the new proposed rates. A public hearing will be held on August 14, 2019 to extend the CAP2 Program to FY 2020 and amend the Groundwater Sewer retail rate, effective October 1, 2019 (FY 2020). A special Retail Rates Committee meeting will be held on August 27, 2019 to approve and recommend the extension of the CAP2 Program to FY 2020 and amend the Groundwater Sewer retail rate to the full Board for approval on September 5, 2019.

#### **Agenda for August 27, 2019 Committee Meeting (Attachment D)**

There was no discussion on the August 27, 2019 Committee meeting agenda.

#### **Other Business**

None

#### **Adjournment**

Chairperson Bhatt adjourned the meeting at 11:23 a.m.

#### **FOLLOW-UP ITEMS – DC Retail Water and Sewer Rates Committee Meeting (July 23, 2019)**

1. Provide the largest size claim in the AML project and all that are outstanding (Ms. Bhatt) **Status:** (August 2019)
2. Consider which Committee should review customer service-related matters (Mr. Gibbs) **Status:** (TBD)





**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**Board of Directors**

*DC Retail Water and Sewer Rates Committee*

Tuesday, August 27, 2019

9:30 a.m.

**MEETING MINUTES**

**Committee Members in Attendance**

Tommy Wells, Chairman

**DC Water Staff**

Matthew Brown, CFO/EVP Finance & Procurement  
Gregory Hope, Interim EVP, Office of Legal Affairs  
Linda Manley, Secretary to the Board

**Committee Members Via Telephone**

Rachna Bhatt, Chairperson  
Reverend Dr. Kendrick Curry  
Howard Gibbs  
David Franco  
Ivan Frishberg  
Jed Ross  
Emile Thompson  
Anthony Giancola

**Call to Order**

Chairman Tommy Wells was in person at the meeting and convened the meeting at 9:33 a.m.

**Extend CAP2 Program Through FY 2020 (Attachment A)**

Mr. Brown, CFO/EVP Finance & Procurement, greeted the Board members and began the presentation by pointing out the two items on the agenda for the meeting: 1) Extend the CAP2 Program through FY 2020 and 2) Amend the Retail Groundwater Sewer Rate. He stated that the Committee would be asked to move the items to the full Board for approval on September 5<sup>th</sup>.

He highlighted the four Customer Assistance Programs (CAP) that DC Water offers. He noted the comparison of the programs including the existing CAP Program established in 2001 and the CAP2, CAP3 and Non-Profit Relief Programs established in 2019. He provided an overview of the income

eligibility for households of four persons and the benefits to be provided in FY 2020 for each program. The CAP2 Program was funded \$6.0 million from the Rate Stabilization Fund. The program was enacted through regulations, and will sunset at the end of FY 2019 unless action is taken on the proposal is to extend the CAP2 Program through FY 2020. To date there have been 166 households that have applied and been accepted to the CAP2 Program, and less than approximately \$0.5 million will be expended this year on program benefits and administrative costs. There have been other expenditures related to the implementation of the CAP2 Program, including outreach and staff are working now to ensure that those expenditures are categorized appropriately.

Mr. Gibbs inquired about the \$1.2 million that the District Government paid for the CAP2 Program, and asked if this was in addition to the \$6.0 million that the Board allocated for the CAP2 program. Mr. Brown responded that the District Government provided a total of \$7.0 million for the District programs, and that was allocated between the CRIAC Non-Profit Relief and CAP3 Programs. Also included in the \$7.0 million was an allocation of \$1.2 million for the CAP2 Program. Mr. Gibbs asked if the \$1.2 million was included in the \$6.0 million number for the the CAP2 Program. Mr. Brown responded that the \$6.0 million does not include any District Government funds.

Mr. Giancola inquired if there would be an extension of the CAP3 and CRIAC Non-Profit Relief Programs, and asked why this had not been part of the committee discussions. Mr. Brown explained that it had to do with the funding of the programs. He stated that the CAP2 Program was established by DC Water and is a rate change. The CAP3 and Non-Profit Relief Programs were established by the District Government, and were not DC Water rate changes. Mr. Brown noted the District Government would take the appropriate action on extension of the CAP3 and CRIAC Non-Profit Relief Programs. As a follow-up, Chairman Wells added that these programs will be extended to the next fiscal year. He noted that the Budget Support Act for the District has created a non-lapsing fund that rollover any unexpended funds.

Mr. Giancola asked if DC Water and the Department of Energy and Environment (DOEE) embraced the six recommendations from Office of People's Counsel District of Columbia (OPC) regarding the CAP2 extension. Mr. Brown explained that the current law requires that we respond to the rate change recommendations. One of the recommendations concerned the proposed rate change for CAP2, and the remaining were management recommendations. He noted that DC Water would be providing s response to OPC for the rate change recommendation, and that DC Water appreciated the other recommendations and would consider them.

Mr. Franco inquired about the outreach plan to increase enrollment and requested updates on progress to the Board. Chairman Wells explained that the Mayor has a plan to publish a public service announcement that will run on a TV about these programs. Mr. Brown also added that DC Water and DOEE would continue to work together to reach as many customers as possible. Mr. Brown also stated that DC Water will provide information about the outreach plan and regular updates to the Committee and the Board.

#### **Amend Retail Groundwater Sewer Charge (Attachment B)**

Mr. Brown explained that the proposal is to increase the Groundwater Sewer Charge to \$2.83 per Ccf to reflect the cost of service. This had been previously presented to the Committee and the action required a public hearing that was held on August 14, 2019, the same day as the hearing to extend the CAP2 Program. He noted that Raftelis consulting conducted a review of DC Water's miscellaneous fees and charges, which have not been adjusted since 2011. The scope of the Raftelis's review was: 1) FOG/Backflow Preventer Analysis – Develop FOG and Backflow Preventer Inspection fees based on budgeted FY 2019 cost of service and this was moved forward and implemented in this summer 2) Update Existing Fees – Review existing fee structure to align with the services being provided as well as the cost of providing those services.

Other than the Groundwater Sewer Charge, all of the previous fee changes were previously adopted by the Board and are being implemented. The groundwater charge will increase from \$2.33 per Ccf to \$2.83 per Ccf. The increase is based on the Cost of Service Study conducted by Raftelis Consultants.

**Action Items (Attachment C)**

Mr. Brown mentioned that the committee is asked to recommend approval of both actions to the full board for approval.

- Action Item 1 – To amend regulations to extend CAP2 program through FY 2020
- Action Item 2 – To amend the Groundwater Sewer Charge from \$2.33 per Ccf to \$2.83 per Ccf

The Committee recommend approval of both actions to the full Board

**DC Retail Water and Sewer Rates Committee Workplan (Attachment D)**

There was no discussion on the Committee workplan.

**Agenda for September 24, 2019 Committee Meeting (Attachment E)**

There was no discussion on the Committee workplan.

**Other Business**

None

**Adjournment**

Chairman Wells adjourned the meeting at 9:55 a.m.

**FOLLOW-UP ITEMS – DC Retail Water and Sewer Rates Committee Meeting (August 27, 2019)**

1. Provide the Board with a CAP2 outreach plan and regulars updates (Mr. Franco) **Status:** (September 2019)
2. Provide an update on the Independent Review of Rates and Customer Assistance Program (CAP) (Mr. Gibbs) **Status:** (September 2019)



## DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

### Board of Directors

*Audit Committee*

*Thursday, July 26, 2019*

*9:30 a.m.*

*Meeting Minutes*

#### **COMMITTEE MEMBERS PRESENT**

Anthony Giancola, Committee Vice-Chair  
Ivan Frishberg, Committee Member  
Howard Gibbs, Committee Member  
Jed Ross, Committee Member  
Steve Shofar, Committee Member  
Fariba Kassiri, Committee Member (by phone)

#### **INTERNAL AUDIT STAFF PRESENT**

Dan Whelan, RSM US LLP  
Jill Reyes, RSM US LLP  
Sophie Tomeo, RSM US LLP  
Ethan Bickford, RSM US LLP

#### **DC WATER STAFF PRESENT**

Linda Manley, Secretary to the Board  
Wayne Griffith, EVP Performance  
Gregory Hope, EVP Legal Affairs  
Biju George, EVP Operations and Engineering  
April Bingham, Manager Customer Services  
Armon Curd, EVP Customer Experience  
Brian McDermott, Director Permit Operations  
Dan Bae, VP Procurement and Compliance  
David Gadis, CEO (by phone)

#### **Call to Order (Item 1)**

Mr. Anthony Giancola called the Audit Committee meeting to order at 9:30am.

#### **Internal Audit Update (Item 2)**

RSM Partner, Mr. Dan Whelan, presented the FY19 internal audit plan status update. He noted the internal audit team is either in the planning phase or fieldwork has started for the remaining FY19 audits. All outstanding audits are on track to be completed by September 30, 2019, and reported during the October meeting.

Ms. Sophie Tomeo presented the status of prior audit findings. There are four open FY 2016 audit findings. Progress is being made by management towards the two Training, Licensing, and Certification open findings, and testing should begin next quarter for

closure. Two findings for the Blue Horizon 2020 Strategic Plan Monitoring Audit were closed this past quarter. The Business Development Plan is currently still in progress with final plan updates, and the Annual Budgeting and Planning finding is tied to the new ERP system. There are 13 open audit findings from FY 2017. Work Order Management open and pending testing items will be addressed in the Asset Management audit that is in the planning phase currently. Two Purchasing Card open items were closed this quarter, and are tied to new FY19 findings. Ms. Tomeo explained that the four open Entity Level Assessment items are in progress. There are 12 open FY 2018 audit findings. The Automated Meter Reading audit finding was closed this quarter. Lastly, the two Contract Monitoring and Compliance pending testing items are related to the uniform rental contract, and Internal Audit is in the process of testing for closure.

Ms. Tomeo followed with an action deferred update. Items considered “action deferred” are contingent on Union approval of policy. However, the Intellectual Property Personnel Policy is under review by management based on strategic initiatives, so this is currently in process, and not held up by the Union.

Mr. Ethan Bickford presented an overview of the Automated Meter Reading Replacement Project. He explained that the AMR project includes replacing over 85,000 meters across the District. Mr. Bickford detailed the objectives of the project, which included addressing the end of useful life of meters and meter transmitting units (MTUs), increasing the percentage of transmitting meters, and reducing the volume of estimates. He then explained that two other status updates were provided in previous Audit Committee meetings, which included a review of the business process and controls for inventory management, meter installation, meter disposal, and AMR related billing adjustments.

Ms. April Bingham presented the current status of the AMR project. She described managing this project with the outside vendor Mott MacDonald. Ms. Bingham defined their goal to successfully replace 85,000 meters over the District within 18 months. The first installations began in February 2017, and she repeated that the goal was to address the assets that were ending their useful lives, increase number of meter reading transmissions, and reduce estimated billing. Since February 2017, the program has successfully installed 84,534 meters and MTUs, increasing the overall AMI transmission rate from 70% to 92.4%, and improving the transmission and redundancy efforts through 90 upgraded Data Collection Units. Additionally, there were minimal customer inquiries throughout the lifespan of this project. Billing adjustments required as a result of the AMR program were less than \$420K over the life of the program. Ms. Bingham described that there were only 25 potential risk management claims, and that the project has helped expand insight into customer usage. She then walked through the high use notification application to the committee. Mr. Gibbs asked if DC Water is looking into the intellectual property of this application, and trying to market and sell it. Mr. Biju George explained that management has a plan for a third party portal, but is waiting to package up other applications to send to vendors and commercialize them. Ms. April Bingham summarized

that proper advanced planning, blended program management, executive oversight committee, and customer outreach efforts were all areas that worked well during this project. She also detailed the opportunities for improvement during this project like unplanned escalations and fixing the public space tripping hazards across 18,274 locations. Ms. Bingham recommends working with a single contractor, but also having the support from DC Water due to the construction work and plumbing issues that have occurred during this project. Mr. Anthony Giancola asked if the 18,274 locations that need to be fixed are captured within the work order management system. Ms. April Bingham responded that all the locations are currently in Maximo. She described that the next steps in the AMI project include developing solutions to the hard to solve locations, utilizing a sole sourced seasoned vendor on a performance base pay model, and continuing the ongoing replacement of the remainder of small meters and larger meters not transmitting. Mr. Giancola asked why DC Water chose to sole source the new vendor, an Armon Curd, EVP Customer Experience, said the matter would be discussed in Executive Session.

Ms. Jill Reyes presented an overview of the Permit Operations Reimbursable Projects review. Ms. Reyes detailed the scope of the audit, which included reviewing and assessing the design of the Authority's processes for collecting project fees and distributing reimbursements, reviewing existing policies and procedures related to reimbursable projects, identifying process or controls gaps, and recommend opportunities for improvement. Ms. Reyes explained the review for this project was conducted in complement to the Temporary Use Permits review that was performed for management in 2018. She noted that the process surrounding reimbursable projects was an issue management brought to Internal Audit's attention, so the project was added to the audit plan at the request of management. Contractors are required to pay deposits for certain projects, and the contractor is then reimbursed for the deposit following project close out. However, not all projects are closed out consistently, for example some contractors never provide as built as required, and therefore do not collect back their deposit. Project deposits that are not collected become an aged liability on the financial statements. Ms. Jill Reyes then described the recommendations resulting from the audit included identifying roles and responsibilities, project account reconciliation and monitoring, as well as a forfeiture clause that management has in progress.

Mr. Matt Brown additionally provided an overview of management's progress on enhancing processes for reimbursable projects. He discussed the problems associated with the ongoing liability. Mr. Matt Brown detailed that developers are not consistently closing out their jobs with DC Water, and that this issue has been ongoing since 2001. As part of this process, Mr. Matt Brown established an executive committee consisting of Biju George, Arman Curd, Leonard Benson, and himself, as well as a task force group including the following departments: Permits, Legal, Customer Service, IT, and others as needed. Mr. Brown noted that beginning this month, DC Water has added a forfeiture clause to each invoice that is issued by the Permits department, which is a statement that

after two years of inactivity, the funds will become the property of DC Water. Beginning July 30, all statements issued by the VertexOne system will be under the same forfeiture clause. Mr. Gibbs asked how the Authority will determine no activity has occurred. Brian McDermott, Director Permit Operations, explained that this will be tracked in Maximo.

Ms. Sophie Tomeo provided an update on the Purchasing Card audit. She described that the testing period was from 10/1/2017 – 3/31/2019, and during this time the Authority switched from Citibank as the PCard and TCard provider to U.S. Bank. Ms. Tomeo detailed the scope of the purchasing card program including review and assessing the design of the Authority's policies and procedures, evaluating the adequacy of program administration and oversight, evaluating the appropriateness of PCard and TCard purchases, performing analytical procedures on the PCard data to identify high-risk activity, and identifying process improvement opportunities. She discussed the total expenditure for the PCard program was approximately \$2M during the year and a half testing timeframe, and the top departments by spend were Water Services and Engineering. In addition, she illustrated that the top merchant category codes (MCC) for dollars spent were Wholesale Distributors/Manufacturers and Government Services.

Ms. Jill Reyes provided detail regarding the one high-risk observation on the Purchase Card audit, related to non-compliance with existing policies. Management plans to roll out a PCard/TCard refresher training, update exception requirements and meal/food requirements in the Policy, and automate approval and reporting processes. Ms. Reyes explained that all PCard documentation is maintained in paper files, and due to the transition from Blue Plains to the new headquarters, Accounts Payables was unable to retrieve documentation for a few of the samples selected. Currently, Procurement is in the process of digitizing the records and making the reconciliation process automated. Mr. Jed Ross asked if the management action plan is realistic with the estimated date in the 2<sup>nd</sup> half of 2020. Mr. Dan Bae responded that this is an accurate schedule timeline, and that Procurement has selected the Oracle ERP system with an expenses module that will allow electronic tracking. The implementation is scheduled to begin November this year.

Mr. Ethan Bickford provided an update on the Hotline. Ethan informed the Board that since the last committee meeting there were seven cases open, received four calls in the last three months, which one were fraud related, and three were other instances. Eight were closed and one required corrective action while three remain open that Procurement is currently investigating.

#### **Executive Session (Item 4)**

There was a motion to move into Executive Session by Mr. Giancola to discuss legal, confidential, and privileged matters pursuant to Section 2-575(b)(11) of the D.C. Official Code. It was so moved and seconded, and motion carried. The room was cleared of non-

Executive members and all public individuals. The Audit Committee went into Executive Section at approximately 10:31 AM.

**Adjournment (Item 5)**

The Audit Committee meeting adjourned at 11:30 AM.





**DISTRICT OF COLUMBIA  
WATER AND SEWER  
AUTHORITY**

**Board of Directors**

Finance and Budget Committee

Thursday, July 25, 2019

11:35 a.m.

**MEETING MINUTES**

**Committee Members**

Major Riddick, Chairperson  
Anthony Giancola  
Adriana Hochberg

**Other Board Members**

Tommy Wells, Board Chairman  
Howard Gibbs

**Committee Members (via conference call)**

David Franco, Vice Chairperson  
Sarah Motsch

**DC Water Staff**

Matthew T. Brown, CFO & Executive Vice President,  
Finance and Procurement  
Biju George, Executive Vice President,  
Operations and Engineering  
Gregory Hope, Interim EVP, Legal Affairs  
Linda Manley, Secretary to the Board

**DC Water Staff (via conference call)**

David Gadis, CEO and General Manager

**Other Presenters and Guests**

Dan Hartman, Public Financial Management

**Call to Order**

Chairperson Major Riddick called the meeting to order at 11:35 a.m.

**June 2019 Financial Report**

Mr. Matthew Brown, CFO & Executive Vice President, Finance and Procurement provided an overview of the monthly financial report, noting that DC Water’s expenditures and revenues are on track and consistent with trends. With approximately 75 percent of the fiscal year completed, total operating revenues are \$508.6 million, or 76.4 percent of budget, operating expenditures at \$399.1 million or 68.5 percent below budget, and capital disbursements at \$288.5 million, or 65.7 percent of budget.

Next, Mr. Brown provided several highlights noting that the Fitch Rating Agency surveillance discussion will be held on August 5th, and that Standard & Poor’s and Moody’s rating agency meetings are scheduled for September 4th. The bond sale for Series 2019A/B&C is tentatively scheduled for September/October 2019. The plan is to move the bond documents to the full Board for approval in September.

Operating revenues are on track to meet budget. Residential, Commercial and Multi-Family is favorable by \$5 million. The Other Revenue category is favorable by \$4 million, primarily due to the payment received from the District of Columbia Government for the CAP expansion programs.

Mr. Brown informed the Committee that we are preparing for the bond issuance. He noted that in the course of the work we do every day to monitor collections, billed consumption, water purchases from the Washington Aqueduct, and customer water usage we have identified a decline in billed water consumption. The current board-approved financial plan reflects a one percent decline each year. To date we have seen close to five percent decline in billed consumption. He stated that consumption is a leading indicator of possible issues, and year-to-date revenues are consistent with the budget and the projection provided earlier to the committee. Some of the decline in consumption is related to the backlog in the work that Customer Service manages, which is being resolved. He mentioned that even after the backlog has been corrected, billed consumption will likely be down by three percent this year, rather than the one percent previously forecasted. Management has been working to revise the financial plan, holding steady the rate increases and metrics already discussed with the Board. There are some slight changes in the financial plan that we are going to present to the rating agencies.

Mr. Franco inquired about the decline in usage, and how it would impact the budget. Mr. Brown explained it is not anticipated to impact the FY 2019 budget. However, there could be a decline of \$11 million in revenue next year, if there is a three percent decline in consumption. Therefore, that amount would be reduced in the financial plan.

Next, Mr. Brown reported that operating expenditures are also in favorable position, and are anticipated to be \$10 million under budget by year-end, primarily in personnel services. The contractual services budget is favorable. Debt service remains under budget because we have not issued new debt, which is scheduled in September/October timeframe.

Regarding capital disbursements, Mr. Brown reported that the year-to-date spending is trending below budget, and he anticipates slight underspending at year-end. He also noted that the detailed project performance report will be provided as part of the quarterly CIP update by the Department of Engineering & Technical Services at a future committee meeting.

Mr. Brown reviewed the cash levels and noted that significant changes were made to the report by adjusting the way the cash balances are shown. The additional reserve accounts are now reported separately into unrestricted and restricted categories. Additionally, the following new line items are also included in the restricted category: DC Water-CAP 2, DOEE-CAP 2, DOEE-CAP3/Non-Profit, Developer Deposits, and the Danbury Meter Installation Project.

Mr. Brown also informed the Committee that the tunnels are performing well, in capturing and treating the extensive rainfall amounts. However, the Suburban share of the Blue Plains cost has declined, which is estimated to be \$3.3 million less collected from the IMA partners. This would also be reflected in the updated financial plan.

#### **Automated Metering Infrastructure (AMI) Program Update**

This presentation was made by exception.

### **2019 Bond Transaction and Market Update**

Mr. Dan Hartman of Public Financial Management provided a market update and overview of the 2019 Bond Transaction. He explained that municipal borrowing rates are at historic lows for the tax-exempt market on the long-end and short-end of the yield curve. The lower rates are primarily driven by the 2017 tax law that prohibited advance refunding or refinancing of debt, which lowered the volume in the market.

DC Water's intent is to issue \$300 million in proceeds for the 2019 bond transaction under the subordinate lien: \$200 million in Series 2019A/B bonds long-term fixed rate debt for general capital and Clean Rivers projects, and \$100 million in Series 2019C bonds long-term variable rate debt for general capital projects. DC Water anticipates to affirming the credit ratings from Moody's Investors Service and Standard & Poor's, and obtain an independent green bond certification for Green Bonds issued for the Clean Rivers project. Mr. Harman further explained that the Green Bonds for Series 2019A have a term up to 35 years. The Multi-Modal Bond Structure for Series 2019C will be for a term up to 40 years with a variable rate of approximately 1.5 percent.

Next, Mr. Hartman reported that a surveillance meeting is scheduled in August with Fitch, and hoped that a favorable rating action would be taken based on Fitch's positive outlook from a year ago. Based on the outcome, DC Water will use two or three ratings. He also noted that the disclosure documents will be updated as the September Board meeting approaches. Mr. Hartman concluded his presentation with recommending approval of the 2019 bond documents to the Committee, and if approved by the Board in September, the bonds will be issued in October.

In closing, Mr. Brown stated that drafts of the Authorizing Resolutions, Supplemental Indentures, and Bond Purchase Agreements have been provided, and requested that the documents be recommend to the full Board for approval.

### **Action Items**

The Committee recommended the following action items to the full Board for consideration:

1. Authorizing Resolution for Series 2019A/B
2. Authorizing Resolution for Series 2019C
3. 24<sup>th</sup> Supplemental Indenture (Series 2019A/B)
4. 25<sup>th</sup> Supplemental Indenture (Series 2019C)
5. Bond Purchase Agreement for Series 2019A/B
6. Bond Purchase Agreement for Series 2019C

### **Adjournment**

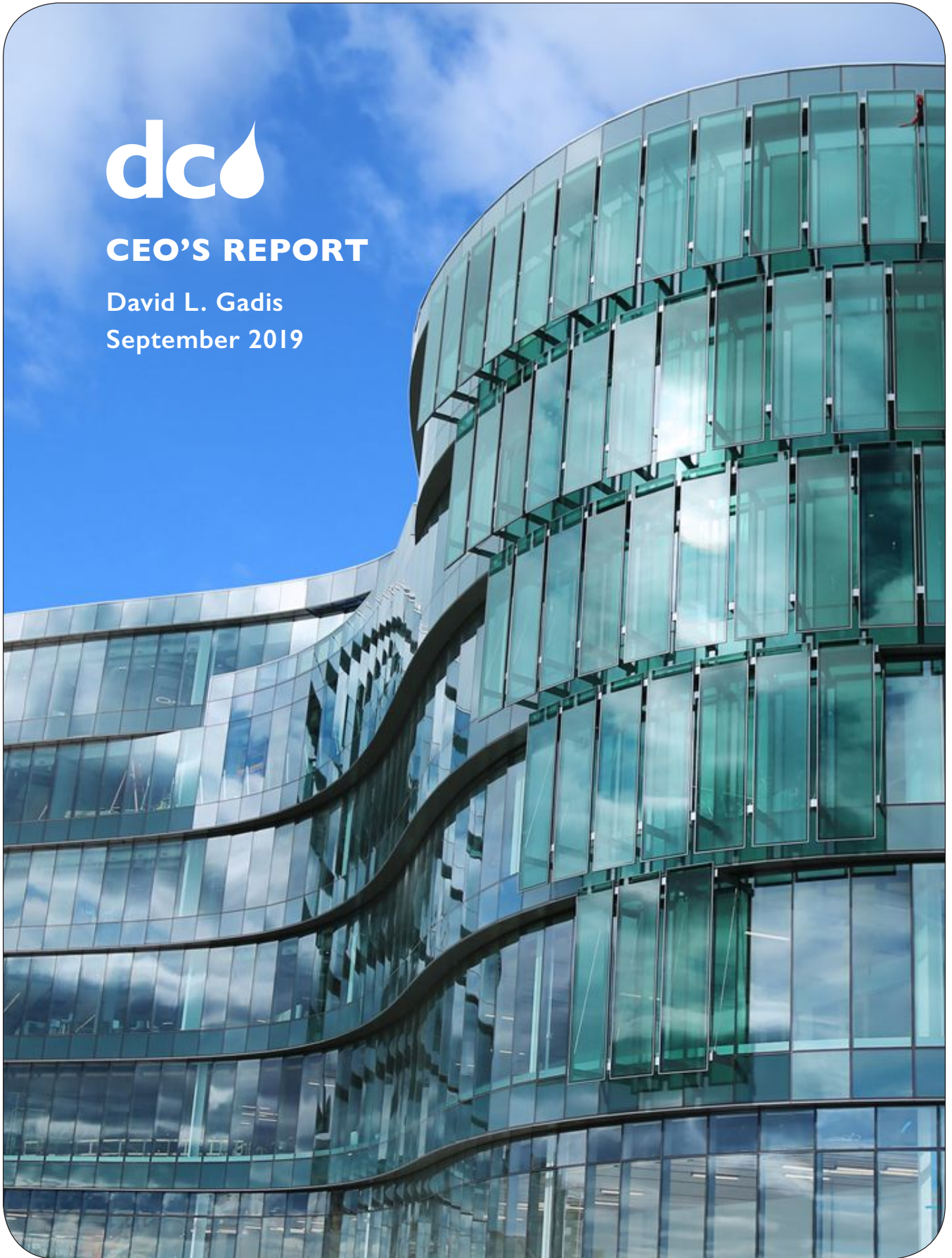
Hearing no further business, Chairperson Major Riddick adjourned the meeting at 12:07 p.m.

**Follow-up Item** - There were no follow-up items.



## **CEO'S REPORT**

David L. Gadis  
September 2019



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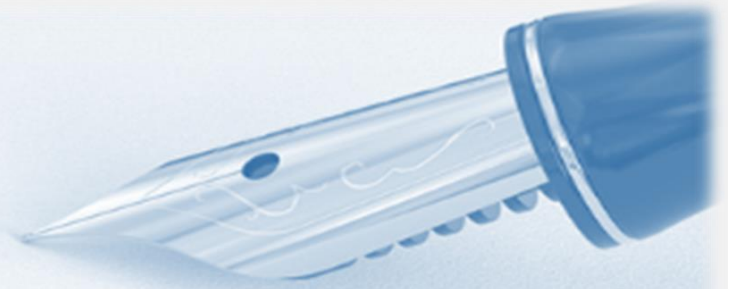
**Color Key**

<b>Red</b>	<b>Did not meet Target</b>
<b>Yellow</b>	<b>Missed Target but within acceptable range</b>
<b>Green</b>	<b>Met/Exceeded Target</b>
<b>Gray</b>	<b>Budget/Target Value</b>
<b>&lt;transparent&gt;</b>	<b>Green/Yellow/Red based on comparison</b>



*From the desk of the CEO*

**David L. Gadis**



September 2019

**Department of Operations and Engineering**  
**Water Operations and Water Quality & Technology**  
**Accomplishment(s)**

- The FOG and BPA fees are schedule to start September 1<sup>st</sup>. The Regulations for fee implementation were approved by the Board and will be effective August 16<sup>th</sup>. The Vertex 1 contractor and DC Water completed testing of the programming changes to implement the new fees in SAP Billing System.
- The Compliance and Enforcement Branch completed 47 site inspections for compliance with Cross-Connection Control Regulations and 37 site inspections for compliance with Fats, Oils & Grease Regulations. So far, 579 and 190 sites inspections were completed for Cross-Connection Control and Fats, Oils and Grease Compliance, respectively.
- 651 Backflow Prevention Assembly Annual Inspections by DC Water Approved Inspectors were received through the DC Water Third-Party Portal in July. 6,915 passed inspections were submitted this fiscal year resulting in 53% of all backflow preventers tracked are compliant as of July 30<sup>th</sup>. Compliant means the backflow preventer passed inspection within 365 days of July 30<sup>th</sup>.
- Seventeen (17) DC Water Employees were recertified to inspect backflow prevention assemblies in July. These employees support DC Water's internal cross-connection control and backflow preventer inspection program.

**Operational Performance - Completed Projects and Blue Print Initiatives**

- The Department responded to 93% of the emergency investigative calls within the 45-minute response time. The measured target is 90%.
- The department exceeded the operational target by replacing 23 Hydrants for the month of July.
- Water main breaks per 100 miles of pipe for the water distribution system was approximately 30.2 (34) for the month of July. The national average of 25.00 is exceeded by many associations and utilities.
- Total Coliform Rule – DC Water collected 261 samples in July 2019 for compliance with the Total Coliform Rule (TCR) and 1 sample (0.4%) was positive

for coliforms; repeat sampling was negative. The federal trigger for further system evaluation is 5 percent positive for each month.

- Lead and Copper Rule – The second semester monitoring period has begun and DC Water distributed 52 sample kits to customers in July 2019. Among the distributed kits, we received and submitted samples from 27 homes to the laboratory for analysis. The results are pending.

### Progress Report

#### WQ&T

- Distributed letters to the first set of customers at the Unit Block of Franklin Street, NE to potentially benefit from the Districts new LSR law to take effect in October 2019.

#### Water Services

- DMB continued the planning and construction activities associated with the FY2019 Operational Small Diameter Water Main Replacement projects directed at replacing water mains in reduced amounts where neighborhoods have experienced water quality concerns. Substantial progress has continued at the Locust Road, NW location and construction activities have begun for water main replacements at the Unit Block of Franklin Street, NE. Initial community engagement meetings for the project have been held.
- LSR Voluntary Program for Full Replacement supported the replacement of 32 lead service lines in the month of July.



#### News and Events

- Update: The newly established FOG and BPA fees are planned to start with the August 1st billing cycle have been delayed by one month.



## **Sewer Operations**

### **Accomplishment(s)**

- On July 18<sup>th</sup>, staff gave a presentation during Career Development Day at Cardoza High School regarding the operation of our sewer system and the potential for vocational opportunities for graduating seniors interested in that profession.

### **Operational Performance - Completed Projects and Blue Print Initiatives**

- **Strategic Program #1: Operational Safety**
  - Performed two field oversight inspections for a total of 9 year-to-date.
  - Outlined safety deficiencies observed during the safety inspection with field staff at the monthly staff meetings
- **Strategic Program #4: Driving Performance (NPDES Regulatory requirement)**
  - The Department cleaned 534 catch basins in the Combined Service Area this month for a total of 3886 or 36% for the calendar year.
  - The Department also cleaned 1202 catch basins in the MS4 Service Area this month for a total of 9225 catch basins or 63% for the calendar year.
  - Removed 80 tons of floatable debris from the Anacostia River this month for an overall total of 270 tons to date.
- **Strategic Program #5: Leveraging Technology**
  - Identified and performed cured in place pipe (CIPP) repairs on 3 laterals.
  - Performed point repair in front of Capitol @ New Jersey & D St SE.

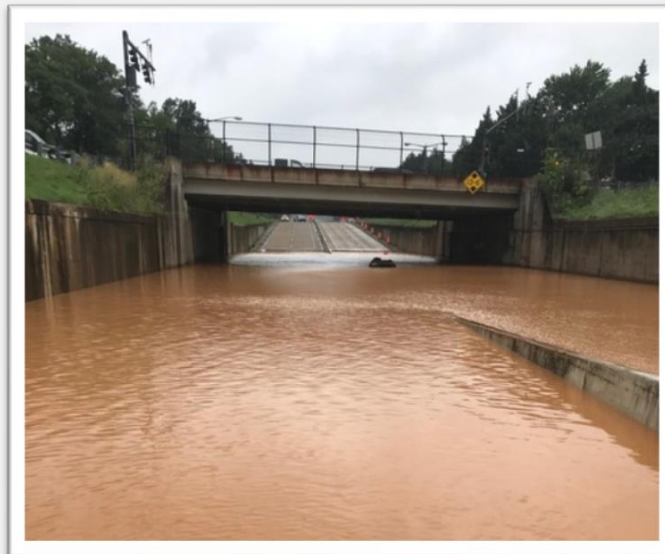
### **Progress Report**

- Discussed sinkhole investigation results at the Washington Aqueduct with Army Corps staff. Plan to continue working with ACOE to locate buried manholes on our 5-foot sanitary sewer that crosses their property and reviewing options for a possible service connection from the Aqueduct to that sewer.
- With assistance from Engineering Services, repair work was started to stabilize the base of a partially collapsed bulkhead at a stone-arch bridge support over our 9-foot storm sewer on Foundry Branch at Reservoir Road, NW. This work will relieve persistent flooding in Glover Archbold Park at the Reservoir Road crossing, address structural deficiencies in the 1907 bridge span and protect our 9-foot storm sewer.

- Reviewed process options and set-up application with specialty vendor regarding permanent sewer repair at Foundry Branch (Bulkhead/Leak Repair) location on the Potomac Interceptor.
- Continue uploading GIS mapping components into the Pipe Logix for DSS CCTV crews.
- Continue review work with the Asset Management group to determine optimum cleaning frequency at several FOG Hotspot locations.
- Finalized draft of training presentation for GIS users at Sewer Services.

### News and Events

- Staff from Sewer Operations, Engineering and External Affairs attended a community walk-through event with Community Group ANC 7F02 to address residential concerns regarding flooding issues in the 300 block of Burbank Street, SE during heavy rainfall events.
- Assisted Metro in the retrieval of 240' of cable 60' below Union Station.
- Pumped flooded roadways at the Portland St pumping station during severe rain event on July 8<sup>th</sup>.



## **Wastewater Operations**

### **Accomplishment(s)**

- FEMA's *Mitigation Minute* publication included a spotlight on the Blue Plains Floodwall project and stated "This mitigation project is currently underway and exemplifies how building the resilience of critical infrastructure projects protects community lifelines in our Nation's Capital.
- The High Priority Rehabilitation Program (HPRP), managed under DWE, received a congratulatory email from JBAB in response to construction work that was completed at their facility in a timely and safe manner. The work entailed constructing of sidewalks, trail markings/signage, and demolishing of existing recreational facilities.



### **Operational Performance**

- Received determination of applicability from the District Department of Energy and the Environment that an air permit is not required for construction of the Gravity Thickener Phase 2 Project.
- On-target to bring FY19 capital spending below target values.
- Executed task order 1 for Basic Ordering Agreement 7 for design of rehabilitation of Blue Plains Plant Influent Structures and grit chamber effluent structures.

- Work is underway on the Main Pump Station Flood Mitigation project and the 14<sup>th</sup> Street Bridge Storm Water Pump Station Upgrade, both of which are funded in part by FEMA grants and support DC Water's resiliency strategic program.
- Conducted inspections of B-Street/New Jersey and Tiber Creek Trunk Sewers on Independence Day weekend to assess potential impacts from transporting military tanks to the National Mall. This supports the Strategic Program for Resilience, Readiness, and Enterprise Risk Management.



### Progress Report

- Executed construction contract for Gravity Thickener Phase 2 project, which will extend the useful life of the gravity thickeners and improve all bio solids treatment processes.
- Final close-out packages have been submitted to DCW for the Main Process Train (MPT) and Combined Heat and Power (CHP) projects. This will conclude the \$400 Mil Bio Solids Management Program.
- Completed refurbishment of 3 roofs at Blue Plains as part of the Solar Power Purchase Agreement which required no capital outlay from DC Water.
- Received 4 proposals for pre-selected equipment for the Reclaimed Final Effluent Pump Systems Upgrade.

## **Engineering and Technical Services**

### **Accomplishment(s)**

- Major reductions (approximately 30%) in total monthly spending (June) for the Sewer Program Management Consultant contract. Reduced CIP spending in FY2019 allowed us to bring work in-house and reduce program management consultant spending. Deferral of lower priority CIP projects and tasks also resulted in a reduced need for program management consultant spending.
- Major reductions (30% plus) in total monthly (June) spending for the Water Program Management Consultants. Reduced CIP spending in FY2019 allowed us to bring work in-house and reduce program management consultant spending. In addition, some less critical tasks were deferred.
- Partnership for Safe Drinking Water Addendum submitted to AWWA, for review and consideration for President's Award.
- Members of Infrastructure Planning Section participated in the Succession Planning Focus Group organized by People and Talent.
- Issued Notice to Proceed for Inspection and Condition Assessment investigation for 66-inch Low Service Steel Water Main to Arcadis, District of Columbia, P.C.
- Pubudu Ranasinghe presented a paper titled "Avoid Tunnel Vision in Large Diameter Infrastructure Rehabilitation" (Co-Presenter) at ASCE Pipelines Conference, Nashville, July 22, 2019.
- July 12, 2019, 2020 Mid-Atlantic Utility Conference Planning Meeting. Getachew Melsew – Planning Committee Member & Chein-Chi Chang – Conference Director.
- July 24, 2019, Chesapeake AWWA 2019 Workshop – Pipe Condition Assessment. Getachew Melsew – Speaker and Panelist (spoke on Metallic Pipeline Condition Assessments at DC Water & Chein-Chi Chang – Workshop Co-chair and Panel Discussion Moderator.
- Provided Finance Team multiple responses for the Bond Issuance Interview questions and documentation.
- Distributed the CIP Disbursements Report for Quarter 3.
- Worked with Finance to complete the FY19-28 Budget Book Project Details pages
- Met with IMA partners to review Potomac Interceptor Projects Cost Shares and corresponding forecast spending, addressed follow-up questions. Working on revised draft of overall CIP forecast for IMA partners.
- Worked with procurement to issue the RFP for the Unifier (CM14 replacement) Implementation on 7/15 and provided responses to subsequent questions from vendors.
- Met w/ Oracle to kick-off P6 & Unifier onboarding.
- Provided Finance details on WIFIA projects forecast spending.

- Met with Finance (Reporting & Billing) and WSSC to resolve invoicing issues
- Completed Pre-Final Design of Constitution Avenue Small Diameter Watermain Replacement (SDWMR) project
- Prepared design/bid package to procure a construction contractor advertise for SDWMR 13B on 8/18/19 (this is the 1st SDWMR project to be advertised in almost 2 years).
- GIS was updated using data from four CIP projects whose construction was recently completed.
- GIS was updated based on information provided by DWS on 26 water valve work orders.
- GIS team provided 116 hours of mapping services to other parts of DC Water.
- Completed 70 permit drawings for SDWMR 14A (Evarts) and submitted the drawings to DDOT for approval.
- Completed 40 permit drawings for SDWMR 13C (Hayes and Jay Street) and submitted the drawings to DDOT for approval.
- Completed base mapping on SDWMR 15A (R Street NW and Massachusetts Ave)
- After a year and a half of multiple stakeholder workshops across DC Water, the last edits were made to the pending Standard General Conditions.

#### **Operational Performance - Completed Projects and Blue Print Initiatives**

- Conducted SOP Training for Department of Sewer Services on Lateral Inspections, Valves, Pre- and Post-Vehicle Inspection Form, and Bypass Pumping.
- Completed all SOP Training for Department of Pumping and Operations.
- Started an initiative to update the Operations & Maintenance Manual for Water Distribution Storage Facilities.

#### **Progress Report**

- Started the evaluation for an alternative project delivery method for Project IM04 Creek bed Sewer Rehab at Fort Dupont.
- Started preparing Concept Design Reports for Project RC07 Rehabilitation of defective segments of Northeast Boundary Trunk Sewer, Project RD03 Oxon Run Rehabilitation, Project QS02 Local Sewer Rehabilitation.
- Developed draft Alternatives Technical Memorandum for Project LZ03 Potomac Interceptor Phase 1 Pipe Rehab at Clara Barton for permit related discussions with National Park Service.
- Conducted confidential meetings with shortlisted firms, issued the community outreach newsletter, and conducted a stakeholder meeting with Northern

Virginia Regional Park Authority for Project LZ07 Rehabilitation of the Potomac Interceptor between MH31 and MH30.

- Met with Fairfax County, Virginia Department of Transportation (VDOT) & Town of Vienna several times to discuss coordination of Rte. 7 reconstruction project and impact to the Potomac Interceptor (PI).
- Completed preliminary design of the PI crossing Rte. 7 for VDOT & its Contractor's review.
- Negotiated and approved Contract Year 3 workplan for the Sewer Program Management Contract.
- Started negotiations with the selected firm for the new Water Program Contract.
- Started the planning and transition of Small Diameter Water Main Replacement jobs for FY2020.
- Started preparing planning and transition of Concept Design Reports for Project FA08 to complete upgrades at the Anacostia #1 and #2 elevate tanks.
- Alternative Drinking Water Source Study progressing with variations on three major alternatives developed for further study.
- Continued FY20-29 budget cycle actions. Held multiple meetings with Planning/Design & Construction teams to review program area forecast spending and provide direction on needed adjustments.
- Worked on relocating scheduling team to the COF 5<sup>th</sup> floor.
- Worked on developing the Cost Estimating manual project.
- Danbury Station Water Meter Installation Project: Construction is 99% complete, 87% of contract time elapsed. All 101 water meters have been installed and final restoration per contract is ongoing.
- Contract No. 170120, Small Diameter Water Main Replacement 12 B2: Will re-issue contract NTP by August 30, 2019; contract postponed due to budgetary impacts in 2017 & 2018.

#### **News and Events**

- BPSA Long Term Planning Wastewater Flow Forecast Methodology Assessment is expected to be completed by December of 2019. This study will review current assumptions related to wastewater flow within the Blue Plains Service area and update parameters related to water consumption, infiltration/inflow, the effect of groundwater levels and observed rainfall. Using this data, the current flow forecasting methodology will be updated to ensure that flow forecasts are valid. This will impact flow allocations projections up to 2045 and facilitate better planning.

- Notice to Proceed will be given on the Blue Plains Service Area Billing Meter Contract in September 2019. This contract will allow the use of a single contract to manage all jurisdictional billing meters which will enable better sharing of meter data, transparency and collaboration on billing issues between DC Water and its client jurisdictions.
- Attending and coordinating with the Blue Plains Technical Subcommittee on jurisdictional issues related to flow projection, billing meter maintenance contracts, user cost share, assessment of the PI model and update.
- Participating at a weekly meeting Business Case Evaluation (BCE) and CIP Prioritization Focus Area Working Group of the Utility Analysis and Improvement Methodology (UAIM) Project

## Wastewater Engineering

### Accomplishment(s)

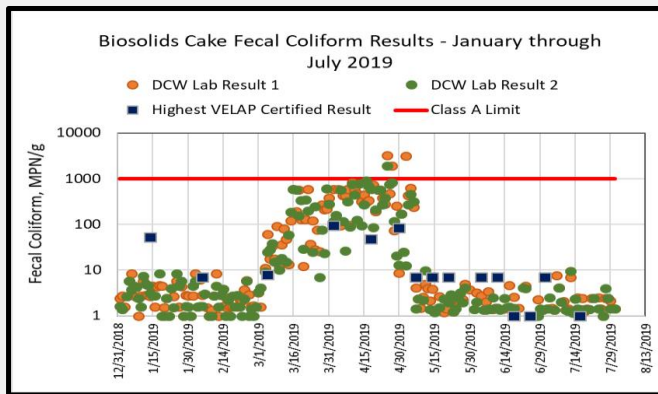
- **Water Environment Federation Nutrient Removal and Recovery Symposium:** In July DC Water's Clean Water Quality and Technology staff, Christine deBarbadillo and Haydee De Clippeleir, attended the WEF's Nutrient Removal and Recovery Symposium held in Minneapolis, Minnesota. Staff presented three technical briefs and research findings in the areas of sustainable and cost effective nitrogen and phosphorus removal technologies.

### Operational Performance

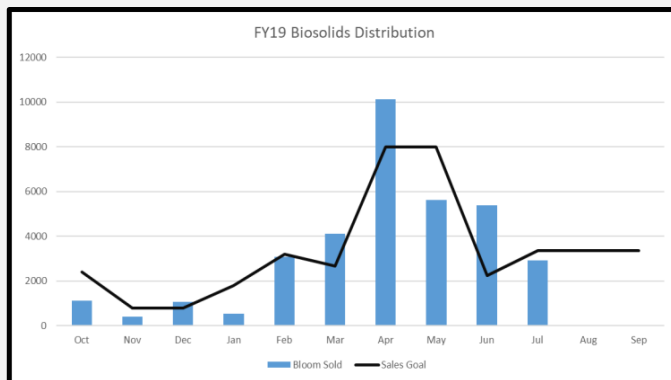
- **Blue Plains Complete Treatment Performance:** Average plant performance for the month of July 2019 was excellent with all effluent parameters well below the seven-day and monthly NPDES permit requirements. The monthly average flow through complete treatment and discharge to outfall 002, was 308 MGD.
- **Blue Plains Wet Weather Treatment Performance:** During the month of July, a total of 337 million gallons (MG) of wet weather flow, captured in the tunnel system, was pumped and treated using the Enhanced Clarification Facility (ECF). A portion of the treated flow, or 248 MG, was directed to the main plant to maximize complete treatment. The remaining flow, or 89 MG, was disinfected, dechlorinated, and discharge to Outfall 001. Since the commissioning of the first section of the Anacostia River Tunnel Systems and the WWTF on March 20, 2018 and including the wet weather events that occurred in July 2019, the total volume pumped and treated through the WWTF is 6,182 MG. During the same period, over 2,500 wet tons of trash, debris, and other solids were removed, that would otherwise have been discharged into the Anacostia River.



- Class A Biosolids Quality:** Since May 7, 2019, fecal coliform values in daily biosolids cake samples, analyzed by DC Water Laboratory, have remained below 10 MPN/gram and well below the 1,000 MPN/gram requirement for Class A certification. The results of all compliance samples collected and analyzed by a Virginia Environmental Laboratory Accreditation Program (VELAP) certified commercial laboratory have never exceeded the Class A limit. In addition, all solids produced and processed through the Thermal Hydrolysis Process (THP) met the time and temperature regimes required to reduce pathogenic organisms.
- DC Water has determined the root cause for the elevated levels of fecal coliform in March, April and during the first week of May was associated with one of the four Anaerobic Digesters. The digester was isolated on May 6, 2019 and the Authority is in the process of developing a final plan to bring the digester back into operation.



- Bloom Marketing:** Bloom marketing resumed on May 21, 2019 after two weeks of non-detect results observed beginning May 7, 2019. In July, 2,920 tons was marketed to bring the total for the fiscal year to 34,420 tons or 86 percent of the 40,000 tons’ goal. Based on progress to-date, the Authority anticipates achieving the marketing goals for the fiscal year.



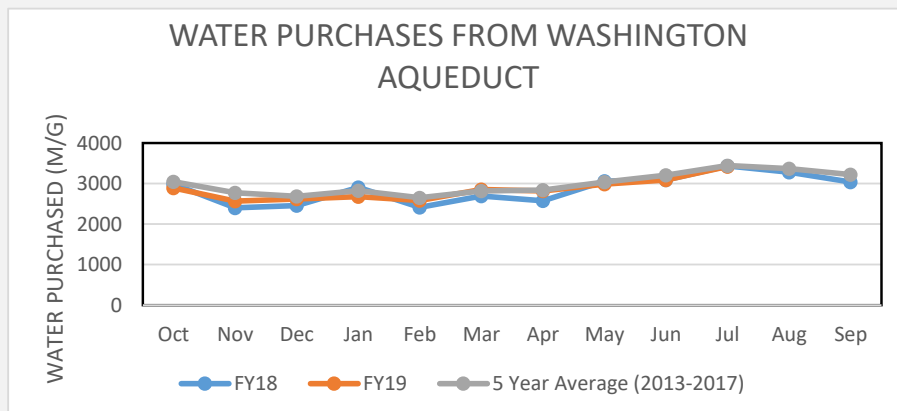
## Department of Pumping Operations

### Accomplishment(s)

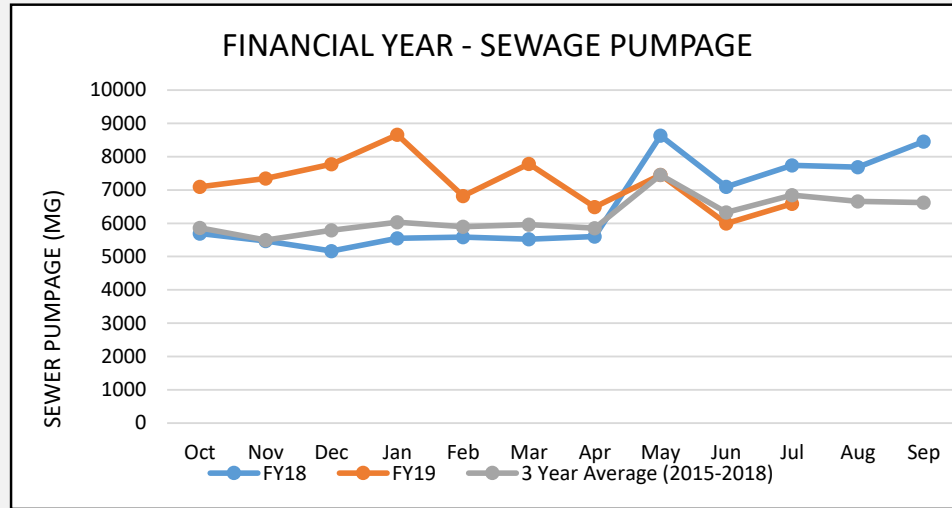
- Completed SOP training as well as Emergency Operations training at 16<sup>th</sup> and Alaska Pump Station and Fort Reno Pump Station. This was attended by personal from Sewer Services, Operations, Maintenance, Pumping, Potomac Interceptor and Electrical departments. SOP training increases the awareness of the staff about our operating facilities, operating controls and forms a significant part of us supporting the Strategic Programs specifically related to The Employee Experience, Resilience & Readiness, and Operational Performance. This also supports the drive to increase Operational Efficiency.
- SCADA team completed training for all wastewater/water operators (all shifts). This training was for the operation of the SCADA system at the new Poplar Point PS, Main PS and Potomac PS
- During the July 8<sup>th</sup> storm, the system was operating at peak capacity. This was recorded as a record flash flood rain event for our area. The PI team also effectively responded to the Sanitary Sewer Overflow (SSO). The system functioned as designed and there were no issues.

### Operational Performance - Completed Projects and Blue Print Initiatives

- SCADA achieved its goal of sever uptime of greater than or equal to 99.99%.
- The Potomac Interceptor (PI) team has had zero odor complaints from residents at six odor control sites as well as all pump station odor control facilities. The WATS model development and initial calibration has been completed and a draft emergency response plan has been completed for two sites.
- The water purchases for the month of July 2019 was 3422.09 MG which is down 1% of the 5-year average. For the past 2 years, there has been a downward trend of Water Purchases from WAD.



- There has been a significant increase on the amount of sewage pumpage over the past 2 years. This is due to the increase in rain events over the past several months. This month the department pumped 6585.63 MG of sewage.



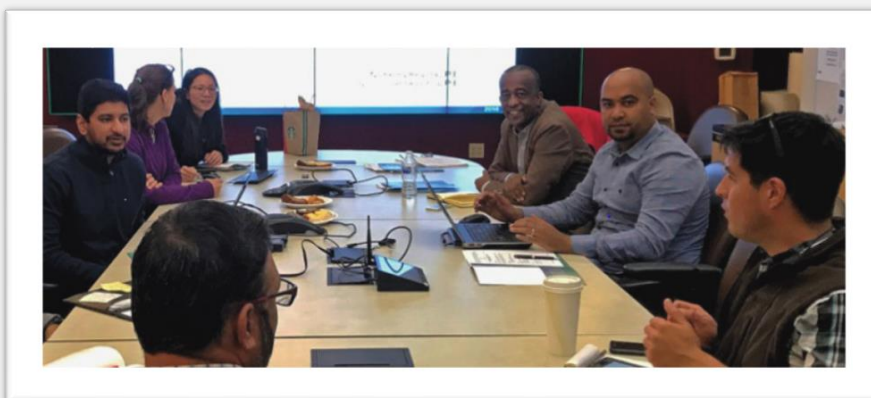
### Progress Report

- The 2017 Wonderware upgrade testing is 100% complete. The transition to the new system will take place August 2019
- SCADA prepared a Scope of Work for the 9<sup>th</sup> and Madison Storm Water Station. This station is not currently displayed in SCADA. A quotation was received for the cost to install SCADA. This will allow the pumps at the storm water station to operate remotely.
- There is an ongoing project to address flume sites. The Oxon Run flume has been completed and is now on SCADA. The Suitland Pkwy flume has been completed and will be on SCADA the last week of August. The flume site at 8<sup>th</sup> & Chesapeake is the next flume site to be completed.

### News and Events

- DPO's Potomac Interceptor was featured in DC Water Focus Newsletter for the completion the Sewer Processing Model. The PI team worked with Jacobs Engineering Group to develop and calibrate the Wastewater Aerobic/Anaerobic Transformation in Sewers (WATS) model. DC Water and Jacobs collaborated on a 2-day training and workshop. During the workshop, the WATS model was fully transferred to DC Water staff who will be operating and fine tuning the model for the PI moving forward. WATS is a concept for modeling biological, chemical, and physical processes in sewer systems, and is still today widely regarded as the most comprehensive sewer process concept. The majority of the PI system shows signs of corrosion and there is evidence that corrosion in

some segments is progressing at a faster rate than other sections. The cost of rehabilitating the PI is very high because it requires bypassing of flow and obtaining permeants for work in environmentally sensitive areas. DC Water intends to aggressively pursue a multi-prolonged corrosion mitigation program to reduce the amount of major rehabilitation work required in the future. The WATS model will be used as a decision-making tool while preparing business case evaluations for piloted corrosion mitigation measures.



## **Permits**

### **Accomplishment(s)**

- Starting August 2019 DC Water Permit Operations started collecting the new permit and Inspections Fees as approved by the DC Water Board.

### **Operational Performance**

- Permit Operations processed 292 permit application tasks, 258 were completed on-time for a monthly KPI average of 88%
- Permit Ops. collected approximately \$126,500 in plan review fees for a total of \$1,317,750.00
- Permit Ops. collected approximately \$240,995 in new SAF Fees for a total of \$1,720,912.00
- Permit Operations collected approximately
  - \$74,500.00 For Water Services Inspection fees and reimbursable
  - \$48,425.00 for Sewer Services inspection fees and reimbursable
  - \$69,500.00 for Construction Inspection fees and reimbursable.

## Progress Report

- Permit Operations has taken the lead the Finance Department to develop an on-line payment portal and to evaluate online permit review processes of neighboring utilities.
- DETS is developing a scope of work for AECOM to review and assist in the process development for permit review fees and deposit management. The system will also allow our customers to submit online in addition to allow for DC Water to take fees online.
- Permit Operations and IT are continuing to review/develop the 3PP on-line permit review and submittal program.

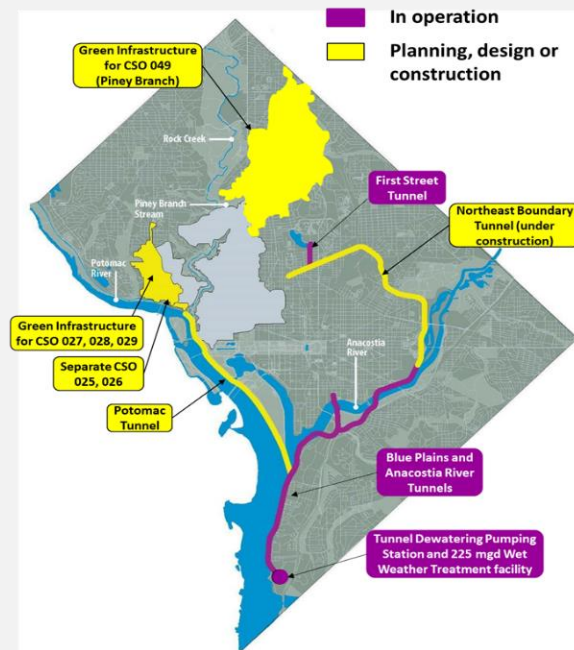
## News and Events

- New permit review fees assessment has begun as of August 12, 2019.

## Department of Clean Rivers

### Accomplishment(s)

- Achieving 90% overall capture rate, exceeding the projected 80% capture rate at this stage of implementation.



## Operational Performance - Completed Projects and Blue Print Initiatives

- **Performance of Anacostia River Tunnel System**

Captured nearly 6.2 billion gallons of combined sewer overflows and over 2,500 tons of trash, debris, and other solids (March 20, 2018—August 13, 2019) that would otherwise have overflowed to the Anacostia River.

## Progress Report

- **Drain the Rain (Downspout - Disconnection) 2019 Phase**

- Continued canvassing and enrolling homes.
- Completed 52 downspout disconnections and 29 rain barrel installations.
- Conference call with City of Atlanta to discuss DC Water's Drain the Rain program on July 30, 2019.

- **Northeast Boundary Tunnel Project (NEBT) – Design**

- Completed 4S and FLA Audit Ground Freeze support of excavation (SOE) design.
- Construction Impact Assessment Reports were completed for CSX and AMTRAK rail crossing.

- **Northeast Boundary Tunnel Project – Construction**

- Tunneling
- TBM Chris mined 6,648 feet as of August 14, 2019.
  - Mount Olivet Road Construction Site
- Completed 10 feet of shaft excavation work.
- Completed one dewatering well.
  - W Street Construction Site
- Completed 100 feet of shaft excavation work.
- Retaining wall construction ongoing.
- Completed cement bentonite wall construction for Near Surface structure SOE.
  - Rhode Island Avenue Site
- Jet grout work for shaft bottom plug ongoing.
  - 4th Street Construction Site
- Completed 90 feet of shaft excavation work.
- Jet grout work for Near Surface bottom plug ongoing.
- Horizontal freeze pipe installation for ground improvement ongoing.
  - Florida Avenue Construction Site
- Completed 8 secant piles for shaft SOE.
- Completed CIP concrete manhole liner of sewer.
  - R Street Construction Site
- Mobilized to site and started installation of geotechnical instrumentation.

- **CSO 025/026 Sewer Separation Project**

- Drainage investigation at private property is currently underway to determine existing roof and runoff drainage to the existing system
- Additional borings have been identified to better define rock extents along proposed pipe layout. Permits for additional geotechnical and environmental borings are under agency review.

- Draft EDR and GDR were reviewed by PCO and DC Water. Comments have been provided to AECOM to update and finalize documents.
- Traffic analysis report and preliminary MOT plans have been reviewed by PCO and DC Water. Comments have been provided to JMT to update and finalize documents.
- Plan drawings have been reviewed by PCO and DC Water.
- First phase of utility potholing investigation has been completed and survey base map updated. Second phase of utility investigation to begin in August.
- Second coordination meeting with DDOT on 31st St Bridge Replacement Project performed on July 19th.
- **Potomac River Tunnel**
  - Coordinating review of draft Finding of No Significant Impact (FONSI) with National Park Service (NPS) to conclude the National Environmental Policy Act (NEPA) compliance process.
  - Negotiating terms of draft Programmatic Agreement with NPS and DC SHPO to resolve impacts from the project in accordance with the National Historic Preservation Act Section 106 compliance process.
  - Conducting geotechnical borings to investigate subsurface conditions along the tunnel alignment.
- **Potomac River Project A**
  - Final project close-out is ongoing and expected to be completed by end of fiscal year.
- **National Green Infrastructure Certification Program (NGICP)**
  - Summer NGICP Training by University of the District of Columbia began in July is complete. Trainees will be sitting for the exam the week of August 19<sup>th</sup>.
- **Environmental Impact Bond Reporting**
  - Monthly reporting is ongoing. June report was sent to investors on August 2, 2019.
- **Public Outreach Activities**
  - Potomac River Green Infrastructure Project 1
    - Responded to inquiries and coordinated repairs for resident.
  - Rock Creek Green Infrastructure Project 1
    - Responded to inquiries from residents.
      - CSO 025/026 Sewer Separation
    - Provided updates to ANC 2E, Georgetown Business Improvement District, businesses and residents about utility potholing, boring, and building drainage investigations.
      - NEBT Business Impact Mitigation Plan
    - Rhode Island Avenue NE Main Street and North Capitol Main Street organizations continue to have “health assessments” conducted for businesses in the construction site areas to establish pre-construction baselines.
    - Rhode Island Avenue NE Main Street has started installation of "scrim" wrapping on the 4th St. construction site.

- Rhode Island Avenue NE Main Street has finished storefront improvement drawings for Edgewood Liquor on 4th St. They are also looking at a storefront refresh/improved signage for VT Nails also near the 4th St. site
- North Capitol Main Street is taking measurements and working with the community to design "scrim" at the Florida Ave. construction site. They are also looking at enhanced accent lighting around businesses at this site.
- Shaw Main Street organization has initiated health checks for businesses near the R Street NW Construction Site.
- All Main Street directors continue to advocate on behalf of DC Water and the NEBT project with the impacted businesses under their purview.
  - NEBT Outreach
- Distributed traffic advisory and stakeholder newsletter concerning Distributed traffic advisory and stakeholder newsletters concerning the delay of jet grout work at the First Street Pumping Station Site, and the temporary closure of R Street NW. Organized weekly meetings to plan the NEBT Community Day event scheduled for September 14, 2019.
- Preparing a 60-day extension of the current media buy with WHUR and WTOP.
- Organized and facilitated a Tunnel Forum on August 8, 2019, to present updates of work at the First Street NW Pumping Station, Florida Avenue NW, and R Street NW Construction Sites.

#### **News and Events**

- Abstract accepted and DC Water registered to present GI at October 29 Grey to Green Conference.
- July 26, 2019-Scheduled WHUR interview with Carlton Ray on the Daily Drum Show.
- Organized the Tunnel Forum (July 11, 2019) which will be rescheduled due to anticipated heavy rain, and will highlight activities at the First Street NW Pumping Station, Florida Avenue NW, and R Street NW Construction Sites

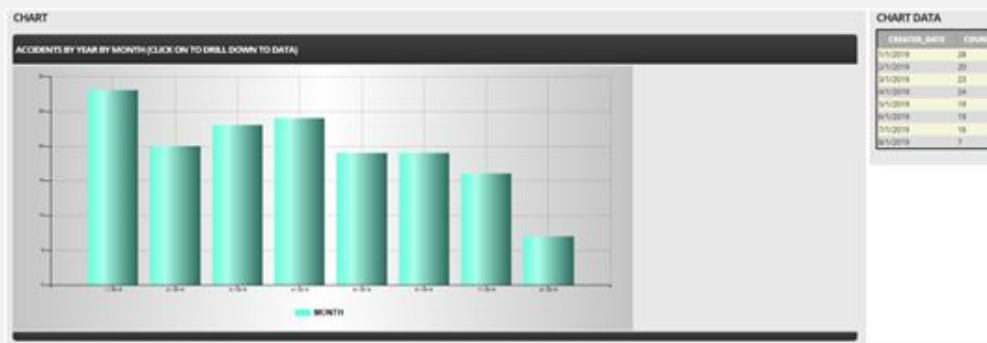


## Office of Administration

### Fleet

#### Operational Performance

- Vehicles/Equipment availability:
  - Priority #1 units – 70%
  - Priority #2 units – 80%
  - Priority #3 units – 91%
- Accident – monthly reporting



#### Accomplishment(s)



## Progress Report

- Fleet Capital Equipment
  - (2) Ford Edge-Assigned Water Quality
  - Updated (9) Ford pickup trucks
    - (5) distributed to DETS
    - Remaining (4) pickups assignment ready to distribution August 20<sup>th</sup>
- DETS/Sewer Operations/DDCS
  - July 30th Acquisitions (Subaru/Toyota/Chevrolet)– Received 24 of 30 Vehicle/Small Pickups: finalizing In-fleet process and DC DMV processing of new vehicle registrations/ license plates - (Department Distribution - estimated August 28, 2019)
    - DETS
    - Facilities
    - Sewer Operations
    - Water Operations
    - Wastewater Operations
    - Authority-wide “Rideshare”
  - Fleet expected delivery
    - Two (2) Stetco trucks for Sewer Operations mid-August 2019
    - Three (3) ICB crew cabs –distribution (2) Sewer Operations (1) DDCS-early September 2019
  - We are working with Procurement on all other emergency Department request; expected delivery September 30, 2019.
- Working with People and Talent to fill (2) Automotive Parts positions
- Continue training and currently using Temp employees to manage, count and label
  - Demonstrated how we can FTP Min/max levels, FIFO, system look-up, and barcoding parts
- Office of Procurement began the process of temporary maintenance contract
  - Projection to bring Fleet maintenance in-house transition FY2021
  - New Fleet maintenance facility projected FY2021
- Installation of industrial fans completed to assist with the ventilation and improve air quality in the Fleet maintenance facility
- Fleet continues working with Sewer Services to clean up the O Street facility for better parking and ingress/egress
- Fleet continues to provide transportation requests for Blue Plains group tours, Summer Intern Program activities and DC Water employees' request for a Rideshare "loaner" vehicle

## Facilities

### **Operational Performance - Completed Projects and Blue Print Initiatives**

- Provided a draft final Facilities List document with all DC Water Facilities listed as either regularly occupied or not regularly occupied. This is in support of Operational Safety Strategic Initiative #2: Develop an environmental health and hygiene program for DC Water facilities and operations
- Facilities will be working with Safety to develop the health and hygiene metrics for DC Water facilities baseline data collection.
- Facilities participated in the interview process for the new Apprentice Program, supporting the HVAC, Plumbing and Fleet QA/QC positions.
- **Completed Projects:**
  - Building F Roof Coating
  - Secondary Electrical Control Room AC unit replacement
  - Nitrification Blower Building HVAC unit replacement
  - Fleet Garage Fans & Controls installation
  - Main Substation Electrical Building AC Units Replacement
  - Street Welding Building and Building F Gutters/Downspouts Progress Report 1
- **Upcoming Projects:**
  - DSLF Roof Replacement
  - Solids Building Elev 107' Roof Coating
  - CMF Electrical Shop Mold Remediation
  - McMillan Material Storage Concrete replacement
  - Bryant Street PS Gutters over Room 302 Bay Replacement
  - Bryant Street PS drainage modification & grating
  - Fort Reno PS Tank Structural Supports
  - Fort Reno PS Tank Roof replacement
  - Fort Reno Trailers (permit pending)

## Emergency Management

### **Operational Performance**

- Strengthened partnerships with external agencies and stakeholders by supporting various trainings, exercises, and events: NPS 50th Anniversary Celebration for Apollo 11; District and DC Health—Capital Fortitude Exercise on July 18th, FEMA BRIC grant funding training on July 23rd, and HSEMA Hazard Mitigation Officer tour of headquarters and discussion on future mitigation partnerships.
- Updated DC Water's Complex Water Main Break procedure and shared with EPA Region III.
- Initiated Task II of the Emergency Plan Revisions and AWIA Compliance Project - gap analysis of risk and resilience study in relation to America's Water Infrastructure Act.
- Developed electronic notification message flows for DCB test and construction shuts.

- Providing “Active Threat Awareness Seminar” at Blue Plains CMF Bldg. on July 22nd.
- Facilitated final building block session of IMT “Demobilization and After Action Review” training on the morning of Aug. 13th and “See Something Say Something” training on the afternoon of Aug. 13th
- Conducted an ICS 300 Intermediate Course for Expanding Events on Aug. 14th-16th

### **News and Events**

- On September 4th, the Authority has invited partner response agencies and key programs to participate in an appreciation event which will highlight the success in being the first utility to achieve EMAP accreditation and to kick off September as Preparedness month.

## **Safety**

### **Accomplishments**

- Coordinated the ISO 45001 course that was held on July 23-25, 2019 for Safety staffers and Upper Management for 25 participants to gain a better understanding of the Occupational Safety and Health Management System that is intended to use at DC Water to achieve our Vision, “Advance the Health and Well-being of our Diverse Workforce”. Additional session is scheduled for September.
- Completed Contractor Safety Prequalification Questionnaire and evaluation procedure.
- Prepared and presented safety presentation for Flood Wall pre-bid meeting.
  - Presented Jason Hughes, Director of Water Services, with an award for supporting the NUCA Trench & Excavation Safety Stand Down for Excavation Safety.
  - Conducted Hazard Communication training for the Water Quality Department.
  - Attended the Department of Wastewater Engineering all hands meeting. Conducted a “Safety Talk” and passed out lanyards, pens and hand sanitizer to the Engineers in attendance.
  - Attended the DSS all hands meeting and introduced the new lessons learned safety video completed by Serik Bulatkulov.
  - Sorin Schwartz, Operations Manager, has attended the First Aid & CPR/AED course to get recertified. As the AED Administrator for DC Water, he is required to maintain an active certification (every 2 years)

### Operational Performance

- Held and facilitated the Quarterly Contractor Safety Meeting on July 19, 2019.
  - Reviewed and commented on accident reports, crew and facility inspections completed by staff during the past month and specialist worked with supervisors to complete and close SRS investigation reports.
- DOSH Director and Safety Specialist assigned to the foregoing departments (Customer Services, Meter Operations, Maintenance and Finance and Budget) scheduled and attended Incident Review meetings with management teams.
- Currently DOSH Safety Professionals are meeting and currently reviewing Safety Policies and Procedures.
- Track completion of housekeeping inspections.
- Safety Specialists are meeting with Department Directors in their specific areas to request an update of their chemical inventory.
- Safety Specialists are sharing Geotab seatbelt violation notifications with their various management teams with the expectation that compliance with the law regarding the wearing of seatbelts is not an option.
- No OSHA recordable incidents were noted for Non-ROCI 4 contractors during July/mid -August activities.
- Most ROCIP 4 safety findings were found during DC Water safety audits and were promptly abated by the contractors “on the spot”.

### Progress Report

- Assisted with roofing tar vapors that were entering the DOSH and Clean River offices through the air intakes on the roof HVAC unit. The work was stopped by DOSH and DETS and a new plan of action was developed to ensure that vapors would not enter the building during current roof work.
- Origami (SRS) Implementation
  - Staffers participated in the implementation of our new SRS (Origami) by attending meetings with the developers and the implementation team and testing and providing feedback on the various forms and inspections developed thus far.
  - 26 project meetings – working with vendor and project team to ensure success with phase 1 launch of SRS and improve technology leverage via strategy, build, and technical supporting all associated teams
  - Light User Testing for 15 supervisors
    - Established step-by-step scripts and feedback link
    - Discovered major login challenge which was corrected
    - Will follow-up after training for final feedback
- SSO Updated so that licensed users (full, light, Admin) can login from desktop with one click.
- Schedule has been developed and communicated for the user trainings (light, full, admin) from 8/13-8/15
- Welcomed Gabriel Pimentel, new project team member for Risk Console Overview and Origami implementation.

## **Security**

### **Operational Performance**

#### **Initiative 1: Elevate our level of informing and enhancing security operations through engagement with stakeholders.**

- Security Pipeline page was updated to include an announcement section. Periodic security announcements will be listed for viewing.

#### **Initiative 1a: Engage stakeholders through annual security training.**

- Researching ALICE training - ALICE (Alert, Lockdown, Inform, Counter, Evacuate) Training instructor led classes provide preparation and a plan for individuals and organizations on how to more proactively handle the threat of an aggressive intruder or active shooter event.

### **News and Events**

#### **Tingey Square Construction**

The plan for construction at Tingey Square for the next few weeks is to continue working within the fenced in work zones at New Jersey Ave, in front of the DC Water west entrance, in the park area out in front of DC Water's structures and on Tingey Street near 3rd St.

## **Department of Finance and Procurement**

### **Accomplishment(s)**

- The FY 2021 Budget Kickoff occurred on July 31, 2019. The CEO, CFO and Budget department provided guidance for this year's process with the theme/focus on "making the most out of each dollar". Over the next couple of months, the Budget department will work with all departments as they develop their budget proposals to achieve strategic business goals. This will guide the review, prioritization and decision-making process by the Executive Team. We anticipate that the Proposed FY 2021 budget and related ten-year capital improvement program and ten-year financial plan will be presented to the Board during the budget workshop in January 2020.
- Finance & Procurement and HCM department employees are working on documentation of as-is business processes ahead of the ERP system implementation anticipated to start in November 2019.
- FY 2019 Interim Financial Statement and Uniform Guidance audit processes have been completed.
- A Public Hearing was held on August 14 to present management's recommendation to extend the CAP2 program through FY 2020 and to discuss the proposed amendment to the Groundwater Sewer Rate for FY 2020.

## Organizational Performance Dashboard (July 2019)

### Financial Highlights

YTD	Net Operating Cash (\$tho)	Operating Revenue (\$m)	Operating Expenses (\$m)	Capital Disbursement (\$m)	Operating Cash Bal (\$m)
Actual	109,402	571.00	444.00	338.00	167.80
Target	68,020	554.70	485.70	385.70	125.50

	Core Investment Yield (%)	Delinquent Acct Receivables(%)	Short Term Yield (%)	Vendor Payments (%)
Actual	2.51	1.98	1.95	96.00
Target	1.95	3.00	2.08	97.00

### Operations and Engineering Highlights

	Lead Concentration (ppb)	Total Coliform Rule (%)	Biosolids Production (wet tons)	Total Nitrogen (lbs/yr mil)
Actual	2.00	0.40	511.00	4.38
Threshold	15.00	5.00		3.71

	Plant Influent Flow (gal mil)	Excess Flow (gal mil)	Water Main Leaks	Water Valve Leaks
Actual	308.00	88.84	37	0
Threshold	384.00			

	Fire Hydrants Insps. And Maint.	Fire Hydrants out of Service	Fire Hydrants Replaced	Non-revenue Water (CCF Mil)	
	822	38	154	Purchased	11.89
				Sold	7.70

	Sewer Main Backups	Sewer Lateral Backups	Dry Weather CSO	Permits Processed within SLA (%)	Electricity Usage (Kwh)
	5	107	0	88.00	19131.00

### Customer Experience Highlights

	Call Center Performance	Command Center Performance	First Call Resolution	Emergency Response Time	
Actual	87%		93%	70%	93%
Target	85%		85%	75%	90% (% of calls received)

### Low Income Assistance Programs

	SPLASH Contribution (\$tho)	Customer Assistance Program (\$tho)
Actual	67.80	Current 149.57
Target	66.70	Previous 89.46

### People and Talents Highlights

	Recruitment Activity
Filled	6
Open	29

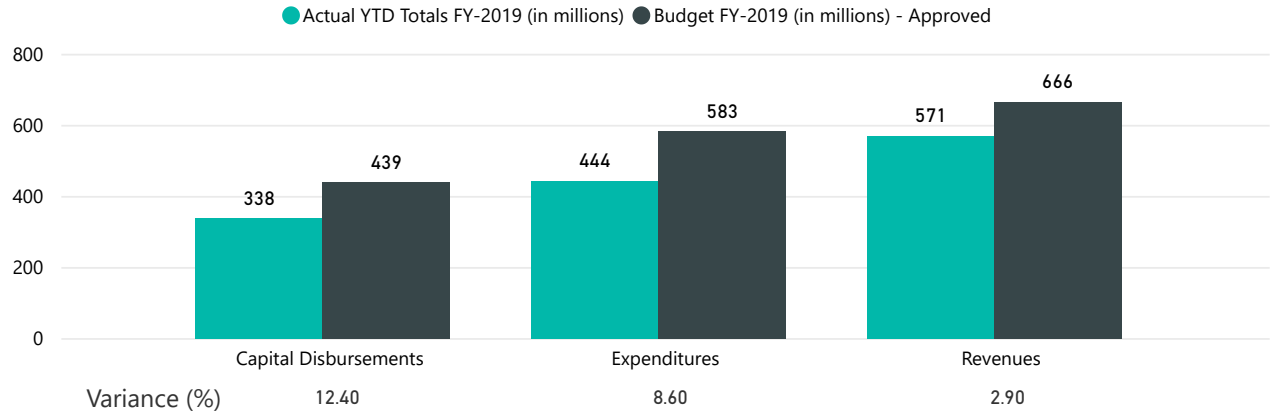
### Administration Highlights

	Employee Lost Time Incidence Rate
	4.00%

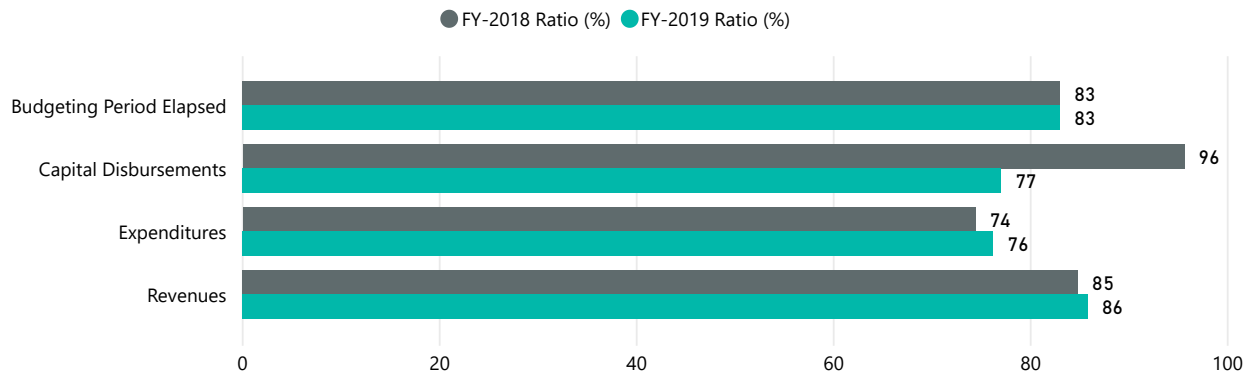


**Financial Highlights - Financial Summary**

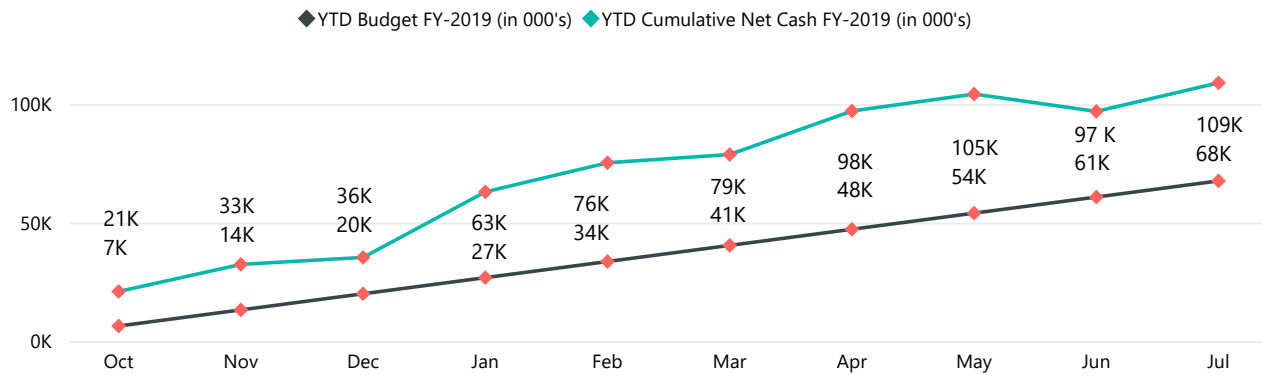
**Revenue, Expenditure, and Capital Disbursement**



**Year to Date Analysis**

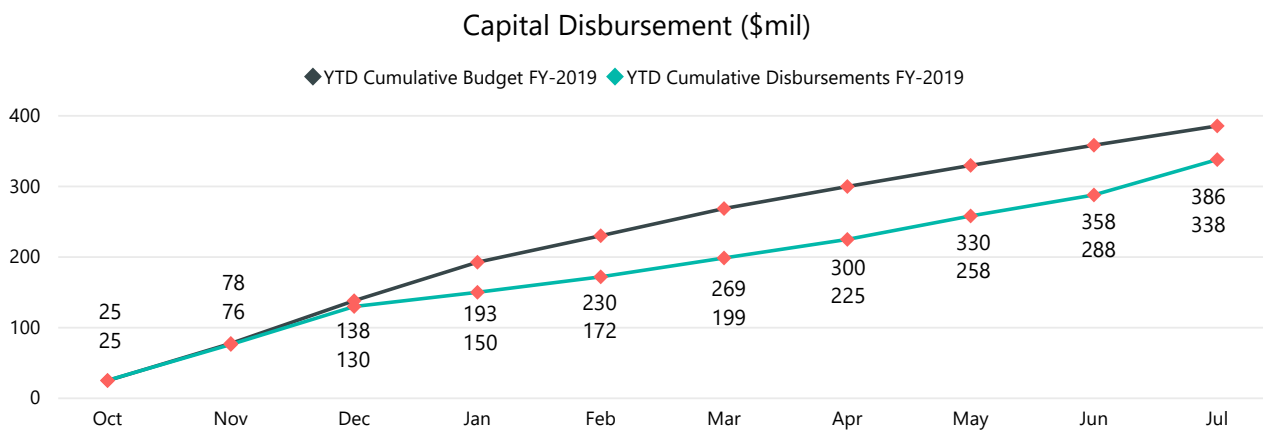
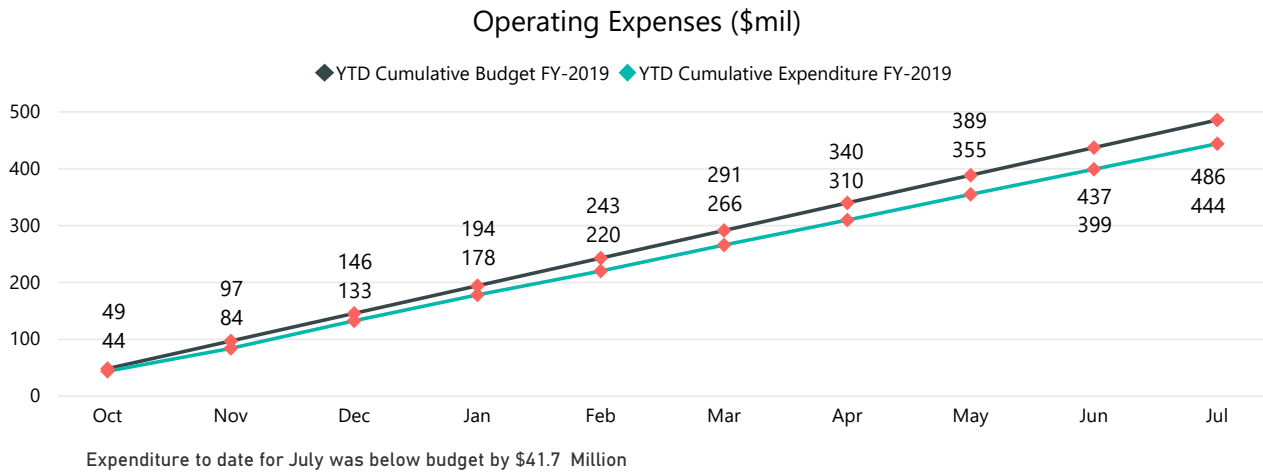
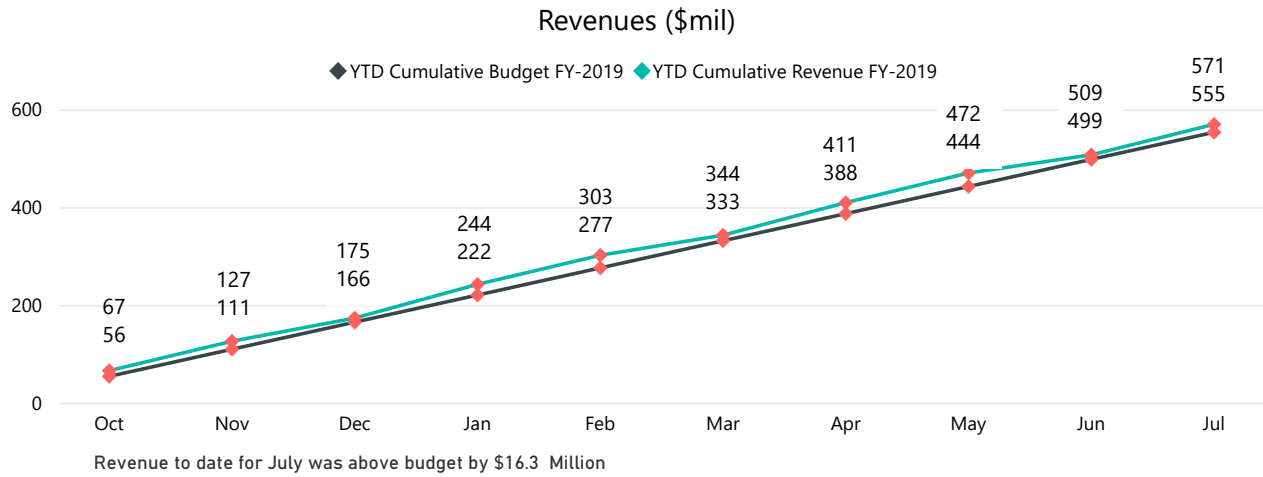


**Net Operating Cash**



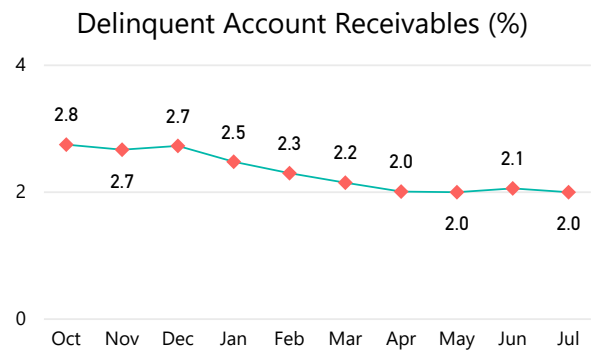
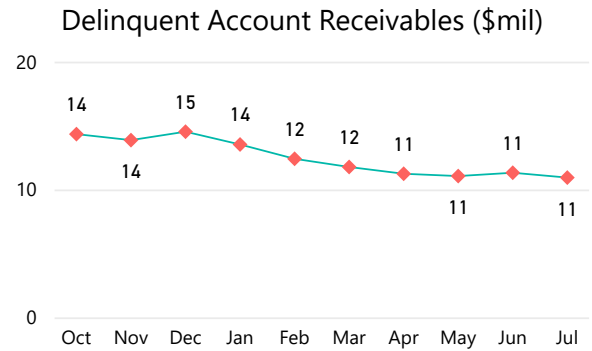
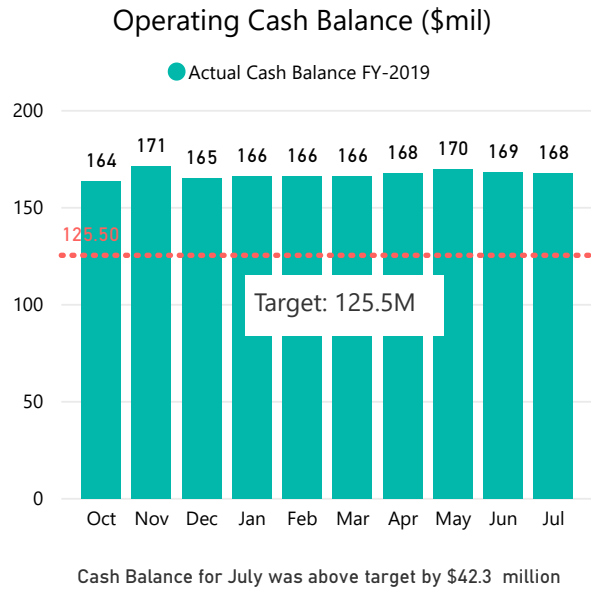
Net cash to date for July was above budget by \$41.3 Million

**Financial Highlights - Revenue, Expenditure, and Capital Disbursement**

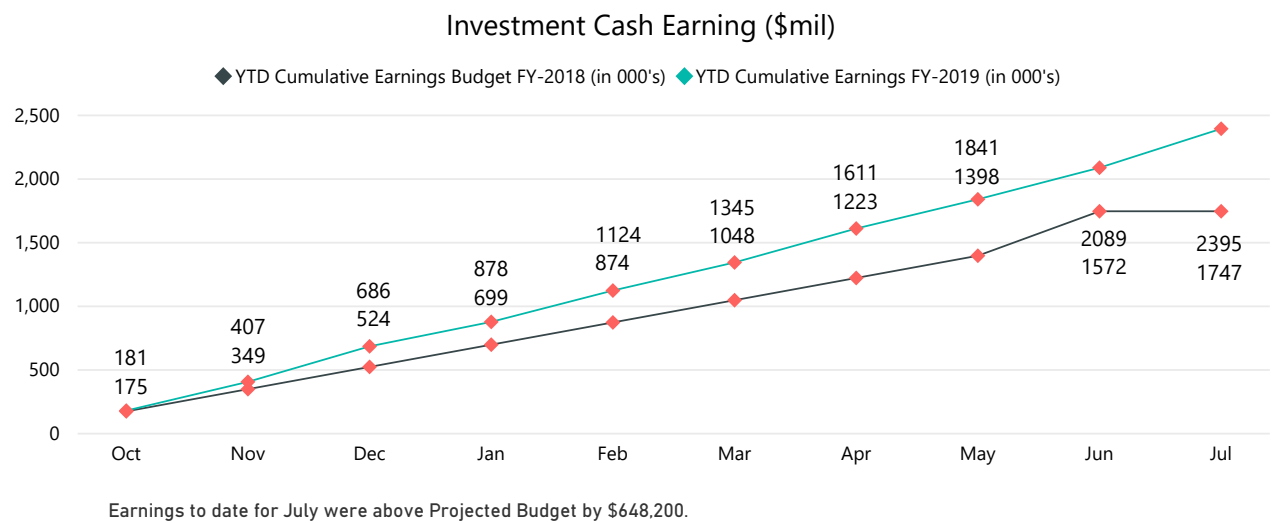


Disbursements to date for July was below budget by \$47.7 Million.  
YTD spending reflects comparison to the approved budget.

**Financial Highlights - Cash, Delinquency, and Investment**

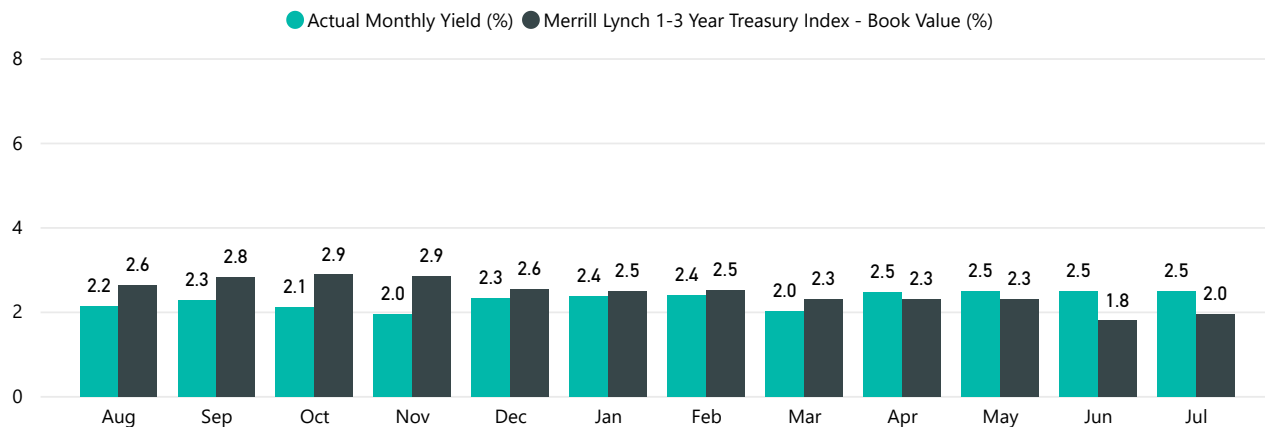


July Receivables to Revenue Ratio is 1.98. Delinquency is 11.01 mil...



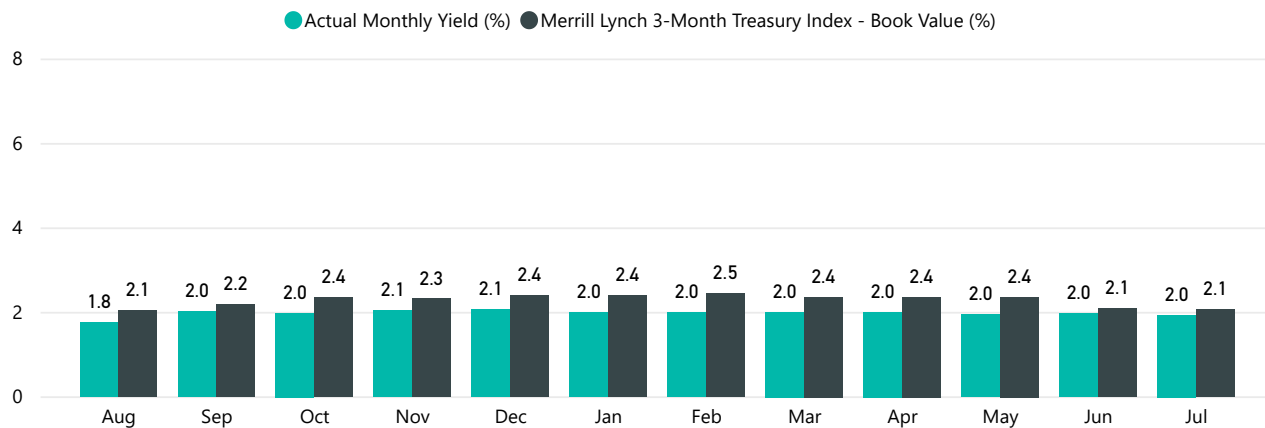
**Financial Highlights - Investment Yields**

**Core Investment Yield**



Yield for July was more than the treasury index by 0.56%

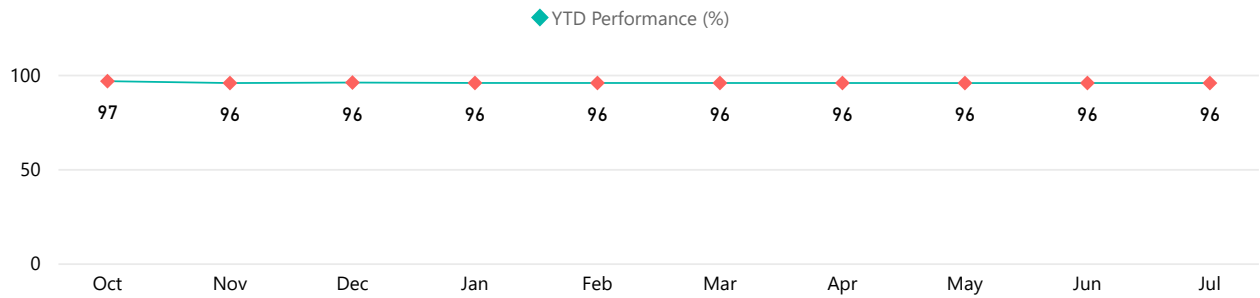
**Short Term Investment Yield**



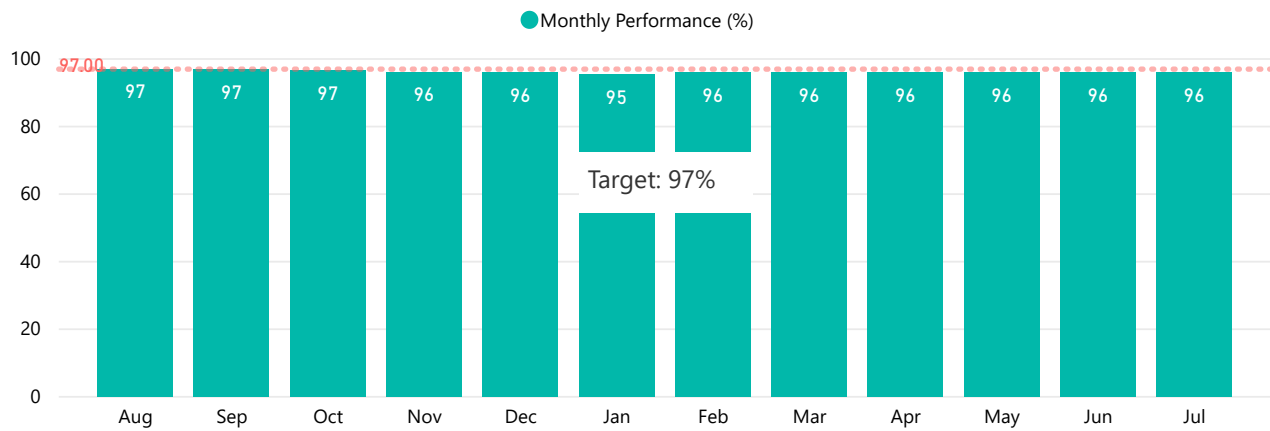
Short Term Yield for July was less than the Merrill Lynch yield by 0.13%

## Financial Highlights - Vendor Payments

### YTD Performance



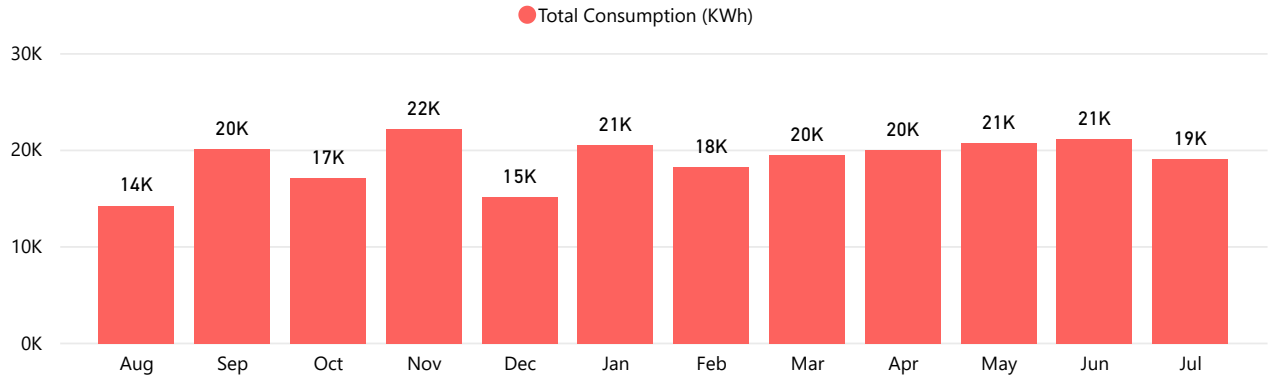
### Monthly Performance



Performance for July was below the monthly target by 1%

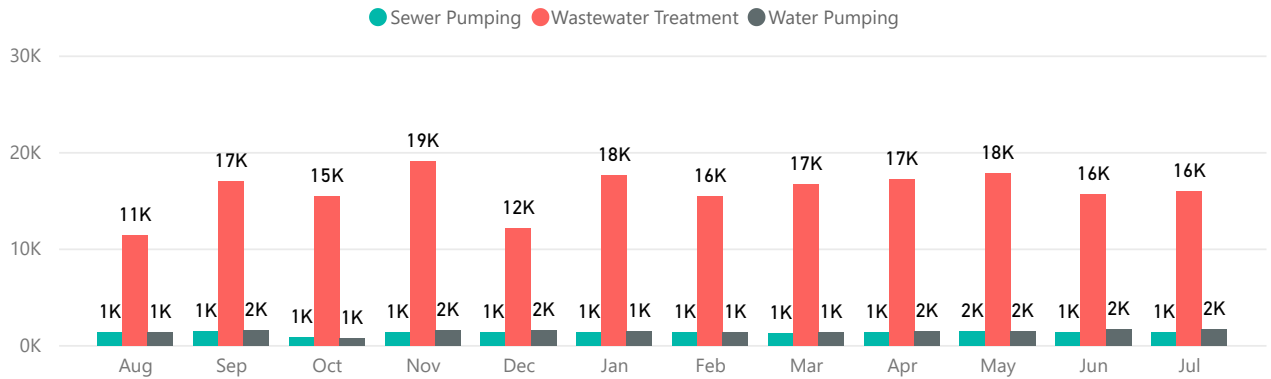
**Operations and Engineering - Energy Consumption**

**Electricity Usage Summary**



Electricity Consumption in July was 19,131 KWh

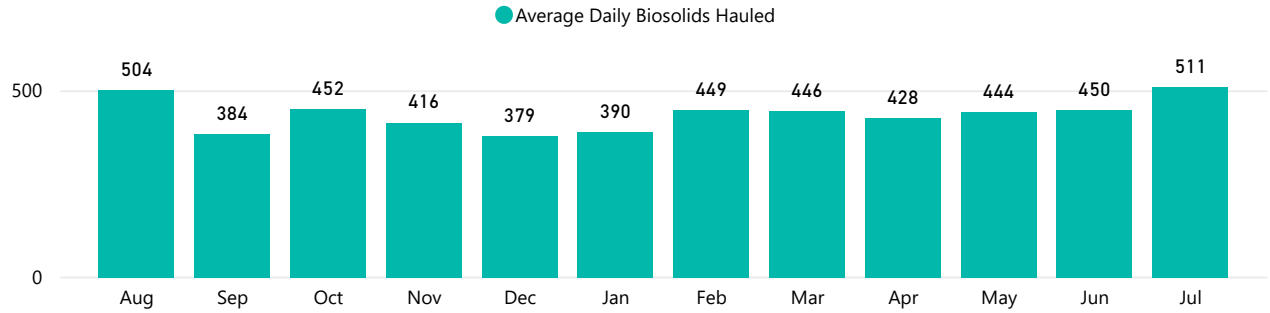
**Electricity Usage by Service Area**



Wastewater Treatment had the highest electricity consumption in July at 16,026 KWh

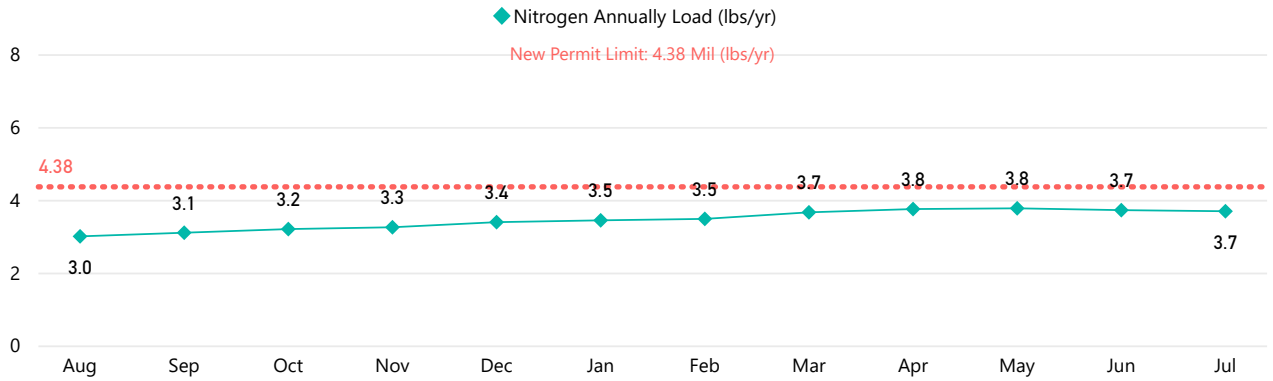
**Operations and Engineering - Wastewater Treatment**

**Biosolid Production**



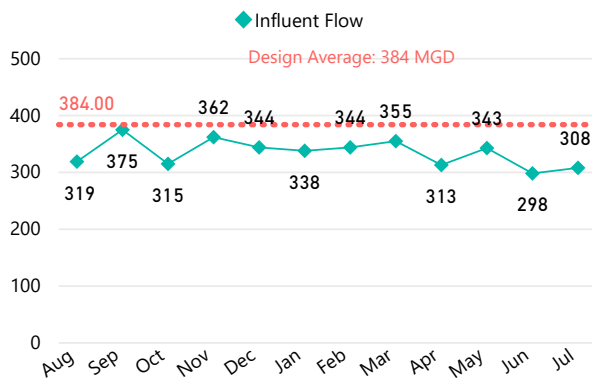
Biosolids Daily Production for July were 511 wet tons per day

**Total Nitrogen**



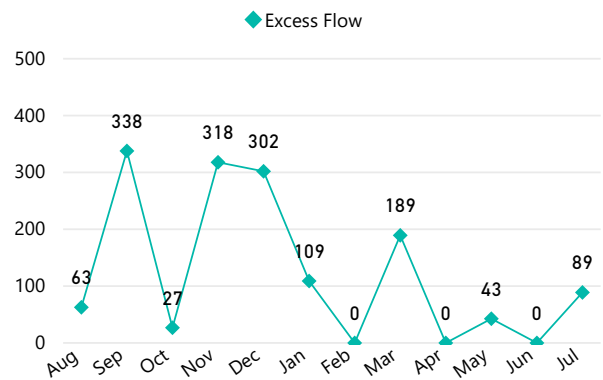
Nitrogen level for July were below permit by 0.67 million lbs/yr

**Outfall 002 - Plant Effluent Flow (MGD)**



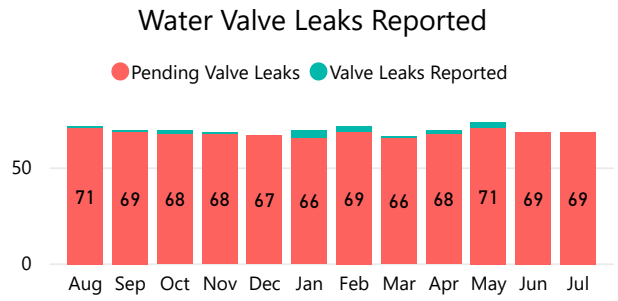
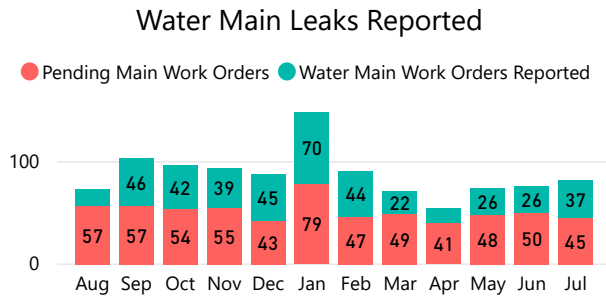
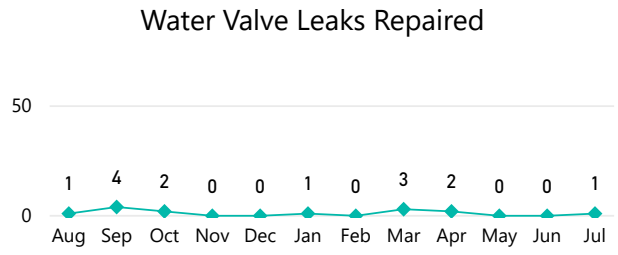
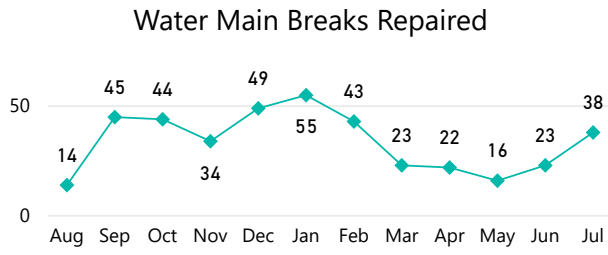
In July Influent flow was below design by 76 MGD

**Outfall 001 - Discharge Flow (MGD)**



Excess flow events were recorded at 88.84 MG in July

**Operations and Engineering - Water Distribution Operations**



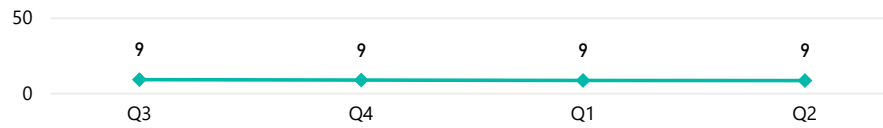
There were 37 Water Main Work Orders reported in July.

1 leak was resolved in July.

**Operations and Engineering - Water Balance**

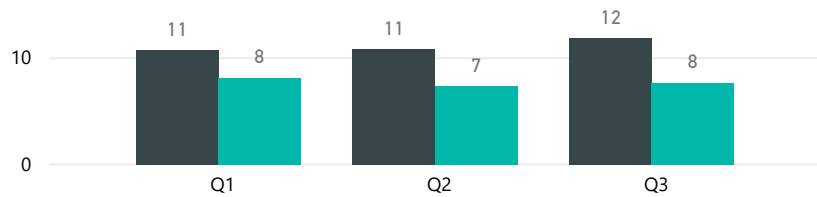
### Infrastructure Leak Index

◆ FY-2018: Infrastructure Leakage Index



### Volume of Water Purchased and Sold (million CCF)

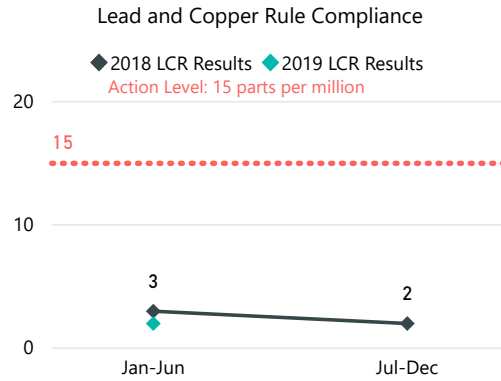
● FY-2019: Water Purchased ● FY-2019: Water Sold



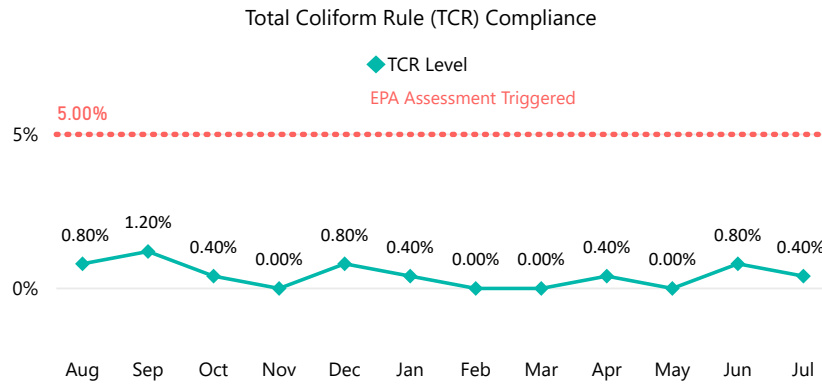
Water Balance results pending for 3rd quarter of 2019.



## Operations and Engineering - Drinking Water Quality



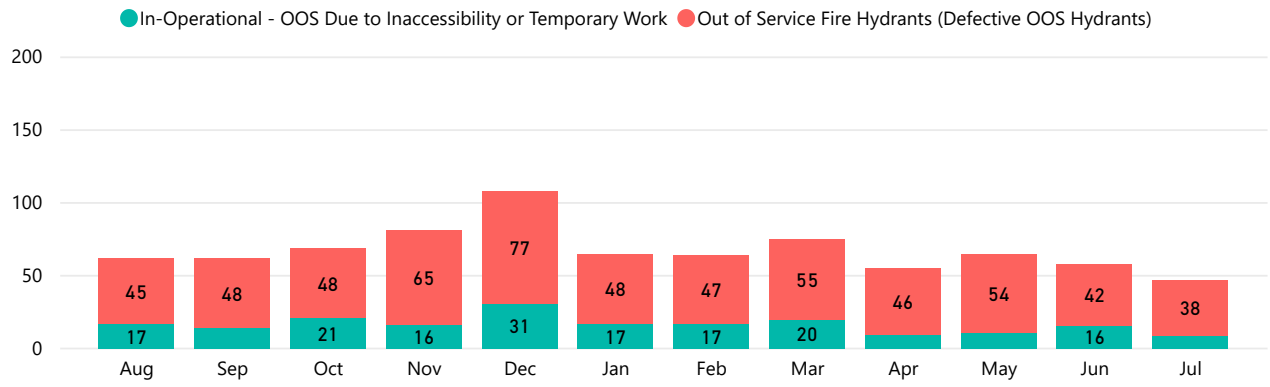
July 2019 results pending.



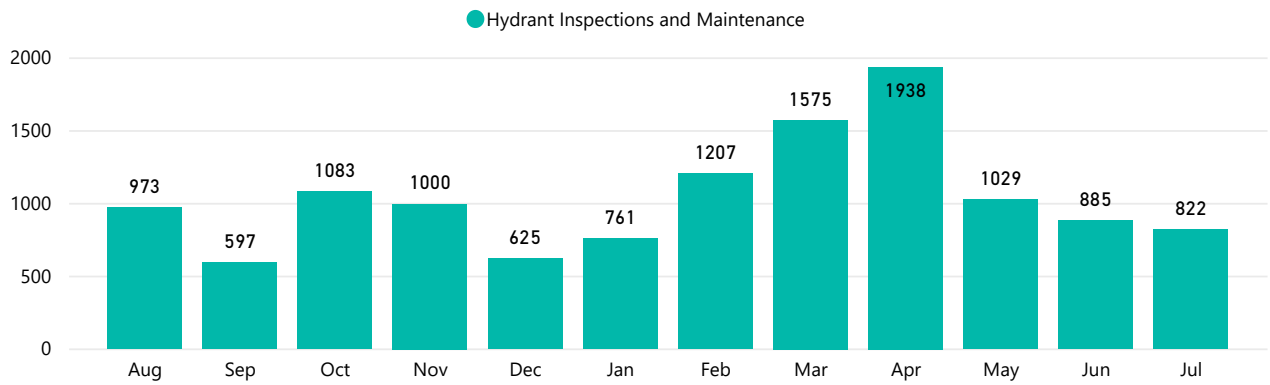
Coliform Positive was recorded at 0.4% in July.

**Operations and Engineering - Fire Hydrants**

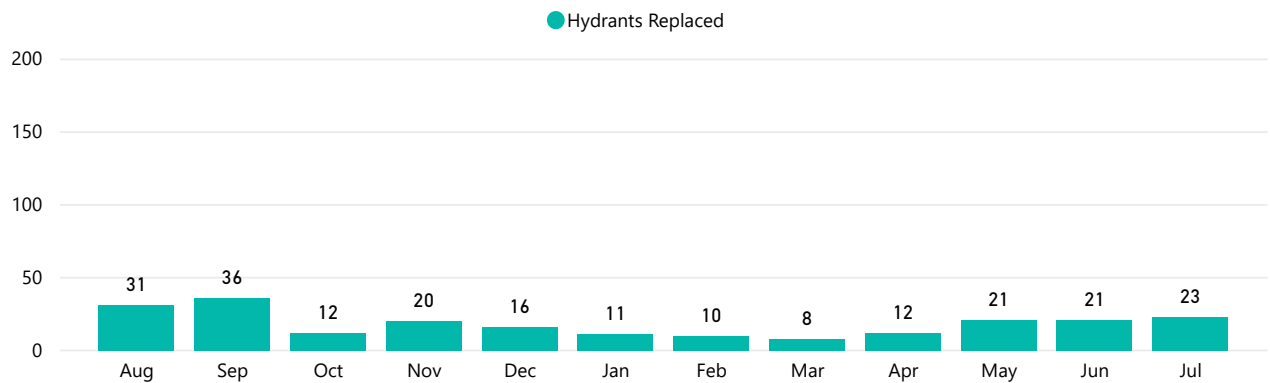
Fire Hydrants Out of Service



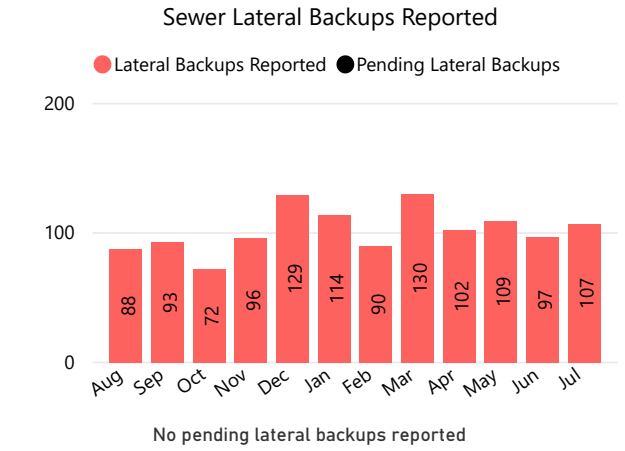
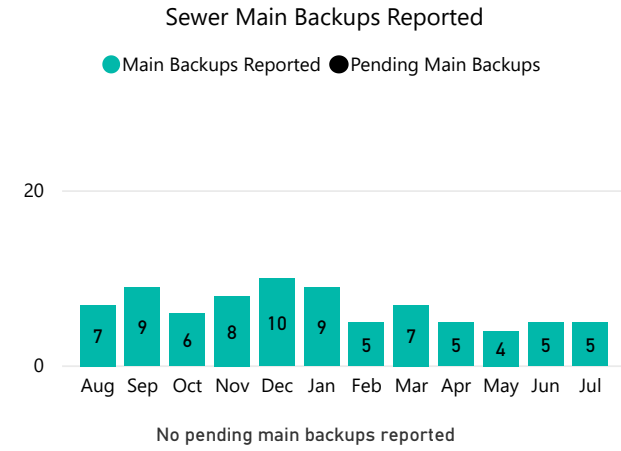
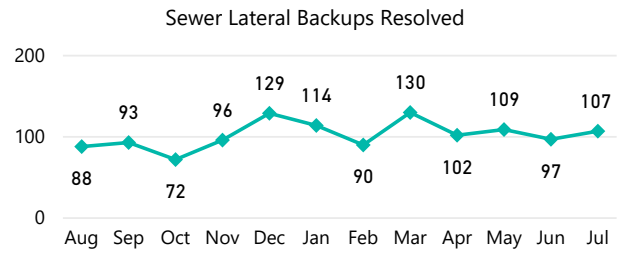
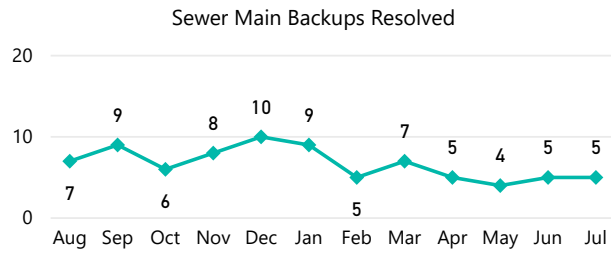
Fire Hydrant Inspections and Maintenance



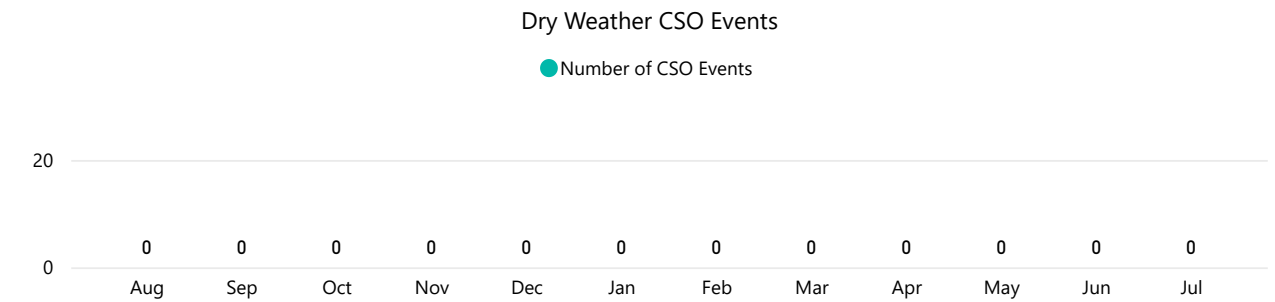
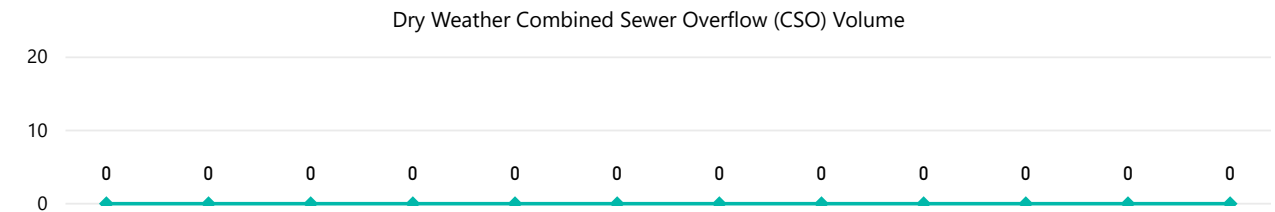
Total Fire Hydrant Replacements



### Operations and Engineering - Sewer System Operations

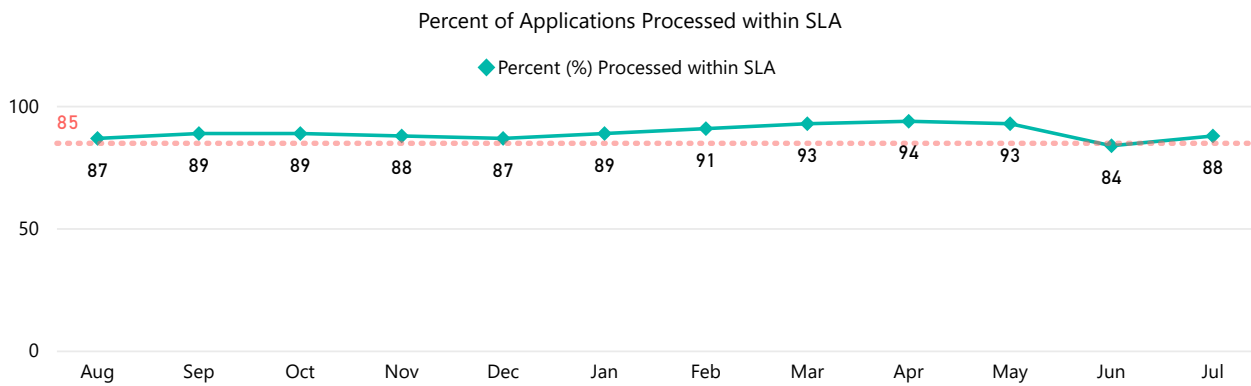


### Operations and Engineering - Combined Sewer System

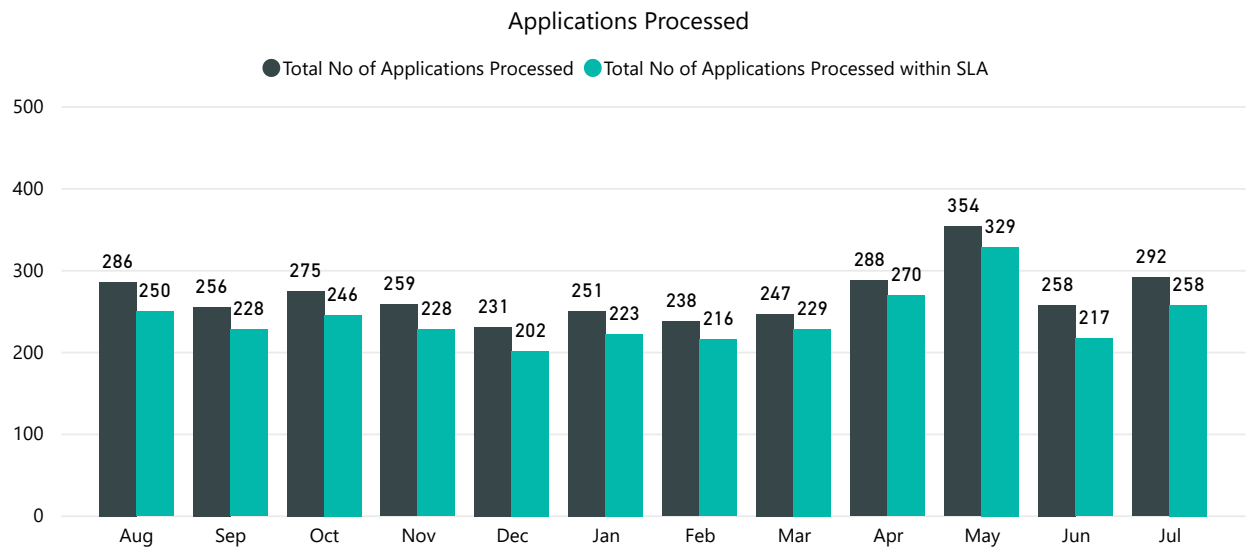


No dry weather Combined Sewer Overflow events were recorded in Jun 2019.

## Operations and Engineering - Permit Processing

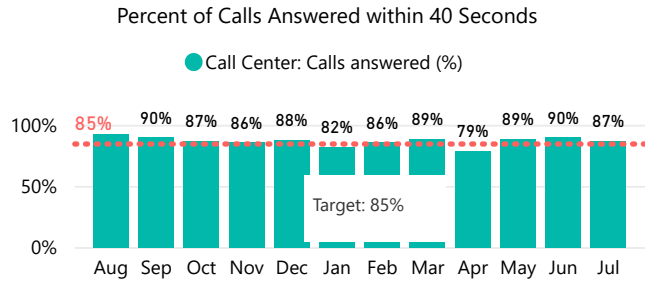
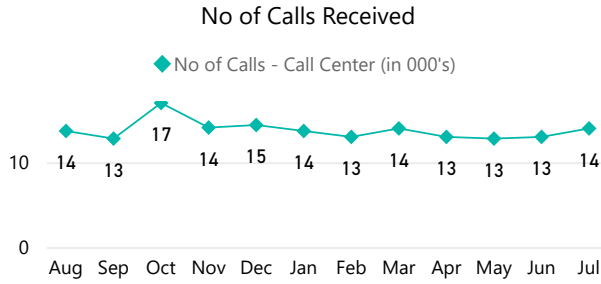


Permits processed in July were 3% above the SLA target of 85%



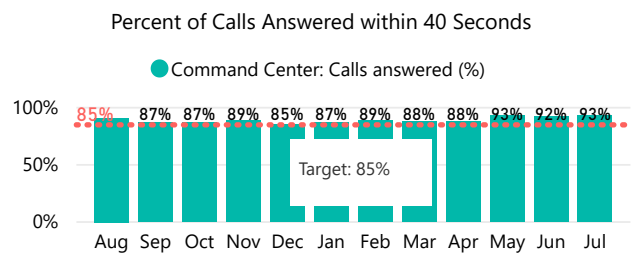
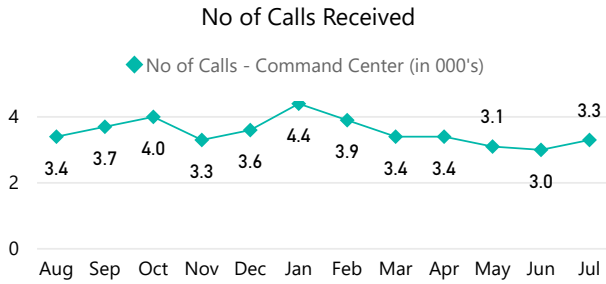
## Customer Experience - Customer Care

### Call Center Performance



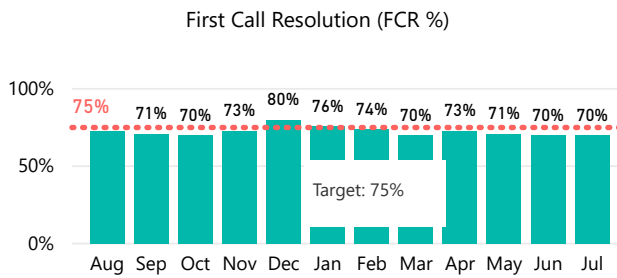
Performance for July was above target by 2%.

### Command Center Performance



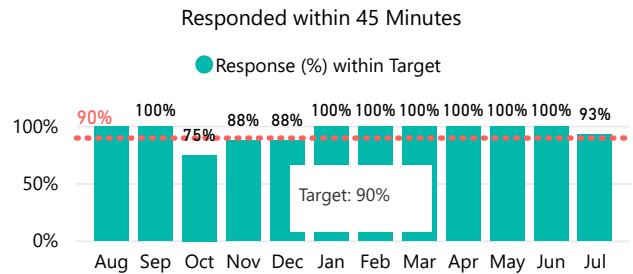
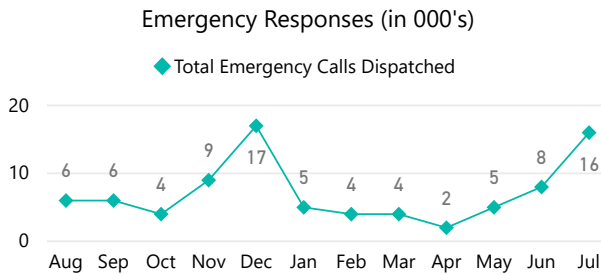
Performance for July was above target by 8%.

### First Call Resolution



Performance for July was below target by 5%.

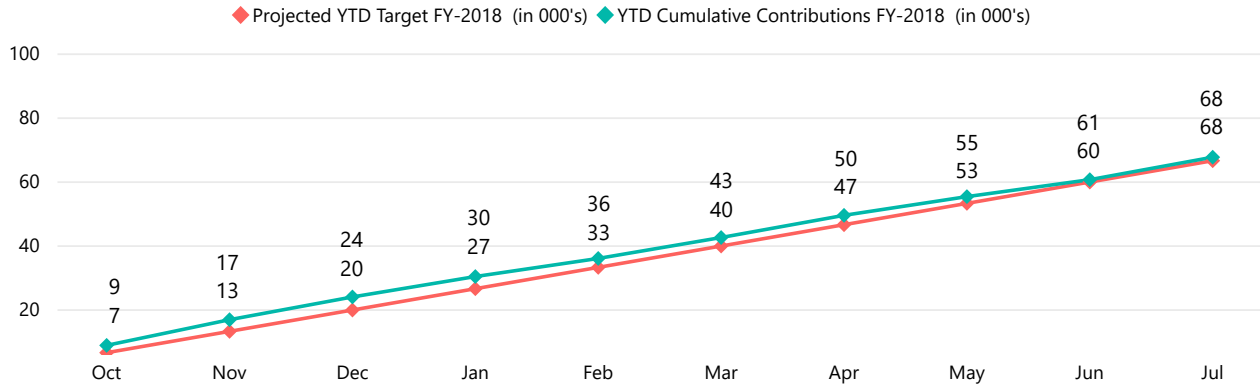
### Emergency Response Time



Performance for July was above target by 3%

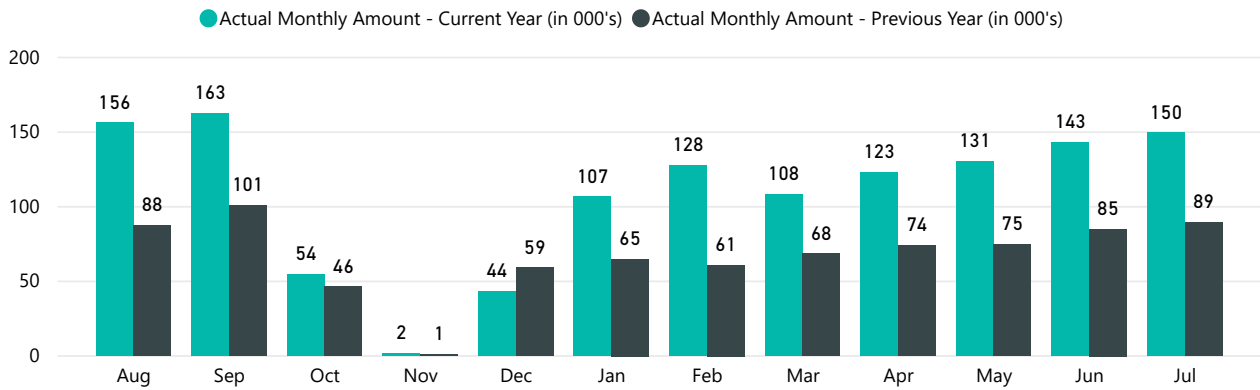
### Low Income Assistance Program

SPLASH Contributions



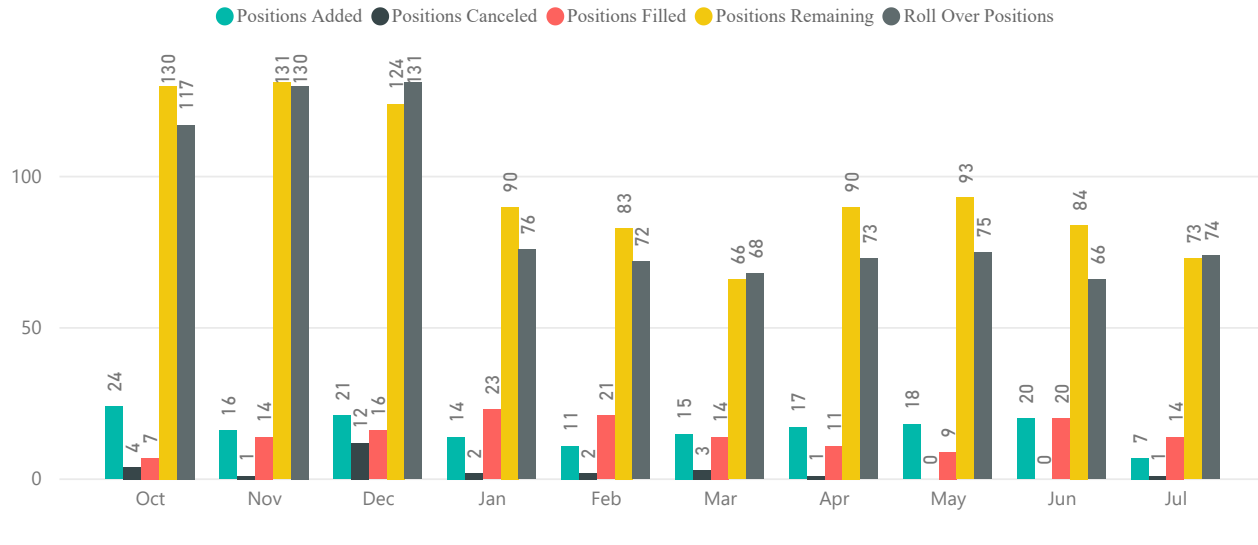
Total SPLASH Contributions to date for July was above target by \$1100.

Customer Assistance Provided

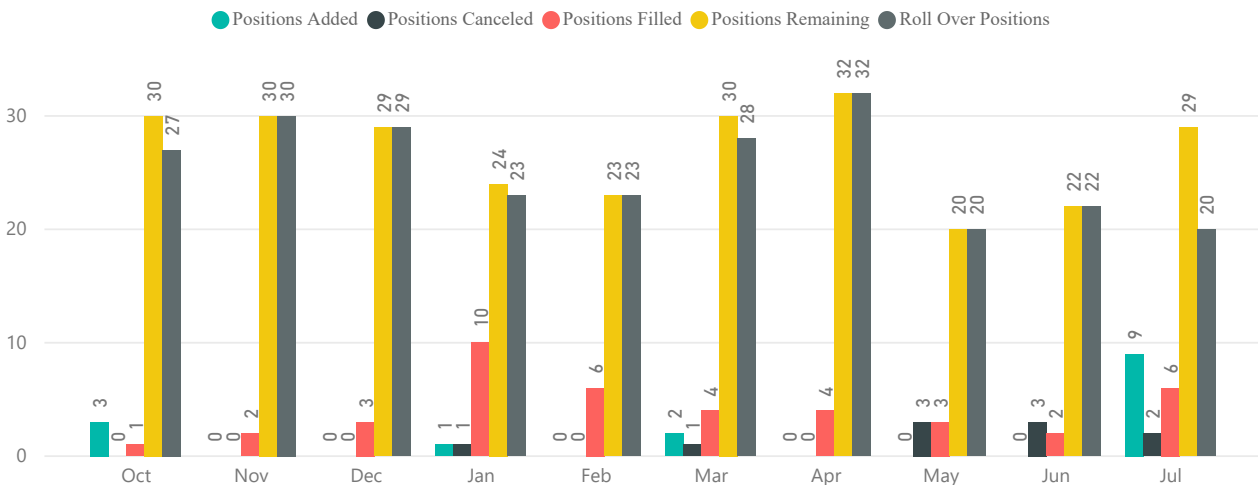


**People and Talents**

Recruitment Activity - Previous Fiscal Year

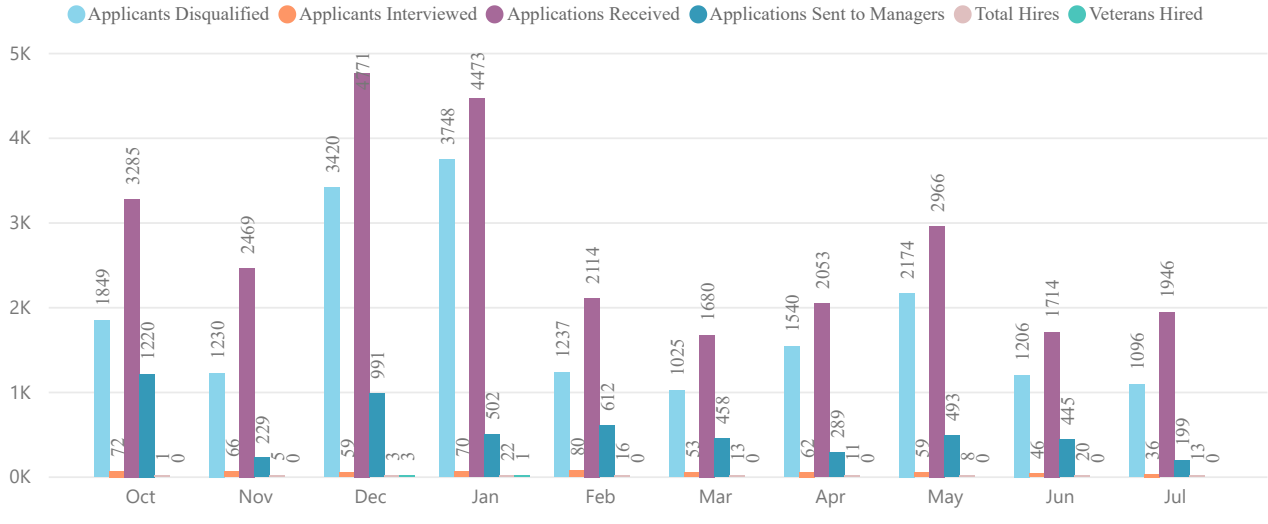


Recruitment Activity - Current Fiscal Year

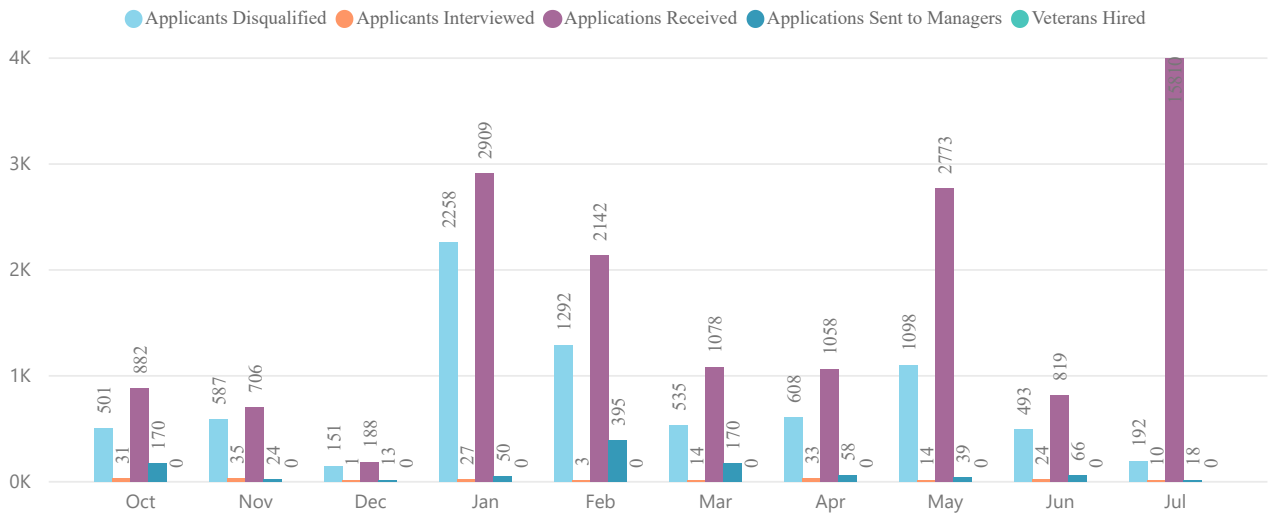


People and Talents

Recruitment Performance Metric - Previous Fiscal Year

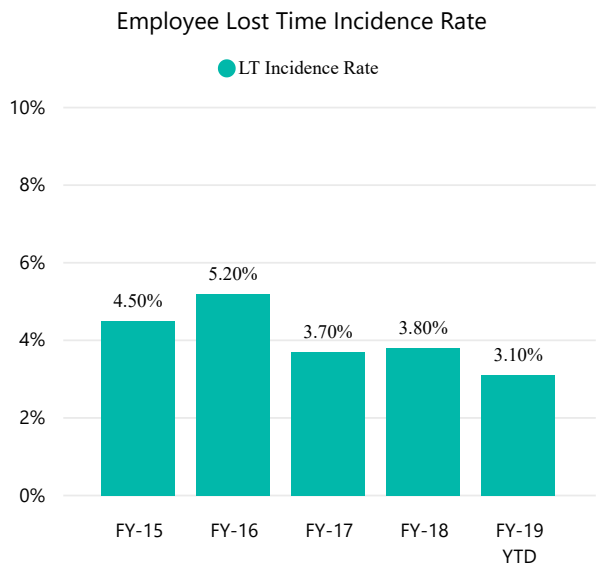
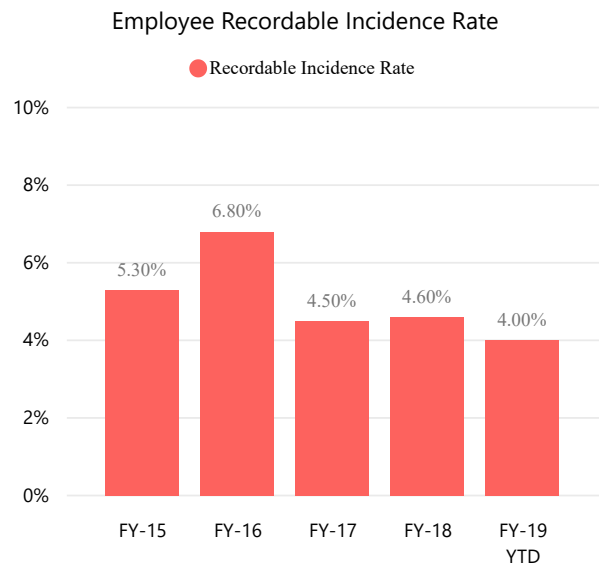


Recruitment Performance Metric - Current Fiscal Year



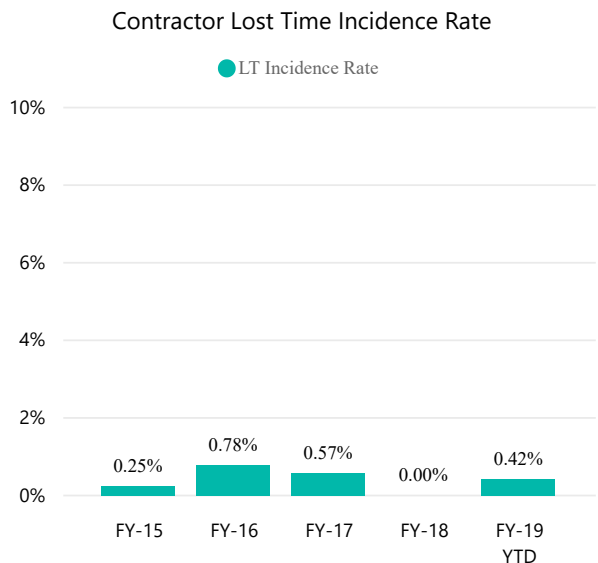
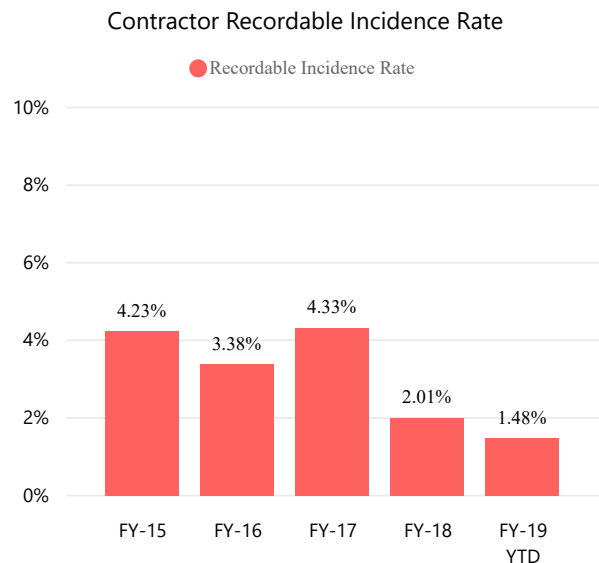


**Administration - Safety**



There have been 33 lost time incidents in FY 2019 YTD

**Administration - Safety**



There have been 2 lost time incidents in FY 2019 YTD

**INTERPRETATION OF CHARTS:**

**FINANCIAL HIGHLIGHTS**

---

**Revenue, Expenditure, Capital Disbursement**

- Bulls eye shows the variance for YTD budget against actual for revenues, expenditures and capital disbursements
- Bar graph shows **total** for the fiscal year budgeted(grey)-revenues, expenditures and capital disbursements against YTD actual(blue)
- Horizontal line graph shows a YTD progress analysis as compared to the previous year

**Net Operating Cash**

- Bar graph shows monthly net operating cash provided/used
- Line graph denoted by (Δ) compares YTD actual against budget (O). This element is dynamically color coded\*

**Operating Revenues**

- Bar graph shows monthly operating revenues
- Line graph denoted by (Δ) compares YTD revenue against budget (O). This element is dynamically color coded\*

**Operating Expenses**

- Bar graph shows monthly operating expenses
- Line graph denoted by (Δ) compares YTD expenditure against budget (O). This element is dynamically color coded\*\*

**Capital Disbursements**

- Bar graph shows monthly capital disbursements
- Line graph denoted by (Δ) compares YTD disbursements against budget (O). This element is dynamically color coded\*\*

**Operating Cash Balance**

- Bar graph shows monthly average cash balance compared to the target of \$125 million; indicated by grey dotted line

**Delinquent Account Receivables**

- Bar graph shows monthly Receivables to Revenue ratio against target of 3%; indicated by grey dotted line. This element is dynamically color coded\*\*
- Line graph denoted by (Δ) shows delinquency in actual dollars

**Investment Cash Earnings**

- Bar graph shows monthly investment cash earnings
- Line graph denoted by (Δ) compares the YTD earnings against budget (O). This element is dynamically color coded\*

**Core Investments Yield**

- Bar graph shows the monthly investment yield compared to the monthly target (grey) benchmark as set by the US Treasury Bill. This element is dynamically color coded\*

**Short Term Investment Yield**

- Bar graph shows the monthly short term investment yield compared to the monthly short term target (grey) benchmark as set by the US Treasury Bill. This element is dynamically color coded\*

Dynamic Color Coding Legend

*	**
<p>Red - when the actual is <b>lower</b> than 3% of budget or target</p> <p>Yellow - when the actual is <b>within</b> 3% of budget or target</p> <p>Green - when the actual is <b>equal to or higher</b> than budget or target</p>	<p>Red - when the actual is <b>higher</b> than 3% of budget or target</p> <p>Yellow - when the actual is <b>within</b> 3% of budget or target</p> <p>Green - when the actual is <b>equal to or lower</b> than budget or target</p>

Symbols where the color code applies- (Δ, □)

A

**Vendor Payment Performance**

- Bar graph shows monthly Vendor Payment Performance percentage against monthly target of 97%; indicated by grey dotted line. This element is dynamically color coded\*\*
- Line graph denoted by (O) shows the YTD vendor payment performance %.

**OPERATIONS & ENGINEERING**

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**Electricity Usage Summary**

- Bar graph shows total electricity consumption per month

**Electricity Usage by Service Area**

- Shows a monthly breakdown by service area of electricity usage
- Dark blue shows for Waste Water Treatment Service Area
- Light blue shows Water Pumping Service Area
- Brown shows Sewer Pumping Service Area

**Biosolids Production**

- Bar graph shows monthly average daily biosolids production

**Total Nitrogen**

- Line graph denoted by (Δ) shows monthly total nitrogen level against the current permit (dark grey) and 2015 permit (light grey) levels. This element is color coded\*\*\*\*

**Plant Effluent Flow**

- Line graph denoted by (Δ) shows monthly influent flow against the plant design average limit of 370MGD. This element is color coded\*\*\*\*

**Excess Flow**

- Line graph denoted by (Δ) shows monthly excess flow

**Non-Revenue Water**

- Bar graph shows the volume of water purchased (dark blue) and water sold (light blue) per quarter
- Line graph denoted by (Δ, O) shows the Infrastructure Leakage Index(ILI) for the current and previous year

**Lead and Copper Rule (LCR) Compliance**

- Line graph denoted by (Δ, O) shows semi-annual LCR monitoring results against target of 15ppb; indicated by grey dotted line. This element is color coded\*\*\*\*

**Total Coliform Rule (TCR)**

- Line graph denoted by (Δ) shows total coliform positives against the EPA maximum contaminant level of 5%. This element is color coded\*\*\*\*

**Water Main Leaks**

- Bar graph shows the water main leaks reported
- The bar graph is stacked (dark blue) to show the pending leaks carried over from the previous month if any; bar graph(light blue) shows new water main leaks reported for the given month

Dynamic Color Coding Legend

***	****
<p><b>Red-</b> when the actual is <b>lower</b> than 5% of budget or target</p> <p><b>Yellow-</b> when the actual is <b>within</b> 5% of budget or target</p> <p><b>Green-</b> when the actual is <b>equal to or higher</b> than budget or target</p>	<p><b>Red-</b> when the actual is <b>higher</b> than 5% of budget or target</p> <p><b>Yellow-</b> when the actual is <b>within</b> 5% of budget or target</p> <p><b>Green-</b> when the actual is <b>equal to or lower</b> than budget or target</p>

Symbols where the color code applies- (Δ, □)

- Line graph denoted by (O) shows the number of main leaks repaired per month

**Water Valve Leaks**

- Bar graph shows the water valve leaks reported
- The bar graph is stacked (dark blue) to show the pending leaks carried over from the previous month if any; bar graph(light blue) shows new water valve leaks reported for the given month
- Line graph denoted by (O) shows the number of valve leaks repaired per month

**Fire Hydrants Out of Service (OOS)**

- Bar graph shows total hydrants not available for use against target of 91; indicated by grey dotted line. This element is dynamically color coded\*\*\*\*
- The bar graph is stacked (blue) to show hydrants that are inaccessible. Inaccessible hydrants are not measured against the target of 91

**Fire Hydrant Inspections and Maintenance**

- Bar graph shows the total number of fire hydrants repaired per month

**Fire Hydrant Replacements Per Month**

- Bar graph shows the total number of hydrants replaced per month against target of 21; indicated by grey dotted line. This element is dynamically color coded\*\*\*

**Sewer Main Backups**

- Bar graph shows the sewer main backups reported
- The bar graph is stacked (dark blue) to show the pending backups carried over from the previous month if any; bar graph(light blue) shows new sewer main backups reported for the given month
- Line graph denoted by (O) shows the number of main backups resolved per month

**Sewer Lateral Backups**

- Bar graph shows the sewer lateral backups reported
- The bar graph is stacked (dark blue) to show the pending backups carried over from the previous month if any; bar graph(light blue) shows new sewer laterals backups reported for the given month
- Line graph denoted by (O) shows the number of lateral backups resolved per month

**Combined Sewer dry weather Overflow (CSO) Events**

- Bar graph shows dry weather CSO events per month
- Line graph denoted by (O) shows the volume in Million Gallons(MG) per dry weather CSO event

**Total Applications Processed within Service Level Agreement (SLA)**

- Bar graph shows
  - the number of permits processed per month (dark blue)
  - the number of permits processed within SLA per month (light blue)
- Line graph denoted by (O) shows the percentage of permits processed vs. processed within SLA

Dynamic Color Coding Legend

***	****
Red- when the actual is <b>lower</b> than 5% of budget or target Yellow- when the actual is <b>within</b> 5% of budget or target Green- when the actual is <b>equal to or higher</b> than budget or target	Red- when the actual is <b>higher</b> than 5% of budget or target Yellow- when the actual is <b>within</b> 5% of budget or target Green- when the actual is <b>equal to or lower</b> than budget or target

Symbols where the color code applies- (Δ, □)

**CUSTOMER EXPERIENCE**

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**CUSTOMER CARE**

**Call Center Performance**

- Bar graph shows monthly percentage of calls answered within 40 seconds against target of 85%; indicated by grey dotted line. This element is dynamically color coded\*\*\*
- Line graph denoted by (O) shows the number of calls received by the call center every month

**Command Center Performance**

- Bar graph shows monthly percentage of calls answered within 40 seconds against target of 85%; indicated by grey dotted line. This element is dynamically color coded\*\*\*
- Line graph denoted by (O) shows the number of calls received by the command center every month

**First Call Resolution (FCR)**

- Bar graph shows monthly percentage of calls resolved on first contact against target of 75%; indicated by grey dotted line. This element is color dynamically coded\*\*\*

**Emergency Response Time**

- Bar graph shows the percentage of emergency calls responded to within 45 minutes against target of 90%; indicated by grey dotted line. This element is dynamically color coded\*\*\*
- Line graph denoted by (O) shows the total calls dispatched per month

**LOW INCOME ASSISTANCE PROGRAM**

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**SPLASH Contributions**

- Bar graph shows monthly SPLASH contributions
- Line graph denoted by (Δ) shows the YTD contributions against target (O). This element is color coded\*\*\*

**Customer Assistance Program (CAP)**

- Bar graph shows monthly CAP assistance
- Line graph denoted by (Δ) shows the YTD contributions against budget (O). This element is color coded\*\*\*

**PEOPLE AND TALENT**

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**HUMAN RESOURCES**

**Open Positions**

- Bar graph (dark blue) shows open positions carried over from the previous month.
- Bar graph (light blue) shows new positions added in the given month.
- Bar graph (olive green) shows positions filled in the given month.
- Bar graph (orange) shows positions cancelled in the given month.
- Bar graph (light green) shows net remaining open positions at the end of the given month.

Dynamic Color Coding Legend

***	****
Red- when the actual is <b>lower</b> than 5% of budget or target Yellow- when the actual is <b>within</b> 5% of budget or target Green- when the actual is <b>equal to or higher</b> than budget or target	Red- when the actual is <b>higher</b> than 5% of budget or target Yellow- when the actual is <b>within</b> 5% of budget or target Green- when the actual is <b>equal to or lower</b> than budget or target

Symbols where the color code applies- (Δ, □)

ADMINISTRATION

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**SAFETY**

**Employee Lost Time Incidence Rate**

- Bar graph shows quarterly Employee Lost Time (LT) incidence rate as compared to the National average LT rate of 2.0; indicated by grey dotted line. Light blue represents the previous year, brown represents the year before previous and dark blue the current fiscal year.
- Scatter graph denoted by (Δ, O) shows the number of Lost Time accidents and comparison is also made between the current year and the previous years.

**Contractor Lost Time Incidence Rate**

- Bar graph shows quarterly Contractor Lost Time (LT) incidence rate. Light blue represents the previous year, brown represents the year before previous and dark blue the current fiscal year.
- Scatter graph denoted by (Δ, O) shows the number of Lost Time accidents and comparison is also made between the current year and the previous years.

Dynamic Color Coding Legend

***	****
<p><b>Red-</b> when the actual is <b>lower</b> than 5% of budget or target</p> <p><b>Yellow-</b> when the actual is <b>within</b> 5% of budget or target</p> <p><b>Green-</b> when the actual is <b>equal to or higher</b> than budget or target</p>	<p><b>Red-</b> when the actual is <b>higher</b> than 5% of budget or target</p> <p><b>Yellow-</b> when the actual is <b>within</b> 5% of budget or target</p> <p><b>Green-</b> when the actual is <b>equal to or lower</b> than budget or target</p>

Symbols where the color code applies- (Δ, □)



**Consent Agenda**

**Summary of Contracts**

**256<sup>th</sup> Meeting of the DC Water Board of Directors**

**Thursday, September 5, 2019**

**Joint Use Contract**

- 1. Resolution No. 19-48, Execute Change Order No. 04 of Contract No. 130090, E.E. Cruz & Company, Inc.** The purpose of the change order is to provide final compensation to E.E. Cruz & Company, Inc. in settlement of certain disputed claims for unexecuted changes as set forth in the Memorandum of Understanding, dated June 6, 2019. The agreement settlement amount is \$4,375.785. **(Recommended by the Environmental Quality and Operations Committee 07/18/19)**

**Non-Joint Use Contracts**

- 1. Resolution No. 19-51, Execute Contract No. 190020, Anchor Construction Corporation.** The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity emergency and scheduled repairs to the sewer lateral system on an as-needed basis during normal work hours, after-hours, weekends, and holidays. The contract not-to-exceed amount is \$9,971,935 **(Recommended by the Environmental Quality and Operations Committee 07/18/19)**
- 2. Resolution No. 19-52, Execute Contract No. 190030, Anchor Construction Corporation.** The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity of lead service line replacements and temporary pavement restoration at various locations within the District of Columbia. The contract will also consist of providing private property side agreements and documentation. The contract not-to-exceed amount is \$7,289,400. **(Recommended by the Environmental Quality and Operations Committee 07/18/19)**
- 3. Resolution No. 19-53, Execute Contract No. 190050, Fort Myer Construction Corp.** The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity emergency water main repair and replacement of water service line in public and private space at various locations in Washington, D.C. The contract not-to-exceed amount is \$19,276,080. **(Recommended by the Environmental Quality and Operations Committee 07/18/19)**



**4. Resolution No. 19-54, Execute Contract No. 170130, American Contracting & Environmental Services, Inc.** The purpose of the contract is to rehabilitate Soldiers' Home Reservoir based on inspection report recommendations and US Environmental Protection Agency Sanitary Survey noted significant deficiencies. The contract not-to-exceed amount is \$5,401,000. **(Recommended by the Environmental Quality and Operations Committee 07/18/19)**

**Presented and Adopted: September 5, 2019**

**Subject: Approval of Amendments to the By-Laws of the District Columbia Water and Sewer Authority to Establish an Executive Committee and Reconfigure the Officers of the Board and other Conforming Revisions**

**#19-47  
RESOLUTION  
OF THE  
BOARD OF DIRECTORS  
OF THE  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

The Board of Directors (“the Board”) of the District of Columbia Water and Sewer Authority (“the Authority”) at the Board meeting held on September 5, 2019 upon consideration of a joint use matter decided by a vote of \_\_\_() in favor and \_\_\_() opposed, to take the following action to amend the By-Laws of the Authority’s Board of Directors to establish an Executive Committee and Reconfigure the Officers of the Board and other Conforming Revisions.

**WHEREAS**, during the April 4, 2019 Board meeting, the Chairperson of the Board presented the Draft Committee Assignments, which included a proposal for an Executive Committee, with committee recommendations: Tommy Wells as Chair, Krystal Brumfield, 1<sup>st</sup> Vice Chair, Major Riddick; Vice-Chair Prince Georges County, MD; Adam Ortiz, Vice-Chair Montgomery County, MD; and Randy Bartlett, Vice-Chair, Fairfax County, VA; and

**WHEREAS**, on July 17, 2019, the Governance Committee met to consider the revisions to the Board’s By-Laws to establish an Executive Committee, composed of the Officers of the Board, which includes the Board Chairperson, First Vice-Chairperson, Second Vice-Chairperson, and Vice-Chairperson and make other conforming revisions as proposed by the Chairperson of the Board; and

**WHEREAS**, the Governance Committee, at its July 17, 2019 meeting, evaluated the merits of the proposed amendments to the Board’s By-Laws and recommended their approval to the Board for adoption; and

**WHEREAS**, the Board of Directors, having reviewed the matter, concluded that the amendments are appropriate.

**NOW THEREFORE BE IT RESOLVED THAT:**

1. The By-Laws of the Authority's Board of Directors are hereby amended as set forth in Attachment 1 (Redlined Version) and Attachment 2 (Clean Version) of this Resolution.
3. The General Manager is authorized to take all steps necessary to implement the intentions expressed in this Resolution.

This Resolution shall be effective immediately.

\_\_\_\_\_  
Secretary to the Board of Directors

**ATTACHMENT 1 – Redlined Version**

**BY-LAWS  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

- Adopted – October 17, 1996; Resolution 96-11**
- Amended – February 4, 1999; Resolution 99-10**
- Amended – February 1, 2001; Resolution 01-16**
- Amended – September 12, 2002; Resolution 02-75**
- Amended – December 4, 2003; Resolution 03-86**
- Amended – July 5, 2007; Resolution 07-64**
- Amended – October 2, 2008; Resolution 08-87**
- Amended – April 1, 2010; Resolution 10-42**
- Amended – October 7, 2010; Resolution 10-100**
- Amended – December 2, 2010; Resolution 10-115**
- Amended – April 7, 2011; Resolution 11-49**
- Amended – December 5, 2013; Resolution 13-112**
- Amended – February 2, 2017; Resolution 17-11**
- Proposed Amendment – September 5, 2019; Resolution 19-XX**

**ARTICLE I  
General**

These By-Laws and the Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996 (the “Act”), as the Act shall be amended from time to time, govern the function and operation of the District of Columbia Water and Sewer Authority (the “Authority”) and in the event of any conflict between these By-Laws and the Act, the Act shall control to the extent of the conflict. Terms defined in the Act shall have the same meaning when used in these By-Laws. References in these By-Laws to the Act, or any provision thereof, shall include a reference to any amendment to the Act which takes effect after the adoption of these By-Laws.

**ARTICLE II  
Board of Directors**

**§ 2.01 Composition**

(a) The Board of Directors of the Authority (the “Board”) shall consist of eleven ~~(11)~~ principal Board members (“principal members”) and eleven ~~(11)~~ alternate Board members (“alternate members”).

(b) Alternate members may participate in discussion at Board meetings, at the Chairperson’s discretion, but may vote at Board meetings only when their corresponding principal Board member is absent. An alternate member permitted by this subsection to vote at a meeting shall do so as a representative of their corresponding principal member except that if the principal’s position is vacant the alternate shall vote in her or his own right.

(c) Principal members shall endeavor to attend all Board meetings and meetings of those Committees upon which they serve.

(d) Alternate members shall attend any meeting which their corresponding principal is required to, but cannot attend. Alternates shall either attend all other meetings or familiarize themselves with the discussions and determination made at such meetings.

(e) Alternate members may be appointed by the Chairperson to the Committees established by the Board and may fully participate in Committee functions.

## **§ 2.02 Duties**

The Board shall develop policies for the management, maintenance, and operation of water distribution and sewage collection and treatment, disposal systems and other devices and facilities under the control of the Authority, and shall perform such other duties as are specified in or otherwise required by the Act and these By-Laws.

## **§ 2.03 Removal, Suspension, and Termination**

(a) The Board may recommend that the Mayor remove, suspend, or terminate a principal or alternate member for misconduct or neglect of duty. The Mayor may remove a principal or alternate pursuant to section 204(g) of the Act (D.C. Official Code § 34-2202.04(a)(4)(g)).

(b) The Board may recommend that the Mayor remove, suspend, or terminate a principal or alternate member for misconduct if the Board finds that the member or alternate committed any act involving moral turpitude. The Mayor may remove a principal or alternate pursuant to section 204(g) of the Act (D.C. Official Code § 34-2202.04(a)(4)(g)).

(c) The Board may recommend that the Mayor remove, suspend, or terminate a principal or alternate member for neglect of duty if the Board finds that:

- (i) The principal or alternate member committed any act or omission which constitutes a breach of the Board member's or alternate's fiduciary duty to the Board or the Authority;
- (ii) A principal member failed to attend two or more Board meetings, or three or more meetings of a Committee to which such member is appointed, within a twelve-month period, without providing a business or personal reason which the Board determines is legitimate; or
- (iii) An alternate member, having received notice from his or her corresponding principal member of that member's inability to attend a meeting (as required by § 3.05 (c)), failed to attend two or more

such Board meetings, or three or more Committee meetings, within a twelve-month period, without providing a business or personal reason which the Board determines is legitimate.

(d) A principal or alternate member who is indicted for the commission of a felony shall be automatically suspended from serving on the Board. Upon a final determination of guilt, the term of the principal or alternate member shall be automatically terminated. Upon a final determination of innocence, the Mayor may reinstate the Board member.

#### **§ 2.04 Resignation**

Any principal or alternate member may resign by giving notice of resignation to the Mayor and a copy of the notice to the Secretary to the Board. A non-District member shall also notify the official authorized to recommend a successor. The member's resignation shall take effect on the date specified in the notice.

#### **§ 2.05 Compensation**

Principal and alternate members of the Board of Directors shall be compensated and reimbursed for expenses as provided in the Act and in accordance with the Authority's reimbursement procedures for executive officers.

### **ARTICLE III Meetings**

#### **§ 3.01 Meetings to be Open to Public; Availability of Records**

(a) For purposes of these By-Laws, except as provided in subsection (g), the term "~~meeting~~-meeting" shall be defined as a gathering of a quorum of the members of the Board, including hearings and roundtables, whether formal or informal, regular, closed executive session, or emergency, at which the members of the Board during such gathering consider, conduct, or advise on Authority business, including gathering of information, taking testimony, discussing, deliberating, recommending, and voting, regardless whether the meeting is held in person, by telephone, electronically, or by other means of communication. The term "meeting" may also include part or all of a retreat. The term "meeting" shall not include a chance or social gathering, press conference, or training session.

(b) Except as provided in § 3.04, all meetings shall be open to the public. A meeting shall be deemed open to the public if:

- (i) The public is permitted to be physically present;
- (ii) The news media, as defined by D.C. Official Code § 16-4701, is permitted to be present; or
- (iii) The meeting is televised.

(c) All meeting, whether open or closed, shall be recorded by electronic means; provided, that if a recording is not feasible, detailed minutes of the meeting shall be kept.

(d) Copies of records, including a written transcript or transcription shall be made available to the public, at a reasonable cost, upon request in accordance with the following schedule, provided that a record, or a portion of a record, may be withheld under the standards established for closed executive session meetings as provided in § 3.04:

(i) A copy of the approved minutes of a meeting shall be made available for public inspection as soon as practicable, but no later than three (3) business days after the meeting at which the minutes were approved.

(ii) A copy of the full record, including any recording or transcript, shall be made available for public inspection as soon as practicable, but not later than seven (7) business days after the meeting.

(e) A meeting may be held by video conference, telephone conference, or other electronic means, provided that:

(i) Reasonable arrangements are made to accommodate the public's right to attend the meeting;

(ii) The meeting is recorded; and

(iii) All votes are taken by roll call.

(f) A meeting held by electronic means shall comply with all of the requirements of these By-Laws.

(g) E-mail exchanges among principal or alternate members and staff shall not constitute an electronic meeting.

### **§ 3.02 Regular Meetings**

Regular meetings of the Board shall be held on the first Thursday of each month, or if such day is a legal holiday in the District of Columbia, then on the next weekday following such day unless an alternate date is determined to be appropriate by the Chairperson. All meetings shall be held at the District of Columbia Water and Sewer Authority Headquarters Building, 1385 Canal Street, S.E., Washington, D.C. 20003~~Blue Plains Wastewater Treatment Plant, 5000 Overlook Avenue, S.W., Washington, D.C.~~, or as otherwise specified in the notice of such meeting.

### **§ 3.03 Emergency Meetings**

(a) Emergency meetings of the Board to address an urgent matter may be called by the Chairperson on his or her own initiative, or upon the written request of not less than three members of the Board entitled to vote on the matter or matters to be considered at the emergency meeting (which request shall specify such proposed matter or matters and shall be delivered to the Chairperson and the Secretary to the Board).

(b) When an emergency meeting is convened, the Chairperson shall open the meeting with a statement explaining the subject of the meeting, the nature of the emergency and how public notice was provided.

### **§ 3.04 Closed (Executive Session) Meetings**

(a) The Board or Committee may only close a meeting or portion of a meeting for an executive session for the following reasons:

- (i) A law or court order requires that a particular matter or proceeding not be public;
- (ii) To discuss, establish, or instruct the Authority's staff or negotiating agents concerning the position to be taken in negotiating the price and other material terms of a contract, including an employment contract, if an open meeting would adversely affect the bargaining position or negotiating strategy of the Authority;
- (iii) To discuss, establish, or instruct the Authority's staff or negotiating agents concerning the position to be taken in negotiating incentives relating to the location or expansion of industries or other businesses or business activities in the District;
- (iv) To consult with the ~~General Counsel~~Executive Vice-President, Legal Affairs or other attorney to obtain legal advice and to preserve the attorney-client privilege between an attorney and the Authority, or to approve settlement agreements; provided, that, upon request, the Authority may decide to waive the privilege. A meeting shall not be closed that would otherwise be open merely because an attorney for the Authority is a participant;
- (v) Planning, discussing, or conducting specific collective bargaining negotiations;
- (vi) Preparation, administration, or grading of scholastic, licensing, or qualifying examinations;
- (vii) To prevent premature disclosure of an honorary degree, scholarship, prize, or similar award;



- (viii) To discuss and take action regarding specific methods and procedures to protect the public from existing or potential terrorist activity or substantial dangers to public health and safety, and to receive briefings by staff members, legal counsel, law enforcement officials, or emergency service officials concerning these methods and procedures; provided, that disclosure would endanger the public and a record of the closed session is made public if and when the public would not be endangered by that disclosure;
- (ix) To discuss disciplinary matters;
- (x) To discuss the appointment, employment, assignment, promotion, performance evaluation, compensation, discipline, demotion, removal, or resignation of government appointees, employees, or officials;
- (xi) To discuss trade secrets and commercial or financial information obtained from outside the Authority, to the extent that disclosure would result in substantial harm to the competitive position of the person from whom the information was obtained;
- (xii) To train and develop members of the Board and staff, including off-site retreats of members for such purposes;
- (xiii) To deliberate upon a decision in an adjudication action or proceeding by the Authority exercising quasi-judicial functions; and
- (xiv) To plan, discuss, or hear reports concerning ongoing or planned investigations of alleged criminal or civil misconduct or violations of law or regulations, if disclosure to the public would harm the investigation.

(b) Before a Board or Committee meeting or portion of a meeting is closed for an executive session, the Board or Committee shall:

- (i) Meet in an open session at which a majority of the members present shall vote in favor of closure;
- (ii) The Chairperson or acting Chairperson of the Board or Committee shall make a statement providing the reason for closure, including a citation from § 3.04(a) and the subjects to be discussed; and
- (iii) The Secretary to the Board shall make available to the public a copy of the written roll call vote and the statement.

(c) A Board or Committee meeting in a closed executive session shall not discuss or consider matters other than those matters listed under § 3.04(a).

### § 3.05 Notice to the Board of Meetings

(a) Before any meeting of the Board, the Secretary to the Board shall notify principal and alternate members of the meeting by:

- (i) Mailing a notice by first class mail, postage prepaid at least five (5) days (Saturdays, Sundays and legal holidays excluded) before the date of such meeting to the principal and alternate members' addresses appearing on the Authority's records; or
- (ii) Delivering a notice by hand, facsimile or e-mail transmission at least one (1) day (Saturdays, Sundays and legal holidays excluded) before the date of such meeting to the principal and alternate members' respective addresses, facsimile numbers or e-mail addresses appearing on the record.

(b) The notice shall state the date, time, and place of the meeting and shall be accompanied by a proposed agenda, prepared in accordance with § 3.07(a), except that where an emergency meeting is called, and time does not allow for the preparation of an agenda prior to the issuance of notice, the notice shall include a brief description of the matters to be considered.

(c) A member who is unable to attend a meeting due to legitimate personal or business reasons shall notify the designated alternate and the Secretary to the Board. If the member's corresponding alternate is also unable to attend, the alternate shall notify the Secretary to the Board of these circumstances and the reason for his or her absence.

(d) Satisfaction of the notice requirements of this Section may be waived by a majority of the members of the Board at a meeting at which a quorum is present, provided that the Secretary to the Board shall have made reasonable efforts to comply with such requirements. The attendance of a principal or alternate member at a Board meeting shall constitute such a waiver unless specific objection is made before the presence of a quorum is determined.

### § 3.06 Notice of Meetings to the Public

(a) The Secretary to the Board shall inform the public of any Board or Committee meeting, including regular, emergency, or closed executive session meeting, when they are scheduled and when the schedule is changed;

(b) Notices to the public shall be posted on the Authority's website and in a public area at the ~~Blue Plains Wastewater Treatment Plant~~ District of Columbia Water and Sewer Authority Headquarters Building, or the location of the Board or Committee

meeting not less than forty-eight (48) hours or two (2) business days before a meeting. Notice of meetings shall also be published in the *D.C. Register* as timely as practicable.

(c) The Secretary to the Board shall inform the public of a hearing to consider the establishment or adjustment of retail water and sewer rates by publishing a notice in the *D.C. Register* and a newspaper of general circulation at least ten (10) days prior to the date of the hearing.

(d) The Secretary to the Board shall inform the public of any emergency meeting by posting the notice of the meeting on the Authority's website and in a public area at the ~~Blue Plains Wastewater Treatment Plant~~District of Columbia Water and Sewer Authority Headquarters Building, or the location of the Board or Committee meeting at the same time as notice of the meeting is issued to Board members.

(e) Each notice to the public for a Board or Committee meeting shall include the date, time, location, and planned agenda to be covered at the meeting. If the meeting or any portion of the meeting is to be closed, the notice shall include, if feasible, a statement of intent to close the meeting or any portion of the meeting, including citations to the reason for closure under § 3.04(a), and a description of the matters to be discussed.

### **§ 3.07 Agenda**

(a) The Secretary to the Board shall prepare a proposed agenda under the Chairperson's direction, including a consent agenda, for each meeting of the Board and Committee. The agenda shall be attached to the notices provided for in §§ 3.05 and 3.06, and shall designate, by an asterisk or other mark, those items which do not involve "joint-use sewerage facilities" within the meaning of Section 201(4) of the Act (a "non joint-use" matter).

(b) A motion to change the designation or non-designation of an agenda item as non joint-use must be made and acted on prior to discussion of the item. In the event that the Board is to consider a matter not listed on the proposed agenda or matters at an emergency meeting for which no agenda was prepared, such matters are presumed to be joint-use items unless a motion to redesignate the item is made and acted on prior to discussion of the item.

### **§ 3.08 Quorum**

(a) Six (6) principal members shall constitute a quorum for the transaction of Board business, except that an alternate member may be counted towards a quorum in the absence of their corresponding principal member.

(b) Four (4) District members shall constitute a quorum for conducting a public hearing to establish or adjust retail water and sewer rates, pursuant to 21 DCMR § 4001.3.

(c) Committees shall not be required to meet a quorum requirement to hold a meeting.

(d) The number of attendees at a Board or Committee meeting shall not be kept below the number required to establish a quorum to avoid these requirements.

### **§ 3.09 Conduct of Business**

(a) The Chairperson shall preside over Board meetings.

(b) Board actions shall be presented for a vote in the form of a resolution.

(c) The Board may postpone consideration of an agenda item by a majority vote of those members authorized to participate in the decision.

(d) All votes of the Board or Committee to hold a closed executive session or during a meeting conducted by electronic means shall be taken by roll call and recorded by the Secretary to the Board.

(e) Physical attendance at Board meetings is the preferred method of participation. However, Board members may participate telephonically and via videoconferencing in both Board and Committee meetings. Members participating in Board meetings telephonically or via videoconferencing may both be considered for purposes of determination of a quorum and vote. Members participating in Committee meetings telephonically or via videoconferencing may voice their recommendations to the Board. However, such telephonic and videoconferencing participation is to occur only when the following conditions are met: (i) neither the principal nor the principal's alternate can attend the meeting in person; and (ii) the ~~Chairman~~Chairperson determines that the telephonic and/or videoconferencing communication is in the best interest of the Authority. In order for the ~~Chairman~~Chairperson to make this determination, the Board member wishing to participate telephonically or via videoconferencing must notify the ~~Chairman~~Chairperson as soon as he/she is aware of the need to participate in this manner or the day before the meeting, whichever occurrence is earlier in time.

(f) The Board may establish rules governing the conduct and procedure of Board and Committee meetings. Questions of procedure for meetings of the Board or Committee meetings that are not determined by these By-Laws or any rules adopted by the Board shall be governed by Robert's Rules of Order as interpreted by the Chairperson.

## **ARTICLE IV Officers of the Board**

### **§ 4.01 Appointment**

(a) (a) — The Officers of the Board shall consist of the Chairperson, who shall be selected as provided for in the Act; a First Vice-Chairperson, Second Vice-Chairperson; and Vice-Chairperson for each participating jurisdiction.

(b) Effective September 5, 2019, the initial appointment of the First Vice-Chairperson and Second Vice-Chairperson shall be nominated by the Chairperson and, by resolution, approved by the Board; thereafter, these Officers shall be nominated by the Executive Committee and, by resolution, approved by the Board.

(c) Vice-Chairperson and Alternate Vice-Chairperson for each participating jurisdiction shall be nominated by the members from their respective jurisdiction and, by resolution, approved by the Board. from among persons nominated by the Nominating Committee. The Nominating Committee shall ensure that a member of each participating jurisdiction shall hold a Vice-Chairperson position. In the event a jurisdiction has a Board member who holds an executive position in their jurisdiction (i.e. the City Administrator for the District of Columbia, the County Executive for Fairfax County, the Chief Administrative Officer for Prince George's County and the Chief Administrative Officer for Montgomery County) that person shall automatically be appointed the Vice-Chairperson for that jurisdiction, unless such person also serves as the Chairperson in which case a non-executive shall be appointed to fill the position of Vice-Chairperson for that jurisdiction.

(d) Except for the Chairperson, all other Board Officers established by these By-Laws shall, by resolution, be approved by the Board at the first regular Board meeting of the calendar year, or as necessary. The officers of the Board shall consist of the Chairperson, who shall be selected as provided for in the Act and a First Vice-Chairperson and Second Vice-Chairperson. Both the First and Second Vice-Chairpersons and all other Board officers established by these By-Laws, shall be selected by the Board from among persons nominated by the Nominating Committee.

(e) (b) — The Board may, by resolution, create or abolish any officer position (other than the Chairperson).

(f) (e) — The Board may, by resolution, delegate the duties of the officer position (other than the Chairperson) to any alternate member.

(g) Except for the Executive Committee, the Chairperson shall appoint the chairperson and members of standing and ad-hoc Committees of the Board, as recommended by the Executive Committee.

#### **§ 4.02 Duties**

(a) The Chairperson's duties shall include but are not limited to calling emergency meetings of the Board in accordance with § 3.03, determining the agenda of a meeting for purposes of § 3.07, presiding over Board meetings in accordance with § 3.09, establishing ad-hoc Committees of the Board, appointing members and

chairpersons of the standing and ad-hoc Committees of the Board in accordance with §§ 4.01(g) and 5.02, and carrying out such other duties as are specified in these By-Laws or delegated to the Chairperson by resolutions of the Board that are in accordance with the Act and these By-Laws.

(b) The First Vice-Chairperson shall fulfill the duties of the Chairperson if the Chairperson is absent or otherwise unavailable to do so. The Second Vice-Chairperson shall fulfill the duties of the First Vice-Chairperson if the First Vice-Chairperson is absent or otherwise unavailable.

(c) The Alternate Vice-Chairperson for each jurisdiction shall fulfill the duties of the Vice-Chairperson for their respective jurisdiction if the Vice-Chairperson is absent or otherwise unavailable to do so.

#### **§ 4.03 Term of Office**

Except for the Chairperson, a~~An officer-Officer~~ of the Board shall serve a one (1)- year term commencing upon approval of the Board and terminating on December 31<sup>st</sup> of each calendar year or until a successor assumes office, unless the ~~officer-Officer~~ resigns or is removed.

#### **§ 4.04 Resignation and Removal of Officers**

(a) Officers of the Board shall serve the full term provided in these By-Laws unless such term is terminated earlier by resolution of the Board for cause.

(b) An ~~officer-Officer~~ may resign by written notice to the Chairperson and the Secretary to the Board. The resignation shall take effect on the date the notice is received, unless the notice specifies a later effective date, which is acceptable to the Chairperson.

(c) The Board may appoint a successor to fill the unexpired term of a resigned or removed ~~officer-Officer~~ (other than the Chairperson), or for a new term, as the Board considers appropriate.

### **ARTICLE V Committees**

#### **§ 5.01 Establishment**

(a) The following shall be standing Committees of the Board, with such other responsibilities as are specified by the Chairperson or appropriate resolution of the Board, including but not limited to the review of contracts that are material to the Committee's assigned duties. The Board may create additional standing Committees as it deems necessary. The Committees shall receive detailed information in their areas of responsibility and make recommendations to the Board. Only formal actions of the Board

through resolution can bind the Authority. The chairperson of a standing or ad-hoc Committee, with the concurrence of the Chairperson of the Board, may designate an acting chairperson for the purposes of chairing a particular standing or ad-hoc Committee meeting.

- (i) Executive Committee: Shall be composed of the Officers of the Board and shall meet at the direction of the Chairperson to: provide recommendations to the Board regarding Board organizational direction, strategic planning, and general affairs; nominate the First Vice-Chairperson and Second Vice-Chairperson as provided in § 4.01(b); and provide recommendations to the Chairperson for Committee chairmanship and membership.
- (+)(ii) Finance and Budget Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors which have a significant and material fiscal effect as a result of operations, including by way of example and not limitation, adoption of the budget, borrowings, investments, grants, acquisitions, accounting, sales, insurance, adjustments to charges due for services or commodities furnished by the Authority, appropriations and the settlement of claims.
- (iii) ~~(ii)~~ District of Columbia Retail Water and Sewer Rates Committee: Shall be composed of the six (6) members of the Board representing the District and shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to the establishment of rates and fees for services or commodities furnished by the Authority.
- (iv~~ii~~) Environmental Quality and Operations Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to: the assets, facilities and infrastructure owned, operated, or managed by the Authority, including but not limited to emergency planning and safety of operations; matters related to environmental and water quality; the operation, repair and replacement of water distribution, and sewage and stormwater collection, treatment, and disposal systems; groundwater flow management; and customer services issues, including but not limited to customer education initiatives and customer assistance programs.
- (iv) Human Resources and Labor Relations Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to the terms, requirements and conditions of employment for all employees

including the General Manager, to include, by way of example and not limitation, matters involving compensation, pension and other benefits, awards and collective bargaining agreements.

- (vi) Audit Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to the independent appraisal of internal controls, operations and procedures utilized by the Authority in its financial and other operations, shall make recommendations to the Board regarding the selection of the Authority's independent outside auditors, and shall meet as appropriate with such auditors with or without the presence of the Authority's management.
- (vii) Governance Committee: Shall make recommendations to the Board regarding the policies and procedures to be followed by the Board, matters of internal governance of the Board, resolution of ethical questions, the discharge of the Board's duties, including any modifications of these By-Laws, and policy level oversight of the Authority's legislative and governmental relations activities. The Committee may also consider other matters involving the conduct of members, which may be referred by the Chairperson.
- (viii) Strategic Planning Committee: Shall be composed of all Board members and shall make recommendations to the Board regarding both long and short term strategic planning.

## § 5.02 Appointment

Except for the Executive Committee, mMembers of the Board's standing Committees and ad-hoc Committees, and the chairpersons of these Committees, shall be selected-appointed by the Chairperson of the Board as recommended by the Executive Committee. Only District Board members may serve on Committees or Subcommittees with jurisdiction over the rates charged to District retail water and sewer customers.

## § 5.03 Duties

The principal duty of any Committee shall be to recommend proposed action to the Board of Directors. No Committee or individual member shall have the power to bind the Board or the Authority to any matter or obligation or to authorize any act by the Authority.

## § 5.04 Standing Committee Meetings

(a) At the first meeting each year of a standing Committee, the chairperson of such Committee (or the acting chairperson designated pursuant to § 5.01(a)), in consultation with the other members of the Committee, the Chairperson of the Board, and



the General Manager, shall establish a meeting schedule for the remainder of the year and for the first meeting in the ensuing year. Such schedule shall specify the date, time, and location at which each Committee meeting shall be held. In consulting with the other members of the Committee, the Chairperson of the Board, and the General Manager, the chairperson of the Committee shall endeavor to the greatest possible extent to avoid conflicts with the meeting schedules of other Committees and to minimize inconvenience to Board Members and Alternates serving on multiple Committees, and to the General Manager and relevant staff, so as to facilitate Committee meeting attendance by all appropriate participants.

(b) Following the establishment of a Committee meeting schedule as provided in subsection (a), should the ~~chairperson-Chairperson~~ of a Committee be unable to attend a scheduled meeting, such Committee chairperson shall request the ~~viceVice-chairperson-Chairperson~~ of the Committee (if a ~~viceVice-chairperson-Chairperson~~ has been designated) to serve as acting ~~chairperson-Chairperson~~ for the purpose of conducting the meeting at the previously scheduled date, time, and location. If the ~~viceVice-chairperson-Chairperson~~ is unable to attend, the Committee ~~chairperson-Chairperson~~ shall request another member of the Committee to serve as acting ~~chairperson-Chairperson~~ for such meeting. In the event that neither the ~~viceVice-chairperson-Chairperson~~ nor another Committee member is available to serve as acting ~~chairperson-Chairperson~~ for a previously scheduled meeting, or if it appears that a significant number of Committee members will be unable to attend at the scheduled date, time, or location, or at the request of the General Manager, the Committee ~~chairperson-Chairperson~~ may request that the Chairperson of the Board waive the requirements of this subsection for good cause shown and permit such meeting to be held on a different date, or at a different time or location. Should the Chairperson not grant such a waiver, the meeting shall be cancelled.

## ARTICLE VI Administration

### § 6.01 General Manager

The Board shall hire a General Manager upon the affirmative vote of eight (8) voting members. The General Manager shall be the chief administrative officer of the Authority and, subject to the direction and supervision of the Board, shall have such supervisory and management responsibilities concerning the Authority's business, affairs, property, agents, and employees as the Board expressly determines by resolution. The General Manager may only be terminated upon an affirmative vote of eight (8) voting members.

### § 6.02 Delegation

The Board may by resolution delegate to the General Manager any of its authority to the extent permitted by the Act, including, but not limited to procurement authority in such amounts as are specified by the Board.

### **§ 6.03 Secretary to the Board**

(a) There is hereby established the Office of Secretary to the Board. The Secretary to the Board shall not be an ~~officer~~Officer of the Board and may not vote, but may be an employee of the Authority.

(b) The Secretary shall:

- (i) In addition to the responsibility established in section 3.07, coordinate under the direction of the General Manager, all Board meetings and other business activities of the Board;
- (ii) Prepare meeting minutes from Board meetings and other business activities when appropriate and prepare agendas in accordance with § 3.07;
- (iii) Keep a written transcript or transcription of the proceedings of the Board and any hearings in one or more books kept for that purpose. The Secretary shall have custody of all books, records and papers of the Board;
- (iv) Make available to the public any recordings, transcripts or transcription prepared pursuant to § 3.01 of these By-Laws and furnish copies to the public in accordance with that section;
- (v) Maintain the annual reports required by law and approved by the Board. The Secretary shall transmit copies of the approved report to the Mayor and the Council, and shall make the report available to the public;
- (vi) Have custody of the seal of the Authority and shall have authority to affix, impress or reproduce such seal on copies of resolutions and other official actions of the Authority and on all documents, the execution and delivery of which has been duly authorized by the Board; and
- (vii) Perform all duties and have all powers incident to the Office of the Secretary and shall perform such other duties and have such other powers as may be assigned by these By-Laws, the Board, its Chairperson, or the General Manager.

**ARTICLE VII  
Amendment**

These By-Laws may be amended by a majority vote of the Board at a meeting which is open to the public in accordance with the Open Meetings Amendment Act of 2010 (D.C. Official Code § 2-501 *et seq.*).

**ARTICLE VIII  
Miscellany**

**§ 8.01 Offices**

(a) The principal office of the Authority and of the Board shall be located at the ~~Blue Plains Wastewater Treatment Plant~~District of Columbia Water and Sewer Authority Headquarters Building, 5000 Overlook Avenue, S.W.1385 Canal Street, S.E., Washington, D.C. 20003.

(b) The Board may maintain other offices at such other places in the District as the Board may establish from time to time.

**§ 8.02 Seal**

The seal of the Authority shall be in the form of a circle and shall bear the name of the Authority and its year of establishment.

**§ 8.03 Fiscal Year**

The Fiscal Year of the Authority shall end on the last day of September of each year.

**§ 8.04 Sureties and Bonds**

The Board may require any officer, employee, or agent of the Authority to execute, as a condition of employment or continued employment, a bond in such sum, with such surety or sureties as the Board may direct, conditioned upon the faithful performance of such person's duties to the Authority, including responsibility for negligence and of the accounting of all property, funds, or securities of the Authority as may come into such person's control.

**§ 8.05 Joint-Use Sewerage Facilities**

Section 34-2202.01(4) of the D.C. Official Code, designates the following facilities as joint-use:

Little Falls Trunk Sewer; Upper Potomac Interceptor Sewer; Upper Potomac Interceptor Relief Sewer; Rock Creek Main Interceptor Sewer; Rock Creek Main Interceptor Relief Sewer; (duplicate deleted); Potomac River Sewage Pumping Station; Potomac River Force Mains; Watts Branch Trunk Sewer; Anacostia Force Main (Project 89 Sewer); Anacostia Force Main & Gravity Sewer; Outfall Sewers (Renamed Potomac River Trunk Sewers); Outfall Relief Sewers (Renamed Potomac River Trunk Relief Sewers); Upper Oxon Run Trunk Sewer; Upper Oxon Run Trunk Relief Sewer; Lower Oxon Run Trunk Sewer; Lower Oxon Run Trunk Relief Sewer; Blue Plains Wastewater Treatment Plant (Blue Plains); and Potomac Interceptor Sewer.

**§ 8.06 Captions**

The captions of the articles and sections of these By-Laws are provided solely for convenience of reference and shall not affect the meaning thereof.

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Secretary, Board of Directors

**ATTACHMENT 2 – Clean Version**

**BY-LAWS  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

**Adopted – October 17, 1996; Resolution 96-11  
Amended – February 4, 1999; Resolution 99-10  
Amended – February 1, 2001; Resolution 01-16  
Amended – September 12, 2002; Resolution 02-75  
Amended – December 4, 2003; Resolution 03-86  
Amended – July 5, 2007; Resolution 07-64  
Amended – October 2, 2008; Resolution 08-87  
Amended – April 1, 2010; Resolution 10-42  
Amended – October 7, 2010; Resolution 10-100  
Amended – December 2, 2010; Resolution 10-115  
Amended – April 7, 2011; Resolution 11-49  
Amended – December 5, 2013; Resolution 13-112  
Amended – February 2, 2017; Resolution 17-11  
Proposed Amendment – September 5, 2019; Resolution 19-XX**

**ARTICLE I  
General**

These By-Laws and the Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996 (the “Act”), as the Act shall be amended from time to time, govern the function and operation of the District of Columbia Water and Sewer Authority (the “Authority”) and in the event of any conflict between these By-Laws and the Act, the Act shall control to the extent of the conflict. Terms defined in the Act shall have the same meaning when used in these By-Laws. References in these By-Laws to the Act, or any provision thereof, shall include a reference to any amendment to the Act which takes effect after the adoption of these By-Laws.

**ARTICLE II  
Board of Directors**

**§ 2.01 Composition**

(a) The Board of Directors of the Authority (the “Board”) shall consist of eleven (11) principal Board members (“principal members”) and eleven (11) alternate Board members (“alternate members”).

(b) Alternate members may participate in discussion at Board meetings, at the Chairperson’s discretion, but may vote at Board meetings only when their corresponding principal Board member is absent. An alternate member permitted by this subsection to vote at a meeting shall do so as a representative of their corresponding principal member except that if the principal’s position is vacant the alternate shall vote in her or his own right.

(c) Principal members shall endeavor to attend all Board meetings and meetings of those Committees upon which they serve.

(d) Alternate members shall attend any meeting which their corresponding principal is required to, but cannot attend. Alternates shall either attend all other meetings or familiarize themselves with the discussions and determination made at such meetings.

(e) Alternate members may be appointed by the Chairperson to the Committees established by the Board and may fully participate in Committee functions.

## **§ 2.02 Duties**

The Board shall develop policies for the management, maintenance, and operation of water distribution and sewage collection and treatment, disposal systems and other devices and facilities under the control of the Authority, and shall perform such other duties as are specified in or otherwise required by the Act and these By-Laws.

## **§ 2.03 Removal, Suspension, and Termination**

(a) The Board may recommend that the Mayor remove, suspend, or terminate a principal or alternate member for misconduct or neglect of duty. The Mayor may remove a principal or alternate pursuant to section 204(g) of the Act (D.C. Official Code § 34-2202.04(a)(4)(g)).

(b) The Board may recommend that the Mayor remove, suspend, or terminate a principal or alternate member for misconduct if the Board finds that the member or alternate committed any act involving moral turpitude. The Mayor may remove a principal or alternate pursuant to section 204(g) of the Act (D.C. Official Code § 34-2202.04(a)(4)(g)).

(c) The Board may recommend that the Mayor remove, suspend, or terminate a principal or alternate member for neglect of duty if the Board finds that:

- (i) The principal or alternate member committed any act or omission which constitutes a breach of the Board member's or alternate's fiduciary duty to the Board or the Authority;
- (ii) A principal member failed to attend two or more Board meetings, or three or more meetings of a Committee to which such member is appointed, within a twelve-month period, without providing a business or personal reason which the Board determines is legitimate; or
- (iii) An alternate member, having received notice from his or her corresponding principal member of that member's inability to attend a meeting (as required by § 3.05 (c)), failed to attend two or more

such Board meetings, or three or more Committee meetings, within a twelve-month period, without providing a business or personal reason which the Board determines is legitimate.

(d) A principal or alternate member who is indicted for the commission of a felony shall be automatically suspended from serving on the Board. Upon a final determination of guilt, the term of the principal or alternate member shall be automatically terminated. Upon a final determination of innocence, the Mayor may reinstate the Board member.

#### **§ 2.04 Resignation**

Any principal or alternate member may resign by giving notice of resignation to the Mayor and a copy of the notice to the Secretary to the Board. A non-District member shall also notify the official authorized to recommend a successor. The member's resignation shall take effect on the date specified in the notice.

#### **§ 2.05 Compensation**

Principal and alternate members of the Board of Directors shall be compensated and reimbursed for expenses as provided in the Act and in accordance with the Authority's reimbursement procedures for executive officers.

### **ARTICLE III Meetings**

#### **§ 3.01 Meetings to be Open to Public; Availability of Records**

(a) For purposes of these By-Laws, except as provided in subsection (g), the term "meeting" shall be defined as a gathering of a quorum of the members of the Board, including hearings and roundtables, whether formal or informal, regular, closed executive session, or emergency, at which the members of the Board during such gathering consider, conduct, or advise on Authority business, including gathering of information, taking testimony, discussing, deliberating, recommending, and voting, regardless whether the meeting is held in person, by telephone, electronically, or by other means of communication. The term "meeting" may also include part or all of a retreat. The term "meeting" shall not include a chance or social gathering, press conference, or training session.

(b) Except as provided in § 3.04, all meetings shall be open to the public. A meeting shall be deemed open to the public if:

- (i) The public is permitted to be physically present;
- (ii) The news media, as defined by D.C. Official Code § 16-4701, is permitted to be present; or
- (iii) The meeting is televised.

(c) All meeting, whether open or closed, shall be recorded by electronic means; provided, that if a recording is not feasible, detailed minutes of the meeting shall be kept.

(d) Copies of records, including a written transcript or transcription shall be made available to the public, at a reasonable cost, upon request in accordance with the following schedule, provided that a record, or a portion of a record, may be withheld under the standards established for closed executive session meetings as provided in § 3.04:

(i) A copy of the approved minutes of a meeting shall be made available for public inspection as soon as practicable, but no later than three (3) business days after the meeting at which the minutes were approved.

(ii) A copy of the full record, including any recording or transcript, shall be made available for public inspection as soon as practicable, but not later than seven (7) business days after the meeting.

(e) A meeting may be held by video conference, telephone conference, or other electronic means, provided that:

(i) Reasonable arrangements are made to accommodate the public's right to attend the meeting;

(ii) The meeting is recorded; and

(iii) All votes are taken by roll call.

(f) A meeting held by electronic means shall comply with all of the requirements of these By-Laws.

(g) E-mail exchanges among principal or alternate members and staff shall not constitute an electronic meeting.

### **§ 3.02 Regular Meetings**

Regular meetings of the Board shall be held on the first Thursday of each month, or if such day is a legal holiday in the District of Columbia, then on the next weekday following such day unless an alternate date is determined to be appropriate by the Chairperson. All meetings shall be held at the District of Columbia Water and Sewer Authority Headquarters Building, 1385 Canal Street, S.E., Washington, D.C. 20003, or as otherwise specified in the notice of such meeting.

### **§ 3.03 Emergency Meetings**

(a) Emergency meetings of the Board to address an urgent matter may be called by the Chairperson on his or her own initiative, or upon the written request of not



less than three members of the Board entitled to vote on the matter or matters to be considered at the emergency meeting (which request shall specify such proposed matter or matters and shall be delivered to the Chairperson and the Secretary to the Board).

(b) When an emergency meeting is convened, the Chairperson shall open the meeting with a statement explaining the subject of the meeting, the nature of the emergency and how public notice was provided.

### **§ 3.04 Closed (Executive Session) Meetings**

(a) The Board or Committee may only close a meeting or portion of a meeting for an executive session for the following reasons:

- (i) A law or court order requires that a particular matter or proceeding not be public;
- (ii) To discuss, establish, or instruct the Authority's staff or negotiating agents concerning the position to be taken in negotiating the price and other material terms of a contract, including an employment contract, if an open meeting would adversely affect the bargaining position or negotiating strategy of the Authority;
- (iii) To discuss, establish, or instruct the Authority's staff or negotiating agents concerning the position to be taken in negotiating incentives relating to the location or expansion of industries or other businesses or business activities in the District;
- (iv) To consult with the Executive Vice-President, Legal Affairs or other attorney to obtain legal advice and to preserve the attorney-client privilege between an attorney and the Authority, or to approve settlement agreements; provided, that, upon request, the Authority may decide to waive the privilege. A meeting shall not be closed that would otherwise be open merely because an attorney for the Authority is a participant;
- (v) Planning, discussing, or conducting specific collective bargaining negotiations;
- (vi) Preparation, administration, or grading of scholastic, licensing, or qualifying examinations;
- (vii) To prevent premature disclosure of an honorary degree, scholarship, prize, or similar award;
- (viii) To discuss and take action regarding specific methods and procedures to protect the public from existing or potential terrorist

activity or substantial dangers to public health and safety, and to receive briefings by staff members, legal counsel, law enforcement officials, or emergency service officials concerning these methods and procedures; provided, that disclosure would endanger the public and a record of the closed session is made public if and when the public would not be endangered by that disclosure;

- (ix) To discuss disciplinary matters;
- (x) To discuss the appointment, employment, assignment, promotion, performance evaluation, compensation, discipline, demotion, removal, or resignation of government appointees, employees, or officials;
- (xi) To discuss trade secrets and commercial or financial information obtained from outside the Authority, to the extent that disclosure would result in substantial harm to the competitive position of the person from whom the information was obtained;
- (xii) To train and develop members of the Board and staff, including off-site retreats of members for such purposes;
- (xiii) To deliberate upon a decision in an adjudication action or proceeding by the Authority exercising quasi-judicial functions; and
- (xiv) To plan, discuss, or hear reports concerning ongoing or planned investigations of alleged criminal or civil misconduct or violations of law or regulations, if disclosure to the public would harm the investigation.

(b) Before a Board or Committee meeting or portion of a meeting is closed for an executive session, the Board or Committee shall:

- (i) Meet in an open session at which a majority of the members present shall vote in favor of closure;
- (ii) The Chairperson or acting Chairperson of the Board or Committee shall make a statement providing the reason for closure, including a citation from § 3.04(a) and the subjects to be discussed; and
- (iii) The Secretary to the Board shall make available to the public a copy of the written roll call vote and the statement.

(c) A Board or Committee meeting in a closed executive session shall not discuss or consider matters other than those matters listed under § 3.04(a).

### **§ 3.05 Notice to the Board of Meetings**

(a) Before any meeting of the Board, the Secretary to the Board shall notify principal and alternate members of the meeting by:

- (i) Mailing a notice by first class mail, postage prepaid at least five (5) days (Saturdays, Sundays and legal holidays excluded) before the date of such meeting to the principal and alternate members' addresses appearing on the Authority's records; or
- (ii) Delivering a notice by hand, facsimile or e-mail transmission at least one (1) day (Saturdays, Sundays and legal holidays excluded) before the date of such meeting to the principal and alternate members' respective addresses, facsimile numbers or e-mail addresses appearing on the record.

(b) The notice shall state the date, time, and place of the meeting and shall be accompanied by a proposed agenda, prepared in accordance with § 3.07(a), except that where an emergency meeting is called, and time does not allow for the preparation of an agenda prior to the issuance of notice, the notice shall include a brief description of the matters to be considered.

(c) A member who is unable to attend a meeting due to legitimate personal or business reasons shall notify the designated alternate and the Secretary to the Board. If the member's corresponding alternate is also unable to attend, the alternate shall notify the Secretary to the Board of these circumstances and the reason for his or her absence.

(d) Satisfaction of the notice requirements of this Section may be waived by a majority of the members of the Board at a meeting at which a quorum is present, provided that the Secretary to the Board shall have made reasonable efforts to comply with such requirements. The attendance of a principal or alternate member at a Board meeting shall constitute such a waiver unless specific objection is made before the presence of a quorum is determined.

### **§ 3.06 Notice of Meetings to the Public**

(a) The Secretary to the Board shall inform the public of any Board or Committee meeting, including regular, emergency, or closed executive session meeting, when they are scheduled and when the schedule is changed;

(b) Notices to the public shall be posted on the Authority's website and in a public area at the District of Columbia Water and Sewer Authority Headquarters Building, or the location of the Board or Committee meeting not less than forty-eight (48) hours or two (2) business days before a meeting. Notice of meetings shall also be published in the *D.C. Register* as timely as practicable.

(c) The Secretary to the Board shall inform the public of a hearing to consider the establishment or adjustment of retail water and sewer rates by publishing a notice in the *D.C. Register* and a newspaper of general circulation at least ten (10) days prior to the date of the hearing.

(d) The Secretary to the Board shall inform the public of any emergency meeting by posting the notice of the meeting on the Authority's website and in a public area at the District of Columbia Water and Sewer Authority Headquarters Building, or the location of the Board or Committee meeting at the same time as notice of the meeting is issued to Board members.

(e) Each notice to the public for a Board or Committee meeting shall include the date, time, location, and planned agenda to be covered at the meeting. If the meeting or any portion of the meeting is to be closed, the notice shall include, if feasible, a statement of intent to close the meeting or any portion of the meeting, including citations to the reason for closure under § 3.04(a), and a description of the matters to be discussed.

### **§ 3.07 Agenda**

(a) The Secretary to the Board shall prepare a proposed agenda under the Chairperson's direction, including a consent agenda, for each meeting of the Board and Committee. The agenda shall be attached to the notices provided for in §§ 3.05 and 3.06, and shall designate, by an asterisk or other mark, those items which do not involve "joint-use sewerage facilities" within the meaning of Section 201(4) of the Act (a "non joint-use" matter).

(b) A motion to change the designation or non-designation of an agenda item as non joint-use must be made and acted on prior to discussion of the item. In the event that the Board is to consider a matter not listed on the proposed agenda or matters at an emergency meeting for which no agenda was prepared, such matters are presumed to be joint-use items unless a motion to redesignate the item is made and acted on prior to discussion of the item.

### **§ 3.08 Quorum**

(a) Six (6) principal members shall constitute a quorum for the transaction of Board business, except that an alternate member may be counted towards a quorum in the absence of their corresponding principal member.

(b) Four (4) District members shall constitute a quorum for conducting a public hearing to establish or adjust retail water and sewer rates, pursuant to 21 DCMR § 4001.3.

(c) Committees shall not be required to meet a quorum requirement to hold a meeting.

(d) The number of attendees at a Board or Committee meeting shall not be kept below the number required to establish a quorum to avoid these requirements.

### **§ 3.09 Conduct of Business**

(a) The Chairperson shall preside over Board meetings.

(b) Board actions shall be presented for a vote in the form of a resolution.

(c) The Board may postpone consideration of an agenda item by a majority vote of those members authorized to participate in the decision.

(d) All votes of the Board or Committee to hold a closed executive session or during a meeting conducted by electronic means shall be taken by roll call and recorded by the Secretary to the Board.

(e) Physical attendance at Board meetings is the preferred method of participation. However, Board members may participate telephonically and via videoconferencing in both Board and Committee meetings. Members participating in Board meetings telephonically or via videoconferencing may both be considered for purposes of determination of a quorum and vote. Members participating in Committee meetings telephonically or via videoconferencing may voice their recommendations to the Board. However, such telephonic and videoconferencing participation is to occur only when the following conditions are met: (i) neither the principal nor the principal's alternate can attend the meeting in person; and (ii) the Chairperson determines that the telephonic and/or videoconferencing communication is in the best interest of the Authority. In order for the Chairperson to make this determination, the Board member wishing to participate telephonically or via videoconferencing must notify the Chairperson as soon as he/she is aware of the need to participate in this manner or the day before the meeting, whichever occurrence is earlier in time.

(f) The Board may establish rules governing the conduct and procedure of Board and Committee meetings. Questions of procedure for meetings of the Board or Committee meetings that are not determined by these By-Laws or any rules adopted by the Board shall be governed by Robert's Rules of Order as interpreted by the Chairperson.

## **ARTICLE IV Officers of the Board**

### **§ 4.01 Appointment**

(a) The Officers of the Board shall consist of the Chairperson, who shall be selected as provided for in the Act; a First Vice-Chairperson, Second Vice-Chairperson; and Vice-Chairperson for each participating jurisdiction.

(b) Effective September 5, 2019, the initial appointment of the First Vice-Chairperson and Second Vice-Chairperson shall be nominated by the Chairperson and, by resolution, approved by the Board; thereafter, these Officers shall be nominated by the Executive Committee and, by resolution, approved by the Board.

(c) Vice-Chairperson and Alternate Vice-Chairperson for each participating jurisdiction shall be nominated by the members from their respective jurisdiction and, by resolution, approved by the Board. In the event a jurisdiction has a Board member who holds an executive position in their jurisdiction (i.e. the City Administrator for the District of Columbia, the County Executive for Fairfax County, the Chief Administrative Officer for Prince George's County and the Chief Administrative Officer for Montgomery County) that person shall automatically be appointed the Vice-Chairperson for that jurisdiction, unless such person also serves as the Chairperson in which case a non-executive shall be appointed to fill the position of Vice-Chairperson for that jurisdiction.

(d) Except for the Chairperson, all other Board Officers established by these By-Laws shall, by resolution, be approved by the Board at the first regular Board meeting of the calendar year, or as necessary.

(e) The Board may, by resolution, create or abolish any officer position (other than the Chairperson).

(f) The Board may, by resolution, delegate the duties of the officer position (other than the Chairperson) to any alternate member.

(g) Except for the Executive Committee, the Chairperson shall appoint the chairperson and members of standing and ad-hoc Committees of the Board, as recommended by the Executive Committee.

#### **§ 4.02 Duties**

(a) The Chairperson's duties shall include but are not limited to calling emergency meetings of the Board in accordance with § 3.03, determining the agenda of a meeting for purposes of § 3.07, presiding over Board meetings in accordance with § 3.09, establishing ad-hoc Committees of the Board, appointing members and chairpersons of the standing and ad-hoc Committees of the Board in accordance with §§ 4.01(g) and 5.02, and carrying out such other duties as are specified in these By-Laws or delegated to the Chairperson by resolutions of the Board that are in accordance with the Act and these By-Laws.

(b) The First Vice-Chairperson shall fulfill the duties of the Chairperson if the Chairperson is absent or otherwise unavailable to do so. The Second Vice-Chairperson shall fulfill the duties of the First Vice-Chairperson if the First Vice-Chairperson is absent or otherwise unavailable.

(c) The Alternate Vice-Chairperson for each jurisdiction shall fulfill the duties of the Vice-Chairperson for their respective jurisdiction if the Vice-Chairperson is absent or otherwise unavailable to do so.

#### **§ 4.03 Term of Office**

Except for the Chairperson, an Officer of the Board shall serve a one (1) year term commencing upon approval of the Board and terminating on December 31<sup>st</sup> of each calendar year or until a successor assumes office, unless the Officer resigns or is removed.

#### **§ 4.04 Resignation and Removal of Officers**

(a) Officers of the Board shall serve the full term provided in these By-Laws unless such term is terminated earlier by resolution of the Board for cause.

(b) An Officer may resign by written notice to the Chairperson and the Secretary to the Board. The resignation shall take effect on the date the notice is received, unless the notice specifies a later effective date, which is acceptable to the Chairperson.

(c) The Board may appoint a successor to fill the unexpired term of a resigned or removed Officer (other than the Chairperson), or for a new term, as the Board considers appropriate.

### **ARTICLE V Committees**

#### **§ 5.01 Establishment**

(a) The following shall be standing Committees of the Board, with such other responsibilities as are specified by the Chairperson or appropriate resolution of the Board, including but not limited to the review of contracts that are material to the Committee's assigned duties. The Board may create additional standing Committees as it deems necessary. The Committees shall receive detailed information in their areas of responsibility and make recommendations to the Board. Only formal actions of the Board through resolution can bind the Authority. The chairperson of a standing or ad-hoc Committee, with the concurrence of the Chairperson of the Board, may designate an acting chairperson for the purposes of chairing a particular standing or ad-hoc Committee meeting.

- (i) Executive Committee: Shall be composed of the Officers of the Board and shall meet at the direction of the Chairperson to: provide recommendations to the Board regarding Board organizational direction, strategic planning, and general affairs; nominate the First Vice-Chairperson and Second Vice-Chairperson as provided in § 4.01(b); and provide recommendations to the Chairperson for Committee chairmanship and membership.

- (ii) Finance and Budget Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors which have a significant and material fiscal effect as a result of operations, including by way of example and not limitation, adoption of the budget, borrowings, investments, grants, acquisitions, accounting, sales, insurance, adjustments to charges due for services or commodities furnished by the Authority, appropriations and the settlement of claims.
- (iii) District of Columbia Retail Water and Sewer Rates Committee: Shall be composed of the six (6) members of the Board representing the District and shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to the establishment of rates and fees for services or commodities furnished by the Authority.
- (iv) Environmental Quality and Operations Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to: the assets, facilities and infrastructure owned, operated, or managed by the Authority, including but not limited to emergency planning and safety of operations; matters related to environmental and water quality; the operation, repair and replacement of water distribution, and sewage and stormwater collection, treatment, and disposal systems; groundwater flow management; and customer services issues, including but not limited to customer education initiatives and customer assistance programs.
- (v) Human Resources and Labor Relations Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to the terms, requirements and conditions of employment for all employees including the General Manager, to include, by way of example and not limitation, matters involving compensation, pension and other benefits, awards and collective bargaining agreements.
- (vi) Audit Committee: Shall make recommendations to the Board regarding actions required of or desired by the Board of Directors with respect to the independent appraisal of internal controls, operations and procedures utilized by the Authority in its financial and other operations, shall make recommendations to the Board regarding the selection of the Authority's independent outside auditors, and shall meet as appropriate with such auditors with or without the presence of the Authority's management.



- (vii) Governance Committee: Shall make recommendations to the Board regarding the policies and procedures to be followed by the Board, matters of internal governance of the Board, resolution of ethical questions, the discharge of the Board's duties, including any modifications of these By-Laws, and policy level oversight of the Authority's legislative and governmental relations activities. The Committee may also consider other matters involving the conduct of members, which may be referred by the Chairperson.
- (viii) Strategic Planning Committee: Shall be composed of all Board members and shall make recommendations to the Board regarding both long and short term strategic planning.

### **§ 5.02 Appointment**

Except for the Executive Committee, members of the Board's standing Committees and ad-hoc Committees, and the chairpersons of these Committees, shall be appointed by the Chairperson of the Board as recommended by the Executive Committee. Only District Board members may serve on Committees or Subcommittees with jurisdiction over the rates charged to District retail water and sewer customers.

### **§ 5.03 Duties**

The principal duty of any Committee shall be to recommend proposed action to the Board of Directors. No Committee or individual member shall have the power to bind the Board or the Authority to any matter or obligation or to authorize any act by the Authority.

### **§ 5.04 Standing Committee Meetings**

(a) At the first meeting each year of a standing Committee, the chairperson of such Committee (or the acting chairperson designated pursuant to § 5.01(a)), in consultation with the other members of the Committee, the Chairperson of the Board, and the General Manager, shall establish a meeting schedule for the remainder of the year and for the first meeting in the ensuing year. Such schedule shall specify the date, time, and location at which each Committee meeting shall be held. In consulting with the other members of the Committee, the Chairperson of the Board, and the General Manager, the chairperson of the Committee shall endeavor to the greatest possible extent to avoid conflicts with the meeting schedules of other Committees and to minimize inconvenience to Board Members and Alternates serving on multiple Committees, and to the General Manager and relevant staff, so as to facilitate Committee meeting attendance by all appropriate participants.

(b) Following the establishment of a Committee meeting schedule as provided in subsection (a), should the Chairperson of a Committee be unable to attend a scheduled meeting, such Committee chairperson shall request the Vice-Chairperson of the Committee (if a Vice-Chairperson has been designated) to serve as acting Chairperson

for the purpose of conducting the meeting at the previously scheduled date, time, and location. If the Vice-Chairperson is unable to attend, the Committee Chairperson shall request another member of the Committee to serve as acting Chairperson for such meeting. In the event that neither the Vice-Chairperson nor another Committee member is available to serve as acting Chairperson for a previously scheduled meeting, or if it appears that a significant number of Committee members will be unable to attend at the scheduled date, time, or location, or at the request of the General Manager, the Committee Chairperson may request that the Chairperson of the Board waive the requirements of this subsection for good cause shown and permit such meeting to be held on a different date, or at a different time or location. Should the Chairperson not grant such a waiver, the meeting shall be cancelled.

## **ARTICLE VI Administration**

### **§ 6.01 General Manager**

The Board shall hire a General Manager upon the affirmative vote of eight (8) voting members. The General Manager shall be the chief administrative officer of the Authority and, subject to the direction and supervision of the Board, shall have such supervisory and management responsibilities concerning the Authority's business, affairs, property, agents, and employees as the Board expressly determines by resolution. The General Manager may only be terminated upon an affirmative vote of eight (8) voting members.

### **§ 6.02 Delegation**

The Board may by resolution delegate to the General Manager any of its authority to the extent permitted by the Act, including, but not limited to procurement authority in such amounts as are specified by the Board.

### **§ 6.03 Secretary to the Board**

(a) There is hereby established the Office of Secretary to the Board. The Secretary to the Board shall not be an Officer of the Board and may not vote, but may be an employee of the Authority.

(b) The Secretary shall:

- (i) In addition to the responsibility established in section 3.07, coordinate under the direction of the General Manager, all Board meetings and other business activities of the Board;
- (ii) Prepare meeting minutes from Board meetings and other business activities when appropriate and prepare agendas in accordance with § 3.07;

- (iii) Keep a written transcript or transcription of the proceedings of the Board and any hearings in one or more books kept for that purpose. The Secretary shall have custody of all books, records and papers of the Board;
- (iv) Make available to the public any recordings, transcripts or transcription prepared pursuant to § 3.01 of these By-Laws and furnish copies to the public in accordance with that section;
- (v) Maintain the annual reports required by law and approved by the Board. The Secretary shall transmit copies of the approved report to the Mayor and the Council, and shall make the report available to the public;
- (vi) Have custody of the seal of the Authority and shall have authority to affix, impress or reproduce such seal on copies of resolutions and other official actions of the Authority and on all documents, the execution and delivery of which has been duly authorized by the Board; and
- (vii) Perform all duties and have all powers incident to the Office of the Secretary and shall perform such other duties and have such other powers as may be assigned by these By-Laws, the Board, its Chairperson, or the General Manager.

#### **ARTICLE VII Amendment**

These By-Laws may be amended by a majority vote of the Board at a meeting which is open to the public in accordance with the Open Meetings Amendment Act of 2010 (D.C. Official Code § 2-501 *et seq.*).

#### **ARTICLE VIII Miscellany**

##### **§ 8.01 Offices**

(a) The principal office of the Authority and of the Board shall be located at the District of Columbia Water and Sewer Authority Headquarters Building, 1385 Canal Street, S.E., Washington, D.C. 20003.

(b) The Board may maintain other offices at such other places in the District as the Board may establish from time to time.

**§ 8.02 Seal**

The seal of the Authority shall be in the form of a circle and shall bear the name of the Authority and its year of establishment.

**§ 8.03 Fiscal Year**

The Fiscal Year of the Authority shall end on the last day of September of each year.

**§ 8.04 Sureties and Bonds**

The Board may require any officer, employee, or agent of the Authority to execute, as a condition of employment or continued employment, a bond in such sum, with such surety or sureties as the Board may direct, conditioned upon the faithful performance of such person's duties to the Authority, including responsibility for negligence and of the accounting of all property, funds, or securities of the Authority as may come into such person's control.

**§ 8.05 Joint-Use Sewerage Facilities**

Section 34-2202.01(4) of the D.C. Official Code, designates the following facilities as joint-use:

Little Falls Trunk Sewer; Upper Potomac Interceptor Sewer; Upper Potomac Interceptor Relief Sewer; Rock Creek Main Interceptor Sewer; Rock Creek Main Interceptor Relief Sewer; (duplicate deleted); Potomac River Sewage Pumping Station; Potomac River Force Mains; Watts Branch Trunk Sewer; Anacostia Force Main (Project 89 Sewer); Anacostia Force Main & Gravity Sewer; Outfall Sewers (Renamed Potomac River Trunk Sewers); Outfall Relief Sewers (Renamed Potomac River Trunk Relief Sewers); Upper Oxon Run Trunk Sewer; Upper Oxon Run Trunk Relief Sewer; Lower Oxon Run Trunk Sewer; Lower Oxon Run Trunk Relief Sewer; Blue Plains Wastewater Treatment Plant (Blue Plains); and Potomac Interceptor Sewer.

**§ 8.06 Captions**

The captions of the articles and sections of these By-Laws are provided solely for convenience of reference and shall not affect the meaning thereof.

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Secretary, Board of Directors

**Presented and Approved: September 5, 2019**  
**SUBJECT: Approval to Execute Change Order No. 04 of Contract No. 130090, E.E. Cruz & Company, Inc.**

**#19-48**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**D.C. WATER AND SEWER AUTHORITY**

The Board of Directors ("Board") of the District of Columbia Water and Sewer Authority ("the Authority") at its meeting on September 5, 2019 upon consideration of a joint use matter, decided by a vote of \_\_ ( ) in favor and \_\_ ( ) opposed to approve Change Order No. 04 of Contract No. 130090, E.E. Cruz & Company, Inc.

**Be it resolved that:**

The Board of Directors hereby authorizes the General Manager to execute Change Order No. 04 of Contract No. 130090. The purpose of the change order is to provide final compensation to E.E. Cruz & Company, Inc. in settlement of certain disputed claims for unexecuted changes as set forth in the Memorandum of Understanding, dated June 6, 2019. The agreed settlement amount is \$4,375,785.

This Resolution is effective immediately.

\_\_\_\_\_  
Secretary to the Board of Directors

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

**ACTION REQUESTED**

**CONSTRUCTION CONTRACT CHANGE ORDER:**

**Division Z – Poplar Point Pumping Station Replacement  
and Main Outfall Sewers Diversion  
(Joint Use)**

Approval to execute Change Order No. 04 for \$4,375,785.00. The modification exceeds the Chief Executive Officers approval authority.

**CONTRACTOR/SUB/VENDOR INFORMATION**

<b>PRIME:</b>	<b>SUBS:</b>	<b>PARTICIPATION:</b>
E.E. Cruz & Company, Inc. 32 Avenue of the Americas, 13 <sup>th</sup> Floor New York, NY 10013	None MBE participation None WBE participation	0.0% 0.0%
<u>Headquarters</u> New York, NY 10013		

**DESCRIPTION AND PURPOSE**

Original Contract Value:	\$53,452,275.00
Value of this Change Order:	\$4,375,785.00
Cumulative CO Value, including this CO:	\$4,375,785.00
Current Contract Value, including this CO:	\$57,828,060.00
Original Contract Time:	835 Days (2 Years, 4 Months)
Time extension, this CO:	840 Days
Total CO contract time extension:	888 Days (2 Years, 5 Months)
Contract Start Date (NTP):	01-15-2015
Anticipated Contract Completion Date:	10-04-2019
Cumulative CO % of Original Contract:	8.19%
Contract completion %:	96.25%

**Purpose of the Contract:**

Provide the construction of Division Z – Poplar Point Pumping Station Replacement and Main Outfall Sewers Diversion in support of the DC Clean Rivers Project.

This work is required by a Consent Decree.

**Original Contract Scope:**

- Construct the Poplar Point Pumping Station
- Construct the Anacostia Main Interceptor Diversion Sewer
- Construct the Barry Road Replacement Sewer
- Construct the Main Outfall Sewers Diversion Chamber

**Previous Change Order Scope:**

- Change Order 01 extended Substantial Completion and Contract Completion Dates by total of 11 calendar days due to delays incurred during the September 2015 Papal Visit and January 2016 Winter Storm Jonas.
- Change Order 02 extended Substantial Completion and Contract Completion Dates by 37 calendar days due to delay incurred during Archeological Investigation Phase III work.
- Change Order 03 transferred \$952,965.00 in Allowance funds to Bid Item No. 4 Additional Work from Bid Item No. 3, 6 and 9.

**Current Change Order Scope:**

- Agreed settlement of unexecuted Changes and resolution of all claims on the Contract.

**PROCUREMENT INFORMATION**

<b>Contract Type:</b>	Fixed Price	<b>Award Based On:</b>	Lowest responsive, responsible bidder
<b>Commodity:</b>	Construction	<b>Contract Number:</b>	130090
<b>Contractor Market:</b>	Open Market		

**BUDGET INFORMATION**

<b>Funding:</b>	Capital	<b>Department:</b>	DC Clean Rivers
<b>Service Area:</b>	Combined Sewer Overflow	<b>Department Head:</b>	Carlton M. Ray
<b>Project:</b>	CY, G1		

**ESTIMATED USER SHARE INFORMATION**

**CY – Anacostia LTCP – Poplar Point Allocation [MJ20]**

User	Share %	Dollar Amount
District of Columbia	90.00%	\$3,493,277.10
Federal Funds	0.00%*	\$
Washington Suburban Sanitary Commission	10.00%	\$ 388,141.90
Fairfax County	0.00%	\$
Loudoun County & Potomac Interceptor	0.00%	\$
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$3,881,419.00</b>

**CY – Anacostia LTCP – Main Outfall Diversion Allocation [GIBP]**

User	Share %	Dollar Amount
District of Columbia	41.22%	\$ 189,443.41
Federal Funds	0.00%*	\$
Washington Suburban Sanitary Commission	45.84%	\$ 210,676.51
Fairfax County	8.38%	\$ 38,513.73
Loudoun County & Potomac Interceptor	4.56%	\$ 20,957.35
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$ 459,591.00</b>

**G100 – Small Local Sewer Rehab – Barry Rd Allocation [CAPM]**

User	Share %	Dollar Amount
District of Columbia	100.00%	\$ 34,775.00
Federal Funds	0.00%*	\$
Washington Suburban Sanitary Commission	0.00%	\$
Fairfax County	0.00%	\$
Loudoun County & Potomac Interceptor	0.00%	\$
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$ 34,775.00</b>

**Combined**

User	Share %	Dollar Amount
District of Columbia	84.96%	\$3,717,495.51
Federal Funds	0.00%*	\$
Washington Suburban Sanitary Commission	13.68%	\$ 598,818.41
Fairfax County	0.88%	\$ 38,513.73
Loudoun County & Potomac Interceptor	0.48%	\$ 20,957.35
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$4,375,785.00</b>

\* Eligible for Federal Appropriation Funding. Appropriation funding is insufficient to fund all eligible contracts. Federal Appropriation Funding may be used if additional funding becomes available or if other eligible projects are postponed.

  
 Leonard R. Benson  
 Senior Vice President, Chief Engineer  
 Date: 7-11-19

  
 Dan Bae  
 VP of Procurement and Compliance  
 Date: 7/12/19

  
 Matthew T. Brown  
 CFO and EVP of Finance and Procurement  
 Date: 7/12/19

  
 David L. Gadis  
 CEO and General Manager  
 Date: 8/27/19

**Presented and Adopted: September 5, 2019**  
**Subject: Authorizing the Sale and Setting Terms and Details**  
**of the Series 2019A and Series 2019B Subordinate Bonds**

**#19-49**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

The members of the Board of Directors (“Board”) of the District of Columbia Water and Sewer Authority (“Authority”), at the Board meeting held on September 5, 2019, upon consideration of a joint use matter, decided by a vote of \_\_\_\_\_ (\_\_\_\_\_) in favor and \_\_\_\_\_ (\_\_\_\_\_) opposed, to authorize and approve the sale of the Authority’s Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) (the “Series 2019A Subordinate Bonds”) and Public Utility Subordinate Lien Revenue Bonds, Series 2019B (the “Series 2019B Subordinate Bonds” and, together with the Series 2019A Subordinate Bonds, the “Series 2019A/B Subordinate Bonds”) on the following terms and details.

**WHEREAS**, the Authority is authorized pursuant to the *Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996*, as amended, D.C. Code Section 34-2201.01 et seq. (the “WASA Act”), and the *District of Columbia Water and Sewer Authority Act of 1996*, Public Law 104-184; 110 Stat. 1696, to issue revenue bonds for undertakings authorized by the WASA Act, including to finance or refinance any cost, as defined in the WASA Act, D.C. Code Section 34-2202.01(2); and

**WHEREAS**, in accordance with the WASA Act, the Authority and Wells Fargo Bank, National Association, as trustee (the “Trustee”) (its predecessors in that capacity having been Norwest Bank Minnesota, N.A. and Wells Fargo Bank Minnesota, N.A.), entered into the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture” and, as supplemented and amended, the “Indenture”), to provide for financing or refinancing the acquisition, construction, operation, maintenance and extension of the System (as defined in the Master Indenture) by the issuance of bonds, notes and other obligations payable solely from Net Revenues (as such terms are defined in the Master Indenture); and

**WHEREAS**, the Authority has heretofore entered into twenty-three (23) supplemental indentures of trust with the Trustee in connection with the issuance of Senior Debt and Subordinate Debt (both as defined in the Indenture) or to amend and clarify the Master Indenture; and



**WHEREAS**, the Authority now intends (i) to issue the “Series 2019A Subordinate Bonds to (a) finance a portion of the costs of the Authority’s DC Clean Rivers Project (as defined in the preliminary Official Statement, dated September [\_\_\_\_], 2019, for the Series 2019A/B Subordinate Bonds); (b) fund a Series 2019A Debt Service Reserve Requirement (as defined herein), if determined necessary; and (c) pay certain costs of issuance; (ii) to issue the Series 2019B Subordinate Bonds to (a) finance certain Costs of the System; (b) fund a Series 2019B Debt Service Reserve Requirement, (as defined herein), if determined necessary; and (c) pay certain costs of issuance; (iii) to designate the Series 2019A/B Subordinate Bonds as Subordinate Debt for purposes of the Indenture; and (iv) to secure the Series 2019A/B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, the CEO and General Manager, the Chief Financial Officer and Executive Vice President, Finance and Procurement, Executive Vice President Operations and Engineering, the Senior Vice President and Chief Engineer and the Interim Executive Vice President, Legal Affairs of the Authority have informed the Board that their offices have established “due diligence” procedures for reviewing the documents authorized by this Resolution with the Authority’s bond counsel, disclosure counsel, financial advisors, underwriters, underwriters’ counsel and other consultants and advisors, with a view to ensuring the accuracy of disclosure; and

**WHEREAS**, the Finance and Budget Committee met on July 25, 2019, to review the issuance of the Series 2019A/B Subordinate Bonds and has recommended approval of this Resolution by the Board.

**NOW, THEREFORE BE IT RESOLVED THAT:**

Section 1. Definitions and Interpretations. Unless otherwise defined herein and unless the context indicates otherwise, the terms used herein and defined in the Indenture (including the Twenty-Fourth Supplemental Indenture as hereby approved) shall have the meanings assigned to them therein. In addition, the following terms used as defined terms in this Resolution shall have the meaning assigned to them in this Section:

“Authorized Officials” means the Chairman and Vice Chairman of the Board and the CEO and General Manager, Chief Financial Officer and Executive Vice President, Finance and Procurement, Controller, Budget Director, Finance Director and Rates and Revenue Director of the Authority, including any of the foregoing who are in an interim, acting or similar capacity, provided that any official other than the Chairman shall be designated by the Chairman as his designee for the purpose of executing and delivering any document authorized hereunder.

“Bond Purchase Agreement” means the Bond Purchase Agreement between the Authority and the Series 2019A/B Original Purchasers, dated as of the same date as the Certificate of Award.

“Certificate of Award” means the certificate of an Authorized Official awarding the Series 2019A/B Subordinate Bonds to the Series 2019A/B Original Purchasers and specifying terms of the Series 2019A/B Subordinate Bonds, as provided for in Section 4 of this Resolution.

“Continuing Disclosure Agreement” means the Continuing Disclosure Agreement executed by the Authority, dated as of the same date as the date of issuance and delivery of the Series 2019A/B Subordinate Bonds, as originally executed and as it may be amended from time to time in accordance with its terms.

“Financial Advisor” means PFM Financial Advisors LLC.

“Interest Payment Dates” means for the Series 2019A/B Subordinate Bonds, each April 1 and October 1, commencing on the April 1 or October 1 specified in the Certificate of Award as the first Interest Payment Date, and thereafter during the time the Series 2019A/B Subordinate Bonds are Outstanding.

“Series 2019A Debt Service Reserve Requirement” means, if determined in the Certificate of Award to be necessary, a required fund balance in the Series 2019A Debt Service Reserve Account or Accounts established under the Twenty-Fourth Supplemental Indenture, the amount of which shall be specified in the Certificate of Award, but which shall not exceed the maximum amount permitted to constitute a “reasonably required reserve or replacement fund” under the size limitation set forth in Section 1.148-2(f)(2) of the Treasury Regulations promulgated under the Code (taking into account any moneys in any other fund or account that may be required to be included in such computation) unless the Authority furnishes to the Trustee an opinion of nationally recognized bond counsel to the effect that the existence of a balance in the Series 2019A Debt Service Reserve Account in the amount of the specified required fund balance will not cause the interest on any Series 2019A Subordinate Bonds intended to be excluded from gross income for federal income tax purposes not to be so excluded.

“Series 2019A/B Original Purchasers” for the Series 2019A/B Subordinate Bonds means the purchasers identified as such in the Bond Purchase Agreement.

“Series 2019B Debt Service Reserve Requirement” means, if determined in the Certificate of Award to be necessary, a required fund balance in the Series 2019B Debt Service Reserve Account or Accounts established under the Twenty-Fourth Supplemental Indenture, the amount of which shall be specified in the Certificate of Award, but which shall not exceed the maximum amount permitted to constitute a “reasonably required reserve or replacement fund” under the size limitation set forth in Section 1.148-2(f)(2) of the Treasury Regulations promulgated under the Code (taking into account any moneys in any other fund or account that may be required to be included in such computation) unless the Authority furnishes to the Trustee an opinion of nationally recognized bond counsel to the effect that the existence of a balance in the Series 2019B Debt Service Reserve Account in the amount of the specified required fund balance will not cause the interest on any Series 2019B Subordinate Bonds intended to be excluded from gross income for federal income tax purposes not to be so excluded.

“Twenty-Fourth Supplemental Indenture” means the Twenty-Fourth Supplemental Indenture of Trust by and between the Authority and the Trustee, dated as of the same date as and relating to the Series 2019A/B Subordinate Bonds.

Any reference to the Authority or the Board, or to their members or officers, or to other public officers, boards, commissions, departments, institutions, agencies, bodies or entities, shall include those who or which succeed to their functions, duties or responsibilities by operation of law and also those who or which at the time may legally act in their place.

**Section 2. Authorization, Designation and Purposes of Series 2019A/B Subordinate Bonds.** The Authority is authorized to issue, sell and deliver, as provided in this Resolution and the Certificate of Award, not to exceed (except as provided below) Two Hundred Fifty Million Dollars (\$250,000,000) aggregate principal amount of Series 2019A/B Subordinate Bonds which aggregate amount shall be allocated between the Series 2019A Subordinate Bonds and the Series 2019B Subordinate Bonds in the Certificate of Award. The Series 2019A Subordinate Bonds shall be designated “Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds)” and shall constitute Subordinate Debt for purposes of the Indenture, for the purpose of: (a) financing a portion of the costs of the Authority’s DC Clean Rivers Project, (b) funding a Series 2019A Debt Service Reserve Requirement, if determined necessary in the Certificate of Award; and (c) paying issuance costs of the Series 2019A Subordinate Bonds. The Series 2019B Subordinate Bonds shall be designated “Public Utility Subordinate Lien Revenue Bonds, Series 2019B” and shall constitute Subordinate Debt for purposes of the Indenture, for the purpose of: (a) financing certain Costs of the System; (b) funding a Series 2019B Debt Service Reserve Requirement, if determined necessary in the Certificate of Award; and (c) paying issuance costs of the Series 2019B Subordinate Bonds. For those purposes the proceeds from the sale of the Series 2019A/B Subordinate Bonds shall be allocated and deposited, as provided in the Twenty-Fourth Supplemental Indenture. If and to the extent that any Series 2019A/B Subordinate Bonds are issued for the purpose of funding a Series 2019A Debt Service Reserve Requirement and/or a Series 2019B Debt Service Reserve Requirement, then the aggregate principal amount of Series 2019A/B Subordinate Bonds hereby authorized may exceed \$250,000,000 by the aggregate principal amount of the Series 2019A/B Subordinate Bonds to be issued for that purpose. Any designation of bonds authorized above may be revised or clarified in the Certificate of Award.

**Section 3. Terms and Provisions Applicable to the Series 2019A/B Subordinate Bonds.**

(a) **Form, Transfer and Exchange.** The Series 2019A/B Subordinate Bonds: (i) shall initially be issued only in fully registered form and substantially in the forms attached as Exhibits to the Twenty-Fourth Supplemental Indenture; (ii) shall initially be issued only to a Depository for holding in a book entry system, and shall be registered in the name of the Depository or its nominee, as Holder, and immobilized in the custody of the Depository, and (iii) shall not be transferable or exchangeable except as provided in the Twenty-Fourth Supplemental Indenture.

(b) Denominations and Dates. The Series 2019A/B Subordinate Bonds shall be dated as of the date of issuance and delivery, but in no event later than December 31, 2019, and there shall be a single Series 2019A/B Subordinate Bond representing each interest rate for each maturity of the Series 2019A/B Subordinate Bonds bearing the same series or subseries designation.

(c) Principal Maturities. The principal of the Series 2019A/B Subordinate Bonds shall be paid in such amounts on each principal retirement date (whether at stated maturity date or a mandatory redemption date) as set forth in the Certificate of Award, provided that the final principal retirement date shall be no later than December 31, 2059.

(d) Interest Rates and Interest Rate Periods for the Series 2019A/B Subordinate Bonds. The Series 2019A/B Subordinate Bonds shall bear interest on their unpaid principal amount payable on each Interest Payment Date, commencing on the first Interest Payment Date specified in the Certificate of Award, at such fixed rates per annum as set forth in the Certificate of Award as provided in Section 4(c) hereof, provided however, that the “true interest cost” (i.e., interest cost on bonds defined as the rate, compounded semiannually, necessary to discount the amounts payable on the respective interest and principal payment dates to the purchase price received for the bonds) on the Series 2019A/B Subordinate Bonds shall not exceed five and one half percent (5.50%) per annum.

(e) Optional and Mandatory Redemption.

(i) *Optional* - The Series 2019A/B Subordinate Bonds maturing on or before any date specified in the Certificate of Award as the Earliest Optional Redemption Date (which shall be no later than the outside date permitted by law) are not subject to prior optional redemption. Any Series 2019A/B Subordinate Bond maturing after the Earliest Optional Redemption Date shall be subject to redemption at the option of the Authority, prior to their stated maturities on or after the Earliest Optional Redemption Date in whole or in part (in whole multiples of \$5,000) on any date, at redemption prices specified in the Certificate of Award, provided that no such redemption price (not including accrued interest) shall exceed 102% of the principal amount of the Series 2019A/B Subordinate Bonds to be redeemed.

(ii) *Mandatory Sinking Fund Redemption* - Any Series 2019A/B Subordinate Bonds may be designated in the Certificate of Award as Term Bonds and be subject to mandatory sinking fund redemption by lot on specified principal retirement dates at a price equal to 100% of the principal amount to be redeemed, plus accrued interest to the date of redemption.

(iii) *Make Whole* – If so designated in the Certificate of Award, the Series 2019A/B Subordinate Bonds shall also be subject to redemption at the option of the Authority prior to their stated maturities at any time in whole or in part (in whole multiples of \$5,000) on any date, at a redemption price which will make the holders of such Series 2019A/B Subordinate Bonds whole through the Earliest Optional

Redemption Date for the early redemption. The Certificate of Award shall specify the method by which the “make whole” redemption price shall be determined, provided that the redemption price shall not exceed 110% of the principal amount of the Series 2019A/B Subordinate Bonds then redeemed, without further action by this Board on or before the date of redemption.

(f) Redemption Provisions. Redemption of Series 2019A/B Subordinate Bonds shall be effected in accordance with Article IV of the Master Indenture; provided, however, that notices of redemption of the Series 2019A/B Subordinate Bonds sent pursuant to Section 402 of the Master Indenture may specify that the redemption is conditional upon the Authority’s depositing the funds needed to effect that redemption prior to the specified redemption date.

(g) Places and Manner of Payment. The principal of and the interest and any redemption premium on the Series 2019A/B Subordinate Bonds shall be payable at the places and in the manner specified in the Twenty-Fourth Supplemental Indenture.

(h) Execution. The Authorized Officials are, and each of them is, authorized and directed to execute the Series 2019A/B Subordinate Bonds, and the Secretary of the Board is authorized and directed to affix the seal of the Authority to the Series 2019A/B Subordinate Bonds and to deliver them to the Trustee for authentication in accordance with the Indenture.

Section 4. Sale of Series 2019A/B Subordinate Bonds.

(a) General. The Series 2019A/B Subordinate Bonds shall be awarded and sold to the Series 2019A/B Original Purchasers in accordance with the Bond Purchase Agreement and the Certificate of Award, at a purchase price of not less than ninety-five percent (95%) of the aggregate of the products from multiplying the principal amount of each Series 2019A/B Subordinate Bonds times the percentage of such principal amount at which such Series 2019A/B Subordinate Bond shall be initially offered to the public, after subtracting from the aggregate of such products the premium payable for any municipal bond insurance policy applicable to the Series 2019A/B Subordinate Bonds.

(b) Bond Purchase Agreement. The Authorized Officials are, and each of them is, authorized and directed to execute and deliver the Bond Purchase Agreement between the Authority and the Series 2019A/B Original Purchasers, substantially in the form presented to this Authority, but with such changes not inconsistent with the Indenture and this Resolution and not substantially adverse to the Authority as may be approved by the Authorized Official executing the same on behalf of the Authority. The approval of any such changes by such Authorized Official and the determination by such Authorized Official that no such change is substantially adverse to the Authority shall be conclusively evidenced by the execution of the applicable Bond Purchase Agreement by such Authorized Official. The price for and terms of the Series 2019A/B Subordinate Bonds and the sale thereof, all as provided in this Resolution, the Bond Purchase Agreement, the Certificate of Award and the Twenty-Fourth Supplemental Indenture, are hereby approved and determined to be in the best interests of the Authority.

(c) Certificate of Award. Such sale and award shall be further evidenced by the Certificate of Award executed by an Authorized Official. The terms of the Series 2019A/B Subordinate Bonds approved in the Certificate of Award shall be incorporated into the Twenty-Fourth Supplemental Indenture. The Certificate of Award, subject to the restrictions set forth herein, shall: (i) with respect to each series or subseries of the Series 2019A/B Subordinate Bonds, specify the aggregate principal amount, the purchase price, the first Interest Payment Dates, the interest rate or rates, the principal retirement dates, the mandatory sinking fund requirements (if any), the redemption dates, and the redemption prices thereof; (ii) specify whether a municipal bond insurance policy, letter of credit, or other credit or liquidity facility shall be obtained with respect to any of the Series 2019A/B Subordinate Bonds and, if so, from whom and on what terms; (iii) specify the amount, if any, of the Series 2019A Debt Service Reserve Requirement and the Series 2019B Debt Service Reserve Requirement and determine whether it shall be met entirely with (A) cash and Permitted Investments (as defined in the Indenture); (B) a Qualified Reserve Credit Facility (as defined in the Indenture); or (C) a specified combination of (A) and (B); and (iv) include any additional information that may be required or permitted to be stated therein by the terms of this Resolution and the Bond Purchase Agreement.

(d) Authorization of Bond Insurance and Qualified Reserve Credit Facilities. The submission of any applications to: (i) recognized providers of municipal bond insurance requesting the issuance of one or more municipal bond insurance policies to insure the Authority's obligation to make payments of principal of and interest on any of the Series 2019A/B Subordinate Bonds, and (ii) potential providers of Qualified Reserve Credit Facilities, is hereby ratified and approved. The Authorized Officials are, and each of them is, hereby authorized to specify in the Certificate of Award that the Authority shall accept one or more commitments for insurance from such providers, and one or more commitments for a Qualified Reserve Credit Facility. There is hereby authorized to be paid from the moneys deposited in the Series 2019A Costs of Issuance Subaccount such amount as is required to pay the premium and expenses for such insurance policies and Qualified Reserve Credit Facilities relating to the Series 2019A Subordinate Bonds. There is hereby authorized to be paid from the moneys deposited in the Series 2019B Costs of Issuance Subaccount such amount as is required to pay the premium and expenses for such insurance policies and Qualified Reserve Credit Facilities relating to the Series 2019B Subordinate Bonds. The Authorized Officials are, and each of them is, hereby further authorized to enter into a reimbursement agreement with the provider of any Qualified Reserve Credit Facility to provide for the Authority's reimbursement of the provider for any amounts drawn under the Qualified Reserve Credit Facility in a manner consistent with the Indenture. Any determination of the Authorized Officials under this paragraph shall be based on the written advice of the Financial Advisor.

(e) Certificates. The Authorized Officials are, and each of them is, authorized and directed, in their official capacities, to execute and deliver to the Series 2019A/B Original Purchasers the certificates required by the Bond Purchase Agreement to be executed on behalf of the Authority.

(f) Delivery of Bonds. The Authorized Officials are, and each of them is, authorized and directed to make the necessary arrangements with the Series 2019A/B Original Purchasers to establish the date, location, procedure and conditions for the delivery of the Series 2019A/B Subordinate Bonds to the Series 2019A/B Original Purchasers. The Authorized Officials are, and each of them is, further authorized and directed to make the necessary arrangements for the printing of the Series 2019A/B Subordinate Bonds, and the execution, authentication and delivery of the Series 2019A/B Subordinate Bonds to DTC for the accounts of the Series 2019A/B Original Purchasers, in accordance with this Resolution and the Indenture, and upon the receipt of payment of the purchase price, to cause such amount to be applied in accordance with the terms and provisions of this Resolution and the Indenture.

Section 5. Allocation of Proceeds of the Series 2019A/B Subordinate Bonds; Tax Covenants.

(a) Allocation of Proceeds of the Series 2019A/B Subordinate Bonds. The proceeds from the sale of the Series 2019A/B Subordinate Bonds shall be allocated, deposited and credited for the purposes approved in this Resolution and as specified in the Twenty-Fourth Supplemental Indenture.

(b) Tax Covenants. The Board authorizes the Authorized Officials to approve the tax covenants, authorizations and agreements necessary to achieve and maintain the tax-exempt status of the Series 2019A/B Subordinate Bonds.

Section 6. Twenty-Fourth Supplemental Indenture and Other Documents. The Authorized Officials are, and each of them is, authorized in connection with the issuance of the Series 2019A/B Subordinate Bonds, to execute, acknowledge and deliver in the name of and on behalf of the Authority, the Twenty-Fourth Supplemental Indenture, substantially in the form thereof submitted to the Authority at or prior to this meeting, but with such changes therein as may be permitted by the Indenture and this Resolution and approved by the Authorized Officer executing the document on behalf of the Authority. The approval of those changes shall be conclusively evidenced by the execution of the document by an Authorized Official.

The Authorized Officials and any other member, officer or employee of the Authority are each authorized to execute and deliver, on behalf of the Authority, such other certificates, documents and instruments related to the Series 2019A/B Subordinate Bonds as are necessary in connection with the transactions authorized in this Resolution, and to do all other things required of them or the Authority pursuant to the Indenture, the Twenty-Fourth Supplemental Indenture, the Bond Purchase Agreement and this Resolution.

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board nor any officer of the Authority executing the Series 2019A/B Subordinate Bonds shall be liable personally thereon or be subject to any personal liability

or accountability by reason of the issuance thereof. No member of the Board or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him pursuant to this Resolution or the Indenture or any other document authorized by this Resolution, provided such member, officer, employee, agent or advisor acts in good faith.

Section 7. Official Statement; Continuing Disclosure. The Authorized Officials shall cause to be prepared and issued on behalf of the Authority, an official statement (the "Official Statement") relating to the original issuance of the Series 2019A/B Subordinate Bonds. The Authorized Officials are, and each of them is, authorized to execute the Official Statement on behalf of the Authority, which shall be in substantially the form of the Official Statement submitted to the Authority at this meeting, with such changes as the Authorized Official who executes it may approve, the execution thereof on behalf of the Authority by an Authorized Official to be conclusive evidence of such authorization and approval (including approval of any such changes), and copies thereof are hereby authorized to be prepared and furnished to the Series 2019A/B Original Purchasers for distribution to prospective purchasers of the Series 2019A/B Subordinate Bonds and other interested persons. The preliminary Official Statement, shall be "deemed substantially final" by the Authority within the meaning of Rule 15c2-12 of the Securities Exchange Commission, subject to completion as provided below.

The distribution by the Authority and by the Series 2019A/B Original Purchasers of the preliminary Official Statement and the Official Statement, in such form and with any changes as may be approved in writing by an Authorized Official, is hereby authorized and approved.

The Authority shall make sufficient copies of the Official Statement, with any supplements, available to the Series 2019A/B Original Purchasers to sell book entry interests in the Series 2019A/B Subordinate Bonds, and will provide copies as appropriate to the Municipal Securities Rulemaking Board through its Electronic Municipal Market Access website at [www.emma.msrb.org](http://www.emma.msrb.org).

The Authorized Officials are each hereby authorized to furnish such information, to execute such instruments and to take such other action in cooperation with the Series 2019A/B Original Purchasers as may be reasonably requested to qualify the Series 2019A/B Subordinate Bonds for offer and sale under the Blue Sky or other securities laws and regulations and to determine their eligibility for investment under the laws and regulations of such states and other jurisdictions of the United States of America as may be designated by the Series 2019A/B Original Purchasers; provided, however, that the Authority shall not be required to register as a dealer or broker in any such state or jurisdiction or become subject to the service of process in any jurisdiction in which the Authority is not now subject to such service.

The Authorized Officials are each hereby further authorized: (i) to supplement and complete the "deemed substantially final" preliminary Official Statement by affixing thereto or inserting therein information to identify the Series 2019A/B Original Purchasers and to specify the final principal amount, interest rates and redemption provisions of the



Series 2019A/B Subordinate Bonds, the price of the Series 2019A/B Subordinate Bonds to the general public, any credit enhancement provisions with respect to the Series 2019A/B Subordinate Bonds and any change in ratings of the Series 2019A/B Subordinate Bonds resulting from such credit enhancement, and such other information as is necessary to supplement and complete the Official Statement with the approved and agreed upon terms of Series 2019A/B Subordinate Bonds, and (ii) to make such other changes to the preliminary Official Statement or the Official Statement as are, in the judgment of an Authorized Official, necessary and appropriate in order to make the preliminary Official Statement or the Official Statement not materially misleading and to comply with applicable securities laws or otherwise to enable the Authority to fulfill its obligations regarding the preliminary Official Statement or the Official Statement under the Bond Purchase Agreement.

The Authority hereby covenants and agrees that it will comply with and carry out all of the provisions of the Continuing Disclosure Agreement. Notwithstanding any other provision of this Resolution or the Indenture, failure of the Authority to comply with the Continuing Disclosure Agreement shall not be considered an Event of Default; however, any Holder of Series 2019A/B Subordinate Bonds may, and the Trustee may (and, at the request of the Holders of at least 25% in aggregate principal amount of Outstanding Series 2019A/B Subordinate Bonds, shall) take such actions as may be necessary and appropriate, including seeking mandamus or specific performance by court order, to cause the Authority to comply with its obligations under this paragraph. The Authorized Officials are, and each of them is, hereby authorized and directed to execute and deliver the Continuing Disclosure Agreement in substantially the form submitted to the Authority at or prior to this meeting with such changes therein as may be approved by the officer executing the Continuing Disclosure Agreement. The approval of those changes shall be conclusively evidenced by the execution of the Continuing Disclosure Agreement by an Authorized Official.

Section 8. General. The appropriate officers and employees of the Authority will do all things necessary and proper to implement and carry out the orders and agreements set forth or approved in this Resolution for the proper fulfillment of the purposes thereof. The Authority shall furnish to the Series 2019A/B Original Purchasers of the Series 2019A/B Subordinate Bonds a true and certified transcript of all proceedings relating to the authorization and issuance of the Series 2019A/B Subordinate Bonds along with other information as is necessary or proper with respect to the Series 2019A/B Subordinate Bonds.

Section 9. Multiple Series. Notwithstanding anything herein to the contrary, each of the Series 2019A Subordinate Bonds and the Series 2019B Subordinate Bonds may be issued in one or more separate series or subseries, each bearing a distinctive designation, provided that the Series 2019A/B Subordinate Bonds of all series in the aggregate, must satisfy the requirements and comply with the restrictions of this Resolution and the Indenture. Separate series and subseries of Series 2019A/B Subordinate Bonds may be issued at the same or different times and so may have different dates of issuance. The Series 2019A/B Subordinate Bonds of each series and subseries shall be designated as provided in the applicable Certificate of Award. A separate Certificate of Award may be

delivered for each series or subseries, and each reference in this Resolution to the Certificate of Award shall refer to each and all such Certificates of Award. A separate Supplemental Trust Indenture may be entered into for each series or subseries, and each reference in this Resolution to the Twenty-Fourth Supplemental Indenture shall refer to each and all such Supplemental Trust Indentures, but any Supplemental Trust Indenture subsequent to the Twenty-Fourth Supplemental Indenture shall bear a different designation. A separate Bond Purchase Agreement and Continuing Disclosure Agreement may be entered into for each series or subseries, and each reference in this Resolution to the Bond Purchase Agreement or to the Continuing Disclosure Agreement shall refer to each and all such Bond Purchase Agreements or Continuing Disclosure Agreements, respectively. A separate Official Statement may be prepared for each series or subseries, and each reference in this Resolution to the Official Statement shall refer to each and all such Official Statements.

This Resolution is effective immediately.

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Secretary to the Board of Directors

**PRELIMINARY OFFICIAL STATEMENT DATED \_\_\_\_\_, 2019**

**NEW ISSUE – BOOK-ENTRY ONLY**

**RATINGS:** Standard & Poor’s: [ ]  
 Moody’s: [ ]  
 Fitch: [ ]  
 See “RATINGS” herein

*In the opinion of Co-Bond Counsel, under existing law (i) assuming continuing compliance with certain covenants and the accuracy of certain representations, interest on the Series 2019A/B Bonds is excluded from gross income for federal income tax purposes, and is not an item of tax preference for purposes of the federal alternative minimum tax, and (ii) the Series 2019A/B Bonds and the interest thereon are exempt from District taxation, except estate, inheritance and gift taxes. Interest on the Series 2019A/B Bonds may be subject to certain federal taxes imposed only on certain corporations. For a more complete discussion of the tax aspects, see “TAX MATTERS” herein.*

[DC Water Logo]

**[\$125,000,000]\***

**[\$75,000,000]\***

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Revenue Bonds,**  
**Series 2019A**  
**(Green Bonds)**

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Revenue Bonds,**  
**Series 2019B**

**Dated: Date of Delivery**

**Due: As shown on inside cover**

**Authority for Issuance.** The Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) (the “Series 2019A Bonds”) and the Public Utility Subordinate Lien Revenue Bonds, Series 2019B (the “Series 2019B Bonds”) and, together with the Series 2019A Bonds, the “Series 2019A/B Bonds”) are being issued by the District of Columbia Water and Sewer Authority (the “Authority,” also commonly referred to as “DC Water”) pursuant to a Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), by and between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”), as amended and supplemented from time to time, including as amended and supplemented by the Twenty-Fourth Supplemental Indenture of Trust, by and between the Authority and the Trustee, dated the date of issuance and delivery of the Series 2019A/B Bonds (the “Twenty-Fourth Supplemental Indenture” and, together with the Master Indenture, as previously amended and supplemented, the “Indenture”).

**Use of Proceeds.** The proceeds of the Series 2019A Bonds will be used to pay (i) a portion of the costs of the Authority’s DC Clean Rivers Project (as defined herein (the “Series 2019A Project”), and (ii) the costs of issuing the Series 2019A Bonds. The proceeds of the Series 2019B Bonds will be used to (i) pay a portion of the costs of certain capital improvements to the System (the “Series 2019B Project”), and (ii) pay the costs of issuing the Series 2019B Bonds.

**Denominations and Interest.** The Series 2019A/B Bonds will be issued initially in denominations of \$5,000 or any integral multiple thereof and will mature in the years and amounts and accrue interest from their date of delivery at the rates set forth on the inside cover page of this Official Statement. Interest on the Series 2019A/B Bonds will be calculated on the basis of a 360-day year of twelve 30-day months, payable semi-annually on each April 1 and October 1, commencing April 1, 2020.

**Book-Entry Only.** The Series 2019A/B Bonds will be issued in fully registered form in the name of Cede & Co., as nominee of The Depository Trust Company (“DTC”) under the book-entry only system maintained by DTC or its nominee. So long as Cede & Co. is the registered owner of the Series 2019A/B Bonds, the principal of and premium, if any, and interest on the Series 2019A/B Bonds will be payable by the Trustee to DTC, which will in turn remit such payments to its participants for subsequent disbursement to beneficial owners of the Series 2019A/B Bonds, as more fully described herein. See APPENDIX E – “DTC Book-Entry Only System.”

**Redemption.** The Series 2019A/B Bonds are subject to redemption prior to maturity, as more fully described herein. See “THE SERIES 2019A/B BONDS – Redemption Provisions.”

**Security.** The Series 2019A/B Bonds will be secured by a pledge of Net Revenues that will be subordinate to the pledge of Net Revenues that secures the Outstanding Senior Debt and any other Senior Debt the Authority may issue from time to time in the future, and on a parity with the pledge of Net Revenues that secures the Outstanding Subordinate Debt and any other Subordinate Debt the Authority may issue from time to time in the future, without preference, priority or distinction of any Subordinate Debt over any other Subordinate Debt, all as further described and defined herein. The Series 2019A/B Bonds will not be secured by a Debt Service Reserve Fund. See “SECURITY FOR THE SERIES 2019A/B BONDS.”

**Limited Obligation.** The Series 2019A/B Bonds shall be special, limited obligations of the Authority payable solely from the Net Revenues of the Authority. The Series 2019A/B Bonds shall be without recourse to the District of Columbia (the “District”). The Series 2019A/B Bonds shall not be general obligations of the District or of the Authority. The Series 2019A/B Bonds shall not be a pledge of or involve the faith and credit or the taxing power of the District, shall not constitute a debt of the District, the United States of America or any User Jurisdiction (as defined herein) or any agency or instrumentality of any User Jurisdiction, and neither the District, the United States, any User Jurisdiction nor any agency or instrumentality of any User Jurisdiction shall be liable thereon. The Series 2019A/B Bonds also shall not constitute the lending of the public credit for private undertakings as prohibited by the Home Rule Act (as defined herein). The Authority has no taxing power.

**Green Bonds.** The Series 2019A Project consists of a portion of the DC Clean Rivers Project. Based upon independent assessment of the DC Clean Rivers Project and of the Authority conducted by Vigeo applying environmental, social and governance criteria, the Authority has designated the Series 2019A Project as a “Green Project” and has designated the Series 2019A Bonds as “Green Bonds.” See “INTRODUCTION – Use of the Series 2019A/B Bond Proceeds,” “PLAN OF FINANCE” and APPENDIX G – “Opinion of Independent Sustainability Consultant.”

[Clean Rivers Logo]

The Series 2019A/B Bonds are offered when, as and if issued by the Authority and received by the Underwriters (as defined herein). Certain legal matters with respect to the issuance of the Series 2019A/B Bonds are subject to the approval of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, Co-Bond Counsel to the Authority. Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP also serve as Co-Disclosure Counsel to the Authority in connection with the preparation of this Official Statement. Certain legal matters will be passed upon for the Authority by its General Counsel and for the Underwriters by Orrick, Herrington & Sutcliffe LLP and McKenzie & Associates, Co-Underwriters’ Counsel. It is expected that the Series 2019A/B Bonds will be available for delivery through the facilities of DTC in New York, New York on or about [ ], 2019.

**SIEBERT CISNEROS SHANK & Co., L.L.C.**

**FTN Financial Capital Markets      Jefferies LLC      Morgan Stanley      Raymond James      Stern Brothers & Co.**

*This cover page, including the inside cover page, contains certain information for quick reference only. It is not a summary of this Official Statement. Prospective purchasers must read the entire Official Statement to obtain the information essential to the making of an informed investment decision.*

\* Preliminary; subject to change.

THIS PRELIMINARY OFFICIAL STATEMENT AND THE INFORMATION CONTAINED IN IT ARE SUBJECT TO COMPLETION AND AMENDMENT IN A FINAL OFFICIAL STATEMENT. Under no circumstances shall this Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy, and there shall not be any sale of the Bonds offered hereby, in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of that jurisdiction.

Dated: [ ], 2019

**MATURITY SCHEDULE**

**[\$125,000,000]\***  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Revenue Bonds**  
**Series 2019A**  
**(Green Bonds)**

**Serial Bonds**

<b>Maturity (Oct. 1)</b>	<b>Principal Amount</b>	<b>Interest Rate</b>	<b>Yield</b>	<b>CUSIP No.†</b>
		[ ]%	[ ]%*	254845 [ ]

**Term Bonds**

\$[ ] [ ]% Term Bonds, due October 1, 20[ ], Yield [ ]%\* CUSIP 254845 [ ]†

**[\$75,000,000]\***  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Revenue Bonds**  
**Series 2019B**

**Serial Bonds**

<b>Maturity (Oct. 1)</b>	<b>Principal Amount</b>	<b>Interest Rate</b>	<b>Yield</b>	<b>CUSIP No.†</b>
		[ ]%	[ ]%*	254845 [ ]

**Term Bonds**

\$[ ] [ ]% Term Bonds, due October 1, 20[ ], Yield [ ]%\* CUSIP 254845 [ ]†

\* Yield calculated to first optional redemption date of [October 1, 2029.]

† CUSIP® is a registered trademark of the American Bankers Association. CUSIP Global Services (CGS) is managed on behalf of the American Bankers Association by S&P Global Market Intelligence. Copyright(c) 2019 CUSIP Global Services. All rights reserved. CUSIP® data herein is provided by CUSIP Global Services. This data is not intended to create a database and does not serve in any way as a substitute for the CGS database. CUSIP® numbers are provided for convenience of reference only. Neither the Authority nor the Underwriters or their agents or counsel are responsible for the accuracy of such numbers. No representation is made as to their correctness on the Series 2019A/B Bonds or as included herein. The CUSIP number for a specific maturity is subject to being changed after the issuance of the Series 2019A/B Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part or as a result of the procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of certain maturities of the Series 2019A/B Bonds.

\* Preliminary; subject to change.

**District of Columbia Water and Sewer Authority**  
**1385 Canal Street, S.E.**  
**Washington, D.C. 20003**  
**(202) 787-2714**  
[www.dewater.com](http://www.dewater.com)

**Principal Board Members    Jurisdiction**

Tommy Wells, Chairman	<i>District of Columbia</i>
Randy Bartlett	<i>Fairfax County</i>
Ellen O. Boardman	<i>District of Columbia</i>
Krystal J. Brumfield	<i>District of Columbia</i>
Rachna Bhatt	<i>District of Columbia</i>
David Franco	<i>District of Columbia</i>
Floyd Holt	<i>Prince George's County</i>
Fariba Kassiri	<i>Montgomery County</i>
Adam Ortiz	<i>Montgomery County</i>
Major F. Riddick, Jr.	<i>Prince George's County</i>
Emile Thompson	<i>District of Columbia</i>

**Alternate Board Members    Jurisdiction**

Lavinia Baxter	<i>Prince George's County</i>
Kendrick Curry	<i>District of Columbia</i>
Ivan Frishberg	<i>District of Columbia</i>
Anthony Giancola	<i>District of Columbia</i>
Howard Gibbs	<i>District of Columbia</i>
Joseph Gill	<i>Prince George's County</i>
Adriana Hochber	<i>Montgomery County</i>
Sarah Motsch	<i>Fairfax County</i>
Jed Ross	<i>District of Columbia</i>
Steven Shofar	<i>Montgomery County</i>
Vacant	<i>District of Columbia</i>

**Authority Management**

<i>CEO and General Manager</i>	David Gadis
<i>Chief Financial Officer and Executive Vice President, Finance and Procurement</i>	Matthew T. Brown
<i>Executive Vice President, Operations and Engineering</i>	Biju George
<i>Chief of Staff</i>	Mustaafa Dozier
<i>Interim Executive Vice President, Legal Affairs</i>	Gregory Hope
<i>Senior Vice President and Chief Engineer</i>	Leonard R. Benson
<i>Director of DC Clean Rivers Project</i>	Carlton Ray
<i>Vice President, Wastewater Operations and Engineering</i>	Aklile Tesfaye
<i>Executive Vice President, Administration</i>	Maureen Holman

**Authority Consultants and Counsel**

<i>Co-Bond Counsel</i>	Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP
<i>Co-Disclosure Counsel</i>	Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP
<i>Financial Feasibility Consultant</i>	Amawalk Consulting Group LLC
<i>Engineering Feasibility Consultant</i>	Johnson, Mirmiran, & Thompson, Inc.
<i>Financial Advisor</i>	PFM Financial Advisors LLC
<i>Sustainability Consultant</i>	Vigeo

## IMPORTANT NOTICES

**No Offering May be Made Except by this Official Statement.** No dealer, broker, salesperson or other person has been authorized by the Authority or the Underwriters to give any information or to make any representations with respect to this offering, other than as contained in this Official Statement and, if given or made, such other information or representations must not be relied upon as having been authorized by the Authority or the Underwriters.

**No Unlawful Offer, Solicitation or Sale.** This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the Series 2019A/B Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale.

**Use of this Official Statement.** This Official Statement is provided in connection with the sale of the Series 2019A/B Bonds referred to herein and may not be reproduced or be used, in whole or in part, for any other purpose. This Official Statement is not to be construed as a contract or agreement among the Authority, the Underwriters and the purchasers or owners of any offered Series 2019A/B Bonds. This Official Statement is being provided to prospective purchasers either in bound printed form (“original bound format”) or in electronic format on the following website: [www.munios.com](http://www.munios.com). This Official Statement may be relied upon only if it is in its original bound format or if it is printed in its entirety directly from such website.

**Preparation of this Official Statement.** The information contained in this Official Statement has been derived from information provided by the Authority and other sources which are believed to be reliable. Additional information, including financial information, concerning the Authority is available from the Authority’s website. Any such information that is inconsistent with the information set forth in this Official Statement should be disregarded. The information and expressions of opinions herein are subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof. Such information and expressions of opinion are made for the purpose of providing information to prospective investors and are not to be used for any other purpose or relied on by any other party. The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their respective responsibilities to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

**No Registration or Approval.** The Series 2019A/B Bonds have not been registered with the U.S. Securities and Exchange Commission (the “SEC”) under the Securities Act of 1933, as amended, in reliance upon exceptions contained in the Act. Neither the SEC nor any other federal or state securities commission or regulatory authority has approved or disapproved of the Series 2019A/B Bonds or passed upon the accuracy or adequacy of this Official Statement. Any representation to the contrary is a criminal offense.

**Public Offering Prices.** In connection with this offering, the Underwriters may over allot or effect transactions which stabilize or maintain the market price of the Series 2019A/B Bonds at a level above that which might otherwise prevail in the open market; such stabilizing, if commenced, may be discontinued at any time.

**Forecasts and Forward-Looking Statements.** Statements contained in this Official Statement that do not reflect historical facts are forward-looking statements. Forward-looking statements can be identified by words such as “estimate,” “project,” “anticipate,” “expect,” “intend,” “believe,” “plan,” “budget,” “predict,” “may,” “should,” and similar expressions. Projections, forecasts, assumptions, expressions of opinions, estimates and other forward-looking statements are not to be construed as representations of fact and are qualified in their entirety by the cautionary statements set forth in this Official Statement. The forward-looking statements are based on various assumptions and estimates and are inherently subject to risks and uncertainties, including, but not limited to, risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in various important factors. Accordingly, actual results may vary from the projections, forecasts and estimates contained in this Official Statement and such variations may be material, which could affect the ability to fulfill some or all of the obligations under the Series 2019A/B Bonds. All forward-looking statements included in this Official Statement are based on information available on the date of this Official Statement, and the Authority assumes no obligation to update any such forward-looking statements.

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## OFFICIAL STATEMENT

\$[125,000,000]\*

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Revenue Bonds,**  
**Series 2019A**  
**(Green Bonds)**

\$[75,000,000]\*

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Revenue Bonds,**  
**Series 2019B**

## INTRODUCTION

### General

This Official Statement, including the cover page and the appendices hereto (the “Official Statement”), is provided in connection with the issuance by the District of Columbia Water and Sewer Authority (the “Authority,” also commonly referred to as “DC Water”) of its Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds), in the original principal amount of \$[125,000,000] \* (the “Series 2019A Bonds”) and its Public Utility Subordinate Lien Revenue Bonds, Series 2019B Bonds, in the original principal amount of \$[75,000,000]\* (the “Series 2019B Bonds” and the Series 2019A Bonds, each a “Series” and, together, the “Series 2019A/B Bonds”).

Capitalized terms used in this Official Statement and not otherwise defined herein shall have the meanings ascribed thereto in APPENDIX C – “Glossary and Summary of the Indenture.”

### Authorization

The Series 2019A/B Bonds are being issued pursuant to the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), as amended and supplemented to the date of delivery of the Series 2019A/B Bonds (the “Indenture”), including by the Twenty-Fourth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Series 2019A/B Bonds (the “Twenty-Fourth Supplemental Indenture”), each by and between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”), and a resolution of the Authority’s Board of Directors passed at its [September 5, 2019] meeting authorizing the issuance of the Series 2019A/B Bonds.

The Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C (the “Series 2019C Subordinate Bonds”) are being issued at the same time as the Series 2019A/B Bonds pursuant to the Indenture as supplemented by the Twenty-Fifth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Series 2019C Subordinate Bonds (the “Twenty Fifth Supplemental Indenture”) in an amount not to exceed \$[100,000,000].

### District of Columbia Water and Sewer Authority

The Authority is an independent authority of the District of Columbia (the “District”), which was created in April 1996 and began operating on October 1, 1996, under and pursuant to an act of the Council of the District (the “Council”), which is entitled the “Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996” (D.C. Law 11-111) (D.C. Code §§ 34-2201.01 *et seq.*), as amended and supplemented (the “Act”), and an act of the U.S. Congress entitled the “District of Columbia Water and Sewer Authority Act of 1996” (Public Law 104-184) (the “Federal Act”). The Council was authorized to adopt the Act pursuant to the authority set forth in the District of Columbia Self-Government and Governmental Reorganization Act (P.L. 93-198; 87 Stat 774; D.C. Official Code, 2006 Repl., §§ 1-201 *et. seq.*), as amended (the “Home Rule Act”). See “THE AUTHORITY.”

The Authority provides retail water and wastewater services to approximately 700,000 residents in the District and wholesale wastewater conveyance and treatment to approximately 1.6 million people in major suburban areas of Prince George’s and Montgomery Counties in Maryland and Fairfax and Loudoun Counties in Virginia (collectively, the “User Jurisdictions”). Pursuant to the Act, the District authorized the Authority to use all of the property and assets of the water distribution system (the “Water System”) and the wastewater collection, treatment and disposal system (the “Wastewater System” and, together with the Water System, the “System”) formerly operated

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\* Preliminary; subject to change.

by the District, for as long as any revenue bonds of the Authority, including the Series 2019A/B Bonds, remain outstanding. In accordance with the Act, the District retains full legal title to and a complete equitable interest in the System. See “THE SYSTEM.”

The Authority’s service area consists of the District and certain areas of the User Jurisdictions and, therefore, certain demographic, economic and statistical information relating to the District and the User Jurisdictions may be relevant to prospective purchasers of the Series 2019A/B Bonds. The Authority makes no representation as to the accuracy or completeness of information derived from other sources.

#### **Use of the Series 2019A/B Bond Proceeds**

The proceeds of the Series 2019A Bonds will be used to pay (i) a portion of the costs of the DC Clean Rivers Project (as defined herein) (the “Series 2019A Project”) and (ii) the costs of issuing the Series 2019A Bonds. For a description of the DC Clean Rivers Project, see “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Combined Sewer Overflow Projects.” The Authority has designated the Series 2019A Project as a “Green Project” and the Series 2019A Bonds as “Green Bonds” based on, among other things, an independent assessment by Vigeo (“Vigeo”) of the DC Clean Rivers Project and the Authority’s environmental, social, and governance characteristics. The terms “Green Project” and “Green Bond” are neither defined in, nor related to the Indenture, and their use herein is for identification purposes only and is not intended to provide or imply to provide that a holder of the Series 2019A Bonds is entitled to any additional security other than as provided in the Indenture. For a description of Vigeo’s assessment process, see APPENDIX G – “Opinion of Independent Sustainability Consultant.”

The proceeds of the Series 2019A Bonds to be used to pay the costs of the Series 2019A Project will be deposited in a segregated account of the Construction Fund established and maintained under the Indenture (the “2019A Construction Account”). Such proceeds will be invested in Permitted Investments pursuant to the Indenture. See “PLAN OF FINANCE.” The Authority has committed to report annually on the allocation of such proceeds to the Green Project and on certain environmental and social outcomes of the Green Project and on certain governance matters of the Authority until such proceeds are fully allocated.

The proceeds of the Series 2019B Bonds will be used to (i) pay the costs of certain capital improvements to the System (the “Series 2019B Project”) and (ii) pay the costs of issuing the Series 2019B Bonds.

The proceeds of the Series 2019B Bonds to be used to pay the costs of the Series 2019B Project will be deposited in a segregated account of the Construction Fund established and maintained under the Indenture (the “2019B Construction Account”). Such proceeds will be invested in Permitted Investments pursuant to the Indenture. See “PLAN OF FINANCE” and “CAPITAL IMPROVEMENT PROGRAM.”

#### **Security and Source of Payment**

Under the Indenture, the Authority may issue “Senior Debt” and “Subordinate Debt” from time to time. The Series 2019A/B Bonds will constitute Subordinate Debt under the Indenture. The Series 2019A/B Bonds will be secured by a lien on and a pledge of Net Revenues that is subordinate to the pledge of Net Revenues that secures the Outstanding Senior Debt and any other Senior Debt the Authority may issue from time to time in the future, and on a parity with the pledge of Net Revenues that secures the Outstanding Subordinate Debt and any other Subordinate Debt the Authority may issue from time to time in the future, without preference, priority or distinction of any Subordinate Debt over any other Subordinate Debt.

Prior to the issuance of the Series 2019A/B Bonds, \$1,050,305 aggregate principal amount of Senior Debt and \$2,223,295 aggregate principal amount of Subordinate Debt will be outstanding. See “OUTSTANDING INDEBTEDNESS.”

The Series 2019A/B Bonds will be payable solely from Net Revenues after the funding of certain Funds and Accounts established under the Indenture. The principal sources of Net Revenues are the payments received by the Authority pursuant to its rates and charges imposed for the use of and the services furnished by the System, as described in the Indenture. See “SECURITY FOR THE SERIES 2019A/B BONDS – Lien and Pledge of the Master Indenture” and “RATES AND CHARGES.” The Series 2019A/B Bonds will not be secured by a Debt Service Reserve Fund.

**The Series 2019A/B Bonds shall be special and limited obligations of the Authority. The Series 2019A/B Bonds shall be without recourse to the District. The Series 2019A/B Bonds shall not be general obligations of the District or of the Authority. The Series 2019A/B Bonds shall not be a pledge of or involve the faith and credit or the taxing power of the District, shall not constitute a debt of the District, the United States of America or any User Jurisdiction or any agency or instrumentality of any User Jurisdiction, and neither the District, the United States, any User Jurisdiction, nor any agency or instrumentality of any User Jurisdiction shall be liable thereon. The Series 2019A/B Bonds also shall not constitute the lending of the public credit for private undertakings as prohibited by the Home Rule Act of the District. The Authority has no taxing power.**

### **Concurrent Issuance of Bonds by the Authority**

Concurrently with the issuance of the Series 2019A/B Bonds, the Authority expects to issue the Series 2019C Subordinate Bonds, in an amount not to exceed \$100 million pursuant to the Indenture, as supplemented by the Twenty-Fifth Supplemental Indenture. The Series 2019C Subordinate Bonds are expected to finance certain Costs of the System and pay certain costs of issuance. The Authority expects that the Series 2019C Subordinate Bonds will initially bear interest at a Long-Term Rate as defined in the Twenty-Fifth Supplemental Indenture. The Series 2019C Subordinate Bonds will be secured by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future. The issuance of the Series 2019C Subordinate Bonds is not dependent upon the Authority's issuance of the Series 2019A/B Bonds, and such Series 2019A/B Bonds will be sold separately and independently from the Series 2019C Subordinate Bonds.

### **Rate Covenant and Financial Forecast**

The Master Indenture includes a rate covenant as described below. Rates, fees and charges are established by the Authority and are not subject to regulatory approval, nor are they subject to other regulations under current law. In general, and as more fully described herein, the Rate Covenant provides that the Authority covenants to fix, charge, revise and collect rates, fees and other charges for the use of and the services furnished by the System sufficient in each Fiscal Year so that:

(i) Revenues collected by the Authority in such Fiscal Year will be sufficient to pay at least the actual Operating Expenses and required deposits and payments; and

(ii) Net Revenues shall be sufficient in each Fiscal Year to be at least equal to the sum of (a) an amount equal to one hundred and twenty percent (120%) of the Annual Debt Service on Senior Debt; and (b) one hundred percent (100%) of the Annual Debt Service on Subordinate Debt.

See "SECURITY FOR THE SERIES 2019A/B BONDS – Rate Covenant." Additional financial information, including certain projections of revenues, disbursements and debt service coverage, is included in "FINANCIAL OPERATIONS – Projected Financial Operations" herein.

### **Capital Improvement Program**

The Authority utilizes an annually adopted ten-year Capital Improvement Program (the "Capital Improvement Program" or the "CIP") to plan and manage the capital investments necessary to fulfill its service missions, comply with regulatory requirements and preserve and upgrade its water and wastewater systems. The Authority updates the CIP annually in conjunction with its budget process, based on detailed project review by engineering staff, external engineering consultants retained by the Authority, operations staff and senior management. The Authority intends to finance the costs of the CIP from a number of sources, including proceeds of the Series 2019A/B Bonds, future bonds and other forms of indebtedness, grants, certain operating revenues and wholesale customer contributions. As more fully described herein, the Authority estimates the cost of the current ten-year CIP at \$4.96 billion on a cash disbursement basis. The Board approved the CIP on April 4, 2019. See "CAPITAL IMPROVEMENT PROGRAM."

### **Miscellaneous**

This Official Statement contains brief descriptions of the Series 2019A/B Bonds, the Authority, the System, the Capital Improvement Program, the Indenture and certain provisions of the Act. Such descriptions and the summaries of and references to all documents, statutes, reports and other instruments referred to herein do not purport to be comprehensive or definitive, and each such document, statute, report or instrument is qualified in its entirety by reference to each such document, statute, report or instrument, copies of which are available from the Authority. All references to the Series 2019A/B Bonds are qualified in their entirety by reference to the definitive forms thereof and the information with respect thereto contained in the Indenture. Insofar as any statements are made in this Official Statement involving matters of opinion, regardless of whether expressly so stated, they are intended merely as such and not as representations of fact.

The information in this Official Statement is subject to change without notice, and neither the delivery of this Official Statement, nor any sale made hereunder shall under any circumstances create an implication that there has been no change in the affairs of the Authority since the date hereof. This Official Statement is not to be construed as a contract or agreement between the Authority or the Underwriters and the purchasers or owners of any of the Series 2019A/B Bonds.

Inquiries regarding information about the Authority and the financial matters contained in this Official Statement may be directed to the Chief Financial Officer and Executive Vice President, Finance and Procurement of the Authority at (202) 787-2000.

**THE SERIES 2019A/B BONDS**

**General**

The Series 2019A/B Bonds will be dated their date of delivery and will bear interest at the rates set forth on the inside cover page of this Official Statement. Interest on the Series 2019A/B Bonds will be calculated on the basis of a 360-day year of twelve 30-day months, payable semi-annually on each April 1 and October 1, commencing April 1, 2020 (each, an “Interest Payment Date”), and will mature on the dates and in the principal amounts as set forth on the inside cover page of this Official Statement.

**Book-Entry Only System**

The Series 2019A/B Bonds will be issued in fully registered form and, when issued, will be held by DTC or its nominee, as securities depository with respect to the Series 2019A/B Bonds. Individual purchases of interests in the Series 2019A/B Bonds will be made in book-entry form only, in the principal amount of \$5,000 or any integral multiple thereof. Individual purchasers will not receive physical delivery of bond certificates. So long as Cede & Co. is the registered owner of the Series 2019A/B Bonds as nominee of DTC, references herein to the holders or registered owners of the Series 2019A/B Bonds will mean Cede & Co. and will not mean the beneficial owners (“Beneficial Owners”) of the Series 2019A/B Bonds. Beneficial interests in the Series 2019A/B Bonds may be held through DTC directly as a participant or indirectly through organizations that are participants. See APPENDIX E – “DTC Book-Entry Only System.”

As long as the Series 2019A/B Bonds are held by DTC or its nominee, interest will be paid to Cede & Co., as nominee of DTC, in same-day funds on each Interest Payment Date. If the book-entry only system is discontinued, bond certificates will be delivered as described in the Indenture, and Beneficial Owners (as defined herein) will become registered owners of the Series 2019A/B Bonds (the “Bondholders”). If the book-entry only system is discontinued, interest on the Series 2019A/B Bonds shall be payable on each Interest Payment Date by check or draft mailed to the registered owner at the address as it appears on the 15th day of the month preceding an Interest Payment Date on the registration books kept by the Trustee.

Neither the Authority, the Trustee nor the Underwriters will have any responsibility or obligation to the Participants, DTC or the persons for whom they act with respect to (i) the accuracy of any records maintained by DTC or by any Direct or Indirect Participant of DTC, (ii) the providing of notice or payments to the Direct Participants, Indirect Participants or beneficial owners, (iii) the selection by DTC or by any Direct or Indirect Participant of any beneficial owner to receive payment in the event of a partial redemption of the Series 2019A/B Bonds or (iv) any other action taken by DTC or its partnership nominee as owner of the Series 2019A/B Bonds. For more information on DTC and the book-entry only system, see APPENDIX E – “DTC Book-Entry Only System.”

**Redemption Provisions**

*Optional Redemption*

The Series 2019A/B Bonds maturing on or after October 1, 20[\_\_\_], are subject to optional redemption prior to maturity on or after October 1, 20[\_\_\_], from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

*Mandatory Redemption*

The Series 2019A Bonds maturing on October 1, 20[\_\_\_] (the “Series 2019A 20[\_\_\_] Term Bonds”) are subject to mandatory sinking fund redemption in part (in accordance with the procedures described below in “– Selection of the Series 2019A/B Bonds to be Redeemed”), prior to maturity on October 1, in the years set forth below, at a redemption price equal to the principal amount of the Series 2019A Bonds called for redemption plus interest accrued to the redemption date.

<b>Series 2019A 20[___] Term Bonds</b>	
Year	Amount
[ ]	\$[ ]
[ ]	[ ]
[ ]	[ ]
[ ]†	[ ]
† Final Maturity	

The Series 2019B Bonds maturing on October 1, 20[ ] (the “Series 2019B 20[ ] Term Bonds”), are subject to mandatory sinking fund redemption in part (in accordance with the procedures described below in “– Selection of the Series 2019A/B Bonds to be Redeemed”), prior to maturity on October 1, in the years set forth below, at a redemption price equal to the principal amount of the Series 2019B Bonds called for redemption plus interest accrued to the redemption date.

**Series 2019B 20[ ] Term Bonds**

Year	Amount
[ ]	\$[ ]
[ ]	[ ]
[ ]	[ ]
[ ]	[ ]
[ ]†	[ ]

† Final Maturity

The principal amount of the Series 2019A/B Bonds required to be redeemed on any redemption date pursuant to the operation of mandatory sinking fund redemption provisions will be reduced, at the option of the Authority, by the principal amount of any Series 2019A/B Bond scheduled for redemption on such redemption date or dates, that, at least 45 days prior to the mandatory sinking fund redemption date, (i) has been acquired by the Authority and delivered to the Trustee for cancellation, (ii) has been acquired and canceled by the Trustee, at the direction of the Authority, at a price not exceeding the principal amount of such Series 2019A/B Bond plus accrued interest to the date of acquisition thereof, or (iii) has been redeemed pursuant to the optional redemption provisions and not previously credited to a scheduled mandatory redemption. Upon such purchase of such Series 2019A/B Bonds, the Trustee shall then credit an amount equal to the principal of such Series 2019A/B Bonds so purchased towards the sinking fund installments for the Series 2019A/B Bonds of such maturity in such order as may be determined by the Authority in a certificate of an Authorized Official, which will direct the reduction of a ratable portion of each annual mandatory sinking fund installment requirement in accordance with the procedures set forth under “– Selection of the Series 2019A/B Bonds to be Redeemed” below.

*Selection of the Series 2019A/B Bonds to be Redeemed*

The particular maturities of the Series 2019A/B Bonds to be redeemed at the option of the Authority will be determined by the Authority in its sole discretion.

If less than all of a Series 2019A/B Bond of a maturity is called for prior redemption and if the Series 2019A/B Bonds are registered in book-entry only form and DTC or a successor securities depository is the sole registered owner of such Series 2019A/B Bonds, the particular Series 2019A/B Bonds or portions thereof to be redeemed shall be selected by DTC in accordance with DTC procedures, or, if the book-entry only system is discontinued, by the Trustee by lot in such manner as the Trustee in its discretion may determine. In either case, (i) the portion of any Series 2019A/B Bond to be redeemed shall be in the principal amount of \$5,000 or integral multiples thereof and (ii) in selecting Series 2019A/B Bonds for redemption, each Series 2019A/B Bond shall be considered as representing that number of the Series 2019A/B Bonds that is obtained by dividing the principal amount of such Series 2019A/B Bond by \$5,000.

*Notice of Redemption*

The Authority shall not be responsible for mailing a notice of redemption to anyone other than DTC or another qualified securities depository or its nominee unless no qualified securities depository is the registered owner of the Series 2019A/B Bonds. If no qualified securities depository is the registered owner of the Series 2019A/B Bonds, a notice of redemption shall be mailed to the registered owners of the Series 2019A/B Bonds. See “THE SERIES 2019A/B BONDS – Book-Entry Only System.”

The Trustee shall send notice of the call for redemption, identifying the Series 2019A/B Bonds or portions thereof to be redeemed, not fewer than 20 days prior to the redemption date or such shorter period as may be acceptable to DTC while the Series 2019A/B Bonds are in book-entry form and registered to DTC (i) by registered or certified mail or overnight express delivery, to the holder of each Series 2019A/B Bond to be redeemed at the address as it appears on the registration books kept by the Trustee, (ii) by registered or certified mail or overnight express delivery, to all organizations registered as securities depositories with the SEC and (iii) to each nationally recognized municipal securities information repository designated as such by the SEC. Failure to give any notice specified in (i) above, or any defect therein, shall not affect the validity of any proceedings for the redemption of any Series 2019A/B Bond with respect to which no such failure or defect has occurred. Failure to give any notice specified in (ii) or (iii) above, or any defect therein, shall not affect the validity of any proceedings for the redemption of any Series 2019A/B Bond with respect to which the notice specified in (i) above is correctly given. If the notices of redemption are sent

before there is sufficient money on deposit in the applicable fund or account to pay the full redemption price of the Series 2019A/B Bonds, the notice of redemption of the Series 2019A/B Bonds shall specify that the redemption is conditional upon there being on deposit in the applicable fund or account on the redemption date sufficient money to pay the full redemption price of the Series 2019A/B Bonds to be redeemed.

Any notice of redemption shall be mailed by first-class mail, postage prepaid. Notice of redemption also shall be given by Electronic Means to a Depository. A certificate of the Trustee shall conclusively establish the mailing of any such notice for all purposes.

**PLAN OF FINANCE**

**Series 2019A Bonds.** Net proceeds of the Series 2019A Bonds will be used to pay the costs of the Series 2019A Project. For a description of the DC Clean Rivers Project (of which the Series 2019A Project is a portion) in this Official Statement, see “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Combined Sewer Overflow Projects.” Such proceeds will be deposited in the 2019A Construction Account. The proceeds therein will be invested in Permitted Investments pursuant to the Indenture. The remainder of the proceeds of the Series 2019A Bonds will be used to pay costs of issuing the Series 2019A Bonds.

Based on the results of an independent assessment by Vigeo of the Series 2019A Project’s environmental, social, and governance characteristics, the Authority has designated the Series 2019A Project as a “Green Project” and the Series 2019A Bonds as “Green Bonds.”\* The Authority will report annually on the allocation of proceeds to the Series 2019A Project and on certain environmental and social outcomes of the Series 2019A Project. See “INDEPENDENT SUSTAINABILITY CONSULTANT OPINION LETTER” and APPENDIX G – “Opinion of Independent Sustainability Consultant.”

**Series 2019B Bonds.** A portion of the net proceeds of the Series 2019B Bonds will be used to pay the costs of the Series 2019B Project. See “CAPITAL IMPROVEMENT PROGRAM.” Such proceeds will be deposited in the 2019B Construction Account. The proceeds therein will be invested in Permitted Investments pursuant to the Indenture. The remainder of the proceeds of the Series 2019B Bonds will be used to pay costs of issuing the Series 2019B Bonds.

**SOURCES AND USES OF FUNDS**

The proceeds of the Series 2019A/B Bonds are expected to be applied as follows:

	<u>Series 2019A Bonds</u>	<u>Series 2019B Bonds</u>	<u>Total</u>
<b>Sources of Funds</b>			
Par Amount			
Original Issue Premium			
Total Sources			
<b>Uses of Funds</b>			
Deposit to Series 2019A Construction Account			
Deposit to Series 2019B Construction Account			
Underwriters’ Discount			
Other Costs of Issuance			
Total Uses			

[Balance of page intentionally left blank]

\* The terms “Green Bond” and “Green Project” are not defined in and do not relate to the Indenture, and are used herein for identification purposes only.

## SECURITY FOR THE SERIES 2019A/B BONDS

### Lien and Pledge of the Master Indenture

*General.* The Series 2019A/B Bonds are authorized and when issued will be issued in accordance with the statutes of the District and the United States, and will constitute valid and legally binding special and limited obligations of the Authority.

The Series 2019A/B Bonds will constitute Subordinate Debt under the Indenture, payable solely from the Net Revenues of the System. Net Revenues are Revenues less Operating Expenses (as defined in the Indenture). Revenues are defined as all moneys received as income, rates, fees, charges, receipts, profits and other moneys derived by the Authority from its ownership and operation of the System, and for the use of and for the services furnished by the System, including Connection Fees (as defined in the Indenture), transfers from the Rate Stabilization Fund to the Revenue Fund, proceeds of any business interruption insurance, and investment earnings on all of the funds held by the Trustee under the Indenture and the Authority, except any rebate fund that may be created under the Indenture. Revenues do not include refundable customer deposits, the IMA Capital Payments (as defined in the Indenture) or other payments solely in aid of construction, the EPA Grants or similar payments, or the proceeds resulting from the sale of all or a portion of the System.

The Series 2019A/B Bonds are payable and secured on a subordinate basis to the Outstanding Senior Debt and all other Senior Debt hereafter issued or incurred by the Authority pursuant to the Indenture, and on a parity basis with the Outstanding Subordinate Debt and all other Subordinate Debt hereafter issued or incurred by the Authority pursuant to the Indenture. The Authority expects to issue additional Senior Debt and Subordinate Debt in the future. For a listing of the Authority's Outstanding Senior Debt and Subordinate Debt, see "OUTSTANDING INDEBTEDNESS."

The Master Indenture defines "Senior Debt" as Bonds and Other System Indebtedness, and "Bonds" as bonds, notes or other obligations issued pursuant to the Master Indenture, but not including Other System Indebtedness and Subordinate Debt. "Other System Indebtedness" means any indebtedness issued or incurred in connection with the System that the Authority is required, or has elected, to treat as payable on a parity basis with the Bonds with respect to the pledge of Net Revenues. "Subordinate Debt" means bonds, notes or other obligations issued in connection with the System that are expected to be paid from and have pledged to their payment Net Revenues on a subordinate lien basis after the pledge of Net Revenues to Senior Debt.

The Indenture pledges to the payment of the principal of and premium, if any, and interest on all Senior Debt and Subordinate Debt (at their respective levels of priority of security) that may from time to time be outstanding: (i) all right, title and interest of the Authority in and to the Net Revenues; (ii) all moneys or securities in any of the funds or Accounts established under the Indenture (other than the Operating Fund, and all Accounts in the Construction Fund other than the Construction Account, except to the extent a specific Account or subaccount therein relates, and is pledged, solely to specific series of Bonds or Subordinate Debt); and (iii) all rights and privileges of every kind and nature appurtenant to, all proceeds of, and all right, title and claim which the Authority now or may hereafter acquire in the aforesaid property, subject only to the provisions of the Indenture and the Act relating to the use and application thereof. Furthermore, the Indenture provides for specific Accounts in the Debt Service Reserve Fund to be pledged solely to the Senior Debt to which they relate and specific Accounts in the Subordinate Debt Service Reserve Fund to be pledged solely to the Subordinate Debt to which they relate. No Account in the Subordinate Debt Service Reserve Fund will be established for the Series 2019A/B Bonds.

*Statutory Lien.* The Act provides that a pledge of the Authority is binding from the time it is made. Any funds, or property pledged, are subject to the lien of a pledge without physical delivery. The lien of a pledge is binding as against parties having any tort, contract, or other claim against the Authority regardless of notice. Neither the resolution stipulating the terms for sale of Authority bonds nor any other instrument creating a pledge need be recorded.

*Segregated Funds.* The Act establishes the Water and Sewer Enterprise Fund and requires the Authority to operate it in accordance with generally accepted accounting principles. The Revenue Fund created by the Master Indenture constitutes the Water and Sewer Enterprise Fund. The Revenue Fund is required to be held by the Authority, subject to the lien of the Indenture.

According to the Act, subject to the provisions made by the Authority for security of revenue bonds, all revenues, proceeds, and moneys from whatever source derived (except those collected or received from the stormwater fee) which are collected or received by the Authority will be credited to the Revenue Fund and will not, at any time, be transferred to, lapse into, or be commingled with the General Fund of the District, or any other funds or accounts of the District, except for limited circumstances under which such funds shall be transferred to the District to pay for goods and services and property contracted for by the Authority from the District, or as otherwise authorized by law.



See “THE AUTHORITY – Authority’s Relationship to the District” and “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – Stormwater Fee.”

### **Direct Payments**

*General.* The Series 2010A Bonds are Build America Bonds, a form of “direct payment bonds” issued pursuant to the American Recovery and Reinvestment Act of 2009 (the “Recovery Act”), which allowed an issuer to apply to receive subsidy payments directly from the Secretary of the United States Treasury. An amount equal to thirty-five percent (35%) of the Authority’s semiannual interest payments on the Series 2010A Bonds is to be paid to the Authority by the federal government in the form of Direct Payments.

The Direct Payments on the Series 2010A Bonds do not constitute Revenues under the Indenture and so are not part of the pledged Net Revenues, but, upon receipt, all Direct Payments are required to be deposited by the Authority or the Trustee into the appropriate subaccount in the Subordinate Interest Account in the Subordinate Bond Fund and, upon deposit, become available to be applied solely to the purposes for which the Indenture permits funds in such subaccount, account and fund to be applied, including to pay debt service on the Series 2010A Bonds.

*Rate Covenant Amendment.* On October 26, 2010, the Twelfth Supplemental Indenture amended the Master Indenture to provide that, for purposes of determining the Authority’s compliance with the Rate Covenant, the amount of any Direct Payment received by the Authority or the Trustee in any Fiscal Year shall be credited against (i) Annual Debt Service on Senior Debt in such Fiscal Year if such Direct Payment is related to Senior Debt or (ii) Annual Debt Service on Subordinate Debt in such Fiscal Year if such Direct Payment is related to Subordinate Debt. This amendment became effective upon the execution of the Twelfth Supplemental Indenture.

*Additional Bonds Test Amendment.* The Twelfth Supplemental Indenture also amended the Master Indenture to provide that, subject to the requirements of the Master Indenture for obtaining bondholder consent, for the purposes of computing Annual Debt Service on any Direct Payment BABs or Other System Indebtedness as to which Direct Payments are expected to be made (whether previously issued or proposed to be issued by the Authority) in connection with any proposed issuance of additional Bonds or Other System Indebtedness, the amount of any Direct Payment expected to be received by the Authority or the Trustee in the then current or any future Fiscal Year shall be credited against the Annual Debt Service on such Direct Payment BABs. This amendment became effective on November 20, 2014, upon the issuance of the Authority’s Series 2014C Bonds, in connection with which the Authority obtained the required consent of a majority (specifically, 50.5%) of the Holders of the Outstanding Bonds.

*No Assurances.* No assurances are provided that the Authority will receive the Direct Payments. The Direct Payments do not constitute a full faith and credit guarantee of the United States of America. Such payments are required to be paid by the United States Treasury under the Recovery Act, but the amount of any Direct Payment is subject to change by the United States Congress. The Authority is obligated to make all payments of principal and interest on the Series 2010A Bonds whether or not it receives the Direct Payments pursuant to the Recovery Act.

*Sequestration.* Direct Payments are classified under federal budget rules as mandatory spending programs. Since 2013, mandatory spending programs, such as Direct Payments, have been subject to an automatic reduction (sequestration) pursuant to the provisions of the Budget Control Act of 2011 (the “Budget Control Act”). As a result of the sequestration, payments due to the Authority on the Series 2010A Bonds have been reduced in the following approximate amounts: (i) \$248,000 (4.3%) (Fiscal Year 2013), (ii) \$411,000 (7.2%) (Fiscal Year 2014), (iii) \$417,000 (7.3%) (Fiscal Year 2015), (iv) \$400,000 (7.0%) (Fiscal Year 2016), (v) \$394,000 (6.9%) (Fiscal Year 2017), (vi) \$377,000 (6.6%) (Fiscal Year 2018), and (vii) \$354,000 (6.2%) (Fiscal Year 2019).

According to the Report of the Office of Management and Budget (“OMB”) to the Congress for Fiscal Year 2020, and as **confirmed by the Internal Revenue Service**, interest subsidy payments to issuers of direct payment bonds processed on or after October 1, 2019, through and including September 30, 2020, will be reduced by 5.9%, unless intervening Congressional action changes the reduction percentage.

Under the Budget Control Act there may be additional sequester orders for future fiscal years through and including fiscal year 2029. Any such additional sequester order signed by the President may or may not establish a different reduction value. The Authority cannot predict what percentage, if any, cuts may be made to Direct Payments in the future. The projected financial operations of the Authority, as presented herein (see “FINANCIAL OPERATIONS – Projected Financial Operations”), assume that Direct Payments will be 32% of the interest payments on Series 2010A Bonds in each year starting in Fiscal Year 2021. The projected debt service shown in “DEBT SERVICE REQUIREMENTS – Outstanding Senior and Subordinate Debt” reflects the known subsidy reduction of 5.9% for Fiscal Year 2020, and assumes Direct Payments equal to 32% of the interest payments on Series 2010A Bonds in each year starting in Fiscal Year 2021. The Authority is obligated to make all payments of principal of and interest on the Series 2010A Bonds whether or not such Direct Payments are received.

### **Limited Remedies of Holders of Subordinate Debt**

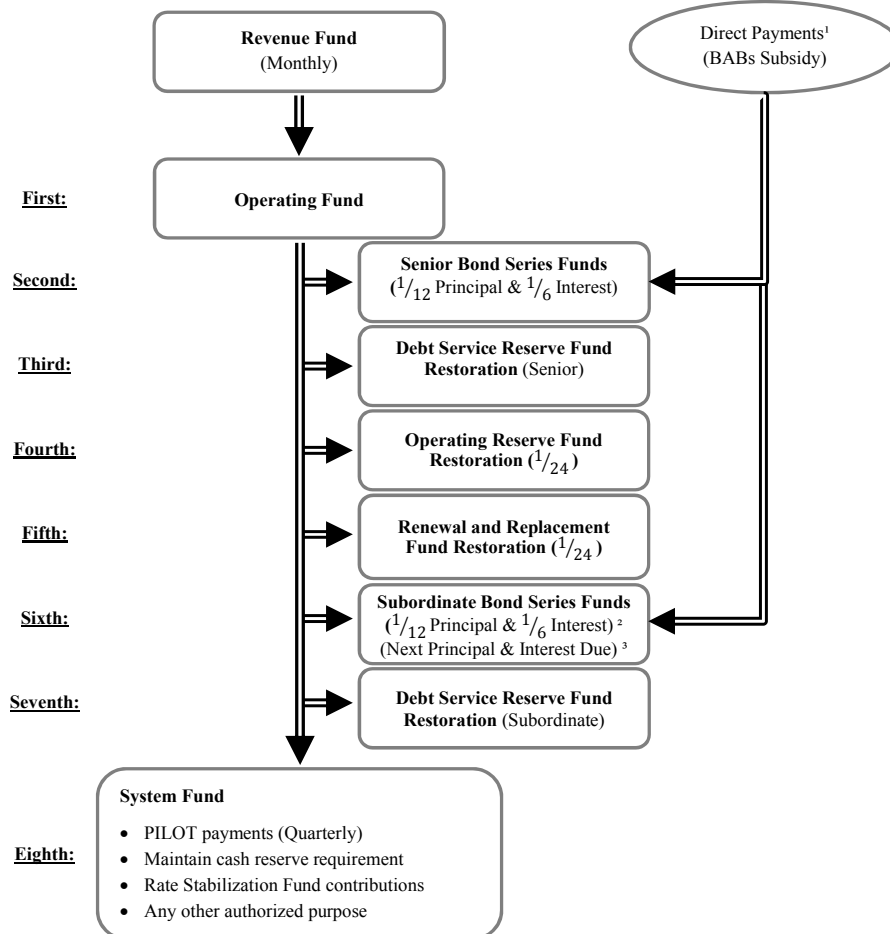
The Indenture prohibits the acceleration of Subordinate Debt if any Senior Debt (including Bonds) is outstanding. The Indenture confers upon the holders of not less than 25% of the aggregate principal amount of

Outstanding Bonds (which includes Senior Debt only, not Subordinate Debt) the right to direct the Trustee to protect and enforce their rights by mandamus or other suit, action or proceeding, and confers upon the holders of a majority of the aggregate principal amount of Outstanding Bonds the right to direct the method and place of conducting all proceedings to be taken in connection with the enforcement of the terms and conditions of the Indenture or any other proceedings under the Indenture, in accordance with the provisions of law and the Indenture. The Indenture does not confer those rights upon any specified percentage of the holders of Subordinate Debt.

**Flow of Funds**

The Authority deposits all revenues, as received, in the Revenue Fund. The chart below depicts a simplified flow of Revenues required by the Indenture after being deposited into the Revenue Fund. This chart is for illustrative purposes only, is in no way comprehensive or definitive, and must be read in conjunction with the entire Official Statement.

**Indenture Revenue Flow of Funds**



<sup>1</sup> The Twelfth Supplemental Indenture amended the above-described deposit requirements in the Master Indenture by providing that, upon receipt of any Direct Payment, the Authority or the Trustee shall cause it to be deposited (i) in the appropriate subaccounts in the Interest Account in the Bond Fund if such Direct Payment relates to Bonds or Other System Indebtedness, and (ii) in the appropriate subaccount in the Subordinate Interest Account in the Subordinate Bond Fund if such Direct Payment relates to Subordinate Debt, and shall cause it to be applied solely to the purposes to which the Indenture permits funds in such subaccount, account and fund to be applied.

<sup>2</sup>For fixed rate Subordinate Debt

<sup>3</sup>For variable rate Subordinate Debt

Pursuant to the Indenture, all Revenues received by the Authority shall be deposited in the Revenue Fund to be held by the Authority; provided, however, that upon an Event of Default, the Authority will transfer all amounts in all Authority-held funds to the Trustee, and the Trustee shall hold such moneys in trust for the benefit of the holders of Indebtedness.

Each month, the Authority shall transfer from the Revenue Fund to the Operating Fund an amount sufficient to pay Operating Expenses during such month. Thereafter, Net Revenues shall be disbursed on the last Business Day of each month in the following order (as noted above, the term “Series of Bonds” refers to Senior Debt):

- i. To the subaccounts in the Interest Account established for each Series of Bonds the amounts, if any, set forth in the applicable Supplemental Indentures with respect to each Series of Bonds, and an amount equal to 1/6 of the interest due on each Series of Bonds to pay interest required to be paid on any interest payment date related to such Series of Bonds.
- ii. On a parity with (i) above, to the subaccounts in the Principal Account established for each Series of Bonds and Sinking Fund Account in the Bond Fund the amounts, if any, set forth in the applicable Supplemental Indentures with respect to each Series of Bonds and an amount equal to 1/12 of the principal due on each Series of Bonds.
- iii. To the applicable Account in the Debt Service Reserve Fund with respect to each Series of Bonds the amounts, if any, necessary to restore the amount on deposit therein to the related Series Debt Service Reserve Requirement. For a description of the requirements for and the uses of the Debt Service Reserve Fund, see “Certain Reserve Funds – Debt Service Reserve Fund and Subordinate Debt Service Reserve Fund” below.
- iv. To the Operating Reserve Fund the amounts, if any, necessary to restore the amounts on deposit therein to the Operating Reserve Requirement, which requirement shall be funded within 24 months of any withdrawal and replenished from time to time by depositing 1/24 of the Operating Reserve Requirement on the last Business Day of each month after such withdrawal, if necessary. For a description of the requirements for and the uses of the Operating Reserve Fund, see “Certain Reserve Funds – Operating Reserve Fund” below.
- v. To the Renewal and Replacement Reserve Fund, to the extent that there has been a withdrawal from such fund, the amounts necessary to make the amounts on deposit therein equal to the Renewal and Replacement Reserve Requirement. Such withdrawn amounts shall be funded within 24 months by depositing in such fund 1/24 of the Renewal and Replacement Reserve Requirement on the last Business Day of each month after such withdrawal. For a description of the uses of the Renewal and Replacement Reserve Fund, see “Certain Reserve Funds – Renewal and Replacement Reserve Fund” below.
- vi. To the Subordinate Bond Fund, the amount equal to the deposits to such funds and Accounts required by the related Supplemental Indentures or other documents evidencing such debt. Generally, an amount equal to 1/6 of the interest and 1/12 of the principal next due on any fixed rate Subordinate Debt shall be deposited each month, and generally an amount equal to interest and principal next due on any variable rate Subordinate Debt shall be deposited prior to any date on which such interest and principal is due.
- vii. To the applicable Account, if any, in the Subordinate Debt Service Reserve Fund with respect to each Subordinate Debt issue the amounts, if any, necessary to restore the amount on deposit therein to the related Subordinate Debt Reserve Requirement or to reimburse the provider of any Qualified Reserve Credit Facility for amounts drawn thereunder and to pay related costs.
- viii. To the System Fund, any moneys remaining in the Revenue Fund, after all deposits and transfers required by (i) through (vii) above have been made. Moneys in the System Fund may be used for any authorized purpose. On the following dates, moneys on deposit in the System Fund shall be used to make the following payments:
  - (a) on each May 15, and quarterly thereafter, to the District to make the payment in lieu of taxes (the “PILOT”) required by the District Memorandum of Understanding relating to the PILOT dated January 29, 1998, as amended;

- (b) on each September 1, an amount retained by the Authority in the System Fund necessary to satisfy the Cash Reserve Requirement (\$125.5 million as of the date of this Official Statement); and
- (c) on each September 30, to the Rate Stabilization Fund, the amount that the Board determines based on an analysis of the Authority's financial performance conducted by the CEO and General Manager (the "CEO") and reported to the Board for approval not later than its regularly scheduled meeting in July of each Fiscal Year. For a description of the uses of the Rate Stabilization Fund, see "Certain Reserve Funds – Rate Stabilization Fund" below.

The Twelfth Supplemental Indenture amended the above-described deposit requirements in the Master Indenture by providing that, upon receipt of any Direct Payment, the Authority or the Trustee shall cause it to be deposited (i) in the appropriate subaccount in the Interest Account in the Bond Fund if such Direct Payment relates to Bonds or Other System Indebtedness, and (ii) in the appropriate subaccount in the Subordinate Interest Account in the Subordinate Bond Fund if such Direct Payment relates to Subordinate Debt, and shall cause it to be applied solely to the purposes to which the Indenture permits funds in such subaccount, account and fund to be applied. See "– Pledge of Master Indenture – Direct Payments – Sequestration" above.

For a more extensive discussion of the terms and provisions of the Indenture including the security for the Series 2019A/B Bonds, the funds and Accounts established by the Indenture and the purposes to which moneys in such funds and Accounts may be applied, see APPENDIX C – "Glossary and Summary of the Indenture."

#### **Certain Reserve Funds**

*Debt Service Reserve Fund and Subordinate Debt Service Reserve Fund.* The Indenture creates a Debt Service Reserve Fund and a Subordinate Debt Service Reserve Fund, each to be held by the Trustee. The Indenture permits, but does not require, the Authority to specify a debt service reserve requirement for each issuance of Senior Debt or Subordinate Debt and to make provision for the means by which any such reserve requirements will be met. The Authority will not specify a debt service reserve requirement for the Series 2019A/B Bonds.

*Operating Reserve Fund.* The Master Indenture creates an Operating Reserve Fund in which the Authority must maintain a balance equal to at least 60 days of operating and maintenance expenses of the prior year. Money in the Operating Reserve Fund shall be used to pay, to the extent necessary, Operating Expenses of the Authority. In addition, to the extent that the amount on deposit in the Bond Fund is insufficient to make the required interest and principal payments on Senior Debt, money in the Operating Reserve Fund shall be used prior to any withdrawal from the Debt Service Reserve Fund to satisfy any such deficiencies. The Board has adopted a policy of funding operating reserves to a level in excess of that required by the Master Indenture. See "– Discretionary Reserves" below. As of March 31, 2019 the balance in the Operating Reserve Fund was \$54.0 million, which represents 60 days of operating and maintenance expenses.

*Renewal and Replacement Reserve Fund.* The Master Indenture creates a Renewal and Replacement Reserve Fund to be held by the Authority to provide funding for unforeseen or emergency needs. Money in the Renewal and Replacement Reserve Fund may be used to pay for any capital expenditures related to the System. In addition, to the extent that the amounts on deposit in the Bond Fund and the Operating Reserve Fund are insufficient to make the required interest and principal payments on Senior Debt, money in the Renewal and Replacement Reserve Fund shall be used prior to any withdrawal from the Debt Service Reserve Fund to satisfy any such deficiencies. The Master Indenture allows this requirement to be met if an amount equal to 2% of the original cost value of plant in service, or some other amount as approved by the Board, is held by the Authority. The Board has adopted a policy requiring the Authority to maintain a balance of at least \$35.0 million in the Renewal and Replacement Reserve Fund. As of March 31, 2019, the balance in the Renewal and Replacement Reserve Fund was \$35.0 million.

*Rate Stabilization Fund.* The Master Indenture creates a Rate Stabilization Fund to be held by the Authority, the moneys in which may be transferred by the Authority to the Revenue Fund at any time. The Board has adopted a policy allowing moneys to be transferred to the Rate Stabilization Fund from the System Fund annually based on an analysis of the Authority's financial performance conducted by the CEO or designee and reported to the Board for approval during the fourth quarter of each Fiscal Year, and at other times at the direction of the Board. As of March 31, 2019, the balance in the Rate Stabilization Fund was \$61.5 million. The Authority may withdraw funds from the Rate Stabilization Fund in the future to reduce rate increases that might otherwise be required. See "FINANCIAL OPERATIONS – Reserve Funds – Rate Stabilization Fund" and "FINANCIAL OPERATIONS – Projected Financial Operations."

*Discretionary Reserves.* The Board has adopted a policy of funding operating reserves at a level in excess of the 60-day operating and maintenance reserve required by the Master Indenture. To comply with the Board's policy, the Authority is required to have cash reserves equal to 120 days of budgeted operating and maintenance costs calculated on an average daily balance basis, with the objective of maintaining at least \$125.5 million in operating

reserves. For purposes of calculating this requirement, the balances in the Operating Reserve Fund and the Renewal and Replacement Reserve Fund are included. For Fiscal Year 2019, the operating reserves requirement is \$125.5 million. As of March 31, 2019, the Authority had an operating reserve cash balance of \$166.3 million which exceeded the Board's policy requirement.

Pursuant to Board policy, the Authority's reserves are independently evaluated every five years. In February 2018, Amawalk independently evaluated the adequacy of the Authority's reserves and concluded that current Board policy provides for an appropriate level of reserves. Amawalk recommended that the Board may wish to amend its current policy to require the higher of \$140.0 million or 140 days of operating reserves to be consistent with the projected reserve balances in the Authority's Financial Plan. In January 2019, Authority staff recommended to further enhance the Authority's cash position and maintain a target of 250 days of cash on hand. As of March 31, 2019, there were no material differences in the balances shown above for the preceding reserve funds and the Rate Stabilization Fund.

### **Rate Covenant**

*Master Indenture Covenant.* The Master Indenture includes a rate covenant (the "Rate Covenant") as described below. Rates, fees and charges are established by the Authority and are not subject to regulatory approval, nor are they subject to other regulations under current law. (For a description of the pledge of the District not to limit or alter rights vested in the Authority to fulfill agreements made with holders of its bonds, see "COVENANT BY THE DISTRICT OF COLUMBIA.") The Authority has never failed to satisfy the Rate Covenant, which provides that the Authority shall fix, charge, revise and collect rates, fees and other charges for the use of and the services furnished by the System sufficient in each Fiscal Year so that:

- i. Revenues collected by the Authority in such Fiscal Year will be sufficient to pay at least: (a) the actual Operating Expenses; (b) Annual Debt Service on Senior Debt; (c) any amount necessary to be deposited in any Account in the Debt Service Reserve Fund relating to a Series of Bonds to restore the amount on deposit therein to the Series Debt Service Reserve Requirement; (d) the amount required to pay Annual Debt Service on the Subordinate Debt (including any reserves in connection therewith and the restoration thereof); (e) any amount necessary to be deposited in the Operating Reserve Fund and the Renewal and Replacement Reserve Fund to maintain the required balances therein; and (f) any amount necessary to make any PILOT payments in such Fiscal Year; and
- ii. Net Revenues shall be sufficient in each Fiscal Year to be at least equal to the sum of (a) an amount equal to one hundred and twenty percent (120%) of the Annual Debt Service on Senior Debt; and (b) one hundred percent (100%) of the Annual Debt Service on Subordinate Debt.

If at the end of any Fiscal Year the Authority is not in compliance with the Rate Covenant, or if the Authority fails for three consecutive months to make the deposits required under the Indenture to the Interest Account and the Principal Account (or the Sinking Fund Account, as applicable) or there is a deficiency in a Series Debt Service Reserve Account for longer than three consecutive months, the Authority shall immediately request a Qualified Independent Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the System and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant. The report and recommendations shall be filed with the Trustee and the Authority within 120 days from the date of discovery of noncompliance with the Rate Covenant. The Authority shall promptly revise its rates, fees and charges, and alter its operations and services to conform with the report and recommendations of the Qualified Independent Consultant to the extent permitted by law.

*Deposit and Crediting of Direct Payments.* The Twelfth Supplemental Indenture amended the Master Indenture to provide that, for purposes of determining the Authority's compliance with the Rate Covenant, the amount of any Direct Payment received by the Authority or the Trustee in any Fiscal Year shall be credited against (i) Annual Debt Service on Senior Debt in such Fiscal Year if such Direct Payment related to Senior Debt or (ii) Annual Debt Service on Subordinate Debt in such Fiscal Year if such Direct Payment related to Subordinate Debt. This amendment became effective upon the execution of the Twelfth Supplemental Indenture. See "SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payment Bonds – Sequestration."

*Additional Board Policy.* In addition to the Rate Covenant described above, in 1997, the Board adopted a financial policy of fixing, charging, revising and collecting rates, fees and other charges for the use of and the services furnished by the System sufficient in each Fiscal Year so that Net Revenues shall be at least equal to one hundred and forty percent (140%) of the Annual Debt Service on Senior Debt in each such Fiscal Year. See "FINANCIAL OPERATIONS – Financial Policies." To date, the Authority consistently has met or exceeded this policy goal. There can be no assurance, however, that the Board will not change this financial policy or that the Authority will continue to meet this policy goal.

### **Additional Senior Debt**

The Indenture provides that the Authority may issue additional Senior Debt and Other System Indebtedness, including Bonds, to pay Costs of the System only upon satisfaction of certain requirements, including, among other things, receipt by the Trustee of the following:

- i. evidence that upon issuance of such Bonds, each Series Debt Service Reserve Account within the Debt Service Reserve Fund will contain the applicable Series Debt Service Reserve Requirement; and
- ii. either: (a) a certificate of the Authorized Representative of the Authority stating that, based on the Authority's financial records, the Authority would have been able to meet the Rate Covenant taking into account (1) the maximum Annual Debt Service on the proposed additional Series of Bonds, and (2) the rates, fees and other charges which are in effect at the time of the delivery of the proposed additional Series of Bonds; or (b) a written statement of a Qualified Independent Consultant, which projects Operating Expenses, Revenues and Net Revenues for five full Fiscal Years following the date of issuance of such proposed additional Series of Bonds, which projection does not include the actual debt service for any Indebtedness to be refunded, and which demonstrates that, on the basis of such projection, the Authority can comply with the Rate Covenant.

If any Bonds are issued to refund any Indebtedness, the Trustee must receive the following:

- i. evidence that the Authority has made provision as required by the Indenture for the payment or redemption of all Indebtedness to be refunded; and
- ii. either: (a) a written determination by the Authorized Representative of the Authority that the Annual Debt Service requirements for each Fiscal Year in which there will be Outstanding Indebtedness not to be refunded will not increase more than 5% over what the Annual Debt Service requirements for such Fiscal Year would have been on all Senior Debt immediately prior to the issuance of such Bonds, and that the final maturity of Indebtedness being refunded has not been extended; or (b) a certificate of the Authority stating that, based on the Authority's financial records, the Authority would have been able to meet the Rate Covenant, taking into account (1) the maximum Annual Debt Service on the proposed additional Series of Bonds, and (2) the rates, fees and other charges which are in effect at the time of the delivery of the proposed additional Series of Bonds; or (c) a written statement of a Qualified Independent Consultant, that projects Operating Expenses, Revenues and Net Revenues for five full Fiscal Years following the date of issuance of such proposed additional Series of Bonds, which projection does not include the actual debt service for any Indebtedness to be refunded, and that demonstrates that, on the basis of such projection, the Authority can comply with the Rate Covenant.

The Authority may incur or refinance Other System Indebtedness provided that: (i) the documents relating to the Other System Indebtedness acknowledge that such debt constitutes Other System Indebtedness under the Master Indenture and is subject to the applicable terms and conditions thereof, and specify the amounts and due dates of Annual Debt Service with respect to the Other System Indebtedness; (ii) the conditions of the Master Indenture regarding the issuance of Bonds have been met as if the Other System Indebtedness was an additional Series of Bonds; (iii) the Trustee receives written notice of the issuance of the Other System Indebtedness and the material terms and conditions thereof, and the Trustee shall register the holder as owner thereof as such on its books and records; and (iv) the Trustee receives an Opinion of Counsel that the documents creating the Other System Indebtedness have been duly authorized, executed and delivered on behalf of the Authority and constitute valid, binding and enforceable obligations. In connection with the incurrence of any Other System Indebtedness, the Trustee shall enter into an intercreditor arrangement with the holder of such Other System Indebtedness, the terms of which shall be determined at the time of incurrence of such Other System Indebtedness.

The Master Indenture was amended with bondholder consent to include provisions regarding the crediting of Direct Payments for the purposes of computing Annual Debt Service on any Direct Payment BABs or Other System Indebtedness as to which Direct Payments are expected to be made in connection with any proposed issuance of additional Bonds or Other System Indebtedness. See "SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payments – Sequestration."

### **Additional Subordinate Debt**

Under the Indenture, the Authority may at any time issue Subordinate Debt and pledge Net Revenues thereto so long as rates, fees and charges are in effect or scheduled to go into effect to meet the Rate Covenant immediately after the issuance of such Subordinate Debt. The Authority has modified the Master Indenture to include provisions regarding the crediting of Direct Payments for the purposes of computing Annual Debt Service on any

Direct Payment BABs or other Indebtedness as to which Direct Payments are expected to be made in connection with any proposed issuance of additional Bonds, Subordinate Debt or Other System Indebtedness. See “SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payments – Sequestration.”

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**DEBT SERVICE REQUIREMENTS**

**Outstanding Senior and Subordinate Debt**

The following tables set forth the annual principal and interest requirements for (i) Outstanding Senior Debt, (ii) Outstanding Subordinate Debt, (iii) the Series 2019A/B Bonds and (iv) the Series 2019C Subordinate Bonds, as well as annual and aggregate totals.

Fiscal Year Ending September 30 <sup>1</sup>	Outstanding Subordinate Debt	Series 2019A/B Bonds			Series 2019C Subordinate Bonds <sup>11</sup>	Total Outstanding Subordinate Debt <sup>1,2,3,4,5,6,7</sup>	Direct payments Relating to Series 2010A Bonds	Total Subordinate Debt <sup>10</sup>	Outstanding Senior Debt	Total Senior and Subordinate Debt
		Principal	Interest	Total						
2020	130,988,118				1,805,556	132,793,674	(5,373,250)	127,420,424	76,385,100	203,805,524
2021	136,707,080				2,000,000	138,707,080	(5,161,933)	133,545,147	76,386,225	209,931,372
2022	137,362,379				2,000,000	139,362,379	(5,099,176)	134,263,203	76,385,850	210,649,053
2023	137,289,675				2,000,000	139,289,675	(5,033,083)	134,256,593	76,395,200	210,651,793
2024	152,473,365				2,000,000	154,473,365	(4,963,430)	149,509,935	61,134,725	210,644,660
2025	152,378,341				3,250,000	155,628,341	(4,878,673)	150,749,667	61,134,950	211,884,617
2026	152,282,487				3,250,000	155,532,487	(4,791,835)	150,740,652	61,133,200	211,873,852
2027	152,183,426				3,250,000	155,433,426	(4,702,827)	150,730,599	61,137,400	211,867,999
2028	152,095,687				3,250,000	155,345,687	(4,611,477)	150,734,210	61,134,950	211,869,160
2029	159,633,009				3,250,000	162,883,009	(4,426,435)	158,456,574	53,018,750	211,475,324
2030	159,423,544				3,250,000	162,673,544	(4,232,061)	158,441,483	50,157,500	208,598,983
2031	159,076,435				3,250,000	162,326,435	(4,034,152)	158,292,282	49,849,750	208,142,032
2032	158,990,243				3,250,000	162,240,243	(3,830,589)	158,409,653	53,363,500	211,773,153
2033	158,759,204				3,250,000	162,009,204	(3,618,456)	158,390,748	53,022,250	211,412,998
2034	160,238,264				3,250,000	163,488,264	(3,399,962)	160,088,302	53,023,750	213,112,052
2035	159,995,850				3,250,000	163,245,850	(3,174,929)	160,070,921	53,020,000	213,090,921
2036	160,033,895				3,250,000	163,283,895	(2,944,242)	160,339,653	53,024,500	213,364,153
2037	147,913,487				3,250,000	151,163,487	(2,705,427)	148,458,060	55,525,000	203,983,060
2038	146,594,099				3,250,000	149,844,099	(2,459,985)	147,384,114	52,574,750	199,958,864
2039	146,030,490				3,250,000	149,280,490	(2,207,298)	147,073,192	51,263,000	198,336,192
2040	147,172,963				3,250,000	150,422,963	(1,948,692)	148,474,271	51,257,750	199,732,021
2041	138,698,608				3,250,000	141,948,608	(971,165)	140,977,442	55,319,750	196,297,192
2042	140,395,952				3,250,000	143,645,952	(741,097)	142,904,855	55,316,450	198,221,305
2043	146,507,434				3,250,000	149,757,434	(502,723)	149,254,711	55,312,700	204,567,411
2044	146,170,915				3,250,000	149,420,915	(255,779)	149,165,136	55,321,450	204,486,586
2045	74,090,504				3,250,000	77,340,504	-	77,340,504	64,570,000	141,910,504
2046	49,159,025				3,250,000	52,409,025	-	52,409,025	64,569,550	116,978,575
2047	42,708,762				3,250,000	45,958,762	-	45,958,762	64,569,300	110,528,062
2048	42,708,463				3,250,000	45,958,463	-	45,958,463	60,525,500	106,483,963
2049	14,507,998				3,250,000	17,757,998	-	17,757,998	60,524,000	78,281,998
2050	11,873,750				23,250,000	35,123,750	-	35,123,750	30,502,750	65,626,500
2051	-				22,600,000	22,600,000	-	22,600,000	30,498,000	53,098,000
2052	-				21,950,000	21,950,000	-	21,950,000	30,499,000	52,449,000
2053	-				21,300,000	21,300,000	-	21,300,000	16,849,000	38,149,000
2054	-				20,650,000	20,650,000	-	20,650,000	16,849,000	37,499,000
2055-2014 <sup>8</sup>	-				-	-	-	-	16,849,000	16,849,000
2105	-				-	-	-	-	44,918,000	44,918,000
2106	-				-	-	-	-	44,917,758	44,917,758
2107	-				-	-	-	-	44,918,480	44,918,480
2108	-				-	-	-	-	44,917,986	44,917,986
2109	-				-	-	-	-	44,918,053	44,918,053
2110	-				-	-	-	-	44,918,215	44,918,215
2111	-				-	-	-	-	44,917,860	44,917,860
2112	-				-	-	-	-	44,918,233	44,918,233
2113	-				-	-	-	-	44,918,340	44,918,340
2114	-				-	-	-	-	44,918,040	44,918,040
<b>Total<sup>9</sup></b>	<b>\$3,974,443,450</b>				<b>\$200,805,556</b>	<b>\$4,175,249,006</b>	<b>\$(86,068,676)</b>	<b>\$4,089,180,330</b>	<b>\$3,193,185,515</b>	<b>\$7,282,365,845</b>

\* Certain totals may not add due to rounding. Data shown as of date of posting.



DC Water Board of Directors - X. Consent Items (Joint Use)

<sup>1</sup> Amounts due October 1 are shown as debt service for the preceding Fiscal Year ending September 30 (since the amounts actually are required to be set aside in such Fiscal Year). For example, debt service payments due October 1, 2020, are shown in the Fiscal Year ending September 30, 2020.

<sup>2</sup> Outstanding Subordinate Debt is calculated excluding the impact of Direct Payments related to the Series 2010A Bonds. See “SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payments – Sequestration.”

<sup>3</sup> Interest on Series 2016B Bonds (Environmental Impact Bonds) is calculated through the mandatory tender date of April 1, 2021 at the fixed term rate of 3.43%, and at an assumed rate of 3.25% thereafter through final maturity.

<sup>4</sup> The Authority currently has \$29.2 million of Commercial Paper outstanding, all of which is assumed to remain outstanding upon issuance of the Series 2019A/B Bonds. Debt service is based on a hypothetical amortization of \$29.2 million of Commercial Paper over 20 years with an assumed interest rate of 3.25%.

<sup>5</sup> Includes the Authority's Debt Service requirements for Government Notes associated with Jennings Randolph.

<sup>6</sup> Series 2014B Bonds are weekly-reset variable rate bonds payable through a Liquidity Facility provided by TD Bank, N.A., which expires on July 23, 2020. For calculation of the projected debt service requirement, the all-inclusive rate was assumed to be 2.00% in 2020, 2.50% in 2021 and 3.25% thereafter. The debt is assumed to amortize in Fiscal Year 2041 – Fiscal Year 2050.

<sup>7</sup> The Authority currently has \$50.0 million of Extendable Maturity Commercial Paper outstanding. Debt service is based on a hypothetical amortization of 30 years with an assumed interest rate of 3.25%.

<sup>8</sup> Amounts shown for Fiscal Year 2055 – Fiscal Year 2104 are annual totals for each fiscal year and do not represent the cumulative total.

<sup>9</sup> Amounts represent cumulative totals for all fiscal years shown. Totals from consolidated rows are included.

<sup>10</sup> Total Subordinate Debt is calculated including the impact of Direct Payments related to the Series 2010A Bonds. With respect to the effect of sequestration on the receipt by the Authority of Direct Payments on its Series 2010A Bonds, a reduction of 5.9% was applied to 2020. Thereafter, the subsidy amount is assumed to be 32% of the interest payments. See “SECURITY FOR THE SERIES 2019A/B BONDS – Amendment of the Master Indenture” and for a discussion of the effect of sequestration on the Direct Payments to be received by the Authority, see “SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payments - Sequestration.”

<sup>11</sup> Series 2019C Subordinate Bonds anticipated to be issued by November 6, 2019; Assumes \$100.0 million in proceeds issued at par with an equal principal structure from 10/1/2050 - 10/1/2054; Assumed initial rate of 2.00% through the assumed mandatory tender date of 10/1/2024 and then assumed 3.25% thereafter.

Source: Authority records.

**List of Outstanding Indebtedness**

The Authority's indebtedness as of the date of this Official Statement is set forth in Table 1 below. For a summary of the annual debt service payments for the Authority's existing indebtedness, see "FINANCIAL OPERATIONS – Debt Service."

**Table 1. Outstanding Indebtedness**  
(\$ in thousands)

	Original Principal Amount	Interest Rates	Final Maturity	Amount Outstanding as of 10/1/2019 <sup>1</sup>
<b>Senior Debt</b>				
Series 1998 Bonds	\$266,120	5.50%	2028	\$109,870
Series 2014A Bonds	350,000	4.81	2114	350,000
Series 2017A Bonds	100,000	4.00-5.00	2052	100,000
Series 2017B Bonds	200,000	4.00-5.00	2044	193,760
Series 2018A Bonds	100,000	5.00	2049	100,000
Series 2018B Bonds	200,000	5.00	2049	196,675
Total Senior Debt				\$1,050,305
<b>Subordinate Debt</b>				
<i>Subordinate Bonds</i>				
Series 2010A Bonds	300,000	4.07-5.52 <sup>2</sup>	2044	300,000
Series 2012A Bonds	177,430	4.00-5.00	2037	142,665
Series 2012C Bonds	163,215	4.00-5.00	2033	163,215
Series 2013A Bonds	300,000	4.75-5.00	2048	300,000
Series 2014B Bonds	100,000	VR <sup>3</sup>	2050	100,000
Series 2014C Bonds	377,700	3.00-5.00	2044	376,580
Series 2015A Bonds	100,000	2.00-5.00	2045	97,420
Series 2015B Bonds	250,000	5.00-5.25	2044	250,000
Series 2016A Bonds	389,110	5.00-5.25	2039	377,575
Series 2016B Bonds (Environmental Impact Bonds)	25,000	3.43 <sup>4</sup>	2046	25,000
<i>Government Notes</i>				
Jennings Randolph Reservoir Debt	\$18,269	3.25%	2041	\$11,640
<i>Commercial Paper Notes<sup>5</sup></i>				
Series C CP Notes (taxable)	\$29,200 <sup>6</sup>	VR	2020 <sup>7</sup>	\$29,200
<i>Extendable Municipal Commercial Paper Notes</i>				
Series A EMCP Notes	\$50,000 <sup>8</sup>	VR	N/A <sup>9</sup>	\$50,000
Total Subordinate Debt				\$2,223,295
<b>Total</b>				<b>\$3,273,600</b>

<sup>1</sup> Amounts outstanding do not reflect any amortization of accrued principal.

<sup>2</sup> Taking into account the Direct Payment subsidy, the Series 2010A Bonds had an all-in-true interest cost of 3.6%. With respect to the effect of sequestration on the receipt by the Authority of Direct Payments on its Series 2010A Bonds, see "SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payments – Sequestration."

<sup>3</sup> The Series 2014B Bonds are weekly-reset variable rate bonds supported by a Liquidity Facility provided by TD Bank, N.A.

<sup>4</sup> Interest on Series 2016B Bonds (Environmental Impact Bonds) is calculated through the mandatory tender date of April 1, 2021 at the fixed term rate of 3.43%, and at an assumed rate of 3.25% thereafter through final maturity.

<sup>5</sup> Maximum amount authorized for the CP Notes (Series B CP Notes and Series C CP Notes) is \$150 million; the CP Notes are supported by a Letter of Credit provided by Landesbank Hesse-Thüringen Girozentrale; the Series A CP Notes are not currently authorized for issuance.

<sup>6</sup> Maximum amount authorized to be outstanding at any one time for the Series C CP Notes is \$50 million.

<sup>7</sup> Final maturity of the CP Notes reflects expiration of current credit facility.

<sup>8</sup> Maximum amount authorized to be outstanding at any one time for the Series A EMCP Notes is \$100 million.

<sup>9</sup> The Series A EMCP notes are placed for an original maturity date not to exceed 90 days. At their original maturity date, the EMCP notes may be repaid, remarketed and resold as new Series A EMCP notes, or extended at the option of the Authority to an extended maturity date not greater than 270 days from their initial issuance. Should the Series A EMCP Notes be remarketed and resold, upon such resale the Series A EMCP Notes will mature on such date or dates as provided in the terms of the remarketing and resale (up to a maximum original maturity date of 90 days and a maximum extended maturity date of 270 days).

Source: Authority records.

### Outstanding Senior Debt

As indicated in Table 1, as of October 1, 2019, the Authority had Senior Debt outstanding in the aggregate principal amount of \$1,050,305,000 consisting of its Public Utility Senior Lien Revenue Bonds, Series 1998 (the “Series 1998 Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2014A (Federally Taxable) (Green Bonds) (the “Series 2014A Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2017A (Green Bonds) (the “Series 2017A Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2017B (the “Series 2017B Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2018A (Green Bonds) (the “Series 2018A Senior Bonds”) and its Public Utility Senior Lien Revenue Bonds, Series 2018B (the “Series 2018B Senior Bonds”). The Authority expects to issue additional Senior Debt in the future to finance capital improvements to the System. See “CAPITAL IMPROVEMENT PROGRAM.”

### Outstanding Subordinate Debt

The Subordinate Debt summarized in Table 1 consists of the following categories of outstanding debt: (i) Subordinate bonds (including Environmental Impact Bonds); (ii) Government Notes; (iii) Commercial Paper Notes; and (iv) Extendable Municipal Commercial Paper Notes (the “EMCP Notes”). As of October 1, 2019, the Authority had Subordinate Debt outstanding in the aggregate principal amount of \$2,223,295,266.

*Subordinate Bonds.* As of October 1, 2019, \$2,132,455,000 of Subordinate bonds was outstanding, consisting of its Public Utility Subordinate Lien Revenue Bonds of various series listed in Table 1. The Authority expects to issue additional Subordinate bonds in the future to finance capital improvements to the System. See “CAPITAL IMPROVEMENT PROGRAM.”

*Environmental Impact Bonds.* On September 29, 2016, the Authority issued \$25 million of tax-exempt Public Utility Subordinate Lien Revenue Bonds, Series 2016B (Environmental Impact Bonds) (the “Series 2016B Bonds”). The Series 2016B Bonds are multimodal variable rate bonds, initially issued bearing a 3.43% fixed rate through the mandatory tender date, April 1, 2021. The Series 2016B Bonds are the Authority’s first environmental impact bonds to finance green infrastructure. The Series 2016B Bonds are designated as environmental impact bonds and, as such, include provisions for the possibility of an outcome payment by the Authority to the original purchasers of the Series 2016B Bonds, and for the possibility of a risk share payment by such original purchasers to the Authority depending upon the results achieved by the green infrastructure financed with the proceeds of the Series 2016B Bonds. The potential outcome payment by the Authority is an unsecured obligation and is estimated to be \$3.3 million, due in Fiscal Year 2021. The net proceeds of the issuance are being used for construction of green infrastructure for the Rock Creek Project A (RC-A). The green infrastructure is designed to mimic natural processes to absorb and slow surges of stormwater during periods of heavy rainfall, reducing the incidence and volume of combined sewer overflows that pollute the District’s waterways. As of October 1, 2019, \$25 million of the Series 2016B Bonds was outstanding.

#### [Discussion of WIFIA LOAN.]

*WIFIA Loans.* The Authority has applied for loans to finance a portion of its CIP pursuant to the Water Infrastructure Finance and Innovation Act of 2014 (WIFIA), a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. The application amount is a total of \$144 million to be disbursed over multiple years. If such loans are approved, it is anticipated that (i) the amount of the bonds issued in future years by the Authority will be reduced by the principal amount of the loans received from the WIFIA program; and (ii) the annual debt service payments on such loans will be approximately equal to or less than the debt service that would be required if the Authority issued bonds in lieu of accepting the loan proceeds.

*Government Notes.* The Authority is responsible for debt service on notes payable to the federal government for the construction of the Jennings Randolph Reservoir. As of October 1, 2019, \$11,640,266 of Government Notes was outstanding. Upon the issuance of the Series 2019A/B Bonds, the amount of outstanding Government Notes will remain unchanged.

*Commercial Paper Notes.* The Authority has established a commercial paper program to provide interim financing for Costs of the System, consisting of three series of notes, each as Subordinate Debt: (i) the tax-exempt Series A CP Notes, which are currently not authorized or enhanced by a liquidity facility (although the Authority has the right to authorize the Series A CP Notes in the future), (ii) the tax-exempt Series B CP Notes in an aggregate principal amount not to exceed \$100 million, and (iii) the taxable Series C CP Notes in an aggregate principal amount not to exceed \$50 million (collectively, the “Commercial Paper Notes”). To provide liquidity and credit support for the Series B CP Notes and the Series C CP Notes, the Authority obtained irrevocable, direct-pay letters of credit (the “Letters of Credit”) issued by Landesbank Hessen-Thüringen Girozentrale, New York Branch (the “Bank”) which expire on May 15, 2020. In connection with the Bank’s issuance of the Letters of Credit, the Authority and the Bank entered into a Reimbursement Agreement for each series of CP Notes, each dated as of May 1, 2015, each as amended (collectively, the “Reimbursement Agreements”) that obligates the Authority to pay Bank Obligations and

Reimbursement Obligations (both as defined in the Eleventh Supplemental Indenture relating to the Commercial Paper Notes) and Fee Obligations (as defined in each Reimbursement Agreement) to the Bank. The Bank Obligations, the Reimbursement Obligations and Fee Obligations are Subordinate Debt under the Indenture. As of October 1, 2019, \$29.2 million of the Series C CP Notes was outstanding.

*Extendable Municipal Commercial Paper Notes.* The Authority has established an extendable municipal commercial program to provide an additional source of interim financing for Costs of the System. The EMCP Notes are not supported by a credit facility or credit enhancement, but instead are solely supported by a subordinate lien on and pledge of Net Revenues on a parity with the lien on and pledge of Net Revenues that secures Outstanding Subordinate Debt and any other Subordinate Debt that the Authority may issue in the future. The Board has authorized one series of EMCP Notes not to exceed \$100 million outstanding at any one time. As of October 1, 2019, \$50 million of the EMCP Notes was outstanding.

### **Interest Rate Exchange Agreements and Guaranteed Investment Contracts**

The Authority has not previously entered into any interest rate exchange agreements or any guaranteed investment contracts.

## **THE AUTHORITY**

### **General**

The Authority is a corporate body and an independent authority created pursuant to the Act that has a separate legal existence within the District government. It was created in 1996 to expedite the repair, replacement, rehabilitation, modernization and extension of existing water distribution and sewage collection, treatment and disposal systems, and the financing, on a self-sustaining basis, of capital and operation expenses relating thereto. The Authority began operations on October 1, 1996, and in June 2010, adopted a new logo and rebranded itself as “DC Water.” Prior to creation of the Authority, the District, through its Department of Public Works, Water and Sewer Utility Administration (“WASUA”), owned, operated and maintained the System. In accordance with the Act, the District authorized the Authority to use all of the property and assets of the System and transferred to the Authority any liabilities of the District that were directly attributable to the System. The District has retained full legal title to, and a complete equitable interest in, the System. In accordance with the Act, however, the System must remain under the control of the Authority for as long as any Authority revenue bonds remain outstanding.

The Authority currently provides retail water and wastewater services to approximately 700,000 residents of the District of Columbia and wholesale wastewater conveyance and treatment to approximately 1.6 million residents of Prince George’s and Montgomery Counties in Maryland and Fairfax and Loudoun Counties in Virginia. In addition, the Authority annually serves approximately 22.0 million visitors to the area and approximately 800,000 workers in the District. In addition to providing services to the White House, the U.S. Congress and the Supreme Court, the Authority also counts among its customers a number of international organizations, including the International Monetary Fund and numerous diplomatic embassies. The Authority also provides services to a number of nationally recognized cultural and educational institutions, including the John F. Kennedy Center for the Performing Arts, and Georgetown, Howard, American, Catholic and George Washington Universities.

The Authority operates the largest advanced wastewater treatment facility in the United States and is in material compliance with all requisite permits. Since its creation as an independent authority of the District, the Authority has become a leader in the water and wastewater industry. The Board has provided stable leadership and a focus on establishing long-term policies and planning, particularly financial stability. Under its leadership, the Authority has adopted and implemented financial and rate-setting policies that have enhanced financial performance. The Authority’s unrestricted cash, cash equivalents and investment balances have increased from \$55.8 million as of September 30, 1998, to \$232.0 million as of September 30, 2018. The Authority’s operating revenues have increased from \$258.4 million in Fiscal Year 1998 to \$684.5 million in Fiscal Year 2018.

The Authority’s accomplishments are consistently recognized by industry associations and publications. The Government Finance Officers Association (“GFOA”) has given the Authority the Certificate of Achievement for Excellence in Financial Reporting Program every year since 1997, and the Distinguished Budget Presentation Award every year since 2001. In 2016, the Authority also received the Excellence in Government Finance Award, and the Excellence in Public Finance Award for its Environmental Impact Bond, both from the GFOA, the Healthiest Employer Award from *SmartCEO*, the Utility of the Future Award from the *National Association of Clean Water Agencies*, and the Non-Traditional Deal of the Year from *The Bond Buyer* for its Environmental Impact Bond.

In 2017, the Authority received (i) the Utility of the Future in Beneficial Biosolids Refuse from *WEF/WERF/NACWA/EPA*, (ii) the Platinum Peak Performance Award for 5 years of 100% compliance with NPDES requirements from the *National Association of Clean Water Agencies*, (iii) the “Unbuilt” Award and Jurors’ Citation in Conceptual Unbuilt Architecture for the Authority’s Headquarters Building from the *American Institute of Architects*,

*Maryland and Northern Virginia Chapters*, (iv) the Tunneling Achievement Award for the Blue Plains Tunnel from *Breakthroughs in Tunneling*, (v) the Project of the Year, Water/Environment Project of the Year overall and for the Mid-Atlantic for the Blue Plains Tunnel from *Engineering News Record*, (vi) the Sustainability Initiative of the Year for the Anacostia River Tunnel from the *International Tunneling Awards*, (vii) Excellence in Concrete Award for the First Street Tunnel from *National Capital Chapter American Concrete Institute*, and (viii) 100 Best Fleets and Green Fleet Awards from *National Association of Fleet Administrators*, and (ix) Leading Fleet Award from *Government Fleet*.

In 2018, the Authority received (i) the Utility of the Future Award from the *National Association of Clean Water Agencies*, (ii) Honorable Mention in the Spaces, Place and Cities category in the 2018 Innovation by Design Awards Program by *Fast Company*, (iii) Global Best Project Award – Award of Merit in Water/Wastewater for the Anacostia River Tunnel project from *Engineering News-Record*, (iv) Mid-Atlantic Best Project Awards – Award of Merit Water/Wastewater for the Anacostia River Tunnel from *Engineering News-Record*, (v) Tunneling and Underground Space Award – Sustainability Initiative of the Year from the *International Tunneling Association* for the DC Clean Rivers Project, (vi) 2018 Outstanding Shotcrete Project of the Year in the Underground Category from the *American Shotcrete Association* for the Tuber Creek Sewer Repair, (vii) Excellence in Dispute Avoidance and Resolution Award from the *Disputes Review Board Foundation*, (viii) Distinguished Budget Presentation Award from the *Government and Finance Officers Association*, (ix) Certificate of Achievement for Excellence in Financial Reporting from the *Government and Finance Officers Association*, (x) 100 Best Fleets from *National Association of Fleet Administrators*, (xi) Platinum Peek Performance Award recognizing 100 percent compliance with the NPDES permit limits for a consecutive five-year period from *National Association of Clean Water Agencies*, (xii) Certification in Business Continuity Management System, (xiii) Conditional Accreditation from the *Emergency Management Accreditation Program*.

### **Purposes and Powers**

The Act requires the Authority to establish, fix and revise fees, rates or other charges for the use of, or services furnished, rendered or made available by the System, owned, leased or utilized by the Authority at least in an amount sufficient, together with other revenues available to the Authority, if any, to pay its costs, the principal of and interest on and other requirements pertaining to its bonds, and to make transfers to the District of amounts equal to the debt service payments on the District General Obligation Bonds, which financed WASUA capital projects, as such debt service and transfers become due and payable. All such General Obligation Bonds are now retired.

Pursuant to the Home Rule Act, the Council delegated to the Authority, under the Act, its power to issue revenue bonds, including the Series 2019A/B Bonds, for the purpose of financing “water and sewer facilities” (as such term is defined in the Home Rule Act). Pursuant to the Home Rule Act and the Act, the Authority is required to submit its annual operating budget to the District for its review and recommendations; however, the District has no power to change the annual budget of the Authority. After receiving the Authority’s budget, the District then submits its annual operating budget, of which the Authority’s budget is a part, to the U.S. Congress for approval. See “– Authority’s Relationship to the District” and “FINANCIAL OPERATIONS – Annual Budget.”

### **Board of Directors**

The Authority is governed by a Board of Directors consisting of 11 principal and 11 alternate members, each appointed for a staggered four-year term. Six principal members (appointed by the Mayor of the District with the advice and consent of the Council) represent the District and five principal members (appointed by the Mayor on the recommendations of the User Jurisdictions) represent the User Jurisdictions, two each from Prince George’s and Montgomery Counties in Maryland, and one from Fairfax County, Virginia. The powers of the Authority are vested in and exercised by the Board at meetings duly called and held where a quorum of at least six members is present. All Board members participate in decisions directly affecting the management of joint-use facilities which are those facilities used by all three jurisdictions. Only the six members appointed to represent the District participate in those matters that affect District ratepayers and in setting rates, fees and charges for various services that affect only District residents. The Board meets monthly and operates through various standing and ad-hoc committees. The committees include Environmental Quality and Operations, Finance and Budget, Human Resources and Labor Relations, Audit, Strategic Planning, Governance, and District of Columbia Retail Water and Sewer Rates. The current principal members of the Board are listed below.

<b>Principal Board Members</b>	<b>Appointing Authority</b>	<b>Term Start Date*</b>	<b>Term Expiration</b>
Tommy Wells, Chairman	District of Columbia	December 2016	September 2020
Randy Bartlett	Fairfax County	February 2019	September 2019
Ellen O. Boardman	District of Columbia	July 2013	September 2020
Krystal J. Brumfield	District of Columbia	December 2018	September 2022
Rachna Bhatt	District of Columbia	July 2012	September 2022
David Franco	District of Columbia	May 2017	September 2019
Floyd Holt	Prince George's County	February 2019	September 2022
Fariba Kassiri	Montgomery County	June 2019	May 2020
Adam Ortiz	Montgomery County	June 2019	May 2020
Major F. Riddick, Jr.	Prince George's County	March 2019	September 2022
Emile Thompson	District of Columbia	December 2016	September 2020

\* Term start date indicates start of the Board member's initial term as a principal member.

Source: Authority records.

The following are short biographies of the principal members of the Board.

*Tommy Wells (District of Columbia)*

Mr. Wells was appointed as principal member of the Board in December 2016 and as chairman of the Board in September 2017. Mr. Wells has served as the Director of the District of Columbia Department of Energy & Environment since January 2015. He is chiefly responsible for protecting the environment and conserving the natural resources of the District of Columbia. Mr. Wells served as the District Council member representing Ward 6 from 2006 until 2014. During his time on Council, he garnered broad support for his efforts to make the District livable and walkable for all. In 2009, Mr. Wells crafted *The Anacostia River Clean Up and Protection Act of 2009*, to implement a \$0.05 fee on disposable bags. This landmark legislation prompted thousands of District residents to curb use of plastic bags and, instead, opt for reusable green alternatives. Mr. Wells earned a Bachelor of Science in Psychology from the University of Alabama, a Juris Doctor from the Columbus School of Law at Catholic University and a Master of Social Work from the University of Minnesota.

*Randy Bartlett (Fairfax County)*

Mr. Bartlett was appointed a principal member of the Board in 2019. Mr. Bartlett was appointed director of Fairfax County's Department of Public Works and Environmental Services in November 2018. He has more than 40 years of public works and private engineering experience, including serving as Public Works director in Bedford, VA., Blacksburg, VA., and Arlington County, VA. Mr. Bartlett's areas of responsibility have included water treatment and distribution and wastewater collection and treatment. Prior to his current position, Mr. Bartlett served as the deputy director, leading Fairfax County's Wastewater and Stormwater Management programs. He is a registered engineer in the Commonwealth of Virginia. Mr. Bartlett received a Bachelor of Science in Civil Engineering from Virginia Tech.

*Ellen O. Boardman (District of Columbia)*

Ms. Boardman was appointed as a principal member of the Board in 2013. Ms. Boardman is a partner at O'Donoghue & O'Donoghue LLP. Prior to joining O'Donoghue & O'Donoghue LLP in 1986, Ms. Boardman served as an attorney for the National Labor Relations Board. Ms. Boardman is a member of the District of Columbia and Maryland bar associations, numerous federal district and appellate courts, and the U.S. Supreme Court. Ms. Boardman is a fellow of the College of Labor and Employment Lawyers, and is listed as a Washington, D.C. Super Lawyer. Ms. Boardman holds a Bachelor of Arts in History from Catholic University and a Juris Doctor from the Columbus School of Law at Catholic University.

*Krystal J. Brumfield (District of Columbia)*

Ms. Brumfield was appointed as a principal member of the Board in 2018. Ms. Brumfield currently serves as the President and Chief Executive Officer of the Airport Minority Advisory Council (AMAC), a non-profit dedicated to promoting the full participation of minority-owned, women-owned and disadvantaged business enterprises (M/W/DBEs) in contracting opportunities and professional development throughout the aviation and aerospace industries. As President and CEO, Ms. Brumfield works consistently with Congress, the Federal government, aviation trade associations and others serving as a resource for information, education and guidance on business and employment matters. She also provides leadership to AMAC's strategic planning process and implements new programmatic strategic initiatives. Ms. Brumfield previously served as the Vice President and Chief Operating Officer at the DC Chamber of Commerce where she was responsible for developing, implementing, and managing the operational aspects of the annual budget. A graduate of Southern University with a Bachelor of Science

in Accounting, Ms. Brumfield earned a Juris Doctorate from the Southern University Law Center, and obtained a Master of Laws in Taxation from the University of Florida Levin College of Law.

*Rachna Bhatt (District of Columbia)*

Ms. Bhatt was appointed as a principal member to the Board in July 2012. Ms. Bhatt serves as Director at HRGM Corporation, and has been with HRGM since 2001. Previously, Ms. Bhatt served as an Associate for Wachovia Securities, and as a consultant for Deloitte & Touche, LLP. Ms. Bhatt serves as a board member for the Professional Women in Construction and holds a Virginia Class A Contractor's License. Ms. Bhatt holds a Bachelor of Science in Business Administration from Georgetown University and a Master in Business Administration from The Wharton School, University of Pennsylvania, with a major in Real Estate and Management.

*David Franco (District of Columbia)*

Mr. Franco was appointed as a principal member to the Board in May 2017. Mr. Franco is principal of Level 2 Development. Mr. Franco co-founded several businesses in the District, including Discount Mart, Trumpets Restaurants, Tracks Nightclub, and Universal Gear. Mr. Franco is committed to helping the residents of the District and has led efforts in the past to address community needs, including preserving the 48-unit Cresthill Apartments, which created home ownership opportunities along the 14th Street corridor for low to medium income residents. Mr. Franco attended the University of Maryland, College Park.

*Floyd Holt (Prince George's County)*

Mr. Holt was appointed a principal member of the Board in 2019. Mr. Holt is Deputy Chief Administrative Officer for Government Infrastructure, Technology and the Environment for Prince George's County Maryland. He previously worked as Prince George's County's Deputy Director of Central Services. Mr. Holt served as Chief of University Police at Gallaudet University; the world's only liberal arts university for the deaf before joining the Washington Suburban Sanitary Commission as Chief of Public Safety and Internal Investigations. He was later appointed Director of General Services, overseeing Fleet Management and Transportation, Warehousing, Quality Assurance, Procurement and Contracting. Mr. Holt attended the University of Maryland where he received a Bachelor's Degree in Government and Politics with a minor in Law Enforcement. Mr. Holt also holds a Master's in Business Administration from Gallaudet University.

*Fariba Kassiri (Montgomery County)*

Ms. Kassiri was appointed principal member of the Board in 2019. Ms. Kassiri is the Montgomery County Deputy Chief Administrative Officer (DCAO) and joined the Office of the County Executive in 2006. She is responsible for assisting the Chief Administrative Officer (CAO) in managing the operations and performance of County Government. In doing so, she provides administrative oversight to the directors of County departments and ensures that departments' core activities align with the County's Effective and Sustainable priority outcome and comply with all applicable policies, procedures, and regulations. Prior to joining Montgomery County, Ms. Kassiri spent four years as Special Advisor to the Prince George's County Chief Administrative Officer, providing recommendations to the County Executive and Chief Administrative Officer on a wide array of issues, programs, and policies. Ms. Kassiri holds a Bachelor of Science degree in Civil and Environmental Engineering from the University of Colorado, and a Master's degree in Public Policy specializing in finance and management from the University of Maryland.

*Adam Ortiz (Montgomery County)*

Mr. Ortiz was appointed principal member of the Board in 2019. Mr. Ortiz is the Director of the Montgomery County Department of Environmental Protection, a \$140 million agency with 300 employees and contractors. The Department oversees programs for watershed restoration, greenhouse gas reduction, renewable energy, sustainability, and environmental compliance. Prior to joining Montgomery County, Mr. Ortiz served as the Director of the Department of Environment for Prince George's County, Maryland, from 2012 through 2018. During his time, Mr. Ortiz oversaw stormwater management, recycling, waste management, animal services, and sustainability programs. From 2007 to 2012, Mr. Ortiz served in the administration of Governor Martin O'Malley where he focused on workforce, higher education, and veterans' affairs as Deputy Chief of Staff for Lieutenant Governor Anthony Brown. From 2005 to 2011, Mr. Ortiz served as Mayor of Edmonston, Maryland. Mr. Ortiz has a B.A. in Public Policy from Goucher College in Towson, Maryland.

*Major F. Riddick, Jr. (Prince George's County)*

Major Riddick was appointed principal member of the Board in 2019. Major Riddick currently serves as Acting Chief Administrative Officer for Prince George's County government, which he was appointed to in December 2018. Prior to serving as Acting Chief Administrative Officer for Prince George's County, Major Riddick served as President and CEO of Strategic Solutions Center where he worked with clients and partners to focus on technology solutions and management services to improve government efficiency. In 1995, Major Riddick was appointed Chief of Staff for the Governor of Maryland. As Chief of Staff, Mr. Riddick was responsible for the daily operations of state government and for implementing the Governor's priorities. During the last several months of state service, Major

Riddick served as Chief of Technology. In this role, he spearheaded the Governor's mission and vision to make Maryland a digital state by making technology available to all citizens of Maryland. Major Riddick was the first African-American to serve as the Governor's Chief of Staff in the State of Maryland and was the first African-American appointed Chief Administrative Officer for Prince George's County. Major Riddick holds a Bachelor's Degree in Political Science and a Master's Degree in Public Administration from Virginia Tech. He also completed the Executive Training Institute at the J.F.K School of Government, Harvard University.

*Emile C. Thompson (District of Columbia)*

Mr. Thompson was appointed as a principal member to the Board in December 2016. Mr. Thompson currently serves as an Assistant United States Attorney for the District of Columbia. Prior to that role, Mr. Thompson served as the Chief of Staff to the Deputy Mayor for Public Safety and Justice in the Bowser Administration. In that capacity, Mr. Thompson advised the Deputy Mayor on policies and initiatives throughout the cluster. Mr. Thompson began his legal career as law clerk to the Honorable Herbert B. Dixon, Jr. of the D.C. Superior Court. Mr. Thompson earned a Bachelor of Science in Computer Science from Morehouse College and a Juris Doctorate from the Wake Forest University School of Law.

### **Organizational Structure**

The Authority's day-to-day operations are managed by the Chief Executive Officer (CEO), who is appointed by the Board. The CEO is supported by the Chief Financial Officer and Executive Vice President, Finance and Procurement (CFO); the Chief of Staff; the Executive Vice President, Operations and Engineering; the Executive Vice President, Performance; the Executive Vice President, Administration; and the Executive Vice President, Customer Service. Also reporting to the CEO is the Executive Vice President, Legal Affairs and the Executive Vice President of People and Talent.

The CFO oversees the departments of Finance, Accounting, Budget and Rates and Revenue, and Procurement. The Chief of Staff is responsible for the evaluation, oversight and implementation of all Authority business-related processes, policies, operating procedures. The Executive Vice President of Operations and Engineering oversees Water Operation and Water Quality, Engineering, Wastewater, Permit Operation, and Clean Rivers. The Executive Vice President of Administration oversees Security, Safety, Emergency Management, Fleet Management, and Facilities Management.

The Executive Vice President of Performance oversees Sustainability & Watershed Management, Integration & Delivery, Business Performance Management, and Enterprise Program Management. The Executive Vice President of Customer Experience oversees Customer Care, Marketing & Communication, Business Relations, IT (Infrastructures and application).

### **Senior Management**

The Authority has in place a senior and mid-level management team with a broad range of private and public sector utility experience. The following are short biographies of key members of the Authority's senior management.

*David Gadis, CEO and General Manager*

Mr. Gadis was appointed CEO and General Manager in 2018. Mr. Gadis brings 20 years of industry experience to the role, most recently as Executive Vice President of Veolia North America (VNA), where he led North American business development operations, and was responsible for corporate growth and \$3 billion in revenue. Mr. Gadis has been a frequent presenter at utility and government services conferences, including the U.S. Conference of Mayors, speaking on both Underground Infrastructure and Managing Utilities, as well as the National League of Cities and the National Association of Public Private Partnerships. Mr. Gadis earned a basketball scholarship to Southern Methodist University and was a four-year basketball player and team captain before graduating from SMU with a B.A. in Marketing Communications.

*Matthew T. Brown, CFO and Executive Vice President, Finance and Procurement*

Mr. Brown was appointed CFO and Executive Vice President, Finance and Procurement in 2017. From 2015 until his appointment as Chief Financial Officer and Executive Vice President, Finance and Procurement, Mr. Brown served as a principal member and chairman of the Board. Mr. Brown previously served as the Director of the Office of Budget and Finance for the District of Columbia. Prior to that position, Mr. Brown served as the Director of the District's Department of Transportation. Mr. Brown began his career with the New York Office of Management and Budget and has held positions in the Milwaukee Metropolitan Sewerage District, Public Financial Management and the Metropolitan Washington Area Transit Authority. Mr. Brown holds a B.A. in Political Science from Texas Wesleyan University, and an M.P.A. in Budget and Public Finance from The George Washington University.



*Biju George, Executive Vice President, Operations and Engineering*

Mr. George was appointed Executive Vice President, Operations and Engineering in September 2018, after serving as Chief Operating Officer since February 2015. Mr. George is responsible for the performance management of all operations of the Authority. He participates in the implementation of the Authority's strategic plan and assists the General Manager in developing and implementing the Authority's business plans. Mr. George is the 2014 recipient of the Innovator of the Year Award from the U.S. Environmental Protection Agency. Mr. George has a bachelor's degree in mechanical engineering from the PDA College of Engineering at Gulbarga University. He is a licensed professional engineer in Ohio.

*Mustaafa Dozier, Chief of Staff*

Mr. Dozier assumed the position of Chief of Staff in August 2015. Mr. Dozier initially joined the Authority in 2011 as the Labor Relations Manager. Prior to joining the Authority, Mr. Dozier served as the Employment and Labor Relations Advisor to the District's Department of Public Works. Mr. Dozier holds a B.A. from Alabama State University and a J.D. from the Howard University School of Law.

*Gregory A. Hope, Interim Executive Vice President, Legal Affairs*

Mr. Hope was appointed Interim, EVP, Legal Affairs in December 2018, after serving as Associate General Counsel since May 2017, and Principal Counsel since 2013. Prior to joining the Authority in 2005, Mr. Hope worked as the Water Quality Manager for the District of Columbia Environmental Health Administration (now the Department of Energy and Environment) enforcing District water quality laws and regulations in water and wastewater regulatory compliance, enforcement, management and engineering. Mr. Hope holds a B.S. in Chemical Engineer from Howard University and a JD from the University of Maryland. Mr. Hope is a Patent Attorney before the U.S. Patent and Trademark Office. Mr. Hope is admitted to practice law in the District of Columbia, Maryland, the Court of Appeals for the Federal Circuit, and the U.S. Supreme Court.

*Leonard R. Benson, Senior Vice President*

Mr. Benson was appointed Senior Vice President, Engineering in September 2018, after serving as Chief Engineer since August 2010, and previously serving as Acting Chief Engineer and Deputy General Manager since May 2008. Mr. Benson transferred to the Authority as Director of Engineering and Technical Services from its predecessor agency when the Authority was created in 1996. Mr. Benson began his career as a Project Manager for the District of Columbia's Department of Highways and Traffic in 1968 and later transferred to the Department of Sanitary Engineering and successor agencies including the Department of Environmental Services and the Department of Public Works. Mr. Benson holds a B.S. in Civil Engineering from the University of Maryland.

*Carlton Ray, Director of DC Clean Rivers Project*

Mr. Ray joined the Authority in July 2009, and is responsible for the planning, design, construction and implementation of the DC Clean Rivers Project. The 20-year, \$2.4 billion project is designed to capture nearly all combined sewer overflows to the Potomac and Anacostia Rivers and to the Rock Creek during periods of wet weather through a system of deep underground tunnels. Previously, Mr. Ray managed the capital program for the City of Indianapolis, including successfully developing and managing a similar combined sewer overflow abatement program. Mr. Ray has over 30 years' experience in water and wastewater engineering and holds a B.S. in Civil Engineering from Auburn University.

*Aklile Tesfaye, Vice President, Wastewater Operations and Engineering*

Mr. Tesfaye joined the Authority in 1994. Mr. Tesfaye formerly served as the Director of Wastewater Treatment Operations for the Authority. Mr. Tesfaye is a licensed engineer with the American Academy of Environmental Engineers, and holds several other professional certifications. Mr. Tesfaye received a B.S. in Civil Engineering from the University of Rourke (India; now known as Indian Institute of Technology), an M.S. in Civil Engineering from Tampore University of Technology (Finland) and an M.S. in Environmental Engineering from the University of Maryland (College Park).

*Maureen Holman, Executive Vice President, Administration*

Ms. Holman has been with DC Water for almost a decade, serving in the Office of the CEO, and was appointed EVP, Administration in November, 2018. Prior to joining DC Water, Ms. Holman served as Interim Director of the District Department of Energy & Environment and as a senior policy analyst in the Office of the City Administrator. Ms. Holman represents DC Water on the Metropolitan Washington Council of Governments Climate, Energy, and Environmental Policy Committee and the DC Green Building Advisory Council; while also serving a Mayoral appointee to the DC Urban Forestry Advisory Committee, the DC Commission on Climate Change and Resiliency and the Leadership Council for a Cleaner Anacostia River. Ms. Holman holds a bachelor's degree in environmental studies from the University of Southern California, a juris doctorate from the University of Georgia School of Law, and a graduate environmental ethics certificate from the UGA College of Environment and Design.

### Authority's Relationship to the District

*General.* In accordance with section 207(e) of the Act, the District retained full legal title to, and a complete equitable interest in, the System; however, the System must remain under the control of the Authority for as long as any Authority revenue bonds remain outstanding. The District also has the power to appoint certain Board members, see “– Board of Directors” above.

According to the Home Rule Act, as amended by the “District of Columbia Water and Sewer Authority Independence Preservation Act,” P.L. 110-273, enacted by the Congress on July 15, 2008, (i) the authority of the District’s Chief Financial Officer to hire, supervise and remove certain financial management employees, set forth in Section 424A of the Home Rule Act (D.C. Official Code Section 1-204.25), does not apply to personnel of the Authority and (ii) the financial management, personnel and procurement functions and responsibilities of the Authority shall be established exclusively pursuant to the rules and regulations adopted by the Board.

Pursuant to the Home Rule Act and the Act, the Authority is required to submit its annual operating budget to the District for its review and recommendations; however, the District has no power to change the annual budget of the Authority. After receiving the Authority’s budget, the District then submits its annual operating budget, of which the Authority’s budget is a part, to the U.S. Congress for approval. See “FINANCIAL OPERATIONS – Annual Budget.”

The Act provides that, subject to the provisions made by the Authority for security of revenue bonds, all revenues, proceeds, and moneys (except those collected or received from the stormwater fee) which are collected or received by the Authority will be credited to a segregated fund and will not, at any time, be transferred to, lapse into, or be commingled with the General Fund of the District or any other funds or accounts of the District, except for limited circumstances under which funds will be transferred to the District to pay for goods and services and property contracted for by the Authority from the District, or as otherwise authorized by law. See “SECURITY AND SOURCE OF PAYMENT FOR THE SERIES 2019A/B BONDS – Lien on and Pledge of Net Assets – *Segregated Funds.*”

The Act also provides that, except as provided in the Act, the District will not limit or alter rights vested in the Authority to fulfill agreements made with holders of Authority bonds, or in any way impair the rights and remedies of the holders of Authority bonds. See “COVENANT BY THE DISTRICT OF COLUMBIA.”

The DC Water Consumer Protection Amendment Act of 2018, DC Law 22-299, effective April 11, 2019 (the “OPC Act”), amended the Act authorizing the Office of the People’s Counsel, an independent agency of the District of Columbia government to (1) represent District of Columbia rate payers at DC Water administrative hearings; (2) represent and advocate for District of Columbia ratepayer’s at public hearings; (3) represent and advocate for District of Columbia ratepayers at proceedings before local and federal regulatory agencies and courts; (4) investigate the services given by, and the rates charges by, the Authority; and (5) advise and educate the Authority customers about their legal rights and responsibilities pursuant to the rules governing service by the Authority. The OPC Act also requires the Authority to provide the public at least 45 days notice to consider adjustments to water and wastewater rates before a public hearing is held and to provide a written response to the OPC if it submits any written comments on the establishment or adjustments of water and wastewater rates. The OPC Act will not have a material impact on the Authority or its finances. See “Customer Base, Rates and Charges – Customer Assistance Programs”.

The Fiscal Year 2019 Budget Support Act of 2018, D.C. Law 22-168, effective October 30, 2018 (the “Budget Act”), amended the Act authorizing the Mayor to establish a financial assistance program to assist residential and nonprofits organizations located in the District with their payment of the Clean Rivers Impervious Area Charge. The District also included \$7 million to fund the programs. On December 28, 2018, DC Water expanded its Customer Assistance Program (CAP) to establish the CAPII program to provide benefits to customers whose household income exceeded the current CAP program of 60% of the state median income, but below 80% of the area median income. DC Water also transferred \$6 million from its Rate Stabilization Fund to fund this program. Based on the level of customer participation in these programs during FY 2019, and the amount of funds remaining, the District and DC Water plan to carryover the remaining funds into FY 2020. The Budget Act will not have a material impact on the Authority or its finances.

*Memoranda of Understanding.* The Authority is presently operating under, and is in compliance with, the following Memoranda of Understanding (each, a “Memorandum of Understanding” or “MOU”) with the District.

- A January 29, 1998, Memorandum of Understanding provides that the Authority will pay the District a PILOT for government services it receives from the District (the “1998 PILOT MOU”). This MOU provides that, beginning in Fiscal Year 1999, the annual PILOT will be based on the amount due from the Authority to the District for the previous Fiscal Year plus a percentage increase in an amount equivalent to the Authority’s System-wide rate increase for the current Fiscal Year. The District and the Authority amended the 1998 PILOT MOU pursuant to a September 4, 2014 Memorandum of Understanding, as amended and restated on December 15, 2014 (the “2014 PILOT MOU”). According to the 2014 PILOT MOU, the amount of the PILOT payment increases by two percent per annum based

on the amount of the prior year's annual PILOT payment. In addition, the Authority will deduct one-fourth of the annual fire protection service fee for services provided by the Authority to the District from the annual PILOT payment. In Fiscal Year 2018, the Authority made a PILOT payment to the District in the amount of \$16.3 million. The 2014 PILOT MOU will remain in effect until September 30, 2024. If the parties have not executed a new amendment to the 1998 PILOT MOU before September 30, 2024, the terms of the 2014 PILOT MOU will remain in force until a new amendment has been executed.

- A September 12, 2003, Memorandum of Understanding provides that the Authority will make quarterly payments to the District for its public right of way occupancy permit fee (the "2003 ROW MOU"). Under the terms of this MOU, the Authority was obligated to pay the District an annual fee of \$5.1 million through September 30, 2013, the expiration date of the MOU. On October 2, 2014, the District and the Authority entered in a new Memorandum of Understanding (the "2014 ROW MOU") that amended the 2003 ROW MOU to establish the amount of the ROW Fee payment of \$5.1 million to the District for Fiscal Years 2015 to 2024 and revised the expiration date to September 30, 2024. As with the 2014 PILOT MOU, if the parties have not executed a new ROW MOU before September 30, 2024, the terms of the 2014 ROW MOU will remain in force until a new amendment has been executed.
- A July 25, 2008, Memorandum of Understanding between the District Department of Energy and Environment ("DOEE") and the Authority establishes the basis for the billing and collection of a stormwater fee by the Authority on behalf of DOEE, and the transfer of those fees on a pass-through basis to DOEE. This MOU extends for one-year periods at the option of the Parties. See "THE SYSTEM – The Wastewater System – District Stormwater Permit and Management Program" and "CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges."
- A May 3, 2013, Memorandum of Understanding between the District of Columbia Fire and Emergency Medical Services Department ("FEMS") and the Authority memorializes the ongoing commitment between the two agencies to share information about public fire hydrant inspections and upgrades. The Authority is required to inspect all public fire hydrants once per year in accordance with National Fire Protection Association ("NFPA") guidelines, and FEMS may, as time permits, also conduct a second inspection of fire hydrants in coordination with the Authority. The Authority is responsible for identifying and installing new hydrants as part of its ongoing capital program, developing manuals and protocols for hydrant inspection and inspection data management, and ensuring that the required preventative maintenance is performed on each hydrant as required by the manufacturer. The Authority is required to flow test all hydrants every six years, and those hydrants that have been upgraded as part of the capital program will be tested upon being placed in service to ensure proper pressure and operation. Furthermore, the Authority has committed to providing water supply personnel on scene to FEMS when requested for two-alarm or greater fires. The Authority annually bills the District to recover the Authority's costs for these fire hydrant protection services activities.
- A September 11, 2014, Memorandum of Understanding provides the terms by which the District and the Authority will cooperate in the execution of the Northeast Boundary Neighborhood Protective Project (the "2014 Bloomingdale MOU"). This MOU established the value of incremental capital expenditures totaling \$58,579,499.00 incurred by the Authority at the request of the District in order to mitigate overland flooding and wastewater backups in the Bloomingdale and LeDroit Park neighborhoods in Northwest Washington, D.C. The District has entered into an agreement with the Authority for the amounts spent pursuant to the 2014 Bloomingdale MOU, to be paid in ten equal annual installments, commencing January 2016, and has made the payments on a timely basis.

*Proposed Legislation.* In March 2019, legislation was introduced in the Council for the District of Columbia, "Green Building Residential Metering Amendment Act of 2019" which, three (3) years after enactment, would require every residential unit in all new residential buildings to have individual meters for electric, gas and water utility service. **As of the date of this Official Statement, this proposed legislation had not been reported out of committee, but even if it were enacted, it would not have a material impact on the Authority or its finances.**

### **Employees and Labor Relations**

The total number of authorized positions for the Authority for Fiscal Year 2019 is 1,223. As of March 31, 2019, the Authority had 1,120 full-time equivalent employees, of whom 710 were represented by five unions:

- American Federation of Government Employees ("AFGE") consisting of Locals 631, 872 and 2553, representing 473 employees;

- American Federation of State, County and Municipal Employees (“AFSCME”), Local 2091, representing 221 employees; and,
- National Association of Government Employees (“NAGE”), representing 16 employees.

The Authority and the unions operate under a single Master Agreement on Compensation which was signed on July 6, 2017 and is set to expire on September 30, 2019. Negotiations were underway between the Authority and the unions to agree upon a new Master Agreement on Compensation. Between May 21, 2019 and July 31, 2019, however, negotiations were suspended due to the filing of a Notice of Impasse by the unions. On July 31, 2019, the Authority received a ruling from the Public Employee Relation Board stating that the unions and the Authority are to continue negotiating. [As of the date of this Official Statement, the Authority and the union signed a new Master Agreement on Compensation, which is set to expire on [DATE].]

There are five separate working condition agreements with the unions. The working condition agreement with NAGE expired on September 30, 2019. The Authority was negotiating successor agreements on working conditions with the other four unions.

The percentage of current employees eligible to retire within the next five and ten years (based on age and years of service) is shown in Table 2.

**Table 2. Percentage of Current Employees Eligible to Retire Within the Next Five and Ten Years**  
(based on age and years of service)

	03/31/2019	12/31/2024	12/31/2029
Employees	12%	21%	34%
Directors and Executives	9%	21%	42%

*Source: Authority records.*

People & Talent within the Authority’s Human Resources department launched a Succession Development Pilot Program in the 3<sup>rd</sup> Quarter of the fiscal year 2019. The pilot program includes critical positions from both leadership and operational rolls across the Authority. The program uses a systematic approach of identifying critical positions, developing internal talent, retaining organizational knowledge, and fostering interdepartmental collaboration.

**Retirement/Pension Plan**

Most DC Water employees participate in Defined Contribution type retirement plans. In the 401(a) Defined Contribution plan, all contributions are made by DC Water, who contributes 7% of employee base pay each pay period. An additional matching contribution is made (dollar for dollar) when employees defer money into the 457(b). The maximum match is 5%. Employees with salaries more than the social security wage base receive an additional 5% contribution each pay period for the salary above the social security wage base. This plan requires three (3) years of service to be fully vested (Cliff Vesting Schedule). In the 457(b) Deferred Compensation plan, employees may defer salary on a pre-tax basis up to the annual limits established by the IRS. Finally, in the Retirement Health Savings Plan, non-union employees who leave DC Water after 5 years of service with an unused sick leave balance of equal or greater than 100 hours have the value of the sick leave cashed out and deposited into a Retirement Health Savings Plan for the benefit of the employee.

The Authority has a small group (88 as of June 2019) of employees participating under Federal Benefits. Most of the employees were hired before October 1, 1987. In the Civil Service Retirement (CSR) plan, each pay period DC Water contributes 7% of base pay and the employee contributes 7% of base pay into the CSR system. When these employees retire, their pension is paid by the Federal Government and administered by the Office of Personnel Management. DC Water bears no post retirement cost. The Federal Retirement Health and Life plan consists of a grandfathered group who may continue to participate in the Federal Health Benefits Plan at the same cost share arrangement as active employees. The employer share is assumed by the federal government and administered by OPM after retirement.

The Authority has no unfunded pension liability or other post-employment benefits liability under any of the plans described above.

**Risk Management and Insurance**

The Authority has developed a comprehensive risk management and insurance program which is annually reviewed and periodically bid by management and their independent insurance advisors through qualified

brokers and direct insurance writers. The most recent risk management, insurance assessment and bid process was completed in July 2018. The Authority's insurance policies (including liability insurance and workers' compensation, property, equipment, crime, fiduciary, public officials' and employment practices liability) were renewed July 1, 2018 with coverage through July 1, 2019. Since the passage of the Terrorism Risk Insurance Act of 2002 ("TRIA"), terrorism coverage is included under all insurance policies.

### **Risks from Unexpected Events**

#### *General*

The Authority's infrastructure could sustain damage and loss of use as a result of certain unexpected events, such as terrorist attacks, extreme weather events and other natural occurrences, fires and explosions, spills of hazardous substances, strikes and lockouts, sabotage, wars, blockades and riots. While the Authority has attempted to address the risk of loss through the purchase of insurance, certain of these events may not be covered. Furthermore, even for events that are covered by insurance, the Authority cannot guarantee that coverage will be sufficient or that insurers will pay claims in a timely manner. From time to time, the Authority may change the types of, and limits and deductibles on, the insurance coverage that it carries. The Authority cannot predict what effects any of these events may have on the Authority's ability to generate Revenues but the effects may be materially adverse.

#### *Global Climate Change*

Numerous scientific studies on global climate change show that, among other effects on the global ecosystem, sea levels will rise, extreme temperatures will become more common and extreme weather events will become more frequent as a result of increasing global temperatures attributable to atmospheric pollution. Over the next 25 to 100 years, such extreme events and conditions are expected to increasingly disrupt and damage critical infrastructure and property as well as regional economies and industries that depend on natural resources and favorable climate conditions. Disruptions could include more frequent and longer-lasting power outages, fuel shortages and service disruptions. Coastal public infrastructure may be threatened by the continued increase in the frequency and extent of high-tide flooding due to sea level rise, and inland infrastructure, including access to roads, the viability of bridges and the safety of pipelines, may be affected by increases in the severity and frequency of heavy precipitation events. Near-coastal areas like the greater Washington, D.C. metropolitan area (which contains areas of land that are at or near sea level) may be at risk of substantial flood damage over time, affecting private development and public infrastructure. As a result, many residents, businesses, and governmental operations within this area could be negatively impacted and possibly displaced, reducing the number of rate payers and users of the system. In addition, local public agencies and governmental entities, could be required to mitigate these climate change effects at a potentially material cost.

#### *Ensure a Safe & Reliable Computing Environment*

As a retail utility and critical infrastructure asset, the Authority is at risk from an array of threat sources including the casual hacker to a state sponsored cyber terrorist. It is the Authority's priority and responsibility to maintain a safe and reliable computing environment 24/7. The Authority was the first water utility to adopt the voluntary Cyber Security framework outlined in Executive Order 13636, "Improving Critical Infrastructure Cyber Security," issued in February 2013. This Cyber Security framework is now formally known as the NIST Cybersecurity Framework (the "NIST Framework"). The NIST Framework forms the foundation of the Authority's Cyber Security program. Coupled with a layered defense approach, a default deny strategy, a privilege access control policy and a comprehensive cyber awareness program, the Authority strives to ensure the highest level of protection across its computing environment.

The NIST Framework focuses on five (5) primary pillars of excellence. The Authority helps to:

*Identify* – Develop an organizational understanding to manage cybersecurity risks to systems, people, assets, data and capabilities. The activities in the Identify Function are foundational for effective use of the NIST framework. Understanding the business context, the resources that support critical functions, and the related cybersecurity risks enables an organization to focus and prioritize its efforts, consistent with its risk management strategy and business needs. Examples of outcome categories include: Asset Management, Business Environment, Governance, Risk Assessment and Risk Management

*Protect* – Develop and implement appropriate safeguards to ensure delivery of critical services. The Protect Function supports the ability to limit or contain the impact of a potential cybersecurity event. Examples of outcome categories include: Identity Management and Access Control, Awareness and Training, Data Security, Information Protection Processes and Procedures and Patch Management and Protective Technology.

*Detect* – Develop and implement appropriate activities to identify the occurrence of a cybersecurity event. The Detect Function enables timely discovery of cybersecurity events. Examples of outcome categories include: Anomalies and Event detection, Security Continuous Monitoring and Correlation Analysis.

*Respond* – Develop and implement appropriate activities to take action when cybersecurity incident is suspected or detected. The Respond Function supports the ability to contain the impact of a potential cybersecurity incident. Examples of outcome categories include: Response Planning, Communications Analysis, Mitigation and Incident Management.

*Recover* – Develop and implement appropriate activities to maintain plans for resilience and to restore any capabilities or services that were impaired due to a cybersecurity incident. The Recover Function supports timely recovery to normal operations to reduce the impact from a cybersecurity incident. Examples of outcome categories include: Recovery Planning, Backup and Replication and Recovery Management.

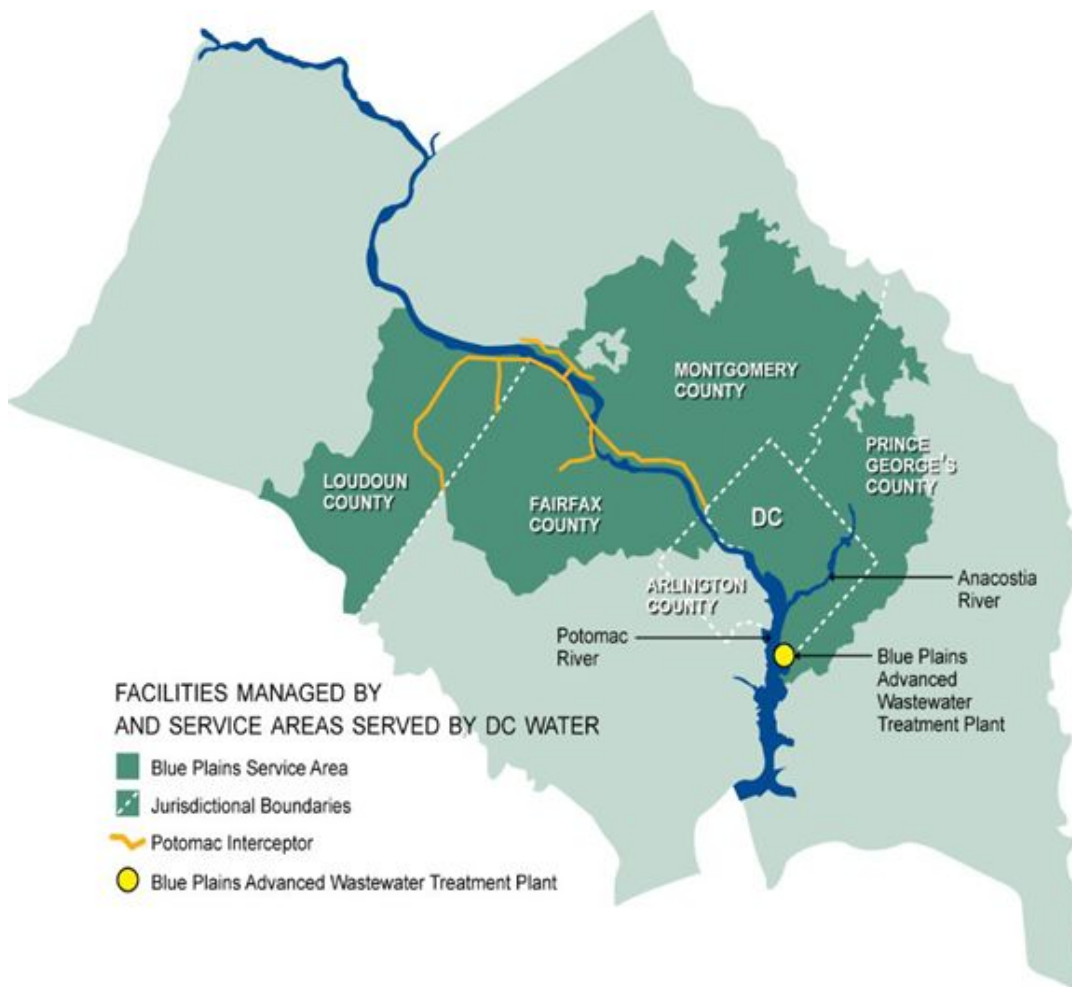
In addition to the NIST Framework, the Authority has implemented information systems with consideration to IT-related risks that could impact the Authority or the Water and Waste Water Systems of the Authority. The information system’s goal is met through the following security objectives: confidentiality – data stored on an information systems is not disclosed to unauthorized individuals; integrity – there has not been an unauthorized alteration of the data while in storage or in transit, and the information system is free from unauthorized changes; availability – the system functions as designed and service is available to authorized users upon demand; accountability – actions of an entity may be traced uniquely to that entity; assurance – confidence that the security measures protect the information system and the information it processes.

The Authority also has an established network of resources, which it leverages to proactively assess new and evolving risks including: vendors, WaterISAC, DHS, auditors and peer utilities. These resources contribute to continuously improving the Authority’s capabilities. Finally, the Authority has purchased Cyber Liability and Breach Notification insurance coverage for third party liability and privacy notification expenses resulting from data breaches. The total aggregate coverage is \$5 million.

Adopting the NIST Framework and implementing information systems alone will not ensure the Authority and the Water and Waste Water Systems are protected from a cyber-threat. The Authority’s success is achieved by institutionalizing the elements of the NIST Framework and information system, so it becomes the way of doing business not something else the Authority does.

## **THE SYSTEM**

The Authority provides retail water distribution to the District and wastewater treatment, collection and disposal services to the District and certain neighboring counties in Maryland and Virginia. The following section describes the Water and Wastewater Systems of the Authority, including a description of the Aqueduct.



**The Wastewater System**

*Blue Plains Advanced Wastewater Treatment Plant*

The Authority operates the Blue Plains Advanced Wastewater Treatment Plant (“Blue Plains”), the largest advanced wastewater treatment facility in the United States. The original wastewater treatment facility at the site of Blue Plains was built in 1938. The original facility provided only primary treatment for up to 130 million gallons per day (“mgd”). Subsequently, there have been several expansions and upgrades. Since 1983, Blue Plains has provided advanced treatment, which includes nutrient removal, filtration and dechlorination. The most recent expansion of Blue Plains was completed in 1997, which increased the plant’s capacity to 384 mgd.

*Service Area*

The Blue Plains service area includes the District (retail service), parts of Fairfax and Loudoun Counties, the Town of Vienna in Virginia, parts of Prince George’s and Montgomery Counties in Maryland, Washington Dulles International Airport and various U.S. Government agencies located in Virginia and Maryland (wholesale service). The population of the Blue Plains service area totals approximately 2.3 million, consisting of approximately 700,000 residents of the District and 1.6 million residents of the surrounding jurisdictions. In addition, the Authority annually serves approximately 22.0 million visitors to the area and approximately 800,000 workers in the District.

### *Wholesale Customer Agreements*

*Intermunicipal Agreements* – In 1985, the District signed the Blue Plains Intermunicipal Agreement of 1985 (the “1985 IMA”) with Fairfax County in Virginia, Montgomery and Prince George’s Counties in Maryland and the Washington Suburban Sanitary Commission (the “WSSC”) in order to address wastewater treatment, biosolids management and cost allocation rights, obligations and objectives with respect to Blue Plains. A significant portion of the wastewater collection and all of the wastewater treatment and related biosolids management required by the 1985 IMA was provided by the District at Blue Plains until 1996, when the District created the Authority as an independent authority with regional responsibilities to provide those services through the operation and management of Blue Plains and associated facilities. The District, however, retained and continues to hold title to the real property, appurtenances and fixtures of Blue Plains.

The 1985 IMA was replaced in 2012 by a new Intermunicipal Agreement (the “2012 IMA”), which was negotiated, approved and executed by each of the signatories to the 1985 IMA, in addition to the Authority. The 2012 IMA incorporates provisions and establishes terms relating to: facility location; current and long-range infrastructure planning and development; allocation of wastewater treatment capacity of Blue Plains and associated facilities and related peak flows for the collection system; funding and allocation of the capital costs of wastewater treatment, biosolids management and O&M costs; responsibilities with respect to pretreatment and operational requirements; the process of making future wastewater capacity planning decisions, including load allocations; mechanisms for coordination among the parties; and long-term management of the wastewater treatment and disposal process. Under those terms, the cost of operations and maintenance of Blue Plains are shared among the 2012 IMA signatories on an actual basis, whereas the costs of the capital program of Blue Plains are shared among the 2012 IMA signatories commensurate with their respective capacity allocations, with 45.8% of Blue Plains flow capacity allocated to the District and the remainder to the WSSC (on behalf of Montgomery and Prince George’s Counties) and Fairfax County. The 2012 IMA also establishes the Authority’s right to require the User Jurisdictions to off-load flows to other wastewater treatment plants as necessary to provide the Authority capacity as needed to serve the District’s portion of the service area.

*Potomac Interceptor Agreements* – Since October 1963, the District has entered into separate, limited allocation agreements with several entities that were tributaries to the Potomac Interceptor sewer as provided by statute. Certain of those agreements remain in effect and include users that did not participate in the IMA as signatories, but are allocated flow capacity under the 2012 IMA in accordance with the original individual agreements they entered into with the District prior to the 1985 IMA. Those entities include the Department of Transportation/Federal Aviation Administration on behalf of Washington Dulles International Airport, the Department of the Navy, the National Park Service, and the Town of Vienna, Virginia, which together account for less than 1% of Blue Plains allocated flow capacity. These Potomac Interceptor agreements provide for the pro-rata recovery, through the District, of the Authority’s costs of constructing, operating and maintaining the Potomac Interceptor sewer and certain major interceptor sewers within the Blue Plains service territory. A separate Potomac Interceptor agreement was executed after the 1985 IMA with the Loudoun County Sanitation Authority and is described below.

*Loudoun County Sanitation Authority Agreement* – In November 1998, the Authority and the District executed an agreement with the Loudoun County Sanitation Authority (“LCSA”) allocating the right to limited Potomac Interceptor flow capacity to the LCSA, including the treatment and disposal of the associated wastewater at Blue Plains. Consistent with that agreement, the 2012 IMA allocates commensurate Blue Plains flow capacity to the LCSA, although it is also not a signatory to the IMA. The agreement requires LCSA to pay for its share of the Potomac Interceptor and Blue Plains operating and capital costs, following the IMA methodology (i.e., based upon metered flows for operating costs and a pro rata capacity allocation for capital costs).

### *Wastewater Collection*

The wastewater collection system consists of approximately 1,900 miles of sanitary, stormwater and combined sewers, 125,000 building sewer laterals, 22 flow-metering stations, nine off-site wastewater pumping stations and 16 stormwater pumping stations. The Authority has completed detailed assessments and a large number of improvements to many of the pumping stations. See “THE SYSTEM – Wastewater Regulation and Permits” below.

### *Sanitary Sewer System*

A sanitary sewer system serves two-thirds of the District’s land area. The system includes 600 miles of interceptor and sewer collection pipes with eight sanitary pumping stations. The typical operation is a gravity flow system with a few pumping stations to pump across higher grades in the District. Over the last 15 years, the Authority has completed a number of upgrades to its sanitary sewer system, which have made the system compliant with new code standards and regulations, and increased the efficiency and effectiveness of several of the system’s pump stations.



*Combined Sewer Overflow Wastewater System*

Approximately one-third of the District's land area is served by a combined sewer overflow ("CSO") wastewater system that combines both stormwater and wastewater in a single conveyance system. Combined sewer systems are common among older cities throughout the United States. The District's combined sewer system conveys only sanitary flow to Blue Plains during dry weather. During and immediately following periods of heavy rainfall, however, the combined sanitary and stormwater flows frequently exceed the capacity of the combined sewer system and a combination of stormwater and untreated wastewater is discharged through one or more of the 53 existing CSO outfalls authorized in the Authority's NPDES Permit. See "THE SYSTEM - Wastewater Regulation and Permits – NPDES Permit" below.

*Biosolids Disposal*

In the second quarter of Fiscal Year 2015, the Authority fully implemented its new Blue Plains biosolids processing facilities featuring thermal hydrolysis and anaerobic digestion. Operation of these facilities resulted in a reduction in biosolids production from 1200 tons per day (60 truckloads) to approximately 500 tons per day (25 truckloads). These biosolids are considered Class A (as defined by EPA) and are currently applied directly to farmland at various sites in Virginia, Maryland, and Pennsylvania with disposal in landfills being utilized as an alternate method if weather conditions do not allow land application. Because the biosolids are Class A, the Authority has greater flexibility in its efforts to recycle biosolids produced at Blue Plains than it did prior to the new processing facilities. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Wastewater Treatment Projects."

**Wastewater Regulation and Permits**

*NPDES Permit.* Blue Plains is authorized to discharge treated effluent to the Potomac River through two outfalls (Outfalls 001 and 002) pursuant to an NPDES permit (the "NPDES Permit") that was reissued to the Authority by the U.S. Environmental Protection Agency (the "EPA") effective August 26, 2018. Discharges through Outfall 002, which consist of sanitary flow and some combined sewer flow from the CSO system during and following rainfall events, receive complete treatment. Combined sewer flows that exceed Blue Plains' capacity to provide complete treatment receive partial treatment and are discharged through Outfall 001. The NPDES Permit also authorizes discharges to the Anacostia River, the Potomac River and Rock Creek from the combined sewer system through a total of 53 CSO outfalls and four emergency relief outfalls.

The NPDES Permit requires that discharges from the CSO outfalls not exceed those limits necessary to comply with applicable water quality standards under the Clean Water Act, 33 U.S.C. § 1251 et seq. (the "Clean Water Act"). The Authority was the first agency to meet the voluntary nutrient reduction goal of the 1987 Chesapeake Bay Agreement. See "*The Chesapeake Bay Agreements*" below. The NPDES Permit also requires the development and implementation of a Nine Minimum Controls program (the "NMC Program"), consisting of proper operation and maintenance of the existing collection and treatment system to minimize untreated discharges from the CSO outfalls, as well as the implementation of a CSO Long-Term Control Plan (the "DC Clean Rivers Project")<sup>\*</sup> designed to control CSO discharges to prevent them from causing or contributing to violations of applicable water quality standards.

The DC Clean Rivers Project is being implemented pursuant to a consent decree among the Authority, the District, and the United States dated March 25, 2005 (the "2005 LTCP Consent Decree"). In 2016, the Authority successfully renegotiated an amendment to the 2005 LTCP Consent Decree that modifies the DC Clean Rivers Project to include green/gray infrastructure in the Potomac Watershed and green infrastructure in the Rock Creek Watershed. According to the amended 2005 LTCP Consent Decree, pursuant to the DC Clean Rivers Project, the Authority will construct 17 miles of tunnels with a combined storage capacity of 187 million gallons, five new tunnels, a low lift pumping station, several diversion structures and sewers to collect CSO overflows, and green infrastructure to control selected CSOs. The amended 2005 LTCP Consent Decree does not have an expiration date.

The DC Clean Rivers Project continues on schedule. The FY 2019 – FY 2028 CIP includes approximately \$1.42 billion for the costs of the DC Clean Rivers Project and combined sewer projects. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Combined Sewer Overflow Projects." Effective May 1, 2009, the Authority implemented a rate structure that more equitably allocates the costs of the DC Clean Rivers Project to retail customers based on the impervious surface area on customers' properties. See "CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – *Clean Rivers Impervious Area Charge*."

*Industrial Pretreatment Program.* As with most large wastewater systems, the Authority, under the provisions of the Clean Water Act, operates an industrial pretreatment program to control the discharge into the wastewater system of industrial wastewater containing certain toxins or prohibited pollutants. The Authority regulates

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<sup>\*</sup> Note that in prior Official Statements of the Authority the DC Clean Rivers Project was referred to as the "CSO LTCP".

50 “significant industrial users” as defined by EPA regulations. Fourteen of these users are located within the District; the remaining users are located in the User Jurisdictions.

*Wastewater Consent Decree and Stipulated Agreement and Orders.* Upon its creation, the Authority assumed responsibility for compliance with various legal actions taken against the District related to the operation of, and discharges from, Blue Plains, specifically including a judicial Consent Decree issued in 1995 (the “1995 Consent Decree”) and a subsequent Stipulated Agreement and Order (the “1996 Stipulated Agreement and Order”). The Authority is presently in compliance with all of the requirements under each of the 1995 Consent Decree and the 1996 Stipulated Agreement and Order. The EPA Region III has acknowledged satisfaction of these requirements, although the 1995 Consent Decree remains in effect.

*The Chesapeake Bay Agreements.* In 1987, the Mayor of the District and the Governors of the Commonwealths of Virginia and Pennsylvania and the State of Maryland entered into the 1987 Chesapeake Bay Agreement, committing each jurisdiction to, and subsequently achieving, a 40% reduction of nutrients, such as nitrogen and phosphorus, reaching the main stem of the Chesapeake Bay by the year 2000. Unlike many municipal wastewater treatment facilities that discharge into the Chesapeake Bay, the Authority has historically removed phosphorus and nitrogen. As a supplemental environmental project in settlement of liability for stipulated penalties under the 1995 Consent Decree, the Authority installed a pilot program to test a nitrogen reduction process on one-half of its wastewater, which demonstrated a greater than 40% nitrogen reduction in completely treated effluent. As a result, in 2000, the Authority began operation of full plant scale biological nutrient removal.

In 2000, the parties entered into Chesapeake 2000, a comprehensive agreement to guide further efforts to improve the water quality in the Chesapeake Bay through 2010. In April 2007, the EPA issued a modification to the Authority’s NPDES Permit, reflecting a new total nitrogen effluent limit for Blue Plains, which was developed to match the goals of Chesapeake 2000. In addition to meeting the new effluent limit for total nitrogen, the Authority had existing NPDES Permit requirements for treating wet weather flows at Blue Plains as part of its long-term control plan for the combined sewer system. In October 2007, the Authority submitted to the EPA the Blue Plains Total Nitrogen Removal/Wet Weather Plan (“TN/Wet Weather Plan”), setting forth the Authority’s proposal and schedule to attain the new nitrogen limit and to satisfy its wet weather treatment obligations. The principal TN/Wet Weather systems include the Blue Plains Enhanced Nitrogen Removal Facilities program (“ENRF”), which was designed to achieve advanced effluent treatment with nitrification and denitrification facilities, and the extension of the tunnels system from Poplar Point to Blue Plains, including tunnel dewatering and enhanced clarification facilities at the tunnels system terminus. In September 2008, the Authority submitted to the EPA a summary report that provided a plan for implementing the wet weather aspects of the TN/Wet Weather Plan. The EPA approved the TN/Wet Weather Plan in July 2010 and incorporated these changes into the amended 2005 LTCP Consent Decree.

The Authority’s current NPDES Permit, issued on September 30, 2010, required the Authority to comply with a new total nitrogen discharge limit by January 1, 2015. The ENRF was completed and began treating the full Blue Plains plant flow in October 2014, satisfying the Authority’s obligation to begin compliance by January 1, 2015. See “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Wastewater Treatment Projects.”

On June 16, 2014, the parties to Chesapeake 2000 and the Governors of the State of Delaware, New York and West Virginia entered into the Chesapeake Watershed Agreement (“2014 Chesapeake Agreement”) committing to have in place practices and controls to achieve 60% reduction of nutrients and sediments by 2017. On March 9, 2018, the Authority began operation of all TN/Wet Weather systems, which satisfies the requirements of the 2014 Chesapeake Agreement.

*Air Quality Regulations.* The Authority has applied for and received from the DOEE numerous air quality permits under Chapter 2 of Title 20 of the District of Columbia Municipal Regulations for several emission sources. The terms of the Chapter 2 air quality permits as well as other applicable requirements relating to air pollution will eventually be incorporated into an air quality operating permit under Chapter 3 of Title 20 of the District of Columbia Municipal Regulations (“Chapter 3 Operating Permit”). The Authority submitted an application to the DOEE for the Chapter 3 Operating Permit in March 2008 and the application was updated in 2016 to include all new sources.

*Future Matters.* In addition to continued compliance with its current permits and regulations described above, in the future, the Authority’s wastewater discharges may become subject to additional requirements based on new federal or local requirements. As the EPA or the District promulgate additional regulations, the Authority may be required to modify operations and/or construct facilities beyond those contemplated in the CIP. As an example, on November 23, 2015, the Authority filed a declaratory action in the U.S. District Court for the District of Columbia against the EPA, seeking to correct alleged technical errors in a regulatory action related to the Total Maximum Daily Load (“TMDL”) for E. coli. The TMDL, as approved, did not account for the normal day-to-day variability at Blue Plains and, if enforced against the Authority, could have required significant capital improvements at Blue Plains. On January 13, 2017, EPA issued a revised decision rationale, which resolved the issues that the Authority challenged. On March 13, 2017, the parties filed a motion to dismiss the Authority’s complaint and that case was closed. However, the EPA’s revised decisional rationale was challenged in a separate proceeding. On August 12, 2019, the U.S. District Court for the District of Columbia held that the TMDL for E. coli that DOEE developed and the EPA’s approval

(based on its revised decision rationale) did not comply with the Clean Water Act. The court vacated the TMDL, but stayed the vacatur for one year to allow for the development of new TMDL. The Authority will monitor the development of new TMDL and will advocate, as necessary, on behalf of itself and its rate payers.

## The Water System

### *The Washington Aqueduct*

Established in 1852, the Washington Aqueduct Division of the U.S. Army Corps of Engineers (the “USACE”) provides water to the District and parts of Virginia. The USACE owns and operates the Washington Aqueduct (the “Aqueduct”), including its two water treatment plants, raw water conduits, reservoirs, pumping stations and treated water transmission lines.

The Aqueduct facilities supply treated water to distribution systems of the Authority, Arlington County, Fairfax County Water Authority (“FCWA”) (collectively, the “Aqueduct Customers”), the federal government, and other parts of northern Virginia. In January 2014, FCWA assumed ownership and operation of the water distribution system previously owned and operated by the City of Falls Church. The Authority is responsible for managing the treated Water System that serves the District and several other governmental customers outside the District. The Authority purchases approximately 73% of the finished water produced by the Aqueduct, and Arlington County and the FCWA purchase the remainder. The Authority’s share of the water purchased from the Aqueduct in the last ten Fiscal Years is set forth in Table 3. For a discussion regarding the reduction in consumption and customer demand, see “CUSTOMER BASE, RATES AND CHARGES – Customer Demand.”

**Table 3. Historical Water Demand**

Fiscal Year ended September 30	Annual Deliveries to System (MG)	Average Day (MGD)	Max Day (MGD)
2009	39,998	109.6	150.4
2010	38,589	105.7	146.9
2011	37,556	102.9	143.7
2012	36,930	100.9	142.9
2013	34,714	95.1	129.7
2014	34,708	95.1	123.7
2015	38,146	104.5	148.4
2016	36,363	99.4	127.7
2017	35,827	98.2	122.7
2018	34,343	94.1	132.5

*Source: Authority records.*

The Aqueduct draws water from the Potomac River, which is the predominant source of water in the District and the User Jurisdictions. As a result of the Potomac River’s importance for maintaining adequate water supply, the Interstate Commission on the Potomac River Basin (“ICPRB”) and the Metropolitan Washington Council of Governments (“COG”), have maintained a drought plan since 1978, through which the Potomac River’s water supply is supplemented by a 23.5 billion gallon reserve that is stored at three separate off-river reservoirs. Due to the maintenance of this strategic reserve, the ICPRB has been able to effectively manage drought conditions and effectively allocate water resources during drought events.

The federal Safe Drinking Water Act Amendments of 1996 authorized the Secretary of the Army with the consent of the Authority, the City of Falls Church and Arlington County to either establish a non-federal public or private utility to receive title to operate, maintain and manage the Aqueduct or to allow the USACE to remain as owner and operator with the Authority, the City of Falls Church and Arlington County having some input into strategic operations, direction, operations and capital improvement of the Aqueduct. In May 1998, the Authority, the City of Falls Church, Arlington County and the USACE executed a Memorandum of Understanding that the USACE would continue to own and operate the Aqueduct facilities. In December 2013, the Authority, FCWA, Arlington County and the USACE executed a revised Memorandum of Understanding to include the FCWA as the successor in interest to the City of Falls Church.

The Aqueduct has developed a capital improvement program, including improvements to the Dalecarlia and McMillan Water Treatment Plants (each a “WTP”), raw water conduits, pumping stations and reservoirs. Over the next ten years, the Authority estimates that its share of the cost of the Aqueduct capital improvements will be \$187

million, which is accounted for in the CIP. See “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Washington Aqueduct Projects.”

The Trump Administration’s proposed 2018-20 budgets include a proposal to divest the Aqueduct currently operated by USACE to a State or local government or the private sector. In response to those proposals, the Authority is working with the other Aqueduct customers to consider and evaluate a range of possibilities, including, among others: transfer of ownership to an existing public authority (which could include the Authority); enhancing operations and maintaining current ownership; or creating a new regional water authority. At this point, no prediction can be made as to whether a divesting of the Aqueduct will occur, or, if it does, who might acquire the Aqueduct, or what the terms of the acquisition might be.

#### *Water Sales Agreement*

Pursuant to a Water Sales Agreement, dated as of July 31, 1997, by and between the Authority and the USACE (the “Water Sales Agreement”), the USACE sells and furnishes to the Authority all of the finished water that the Authority requires for the operation of the Water System to the extent that the USACE has water and facilities available at the Aqueduct. In accordance with the Water Sales Agreement, the Authority is obligated to make monthly payments into an escrow account to be used by the USACE to cover the Authority’s pro rata share, based on its consumption of water, of the costs of the operation and capital improvement of the Aqueduct. The Authority currently contributes approximately 73% of capital and operating expenditures of the Aqueduct. The Water Sales Agreement will remain in effect until September 30, 2023, unless earlier terminated in accordance with its terms. Thereafter, the Water Sales Agreement may continue until terminated by either party giving the other party not less than six months’ prior written notice.

#### *Water Supply*

The Aqueduct obtains its water supply from two Potomac River intakes at Great Falls and Little Falls. Two other regional water suppliers, FCWA and WSSC, also obtain for processing at their drinking water treatment facilities water from the same area of the Potomac River. Water for the Authority is withdrawn at the Great Falls intake and flows by gravity through two nine-mile conduits and is then pumped to the Dalecarlia Reservoir. Water also may be withdrawn from the Little Falls intake and pumped to the Dalecarlia Reservoir. The Dalecarlia Reservoir acts as a presedimentation basin for water drawn into the Dalecarlia WTP and for water diverted to the Georgetown Reservoir for subsequent treatment at the McMillan WTP.

In 1978, the United States, the District, the State of Maryland, the Commonwealth of Virginia and the FCWA entered into a Low Flow Allocation Agreement to provide a basis for allocation of resources during severe drought conditions and outline procedures to be followed in such circumstances. Water supply reservoirs developed on Little Seneca Creek and the north branch of the Potomac River are designed to augment the natural flow of the Potomac River during low flow conditions and ensure that the Washington metropolitan area will have sufficient water for years to come.

#### *Raw Water Supply Agreements*

A series of agreements ensures the continuous adequate supply of water to the Aqueduct’s and the Authority’s customers. The following are the Authority’s raw water supply agreements:

*The Savage Reservoir Maintenance and Operation Cost Sharing Agreement* was executed in June 1982. Pursuant to the laws of the State of Maryland, the Upper Potomac River District contracted with the District, WSSC, FCWA and Allegheny County, Maryland, to share the operation, maintenance, repair and replacement costs of the Savage Reservoir project located in western Maryland. This agreement provides for releases from Savage Reservoir that mix with, and thereby reduce, the acidic nature of the Jennings Randolph Lake waters. The Savage Reservoir cost-sharing agreement was incorporated by reference into the Water Supply Coordination Agreement described below.

*The Little Seneca Lake Cost Sharing Agreement* was executed in July 1982 by and among the District, WSSC and FCWA to construct a dam and reservoir to provide an adequate supply of potable water continuing into the current century. This agreement calls for WSSC to finance, construct, operate and maintain Little Seneca Lake. The Authority’s share of the project and operating and maintenance costs under the agreement is 40%. The Little Seneca Lake Cost Sharing Agreement was incorporated by reference into the Water Supply Coordination Agreement described below.

*The Water Supply Coordination Agreement* was executed in July 1982 by and among WSSC, FCWA and the Aqueduct to provide for the coordinated operation of its water supply sources and cooperative regional management of the water supply system and the cost-sharing arrangement for any water supply projects for the Washington metropolitan area, if and when they are needed.

*The Novation and Future Water Supply Storage Agreement* was executed in July 1982, by and among the United States, the Maryland Potomac Water Authority, WSSC, FCWA and the District, to provide for initial water supply storage in the Jennings Randolph Lake reservoir of approximately two billion gallons. The Novation and Future Water Supply Storage Agreement increases the amount of water supply storage to 13.4 billion gallons, or 32% of the reservoir's total storage. Of the remaining reservoir storage 40% is designated for water quality and 28% for flood control.

#### *Water Treatment and Storage*

The Authority receives finished water from the Dalecarlia and McMillan WTPs. The original Dalecarlia WTP was completed in 1928, and underwent major expansion and improvements in 1964. The McMillan WTP was constructed in 1985 on the site of the original 1905 plant. The design capacity of the Dalecarlia and McMillan WTPs was based on population growth and water use projections that are greater than have been realized to date. The total treatment capacity of the plants of 384 mgd currently exceeds the day-to-day demands and peak requirements of their respective service areas.

Finished water from the Dalecarlia WTP and McMillan WTPs is pumped by the Dalecarlia Pumping Station and Bryant Street Pumping Station, respectively, to (i) five underground reservoirs (Brentwood, Soldier's Home, Fort Reno No. 1, Fort Stanton No.1 and Fort Stanton No. 2) and three elevated tanks (Fort Reno Elevated Tank No. 2, Good Hope Elevated Tank and Boulevard Elevated Tank) operated by the Authority, and (ii) three reservoirs owned and operated by the Aqueduct (Foxhall, Van Ness and Fort Reno Reservoir No. 2). The combined facilities can store up to 110 million gallons ("mg") of finished water. Flexibility in the distribution system is provided so that each of the two water pumping stations can pump to other reservoirs in the distribution system as circumstances dictate.

In addition to the existing three elevated tanks, the Authority completed a fourth elevated tank – the St. Elizabeth's Elevated Tank in the summer of 2018, which can store up to 2 mg of finished water. The Authority also plans to replace the Ft. Reno Elevated Tank No. 2, which is currently out of service, with another elevated tank with 2 mg capacity in Fiscal Year 2024.

#### *Sold vs. Pumped Ratio*

The Authority regularly monitors the ratio of water billed to customers (sold water) versus water it purchases from the Aqueduct (pumped water). Unlike many other water utilities, the Authority does not adjust this ratio for water used in normal system activities, such as firefighting and system maintenance, including flushing of water mains and hydrant testing.

The sold versus pumped ratio increased from 72.14% in 2017 to 74.33% in 2018. Water sales figures are derived from the operating budget of the Authority and may not be consistent with the audited financial statements for each year. The cost of unbilled water is not substantial relative to total annual expenses of the Authority.

### **Water System Regulation and Permits**

#### *Drinking Water Quality*

The water operations of the Aqueduct and the Authority are subject to the requirements of the federal Safe Drinking Water Act of 1974, 42 U.S.C. § 300f et. seq., as amended in 1986 and 1996 by Congress. The 1986 amendments to the Safe Drinking Water Act extended the regulatory agenda of the EPA to include, among other things, the development of drinking water standards for 90 contaminants.

The Aqueduct and the Authority are in substantial compliance with all physical, chemical, radiological and bacteriological standards established by the regulations currently in effect under the Safe Drinking Water Act and are studying the potential impacts of proposed rules as well as those still under development by the EPA. As the EPA promulgates additional regulations, there is a potential that the Aqueduct or the Authority will be required to modify operations and/or construct facilities beyond those contemplated by the CIP. The Aqueduct and the Authority management believe, however, that planned capital projects should address all current regulatory requirements.

#### *NPDES Permit and Water Treatment System Sediments*

Until April 2003, during high flow periods, the Aqueduct discharged into the Potomac River the river sediments that are removed during the treatment process. The NPDES Permit issued in March 2003 included discharge limitations on sediments. The Aqueduct entered into a Federal Facilities Compliance Agreement ("FFCA") with EPA Region III, which provides a legally mandated plan and an enforceable compliance schedule for achieving the effluent discharge limitations in the NPDES Permit. The Aqueduct evaluated various options for residuals collection, conveyance, processing and disposal and selected a process which dewateres the residuals on site and transports them off-site for disposal. Construction on this project commenced in Fiscal Year 2008, was completed and placed into service on November 22, 2012. The Authority's share of the total cost of this project was \$98.6

million. See “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Washington Aqueduct Projects.”

#### *Lead Levels*

Pursuant to the Safe Drinking Water Act, the Lead and Copper Rule promulgated in 1991 by the EPA (the “Lead and Copper Rule”) establishes maximum contaminant level goals and action levels for lead and copper. Large water suppliers, such as the Authority, are required to perform periodic monitoring and optimize corrosion control of water so as to minimize leaching of lead and copper contaminants into drinking water. If more than 10% of the tap water samples contain lead above the “action level” of 15 micrograms per liter, the water supplier is required to perform public education and to optimize the corrosion control treatment. If, after optimal corrosion control treatment has been implemented, the lead level in water at the tap continues to exceed the action level, the supplier must annually replace 7% of existing lead service lines that it owns. Alternatively, the water supplier may demonstrate through testing that individual lead service lines that it owns do not have lead levels above the action level (called “sampling in lieu of replacement”). The supplier may perform a combination of these two actions to attain the 7% annual replacement level. In the District, property owners own the lead service lines.

In August 2002, the Authority reported to EPA Region III that results for the sampling period from July 2001 to June 2002 demonstrated lead levels in excess of the threshold for action established by the Lead and Copper Rule. Elevated lead levels were believed to be linked to changes in the Aqueduct’s water treatment methods. In November 2000, the Aqueduct had switched from free chlorine to chloramines disinfection to reduce the concentration of disinfection byproducts under the federal Disinfectant Byproducts Rule. Elevated lead levels began appearing within a year of the chlorine/chloramines switchover.

In February 2004, EPA Region III commenced an audit of the Authority’s compliance with the Lead and Copper Rule and found noncompliance with regard to sampling, monitoring, public notification and reporting requirements. In an Administrative Order dated June 17, 2004, as supplemented on January 14, 2005, and amended on June 8, 2005 (collectively, the “Administrative Order”), EPA Region III and the Authority agreed to remedies for the issues identified by the compliance audit. The Authority and the Aqueduct undertook appropriate measures to implement corrosion control treatment. Lead levels have consistently been below the action level since 2005 and the Authority is no longer subject to the Administrative Order from EPA Region III.

Pursuant to a Consent Agreement and Final Order (“CAFO”) executed on May 2, 2007, the Authority agreed to pay a civil penalty in the amount of \$10,000 to EPA Region III for certain alleged reporting violations of the Lead and Copper Rule. The CAFO resolved all of the civil claims in connection with these allegations. EPA Region III and the DOJ also conducted an investigation to determine whether any criminal violations occurred in connection with the Annual Report on Lead Service Replacement Program the Authority filed with EPA Region III in October 2003 and the two different methods the Authority used to test lead levels. In October 2008, EPA Region III and the DOJ informed the Authority that it would take no adverse action against the Authority, thereby resolving all criminal claims against the Authority in connection with this matter.

In addition to the measures undertaken by the Authority pursuant to the Administrative Order, in 2004 the Authority commenced a voluntary lead service replacement program, even though not legally required to do so under the Lead and Copper Rule. In order to reduce adverse impacts and costs to ratepayers, lead service replacement construction work was performed in conjunction with sewer laterals, small valves and water main repair work, and the replacement of broken or defective hydrants. However, this resulted in a large number of partial lead service replacements because many property owners declined to replace the lead service line on their private property. In 2008, in response to research indicating that partial lead service replacements are not effective in reducing lead levels, the Authority discontinued its accelerated replacement program. In September 2009, the Board approved modifications of the Authority’s lead service replacement policy to encourage full service line replacements and to manage costs. Under the modified policy, public lead service lines (between the main and the property line) will continue to be replaced with copper pipes in conjunction with: (i) the Authority’s water main replacement projects when the Authority must replace the water service pipe to connect to a new water main, and (ii) when the customer replaces the private portion of lead service lines and requests that the Authority replace the public portion of the lead service line.

A study authored by Marc Edwards, PhD, an engineer at the Virginia Polytechnic Institute and State University, and Dana Best, MD, a physician at the Children’s National Medical Center, published in the March 1, 2009, issue of *Environmental Science and Technology*, found that the number of toddlers and infants with high blood-lead concentrations more than doubled in certain District neighborhoods that experienced rising lead concentrations in 2001 (the “Edwards Study”). These findings contradicted a report published by the Centers for Disease Control and Prevention (the “CDC”) on March 30, 2004 (the “2004 CDC Report”), which found that lead might have contributed a small increase in blood lead levels and claimed that no children with dangerously high blood lead levels were found in the District.

The Edwards Study prompted the U.S. House of Representative’s Committee on Science and Technology to open an investigation into the 2004 CDC Report. The Majority Staff of the Subcommittee on

Investigations and Oversight of the Committee on Science and Technology issued a report on May 20, 2010, releasing its findings. The Subcommittee's primary findings include, among others, that (i) the CDC knowingly used flawed data in drafting the 2004 CDC Report, leading to "scientifically indefensible" claims being included in the 2004 CDC Report, and (ii) the CDC failed to publicize later research showing that the harm was more serious than the 2004 CDC Report suggested. In May and June 2010, the CDC issued two notices to the readers of its digest, *Morbidity and Mortality Weekly Report*, admitting that the 2004 CDC Report was misleading and that it "should not be used to make conclusions about the contribution of water lead to blood levels in DC, to predict what might occur in other situations where lead levels in drinking water are high, or to determine safe levels of lead in drinking water."

In December 2010, the CDC published a study of the District's water supply conducted from 1998 to 2006, which concluded that children living in the District were exposed to high levels of lead despite an attempt to prevent the water from being contaminated by partial lead service replacements. The 2010 CDC Study confirms information the Authority received in previous years which led the Authority in 2008 to discontinue the partial lead service line replacements. Partial line replacements can cause agitation that temporarily releases lead into the home, which can cause a temporary spike in lead levels. As described above, the Authority modified its lead service line replacement program in 2009 and continues its efforts to address lead in drinking water by: (i) monitoring household lead levels to ensure drinking water is in compliance with the EPA drinking water standards, (ii) conducting research on household plumbing characteristics, (iii) offering free lead testing, (iv) recommending full lead service replacements on public and private property, (v) providing free water filters and lead testing following a full or partial lead service line replacement, (vi) recommending that pregnant women and children under the age six should use filtered tap water for drinking and cooking until all sources of lead impacting water are removed, and (vii) participating in coordinated District interagency meetings and responses to lead in water issues.

The Authority estimates the cost of the lead service line replacement program in the CIP at \$63.2 million over the next 10 years. From the inception of the line replacement program through September 30, 2018, the Authority expended \$214.8 million on the lead service line replacement program. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Water Projects."

The Lead Water Service Line Replacement and Disclosure Amendment Act of 2018, D.C. Law 22-241, effective March 13, 2019 (the "Line Replacement Act"), established new programs that will fund the replacement of the lead service lines on private property. The Authority is prohibited, however, from replacing only a portion of a lead water service line that is on public property. The Line Replacement Act accomplishes four things:

- (1) Full Lead Water Service Line Replacement. The Line Replacement Act authorizes the Authority to use District appropriated funds to pay for the costs to replace the lead water service line on private property when the Authority is replacing the lead water service line in conjunction with water main replacements or after an emergency replacement of the water main or lead water service line;
- (2) Lead Water Service Line Replacement Payment Assistance Program. In cases where the water service line on public property is not lead, the District has budgeted appropriated funds to assist all District homeowners to provide 50% to 100% of the costs, depending on their household income, to pay for the lead water service line replacement on private property. This provision was funded by the District's budget and included in the Authority's Fiscal Year 2020 budget. Under this program, the Authority is responsible for certifying that the work is done, and paying the contractor from funds provided by the District;
- (3) Voluntary Lead Service Pipe Replacement Program. In cases when there are lead service lines on private property and in public space, but the District's funds are insufficient to cover the costs, or where the Authority does not have any planned activities to replace water mains and the lead water service lines connected to them within two years, or the street is not under a DDOT moratorium, the property owner may participate in the Authority's Voluntary Lead Service Pipe Replacement program. Under this program, the property owner agrees to pay the costs for the replacement of the lead pipe on private property and the Authority will replace the pipe in the public space at the same time; and
- (4) Education. Creates a new series of outreach, education and disclosure requirements for home sellers and real estate agents to increase awareness of lead service issues.

As of the date of this Official Statement, the District has proposed funding for both these programs in the Fiscal Year 2020 Budget, but their implementation will not have a material impact on the Authority or its finances.

### **Protection of the Water System and Wastewater System**

In 2000, the Authority developed and implemented an extensive security program in conjunction with the District's Metropolitan Police Department and various federal agencies, including the Federal Bureau of Investigation and the Bureau of Alcohol, Tobacco and Firearms (the "2000 Security Program"). After the events of

September 11, 2001, and in response to certain provisions of the Bioterrorism Act of 2002 and amendments to the Safe Drinking Water Act pertaining to security for community water systems, the Authority implemented additional security measures beyond the 2000 Security Program.

The Aqueduct and each of the Aqueduct Customers have independent obligations under law to protect the community water systems they operate. Both the Authority and the Aqueduct completed studies of Water System vulnerability using the Sandia National Laboratories RAM-W methodology. The vulnerability reports were submitted to EPA Region III in March 2003 to fulfill the Bioterrorism Act requirement for a vulnerability assessment.

Blue Plains and the primary water and wastewater distribution facilities it operates are fenced, gated and manned 24 hours a day by security officers. Major security technology video surveillance, intrusion alarm monitoring, and access control management system upgrades are utilized, with significant security technology upgrades in progress at several facilities and properties. The secondary distribution facilities are monitored by vehicular security patrols as well as some security technologies. The Authority also employs cameras and other monitoring equipment at these facilities.

Access to facilities operated by the Aqueduct is also controlled, and the Aqueduct has increased security at both staffed and remotely operated facilities. In conformance with the requirements of the Safe Drinking Water Act, the Aqueduct contracted with the Interstate Commission on the Potomac River Basin to develop a source water assessment and monitoring program. The program was implemented in 2002. In 2003, the Aqueduct together with the Fairfax County Water Authority and the WSSC founded the Potomac River Drinking Water Source Protection Partnership to further the goals of watershed protection. In 2014, the Aqueduct and the Authority collaborated with the Metropolitan Washington Council of Governments to pilot a web-based regional source water assessment tool (“WaterSuite”) building on the static 2002 assessment prepared by the Interstate Commission on the Potomac River Basin. The WaterSuite tool emphasizes chemicals stored throughout the watershed and draws upon federal, state, and local databases for insights into potential chemical contaminants. The physical security of the Aqueduct facilities that (i) collect water from the Potomac River, (ii) process the water to Safe Drinking Water Act standards, and (iii) deliver the water into the Authority’s distribution system are all maintained via a wide variety of means including gated facilities, armed guards, video surveillance, and employee protocols. All Aqueduct employees have current federal background investigations that are required for their employment. The electronic business records of the Aqueduct are handled on systems accredited by the Department of Defense to give a high assurance of control over unauthorized intrusion. The industrial control systems that function to control treatment plant processes and data transfer operate in a contained environment (i.e., no connection to the Internet). These systems are also accredited by Department of Defense and Department of the Army agencies and are constantly monitored for possible compromise. The Aqueduct is currently upgrading all elements of its industrial control system for both increased reliability as well as security.”

For information regarding the cyber security measures taken to protect the Authority and the Water and Waste Water Systems, see “THE AUTHORITY – Risks from Unexpected Events – Ensure a Safe and Reliable Computing Environment.”

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## CAPITAL IMPROVEMENT PROGRAM

### General

The Authority utilizes an annually adopted ten-year Capital Improvement Program to plan and manage the capital investments necessary to fulfill its service missions, comply with regulatory requirements and preserve and upgrade its Water and Wastewater Systems. The Authority updates the CIP annually in conjunction with its budget process, based on detailed project review by engineering staff, external engineering consultants retained by the Authority and senior management.

The Authority evaluates and prioritizes capital projects based on specific criteria. These criteria are fundamental in developing a CIP based on demonstrated needs and are set forth in Table 4 and described below.

**Table 4. Capital Improvement Program Criteria**  
(\$ in thousands)<sup>1</sup>

Fiscal Year	Mandates <sup>2</sup>	Health and Safety <sup>3</sup>	Board Policy <sup>4</sup>	Potential Failure <sup>5</sup>	High Profile Good Neighbor <sup>6</sup>	Good Engineering/High Payback <sup>7</sup>	Good Engineering/Lower Payback <sup>8</sup>	Total
FY 2019	\$210,807	\$13,874	\$33,472	\$36,117	\$8,132	\$87,332	\$49,385	\$439,117
FY 2020	150,388	3,821	67,776	42,560	501	98,520	56,776	420,342
FY 2021	139,790	5,858	72,529	41,437	924	112,534	93,944	467,016
FY 2022	191,411	6,928	53,535	37,742	3,315	149,552	119,241	561,724
FY 2023	151,297	2,099	42,382	72,801	1,281	151,811	108,335	530,006
FY 2024	64,692	5,368	50,055	34,511	558	158,304	109,120	422,607
FY 2025	55,919	12,457	54,634	35,514	1,415	183,675	106,744	450,358
FY 2026	144,295	18,846	48,081	40,102	2,679	162,071	169,379	585,454
FY 2027	97,067	8,604	44,926	31,137	89	152,165	201,677	535,666
FY 2028	<u>83,286</u>	<u>1,511</u>	<u>65,369</u>	<u>33,705</u>	--	<u>167,928</u>	<u>192,690</u>	<u>544,490</u>
Total	<b>1,288,951</b>	<b>79,366</b>	<b>532,760</b>	<b>405,626</b>	<b>18,893</b>	<b>1,423,892</b>	<b>1,207,291</b>	<b>4,956,780</b>
% of Total	<b>26.0%</b>	<b>1.6%</b>	<b>10.7%</b>	<b>8.2%</b>	<b>0.4%</b>	<b>28.7%</b>	<b>24.4%</b>	

<sup>1</sup> Column and row totals may not add due to rounding.

<sup>2</sup> Agreements, regulatory standards, court orders, issues and permits requirements, stipulated agreements, etc.

<sup>3</sup> Projects required to address public safety.

<sup>4</sup> Projects undertaken as a result of the Board's commitment to outside agencies.

<sup>5</sup> Projects related to facilities in danger of failing or critical to meeting permit requirements.

<sup>6</sup> Projects that address public concerns.

<sup>7</sup> Projects that are necessary to fulfill mission and upgrade facilities.

<sup>8</sup> Lower priority projects.

Source: Authority records.

Since its creation in 1996 through September 30, 2018, the Authority has expended approximately \$5.9 billion, on a cash disbursement basis, for capital improvement projects, including \$2.6 billion for projects at Blue Plains, \$883.3 million for Water System infrastructure projects, \$1.9 billion for the DC Clean Rivers Project and combined sewer projects, \$423.9 million for sanitary sewer projects, \$65.7 million for non-process facilities, and \$112.9 million for meter replacement/Automated Meter Reading ("AMR") projects.

The Authority estimates the cost of the Fiscal Year 2019 - 2028 CIP at \$4.96 billion on a cash disbursement basis, including approximately \$979 million for wastewater treatment projects at Blue Plains, \$1.3 billion for the DC Clean Rivers Project and combined sewer projects, \$945 million for Water System infrastructure projects, \$957 million for sanitary sewer projects, \$69 million for stormwater projects, \$138 million for non-process facilities, \$295 million for capital equipment, \$187 million for Washington Aqueduct Division projects and \$45 million for meter replacement/AMR projects. The Board approved the CIP on April 4, 2019.

An overview of the CIP project categories and the sources of funding is set forth in Table 5.

DC Water Board of Directors - X. Consent Items (Joint Use)

**Table 5. Fiscal Year 2019 - 2028 Capital Improvement Program  
Sources and Uses of Capital Funds  
Fiscal Years ended/ending September 30  
(\$ in thousands)<sup>1,2</sup>**

Actual(s) <sup>3</sup>	Projected										Total (FY19-FY28)	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		2028
<b>BEGINNING BALANCE</b>	<b>\$172,706</b>	<b>\$282,107</b>	<b>\$146,623</b>	<b>\$126,525</b>	<b>\$121,691</b>	<b>\$122,820</b>	<b>\$122,241</b>	<b>\$142,368</b>	<b>\$152,463</b>	<b>\$101,684</b>	<b>\$110,769</b>	<b>\$282,107</b>
<b>SOURCES OF FUNDS:</b>												
Proceeds from Rev. Bonds	\$346,672	\$110,000	\$190,000	\$225,470	\$282,036	\$224,077	\$125,000	\$140,000	\$168,381	\$176,895	\$172,490	\$1,814,349
System Availability Fee (SAF)	0	1,130	5,775	7,700	7,700	7,700	7,700	7,700	7,700	7,700	7,700	68,505
Transfer from Operations (CRIAC)	0	31,270	34,769	39,522	42,586	45,708	47,120	47,247	48,193	49,571	50,415	436,401
Transfer from Operations (Pay-Go)	113,021	69,989	59,732	100,316	113,858	132,832	165,152	164,901	179,571	182,295	198,129	1,366,775
EPA Grants /FEMA Grants/DC												
Reimbursement	25,332	16,385	38,990	15,858	15,858	15,858	15,858	15,858	10,000	10,000	10,000	164,665
CSO Grants	14,054	8,000	-	-	-	-	-	-	-	-	-	8,000
Wholesale Customer Capital												
Contributions	98,522	63,877	67,321	71,625	97,995	101,012	80,655	83,347	119,146	116,520	119,986	921,484
Interest Income	1,730	2,981	3,658	1,691	2,820	2,241	1,250	1,400	1,684	1,769	1,725	21,219
<b>Total Sources</b>	<b>\$599,330</b>	<b>\$303,633</b>	<b>\$400,244</b>	<b>\$462,182</b>	<b>\$562,853</b>	<b>\$529,428</b>	<b>\$442,735</b>	<b>\$460,453</b>	<b>\$534,675</b>	<b>\$544,750</b>	<b>\$560,446</b>	<b>\$4,801,398</b>
<b>USES OF FUNDS:</b>												
Water System Projects	\$69,006	\$61,885	\$71,721	\$96,300	\$101,039	\$84,395	\$96,491	\$103,325	\$106,145	\$105,338	\$118,377	\$945,016
Blue Plains Projects	106,104	69,979	66,620	76,510	97,635	110,047	82,434	81,249	133,338	137,575	123,351	978,738
Sanitary Sewer Projects	46,888	44,927	43,646	57,249	85,588	97,220	98,194	115,011	140,020	134,664	140,615	957,134
Combined Sewer	12,420	7,490	4,219	9,444	8,015	8,647	13,519	8,852	5,801	5,593	7,598	79,178
Combined Sewer LTCP (DC Clean Rivers Project)	175,874	187,859	147,208	139,786	191,573	151,411	64,415	55,689	144,295	97,067	83,286	1,262,589
Stormwater Projects	1,988	4,220	8,571	8,118	8,587	3,725	4,987	7,564	7,494	5,239	10,102	68,607
Non Process Facilities	35,526	15,309	36,002	26,793	20,665	6,831	11,058	10,396	3,901	3,553	3,560	138,068
Washington Aqueduct Division	13,194	12,930	15,532	15,909	15,536	35,006	14,830	32,731	9,034	12,298	23,321	187,127
Capital Equipment	14,430	27,400	17,105	30,027	29,656	29,295	33,750	32,610	32,496	31,409	31,349	295,097
Meter Replacement / AMR / CIS	14,499	7,118	9,718	6,880	3,430	3,430	2,930	2,930	2,930	2,930	2,930	45,226
<b>Total Uses</b>	<b>\$489,929</b>	<b>\$439,117</b>	<b>\$420,342</b>	<b>\$467,016</b>	<b>\$561,724</b>	<b>\$530,007</b>	<b>\$422,608</b>	<b>\$450,357</b>	<b>\$585,454</b>	<b>\$535,666</b>	<b>\$544,489</b>	<b>\$4,956,780</b>
<b>Sources Minus Uses</b>	109,401	(135,484)	(20,098)	(4,834)	1,129	(579)	20,127	10,096	(50,779)	9,084	15,957	(155,382)
Capital Contingency Reserve for Clean Rivers	-	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
<b>Sources Minus Uses Net of Reserves</b>	<b>109,401</b>	<b>(165,484)</b>	<b>(50,098)</b>	<b>(34,834)</b>	<b>(28,871)</b>	<b>(30,579)</b>	<b>(9,873)</b>	<b>(19,904)</b>	<b>(80,779)</b>	<b>(20,916)</b>	<b>(14,043)</b>	<b>(185,382)</b>
<b>Ending Balance</b>	<b>\$282,107</b>	<b>\$146,623</b>	<b>\$126,525</b>	<b>\$121,691</b>	<b>\$122,820</b>	<b>\$122,241</b>	<b>\$142,368</b>	<b>\$152,463</b>	<b>\$101,684</b>	<b>\$110,769</b>	<b>\$126,725</b>	<b>\$126,725</b>

<sup>1</sup> Totals may not add due to rounding.

<sup>2</sup> Beginning in Fiscal Year 2019, the Authority will set aside \$30 million of cash on hand from the above sources to serve as a contingency for the DC Clean Rivers Project. The ending balance shown above in each year beginning in Fiscal Year 2019 is inclusive of these funds and assumes that such funds are not drawn down through Fiscal Year 2028.

<sup>3</sup> Preliminary results, unaudited.

Source: Authority records.

## Categories of CIP Projects

*Water System Projects.* Projects in the water service area are designed to maintain an adequate and reliable potable water supply to customers and to provide required fire protection for the District. Categories of projects include the rehabilitation and replacement of water mains, water service connections, storage facilities, and pumping stations. The Authority has completed several critical improvements to the Water System, including cross connection removal, and major pumping station and storage facility rehabilitation.

The CIP includes approximately \$945 million in projected disbursements for Water System projects, including new system storage facilities, large diameter water main rehabilitation, 1% renewal of small diameter water mains (including ancillary items, such as fire hydrants, valves and service connections) DDOT-related water main projects, and continued funding for the water lead program. See “THE SYSTEM – The Water System – Water System Regulation and Permits – Lead Levels.”

*Blue Plains – Wastewater Treatment Projects.* Capital projects in the wastewater treatment service area are required to rehabilitate, upgrade or provide new facilities at Blue Plains to ensure that it can reliably meet its NPDES Permit requirements and produce a consistent, high-quality dewatered solids product for land application. The Authority has undertaken several major capital improvement projects to rehabilitate, replace or add new processes and capacity at Blue Plains in recent years, including: (i) a new facility was placed in service in 2015 to comply with NPDES requirements to reduce nitrogen in the plant effluent; (ii) facilities to digest solids after thermal hydrolysis treatment were placed in operation in 2015, reducing the volume by 50% (reducing hauling and recycling costs) and resulting in production of Class A biosolids, which can be applied to land without any pathogen-related restrictions at the site and also can be bagged and marketed to the public for application to lawns and gardens, thereby increasing beneficial reuse options; (iii) a combined heat and power facility to utilize digester gas produced by the process to generate electricity (up to one-third of plant needs) along with steam for the thermal hydrolysis and digestion process, and a belt filter press facility to dewater the Class A product were placed in service in 2016; (iv) a facility upgrade to improve secondary treatment performance for more efficient overall nitrogen removal capability was completed in 2018; (v) construction of a new facility to treat high nitrogen load dewatering recycles was completed in 2018; (vi) the design phase for an upgrade of a raw wastewater pump station, the filtration and disinfection facility and the gravity thickener complex will be completed in 2018; and (vii) an upgrade of one of the influent pumping facilities, which is expected to be completed in 2019; and (viii) a tunnel dewatering pump station and enhanced clarification facilities to pump out and treat flows captured through the Authority’s ongoing combined sewer overflow projects were completed and placed in operation in 2018.

The projected ten-year disbursements for wastewater treatment projects are approximately \$979 million, which includes approximately \$901 million in disbursements for liquid, plant-wide and solids processing projects such as major improvements to filtration and pumping facilities, and \$78 million for the ENRF program projects such as the Tunnel Dewatering Pump Station and Enhanced Clarification Facility.

*Sanitary Sewer Projects.* The CIP includes approximately \$957 million in projected disbursements for sanitary sewer projects including the rehabilitation of six sanitary sewer pumping stations – Potomac, Main & O, Swirl Facility, East Side, and 3rd & Constitution Avenue, as well as sewer condition assessments that cover 60 miles of the system per year through year 2026. Rehabilitation of the District’s major assets including the Potomac Interceptor, B Street/New Jersey Avenue Trunk Sewer, Northeast Boundary Trunk Sewer, Anacostia Force Main and portions of the other 35 major sewers are also included. Creekbed sewers and sewers under buildings will largely be rehabilitated as part of these projects. The program to rehabilitate other small and large diameter sewers including replacement and lining of laterals, and replacement of manholes, is an ongoing project of the Authority.

In 2016, the Authority completed a Sewer System Asset Management Plan. This Plan includes a risk tool that calculates the consequence of failure and likelihood of failure for each sewer in the system. This information can then be used to prioritize sewers for inspection/condition assessment and/or rehabilitation. The Plan also includes a high level risk assessment for all pumping stations in the system which can also be used to help prioritize proposed CIP projects for these facilities. The Sewer System Facilities Plan represents the culmination of an initiative involving sewer inspection and condition assessment, development of a sewer GIS database, hydraulic monitoring and modeling to assess system capacity and the development of prioritized activities for system improvement.

*Combined Sewer Overflow Projects.* The CIP includes \$1.34 billion for the DC Clean Rivers Project and combined sewer projects. The DC Clean Rivers Project is designed to control combined sewer overflow discharges to prevent them from causing or contributing to violations of applicable water quality standards. See “THE SYSTEM – Wastewater Regulation and Permits – NPDES Permit.” Through the DC Clean Rivers Project, the Authority will construct combined sewage storage/conveyance tunnels that are designed to intercept and store water until Blue Plains can receive and treat the combined sewage. The DC Clean Rivers Project includes a variety of capital improvement projects throughout the System including three large tunnel systems which will accommodate the storage of combined sewer overflows (“CSOs”) from storm events until they can be conveyed to Blue Plains for treatment. Approximately one-third of the System is served by a combined sewer system, in which both sanitary sewage and

stormwater flow through the same pipes. When the collection system reaches capacity, typically during periods of heavy rainfall, the system is designed to overflow the excess diluted sewage or CSOs.

The DC Clean Rivers Project also includes the Authority's green infrastructure initiative. See "THE SYSTEM – Wastewater Regulation and Permits." The green infrastructure initiative is cost-neutral (as compared to the Authority's tunnel options) and will reduce the size of the tunnels required to serve the Rock Creek and Potomac River by implementing new environmental technologies on a significant scale. Green infrastructure technologies capture, infiltrate, treat and reuse polluted stormwater runoff before it enters the sewer system. Examples of green infrastructure technologies include rain gardens, porous pavements, bioswales, green roofs, infiltration planters, trees and tree boxes, and rainwater harvesting for non-potable uses such as landscape irrigation. See "DEBT SERVICE REQUIREMENTS – Outstanding Subordinate Debt – Subordinate Bonds - Environmental Impact Bonds."

When completed, the DC Clean Rivers Project will reduce the combined sewer overflows by at least 96% (exceeding the EPA standard of 85%), reducing pollution to the Potomac, Anacostia and Rock Creek waterways, improving water quality, and reducing locally generated debris from the combined sewer system and local waterways. The Authority expects to implement the DC Clean Rivers Project, which commenced in March 2005, over a 25-year period, at a total estimated cost (including funds spent prior to Fiscal Year 2018) of \$2.8 billion.

*Stormwater Projects.* The projected disbursements for the stormwater service area in the CIP are approximately \$69 million and include extensions to the system and relief of certain sewers as well as rehabilitation or replacement of deteriorated storm sewers. Also, included in the budget is the rehabilitation of the stormwater pumping stations operated and maintained by the District.

*Non-Process Facilities Projects.* This area accommodates projects approved under the non-process facilities master plan and related improvements necessary to support Authority critical operations. The CIP includes approximately \$138 million in projected disbursements for facility land use projects. In fiscal year 2019, the Authority completed its Administrative Headquarters Building at the Main & O Street Campus and relocated over 300 employees into the new LEED Platinum facility.

*Washington Aqueduct Projects.* The Aqueduct provides wholesale water treatment services to the Authority and other Aqueduct Customers. See "THE SYSTEM – The Water System – The Washington Aqueduct." Under federal legislation enacted and a memorandum of understanding executed in 1997, the Aqueduct Customers have a role in the oversight of the Aqueduct's operations and its capital improvement program. The Aqueduct successfully designed, constructed and implemented a new orthophosphate corrosion control system at its water treatment plants in 2005 that meets the optimal corrosion control requirements of the Lead and Copper Rule. As a result, periodic sampling by the Authority shows that lead levels are below the action level, which supported the decision of the Authority to significantly modify its lead pipe replacement program. The CIP includes approximately \$187 million for Aqueduct projects. See "THE SYSTEM – The Water System – Water System Regulation and Permits – NPDES Permit and Water Treatment System Sediments."

*Capital Equipment Projects.* The CIP includes approximately \$295 million for major information technology projects, vehicle fleet upgrades, and large equipment projects at Blue Plains and the major water and sewer pumping stations.

*Meter Replacement Projects.* The CIP includes approximately \$45 million for ongoing meter replacements and continued automated meter reading system improvements and upgrades to the AMR equipment. This planned upgrade is part of the Authority's preventative maintenance program for the advanced meter infrastructure, which collects data from approximately 120,000 meter readings per day and is an essential asset to the Authority's billing process. The upgrades allow the Authority to move to the current version of AMI software and replace aging meters and meter data communication equipment.

#### **CIP Financing Sources**

The Authority expects to finance the CIP from multiple sources including (i) revenue bonds, (ii) income from certain fees and charges, pay-as-you-go funds and interest income (all of which constitute Revenues under the Indenture), as well as (iii) federal and other grants and wholesale customer contributions (which are excluded from the definition of Revenues under the Indenture). The CIP financing sources are summarized below.

*Revenue Bonds/Commercial Paper Notes.* The Authority expects to finance approximately \$1.81 billion, or 37.8%, of the sources of funds with new long-term debt. The Authority has used, and expects to use in the future, its Commercial Paper Notes and EMCP Notes to fund capital needs on an interim basis, followed by issuance of long-term revenue bonds (or other forms of indebtedness, as appropriate) to retire outstanding Commercial Paper Notes and EMCP Notes and provide permanent financing for CIP costs. As approved by the Board, the total amount of Commercial Paper Notes outstanding at any time cannot exceed \$150 million. As of the date of this Official Statement, \$29.2 million of the Series C CP Notes were outstanding. In addition, the Authority anticipates using proceeds from the EMCP Notes as an additional CIP financing source. As approved by the Board, the total amount of Series A

EMCP Notes outstanding at any one time cannot exceed \$100 million. As of the date of this Official Statement, \$50 million of the Series A EMCP Notes were outstanding.

*System Availability Fee.* On February 1, 2018, the Board approved a new System Availability Fee (“SAF”) to be effective June 1, 2018. The SAF is intended to be a one-time fee, assessed to a property owner of any premises, building or structure, to recover the cost of system capacity servicing all metered water service and sanitary sewer connections renovation or redevelopment projects that require an upsized meter size connection to the water and sewer system in the District. For a renovation or redevelopment project on a property that already has the Authority meters and accounts, credits will be applied for the older meters being removed from the system. Such fees are common in the industry and among utilities in the region. The SAF is based on meter size. The Authority currently expects to finance \$68 million, or 1.4%, of the sources of funds with revenues generated by the SAF.

*Clean Rivers Impervious Area Charge.* The Authority currently expects to finance about \$436 million, or 9.1%, of the sources of funds with revenues received from the Clean Rivers Impervious Area Charge (“CRIAC”), which was implemented in Fiscal Year 2009 to recover the costs of the DC Clean Rivers Project. For more information regarding the CRIAC, see “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – Clean Rivers Impervious Area Charge.”

*Pay-As-You-Go Funds.* The Authority expects to finance approximately \$1.36 billion, or 28.5%, of the sources of funds with pay-as-you-go funds. Revenues in excess of those required to meet operating and maintenance expenses, to make debt service payments and to fund reserves can be used, at the discretion of the Authority, to fund a portion of the CIP. The projected financial operations of the Authority assume that such amounts are used as a source of funds for the CIP. In addition, the Authority established a separate line item in its operating budget beginning in Fiscal Year 2015 to provide funds for additional cash-financed capital construction, the defeasance of debt, or other uses at the discretion of the Authority. The projected financial operations of the Authority assume that the amounts in this line item are also used as a source of funds for the CIP. The Board has also adopted a policy that authorizes any funds in excess of the operations and maintenance reserve and any other significant one-time cash infusions to be used to finance the CIP or to pay off higher cost debt. The projected financial operations of the Authority assume at this time that no funds are available from these potential sources.

*Interest Income on Bond Proceeds.* The Authority estimates that \$21 million in interest income, or 0.4%, will be available to finance the CIP. Subject to Federal tax law requirements relating to use of the proceeds of tax-exempt bonds, the Authority uses interest earned on the proceeds of its bonds as a source of funds for the CIP. This interest income is treated as non-operating revenue of the Authority that is available to pay debt service, if needed. The use of this income for capital funding purposes represents another source of pay-as-you-go capital.

*Federal and Other Grants.* The Authority expects to finance approximately \$172 million, or 3.6%, of the sources of funds with federal and other grants. The Authority receives annual grants from the federal government under the Clean Water Act and Safe Drinking Water Act for a variety of projects at Blue Plains and for the Water System to improve drinking water supplies and wastewater treatment. Unlike most public water or wastewater utilities, the Authority receives appropriations in the form of grants and not as loans pursuant to a State Revolving Fund program. Under the terms of these grants, payments to the Authority are made on a reimbursable basis, with unclaimed appropriations remaining available to be obligated in subsequent years. In addition, the Authority has received a special Congressional appropriation for improvements to the combined sewer system. Under the Wet Weather Water Quality Act of 2000 that codified the EPA’s 1994 National CSO Policy, the U.S. Congress authorized grant funding for the DC Clean Rivers Project. These appropriations require a 50% match from the Authority. As of March 2019, the Authority received \$8.0 million in grant funding for the DC Clean Rivers Project, and in Fiscal Years 2016 through 2018, the Authority received an average of \$14 million each year for such funding. The Authority also expects to be reimbursed by the District for certain capital investments. Federal and other grants do not constitute Revenues under the Indenture.

*Wholesale Customer Contributions.* The Authority expects to finance approximately \$921 million, or 19.2%, of the sources of funds with wholesale customer contributions. Under the terms of the 2012 IMA, the Authority’s wholesale customers share the cost of operating, maintaining and making capital improvements at Blue Plains. A separate agreement with the Loudoun County Sanitation Authority (“LCSA”) allows the Authority to recoup capital and operating costs from the LCSA on the same basis as provided for in the 2012 IMA. Contribution levels are governed by the agreements that provide for the pro-rata reimbursement for capital improvements based on the capacity allocated to each wholesale customer. As of the date of this Official Statement, all wholesale customers were current on their capital contributions payments. Wholesale customer contributions do not constitute Revenues under the Indenture.

## Cost Estimates

Although actual bid prices for recent construction projects, on average, have been slightly below the engineering cost estimates for such projects, the costs shown in the CIP reflect the Authority’s practice of increasing

construction cost estimates by 3% annually to the midpoint of construction. There are no assurances that the actual rate of inflation in construction costs will not increase significantly above the assumed rate of inflation or that such increases will not have an adverse impact on the financial operations of the Authority.

An additional consideration regarding the construction cost estimates is the value of change orders relative to the total cost of construction work performed. The cost of construction-related change orders executed by the Authority for contracts closed during the five-year period from Fiscal Year 2014 through Fiscal Year 2018 was \$50,872,045, or 5.7% of the total original value of the contracts of \$897,320,435 for this period. The relatively low value of change orders compared to the total construction costs incurred is an indication that project designs are thorough and that projects are being effectively managed during construction.

## CUSTOMER BASE, RATES AND CHARGES

### Customer Categories and Accounts

As of September 30, 2018, the System had 124,906 active, metered water and wastewater accounts (30 of which are accounts of the Authority and 2 of which are accounts of the Aqueduct). Except for wholesale accounts, the majority of accounts receive both water and wastewater service. The Authority's customer accounts are divided into three categories: (i) residential, multifamily and commercial, (ii) governmental and (iii) wholesale. The number of accounts in each of the categories as of September 30, 2018 is set forth in Table 6.

**Table 6. Customer Categories and Accounts**

<u>Customer Category</u>	<u>Number of Accounts</u>	<u>% of Total Operating Revenue</u>
Residential, Multifamily, Commercial	122,793	62%
Governmental (Federal, District and D.C. Housing Authority) <sup>1</sup>	2,106	17
Wholesale	7	18
<b>Total</b>	<b>124,906</b>	<b>97%<sup>2</sup></b>

<sup>1</sup> The D.C. Housing Authority is the only District agency that is billed separately. The remaining District agencies are billed as part of a composite bill for the government.

<sup>2</sup> The remaining 3% of the Authority's operating revenue comes from capital contributions, interest income, and other revenue.

Source: Authority records and the Authority's CAFR.

### Customer Base

The Authority's customer and revenue base is diverse, consisting of a wide variety of residential, commercial and governmental customers, as well as wholesale wastewater customers. In Fiscal Year 2018, the residential, commercial and multifamily customer revenue represented approximately 62% of total operating revenue.

The commercial portion of the customer base includes a variety of uses, including nationally recognized universities and regional hospitals, commercial office space with tenants that are national associations, lobbying firms, major law firms and large hotels. Table 7 reflects the Authority's ten largest commercial customer accounts in Fiscal Year 2018, which in aggregate represented 2.57% of total operating revenues.

**Table 7. Ten Largest Commercial Customers (2018)**

<b>Customer</b>	<b>Revenue</b>	<b>% of Total Operating Revenues</b>
Howard University	\$3,879,664	0.57%
George Washington University	2,522,689	0.37%
Georgetown University	2,118,763	0.31%
William C Smith & Co.	2,078,614	0.30%
Washington Hospital Center	2,003,511	0.29%
Metropolitan Washington Airports Authority	1,280,248	0.19%
Amtrak	1,046,179	0.15%
American University	1,004,977	0.15%
Medstar - Georgetown University Hospital	850,673	0.12%
Children's Hospital	831,854	0.12%
<b>Total</b>	<b>\$17,617,172</b>	<b>2.57%</b>

Source: Authority records.

Table 8 reflects the Authority's ten largest government customers in Fiscal Year 2018, which in aggregate represented 5.57% of total operating revenues.

**Table 8. Ten Largest Government Customers (2018)**

<b>Customer</b>	<b>Revenue</b>	<b>% of Total Operating Revenues</b>
U.S General Service Administration	\$8,096,034	1.18%
D.C. Housing Authority	5,176,951	0.76%
U.S. Congress	5,061,870	0.74%
Smithsonian Institution	4,683,524	0.68%
Bolling Air Force Base	4,187,710	0.61%
U.S. National Park Service	3,298,927	0.48%
Federal Naval Research Lab	2,209,408	0.32%
U.S. Department of Defense	2,082,125	0.30%
U.S. Department of the Navy	1,732,073	0.25%
D.C. Board of Education	1,569,405	0.23%
<b>Total</b>	<b>\$38,098,027</b>	<b>5.57%</b>

Source: Authority records.

### Customer Demand

Table 9 shows the average percentage of annual water consumption by customer category from Fiscal Year 2014 through Fiscal Year 2018. The results illustrate the diversification of the Authority's customer base.

**Table 9. Average Annual Consumption By Customer Category**  
Fiscal Years 2014 – 2018  
(millions of Ccf)

<b>Customer</b>	<b>Average Annual Consumption</b>	<b>% of Total Consumption</b>
Residential Single-Family	7.27	21.0
Commercial	12.76	36.9
Residential Multi-Family	8.27	23.9
D. C. Municipal Government	1.05	3.0
Federal Government	4.44	12.8
D. C. Housing Authority	0.78	2.3
<b>Total Consumption</b>	<b>34.56</b>	<b>100.0</b>

Source: Authority Records. Totals may not add due to rounding.

Table 10 shows projected annual consumption for the Authority's customer categories for Fiscal Years 2019 through 2023. The Authority's use of the AMR program, including the replacement and repair of meters, significantly reduces estimated meter readings and improves the reporting of actual consumption.

**Table 10. Projected Annual Consumption by Major Customer Category<sup>1,2</sup>**  
Fiscal Years ending September 30  
(millions of Ccf)

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Residential Single-Family	7.00	6.93	6.86	6.79	6.72
Commercial <sup>3</sup>	11.54	11.42	11.31	11.20	11.09
Residential Multi-Family	8.38	8.30	8.21	8.13	8.05
D. C. Municipal Government <sup>4</sup>	1.01	1.00	0.99	0.98	0.97
Federal Government	4.30	4.26	4.22	4.18	4.13
D.C. Housing Authority	0.79	0.78	0.77	0.77	0.76
<b>Total Consumption</b>	<b>33.02</b>	<b>32.69</b>	<b>32.36</b>	<b>32.04</b>	<b>31.72</b>

<sup>1</sup> Totals may not add due to rounding.

<sup>2</sup> Total water consumption in Fiscal Years 2020 - 2023 reflects the assumption of a 1% annual decline.

<sup>3</sup> Reflects consumption at commercial facilities and selected facilities at Soldiers' Home.

<sup>4</sup> Reflects consumption at District of Columbia Government facilities and the Authority facilities.

Source: Amawalk

Some fluctuation in consumption can occur in a given year due to variations in weather conditions and other factors such as billing adjustments. Consumption declined in Fiscal Year 2014 by 3.6%. About 70% of the total decline in Fiscal Year 2014 was attributable to reductions in use by the federal government due to federal initiatives to reduce water use, billing adjustments and other factors. In Fiscal Year 2015, total consumption increased by 5.0% with nearly all of that increase attributable to the federal government. In Fiscal Year 2016 and 2017, total consumption decreased by 1.7% each year. In Fiscal Year 2018, total consumption decreased by 0.9%. See "– Rate-Setting Authority" for additional information.

The Authority anticipates that consumption will total 33.02 million Ccf in Fiscal Year 2019, representing a decrease of 3.0% from the prior year. The Authority assumes that long-term total water consumption will decline at the rate of 1% per year beginning in Fiscal Year 2020, recognizing that weather conditions and other factors may affect water demand in a given year. The expectation that future sales will decline is consistent with recent trends in the Washington, D.C. region as well as the projected sales in other large cities in the northeast United States.

There is some risk that consumption could be lower than anticipated during the Projection Period. The risk is mitigated to some extent in that revenues from the federal government are determined in advance and then subject to a true-up after the year is completed. For example, the significant reduction in actual federal consumption in Fiscal Year 2014 (compared to the budgeted consumption that was billed for Fiscal Year 2014) was reflected in the



reconciliation credit to the federal government for Fiscal Year 2017. In addition, the consumption risk is mitigated to a significant extent by retail revenue that is not consumption-related: customer receipts from the meter charge, the Water System Replacement Fee and the CRIAC, are unaffected by changes in the quantity of customer water use. Consumption-based retail water and wastewater revenues within the District are estimated to comprise about 61% of total revenues (excluding the PILOT/ROW Fee) in Fiscal Years 2019 through 2023. The Authority evaluates its water consumption projections annually in connection with its budget preparations and more frequently if the need arises.

### **Rate-Setting Authority**

The Authority recovers the costs of operations, maintenance and debt service through retail rates and fees, wholesale customer charges and other miscellaneous non-operating income such as interest earnings. The Board establishes the Authority's rates, fees and charges. Only the six Board members representing the District vote on setting retail water and wastewater rates and fees for the retail customers who are customers within the District. No approvals from federal or local officials are required in order to set rates.

#### *Retail Rates, Fees and Charges*

The Authority adopted several changes to its retail rate structure that went into effect in Fiscal Year 2016. These changes were designed to better align the Authority's revenues and expenditures by establishing customer class-based volumetric water rates based upon peaking factors, to create a more progressive rate structure for its residential customers by establishing lifeline water rates that discount core consumption and to fund the Authority's water main replacement program by establishing the monthly, fixed Water System Replacement Fee (the "Water System Replacement Fee"). For a summary of the Authority's retail rates, fees and charges, see "– Components of Retail Rates and Charges" and "– Historical and Projected Retail Rates" below.

Historically, the Authority adopted its budgets and its retail rates and charges on an annual basis. The budget process is expected to remain the same during the Projection Period: budgeted revenues, operating expenses and CIP expenditures will be adopted annually by the Board. Beginning with Fiscal Year 2017, the Authority started setting retail rates and charges for a two-year period – i.e., in calendar year 2016 the Board adopted (i) rates and charges effective October 1, 2016 (Fiscal Year 2017) and (ii) rates and charges to be effective October 1, 2017 (Fiscal Year 2018). Similarly, in calendar year 2018 the Board adopted (i) rates and charges to be effective October 1, 2018 (Fiscal Year 2019) and (ii) rates and charges to be effective October 1, 2019 (Fiscal Year 2020). The benefits of the multi-year rate setting include: greater revenue certainty, increased budget discipline, and better alignment between revenues and expenditures. The retail rates and charges are expected to change in each year. See "– Historical and Projected Retail Rates" and "THE AUTHORITY – Authority's Relationship to the District." If the Authority determines that revenues are materially less than expected and/or debt service or operating expenses are materially higher than budgeted, the Authority has the ability to adjust its retail rates and charges during the Fiscal Year. Historically, there has been no need for the Authority to make such changes during a Fiscal Year.

The total revenues and revenue requirements remain unchanged for Fiscal Year 2020 from the budget adopted by the Board in calendar year 2018; however, the Authority is considering modifying the adopted wastewater rate and the adopted CRIAC. As described herein, the proposed wastewater rate for Fiscal Year 2020 would increase from the adopted rate and the CRIAC would decrease from the adopted rate, with the resulting revenues being relatively unchanged.

The Authority receives annual grant funding under the Clean Water Act which requires the maintenance of wastewater charges sufficient to defray costs of operation, maintenance and replacement and surcharges for industrial discharges into the System's sewers levied in conformity with formulas set forth in the Clean Water Act and regulations thereunder. See "CAPITAL IMPROVEMENT PROGRAM - CIP Financing Sources."

#### *Federal Government Charges*

The Authority's forecasted water and wastewater charges for the federal government are prepared and included in the federal budget 18 months in advance of the commencement of the Authority's Fiscal Year based on the prevailing consumption estimates, projected retail rate increases as included in the current ten-year financial plan and adjustments for prior year true-ups. The federal government budgets for and pays its bills quarterly directly from the U.S. Treasury based on the estimates provided by the Authority in advance. Under the current billing process, any differences between the projected and the actual charges are netted against a future year's billing. Federal government revenues are expected to constitute approximately 7.5% of the Authority's total annual revenues during Fiscal Year 2019 through Fiscal Year 2023 (excluding the PILOT/ROW Fee).

Water consumption billed to Federal accounts in recent years has shown significant year to year fluctuation and an overall reduction compared to prior years. The Authority has adjusted its future forecasts for federal revenue primarily due to four factors:

- i. A previous executive order created a requirement for federal agencies to reduce potable water and landscaping use water by 2% annually through conservation measures until 2020; Authority

conversations and investigations with federal property managers show that significant progress is being made toward this goal through plumbing fixture replacement.

- ii. In the District, the Telework Enhancement Act (the “Telework Act”) has resulted in a significant shift to employees working from home, reducing water used at the workplace, and, pursuant to the Telework Act, GSA has strategically reduced the number of buildings it owns and operates in the District in favor of placing employees in shared rental spaces. In the latter case, the water reduction observed in federal buildings is partially made up in the commercial customer billing of the Authority.
- iii. There have been significant adjustments made to federal bills as a result of property sales and transfers between the federal and District governments.
- iv. The Authority accelerated a testing and calibration program on large capacity meters installed at federal properties and observed that some of the meters had degraded and were measuring less water than was actually being consumed. Where possible, the Authority is retroactively billing for the difference in consumption.

#### *Wholesale Customer Charges*

The Authority provides wholesale wastewater treatment services to User Jurisdictions at Blue Plains. Each wholesale customer’s share of operating costs at Blue Plains is recovered in accordance with the Blue Plains Intermunicipal Agreement of 1985, the 2012 IMA, the Potomac Interceptor Agreements and the Loudoun County Sanitation Authority Agreement (as discussed in more detail in “THE SYSTEM – The Wastewater System”), and is based on actual costs of operating and maintaining the plant and the collection facilities, prorated to each User Jurisdiction based on its respective actual share of wastewater flows. A User Jurisdiction’s share of capital costs is based on its share of capacity allocations in the plant. Both operating and capital payments are made on a quarterly basis. Wholesale customer revenues are expected to constitute approximately 11.5% of the Authority’s total annual revenues during Fiscal Year 2019 through Fiscal Year 2023 (excluding the PILOT/ROW Fee).

Wholesale customers are billed based on the adopted budget for that Fiscal Year. Capital-related charges are billed quarterly with payments due on the 15th day of the second month following the end of the quarter. The operating and maintenance-related charges are billed annually by mid-October and payments are due each November, February, May and August. Following each Fiscal Year, the Authority prepares a reconciliation that determines the actual costs and each wholesale customer’s appropriate share of such costs. Adjustments are then billed or credited to the wholesale customers in the first quarter of the subsequent Fiscal Year.

#### **Components of Retail Rates and Charges**

The primary retail rates and fees include water and wastewater charges, the clean rivers impervious area charge, the PILOT/ROW Fee and the stormwater fee.

#### *Water and Wastewater Charges*

Water and Wastewater Consumption Rates. Water and wastewater consumption rates are based on metered water usage and are stated in terms of hundred cubic feet (“Ccf”). Through Fiscal Year 2015, each of the Authority’s three customer classes (i.e., Residential, Multi-Family and Non-Residential) were charged the same consumption rates. In Fiscal Year 2015, the Authority retained Raftelis Financial Consultants, Inc. (“RFC”) to analyze the allocation of costs between the water and wastewater rates, as well as the peak demand factors of its various customer classes, and to prepare a cost of service study (the “2015 COS Study”). Based on the findings of the 2015 COS Study, the Authority’s management recommended a restructuring of the rates, charges and fees to the Board to include water rate classes for Residential, Multi-Family and Non-Residential customers. Wastewater rates remain uniform for all customers. The Board adopted this new rate structure for Fiscal Year 2016, effective October 1, 2015. Water and wastewater consumption rates increased 5.0% in each of Fiscal Years 2017 and 2018.

The Authority undertakes a cost of service study every three years to ensure that its rates are appropriately capturing actual expenditures. The cost of service study prepared by RFC in 2018 (the “2018 COS Study”) recommended no changes to the water rate structure and classes in Fiscal Year 2019, but did recommend decreases in water rates, an increase to the wastewater rate and a reduction in the CRIAC to better align rates and revenues with the cost of providing services. The estimated overall increase in water and wastewater consumption-based rates for Fiscal Year 2019 is 13.0% and Fiscal Year 2020 is 11.5%. The CRIAC was reduced by 8.7% and 9.0%, respectively.

**Customer Metering Fee.** The Authority assesses a metering fee to recover costs associated with installing, operating and maintaining meters and the AMR system. The metering fee is charged as a separate line item on retail customer bills and varies by meter size. The metering fee is assumed to remain unchanged in Fiscal Years 2019 through 2023, providing \$11.5 million in Fiscal Year 2019 and \$10.8 million in revenue per year each year after.

**Water System Replacement Fee.** The Authority implemented the meter-based Water System Replacement Fee in Fiscal Year 2016 in order to recover the cost of the 1% renewal and replacement program for water service lines. The Water System Replacement Fee is assumed to remain unchanged in Fiscal Years 2019 through 2023. It is anticipated that the Water System Replacement Fee will generate \$40.5 million in Fiscal Year 2019 and \$39.7 million in revenue per year from Fiscal Years 2020 through 2023.

#### *Clean Rivers Impervious Area Charge*

**Overview.** In Fiscal Year 2009, the Authority approved the development and implementation of the CRIAC to recover the costs of the DC Clean Rivers Project, mandated by the EPA Region III pursuant to the 2005 LTCP Consent Decree. The DC Clean Rivers Project will be implemented over a 25-year period at a total cost of \$2.8 billion. See “THE SYSTEM – Wastewater Regulation and Permits – NPDES Permit.” For an explanation of the different term contemplated for the DC Clean Rivers Project in the CIP and under the 2005 LTCP Consent Decree, see “CAPITAL IMPROVEMENT PLAN – Categories of CIP Projects – Combined Sewer Overflow Projects.” Prior to the implementation of the CRIAC, the DC Clean Rivers Project cost was bundled in the wastewater rate based on the amount of water consumed.

The CRIAC is based on the amount of impervious area on a property, rather than on the amount of water consumption, which is a more equitable method of recovering the DC Clean Rivers Project costs. It allows the Authority to expand its customer base by charging all properties that generate stormwater, including those that may not use water (e.g., parking lots). An impervious area is a man-made surface that cannot be easily penetrated by water, such as a rooftop, a paved driveway, a patio, a swimming pool or a parking lot that impedes the percolation of water into the subsoil and plant growth. The Authority maintains a database in which it classifies each parcel located within the District as pervious or impervious. This database and the classifications therein provide the basis for the District’s billing of the CRIAC.

All residential customers are charged Equivalent Residential Units (“ERUs”) based upon six tiers that reflect the amount of impervious surface area on each residential lot. The tiers and the number of properties within each tier are shown as of September 30, 2018 in Table 11.

**Table 11. Equivalent Residential Unit Tiers**

<b>Tiers</b>	<b>Size of Impervious Area (square feet)</b>	<b>Equivalent Residential Unit</b>	<b>No. of Properties (as of August 2019)</b>
Tier 1	100 – 600	0.6	18,799
Tier 2	700 – 2,000	1.0	81,034
Tier 3	2,100 – 3,000	2.4	6,255
Tier 4	3,100 – 7,000	3.8	2,796
Tier 5	7,100 – 11,000	8.6	146
Tier 6	11,100 and more	13.5	68

*Source: Authority records.*

The CRIAC is applied to all lots, parcels, properties and private streets throughout the District that are greater than 100 square feet, except for District or federally owned rights-of-way. The CRIAC is added to the customer’s metered service bill and billed monthly unless the property is impervious only and has no other metered water or wastewater service. The CRIAC will be reviewed regularly and adjusted as appropriate by the Board.

CRIAC rates in Fiscal Year 2020 are expected to be lower than in the prior year and wastewater rates are expected to be higher due to both: a) increases in the cost of service, and b) an allocation of a portion of the costs of the LTCP to wastewater charges in lieu of the CRIAC. The allocation of a portion of LTCP costs to wastewater charges is based on an analysis prepared by the Authority which estimates that sanitary sewage comprises 37% of combined wastewater and stormwater. DC Water expects to allocate a portion of the LTCP costs to wastewater charges in three stages, beginning with an 18% allocation in Fiscal Year 2020. In Fiscal Years 2021 and 2022, the allocated portions will be 28% and 37%, respectively. Allocated LTCP costs in Fiscal Year 2023 are expected to remain at the 37% level. Amawalk reviewed the Authority’s analysis and found it to be reasonable and consistent with industry practice. As a result of the changes in LTCP cost allocation, the CRIAC rate in Fiscal Year 2020 is expected to be \$20.94 per ERU, a decrease of 9.0% from the prior year. In Fiscal Years 2021 and 2022, with an increasing share of

LTCP costs being assigned to the wastewater rate instead of the CRIAC, the projected CRIAC rates are \$20.95 and \$19.85 per ERU, respectively. In Fiscal Year 2023, the projected CRIAC rate is \$21.45 per ERU.

**CRIAC Incentive Program.** The Water and Sewer Authority Equitable Ratemaking Amendment Act of 2008 (the “2008 Amendment Act”), approved by the Council in 2008, and signed by the Mayor of the District on January 23, 2009, amended the Act to authorize the Authority’s CEO to restrict combined sewer flow into the District from Maryland and Virginia and to require the Authority to, among other things, offer financial assistance programs to mitigate the impact of any increases in retail water and wastewater rates on low-income residents of the District, including a low-impact design incentive program. The 2008 Amendment Act also amended the District of Columbia Public Works Act of 1954 to broaden the bases for the determination of sanitary sewer service charges to include impervious surface area and to provide for an appeal process for the assessment of an impervious surface fee.

The 2008 Amendment Act requires the Authority, together with the DOEE, to establish an incentive program to institute certain eligible best management practices that reduce the amount of stormwater runoff generated from a property. In 2013, the Authority created the CRIAC Incentive Program, which provides a 4% maximum incentive credit. In 2019, the Authority strengthened the CRIAC Incentive Program to provide a 20% maximum incentive credit. The actual credit amount is calculated based upon a formula provided by the DOEE.

**CRIAC Credit.** In Fiscal Year 2016, the Board asked management to evaluate and propose recommendations for expansion of the Customer Assistance Program (“CAP”) to include fees assessed for the CRIAC. The staff evaluated the three options for CRIAC credit: (i) dollar credit, (ii) ERU credit, and (iii) percent of CRIAC credit (25%, 50%, 75%). Based on the detailed analysis, the management made recommendations to the Board to expand the CAP to low-income customers to include a CRIAC credit in the monthly bills. On December 1, 2016, the Board adopted the expansion of the CAP for eligible single-family residential accounts and individually metered accounts to include a fifty percent (50%) credit of the monthly billed CRIAC. The CRIAC credit was implemented in Fiscal Year 2017. See “– Customer Assistance Programs” below.

#### *PILOT/Right of Way Occupancy Fee*

These fees recover the cost of the PILOT and Right of Way fees (collectively, the “PILOT/ROW Fee”), which are charges levied by the District for payments in lieu of taxes and occupancy or use of public spaces or rights of way including that used by the Authority for its underground infrastructure. The Authority passes the PILOT/ROW Fee through to retail customers based on metered water consumption as a separate line item on the bills. Effective October 1, 2018 (i.e., for Fiscal Year 2019), the Authority’s PILOT/ROW Fee is \$0.68 per Ccf. The PILOT/ROW Fee is expected to increase to \$0.70 per Ccf effective October 1, 2019 (Fiscal Year 2020) and then increase gradually each year through Fiscal Year 2023.

#### *Stormwater Fee*

The Authority’s retail water and wastewater bills also include a stormwater fee levied on behalf of the District government, which the Authority transfers to DOEE on a pass-through basis. The stormwater fee is charged as a separate line item on retail customer bills. The DOEE has rate-setting authority for stormwater services provided by the District and the Authority expects to work collaboratively with the DOEE to set future rates. See “THE AUTHORITY – Authority’s Relationship to the District.” The stormwater fee charged to retail customers is \$2.67 per ERU, which rate has been in effect since October 1, 2016. The stormwater fee is expected to remain the same for Fiscal Years 2020 through 2023.

Although the Authority no longer administers the program, pursuant to the July 25, 2008 MOU with DOEE, the Authority retains a portion of the stormwater fee revenues to cover its share of District stormwater expenditures. See “THE AUTHORITY – Authority’s Relationship to the District – *Memoranda of Understanding*” and “FINANCIAL OPERATIONS – System Revenues – *Stormwater Revenues*.” The stormwater fees that are transferred to the District do not constitute Revenues under the Indenture, however, the stormwater fee revenues that are retained by the Authority to cover its share of stormwater expenditures are considered non-operating revenues of the Authority and do constitute Revenues under the Indenture.

### **Historical and Projected Retail Rates**

The Board approves the Authority’s retail water and wastewater rates as part of the ten-year financial plan, which includes annual rate increases, in line with the Board’s policy of implementing rate increases in a gradual and predictable manner.

Table 12 sets forth historical water and wastewater rates and the CRIAC of the Authority. Table 13 sets forth the adopted and projected water consumption and wastewater usage rates as well as the CRIAC of the Authority for Fiscal Years 2019 through 2023. Revenue resulting from the CRIAC will recover the majority of the cost of the LTCP for the period of Fiscal Year 2019 through Fiscal Year 2023.

Federal government customers in Virginia pay the Arlington County retail rate, which is currently \$3.52 per Ccf for water. Federal government customers in Maryland pay according to the WSSC rates, which include a fixed charge and a consumption-based charge that increases with higher levels of usage.

**Table 12. Historical Water and Wastewater Retail Rates and Charges<sup>1</sup>**  
 (\$ per Ccf for Water and Wastewater, Other Charges are \$ Per Unit as Noted)

<b>Fiscal Year</b>	<b>Water Consumption Rate</b>	<b>Wastewater Usage Rate</b>	<b>Combined Rate</b>	<b>Water and Wastewater Percent Increase</b>	<b>CRIAC Rate (Per ERU)</b>	<b>Meter Charge (Per 5/8" Meter)<sup>3</sup></b>	<b>Water System Replacement Fee (Per 5/8" Meter)<sup>3</sup></b>
2014	3.61	4.41	8.02	5.5%	11.85	3.86	
2015	3.88	4.74	8.62	7.5	16.75	3.86	
2016 <sup>2</sup>							
Residential – 0-4 Ccf	3.08	5.44	8.52	6.5	20.30	3.86	6.30
Residential - >4 Ccf	3.87	5.44	9.31				
Multi-Family	3.45	5.44	8.89				
Non-Residential	3.99	5.44	9.43				
2017 <sup>2</sup>							
Residential – 0-4 Ccf	3.23	5.71	8.94	5.0	22.24	3.86	6.30
Residential - >4 Ccf	4.06	5.71	9.77				
Multi-Family	3.62	5.71	9.33				
Non-Residential	4.19	5.71	9.90				
2018 <sup>2</sup>							
Residential – 0-4 Ccf	3.39	6.00	9.39	5.0	25.18	3.86	6.30
Residential - >4 Ccf	4.26	6.00	10.26				
Multi-Family	3.80	6.00	9.80				
Non-Residential	4.40	6.00	10.40				

<sup>1</sup> Rates and charges are billed monthly.

<sup>2</sup> Percent increase reflects the overall average increase for all customers; the increases for individual customers vary by customer class and consumption.

<sup>3</sup> The Meter Charge and the Water System Replacement Fee as shown reflect a customer with a 5/8" meter. The Charge and the Fee vary by the size of the meter.

Source: Authority records.

**Table 13. Current and Projected Retail Rates and Charges<sup>1</sup>**  
(\$ per Ccf for Water and Wastewater, Other Charges are \$ Per Unit as Noted)

	Units	Current	Proposed <sup>2</sup>	Projected <sup>2</sup>		
		2019	2020	2021	2022	2023
Water Rates						
Residential - 0-4 Ccf	Ccf	2.91	3.06	3.44	3.84	4.17
Residential - >4 Ccf	Ccf	3.90	4.10	4.61	5.14	5.58
Multi-Family	Ccf	3.37	3.54	3.98	4.44	4.82
Non-Residential	Ccf	4.05	4.25	4.78	5.33	5.78
Wastewater Rates	Ccf	7.75	8.89	10.00	11.15	12.10
Water & Wastewater % Change <sup>3,4,5</sup>	%	13.0%	11.5%	12.5%	11.5%	8.5%
CRIAC	ERU	23.00	20.94	20.95	19.85	21.45
Meter Charge <sup>6</sup>	5/8" Meter	3.86	3.86	3.86	3.86	3.86
Water System Replacement Fee <sup>6</sup>	5/8" Meter	6.30	6.30	6.30	6.30	6.30

<sup>1</sup> Rates and charges are billed monthly.

<sup>2</sup> Rates for Fiscal Years 2020 through 2023 are projected and subject to change.

<sup>3</sup> Water and wastewater percent change reflects the overall average increase for all customers; the increases for individual customers will vary by customer class and consumption.

<sup>4</sup> In Fiscal Year 2019, the decrease in water rates and the CRIAC and the increase in wastewater rates is based on adjustments recommended by the Cost of Service Study. See "Components of Retail Rates and Charges." The net increase in total charges (i.e., water, sewer, CRIAC, Meter Charge, WSRF) relative to Fiscal Year 2018 for an average residential customer is expected to be 5.9%.

<sup>5</sup> In Fiscal Year 2020 through 2022, an increasing percentage of the cost of the LTCP is recovered through wastewater rates, resulting in higher wastewater rates and a decrease in the CRIAC compared to Fiscal Year 2019. The net increase in total charges (i.e., water, sewer, CRIAC, Meter Charge, WSRF) relative to the prior year for an average residential customer is projected to be 5.7%, 8.5%, and 7.3%, respectively.

<sup>6</sup> The Meter Charge and the Water System Replacement Fee as shown reflect a customer with a 5/8" meter. The Charge and the Fee vary by the size of the meter.

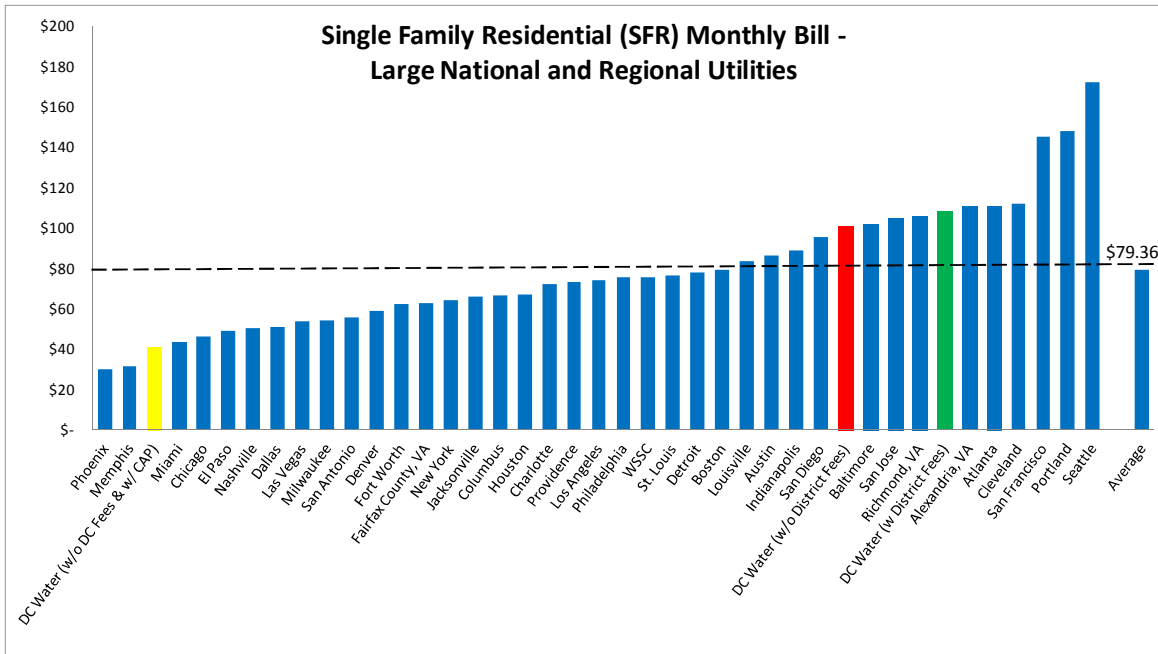
Source: Authority records.

### Retail Rate Comparison

The Authority's retail rates are comparable to those of other utilities in the metropolitan Washington, D.C., region and other similar utilities in the eastern United States and nationally. Table 14 compares the Authority's combined water, wastewater and impervious area residential charges to these utilities. The table reflects the Authority's Fiscal Year 2019 rate and fee charges; rates for other utilities are as of July 1, 2019. The Authority's Fiscal Year 2019 rate and fee charges are shown both with and without the pass-through of the District's PILOT/ROW Fee in the amount of \$0.68 per Ccf, and the DOEE residential stormwater rate of \$2.67 per ERU per month.

The Authority offers assistance to qualifying low income ratepayers through its Customer Assistance Program (CAP). Table 14 also illustrates the monthly bill for a CAP customer with average Single Family Residential characteristics.

**Table 14. Comparison of Average Authority Water and Wastewater Bill to Bills of Other Utilities<sup>1,2</sup>**



<sup>1</sup> Assumes average residential consumption of 6.20 Ccf, or 4,638 gallons, per month.

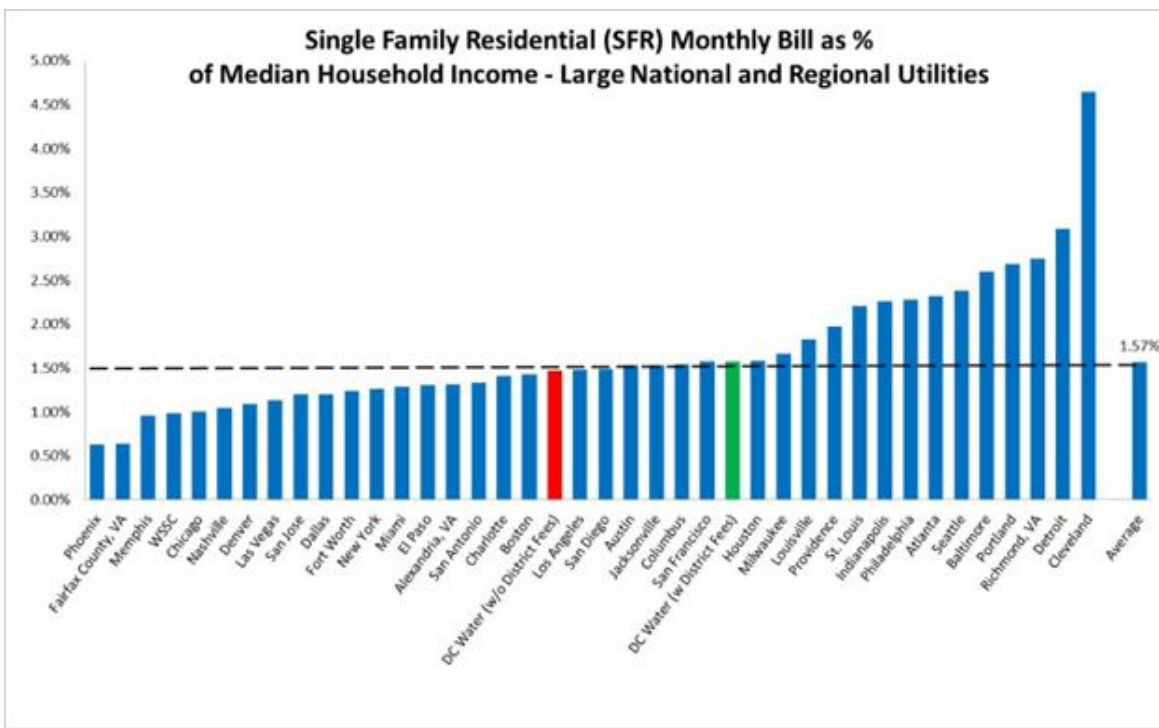
<sup>2</sup> User charges are based upon information provided by the identified cities and standardized assumptions regarding water consumption, wastewater discharge, stormwater drainage area and other factors. Actual charges in each city will vary in accordance with local usage patterns. There may be significant differences in typical single family residential usage among cities which results in charges that are different than shown above. Some cities bill for sewer use on the basis of winter water consumption which could affect sewer billings if a customer's use was not uniform throughout the year. Wastewater charges include stormwater charges in those cities where separate stormwater fees are assessed. Some cities use property tax revenue or other revenues to pay for part of the cost of water, wastewater or stormwater services. In such situations, the user charges will not reflect the full cost of water, wastewater or stormwater services. Some cities impose charges that become part of the cost of water/wastewater services. Water/wastewater bills in some cities are subject to sales taxes, gross receipts taxes and/or other fees. Affordability programs are used by many cities to reduce the annual charges to eligible customers.

<sup>3</sup> Charges for all cities reflect rate schedules in effect on July 1, 2019.

Source: Amawalk

The median income in the District is competitive with the median income in many other jurisdictions. Table 15 illustrates the Authority's charges for a single family residential customer as a percentage of median income compared to similar data for other water and wastewater utilities.

**Table 15. Comparison of Average Authority Water and Wastewater Bill (As Percentage of Median Income) to Bills of Other Utilities<sup>1,2</sup>**



<sup>1</sup> Assumes average residential consumption of 6.20 Ccf, or 4,638 gallons, per month.

<sup>2</sup> Reflects rates and fee in place as of July 1, 2019.

Source: Amawalk

**Collections**

The Authority has implemented policies and business practices intended to optimize the collection of customer billings. Measures are taken, including cross checks with property records, to ensure that all users of the Authority’s system are being billed. With the implementation of the AMR system, the Authority can access customer usage data at any time and can alert customers to apparent leaks promptly. In September 2013, the Authority achieved the lowest 90-day receivable balance in the Authority’s history at \$4.9 million. The Authority typically maintains a 90-day receivable balance of less than 2.0% of Operating Reserves. This is the result of a comprehensive strategy that integrates several consumer services functions along with an aggressive customer contact process that addresses collections issues early when outstanding balances are within the range of customers’ ability to pay, improved lien processing for delinquent accounts, and enhanced coordination efforts with other District agencies.

The Authority’s collection program includes: (i) assessing customers a 10% late fee if their bill is not paid by day 31 after the date of billing, and sending customers a friendly reminder notice; (ii) placing a call to the customer using an automatic notification call program on day 34; (iii) sending the customer notice of intent to disconnect service on day 39 (which, in accordance with District laws and regulations gives customer 15 days to pay the delinquent bill and maintain service); (iv) mailing to the owner of the property an intent to place a lien on the property on day 65 (which gives the owner 10 additional days to pay the bill before a lien is placed on their property) and imposing an additional 1% penalty per month on all delinquent balances after 60 days; (v) placing a call to the customer on day 67 to inform him/her of the Authority’s intent to place a lien on the property if the delinquent bill is not paid; and (vi) placing a lien on the property on day 80. The lien becomes a part of the public record and appears on the owner’s credit report and adversely affects their FICO score. The Authority will remove a lien only if the delinquent account balance is paid in full, and/or if the lien was placed in error. Once paid, the lien is removed and reflected as “satisfied” on the credit report but the customer’s FICO score is not changed unless the customer contacts the credit bureau. The Authority’s liens are continuous, which entitles the Authority to collect the current outstanding balance owed by a customer regardless of the balance at the time the lien was placed.



The Authority utilizes collection analysts who make calls to owners of delinquent accounts with a focus on the top 250 delinquent accounts. The Authority also takes legal action to have delinquent multi-family apartment building owners placed in receivership. This may result in the Authority receiving a percentage of the tenants' rent that is collected by a court-appointed Receiver before the owner can collect any rent. The account stays in receivership until paid in full.

After all efforts to collect have been exhausted, and as a last resort, the Authority will disconnect service for non-payment and not restore it until the delinquent bill is paid. The AMR system allows the Authority to know if water is being used after service has been disconnected due to non-payment. If this occurs, the meter will be removed or locked and service will not be restored until the delinquent amount, plus any applicable fees, are paid in full.

Table 16 shows the cumulative retail (including commercial) customer balances that were delinquent more than 90 days. There is one government delinquency to report, which is related to DC Government/Municipal property. It is noted that collection efforts were suspended in October 2017 in preparation for the implementation of the new Customer Information System. Collection efforts resumed in July 2018. The receivable balances have declined during the first six months of Fiscal Year 2019 as shown in Table 16.

**Table 16. Retail Customer Cumulative Delinquent Balances**  
(\$ in millions)

<u>As of September 30,</u>	<u>Amount<sup>1</sup></u>	<u>Percent of Operating Revenue</u>
2014	5.3	1.1
2015	6.5	1.2
2016	7.7	1.3
2017	8.4	1.4
2018	13.4	2.1
2019 (Q2 YTD March)	11.8 <sup>2</sup>	1.7 <sup>3</sup>

<sup>1</sup> Amounts shown are as of the end of each Fiscal Year for amounts delinquent more than 90 days and do not include previously disputed amounts for Howard University (now resolved) and the Soldiers' Home discussed below.

<sup>2</sup> Amount shown is from October 2018 Finance & Budget Committee - through September 30, 2018 and April 2019 Finance & Budget Committee - through March 31, 2019.

<sup>3</sup> This percentage is for the projected revenue of FY 2019.

Source: Authority records.

### Special Accounts

The Authority has historically provided some U.S. Soldiers and Airmen's Home ("Soldiers' Home") accounts with free water service in exchange for the use of certain parcels of Soldiers' Home property to maintain a reservoir that provides water to the District. The Authority contends that the Soldiers' Home is required to pay for sewer service and impervious area fees, as well as water services for certain accounts, and has sought payment for these services and fees since 2010. The parties were unable to resolve this matter over the years, and in January 2018, the Authority filed a lawsuit against the Soldier's Home to recover payments for sewer service charges from 2010 to present. The amount of unpaid charges sought is \$13.7 million. Other than the free water service provided to the Soldier's Home, there are no other exempt accounts, nor does the Authority anticipate the addition of any new exempted accounts.

### Customer Assistance Programs

The Authority sponsors two programs to assist low income customers in paying their water bills: Customer Assistance Program and Serving People by Lending A Supporting Hand ("S.P.L.A.S.H.").

*Customer Assistance Program.* The Authority implemented the CAP in 2001 providing a discount of up to 4 Ccf per month of water service for single family residential homeowners that meet income eligibility guidelines. The CAP has been enhanced in subsequent years, as summarized below. Enhancements were effective either on the first day of the Fiscal year or during the year shown.

<u>Fiscal Year</u>	<u>CAP Enhancement</u>
--------------------	------------------------

2004	Include tenants who meet the financial eligibility requirements and whose primary residence is separately metered by the Authority
2009	Provide a discount of 4 Ccf per month of water and sewer services
2011	Provide a discount of the first 4 Ccf of PILOT/ROW Fee
2016	Provide a 100% discount of the new Water System Replacement Fee (WSRF)
2017	Provide a 50% credit on the billed Clean Rivers Impervious Area Charge (CRIAC)
2018	Provide a discount of 3 Ccf per month of water and sewer services (excluding PILOT/ROW) for expanded income guidelines
2018	Provide a 50% credit on the billed Clean Rivers Impervious Area Charge (CRIAC) for expanded income guidelines
2018	Provide a 75% credit on the billed Clean Rivers Impervious Area Charge (CRIAC) for eligible customers under expanded income guidelines (excludes water and sewer services credits)
2018	Provide up to 90% credit on the billed Clean Rivers Impervious Area Charge (CRIAC) for eligible non-profit organizations
2019	Introduced CAP II and CAP III program for customers not eligible for the CAP program

Table 17A sets forth the number of customers assisted and the total discount provided through the CAP discount since Fiscal Year 2015. The projected revenues of the Authority take into consideration the discounts provided to low-income customers under the CAP. As of Fiscal Year 2019, DC Water proposed an expanded program (CAP II) for low-income residential customers who do not qualify for CAP with a household income up to 80% of the Area Median Income (AMI). Eligible customers receive a discount of up to 3 Ccf per month for water and sewer services and a 50% discount for the CRIAC. Additionally, a new District-funded program (CAP III) will provide benefits to DC Water customers with household income greater than 80% and up to 100% Area Median Income (AMI) who do not qualify for CAP or CAP II. An eligible customer under CAP III receives a 75% discount for the CRIAC. Table 17B sets for the number of customers assisted and the total discount provided through the CAP II and CAP III discount for Fiscal Year 2019. The CRIAC Nonprofit Relief Program, was also created in 2019 and is designed to provide CRIAC credits to nonprofit organizations as determined by the District Department of the Environment. An eligible customer under the Nonprofit Relief Program receives up to a 90% discount for CRIAC.

**Table 17A. Customer Assistance Program Discount**

<b>Fiscal Year</b>	<b>Customers Assisted</b>	<b>Water/Wastewater PILOT/ROW (\$)</b>	<b>WSRF Discount (\$)</b>	<b>CRIAC Credit (\$)</b>	<b>Total Amount</b>
2015	4,498	1,207,986	-	-	1,207,986
2016	4,379	808,797	185,013	-	993,810
2017	4,244	810,295	195,328	129,674	1,135,297
2018	4,324	737,199	176,403	274,972	1,188,574
2019 <sup>2</sup>	3,846	279,430	61,706	91,299	432,435

<sup>1</sup> The CAP data for 2016 and 2017 reflect partial-year benefits for the WSRF discount and CRIAC credit, as they became effective on May 1, 2017. Benefits provided in Fiscal Year 2018 and future Fiscal Years will include the full effect of the WSRF discount and the CRIAC credit.

Source: Authority records.

**Table 17B. Customer Assistance Program II and III Discount**

<b>Fiscal Year</b>	<b>Customers Assisted</b>	<b>Water/Wastewater PILOT/ROW (\$)</b>	<b>WSRF Discount (\$)</b>	<b>CRIAC Credit (\$)</b>	<b>Total Amount</b>
2019 – CAP II <sup>1</sup>	66	9,252	-	3,936	13,187
2019 – CAP III <sup>1</sup>	27	-	-	4,716	4,716

<sup>1</sup> Q2 YTD March

Source: Authority records

*S.P.L.A.S.H.* Through the S.P.L.A.S.H. program, the Authority offers assistance to families in need so that they can receive critical water services. S.P.L.A.S.H. is funded solely by contributions from the community, customers and from the Authority employees. The Authority has redesigned its water and sewer bills to make it easier for its customers to make contributions to S.P.L.A.S.H. The Authority pays all administrative costs of this program, which is administered directly by the Greater Washington Urban League (GWUL). All contributions are deposited in a bank account from which the (GWUL) makes payments on behalf of eligible customers. Every dollar received by the Authority is distributed to eligible customers. Table 18 shows the number of customers assisted by the Authority and the total amount distributed through the S.P.L.A.S.H. program since Fiscal Year 2015.

**Table 18. S.P.L.A.S.H Program Distribution**

<b>Fiscal Year</b>	<b>Participating Customers</b>	<b>S.P.L.A.S.H Value</b>
2015	351	115,684
2016	309	101,098
2017	331	103,283
2018	212	104,361
2019 (Q2 YTD March)	155	52,454.02

*Source: Authority records.*

### Customer Service Operations

The Department of Customer Services reports to the Assistant General Manager of Customer Care and Operations and is responsible for meter installations, meter reading, meter testing, billing and collections. The Authority continuously evaluates its customer service offerings to ensure that customers receive the best possible service.

## FINANCIAL OPERATIONS

### Historical Financial Operations

The Authority derives its revenues primarily from retail customer payments for water, wastewater and stormwater services, which account for 82.0% of total revenues, and wholesale customer payments for wastewater treatment services, which account for 11.5% of total revenues (excluding the PILOT/ROW Fee for Fiscal Years 2019 through 2023). The Authority's operating revenues have steadily increased since its creation, due largely to rate and fee increases approved by the Board, which are discussed in more detail in the section entitled "RATES AND CHARGES – Historical and Projected Water and Wastewater Retail Rates."

The Authority is committed to optimizing the cost of service it offers and as a result places emphasis on managing its expenses. The Authority's Budget Department closely monitors spending to ensure compliance with approved operating and capital budgets. This includes preparation of daily and monthly management reports for each operating unit and financial system controls that prevent overspending. The Authority's Finance Department provides detailed monthly reports on cash and investments, revenues, operating budget and capital spending to the Board's Finance and Budget Committee. In addition, the Authority's Department of Engineering and Technical Services provides quarterly updates on the CIP status to the Board's Environmental Quality and Sewerage Services and Water Quality and Water Services Committees, as well as to the Finance and Budget Committee. For Fiscal Years 2014 through 2018, actual expenses of the Authority were less than the budgeted amount.

Table 19A presents historical revenues, expenses and changes in net position using information contained in the audited financial statements for Fiscal Years 2014 through 2018. Table 19B presents historical revenues, expenses and changes in net position for the first six months of Fiscal Year 2018 and the first six months of Fiscal Year 2019. The Authority's complete financial statements for the Fiscal Years ended September 30, 2018, and 2017, are attached hereto as APPENDIX B.

**Table 19A. Historical Revenues, Expenses and Change in Net Position**  
(\$ in thousands)

	Fiscal Year Ended September 30				2018
	2014	2015	2016	2017	
<b>Operating revenues</b>					
Residential, commercial and multi-family customers	\$295,209	\$335,711	\$382,552	\$401,246	\$425,492
Federal government	39,001	54,274	63,417	67,672	73,551
District government and DC Housing Authority	28,852	32,948	38,185	40,683	42,710
Charges for wholesale wastewater treatment	96,845	112,522	91,873	101,619	121,961
Other	13,917	14,460	19,762	32,149	20,788
<b>Total Operating Revenues</b>	<b>473,824</b>	<b>549,915</b>	<b>595,789</b>	<b>643,169</b>	<b>684,502</b>
<b>Operating expenses</b>					
Personnel services	108,467	115,233	124,239	132,124	142,342
Contractual services	68,172	66,241	74,086	72,611	74,627
Chemicals, supplies and small equipment	31,748	32,935	29,524	33,381	31,152
Utilities and rent	29,939	30,848	23,934	24,262	26,163
Depreciation and amortization	77,833	83,857	89,512	97,900	115,453
Water purchases	28,407	29,109	26,345	26,796	28,357
Payment in lieu of taxes and right of way fee	11,458	20,437	20,744	21,057	21,376
<b>Total operating expenses</b>	<b>356,024</b>	<b>378,660</b>	<b>388,384</b>	<b>408,131</b>	<b>439,470</b>
<b>Operating income</b>	<b>117,800</b>	<b>171,255</b>	<b>207,405</b>	<b>235,038</b>	<b>245,032</b>
<b>Nonoperating revenue (expenses)</b>					
Interest income	977	1,316	2,629	3,740	5,866
Interest expense and fiscal charges	(69,288)	(61,409)	(69,118)	(68,293)	(93,956)
<b>Total nonoperating revenue (expenses)</b>	<b>(68,311)</b>	<b>(60,093)</b>	<b>(66,489)</b>	<b>(64,553)</b>	<b>(88,090)</b>
Change in net position before Federal grants and contributions	49,489	111,162	140,916	170,485	156,942
Contributions of capital from Federal government	94,690	67,965	32,431	24,066	30,419
<b>Change in net position</b>	<b>144,179</b>	<b>179,127</b>	<b>173,347</b>	<b>194,551</b>	<b>187,361</b>
<b>Net position, beginning of year</b>	<b>\$1,206,636</b>	<b>\$1,350,815</b>	<b>\$1,529,942</b>	<b>\$1,703,289</b>	<b>\$1,897,840</b>
<b>Net position, end of year</b>	<b>\$1,350,815</b>	<b>\$1,529,942</b>	<b>\$1,703,289</b>	<b>\$1,897,840</b>	<b>\$2,085,201</b>

*Source: Authority records.*

**Table 19B. Statements of Revenues, Expenses and Changes in Net Position**  
**For the six months ended March 31, 2019 and March 31, 2018**  
(\$ in thousands)

	<b>2019</b>	<b>2018</b>
<b>Operating revenues</b>		
Residential, commercial and multi-family customers	\$212,473	\$194,218
Federal government	35,513	33,372
District government and DC Housing Authority	22,222	20,955
Charges for wholesale wastewater treatment	58,556	61,433
Other	13,555	9,061
<b>Total Operating Revenues</b>	<u>342,319</u>	<u>319,039</u>
<b>Operating expenses</b>		
Personnel services	74,779	74,351
Contractual services	33,652	34,509
Chemicals, supplies and small equipment	17,525	16,734
Utilities and rent	13,500	13,525
Depreciation and amortization	72,596	52,458
Water purchases	14,905	12,439
Payment in lieu of taxes and right of way fee	10,851	10,688
<b>Total operating expenses</b>	<u>237,781</u>	<u>214,704</u>
<b>Operating income</b>	104,538	104,335
<b>Nonoperating revenue (expenses)</b>		
Interest income	4,861	1,656
Interest expense and fiscal charges	(31,499)	(31,561)
<b>Total nonoperating revenue (expenses)</b>	<u>(26,638)</u>	<u>(29,905)</u>
Change in net position before Federal grants and contributions	77,900	74,430
Contributions of capital from Federal government	6,622	7,739
<b>Change in net position</b>	84,522	82,169
<b>Net position, beginning of period</b>	<u>\$2,085,201</u>	<u>\$1,897,840</u>
<b>Net position, end of period</b>	<u>\$2,169,723</u>	<u>\$1,980,009</u>

Source: Unaudited Quarterly Authority records.

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*Historical Debt Service Coverage*

The Authority has exceeded the Rate Covenant requirement of 1.20x Senior Debt service coverage set forth in the Indenture and the Authority's policy goal of 1.40x Senior Debt service coverage in each of the last five Fiscal Years, as shown in Table 20.

**Table 20. Historical Debt Service Coverage<sup>1</sup>**  
(\$ in thousands)

	Fiscal Year ended September 30				
	2014	2015	2016	2017	2018
Revenues:					
Retail	\$351,148	\$382,012	\$451,467	\$474,462	\$498,394
Wholesale	70,763	81,230	79,784	81,136	81,022
Other Non-Operating	56,082	75,354	58,078	61,419	51,756
(Contributions to/Transfers from Rate Stabilization Fund)	6,500	(10,000)	(19,000)	(10,000)	-
Total Revenues (A)	\$484,493	\$528,596	\$570,329	\$607,017	\$631,172
Operating Expenses (B)	281,918	273,486	298,452	292,812	298,761
Revenues Less Operating Expenses (C=A-B)	\$202,575	\$255,109	\$271,877	\$314,205	\$332,411
Debt Service:					
Senior Debt Service (D)	\$42,041	\$55,746	\$46,829	\$51,945	\$67,296
Subordinate Debt Service (E)	78,124	84,925	105,252	109,263	111,104
Total Outstanding and Projected Debt Service (F=D+E)	\$120,165	\$140,671	\$152,081	\$161,208	\$178,400
Calculation of Net Revenues Available for Senior Debt Service:					
Revenues Less Operating Expenses (C)	\$202,575	\$255,109	\$271,877	\$314,205	\$332,411
Prior Year Federal Billing Reconciliation	(6,000)	(5,053)	(11,679)	(19,201)	(9,019)
(Refund to)/Payment from wholesale customers	(10,069)	(2,483)	(13,017)	(10,906)	8,987
(Additions to)/Transfers from DC PILOT Fund	(7,676)	-	-	-	-
Customer Rebate	(5,100)	-	-	-	-
Net Revenues Available for Senior Debt Service (G)	\$173,730	\$247,574	\$247,181	\$284,098	\$332,379
<b>Senior Debt Service Coverage (G/D)</b>	<b>4.13x</b>	<b>4.44x</b>	<b>5.28x</b>	<b>5.47x</b>	<b>4.94x</b>
Calculation of Subordinate Debt Service Coverage:					
Net Revenue Available for Senior Debt Service	\$173,730	\$247,574	\$247,181	\$284,098	\$332,379
Less Senior Debt Service (D)	(42,041)	(55,746)	(46,829)	(51,945)	(67,296)
Net Revenues Available for Subordinate Debt Service (G-D)	\$ 131,689	\$191,827	\$200,352	\$232,153	\$265,083
<b>Subordinate Debt Service Coverage ((G-D)/E)</b>	<b>1.69x</b>	<b>2.26x</b>	<b>1.90x</b>	<b>2.12x</b>	<b>2.39x</b>
<b>Combined Debt Service Coverage (G/F)</b>	<b>1.45x</b>	<b>1.76x</b>	<b>1.63x</b>	<b>1.76x</b>	<b>1.86x</b>

<sup>1</sup> Prepared in accordance with the Indenture, which closely corresponds to cash basis accounting. Debt service on the Series 2010A Bonds (which is included in Subordinate Debt Service above) reflects the Direct Payments the Authority receives from the U.S. Treasury. The Authority has agreed to deposit the Direct Payments related to the Series 2010A Bonds directly into the Series 2010A Interest Account of the Subordinate Lien Bond Fund to pay interest when due on the Series 2010A Bonds. With respect to the effect of Sequestration on the receipt by the Authority of Direct Payments on its Series 2010A Bonds, see "SECURITY FOR THE SERIES 2019A/B BONDS – Direct Payments – Sequestration."

Source: Authority records.

**Annual Budget***Annual Budget Process*

The Authority's budgetary process is based on an integrated approach that links its operating and capital requirements to its ten-year financial plan. Preparation of the Authority's budget begins with the preparation of the ten-year financial plan in the spring of each year. The Authority's operating budgets and the CIP are developed based on the financial parameters laid out in the financial plan and in Board policy. Management presents its proposed operating budgets, the CIP and the ten-year financial plan to the Board's Environmental Quality and Sewerage Services, Water Quality and Water Services, and Finance and Budget Committees for their review, with final action by the full Board typically scheduled for January of each year. Upon final approval by the Board, the Authority's budget is forwarded to the District for inclusion in its submission to the President as described below.

Under the Act and the Federal Act, the Authority is required to prepare and annually submit to the Mayor of the District for inclusion in the annual budget of the District estimates of the expenditures and appropriations necessary for the operation of the Authority for each Fiscal Year. All such estimates are required to be forwarded by the Mayor to the Council for its action without revision, but subject to the Mayor's recommendations. The Council may comment or make recommendations concerning such annual estimates but has no authority to revise such estimates. Such annual estimates constitute a part of the annual budget of the District required to be submitted by the

Mayor to the President of the United States for transmission by the President to the U.S. Congress. In accordance with the District's Home Rule Act, except as noted below, no amount may be obligated or expended by any officer or employee of the District, including the Authority, unless such amount has been approved by act of Congress and then only according to such act. Pursuant to the Federal Act, the limitation described in the preceding sentence is not applicable to expenditures by the Authority for any of the following purposes: (i) any amount obligated or expended from the proceeds of any revenue bonds of the Authority; (ii) any amount obligated or expended for debt service on such revenue bonds; (iii) any amount obligated or expended to secure any revenue bonds of the Authority; or (iv) any amount obligated or expended for repair, maintenance, or capital improvement to the System facilities financed by any revenue bonds of the Authority. In addition, pursuant to Public Law 105-33 (D.C. Code Section 1-204.45a(b)), if the Authority has excess revenues, such excess revenues may be obligated or expended for capital projects.

*The Approved Fiscal Year 2019 and Fiscal Year 2020 Budgets*

The Board adopted the Fiscal Year 2019 operating budget (the "Fiscal Year 2019 Budget") on March 1, 2018 and the Fiscal Year 2020 operating budget (the "Fiscal Year 2020 Budget") on April 4, 2019.

The Fiscal Year 2019 Budget for operating expenditures totals \$582.8 million, which is \$20.8 million or 3.7% higher than the Approved Fiscal Year 2018 Budget, primarily due to the increase in debt service cost associated with the Authority's CIP. The Fiscal Year 2020 Budget for operating expenditures totals \$614.5 million, which is \$31.7 million or 5.4% higher than the Approved Fiscal Year 2019 Budget, primarily due to increase in debt service cost associated with the Authority's CIP and an increase to the Professional Services in the Operations and Maintenance budget.

Commencing in Fiscal Year 2018, the Authority anticipates that the difference between actual and budgeted operating expenses will be less than in previous years due to budget planning that focuses on having actual expenses more closely aligned with budgeted expenses. Beginning in Fiscal Year 2015, the Authority includes a separate line item in its operating budget to provide funds for additional cash-financed capital construction, the defeasance of debt, or other uses at the discretion of the Authority. The amounts in this line item could alternatively be used by the Authority to help address potential shortfalls in cash receipts or increases in expenses, should the need arise. In addition, the Authority has the ability to adjust its rates, as necessary, to provide the required revenues in each year.

**Projected Financial Operations**

Table 21 was prepared by Amawalk in its capacity as the financial feasibility consultant to the Authority, and it shows (i) the actual cash flows, cash reserves and debt service coverage for Fiscal Year 2018 and (ii) projected cash flows, cash reserves and debt service coverage for Fiscal Years 2019 through 2023. The projected revenues reflect the increases in rates and charges adopted by the Authority for Fiscal Year 2019 and the anticipated increases in rates and charges for Fiscal Years 2020 through 2023.

The projected financial results for Fiscal Years 2019 through 2023 incorporate assumptions as of the date of this Official Statement. The projected debt service requirements include anticipated debt service on the Series 2019A/B Bonds and the Series 2019C Subordinate Bonds. The first payment of debt service for the Series 2019A/B Bonds and the Series 2019C Subordinate Bonds is expected to be made in Fiscal Year 2020. Excluding the issuance of the Series 2019A/B Bonds and the Series 2019C Subordinate Bonds, the Authority anticipates issuing approximately \$731.6 million of new money bonds from Fiscal Year 2021 through and including Fiscal Year 2023. There are no deposits to the debt service reserve fund assumed for the Series 2019A/B Bonds, and any anticipated future bonds; the Authority may decide to make contributions to the debt service reserve fund in the future at its discretion.

The Authority has the option to issue future bonds as either Senior Debt or Subordinate Debt. The combined debt service coverage would remain the same if the Authority were to elect to issue Senior Debt in lieu of Subordinate Debt or vice versa in a given year. Decisions regarding the issuance of future debt as Senior Debt will be made by the Authority at the time of debt issuance.

For more information in respect of Amawalk's analysis, see "FINANCIAL FEASIBILITY OPINION LETTER" in Appendix A.

**Table 21. Analysis of Actual and Projected Financial Results**Fiscal Years ended/ending September 30  
(\$ in thousands)

	Actual			Projected		
	2018 <sup>2</sup>	2019	2020	2021	2022	2023
<b>Revenues and Payment Obligations</b>						
<b>Revenues</b>						
Retail Revenues <sup>1</sup>	\$498,394	\$530,984	\$538,362	\$589,407	\$629,329	\$672,857
Wholesale Revenues	81,022	82,992	79,224	81,600	84,048	86,570
Other Non-Operating Revenues	51,756	62,361	62,886	69,183	74,083	76,885
Transfer from RSF	0	6,000	0	0	0	0
(Contributions to RSF)	0	(6,000)	0	0	0	0
<b>Total Revenues</b>	<b>631,173</b>	<b>676,337</b>	<b>680,472</b>	<b>740,191</b>	<b>787,461</b>	<b>836,313</b>
Prior Year Federal Billing Reconciliation	(9,019)	(5,821)	1,317	2,233	0	0
Projected Billing Refunds	0	(11,000)	(4,000)	(4,000)	0	0
(Refund to)/Payment from IMA	8,987	(15,446)	(3,448)	0	0	0
Transfer to CAP Fund	0	(10,246)	0	0	0	0
Curing Pad + ERP	0	0	(4,316)	0	0	0
<b>Net Revenues (A)</b>	<b>631,141</b>	<b>633,825</b>	<b>670,025</b>	<b>738,424</b>	<b>787,461</b>	<b>836,313</b>
<b>Operating Expenses (B)</b>	<b>298,761</b>	<b>311,166</b>	<b>325,847</b>	<b>335,892</b>	<b>346,249</b>	<b>356,928</b>
<b>Net Revenues Available for Debt Service (C=A-B)</b>	<b>332,380</b>	<b>322,659</b>	<b>344,178</b>	<b>402,533</b>	<b>441,212</b>	<b>479,385</b>
Total Senior Debt Service (D) <sup>3,4,5</sup>	67,296	75,609	76,385	76,386	76,386	84,239
Total Subordinate Debt Service (E) <sup>3,4,5,6,7,8</sup>	111,104	118,412	136,826	151,236	168,964	178,835
<b>Total Outstanding &amp; Projected Debt Service (F=D+E)</b>	<b>178,399</b>	<b>194,021</b>	<b>213,211</b>	<b>227,622</b>	<b>245,350</b>	<b>263,074</b>
<b>Debt Service Coverage</b>						
Calculation of Net Revenues Available for Senior Debt Service						
<b>Senior Debt Service Coverage (C/D)</b>	<b>4.94x</b>	<b>4.27x</b>	<b>4.51x</b>	<b>5.27x</b>	<b>5.78x</b>	<b>5.69x</b>
Calculation of Subordinate Debt Service Coverage						
Net Revenue Available for Senior Debt Service (C)	332,380	322,659	344,178	402,533	441,212	479,385
Less Senior Debt Service (D)	(67,296)	(75,609)	(76,385)	(76,386)	(76,386)	(84,239)
Net Revenue Available for Subordinate Debt Service (C-D)	265,084	247,049	267,793	326,146	364,826	395,146
<b>Subordinate Debt Service Coverage [(C-D)/E]</b>	<b>2.39x</b>	<b>2.09x</b>	<b>1.96x</b>	<b>2.16x</b>	<b>2.16x</b>	<b>2.21x</b>
<b>Combined Debt Service Coverage (C/F)</b>	<b>1.86x</b>	<b>1.66x</b>	<b>1.61x</b>	<b>1.77x</b>	<b>1.80x</b>	<b>1.82x</b>
<b>Subordinated Payment Obligations</b>						
Payment In Lieu of Taxes/Right of Way Fee (G)	21,376	21,702	22,034	22,372	22,718	23,070
Defeasance/Cash Financed Capital Construction (H) <sup>9</sup>	35,260	26,999	28,556	30,589	39,123	48,715
<b>Revenues Less Disbursements (I=A-B-F-G-H)</b>	<b>97,344</b>	<b>79,937</b>	<b>80,378</b>	<b>121,949</b>	<b>134,021</b>	<b>144,525</b>
<b>Reserve Balances</b>						
Beginning Cash Reserve Balance (J)	147,212	166,796	171,342	180,000	185,000	194,000
<b>Cash Reserve Balance Breakdown</b>						
Beginning Undesignated Reserve Balance	63,078	80,091	86,548	93,139	95,692	103,018
Additions to/(Transfers from) Undesignated Reserve						
Annual Balance from Operations	97,376	122,450	90,825	123,715	134,021	144,525
Prior Year Federal Billing Reconciliation	(9,019)	(5,821)	1,317	2,233	0	0
Projected Billing Refunds	0	(11,000)	(4,000)	(4,000)	0	0
(Refund to)/Payment from IMA	8,987	(15,446)	(3,448)	0	0	0
Transfer to CAP Fund	0	(10,246)	0	0	0	0
Curing Pad + ERP	0	0	(4,316)	0	0	0
Pay-Go Capital Financing	(77,761)	(75,391)	(71,720)	(116,949)	(125,021)	(137,525)
(Transfers to)/Transfers from 60-Day Reserve	(2,571)	1,912	(2,067)	(2,447)	(1,674)	(1,726)
<b>Ending Undesignated Reserve Balance</b>	<b>80,091</b>	<b>86,548</b>	<b>93,139</b>	<b>95,692</b>	<b>103,018</b>	<b>108,292</b>
Beginning 60-Day Operating Reserve Balance	49,134	51,705	49,794	51,861	54,308	55,982
Additions to/(Transfers from) 60-Day Reserve	2,571	(1,912)	2,067	2,447	1,674	1,726
<b>60-Day Operating Reserve Balance</b>	<b>51,705</b>	<b>49,794</b>	<b>51,861</b>	<b>54,308</b>	<b>55,982</b>	<b>57,708</b>
Beginning Renewal & Replacement Balance	35,000	35,000	35,000	35,000	35,000	35,000
Additions to/(Transfers from) Renewal & Replacement Reserve	0	0	0	0	0	0
<b>Renewal &amp; Replacement Balance</b>	<b>35,000</b>	<b>35,000</b>	<b>35,000</b>	<b>35,000</b>	<b>35,000</b>	<b>35,000</b>
<b>Ending Balance Cash Reserve</b>	<b>166,796</b>	<b>171,342</b>	<b>180,000</b>	<b>185,000</b>	<b>194,000</b>	<b>201,000</b>



DC Water Board of Directors - X. Consent Items (Joint Use)

District Stormwater Fee - DC Water Share (K)	1,247	1,263	1,000	1,000	1,000	1,000
Cash Reserve Requirement Per Board Policy [Maximum of (B-K)*(120/365) or \$125.5 Million] <sup>10</sup>	125,500	125,500	125,500	125,500	125,500	125,500
Beginning Rate Stabilization Fund Balance	61,450	61,450	61,450	61,450	61,450	61,450
Transfers from Operations (Additions to Rate Stabilization Fund)	0	6,000	0	0	0	0
Additions to Operations/(Transfers from) Rate Stabilization Fund	0	(6,000)	0	0	0	0
Rate Stabilization Fund Balance	61,450	61,450	61,450	61,450	61,450	61,450

<sup>1</sup> Includes retail revenue from water and wastewater charges as well as the Clean Rivers Impervious Area Charge.

<sup>2</sup> Preliminary results, unaudited.

<sup>3</sup> Debt service is shown on a cash basis, and may differ from the CAFR.

<sup>4</sup> Anticipated future bonds in Fiscal Year 2023 are currently assumed to be issued on a senior lien basis. Anticipated future bonds in Fiscal Years 2019, 2021, and 2022 are currently assumed to be issued on a subordinate lien basis. The Authority may decide in the future to issue bonds on a senior or subordinate basis. Debt service for the anticipated Fiscal Year Series 2019A/B Bonds is calculated based on an assumed annual true interest cost of 3.34%, a term of 30 years and level debt service. Debt service for the anticipated 2019 Series C Bonds is based on an assumed annual true interest cost of 3.09%, a term of 35 years and with no principal payments during the period of Fiscal Year 2019 through Fiscal Year 2023. Debt service for anticipated future bonds starting in Fiscal Year 2020 is calculated based on a term of 35 years and level annual debt service and assumed annual interest rates of 5.50% in Fiscal Year 2020, and 6.00% in Fiscal Year 2021 and all subsequent years.

<sup>5</sup> Total Senior Debt Service (D) and Total Subordinate Debt Service (E) includes debt service payments on anticipated future bonds of the Authority, based on the terms noted in footnote 4 above. The Authority has applied for loans to finance a portion of its CIP pursuant to the Water Infrastructure Finance and Innovation Act of 2014 (WIFIA), a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. The application amount is a total of \$144 million to be disbursed over multiple years. If such loans are approved, it is anticipated that: a) the amount of the bonds issued in future years by DC Water will be reduced by the principal amount of the loans received from the WIFIA program; and b) the annual debt service payments on such loans will be approximately equal to or less than the debt service that would be required if the Authority issued bonds in lieu of accepting the loan proceeds.

<sup>6</sup> The Total Subordinate Debt Service is net of the Build America Bonds (BABs) subsidies the Authority expects to receive from the United States Treasury equal to approximately 32% of the interest payable on the Series 2010A Bonds. It reflects the reduction in BABs subsidy payments due to expected effects of sequestration. See "SECURITY FOR THE SERIES 2019A/B BONDS - Direct Payments – Sequestration."

<sup>7</sup> Subordinated debt service includes an allowance in each year for the interest costs of both Commercial Paper and Extendible Maturity Commercial Paper. See "DEBT SERVICE REQUIREMENTS."

<sup>8</sup> The Series 2016B Bonds are designated as environmental impact bonds and, as such, include provisions for the possibility of an outcome payment by the Authority to the original purchasers of the Series 2016B Bonds, and for the possibility of a risk share payment by such original purchasers to the Authority depending upon the results achieved by the green infrastructure financed with the proceeds of the Series 2016B Bonds. The Series 2016B Bonds are subordinate, multimodal variable rate bonds, initially issued bearing a 3.43% fixed rate through the mandatory tender date, April 1, 2021 (Fiscal Year 2021). The subordinate debt service shown above includes principal and interest payments through Fiscal Year 2021 and assumes that no outcome payment is payable by the Authority. In the event that an outcome payment is necessary, the Authority estimates that its maximum obligation would be \$3.3 million, payable in full in Fiscal Year 2021. Any outcome payment up to and including the maximum obligation would not be material to the annual cash flows of the Authority. In the event that the maximum obligation amount has to be paid in Fiscal Year 2021: a) the projected Senior Debt Service Coverage does not change, b) the projected Subordinate Debt Service Coverage would be 2.12, and c) the Projected Combined Coverage would be 1.75.

<sup>9</sup> Beginning in Fiscal Year 2016, the Authority included funds in its annual budget that are intended to be used to defease outstanding debt or pay for construction on a cash basis. These funds are separate from the Pay-Go Capital Financing amounts referenced under Reserve Funds above and are presently assumed to be added to the Pay-Go amounts and deposited in total as a source of funds for the CIP. Alternatively, these funds could be used to cover unexpected declines in revenues or increases in expenses. The Authority reserves the right to modify the amount of the funds and the usage of funds during each year.

<sup>10</sup> Board financial policy requires the maintenance of a cash equivalent to 120 days of operating costs less District stormwater revenues, but not less than a cash balance of \$125.5 million. Actual results are projected to be higher than required under Board policy; see the explanation provided herein.

Source: *Amavalk* (Totals may not add due to rounding.)

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## System Revenues

The Authority collects revenues from retail and wholesale customers as well as other sources that include fees paid by developers and interest earnings on available funds. Authority revenues also include transfers from the Rate Stabilization Fund. Table 22 shows historical revenues of the Authority for Fiscal Year 2018, and the projected revenues for Fiscal Years 2019 through 2023.

**Table 22. Historical and Projected Revenue on a Cash Basis**

Fiscal Years ended/ending September 30  
(\$ in thousands)<sup>1</sup>

	Actual <sup>2</sup>		Projected <sup>3</sup>			
	2018	2019	2020	2021	2022	2023
<b>Retail Revenue</b>						
Residential, Commercial, Multi-Family	\$260,495	\$299,698	\$321,081	\$361,757	\$399,734	\$429,339
D.C. Municipal Government	10,979	7,066	10,000	11,114	12,263	13,172
Federal Government	39,552	41,525	47,940	56,031	60,915	65,432
D.C. Housing Authority	7,137	9,269	9,720	10,828	11,973	12,860
Groundwater <sup>4</sup>	0	0	5	5	5	5
Metering Fee	11,745	11,544	10,776	10,776	10,776	10,776
Water System Replacement Fee <sup>5</sup>	40,896	40,527	39,717	39,717	39,717	39,717
CRIAC	<u>127,591</u>	<u>121,356</u>	<u>99,123</u>	<u>99,179</u>	<u>93,946</u>	<u>101,556</u>
<b>Total Retail Revenue</b>	<b>\$498,394</b>	<b>\$530,984</b>	<b>\$538,362</b>	<b>\$589,407</b>	<b>\$629,329</b>	<b>\$672,857</b>
<b>Wholesale Revenue</b>						
Loudoun County & Potomac Interceptor	\$9,942	\$10,257	\$10,203	\$10,509	\$10,825	\$11,149
WSSC	57,210	58,335	54,520	56,155	57,840	59,575
Fairfax County	<u>13,870</u>	<u>14,401</u>	<u>14,501</u>	<u>14,936</u>	<u>15,384</u>	<u>15,845</u>
<b>Total Wholesale Revenue</b>	<b>\$81,022</b>	<b>\$82,992</b>	<b>\$79,224</b>	<b>\$81,600</b>	<b>\$84,048</b>	<b>\$86,570</b>
<b>Other Revenues</b>						
District Stormwater Fee – D.C. Water Share	\$1,247	\$1,263	\$1,000	\$1,000	\$1,000	\$1,000
Transfer from Rate Stabilization Fund	0	6,000	0	0	0	0
Miscellaneous Revenues	26,881	36,719	35,615	36,836	36,928	37,108
Aqueduct Debt Service Revenue from Falls Church and Arlington	193	193	193	193	193	193
Interest Income	2,200	3,151	3,966	8,782	13,244	15,514
PILOT/D.C. Right of Way Occupancy Fee	<u>21,236</u>	<u>21,035</u>	<u>22,113</u>	<u>22,372</u>	<u>22,718</u>	<u>23,070</u>
<b>Total Other Revenue</b>	<b>\$51,756</b>	<b>\$68,361</b>	<b>\$62,886</b>	<b>\$69,183</b>	<b>\$74,083</b>	<b>\$76,885</b>
<b>Total Operating Cash Receipts</b>	<b>\$631,173</b>	<b>\$682,337</b>	<b>\$680,472</b>	<b>\$740,191</b>	<b>\$787,461</b>	<b>\$836,313</b>
<b>Less: Contributions to Rate Stabilization Fund</b>	<b>0</b>	<b>(6,000)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Operating Cash Receipts with RSF Transfers</b>	<b>\$631,173</b>	<b>\$676,337</b>	<b>\$680,472</b>	<b>\$740,191</b>	<b>\$787,461</b>	<b>\$836,313</b>

<sup>1</sup> All figures are presented on a cash receipt basis. Totals may not add due to rounding.

<sup>2</sup> Preliminary results, unaudited.

<sup>3</sup> Fiscal Year 2019 - 2023 revenue projections are based on the Authority's financial plan.

<sup>4</sup> Groundwater revenue refers to receipts from customers that pump groundwater into the sewer system.

<sup>5</sup> The meter-based Water System Replacement Fee to recover the cost of the 1% renewal and replacement program for water service lines was implemented beginning in Fiscal Year 2016.

Source: Amawalk.

An overview of the revenue components on a cash basis is provided below.

#### *Retail Water and Wastewater Revenues*

Retail revenues comprise the vast majority of all System revenues. In Fiscal Years 2014 through 2018, retail revenues accounted for approximately 78.6% of total revenue (excluding the PILOT/ROW Fee and the effects of withdrawals from the Rate Stabilization Fund), wholesale customer payments represented about 14.4% of total revenues, with the remaining 7.0% coming from a variety of sources, such as interest income, the District fire protection fee, IMA contributions for indirect costs and fees from service installations. Retail revenues are derived primarily from water and wastewater service charges of the Authority that are based on water consumption as described earlier in this Official Statement. Other sources of retail revenue include the customer metering fee, CRIAC, and Water System Replacement Fee. See “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges.”

The Authority has projected that revenues from retail customers, excluding the PILOT/ROW Fees, will be \$531.0 million in Fiscal Year 2019, or 81% of the Authority’s total revenues (excluding the PILOT/ROW Fee and transfers from the Rate Stabilization Fund). This amount includes approximately \$121.4 million from the CRIAC and \$40.5 million from the Water System Replacement Fee. Without the CRIAC and the Water System Replacement Fee, Fiscal Year 2019 projected revenue is expected to be \$39.2 million, or 11.9%, higher than the Fiscal Year 2018 revenues from retail customers. The projected increase in retail revenue assumes the consumption of retail customers will be lower in Fiscal Year 2019 compared to Fiscal Year 2018. Cash Receipts for the first nine months of Fiscal Year 2019 (through March 31, 2019) (excluding the PILOT/ROW Fee) were slightly higher than budget for this period. As of the date of this Official Statement, it is not possible to predict whether full-year cash receipts will be higher, lower or the same as the budgeted receipts.

Revenues from retail customers are projected to be \$538.4 million in Fiscal Year 2020. This amount includes approximately \$99.1 million from the CRIAC and \$39.7 million from the Water System Replacement Fee and excludes the PILOT/ROW Fee. Without the effects of the CRIAC and the Water System Replacement Fee, the Fiscal Year 2020 projected revenue represents an increase of \$30.4 million or 8.2% compared to the projected Fiscal Year 2019 revenues.

Revenues from retail customers are projected to be \$589.4 million in Fiscal Year 2021. This amount includes approximately \$99.2 million from the CRIAC and \$39.7 million from the Water System Replacement Fee and excludes the PILOT/ROW Fee. Without the effects of the CRIAC and the Water System Replacement Fee, the Fiscal Year 2020 projected revenue represents an increase of \$51.0 million or 12.8% compared to the projected Fiscal Year 2020 revenues.

Retail revenues in Fiscal Years 2022 and 2023 are anticipated to increase in each year reflecting both the effects of anticipated changes in rates (as illustrated in Table 13) as well as the expectation that water demand will decrease by 1% annually.

#### *Clean Rivers Impervious Area Charge Revenues*

The revenues from the CRIAC were \$127.6 million in Fiscal Year 2018. CRIAC revenues are projected to decrease to \$121.4 million in Fiscal Year 2019 due to a rate adjustment. Rates and revenues from the CRIAC in Fiscal Year 2020 are expected to be lower than in the prior year and rates and revenues from wastewater charges are expected to be higher due to both: a) increases in the cost of service, and b) an allocation of a portion of the costs of the LTCP to wastewater charges in lieu of the CRIAC. The allocation of a portion of LTCP costs to wastewater charges is based on an analysis prepared by the Authority which estimates that sanitary sewage comprises 37% of combined wastewater and stormwater. DC Water expects to allocate a portion of the LTCP costs to wastewater charges in three stages, beginning with an 18% allocation in Fiscal Year 2020. In Fiscal Years 2021 and 2022, the allocated portions are expected to be 28% and 37%, respectively. Allocated LTCP costs in Fiscal Year 2023 are expected to remain at the 37% level. Amawalk reviewed the Authority’s analysis and found it to be reasonable and consistent with industry practice. The expected reduction in Fiscal Year 2020 CRIAC revenue of \$22.2 million represents a decrease of 18.3% from the prior year. The revenues from the CRIAC in Fiscal Year 2023 are expected to increase reflecting the effects of projected rate increases.

#### *Water System Replacement Fee*

The revenues from Water System Replacement Fee were \$40.9 million in Fiscal Year 2018. It is anticipated that the Water System Replacement Fee will generate \$40.5 million in Fiscal Year 2019 and \$39.7 million in revenue per year from Fiscal Years 2020 through 2023.

#### *Stormwater Revenues*

In Fiscal Year 2018, the Authority collected \$1.2 million in stormwater fees from its retail accounts to cover its share of District stormwater expenditures, and it anticipates that it will collect \$1.3 million in Fiscal Year 2019. The Authority assumes that it will continue collecting \$1.0 million in stormwater fees in each of the Fiscal Years

2020 through 2023. The District Council has stormwater rate-setting authority for stormwater services provided by the District. The projected revenue from stormwater fees that are payable to the District are based on the current stormwater rate. For more information regarding the stormwater fee, see “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – Stormwater Fee.”

#### *Wholesale Revenues*

The Authority’s wholesale revenues for wastewater operations are stable and reflect modest increases in the cost of service and changes in the volumes of wastewater flow from suburban customers. In Fiscal Year 2018, the Authority received \$81.0 million in revenue from its wholesale customers pursuant to the IMA. Revenues from wholesale customers are expected to increase to \$83.0 million in Fiscal Year 2019 and then decrease to \$79.2 million in Fiscal Year 2020. The revenues from the wholesale customers in Fiscal Years 2021 through 2023 are projected to increase reflecting the effects of projected rate increases as well as the expectation that water demand will decrease by 1% annually.

#### *Loan Repayment from Arlington County and Falls Church*

The Authority provided a loan to the Aqueduct to finance certain improvements at the Aqueduct. This loan is repaid to the Authority by Arlington County, Virginia, and Falls Church, Virginia, as Aqueduct Customers, in the form of a credit that is issued to the Authority on the monthly water bills generated by the Aqueduct. The amount of the credit is determined by the Aqueduct in accordance with the Water Sales Agreement, and the annual amount is expected to be \$193,246 from Fiscal Year 2019 through Fiscal Year 2023.

#### *Interest Income on Reserve Funds*

Interest income is earned on the available funds of the Authority and a portion of the interest earnings may be used to pay operating and maintenance expenses or capital costs of the Authority.

Interest earnings will fluctuate from year to year based on changes in cash flow, reserve requirements, fund balances and market conditions affecting interest rates and other investment terms. The Authority has projected interest earnings of \$3.2 million in Fiscal Year 2019, \$4.0 million in Fiscal Year 2020, \$8.8 million in Fiscal Year 2021, \$13.2 million in Fiscal Year 2022 and \$15.5 million in Fiscal Year 2023, including interest earned from the bond reserves. The assumed annual interest earnings rates for the funds are 1.5% in Fiscal Year 2019, 2.0% in Fiscal Year 2020, 3.0% in Fiscal Year 2021 and 4.0% in Fiscal Years 2022 and 2023. Projected fund balances and interest rate assumptions are reviewed annually as part of the Authority’s budget process. The Authority assumes for forecasting purposes that interest earnings rates will increase over time while simultaneously assuming that borrowing rates for future Authority debt will be higher than the assumed rates for Fiscal Year 2019.

#### *Miscellaneous Revenue*

The Authority realizes revenue from several sources classified as miscellaneous, such as charges for late payments by customers, service installation charges, service line repairs, engineering reviews, the sale of manuals, the District fire protection fee, and fees charged to commercial waste haulers. Miscellaneous revenues in Fiscal Year 2018 were \$26.9 million. Revenues from these sources are expected to increase to \$36.7 million in Fiscal Year 2019. Miscellaneous revenues are expected to total \$35.6 million per year in Fiscal Year 2020, \$36.8 million in Fiscal Year 2021, \$36.9 million in Fiscal Year 2022, and \$37.1 million in Fiscal Year 2023.

These amounts also include payments for various development-related services provided by the Authority and charges to the District for fire protection services. The Authority’s annual investments (operating and capital) in fire protection assets and services increased significantly following the execution of the Memorandum of Understanding between the Authority and the District of Columbia Fire and EMS Department (FEMS) on October 25, 2007. The fees charged by the Authority are intended to recover the costs incurred by the Authority related to fire protection services provided by the water system including, but not limited to, the ability to deliver water for firefighting as well as maintaining and upgrading fire hydrants. The Authority’s investments will continue in future years but at a pace that is much lower than the peak years of Fiscal Year 2008 and Fiscal Year 2009. The projected miscellaneous revenues assume that the District will make such payments in each year or that a combination of payments and credits against Authority payments to the District will result in the Authority receiving the full amounts expected from the District.

#### *PILOT/ROW Fee*

The total combined revenues from the PILOT/ROW Fee are assumed in the financial forecast to total \$21.7 million in Fiscal Year 2019, and increase to \$23.1 million in Fiscal Year 2023. The Authority and the District have negotiated new MOUs for both the PILOT and the ROW (see “THE AUTHORITY – Authority’s Relationship to the District”).

**System Expenditures***Operating Expenses*

Table 23 presents the historical Operating and Maintenance (“O&M”) expenses of the Authority for Fiscal Year 2018, and the projected O&M expenses for Fiscal Years 2019 through 2023 on a cash disbursement basis.

The projected expenses for Fiscal Year 2019 reflect the current adopted budget of the Authority which represents a 4.2% increase over the expenses for Fiscal Year 2018, excluding the PILOT/ROW Fee payments to the District. The anticipated expenses for Fiscal Year 2020 reflect an annual increase of 4.7% over the projected expenses for Fiscal Year 2019, excluding the PILOT/ROW Fee payments to the District.

**Table 23. Historical and Projected Operation and Maintenance Costs on a Cash Disbursement Basis**  
Fiscal Years ended/ending September 30  
(\$ in thousands)<sup>1</sup>

	<b>Actual</b> <sup>2</sup>		<b>Projected</b> <sup>3</sup>			
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Personnel Services	\$138,993	\$137,253	\$147,932	\$152,370	\$156,941	\$161,649
Contractual Services	73,404	78,725	81,886	84,343	86,873	89,479
Water Purchases	27,665	32,617	34,929	35,977	37,056	38,168
Chemical & Supplies	34,679	35,738	33,158	34,153	35,177	36,233
Utilities & Rent	23,414	25,966	26,953	28,031	29,152	30,318
Small Equipment	606	867	989	1,019	1,049	1,081
Total O&M Expenses	298,761	311,166	325,847	335,892	346,249	356,928
PILOT/D.C. ROW Occupancy Fee	\$21,376	\$21,702	\$22,034	\$22,372	\$22,718	\$23,070
<b>Total Expenses</b>	<b>\$320,137</b>	<b>\$332,868</b>	<b>\$347,881</b>	<b>\$358,264</b>	<b>\$368,967</b>	<b>\$379,998</b>

<sup>1</sup> All figures are presented on a cash disbursement basis. Totals may not add due to rounding.

<sup>2</sup> Preliminary results; unaudited.

<sup>3</sup> Fiscal Year 2019 - 2023 cost projections are based on the Authority’s financial plan.

Source: Amawalk

Table 24 provides a comparison of the budgeted versus actual costs for Fiscal Years 2017 and 2018 as well as the first six months of Fiscal Year 2019 on an accrual basis. As illustrated in Table 24, the Authority has historically under-spent its annual budget as a whole as well as its O&M expenses as one component of the budget. Individual line items of expense may be higher or lower in a given year but aggregate expenses are historically less than budgeted.

**Table 24. Budget to Actual Expense Comparison**  
Fiscal Years Ended September 30  
(\$ in thousands)<sup>1</sup>

Category	2017			2018			2019 (YTD March)		
	Approved Budget	Actual Cost	Variance	Approved Budget	Actual Cost	Variance	Approved Budget	Actual Cost	Variance
Personnel Service	\$144,761	\$149,293	\$ (4,532)	\$149,193	\$138,993	\$10,200	\$162,620	\$75,717	\$86,903
Contractual Service	82,760	72,951	9,809	79,353	73,404	5,949	81,679	38,012	43,667
Water Purchase	29,278	26,796	2,482	30,156	27,665	2,491	30,520	14,737	15,783
Chemical & Supplies	34,709	31,373	3,336	30,659	34,679	(4,020)	32,091	17,523	14,568
Utilities & Rent	28,670	24,260	4,410	29,399	23,414	5,985	32,091	12,909	19,182
Small Equipment	1,230	1,178	52	1,071	606	465	1,240	177	1,063
Debt Service	169,346	165,836	3,510	185,480	178,399	7,081	199,025	95,937	103,088
Cash Financed Capital Improvements	24,014	24,199	(185)	35,260	35,260	0	26,999	-	26,999
PILOT/ROW	21,057	21,057	-	21,376	21,376	(0)	21,702	10,851	10,851
Total Budgetary Basis Expenditures	\$535,825	\$516,943	\$23,510	\$540,886	\$533,796	\$7,090	\$582,781	\$265,863	\$316,918

<sup>1</sup> All figures are presented on an accrual basis.  
Source: Authority records.

Several factors affecting future expenses are described herein. The Authority has undertaken long-term initiatives to optimize the cost of service. Management's forecast of operations and maintenance expenses reflects continued emphasis on managing such expenses. Examples of historical and ongoing initiatives are outlined in the description of the major categories of expense. Management continually monitors expenditures and reports the results monthly to the Board's Finance and Budget Committee. The Authority also has the option, in any given year, to defer certain expenses in order to stay within its budget and conform to Board policy requirements.

#### *Labor-Related Expenses*

Personnel costs are directly affected by staffing levels, salaries and wages, fringe benefits including retirement contributions, overtime expenditures and other factors.

Certain individuals at the Authority are responsible for planning and implementing the CIP. The salaries, wages and fringe benefits of such personnel are charged to capital projects and are paid for through the sources of funds for the CIP.

**Salaries and Fringe Benefits.** The Authority provides its employees with a comprehensive fringe benefit package, including coverage for health insurance, group term life insurance, dental care, vision care, disability coverage and retirement plans. The fringe benefit component of total labor costs in recent years has been impacted by the increasing cost of health care coverage. Fringe benefits are budgeted to be 22% of the total personnel services budget in Fiscal Year 2019 and 23% of the total personnel services budget in Fiscal Year 2020.

While employed by the Authority, employees contribute to a retirement fund and the Authority contributes a proportional match. Once an employee retires, the Authority has no further financial obligations relating to those employees. Some retired employees may be eligible to receive a federal pension. In addition, the federal government also may assume the employer portion of the healthcare coverage for eligible employees. The Authority is and expects to continue to remain current with its benefit payments.

See "THE AUTHORITY – Employees and Labor Relations" herein for further information regarding the Authority's labor force and the status of collective bargaining agreements.

**Overtime Expenses.** The Authority uses overtime work by its employees to address unplanned repairs and service needs (e.g., to repair water main breaks that occur outside of normal business hours) as well as to provide resources to offset unfilled positions and to reduce the need for contractual labor. Overtime expenses in Fiscal Year 2018, including an allowance for fringe benefits, totaled \$42.8 million, or about 27.2% of total personnel services costs.

**Total Personnel Expenses.** On an accrual basis, the Authority's personnel costs increased at an annual average of 5.8% per year from Fiscal Year 2014 through Fiscal Year 2018. Budgeted personnel expenses for Fiscal Year 2019 are \$162.6 million, a 3.2% increase over Fiscal Year 2018. In Fiscal Year 2020, personnel expenses are expected to increase 5.0% from the prior year. Beginning in Fiscal Year 2021, personnel expenses are projected to increase at an average annual rate of 3.0%. The projected rate of increase is supported by the Authority's demonstrated ability to maintain adequate staffing levels and reduce overtime costs through improvements in its facilities and business practices, as well as the expectation that new employees in the upcoming years will have lower salaries and benefits compared to the employees who will retire during that same period.

*Non-Labor Operating Expenses*

There are four major categories of non-labor related operating expenses: contractual services (which includes the processing and disposal of biosolids), water purchases, chemicals and supplies, and utilities and rent (which includes electricity needed to operate the Authority facilities). A brief overview of the four major categories of non-labor expenses is provided below.

Contractual Services. Contractual services include the outside services necessary for the Authority to operate and maintain facilities, including the hauling of biosolids from the Blue Plains treatment facility to the disposal location, building maintenance and repair, the maintenance of certain machinery, equipment and vehicles, and other contractual or professional services.

The actual costs on an accrual basis for contractual services in FY 2019 (Q2) were \$38.0 million. The budgeted amounts for contractual services in Fiscal Year 2019 and Fiscal Year 2020 are \$81.7 million and \$81.9 million, respectively. Contractual services expenses are assumed to increase at the average annual rate of 3.0% for Fiscal Years 2021 through 2023.

Also included within contractual services is the Authority's purchase of annual insurance policies. The policies cover property, equipment, worker's compensation, umbrella and excess liability, crime and fidelity, public officials' liability, and fiduciary liability.

Water Purchases. The Authority purchases all of its treated drinking water from the Aqueduct on the basis of a 1997 agreement between the Authority and the Corps of Engineers, the operator of the Aqueduct. Under the terms of the agreement and based on its usage in relation to the other Aqueduct Customers, the Authority pays an average of approximately 75% of the Aqueduct's operating costs. The Authority's share of Aqueduct capital costs is reflected in the Authority's CIP.

On an accrual basis, the actual operating costs for water purchases in Fiscal Year 2019(Q2) were \$14.7 million. The budgeted amount for water purchases in Fiscal Year 2019 and Fiscal Year 2020 is \$30.5 million and \$34.9 million, respectively. An average annual increase in water supply costs is assumed at approximately 3.0% in Fiscal Years 2021 through 2023.

Chemicals and Supplies. The chemicals and supplies component of the Authority's operating and maintenance expenses includes, but is not limited to, office, laboratory, custodial and maintenance supplies, automotive supplies, uniforms, and chemicals. Chemicals are the largest portion of this component. The Authority continues to implement a QA/QC program for managing dry polymer selection, procurement, and use. The most cost effective dry polymer products, for different process applications at Blue Plains, are selected based on laboratory and full scale tests. The selected products are "fingerprinted" to verify the consistency in the quality of future deliveries.

The actual expenses for chemicals and supplies in Fiscal Year 2019(Q2), on an accrual basis, were \$17.5 million. The budgeted expenses for chemicals and supplies in Fiscal Year 2019 and Fiscal Year 2020 are \$32.1 million and \$33.2 million, respectively. The average annual increase of costs for chemicals and supplies is assumed at 3.0% in Fiscal Years 2021 through 2023.

Utilities and Rent. The Authority is a major user of energy, primarily for the operation of the Blue Plains Wastewater Treatment Facilities. In Fiscal Year 2018, approximately 63% of the expenses associated with utilities and rent were attributable to the cost of power. The combined heat and power facility provides over 23% of the plant's energy needs. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Blue Plains – Wastewater Treatment Projects." The Authority has taken a proactive approach to the procurement of power and its pricing. On October 1, 2014, the Authority entered into a five-year full service electricity contract, with five optional years, to purchase power from Constellation New Energy, Inc., previously ConEdision Solutions. As part of its power purchasing strategy in the deregulated environment, this contract allows the Authority to lock in blocks of power at a fixed price when futures pricing meets budget targets. To the extent that the Authority has power needs that exceed the locked in fixed price blocks, the price of the additional power would be established each day at market rates with direct pass-through of all costs. This contract includes an enhanced process for block power purchases that gives the Authority access to the wholesale market. The Authority's Department of Finance, Accounting and Budget monitors the energy market on a continuous basis. The contract was modified and extended through September 30, 2020. [ADD DISCUSSION OF PPA AT BLUE PLAINS.]

**Reserve Funds**

The Authority maintains various reserve funds as previously described herein. See "SECURITY FOR THE SERIES 2019A/B BONDS – Certain Reserve Funds – Discretionary Reserves; – Operating Reserve Fund; – Rate Stabilization Fund; and – Renewal and Replacement Reserve Fund."

## Financial Policies

The Authority has developed a ten-year financial plan to ensure compliance with certain Indenture requirements and the Board's financial policies. This plan is updated annually, taking into account revisions to the CIP, current and prior year financial performance and other changes. The Board adopted a series of financial policies in 1997 that the Authority utilizes to develop its ten-year financial plan, operating budgets and rate proposals. The policies summarized below reflect revisions adopted by the Board and effective September 30, 2018.

### *Capital Financing Policy*

In order to secure the lowest practical cost of capital to finance the Authority's long-term capital program, the Authority will aim to achieve the following goals:

- i. Maintain Senior Debt service coverage of 1.40x.\*
- ii. Maintain cash reserves equivalent to 120 days of budgeted operations and maintenance costs calculated on an average daily balance basis with the objective of maintaining at least \$125.5 million in operating reserves. The annual reserve amount will be formally approved by the Board as part of its annual approval of the operating and capital budgets. The operating reserve requirement will be evaluated every five years by the Authority's independent rate consultant in conjunction with the Indenture-required system assessment. At a minimum include in the operating reserve any reserve requirements contained in the Indenture, excluding any debt service reserve funds and the rate stabilization fund.
- iii. Utilize operating cash in excess of the Board's reserve requirement and any other significant one-time cash infusions for capital financing or for repayment of higher cost debt.
- iv. Whenever possible, use the least costly type of financing for capital projects, based on a careful evaluation of the Authority's capital and operating requirements and financial position for each year.
- v. Attempt to match the period of debt repayment, in total, with the lives of the assets financed by any such debt.
- vi. Finance its capital equipment needs (e.g., computer equipment and systems; minor utility equipment such as pumps, motors, etc.) and certain taxable costs of the Aqueduct with operating cash or short-term financing instruments with the same or shorter average lives as the related assets.

### *Rate-Setting Policies*

The Authority's rate-setting policies are based on the following principles:

- i. Rates and fees will be based on the actual cost to deliver each service.
- ii. Current rates must be sufficient to cover current costs and to meet all bond covenants.
- iii. The Authority will achieve a positive net income and cash flow each year.
- iv. Rates will be based on an annually updated ten-year financial plan (both operating and capital).
- v. Rate increases will be implemented in a gradual and predictable manner, avoiding large one-time rate increases.
- vi. Contributions to and usage of the Rate Stabilization Fund as needed to avoid "rate shock." Each year, after reviewing financing improvements from cash and any other non-recurring financing uses of excess operating cash, the annual Rate Stabilization Fund deposit, if any, is determined.

### *Debt Policy*

On October 1, 2015, the Board adopted a revised debt policy. This policy provides detailed guidelines that the Authority's management applies to the Authority's current and future debt portfolio. The goals of this policy

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\*This policy goal exceeds the Rate Covenant requirement of 1.20x as provided in the Indenture.



are to ensure compliance with all laws, legal agreements, contracts and adopted policies related to debt issuance and management; to promote cooperation and coordination with all stakeholders in the financing and delivery of services; to promote sound financial management to maximize and best utilize future debt capacity; and to ensure that the duties and responsibilities of those charged with the implementation of the Debt Policy are clearly conveyed and understood.

*Cash Management and Investment Policies*

In May 2014, the Board amended its comprehensive Statement of Investment Policy. The statement outlines broad investment policies to include delegation of certain authority to the CEO, investment objectives, collateralization of deposits, selection of financial institutions, protection of funds, permitted investments, limits on maturities, investment of bond proceeds and investment reporting.

The Office of Treasury and Debt produces daily and monthly internal reports on all cash management and investment activities, with significant peer oversight within the Chief Financial Officer's office, monthly reports to the CEO and quarterly reports to the Board's Finance and Budget Committee that enables them to monitor compliance with Board policies.

*Extendable Municipal Commercial Paper Policy*

On October 1, 2015, the Board adopted a formal policy relating to the Authority's EMCP Notes. The goal of this policy is to ensure that the Authority is able to pay (either from its own funds, the proceeds of a new issuance of Series A Notes, or a new issue of bonds or Commercial Paper Notes) the principal of and interest on any outstanding EMCP Notes on the original maturity date or extended maturity date thereof, as the case may be.

**ENGINEERING FEASIBILITY REPORT**

The Authority retained Johnson, Mirmiran & Thompson, Inc. ("JMT") to prepare the Independent Engineering Inspection of the DC Water Wastewater and Water Systems dated March 25, 2018 (the "Independent Engineering Inspection"), a copy of which is available on the Authority's website at [www.dewater.com](http://www.dewater.com). Pursuant to the Indenture requirement for an inspection of the System at least once every five years, an independent engineering inspection reviews the Authority's progress in implementing capital projects and its plans to initiate additional capital improvements. The inspection evaluates the adequacy of the Authority's CIP to maintain its water and wastewater infrastructure and to continue providing reliable service of a high quality to its customers.

The Engineering Feasibility Opinion Letter summarizes the findings and conclusions from the Independent Engineering Inspection, which are based upon information provided by the Authority or others which is summarized or referred to therein. JMT's principal findings and conclusions are set forth below. The Engineering Feasibility Opinion Letter should be read in combination with the Independent Engineering Inspection. The Independent Engineering Inspection should be read in its entirety for a complete understanding of the assumptions, considerations, estimates and calculations upon which these conclusions are based.

- The Authority has continued implementing its vision and strategic plan, focusing on increasing the operational efficiency of the Water and Wastewater Systems and providing satisfactory service to its customers.
- The Authority staff, including both management and key operations and maintenance personnel, is well qualified, effectively organized, and is staffed at a sufficient level to meet the mission of providing a safe and dependable drinking water and sanitary sewer service while striving to sustain the environment.
- The existing Water and Wastewater Systems appear to be effectively maintained and operated.
- The Authority has priorities establishing best management practices to maintain all of its assets with the goal to maximize service life while minimizing costs and ensuring sustainability.
- The Authority has developed and continues to implement thorough capital programs for ensuring the integrity of the Water and Wastewater Systems.
- Through appropriate management, operational practices, technology, staffing, tools and equipment and selective outsourcing, the Authority has developed capital, operations and maintenance programs that should ensure the continued effective operation of the systems for the foreseeable future. The systems should continue to provide high levels of service with minimal disruption.
- The Authority's wastewater and drinking water facilities are in material compliance with all applicable permits and regulations and continue to provide uninterrupted service to its wholesale and retail

customers. Such compliance is anticipated to continue through the foreseeable future without any identified negative impacts.

- Substantial progress has been made by the Authority in improving the operating condition of existing facilities. The CIP is structured to provide a systematic program to replace and rehabilitate aging infrastructure on a priority basis.
- Implementation of the Authority's CIP is intended to address identified system needs and priorities and within a controlled budgetary process.

### **FINANCIAL FEASIBILITY OPINION LETTER**

The Authority retained Amawalk Consulting Group LLC as its financial feasibility consultant, in which capacity Amawalk prepared the Financial Feasibility Opinion Letter dated [ ], 2019, which is attached hereto as APPENDIX A. Amawalk provides financial and management consulting services to water and wastewater utilities, local governments and other organizations. Examples of the consulting services offered by the firm include: cost of service and rate studies; financial modeling; feasibility studies to support the issuance of debt; competitive assessments, including benchmarking and implementation of best practices; analyses supporting the consolidation of services; and the formation/start-up of public authorities including transition planning.

The conclusions set forth in the Financial Feasibility Opinion Letter reflect Amawalk's analysis of the Authority's anticipated financial results for Fiscal Years 2019 to 2023. Amawalk has assisted the Authority in preparing certain portions of this Official Statement relating to historical and projected financial performance of the Authority. The Financial Feasibility Opinion Letter has not been updated to reflect any changes occurring after the date of the Financial Feasibility Opinion Letter. The Financial Feasibility Opinion Letter presents findings and conclusions based upon the analysis of financial statements and reports prepared by or for the Authority and other information provided by the Authority or others which is summarized or referred to therein, including conclusions, assumptions, considerations and recommendations regarding the operation of the System, the necessary improvements and betterments thereto and the steps that should be taken to assure adequate reliable bulk power supply at reasonable cost. Set forth below are Amawalk's principal conclusions. The Financial Feasibility Opinion Letter and this Official Statement should be read in its entirety for a complete understanding of the assumptions, considerations, estimates and calculations upon which these conclusions are based.

Amawalk concluded that the Authority has the ability to effectively execute its mission, operate its System to provide uninterrupted service, maintain regulatory compliance, and finance and implement its CIP within the parameters set forth in the Indenture and the applicable Board policies. In addition, Amawalk makes the following observations:

- The Authority's financial forecast is viable, consistent with industry standards, and its projections are expected to meet the Board's debt service coverage and reserve requirements and targets.
- Revenues of the Authority (including projected revenue increases resulting from anticipated future rate increases to be implemented by the Authority) in the Reporting Period will be sufficient to pay: (i) the actual Operating Expenses; (ii) Annual Debt Service on Senior Debt; (iii) any amount necessary to be deposited in any Account in the Debt Service Reserve Fund relating to a Series of Bonds to restore the amount on deposit therein to the Series Debt Service Reserve Requirement; (iv) the amount required to pay Annual Debt Service on the Subordinate Debt (including any reserves in connection therewith and the restoration thereof); (v) any amount necessary to be deposited in the Operating Reserve Fund and the Renewal and Replacement Reserve Fund to maintain the required balances therein; and (vi) any amount necessary to make any payments in lieu of taxes in such Fiscal Years. Sufficient funds are projected to be on deposit in each of the required reserve funds during the Reporting Period.
- Pursuant to Board policy, the Authority maintains operating reserves that are greater than \$125.5 million or 120 days of budgeted operation and maintenance expenses. This policy requirement exceeds the minimum Operating Reserve fund requirements set forth in the Indenture. The Authority's actual cash on hand has exceeded the levels required by Board policy in recent years. Amawalk reviewed the operating reserve policies of the Authority in 2018 and concluded that the current Board policy provides for an appropriate level of reserves. Amawalk further recommended that the Board consider amending its policy to a minimum of \$140.0 million or 140 days of budgeted operation and maintenance expenses which would be consistent with the projected balances in the Authority's Financial Plan. In January 2019, Authority staff recommended to further enhance the Authority's cash position and maintain a target of 250 days of cash on hand. There can be no assurance that the Board will maintain or modify its current financial policy.

- The water and wastewater rates, fees and charges of the Authority, including projected increases for FY 2020 through FY 2023, are somewhat higher than the average of other utilities. Relative to median household income, the single family residential charges of the Authority are reasonable and affordable compared to the charges of other major cities as well as utilities in the region. In addition, the Authority utilizes its well-established affordability programs to assist low income customers in paying their bills.

**In the analysis of the forecast of future operations summarized in this Official Statement, Amawalk has reviewed certain assumptions with respect to conditions, events and circumstances which may occur in the future. These assumptions are reasonable and attainable as of the date of the Financial Feasibility Opinion Letter, although actual results may differ from those forecast as influenced by the conditions, events and circumstances which actually occur.**

### INDEPENDENT SUSTAINABILITY CONSULTANT OPINION LETTER

The Authority retained Vigeo to prepare an Independent Sustainability Consultant Opinion on the Series 2019A Project based on issuer, project and reporting standards and commitments described in an Opinion Letter dated [DATE], which is attached hereto as APPENDIX G. Vigeo is a research agency that provides non-financial ratings and research on issuers – of equity and debt – environmental, social and governance performance to investors (through the business brand of Vigeo Rating) and sustainability consulting services to organizations (through the business brand of Vigeo Enterprise). Vigeo provides an opinion based solely on the environmental, social and governance criteria and assessment. Vigeo is not and does not purport to be a financial advisor or financial analyst or to express any opinion on the quality of the security or sources of payment for the Series 2019A Bonds. Accordingly, no financial evaluations, positive or negative, should be attributed to Vigeo. Vigeo does not guarantee that the Authority will honor the current and future commitments to standards and reporting identified in its Opinion Letter.

The Opinion of the Independent Sustainability Consultant presents findings and conclusions based upon the analysis of the Authority’s environmental, social and governance policies, guidelines and results according to criteria aligned with public international standards, in compliance with the ISO 26000 guidelines, and organized in 6 domains: Environment, Human Resources, Human Rights, Community Involvement, Business Behavior and Corporate Governance. Vigeo’s review uses information provided by the Authority or others and from internal interviews with department managers and representatives.

The Opinion of the Independent Sustainability Consultant should be read in its entirety for a complete understanding of the assumptions, considerations, estimates and calculations upon which these conclusions are based.

### TAX MATTERS

In the opinion of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, Co-Bond Counsel, under existing law: (i) interest on the Series 2019A/B Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the “Code”), and is not an item of tax preference for purposes of the federal alternative minimum tax; and (ii) the Series 2019A/B Bonds and the interest thereon are exempt from District taxation, except estate, inheritance and gift taxes. Co-Bond Counsel expresses no opinion as to any other tax consequences regarding the Series 2019A/B Bonds.

The opinion on federal tax matters will be based on and will assume the accuracy of certain representations and certifications, and continuing compliance with certain covenants of the Authority contained in the transcript of proceedings, and that are intended to evidence and assure the foregoing, including that the Series 2019A/B Bonds are and will remain obligations the interest on which is excluded from gross income for federal income tax purposes. Co-Bond Counsel will not independently verify the accuracy of the Authority’s certifications and representations or the continuing compliance with the Authority’s covenants.

The opinion of Co-Bond Counsel is based on current legal authority and covers certain matters not directly addressed by such authority. It represents Co-Bond Counsel’s legal judgment as to exclusion of interest on the Series 2019A/B Bonds from gross income for federal income tax purposes but is not a guaranty of that conclusion. The opinion is not binding on the Internal Revenue Service (“IRS”) or any court. Co-Bond Counsel expresses no opinion about (i) the effect of future changes in the Code and the applicable regulations under the Code or (ii) the interpretation and the enforcement of the Code or those regulations by the IRS.

The Code prescribes a number of qualifications and conditions for the interest on state and local government obligations to be and to remain excluded from gross income for federal income tax purposes, some of which require future or continued compliance after issuance of the obligations. Noncompliance with these requirements by the Authority may cause loss of such status and result in the interest on the Series 2019A/B Bonds being included in gross income for federal income tax purposes retroactively to the date of issuance of the Series

2019A/B Bonds. The Authority has covenanted to take the actions required of it for the interest on the Series 2019A/B Bonds to be and to remain excluded from gross income for federal income tax purposes, and not to take any actions that would adversely affect that exclusion. After the date of issuance of the Series 2019A/B Bonds, Co-Bond Counsel will not undertake to determine (or to so inform any person) whether any actions taken or not taken, or any events occurring or not occurring, or any other matters coming to Co-Bond Counsel's attention, may adversely affect the exclusion from gross income for federal income tax purposes of interest on the Series 2019A/B Bonds or the market value of the Series 2019A/B Bonds.

Interest on the Series 2019A/B Bonds may be subject to a federal branch profits tax imposed on certain foreign corporations doing business in the United States and to a federal tax imposed on excess net passive income of certain S corporations. Under the Code, the exclusion of interest from gross income for federal income tax purposes may have certain adverse federal income tax consequences on items of income, deduction or credit for certain taxpayers, including financial institutions, certain insurance companies, recipients of Social Security and Railroad Retirement benefits, those that are deemed to incur or continue indebtedness to acquire or carry tax-exempt obligations, and individuals otherwise eligible for the earned income tax credit. The applicability and extent of these and other tax consequences will depend upon the particular tax status or other tax items of the owner of the Series 2019A/B Bonds. Co-Bond Counsel will express no opinion regarding those consequences.

Payments of interest on tax-exempt obligations, including the Series 2019A/B Bonds, are generally subject to IRS Form 1099-INT information reporting requirements. If a Series 2019A/B Bond owner is subject to backup withholding under those requirements, then payments of interest will also be subject to backup withholding. Those requirements do not affect the exclusion of such interest from gross income for federal income tax purposes.

Co-Bond Counsel's engagement with respect to the Series 2019A/B Bonds ends with the issuance of the Series 2019A/B Bonds, and, unless separately engaged, Co-Bond Counsel is not obligated to defend the Authority or the owners of the Series 2019A/B Bonds regarding the tax status of interest thereon in the event of an audit examination by the IRS. The IRS has a program to audit tax-exempt obligations to determine whether the interest thereon is includible in gross income for federal income tax purposes. If the IRS does audit the Series 2019A/B Bonds, under current IRS procedures, the IRS will treat the Authority as the taxpayer and the beneficial owners of the Series 2019A/B Bonds will have only limited rights, if any, to obtain and participate in judicial review of such audit. Any action of the IRS, including but not limited to selection of the Series 2019A/B Bonds for audit, or the course or result of such audit, or an audit of other obligations presenting similar tax issues, may affect the market value of the Series 2019A/B Bonds.

Prospective purchasers of the Series 2019A/B Bonds upon their original issuance at prices other than the respective prices indicated on the inside cover of this Official Statement, and prospective purchasers of the Series 2019A/B Bonds at other than their original issuance, should consult their own tax advisors regarding other tax considerations such as the consequences of market discount, as to all of which Co-Bond Counsel expresses no opinion.

### **Risk of Future Legislative Changes and/or Court Decisions**

Legislation affecting tax-exempt obligations is regularly considered by the United States Congress. Court proceedings may also be filed, the outcome of which could modify the tax treatment of obligations such as the Series 2019A/B Bonds. There can be no assurance that legislation enacted or proposed, or actions by a court, after the date of issuance of the Series 2019A/B Bonds will not have an adverse effect on the tax status of interest on the Series 2019A/B Bonds or the market value or marketability of the Series 2019A/B Bonds. These adverse effects could result, for example, from changes to federal or state income tax rates, changes in the structure of federal or state income taxes (including replacement with another type of tax), or repeal (or reduction in the benefit) of the exclusion of interest on the Series 2019A/B Bonds from gross income for federal or state income tax purposes for all or certain taxpayers.

For example, federal tax legislation that was enacted on December 22, 2017 reduced corporate tax rates, modified individual tax rates, eliminated many deductions, repealed the corporate alternative minimum tax, and eliminated the tax-exempt advance refunding of tax-exempt bonds and tax-advantaged bonds, among other things. Additionally, investors in the Series 2019A/B Bonds should be aware that future legislative actions might increase, reduce or otherwise change (including retroactively) the financial benefits and the treatment of all or a portion of the interest on the Series 2019A/B Bonds for federal income tax purposes for all or certain taxpayers. In all such events, the market value of the Series 2019A/B Bonds may be affected and the ability of holders to sell their Bonds in the secondary market may be reduced.

Investors should consult their own financial and tax advisors to analyze the importance of these risks.

### **Original Issue Discount and Original Issue Premium**

Certain of the Series 2019A/B Bonds ("Discount Bonds") may be offered and sold to the public at an original issue discount ("OID"). OID is the excess of the stated redemption price at maturity (the principal amount) over the "issue price" of a Discount Bond. The issue price of a Discount Bond is the initial offering price to the public (other than to bond houses, brokers or similar persons acting in the capacity of underwriters or wholesalers) at which

a substantial amount of the Discount Bonds of the same maturity is sold pursuant to that offering. For federal income tax purposes, OID accrues to the owner of a Discount Bond over the period to maturity based on the constant yield method, compounded semiannually (or over a shorter permitted compounding interval selected by the owner). The portion of OID that accrues during the period of ownership of a Discount Bond (i) is interest excluded from the owner's gross income for federal income tax purposes to the same extent, and subject to the same considerations discussed above, as other interest on the Series 2019A/B Bonds, and (ii) is added to the owner's tax basis for purposes of determining gain or loss on the maturity, redemption, prior sale or other disposition of that Discount Bond. A purchaser of a Discount Bond in the initial public offering at the issue price (described above) for that Discount Bond who holds that Discount Bond to maturity will realize no gain or loss upon the retirement of that Discount Bond.

Certain of the Series 2019A/B Bonds ("Premium Bonds") may be offered and sold to the public at a price in excess of their stated redemption price at maturity (the principal amount). That excess constitutes bond premium. For federal income tax purposes, bond premium is amortized over the period to maturity of a Premium Bond, based on the yield to maturity of that Premium Bond (or, in the case of a Premium Bond callable prior to its stated maturity, the amortization period and yield may be required to be determined on the basis of an earlier call date that results in the lowest yield on that Premium Bond), compounded semiannually. No portion of that bond premium is deductible by the owner of a Premium Bond. For purposes of determining the owner's gain or loss on the sale, redemption (including redemption at maturity) or other disposition of a Premium Bond, the owner's tax basis in the Premium Bond is reduced by the amount of bond premium that is amortized during the period of ownership. As a result, an owner may realize taxable gain for federal income tax purposes from the sale or other disposition of a Premium Bond for an amount equal to or less than the amount paid by the owner for that Premium Bond. A purchaser of a Premium Bond in the initial public offering who holds that Premium Bond to maturity (or, in the case of a callable Premium Bond, to its earlier call date that results in the lowest yield on that Premium Bond) will realize no gain or loss upon the retirement of that Premium Bond.

***Owners of Discount and Premium Bonds should consult their own tax advisors as to the determination for federal income tax purposes of the existence of OID or bond premium, the determination for federal income tax purposes of the amount of OID or bond premium properly accruable or amortizable in any period with respect to the Discount or Premium Bonds, other federal tax consequences in respect of OID and bond premium, and the treatment of OID and bond premium for purposes of state and local taxes on, or based on, income.***

#### COVENANT BY THE DISTRICT OF COLUMBIA

Under the Act, the District pledges to the Authority and any holders of the bonds that, except as provided under the Act, the District will not limit or alter rights vested in the Authority to fulfill agreements made with holders of the bonds, or in any way impair the rights and remedies of the holders of the bonds until the bonds, together with interest thereon, with interest on any unpaid installments of interest and all costs and expenses in connection with any action or proceedings by or on behalf of the holders of the bonds, are fully met and discharged.

#### LITIGATION

There is not now pending or, to the best of the Authority's knowledge, threatened any litigation restraining or enjoining the issuance or delivery of the Series 2019A/B Bonds or questioning or affecting the validity of the Series 2019A/B Bonds, the proceedings and authority under which they are to be issued, nor is the creation, organization, or existence of the Authority being contested. Nor is there any litigation pending or, to the best of the Authority's knowledge, threatened which (i) in any manner questions the right of the Authority to operate the System or its right to conduct its activities in accordance with the provisions of the Act and of the Indenture or (ii) if determined adversely to the Authority, would have a material adverse impact on the financial condition of the Authority.

The Authority is subject to a variety of suits and proceedings arising out of its ordinary course of operations, some of which may be adjudicated adversely to the Authority. Any such litigation is of a routine nature which does not affect the right of the Authority to conduct its business or the validity of its obligations.

#### LEGAL MATTERS

Certain legal matters relating to the issuance of the Series 2019A/B Bonds are subject to the approving opinions of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, Co-Bond Counsel, which will be furnished upon delivery of the Series 2019A/B Bonds, substantially in the form set forth as APPENDIX F. Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP also serve as Co-Disclosure Counsel to the Authority in connection with the preparation of this Official Statement. Certain legal matters will be passed upon for the

Authority by its General Counsel, and for the Underwriters by their co-counsel, Orrick, Herrington & Sutcliffe LLP and McKenzie & Associates.

#### **INDEPENDENT AUDITORS**

The financial statements of the Authority for Fiscal Years ended September 30, 2018 and 2017 included in this Official Statement have been audited by KPMG LLP (“KPMG”). KPMG has not been engaged to perform and has not performed, since the date of its report included herein, any procedures on the financial statements addressed in that report. KPMG also has not performed any procedures relating to this Official Statement.

#### **THE TRUSTEE**

The Authority has appointed Wells Fargo Bank, N.A., a national banking association organized under the laws of the United States, to serve as Trustee. The Trustee is to carry out those duties assignable to it under the Master Indenture. Except for the contents of this section, the Trustee has not reviewed or participated in the preparation of this Official Statement and assumes no responsibility for the nature, contents, accuracy or completeness of the information set forth in this Official Statement or for the recitals contained in the Indenture or the Series 2019A/B Bonds, or for the validity, sufficiency, or legal effect of any of such documents.

Furthermore, the Trustee has no oversight responsibility, and is not accountable, for the use or application of the proceeds of such Series 2019A/B Bonds by the Authority. The Trustee has not evaluated the risks, benefits, or propriety of any investment in the Series 2019A/B Bonds and makes no representation, and has reached no conclusions, regarding the value or condition of any assets or revenues pledged or assigned as security for the Series 2019A/B Bonds, the technical or financial feasibility of the Project, or the investment quality of the Series 2019A/B Bonds, about all of which the Trustee expresses no opinion and expressly disclaims the expertise to evaluate.

#### **RATINGS**

Standard & Poor’s Global Ratings Services (“S&P”), Moody’s and Fitch Ratings (“Fitch”) have assigned long-term municipal bond ratings of “[ ],” “[ ]” and “[ ]” respectively, to the Series 2019A/B Bonds. A securities rating is not a recommendation to buy, sell or hold the Series 2019A/B Bonds and may be subject to revision or withdrawal at any time. A rating reflects only the view of the rating agency giving such rating. An explanation of the significance of the ratings may be obtained from: S&P at 55 Water Street, New York, New York 10041; from Moody’s at 7 World Trade Center, New York, New York 10007; and from Fitch Ratings at 300 West 57th Street New York, New York 10019. There is no assurance that a rating will apply for any given period of time, or that a rating will not be revised or withdrawn. A revision or withdrawal of a rating may have an effect on the market price of or the market for the Series 2019A/B Bonds.

#### **CONTINUING DISCLOSURE**

In accordance with the requirements of the Rule promulgated by the SEC, the Authority will enter into the Continuing Disclosure Agreement dated the date of delivery of the Series 2019A/B Bonds, which will constitute a written undertaking for the benefit of the Owners of the Series 2019A/B Bonds, solely to assist the Underwriters in complying with subsection (b)(5) of the Rule. Pursuant to the Continuing Disclosure Agreement, the Authority has covenanted to provide certain financial information on an annual basis and to provide notice of certain enumerated events. See APPENDIX D – “Form of the Continuing Disclosure Agreement” for detailed provisions of the Continuing Disclosure Agreement.

#### **FINANCIAL ADVISOR**

PFM Financial Advisors LLC has served as financial advisor (the “Financial Advisor”) to the Authority with respect to the issuance of the Series 2019A/B Bonds.

#### **UNDERWRITING**

Siebert Cisneros Shank & Co., L.L.C., on behalf of itself and as representative (the “Representative”) of the underwriters identified on the front cover of this Official Statement (collectively, the “Underwriters”), has agreed to purchase from the Authority the Series 2019A/B Bonds at an aggregate purchase price equal to \$[ ] (which

amount constitutes the aggregate principal amount of the Series 2019A/B Bonds of \$[\_\_\_\_], plus original issue premium of \$[\_\_\_\_], less the Underwriters' discount of \$[\_\_\_\_]).

The Bond Purchase Agreement by and among the Authority and the Representative, on behalf of itself and as representative of the Underwriters dated [\_\_\_\_], 2019 (the "Series 2019A/B Bond Purchase Agreement"), provides that the Underwriters will purchase all of the Series 2019A/B Bonds, if any are purchased, and the obligation to make such purchases is subject to certain terms and conditions set forth in the Series 2019A/B Bond Purchase Agreement, the approval of certain legal matters by counsel and certain other conditions.

The Series 2019A/B Bonds may be offered and sold to certain dealers (including dealers depositing the Series 2019A/B Bonds into investment trusts) at prices lower than the public offering prices and such public offering prices may be changed from time to time by the Underwriters.

The Underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Certain of the Underwriters and their respective affiliates have provided, and may in the future provide, a variety of these services to the Authority and to persons and entities with relationships with the Authority, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriters and their respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the Authority (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the Authority. The Underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

In addition, certain of the Underwriters have entered into distribution agreements with other broker-dealers (that have not been designated by the Authority as Underwriters) for the distribution of the Series 2019A/B Bonds at the original issue prices. Such agreements generally provide that the relevant Underwriter will share a portion of its underwriting compensation or selling concession with such broker-dealers.

### **LEGALITY FOR INVESTMENT**

The Act provides that the bonds of the Authority are legal instruments in which public officers and public bodies of the District, insurance companies, insurance company associations and other persons carrying on an insurance business, banks, bankers, banking institutions, including savings and loan associations, building and loan associations, trust companies, savings banks, savings associations, investment companies and other persons carrying on a banking business, administrators, guardians, executors, trustees and other fiduciaries and other persons authorized to invest in bonds or in other obligations of the District, may legally invest funds, including capital, in their control.

The bonds are also, by the Act, securities which legally may be deposited with, and received by, public officers and public bodies of the District or any agency of the District for any purpose for which the deposit of bonds or other obligations of the District is authorized by law.

### **RELATIONSHIP OF PARTIES**

In addition to representing the Authority as Co-Bond Counsel and Co-Disclosure Counsel, Squire Patton Boggs (US) LLP from time to time represents the Authority in other matters, including environmental, regulatory and personnel matters. From time to time, Squire Patton Boggs (US) LLP also represents one or more members of the underwriting group as its or their counsel in municipal bond transactions and other matters, but not in any matters related to the Authority.

**MISCELLANEOUS**

All estimates, assumptions, statistical information and other statements contained herein, while taken from sources considered reliable, are not guaranteed. To the extent that any statements herein include matters of opinion, or estimates of future expenses and income, whether or not expressly so stated, they are intended merely as such and not as representations of fact.

The agreement of the Authority with the holders of the Series 2019A/B Bonds is fully set forth in the Indenture. Neither any advertisement of the Series 2019A/B Bonds nor this Official Statement is to be construed as constituting an agreement with the purchasers of the Series 2019A/B Bonds.

The information contained herein should not be construed as representing all conditions affecting the Authority or the Series 2019A/B Bonds. The foregoing statements relating to the Act, the Federal Act, the Indenture and other documents are summaries of certain provisions thereof, and in all respects are subject to and qualified in their entirety by express reference to the provisions of such documents in their complete forms.

The attached Appendices A through F are integral parts of this Official Statement and should be read in their entirety, together with all of the foregoing statements.

**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

By: \_\_\_\_\_  
Matthew T. Brown  
Chief Financial Officer and Executive Vice  
President, Finance and Procurement



**APPENDIX A**  
**FINANCIAL FEASIBILITY OPINION LETTER OF**  
**AMAWALK CONSULTING GROUP LLC**  
**DATED [\_\_\_], 2019**

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**APPENDIX B**

**AUDITED FINANCIAL STATEMENTS OF THE AUTHORITY  
FOR THE YEARS ENDED SEPTEMBER 30, 2018, AND 2017**

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**APPENDIX C**  
**GLOSSARY AND SUMMARY OF THE INDENTURE**

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**APPENDIX D**  
**FORM OF CONTINUING DISCLOSURE AGREEMENT**

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## FORM OF CONTINUING DISCLOSURE AGREEMENT

This Continuing Disclosure Agreement (the “Disclosure Agreement”) is executed and delivered by the District of Columbia Water and Sewer Authority (the “Issuer”) in connection with the issuance of its Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) (the “Series 2019A Bonds”) and its Public Utility Subordinate Lien Revenue Bonds, Series 2019B (the “Series 2019B Bonds” and, together with the Series 2019A Bonds, the “Series 2019A/B Bonds”). The Series 2019A/B Bonds are being issued pursuant to the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), as amended and supplemented to the date of delivery of the Series 2019A/B Bonds (the “Indenture”), including by the Twenty-Fourth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Series 2019A/B Bonds (the “Twenty-Fourth Supplemental Indenture”), each by and between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”). The Issuer covenants and agrees as follows:

**SECTION 1. Purpose of the Disclosure Agreement.** This Disclosure Agreement is being executed and delivered by the Issuer for the benefit of the Holders and Beneficial Owners of the Series 2019A/B Bonds and in order to assist the Participating Underwriter in complying with Securities and Exchange Commission (“S.E.C.”) Rule 15c2-12(b)(5).

**SECTION 2. Definitions.** In addition to the definitions set forth in the Indenture, which apply to any capitalized term used in this Disclosure Agreement unless otherwise defined in this Section, the following capitalized terms shall have the following meanings:

“Annual Report” shall mean any Annual Report provided by the Issuer pursuant to, and as described in, Sections 3 and 4 of this Disclosure Agreement.

“Beneficial Owner” shall mean any person who has or shares the power, directly or indirectly, to make investment decisions concerning ownership of any Bonds (including persons holding Bonds through nominees, depositories or other intermediaries).

“Dissemination Agent” shall mean the Issuer, or any successor Dissemination Agent designated in writing by the Issuer and which has filed with the Issuer a written acceptance of such designation.

“Holder” shall mean the person in whose name any Bond shall be registered.

“Listed Events” shall mean any of the events listed in Section 5(a) or (b) of this Disclosure Agreement.

“MSRB” shall mean the Municipal Securities Rulemaking Board or any other entity designated or authorized by the Securities and Exchange Commission to receive reports pursuant to the Rule. Until otherwise designated by the MSRB or the Securities and Exchange Commission, filings with the MSRB are to be made through the Electronic Municipal Market Access (EMMA) website of the MSRB, currently located at <http://emma.msrb.org>.

“Participating Underwriter” shall mean the original underwriter of the Series 2019A/B Bonds required to comply with the Rule in connection with offering of the Series 2019A/B Bonds.

“Rule” shall mean Rule 15c2-12(b)(5) adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as the same may be amended from time to time.

**SECTION 3. Provision of Annual Reports.**

(a) The Issuer shall, or shall cause the Dissemination Agent to, not later than 240 days after the end of the Issuer’s fiscal year (which shall be June 1 of each year, so long as the Issuer’s fiscal year ends on September 30), commencing with the report for the fiscal year ending September 30, 2019 (which is due not later than June 1, 2019), provide to the MSRB an Annual Report which is consistent with the requirements of Section 4 of this Disclosure Agreement. The Annual Report may cross-reference other information as provided in Section 4 of this Disclosure Agreement; provided that the audited financial statements of the Issuer may be submitted separately from the balance of the Annual Report and later than the date required above for the filing of the Annual Report if they are not available by that date. If the Issuer’s fiscal year changes, it shall give notice of such change in a filing with the MSRB. The Annual Report shall be submitted on a standard form in use by industry participants or other appropriate form and shall identify the Series 2019A/B Bonds by name and CUSIP number.

(b) Not later than 15 business days prior to said date, the Issuer shall provide the Annual Report to the Dissemination Agent (if other than the Issuer). If the Issuer is unable to provide to the MSRB an Annual Report by the date required in subsection (a), the Issuer shall, in a timely manner, send or cause to be sent to the MSRB a notice to that effect.

(c) The Dissemination Agent shall (if the Dissemination Agent is other than the Issuer) file a report with the Issuer certifying that the Annual Report has been provided pursuant to this Disclosure Agreement, stating the date it was provided to the MSRB.

SECTION 4. Content of Annual Reports. The Issuer’s Annual Report shall contain or include by reference the following:

(a) the Issuer’s comprehensive annual financial report (the “CAFR”), which includes audited financial statements prepared in accordance with generally accepted accounting principles in effect from time to time. If the Issuer’s audited financial statements are not available by the time the Annual Report is required to be provided to the MSRB pursuant to Section 3(a), the Annual Report shall contain unaudited financial statements in a format similar to the financial statements contained in the final Official Statement, and the audited financial statements shall be provided to the MSRB in the same manner as the Annual Report when they become available; and

(b) to the extent not included in the CAFR, material historical financial and operating data concerning the Issuer and the Revenues of the Issuer generally of the type found in the tables included in the Issuer’s Official Statement dated April 17, 2018 relating to the Series 2019A/B Bonds (the “Official Statement”) under the captions “THE SYSTEM,” “CAPITAL IMPROVEMENT PROGRAM,” “CUSTOMER BASE, RATES AND CHARGES” and “FINANCIAL OPERATIONS.”

Any or all of the items listed above may be set forth in one or a set of documents or may be included by specific reference to other documents, including Official Statements of debt issues of the Issuer or related public entities, which have been made available to the public on the MSRB’s website. The Issuer shall clearly identify each such other document so included by reference.

SECTION 5. Reporting of Significant Events.

(a) The Issuer shall give, or cause to be given, notice of the occurrence of any of the following events with respect to the Series 2019A/B Bonds in a timely manner not later than ten business days after the occurrence of the event:

1. Principal and interest payment delinquencies;
2. Unscheduled draws on debt service reserves reflecting financial difficulties;
3. Unscheduled draws on credit enhancements reflecting financial difficulties;
4. Substitution of credit or liquidity providers, or their failure to perform;
5. Adverse tax opinions or issuance by the Internal Revenue Service of proposed or final determination of taxability or of a Notice of Proposed Issue (IRS Form 5701 TEB);
6. Tender offers;
7. Defeasances;
8. Rating changes; or
9. Bankruptcy, insolvency, receivership or similar event of the obligated person.

Note: for the purposes of the event identified in subparagraph (9), the event is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent or similar officer for an obligated person in a proceeding under the U.S. Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the obligated person, or if such jurisdiction has been assumed by leaving the existing governmental body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the obligated person.

(b) The Issuer shall give, or cause to be given, notice of the occurrence of any of the following events with respect to the Series 2019A/B Bonds, if material, in a timely manner not later than ten business days after the occurrence of the event:

1. Unless described in paragraph 5(a)(5), other material notices or determinations by the Internal Revenue Service with respect to the tax status of the Series 2019A/B Bonds or other material events affecting the tax status of the Series 2019A/B Bonds;
2. Modifications to rights of Bond holders;

3. Optional, unscheduled or contingent Bond calls;
4. Release, substitution, or sale of property securing repayment of the Series 2019A/B Bonds;
5. Non-payment related defaults;
6. The consummation of a merger, consolidation, or acquisition involving an obligated person or the sale of all or substantially all of the assets of the obligated person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms;
7. Appointment of a successor or additional trustee or the change of name of a trustee;
8. Incurrence of a financial obligation of the Issuer or obligated person, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the Issuer or obligated person, any of which affect security holders, if material; or
9. Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of the financial obligation of the Issuer or obligated person, any of which reflect financial difficulties.

For purposes of items 8 and 9 above, “financial obligation” means: (i) a debt obligation; (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (iii) a guarantee of (i) or (ii).

(c) Whenever the Issuer obtains knowledge of the occurrence of a Listed Event described in Section 5(b), the Issuer shall determine if such event would be material under applicable federal securities laws.

(d) If the Issuer learns of the occurrence of a Listed Event described in Section 5(a), or determines that knowledge of a Listed Event described in Section 5(b) would be material under applicable federal securities laws, the Issuer shall within ten business days of occurrence file a notice of such occurrence with the MSRB. Notwithstanding the foregoing, notice of the Listed Event described in subsections 5(a)(7) or 5(b)(3) need not be given under this subsection any earlier than the notice (if any) of the underlying event is given to Holders of affected Bonds pursuant to the Indenture.

SECTION 6. Format for Filings with MSRB. Any report or filing with the MSRB pursuant to this Disclosure Agreement must be submitted in electronic format, accompanied by such identifying information as is prescribed by the MSRB.

SECTION 7. Termination of Reporting Obligation. The Issuer’s obligations under this Disclosure Agreement shall terminate upon the legal defeasance, prior redemption or payment in full of all of the Series 2019A/B Bonds. If such termination occurs prior to the final maturity of the Series 2019A/B Bonds, the Issuer shall give notice of such termination in a filing with the MSRB.

SECTION 8. Dissemination Agent. The Issuer may, from time to time, appoint or engage a Dissemination Agent to assist it in carrying out its obligations under this Disclosure Agreement, and may discharge any such Dissemination Agent, with or without appointing a successor Dissemination Agent. The Dissemination Agent shall not be responsible in any manner for the content of any notice or report prepared by the Issuer pursuant to this Disclosure Agreement. The initial Dissemination Agent shall be the Issuer.

SECTION 9. Amendment; Waiver. Notwithstanding any other provision of this Disclosure Agreement, the Issuer may amend this Disclosure Agreement, and any provision of this Disclosure Agreement may be waived, provided that the following conditions are satisfied:

(a) If the amendment or waiver relates to the provisions of Sections 3(a), 4, 5(a) or 5(b), it may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature or status of an obligated person with respect to the Series 2019A/B Bonds, or the type of business conducted;

(b) The undertaking, as amended or taking into account such waiver, would, in the opinion of nationally recognized bond counsel, have complied with the requirements of the Rule at the time of the original issuance of the Series 2019A/B Bonds, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

(c) The amendment or waiver does not, in the opinion of nationally recognized bond counsel, materially impair the interests of the Holders or Beneficial Owners of the Series 2019A/B Bonds.

In the event of any amendment or waiver of a provision of this Disclosure Agreement, the Issuer shall describe such amendment in the next Annual Report, and shall include, as applicable, a narrative explanation of the reason for the amendment or waiver and its impact on the type (or in the case of a change of accounting principles, on the presentation) of financial information or operating data being presented by the Issuer. In addition, if the amendment relates to the accounting principles to be followed in preparing financial statements, (i) notice of such change shall be given in a filing with the MSRB, and (ii) the Annual Report for the year in which the change is made should present a comparison (in narrative form and also, if feasible, in quantitative form) between the financial statements as prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles.

SECTION 10. Additional Information. Nothing in this Disclosure Agreement shall be deemed to prevent the Issuer from disseminating any other information, using the means of dissemination set forth in this Disclosure Agreement or any other means of communication, or including any other information in any Annual Report or notice required to be filed pursuant to this Disclosure Agreement, in addition to that which is required by this Disclosure Agreement. If the Issuer chooses to include any information in any Annual Report or notice in addition to that which is specifically required by this Disclosure Agreement, the Issuer shall have no obligation under this Disclosure Agreement to update such information or include it in any future Annual Report or notice of occurrence of a Listed Event or any other event required to be reported.

SECTION 11. Default. In the event of a failure of the Issuer to comply with any provision of this Disclosure Agreement, any Holder or Beneficial Owner of the Series 2019A/B Bonds may take such actions as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Issuer to comply with its obligations under this Disclosure Agreement; provided, that any such action may be instituted only in the District of Columbia. The sole remedy under this Disclosure Agreement in the event of any failure of the Issuer to comply with this Disclosure Agreement shall be an action to compel performance.

SECTION 12. Beneficiaries. This Disclosure Agreement shall inure solely to the benefit of the Issuer, the Dissemination Agent, the Participating Underwriter and Holders and Beneficial Owners from time to time of the Series 2019A/B Bonds, and shall create no rights in any other person or entity.

Date: [ ], 2019

DISTRICT OF COLUMBIA WATER AND SEWER  
AUTHORITY

By: \_\_\_\_\_  
Matthew T. Brown  
Chief Financial Officer and Executive Vice President,  
Finance and Procurement

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**APPENDIX E**  
**DTC BOOK-ENTRY ONLY SYSTEM**

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### DTC BOOK-ENTRY ONLY SYSTEM

**The description that follows of the procedures and record keeping with respect to beneficial ownership interests in the Series 2019A/B Bonds, payments of principal, premium, if any, and interest on the Series 2019A/B Bonds to DTC, its nominee, Participants, or Beneficial Owners, confirmation and transfer of beneficial ownership interests in the Series 2019A/B Bonds and other bond-related transactions by and between DTC, Participants and Beneficial Owners is based on information furnished by DTC. The Authority and the Underwriters take no responsibility for the accuracy thereof.**

The Depository Trust Company, New York, New York (“DTC”) will act as securities depository for the Series 2019A/B Bonds. The Series 2019A/B Bonds will be issued as fully registered securities registered in the name of Cede & Co. (DTC’s partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully registered Series 2019A/B Bond will be issued for the Series 2019A/B Bonds of each series and maturity in the aggregate principal amount of such maturity, and will be deposited with DTC.

DTC, the world’s largest securities depository, is a limited purpose trust company organized under the New York Banking Law, a “banking organization” within the meaning of the New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC’s participants (“Direct Participants”) deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants’ accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation (“DTCC”). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers, and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (“Indirect Participants”). DTC has a Standard & Poor’s rating of AA+. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at [www.dtcc.com](http://www.dtcc.com) and [www.dtc.org](http://www.dtc.org).

Purchases of the Series 2019A/B Bonds under the DTC system must be made by or through Direct Participants, who will receive a credit for such Series 2019A/B Bonds on DTC’s records. The ownership interest of each actual purchaser of each Series 2019A/B Bonds Bond (the “Beneficial Owner”) is in turn to be recorded on the Direct and Indirect Participants’ records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Series 2019A/B Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Series 2019A/B Bonds, except in the event that use of the book-entry system for the Series 2019A/B Bonds is discontinued.

To facilitate subsequent transfers, all Series 2019A/B Bonds deposited by Direct Participants with DTC are registered in the name of DTC’s partnership nominee, Cede& Co., or such other name as may be requested by an authorized representative of DTC. The deposit of the Series 2019A/B Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series 2019A/B Bonds; DTC’s records reflect only the identity of the Direct Participants to whose accounts such Series 2019A/B Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices shall be sent to DTC. If less than all of the Series 2019A/B Bonds are being redeemed, DTC’s practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

**THE TRUSTEE, AS LONG AS A BOOK-ENTRY ONLY SYSTEM IS USED FOR THE SERIES 2019A/B BONDS, WILL SEND ANY NOTICE OF REDEMPTION OR OTHER NOTICES ONLY TO DTC. ANY FAILURE OF DTC TO ADVISE ANY PARTICIPANT, OR OF ANY PARTICIPANT TO NOTIFY ANY BENEFICIAL OWNER OF ANY NOTICE AND OF ITS CONTENT OR EFFECT WILL NOT AFFECT THE**



**VALIDITY OR SUFFICIENCY OF THE PROCEEDINGS RELATING TO THE REDEMPTION OF THE SERIES 2019A/B BONDS CALLED FOR REDEMPTION OR OF ANY OTHER ACTION PREMISED ON SUCH NOTICE.**

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series 2019A/B Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Series 2019A/B Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the Series 2019A/B Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or the Trustee on the payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Trustee, or the Authority, subject to any statutory or regulatory requirement as may be in effect from time to time. Payment of principal and interest to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC, is the responsibility of the Authority or the Trustee, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the Series 2019A/B Bonds at any time by giving reasonable notice to the Authority or the Trustee. Under such circumstances, in the event that a successor securities depository is not obtained, Series 2019A/B Bonds Bond certificates are required to be printed and delivered. The Authority may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Series 2019A/B Bonds Bond certificates will be printed and delivered.

So long as Cede & Co. is the registered owner of the Series 2019A/B Bonds, as partnership nominee for DTC, references herein to Bondholders or registered owners of the Series 2019A/B Bonds (other than under the caption "TAX MATTERS") shall mean Cede & Co. and shall not mean the Beneficial Owners of the Series 2019A/B Bonds.

When reference is made to any action which is required or permitted to be taken by the Beneficial Owners, such reference shall only relate to those permitted to act (by statute, regulation or otherwise) on behalf of such Beneficial Owners for such purposes.

NEITHER THE AUTHORITY NOR THE TRUSTEE WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO DTC PARTICIPANTS, TO INDIRECT PARTICIPANTS, OR TO ANY BENEFICIAL OWNER WITH RESPECT TO (I) THE ACCURACY OF ANY RECORDS MAINTAINED BY DTC, CEDE & CO., ANY DTC PARTICIPANT, OR ANY INDIRECT PARTICIPANT; (II) ANY NOTICE THAT IS PERMITTED OR REQUIRED TO BE GIVEN TO THE OWNERS OF THE SERIES 2019A/B BONDS; (III) THE SELECTION BY DTC OR ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT OF ANY PERSON TO RECEIVE PAYMENT IN THE EVENT OF A PARTIAL REDEMPTION OF THE SERIES 2019A/B BONDS; (IV) THE PAYMENT BY DTC OR ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT OF ANY AMOUNT WITH RESPECT TO THE PRINCIPAL OR REDEMPTION PREMIUM, IF ANY, OR INTEREST DUE WITH RESPECT TO THE SERIES 2019A/B BONDS; (V) ANY CONSENT GIVEN OR OTHER ACTION TAKEN BY DTC AS THE OWNER OF THE SERIES 2019A/B BONDS; OR (VI) ANY OTHER MATTER.

**APPENDIX F**  
**PROPOSED FORM OF OPINION OF CO-BOND COUNSEL**

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**APPENDIX G –**

**OPINION LETTER OF INDEPENDENT SUSTAINABILITY CONSULTANT, DATED [DATE]**

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M&A draft 8/28/19

BOND PURCHASE AGREEMENT

\$125,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds)

\$75,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019B

\_\_\_\_\_, 2019

District of Columbia Water and Sewer Authority  
1385 Canal Street S.E.  
Washington, DC 20003

Ladies and Gentlemen:

Siebert Cisneros Shank & Co., L.L.C., as representative of the underwriters (the “Representative”) on behalf of itself and on behalf of FTN Financial Capital Markets, Jefferies LLC, Morgan Stanley & Co. LLC, Raymond James and Stern Brothers & Co. (collectively, the “Underwriters”), offer to enter into this bond purchase agreement (this “Agreement”) with the District of Columbia Water and Sewer Authority (the “Authority”). The offer made hereby is subject to acceptance thereof by execution of this Agreement and its delivery to the Representative, on behalf of the Underwriters, at or prior to 5:00 p.m., New York, New York Time, on the date hereof, or on such other date as may be agreed upon by the Underwriters. Upon such acceptance, this Agreement shall be in full force and effect in accordance with its terms and shall be binding upon the Authority and the Underwriters. If this offer is not so accepted, it is subject to withdrawal by the Representative on behalf of the Underwriters upon written notice delivered to the Authority at any time prior to acceptance. Terms used but not defined herein are defined in the Indenture identified below.

1. **Purchase and Sale of Bonds.** On the terms and conditions and on the basis of the representations, warranties, covenants and agreements set forth herein, the Representative, on behalf of the Underwriters, hereby agrees to purchase from the Authority for offering to the public, and the Authority hereby agrees to sell and deliver to the Underwriters for such purpose, all (but not less than all) of its Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds), in the original principal amount of \$125,000,000\* (the “Series 2019A Bonds”) and its Public Utility Subordinate Lien Revenue Bonds, Series 2019B, in the original principal amount of \$75,000,000\* (the “Series 2019B Bonds” and collectively with the Series 2019A Bonds, the “Bonds”). The proceeds of the Series 2019A Bonds will be used to pay (i) a portion

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\* Preliminary, subject to change.



of the costs of the Authority's DC Clean Rivers Project, and (ii) pay costs of issuing the Series 2019A Bonds. The proceeds of the Series 2019B Bonds will be used to (i) pay the costs of certain capital improvements to the System, and (ii) pay the costs of issuing the Series 2019B Bonds. The purchase price of the Series 2019A Bonds will be \$ \_\_\_\_\_ (the par amount of the Series 2019A Bonds less the Underwriters' discount of \$ \_\_\_\_\_ plus original issue premium of \$ \_\_\_\_\_). The purchase price of the Series 2019B Bonds will be \$ \_\_\_\_\_ (the par amount of the Series 2019B Bonds less the Underwriters' discount of \$ \_\_\_\_\_ plus original issue premium of \$ \_\_\_\_\_). The Bonds will mature on the dates and in the amounts and will bear interest and will be subject to redemption prior to maturity as set forth on Exhibit A hereto.

2. **Bond Authorization.** The Bonds shall be issued under and pursuant to provisions of the laws of the United States of America and the District of Columbia (the "District"), including particularly, an act of the Council of the District entitled the "Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996," as amended, codified at District of Columbia Official Code Ann. Sections 34-2201.01 *et seq.*, and the acts amendatory thereof and supplemental thereto (the "Act"), and an act of the United States Congress entitled the "District of Columbia Water and Sewer Authority Act of 1996" (Public Law 104-184), as amended (the "Federal Act"), and all proceedings necessary to authorize and provide for the issuance of the Bonds, including Resolution No.19- adopted by the Board of Directors of the Authority, on September 5, 2019 (the "Resolution"), and the Master Indenture of Trust, dated as of April 1, 1998 (the "Master Indenture"), between the Authority and Wells Fargo Bank, N.A., as trustee (the "Trustee"), as amended and supplemented, including by the Twenty-Fourth Supplemental Indenture of Trust, dated as of the Closing Date (as defined below) (the "Twenty-Fourth Supplemental Indenture," and together with the Master Indenture as previously amended and supplemented, the "Indenture"), between the Authority and the Trustee, substantially in the forms previously delivered to us.

3. **Closing.** At 11:00 a.m. Eastern Standard Time on \_\_\_\_\_, 2019, or at such other time and date as may be mutually agreed upon by the Authority and the Underwriters (the "Closing Date"), the Authority will, subject to the terms and conditions hereof, deliver the Bonds to the Underwriters in definitive form, duly executed and authenticated, together with the other documents hereinafter required, and, subject to the terms and conditions hereof, the Underwriters will accept such delivery and pay the purchase price of the Bonds as set forth in Section 1 hereof in federal funds to the order of the Authority (the "Closing"). Delivery of the Bonds will be made through the facilities of The Depository Trust Company, New York, New York. The Closing will occur at the offices of Squire Patton Boggs (US) LLP, Washington, D.C., or such other place as may be mutually agreed on by the Authority and the Underwriters.

4. **Public Offering of the Bonds.** It is a condition of the Authority's obligation to sell and deliver the Bonds to the Underwriters, and of the obligation of the Underwriters to purchase and accept delivery of the Bonds, that the entire principal amount of the Bonds is sold and delivered by the Authority and accepted and paid for by the Underwriters at the Closing. The Underwriters intend to make an initial public offering of all of the Bonds at prices not in excess of the initial public offering prices set forth on the cover page of the Official Statement. The Underwriters may offer and sell the Bonds to certain dealers (including dealers depositing Bonds into investment trusts) at prices lower than the initial public offering prices.

5. **Preliminary and Final Official Statement.** The Authority ratifies and consents to the legally permissible use by the Underwriters, prior to the date hereof, of the Preliminary Official Statement, dated \_\_\_\_\_, 2019, relating to the Bonds (the “Preliminary Official Statement”) in connection with the public offering of the Bonds and the Authority represents that such Preliminary Official Statement is deemed final as of its date and as of the date hereof under Rule 15c2-12 (“Rule 15c2-12”) promulgated by the U.S. Securities and Exchange Commission (the “SEC”) under the Securities Exchange Act of 1934, as amended (the “1934 Exchange Act”), except for Permitted Omissions (as defined in Rule 15c2-12). The form of the final Official Statement of the Authority relating to the Bonds, dated \_\_\_\_\_, 2019, including the cover page and Appendices thereto, and any revisions, amendments or supplements thereto (the “Official Statement”) as have been approved by the Authority, Co-Bond Counsel, and the Representative. The Authority authorizes, approves, ratifies and confirms the distribution of the Preliminary Official Statement and the Official Statement in paper and electronic format by the Underwriters in connection with the public offering and sale of the Bonds.

The Authority agrees to provide to the Underwriters, at such addresses as the Underwriters specify, as many copies of the Official Statement as the Underwriters reasonably request as necessary to comply with Rule G-32 and all other applicable rules of the Municipal Securities Rulemaking Board (the “MSRB”). The Authority agrees to deliver the Official Statement within seven business days after the date hereof and not later than one business day before the Closing Date and in sufficient time to accompany any confirmation that requests payment from any customer and to permit the Underwriters to comply with the requirements of Rule 15c2-12 (defined below). The Preliminary Official Statement and the Official Statement may be revised, amended, changed or supplemented by the Authority after the execution of this Agreement only with the permission of the Underwriters.

If, during the period from the date hereof to and including the date which is 25 days after the “end of the underwriting period” (as hereinafter defined), there shall exist any event, including, but not limited to, any material adverse change in the financial condition, results of operation or condition, financial or otherwise, of the Authority, and of which the Authority has knowledge, which, in the opinion of the Underwriters and counsel to the Underwriters or in the opinion of the Authority, requires a supplement or amendment to the Official Statement so that it will not contain an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, when it is delivered to a potential investor, the Authority will supplement or amend or cause to be supplemented or amended the Official Statement in a form and in a manner approved by the Underwriters and the Authority and will furnish to the Underwriters such supplement or amendment in sufficient quantity to permit the Underwriters to comply with the requirements of Rule 15c2-12 (“Rule 15c2-12”) promulgated by the Securities and Exchange Commission (the “SEC”) under the 1934 Exchange Act.

For the purpose of the preceding paragraph, the Authority may assume that the “end of the underwriting period” (in accordance with and as defined in Rule 15c2-12) means the Closing Date unless the Representative advises the Authority in writing on the Closing Date that there remains an unsold balance of the Bonds, in which case the “end of the underwriting period” means the date as of which the Representative notifies the Authority that the Underwriters, directly or as a syndicate, no longer retain an unsold balance of the Bonds for sale to the public.

The deemed end of the underwriting period, in order to allow the Underwriters to comply with Rule 15c2-12, shall be extended for additional periods of 30 days each upon receipt of written notification from the Underwriters that any Bonds remain unsold however, in no event shall the “end of the underwriting period” extend beyond the date sixty (60) days from the Closing Date. The Representative agrees to provide to the Authority written notification that none of the Bonds remain unsold which will be deemed the end of the underwriting period.

The Representative hereby agrees to deliver a copy of the printed paper form of the Official Statement to the MSRB in an electronic format prescribed by the MSRB for its Electronic Municipal Market Access (“EMMA”) website at [www.emma.msrb.org](http://www.emma.msrb.org) within one (1) business day of receipt of the executed final Official Statement by the Underwriters.

6. **Representations, Warranties and Covenants of the Authority.** The Authority hereby represents, warrants, covenants and agrees as follows:

a. The Authority is, and at the Closing Date will be, a duly organized and validly existing corporate body and independent authority of the District established under the laws of the United States and the District, including the Act and the Federal Act, with the full legal right, power and authority to (i) adopt the Resolution, (ii) execute, deliver and perform its obligations under this Agreement, the Indenture, the Certificate of Award of the Authority establishing the purchase price, maturities, interest rates, redemption provisions and other terms of the Bonds, dated the date hereof (the “Certificate of Award”), and the Continuing Disclosure Agreement of the Authority dated as of the Closing Date (the “Continuing Disclosure Agreement,” and together with this Agreement and the Indenture, the “Bond Documents”); (iii) perform its obligations under the Water Sales Agreement, dated as of July 31, 1997, between the Authority and the United States of America, acting through the Secretary of the Army (the “Water Sales Agreement”) and the Blue Plains Intermunicipal Agreement of 2012 between the District, Fairfax County, Virginia, Montgomery County, Maryland, Prince George’s County, Maryland and the Washington Suburban Sanitary Commission (the “IMA,” and together with the Water Sales Agreement, the “System Agreements”), (iv) sell, issue and deliver the Bonds to the Underwriters as provided herein, and (v) carry out and consummate the transactions contemplated by the Resolution, the Bond Documents, the Preliminary Official Statement, the Official Statement and the System Agreements; and the Authority has complied, and at the Closing Date will be in compliance, in all material respects, with the Act and the Federal Act and with the obligations on its part in connection with the issuance of the Bonds contained in the Bonds, the Resolution, the Indenture, the Preliminary Official Statement, the Official Statement and this Agreement.

b. The Authority (i) has duly and validly adopted the Resolution, (ii) has authorized the execution and delivery of the Bond Documents, (iii) is authorized to execute, issue, sell and deliver the Bonds in book-entry form, (iv) is authorized to appoint, and has appointed, Wells Fargo Bank, N.A., as Trustee (the “Trustee”), (v) is authorized to apply and will apply the proceeds of the Bonds as provided in and subject to all of the terms and provisions of the Resolution, including the payment or reimbursement of the Authority expenses incurred in connection with the negotiation, marketing, issuance and delivery of the Bonds to the extent required by Section 14, (vi) has taken or will take on or before the Closing Date, all action necessary or appropriate for (a) execution, issuance, sale and delivery of the Bonds in book-entry

form to the Underwriters, (b) approval, execution and delivery of and the performance by the Authority of its obligations contained in the Bonds and the Bond Documents, (c) the approval, distribution and use of the Preliminary Official Statement and the approval, execution, distribution and use of the Official Statement for use by the Underwriters in connection with the public offering of the Bonds and (d) the consummation by it of all other transactions described in the Official Statement, the Bond Documents and any and all such other agreements and documents as may be required to be executed, delivered and/or received by the Authority in order to carry out, give effect to, and consummate the transactions described herein and in the Official Statement.

c. The adoption of the Resolution, the execution and delivery of the Bond Documents, the execution, issuance, sale and delivery of the Bonds in book-entry form and the performance by the Authority of its obligations hereunder and thereunder, and the performance by the Authority of its obligations under the System Agreements (collectively, the “Authority Undertakings”) are within the corporate powers of the Authority and are not in conflict with and will not constitute a breach, default or result in a violation of (i) the Act, (ii) any federal constitutional or federal or District statutory provision, including the Federal Act, (iii) any agreement or other instrument to which the Authority is a party, or (iv) any order, rule, regulation, decree or ordinance of any court of competent jurisdiction, government or governmental authority having jurisdiction over the Authority or its property.

d. The District has authorized the Authority to use all of the property and assets of the water distribution and wastewater collection, treatment and disposal systems of the Authority (the “System”), uninterrupted by the District, for as long as any revenue bonds of the Authority, including the Bonds, remain outstanding. The Authority has the full legal right, power and authority to operate the System and to collect and pledge the Revenues therefrom in accordance with the Indenture.

e. The Resolution or other appropriate actions adopted or taken by the Authority establishing the rates and charges for services of the System described in the Preliminary Official Statement and the Official Statement have been duly adopted or taken and are in full force and effect.

f. The System Agreements and all other agreements, permits, licenses, consents, approvals, actions, consent decrees and settlement orders material to the operation and management of the System, including the collection of the Revenues therefrom as described in the Preliminary Official Statement and the Official Statement, are in full force and effect as of the date hereof and will be on the Closing Date, and the Authority is not and will not be in default thereunder or in breach thereof. The System Agreements have been duly authorized, executed and delivered by the Authority and constitute valid and binding obligations of the Authority enforceable in accordance with their respective terms, subject to applicable bankruptcy, insolvency and similar laws affecting creditors’ rights generally and subject, as to enforceability, to general principles of equity.

g. The Bonds, when issued, delivered to the Underwriters and paid for, in accordance with the Act, the Resolution, the Indenture and this Agreement, will have been duly authorized, executed, issued and delivered by the Authority and will constitute valid and binding

obligations of the Authority, enforceable against the Authority in accordance with their terms, subject to applicable bankruptcy, insolvency, reorganization, moratorium and similar laws affecting creditors' rights generally and subject, as to enforceability, to general principles of equity. The Bonds are not a pledge of and do not involve the faith and credit or the taxing power of the District and the District shall not be liable thereon. The Bonds, the Indenture and the Resolution conform to the descriptions thereof contained in the Preliminary Official Statement and the Official Statement and the proceeds of the sale of the Bonds will be applied as described in the Preliminary Official Statement and the Official Statement.

h. The Authority is not currently failing to comply and except as disclosed in the Preliminary Official Statement and the Official Statement, has not failed to comply during the past five years with any continuing disclosure obligation pursuant to Rule 15c2-12. The Authority has agreed to deliver to the Underwriters a Continuing Disclosure Agreement with respect to the Bonds that complies with the requirements of Rule 15c2-12.

i. This Agreement constitutes, and, upon execution and delivery by the Authority and the other parties thereto, each of the other Bond Documents will constitute, the valid, binding and enforceable obligation of the Authority in accordance with their respective terms, subject to applicable bankruptcy, insolvency, and similar laws affecting creditors' rights generally and subject, as to enforceability, to general principles of equity.

j. The Authority is not in material breach of or material default under any applicable constitutional provision or law of the United States, the District or any applicable judgment or decree, or any loan agreement, indenture, bond, note, resolution, agreement or other instrument to which it is a party or to which it or any of its property or assets is otherwise subject, and no event has occurred and is continuing which, with the passage of time or the giving of notice, or both, would constitute a default or event of default under any such instrument; and the execution and delivery of the Bonds, this Agreement and the other Bond Documents and the adoption of the Resolution, and compliance with the provisions contained therein and herein, and in the System Agreements, do not conflict with or constitute a breach of or default under any constitutional provision, law, administrative regulation, judgment, decree, loan agreement, indenture, bond, note, resolution, agreement, or other instrument to which it is a party or any of its property or assets are otherwise subject, nor will any such execution, delivery, adoption, or compliance result in the creation or imposition of any lien, charge, or other security interest or encumbrance of any nature whatsoever upon any of its property or assets or under the terms of any such law, regulation or instrument, except as provided by the Bonds.

k. All authorizations, approvals, licenses, permits, consents and orders of any governmental authority, legislative body, board, agency or commission having jurisdiction of the matter have been duly obtained or, with respect to the issuance of the Bonds, will be obtained prior to the issuance of the Bonds, which are required for the due authorization by or which would constitute a condition precedent to or the absence of which would materially adversely affect the due performance by the Authority of its obligations in connection with the issuance of the Bonds and under this Agreement, except for such approvals, consents and orders as may be required under the Blue Sky or securities laws of any state in connection with the offering and sale of the Bonds.

l. Except as otherwise described in the Preliminary Official Statement and the Official Statement, there is no litigation, action, suit, proceeding, inquiry or investigation, at law or in equity, before or by any court, government agency, public board or body, pending or, to the best knowledge of the Authority, threatened against the Authority (i) affecting or seeking to prohibit, restrain or enjoin the issuance, sale or delivery of the Bonds, the use of the Preliminary Official Statement or the Official Statement or the collection of the Revenues pledged to the payment of the principal of and interest on the Bonds, (ii) in any way contesting or affecting any authority for the issuance of the Bonds or the validity, enforceability, due authorization, execution or delivery of the Bonds, including this Agreement or the other Bond Documents, or the validity or enforceability of the System Agreements, nor, to the best knowledge of the Authority, is there any basis therefor, wherein an unfavorable decision, ruling or finding would materially adversely affect the validity or enforceability of the Bonds or the Bond Documents, (iii) questioning the tax-exempt status of the Bonds under the laws of the District or the United States, (iv) affecting or in any way contesting the corporate existence or powers of the Authority or the titles of the officers of the Authority to their respective offices, (v) which may result in any material adverse change in the business or the financial condition or the financial prospects of the Authority or (vi) asserting that the Preliminary Official Statement or the Official Statement or any supplement thereto contains any untrue statement of a material fact or omits any material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

m. The Authority will furnish such information, execute such instruments and take such other action in cooperation with the Underwriters as the Underwriters may reasonably request in order to (i) qualify the Bonds for offer and sale under the Blue Sky or other securities laws and regulations of such states and other jurisdictions of the United States as the Underwriters may designate, (ii) determine the eligibility of the Bonds for investment under the laws of such states and other jurisdictions, and (iii) continue such qualifications in effect so long as required for the distribution of the Bonds and will advise the Representative promptly of receipt by the Authority of any written notification with respect to the suspension of the qualification of the Bonds for sale in any jurisdiction or the initiation or threat of any proceeding for that purpose; provided, however, that the Authority will not be required to execute a general or special consent to service of process or qualify to do business in connection with any such qualification or determination in any jurisdiction.

n. The audited balance sheets of the Authority for the years ended September 30, 2018 and September 30, 2017, and the related statements of revenues, expenditures and changes in net assets and cash flows for the fiscal year ended on such date, as set forth in the Preliminary Official Statement and the Official Statement, are true, complete and correct and fairly present the financial condition of the Authority as of such date and the results of its operations for such fiscal year. There has been no material adverse change in the financial condition of the Authority since September 30, 2018, except as described in the Preliminary Official Statement and the Official Statement. The financial statements of, and other financial information of the Authority in the Preliminary Official Statement and in the Official Statement fairly present the financial position and results of the Authority as of the dates and for the periods therein set forth, and except as noted in the Preliminary Official Statement and in the Official Statement, the other historical financial information set forth in the Preliminary Official Statement and in the Official Statement has been presented on a basis consistent with that of the

Authority's audited financial statements included or incorporated by reference in the Preliminary Official Statement and in the Official Statement.

o. The Authority has duly authorized, approved and delivered the Preliminary Official Statement and the Official Statement to the Underwriters.

p. The Preliminary Official Statement, as of its date and as of the date of this Agreement, did not and does not, and the Official Statement, is, as of its date and (unless the Official Statement is amended or supplemented pursuant to this Agreement) at all times subsequent thereto during the period up to and including the Closing Date, did not and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. If between the date of the Official Statement and the Closing Date any event shall occur or any pre-existing fact or condition shall become known to the Authority that might or would cause the Official Statement, as then supplemented or amended, to contain any untrue statement of a material fact or to omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, the Authority shall promptly notify the Underwriters thereof, and if in the reasonable opinion of the Representative, such event, fact or condition requires the preparation and publication of a supplement or amendment to the Official Statement, the Authority will at its expense supplement or amend the Official Statement in a form and in a manner approved by the Underwriters, which approval shall not be unreasonably withheld. If the Official Statement is supplemented or amended as aforesaid, at the time of each supplement or amendment thereto and (unless subsequently again supplemented or amended pursuant to such paragraph) at all times subsequent thereto during the underwriting period, as defined in Section 5, the Official Statement as so supplemented or amended will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which made, not misleading.

q. The obligation of the Authority to know or provide information within the knowledge of the Authority is limited to providing information that is in the actual knowledge of, or reasonably should have been in the actual knowledge of, the key staff members of the Authority listed in the Official Statement under the caption "Senior Management" or their respective successors.

r. The Authority undertakes that, for a period beginning with the day on which the Bonds are delivered to the Underwriters and ending on the 25th day following the end of the underwriting period, as defined in Section 5, it will apprise the Underwriters of all material developments, if any, occurring with respect to the Authority, and if requested by the Underwriters, at the Authority's expense, prepare a supplement to the Official Statement in respect of any such material event.

s. The Authority has not been notified of any listing or proposed listing by the Internal Revenue Service to the effect that the Authority is a bond issuer whose arbitrage certificates may not be relied upon.

t. Any certificate signed by an authorized delegate of the Authority in connection with the transactions described in this Agreement will be deemed a representation, warranty, covenant and agreement by the Authority to the Underwriters as to the statements made therein.

u. Prior to the Closing, the Authority will not take any action within or under its control that will cause any adverse change of a material nature in the Authority's financial position, or its results of operations or condition, financial or otherwise.

v. The Authority will not, prior to the Closing, offer or issue any bonds, notes or other obligations for borrowed money or incur any material liabilities, direct or contingent, except in the ordinary course of business, without the prior approval of the Representative, other than its Public Utility Subordinate Lien Multimodal Revenue Bonds Series 2019C, dated the date of Closing.

w. The Bonds and the Twenty-Fourth Supplemental Indenture conform to the descriptions thereof contained in the Preliminary Official Statement and the Official Statement under the caption "THE SERIES 2019A/B BONDS" and in Appendix C "GLOSSARY AND SUMMARY OF THE INDENTURE."

7. **Representations of Underwriters.** The Underwriters represent and warrant that they will offer the Bonds only pursuant to the Official Statement and the Underwriters agree to make a public offering of the Bonds at the initial offering prices or yields set forth in the Official Statement as the Underwriters may deem necessary or desirable in connection with the offering and sale of the Bonds and to sell the Bonds to dealers (including dealer banks and dealers depositing Bonds into investment trusts) and others at prices lower than the public offering prices. At the Closing, the Representative, on behalf of the Underwriters, shall deliver to the Authority a certificate, acceptable to Co-Bond Counsel, substantially in the form of Exhibit D hereto. The Underwriters agree to deliver a final Official Statement to all purchasers of the Bonds in accordance with all applicable legal requirements.

8. **Rights to Cancellation by Underwriters.** The Underwriters will have the right to cancel their obligation to purchase, accept delivery of and to pay for the Bonds if between the date hereof and the Closing Date, the market price or marketability of the Bonds or the ability of the Underwriters to enforce contracts for the sale of the Bonds shall be materially adversely affected in the reasonable judgment of the Representative, on behalf of the Underwriters, by the occurrence of any of the following: (a) legislation has been enacted by or introduced in Congress or a decision by a federal court of the United States or the United States Tax Court has been rendered, or a ruling, regulation or official statement by or on behalf of the Treasury Department of the United States, the Internal Revenue Service or other governmental agency has been made or proposed to be made with respect to federal taxation on revenues or other income to be derived from the operation of the Authority, or other actions or events have occurred which have the purpose or effect, directly or indirectly, of materially adversely affecting the federal income tax consequences of any of the transactions contemplated in connection herewith, including the tax-exempt status of bonds issued by the Authority under the Internal Revenue Code of 1986, as amended, or (b) legislation has been enacted, or actively considered for enactment with an



effective date being prior to the date of the issuance of the Bonds, or a decision by a court of the United States has been rendered, or a ruling or regulation by the SEC or another governmental agency having jurisdiction of the subject matter has been made, the effect of which is that the Bonds are not exempt from the registration or other requirements of the Securities Act of 1933, as amended and as then in effect (the "1933 Securities Act"), or that the Indenture is not exempt from the qualification or other requirements of the Trust Indenture Act of 1939, as amended and as then in effect (the "Trust Indenture Act"), or (c) a stop order, ruling or regulation by the SEC has been issued or made, the effect of which is that the issuance, offering or sale of the Bonds as contemplated hereby or by the Official Statement is or would be in violation of any provision of the 1933 Securities Act, or of the 1934 Exchange Act, or of the Trust Indenture Act, or (d) there exists any event which in the reasonable judgment of the Underwriters either (i) makes untrue or incorrect any statement or information of a material fact contained in the Official Statement or (ii) is not reflected in the Official Statement but should be reflected therein in order to make the statements and information contained therein, in light of the circumstances under which they were made, not misleading, and, in either such event the Authority refuses to permit the Official Statement to be supplemented to correct or supply such statement or information, or the statement or information as supplemented is such as in the reasonable judgment of the Underwriters would materially adversely affect the market for the Bonds or the sale, at the contemplated offering price, by the Underwriters of the Bonds, or (e) there has occurred any new outbreak of hostilities (including, without limitation, an act of terrorism) or escalation of hostilities existing prior to the date hereof or any other extraordinary event, material national or international calamity or crisis, including a financial crisis, not existing on the date hereof, or (f) any new restriction on transactions in securities materially affecting the market for securities (including the imposition of any limitation on interest rates or the establishment of minimum or maximum prices) or any material increase of restrictions now in force (including the extension of credit by, or a charge to the net capital requirements of, Underwriters) shall have been established by the New York Stock Exchange, the SEC, any other federal agency, the Congress of the United States, or by Executive Order, or (g) there is in force a general suspension of trading in securities on the New York Stock Exchange or any other national securities exchange or (h) a general banking moratorium has been declared by Federal, District or New York authorities, or (i) there has occurred since the date hereof any material adverse change in the affairs of the Authority from that reflected in the financial information and data of the Authority included in or as an appendix to the Official Statement, other than as previously disclosed to the Underwriters, or (j) a material disruption in securities settlement, payment or clearance services shall have occurred, or (k) there shall have occurred any downgrading or published negative credit watch or similar published information from a rating agency that on the date hereof has published a rating (or has been asked to furnish a rating on the Bonds) on any of the Authority's debt obligations, which action reflects a change or possible change in the ratings accorded any such obligations of the Authority (including any rating to be accorded to the Bonds) or (l) there shall have occurred any downgrading or published negative credit watch or similar published information from a rating agency that at the date of this Agreement has published a rating (or has been asked to furnish a rating on the Bonds) on any of the Authority's debt obligations, which action reflects a change or possible change, in the ratings accorded any such obligations of the Authority (including any rating to be accorded the Bonds).

9. **Rights to Cancellation by the Authority.** The Authority will have the right to cancel its obligation to issue, sell and deliver the Bonds if between the date hereof and the

Closing Date, the market price or marketability of the Bonds shall be materially adversely affected, in the reasonable judgment of the Authority, by the occurrence of any of the following: (a) legislation has been enacted by or introduced in Congress or a decision by a federal court of the United States or the United States Tax Court has been rendered, or a ruling, regulation or official statement by or on behalf of the Treasury Department of the United States, the Internal Revenue Service or other governmental agency has been made or proposed to be made with respect to federal taxation on revenues or other income to be derived from the operation of the Authority, or other actions or events have occurred which have the purpose or effect, directly or indirectly, of materially adversely affecting the federal income tax consequences of any of the transactions contemplated in connection herewith, or (b) legislation has been enacted, or actively considered for enactment with an effective date being prior to the date of the issuance of the Bonds, or a decision by a court of the United States has been rendered, or a ruling or regulation by the SEC or another governmental agency having jurisdiction of the subject matter has been made, the effect of which is that the Bonds are not exempt from the registration or other requirements of the 1933 Securities Act, or that the Indenture is not exempt from the qualification or other requirements of the Trust Indenture Act, or (c) a stop order, ruling or regulation by the SEC has been issued or made, the effect of which is that the issuance, offering or sale of the Bonds as contemplated hereby or by the Official Statement is or would be in violation of any provision of the 1933 Securities Act, or of the 1934 Exchange Act, or of the Trust Indenture Act, or (d) there has occurred any new outbreak of hostilities (including, without limitation, an act of terrorism) or escalation of hostilities existing prior to the date hereof or any other extraordinary event, material national or international calamity or crisis, including a financial crisis, not existing on the date hereof, or (e) any new restriction on transactions in securities materially affecting the market for securities (including the imposition of any limitation on interest rates or the establishment of minimum or maximum prices) or any material increase of restrictions now in force (including the extension of credit by, or a charge to the net capital requirements of, Underwriters) shall have been established by the New York Stock Exchange, the SEC, any other federal agency, the Congress of the United States, or by Executive Order, or (f) there is in force a general suspension of trading in securities on the New York Stock Exchange or any other national securities exchange or (g) a general banking moratorium has been declared by Federal, District or New York authorities, or (h) a material disruption in securities settlement, payment or clearance services shall have occurred.]

10. **Conditions to Obligations of Underwriters at Closing.** The Underwriters have entered into this Agreement in reliance on the representations, warranties, covenants and agreements of the Authority contained herein, and in reliance on the representations, warranties, covenants and agreements to be contained in the documents and instruments to be delivered at the Closing and on the performance by the Authority of its obligations hereunder, as of the Closing Date. Accordingly, the Underwriters' obligations under this Agreement to purchase, to accept delivery of and to pay for the Bonds, are conditioned on the performance by the Authority of its obligations to be performed hereunder and the delivery of such documents and instruments enumerated herein in form and substance reasonably satisfactory to the Underwriters and Orrick, Herrington & Sutcliffe LLP, and McKenzie & Associates, co-counsel to the Underwriters, at or before the Closing, and are also subject to the following additional conditions:

a. The representations, warranties, covenants and agreements of the Authority contained herein are true, complete and correct on the date hereof and on and as of the Closing Date, as if made on the Closing Date;

b. The provisions of the Act and the Federal Act, as in effect on the date of this Agreement, shall be in full force and effect and shall not have been amended, except as to amendments which, in the reasonable opinion of the Underwriters, are not adverse to the interest of the Underwriters or the Bondholders;

c. At the time of the Closing, the Resolution is in full force and effect in accordance with its terms and has not been amended, modified or supplemented, and the Official Statement has not been supplemented or amended, except in any such case as may have been agreed to by the Underwriters;

d. At the time of the Closing, all official action of the Authority relating to the Bonds, the Bond Documents and the System Documents are in full force and effect in accordance with their respective terms and have not been amended, modified or supplemented, except in each case as may have been agreed to by the Underwriters;

e. At the time of the Closing the Authority will perform or will have performed all of its obligations required under or specified in this Agreement, the Resolution and the Indenture, or contemplated by the Resolution, the Indenture or the Official Statement, to be performed prior to the Closing; and

f. At or before the Closing, the Underwriters will have received true and correct copies of each of the following documents:

i. A certified copy of the Resolution;

ii. The Official Statement and each supplement or amendment, if any, thereto, executed by the Authority;

iii. Counterparts of each of the fully executed Bond Documents and the System Agreements;

iv. The approving opinion of Co-Bond Counsel in substantially the form attached to Preliminary Official Statement and the Official Statement as Appendix F and a supplemental opinion, dated the Closing Date, in form and substance satisfactory to the Underwriters, and reliance letters with respect to such opinions addressed to Wells Fargo Bank, N.A., as Trustee;

v. An opinion, dated the Closing Date, of the Interim Executive Vice President Legal Affairs, of the Authority, substantially in the form of Exhibit B hereto;

vi. An opinion, dated the Closing Date, of Orrick, Herrington & Sutcliffe LLP and McKenzie & Associates, co-counsel to the Underwriters, substantially in the form of Exhibit C hereto;

vii. An opinion, dated the Closing Date, of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, in their capacity as co-disclosure counsel to the Authority, in form and substance satisfactory to the Underwriters and their co-counsel;

viii. An opinion, dated the Closing Date, of counsel to the Trustee, in a form approved by the Underwriters and their co-counsel;

ix. A manually signed Financial Feasibility Opinion Letter dated \_\_\_\_, 2019, of Amawalk Consulting Group LLC (the “Financial Feasibility Consultant”), regarding the financial feasibility of the issuance of the Bonds in substantially the form attached to the Preliminary Official Statement and the final Official Statement as Appendix A and a certificate of the Financial Feasibility Consultant with respect to the issuance and sale of the Bonds, permitting the use of such letter and references to said firm in the Preliminary Official Statement and the Official Statement in form and substance satisfactory to the Underwriters;

x. One or more certificates of the Authority, dated the Closing Date, (A) to the effect that the representations, warranties, covenants and agreements of the Authority herein are true and correct on and as of the Closing Date as if made on the Closing Date, and that the Authority has performed all obligations to be performed hereunder as of the Closing Date; (B) to the effect that the Bond Documents, the Bonds and the System Agreements have not been modified, amended or repealed after the date hereof without the written consent of the Underwriters; (C) to the effect that no material change has occurred with respect to the System from the period from the date of this Agreement through the Closing Date;

xi. Evidence of the completion of Internal Revenue Service Form 8038-G with respect to the issuance of the Bonds;

xii. Evidence that Moody’s Investors Service, Inc. (“Moody’s”) and S&P Global Ratings Services (“S&P”) and Fitch Ratings (“Fitch”) have issued ratings on the Bonds of “\_\_\_”, “\_\_” and “\_\_\_\_” respectively;

xiii. Such additional legal opinions, certificates, instruments and other documents as the Underwriters may reasonably request to evidence the truth and accuracy, as of the Closing Date, of the Authority’s representations, warranties, covenants and agreements contained herein and of the statements and information contained in the Official Statement and the due performance or satisfaction by the Authority on or prior to the Closing Date of all the agreements then to be performed and conditions then to be satisfied by it.

All the opinions, letters, certificates, instruments and other documents mentioned above or elsewhere in this Agreement will be deemed to be in compliance with the provisions hereof if, but only if, they are in form and substance satisfactory to the Underwriters.

11. **Obligations Upon Cancellation.** If the Authority is unable to satisfy the conditions to the obligations of the Underwriters to purchase, to accept the delivery of and to pay

for the Bonds contained in this Agreement, or if the obligations of the Underwriters to purchase, to accept delivery of and to pay for the Bonds is terminated for any reason permitted by this Agreement, this Agreement will terminate and neither the Underwriters nor the Authority will be under any further obligation hereunder, except that the Authority and the Underwriters shall pay their respective expenses as set forth in Section 14.

12. **Certain Information Provided by Underwriters.** The Underwriters confirm and the Authority acknowledges that the statements with respect to the public offering of the Bonds by the Underwriters set forth on the cover page of the Official Statement, the legend concerning over-allotments in the Official Statement and the text under the caption “UNDERWRITING” in the Official Statement constitute the only information concerning the Underwriters furnished in writing to the Authority by or on behalf of the Underwriters for inclusion in the Official Statement.

13. **Establishment of Issue Price.**

a. The Representative on behalf of the Underwriters agrees to assist the Authority in establishing the issue price of the Bonds and shall execute and deliver to the Authority at Closing an “issue price” or similar certificate, together with the supporting pricing wires or equivalent communications, substantially in the form attached hereto as **Exhibit D**, with such modifications as may be appropriate or necessary, in the reasonable judgment of the Representative, the Authority and Bond Counsel, to accurately reflect, as applicable, the sales price or prices or the initial offering price or prices to the public of the Bonds. All actions to be taken by the Authority under this Section to establish the issue price of the Bonds may be taken on behalf of the Authority by PFM Financial Advisors LLC (the “Municipal Advisor”) and any notice or report to be provided to the Authority may be provided to the Municipal Advisor.

b. The Authority will treat the first price at which at least 10% of each maturity of the Bonds (the “10% test”) is sold to the public as the issue price of that maturity (if different interest rates apply within a maturity, each separate CUSIP number within that maturity will be subject to the 10% test). At or promptly after the execution of this Bond Purchase Agreement, the Representative shall report to the Authority the price or prices at which the Underwriters have sold to the public each maturity of Bonds. If at that time the 10% test has not been satisfied as to any maturity of the Bonds, the Representative agrees to promptly report to the Authority the prices at which Bonds of that maturity have been sold to the public. That reporting obligation shall continue, whether or not the Closing Date has occurred, until the 10% test has been satisfied as to the Bonds of that maturity or until all Bonds of that maturity have been sold to the public, [provided that, the Underwriters’ reporting obligation after the Closing Date may be reasonable periodic intervals or otherwise upon request of the Authority].

c. The Authority acknowledges that, in making the representation set forth in this subsection, the Representative will rely on (i) the agreement of each Underwriter to comply with the hold-the-offering price rule, if applicable, as set forth in an agreement among underwriters and the related pricing wires, (ii) in the event a selling group has been created in connection with the initial sale of the Bonds to the public, the agreement of each dealer who is a member of the selling group to comply with the hold-the-offering-price rule, if applicable, as set forth in a selling group agreement and the related pricing wires, and (iii) in the event that an Underwriter is a party to a

retail distribution agreement that was employed in connection with the initial sale of the Bonds to the public, the agreement of each broker-dealer that is a party to such agreement to comply with the hold-the-offering-price rule, if applicable, as set forth in the retail distribution agreement and the related pricing wires. The Authority further acknowledges that each Underwriter shall solely be liable for its failure to comply with its agreement regarding the hold-the-offering-price rule and no Underwriter shall be liable for the failure of any other Underwriter, or of any dealer who is a member of a selling group, or of any broker-dealer that is a party to a retail distribution agreement, to comply with its corresponding agreement regarding the hold-the-offering-price rule as applicable to the Bonds.

d. The Representative confirms that:

(i) any agreement among underwriters, any selling group agreement and each retail distribution agreement (to which the Representative is a party) relating to the initial sale of the Bonds to the public, together with the related pricing wires, contains or will contain language obligating each Underwriter, each dealer who is a member of the selling group and each broker-dealer that is a party to such retail distribution agreement, as applicable, to (A) report the prices at which it sells to the public the unsold Bonds of each maturity allotted to it until it is notified by the Representative that either the 10% test has been satisfied as to the Bonds of that maturity or all of the Bonds of that maturity have been sold to the public and (B) comply with the hold-the-offering-price rule, if applicable, in each case if and for so long as directed by the Representative and as set forth in the related pricing wires, and

(ii) any agreement among underwriters relating to the initial sale of the Bonds to the public, together with any related pricing wires, contains or will contain language obligating each Underwriter that is a party to a retail distribution agreement to be employed in connection with the initial sale of the Bonds to the public to require each broker-dealer that is a party to such retail distribution agreement to (A) report the prices at which it sells to the public the unsold Bonds of each maturity allotted to it until it is notified by the Representative or the Underwriter that either the 10% test has been satisfied as to the Bonds of that maturity or all Bonds of that maturity have been sold to the public and (B) comply with the hold-the-offering-price rule, if applicable, in each case if and for so long as directed by the Representative or the Underwriter and as set forth in the related pricing wires.

e. The Underwriters acknowledge that sales of any Bonds to any person that is a related party to an Underwriter shall not constitute sales to the public for purposes of this section. Further, for purposes of this section:

i. “public” means any person other than an underwriter or a related party,

ii. “underwriter” means (A) any person that agrees pursuant to a written contract with the Authority (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Bonds to the public and (B) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (A) to participate in the initial sale of the Bonds to the public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Bonds to the public),

iii. a purchaser of any of the Bonds is a “related party” to an underwriter if the underwriter and the purchaser are subject, directly or indirectly, to (A) at least 50% common ownership of the voting power or the total value of their stock, if both entities are corporations (including direct ownership by one corporation of another), (B) more than 50% common ownership of their capital interests or profits interests, if both entities are partnerships (including direct ownership by one partnership of another), or (C) more than 50% common ownership of the value of the outstanding stock of the corporation or the capital interests or profit interests of the partnership, as applicable, if one entity is a corporation and the other entity is a partnership (including direct ownership of the applicable stock or interests by one entity of the other), and

iv. “sale date” means the date of execution of this Bond Purchase Agreement by all parties.

14. **No Advisory or Fiduciary Role.** The Authority acknowledges and agrees that: (i) the transactions contemplated by this Agreement are arm’s-length, commercial transactions between the Authority and the Underwriters in which the Underwriters are acting solely as principals, and are not acting as an agent, a municipal advisor, financial advisor or fiduciary to the Authority; (ii) the Underwriters have not assumed any advisory or fiduciary responsibility to the Authority with respect to the transactions contemplated hereby and the discussions, conferences, negotiations, undertakings and procedures leading thereto (irrespective of whether the Underwriters or their affiliates have provided other services or are currently providing other services to the Authority on other matters); (iii) the only obligations the Underwriters have to the Authority with respect to the transaction contemplated hereby expressly are set forth in this Agreement; (iv) the Authority has consulted its own financial and/or municipal, legal, accounting, tax, and other advisors, as applicable, to the extent it has deemed appropriate; and (v) this Agreement expresses the entire relationship between the parties hereto.

15. **Expenses.** The Authority will pay all costs of issuance of the Bonds including, but not limited to (a) the cost of preparation and posting of the Preliminary Official Statement and the cost of preparation, posting, printing and delivery of the Official Statement, including the number of copies the Underwriters and the Authority deem reasonable; (b) any cost of preparation of the Bonds; (c) the fees and disbursements of Co-Bond Counsel; (d) the fees and disbursements of any accountants, consultants, financial advisors or additional legal counsel retained in connection with the issuance of the Bonds, including the Independent Engineer and the Financial Feasibility Consultant; (e) fees for Bond ratings and CUSIP numbers; (f) the expenses of travel, lodging and meals for Authority representatives in connection with the negotiation, marketing, issuance and delivery of the Bonds; (g) all advertising expenses in connection with the public offering of the Bonds, including investor meetings; (h) the costs of filing fees required by any of the Blue Sky laws; and (i) all reasonable and necessary out-of-pocket associated with the issuance of the Bonds. The Authority shall reimburse the Underwriters for the fees and expenses of Underwriters’ counsel, any expense advanced or incurred by the Underwriters for which the Authority is responsible hereunder including (f) above and other reasonable expenses incurred in connection with the performance of Underwriters’ obligations hereunder (reimbursement may be included in the expense component of the Underwriters’ discount, which the Underwriters acknowledge includes their expenses as set forth in Section 1).

16. **Notices.** Any notice or other communication to be given to the Authority under this Agreement may be given by delivering the same in writing to the address shown on the first page of this Agreement to the attention of the Chief Financial Officer, and any notice or other communication to be given to the Representative under this Agreement may be given by delivering the same in writing to Siebert Cisneros & Shank & Co., L.L.C., 100 Wall Street, 18<sup>th</sup> floor, New York, NY10005, Attention: \_\_\_\_\_, Managing Director.

17. **Parties in Interest; Survival of Representations and Warranties.** This Agreement, when accepted in accordance with the provisions hereof, shall constitute the entire agreement between the Authority and the Underwriters and is made solely for the benefit of the Authority and the Underwriters (including the successors or assigns of the Authority or the Underwriters) and no other person will acquire or have any right hereunder or by virtue hereof. All of the Authority's and Underwriters' representations, warranties, covenants and agreements contained in this Agreement will remain operative and full force and effect regardless of (a) any investigations made by or on behalf of the Underwriters; or (b) delivery of and payment for the Bonds pursuant to this Agreement.

18. **Effective Date.** This Agreement will become effective upon its acceptance by the Authority, as evidenced by the execution hereof by the appropriate official of the Authority, and will be valid and enforceable at the time of such acceptance.

19. **Execution in Counterparts.** This Agreement may be executed in counterparts each of which shall be regarded as an original and all of which shall constitute one and the same document.

20. **Finder.** The Authority represents and warrants that no finder or other agent of a finder has been employed or consulted by it in connection with this transaction.



21. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the District of Columbia.

SIEBERT CISNEROS SHANK & CO., L.L.C.  
FTN FINANCIAL CAPITAL MARKETS  
JEFFERIES LLC  
MORGAN STANLEY & CO. LLC  
RAYMOND JAMES  
STERN BROTHERS & CO.

By: SIEBERT CISNEROS SHANK & CO., L.L.C.,  
as Representative of the Underwriters

By: \_\_\_\_\_  
Authorized Representative

[SIGNATURE PAGE TO SERIES 2019A/B BOND PURCHASE AGREEMENT]

Accepted: \_\_\_\_\_, 2019

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

By \_\_\_\_\_

Name: Matthew Brown

Title: Chief Financial Officer and Executive Vice  
President Finance and Procurement

[SIGNATURE PAGE TO SERIES 2019A/B BOND PURCHASE AGREEMENT]

EXHIBIT A

\$125,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds  
Series 2019A  
(Green Bonds)

Serial Bonds

Year (Oct. 1)	Principal Amount	Interest Rate	Yield*
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2019A Term Bonds

\$ \_\_,000,000 \_\_\_\_% Term Bonds, due October 1, 20\_\_, Yield \_\_\_\_%\*

\*Priced to the par call date.

\* Preliminary, subject to change.

\$75,000,000\*  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds  
Series 2019B  
Serial Bonds

Year (Oct. 1)	Principal Amount	Interest Rate	Yield
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2019B Term Bonds

\$ \_\_,000 \_\_% Term Bonds, due October 1, 20\_\_, Yield \_\_%\*

\$ \_\_,000 \_\_% Term Bonds, due October 1, 20\_\_, Yield \_\_%\*

\_\_\_\_\_  
\*Priced to the par call date.

\_\_\_\_\_  
\* Preliminary, subject to change.

TERMS OF REDEMPTION

Optional Redemption

The Series 2019A Bonds are subject to optional redemption prior to maturity on or after April 1, 202\_ from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

The Series 2019B Bonds are subject to optional redemption prior to maturity on or after April 1, 202\_ from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

MANDATORY SINKING FUND REDEMPTION

The \$00,000,000 Series 2019A Term Bonds maturing on October 1, 20\_\_ shall be subject to mandatory sinking fund redemption, on October 1 of that respective year, as follows:

<u>Year</u>	<u>Principal Amount</u>
20__	\$
20__	
20__	
20__	

\_\_\_\_\_  
\*Final maturity.

The \$\_\_0,000 Series 2019B Term Bonds maturing on October 1, 20\_\_ shall be subject to mandatory sinking fund redemption, on October 1 of that respective year, as follows:

<u>Year</u>	<u>Principal Amount</u>
20__	\$

\_\_\_\_\_  
\*Final maturity.

The \$\_\_,000 Series 2019B Term Bonds maturing on October 1, 20\_\_ shall be subject to mandatory sinking fund redemption, on October 1 of that respective year, as follows:

<u>Year</u>	<u>Principal Amount</u>
20__	\$

\_\_\_\_\_  
\* Final maturity

EXHIBIT B

FORM OF AUTHORITY'S INTERIM EXECUTIVE VICE PRESIDENT, LEGAL AFFAIRS  
OPINION

\_\_\_\_\_, 2019

District of Columbia Water and Sewer Authority  
1385 Canal Street S.E.  
Washington, DC 20003

\$125,000,000\*  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds)

\$75,000,000\*  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019B

Ladies and Gentlemen:

I am the Interim Executive Vice President, Legal Affairs to the District of Columbia Water and Sewer Authority (the "Authority") and in connection with the issuance by the Authority of its Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds), in the original principal amount of \$125,000,000\* (the "Series 2019A Bonds") and its Public Utility Subordinate Lien Revenue Bonds, Series 2019B, in the original principal amount of \$75,000,000\* (the "Series 2019B Bonds" and collectively with the Series 2019A Bonds, the "Bonds"). I have reviewed an executed copy of the Bond Purchase Agreement, dated \_\_\_\_\_, 2019, between the Authority and Siebert Cisneros Shank & Co., L.L.C., as Representative on behalf of the Underwriters, with respect to the Bonds (the "Bond Purchase Agreement") and the Preliminary Official Statement, dated \_\_\_\_\_, 2019 (the "Preliminary Official Statement") and the Official Statement, dated \_\_\_\_\_, 2019, being distributed in connection with the issuance of the Bonds (collectively, the "Official Statement"). Capitalized terms used and not defined herein shall have the respective meanings given to such terms in the Bond Purchase Agreement.

I have also examined an act of the Council of the District of Columbia entitled the "Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996," codified, as amended, at District of Columbia Official Code Ann. Sections 34-2201.01 *et seq.*, and the acts amendatory thereof and supplemental thereto (the "Act"), and an act of the United States Congress entitled the "District of Columbia Water and Sewer Authority Act of 1996" (Public Law 104-184), as amended (the "Federal Act"), certified copies of proceedings of

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\* Preliminary, subject to change.

the Authority authorizing the issuance of the Bonds, including the Resolution and such other proceedings as I have considered necessary or advisable to render the following opinions.

In rendering the following opinions, I have relied on representations of the Authority as to matters of fact without independent investigation or verification and, as to matters of law, the representations of Co-Bond Counsel without independent research or verification and have assumed the genuineness of all signatures, the authenticity of all documents tendered to me as originals and the conformity to original documents of all documents submitted to me as certified or photostatic copies.

Based upon review of the materials described above and subject to the recitals and qualifications herein contained, to the best of my knowledge, information and belief, it is my opinion that:

1. The Authority is a body corporate duly created, organized and validly existing as an independent authority of the District under the Act and under the Federal Act (the Act and the Federal Act being sometimes hereinafter referred to as, the “Acts”). The Authority has the full legal right, power and authority to (i) adopt the Resolution, (ii) issue the Bonds, (iii) execute, deliver and perform its obligations under the Bond Documents, and (iv) perform its obligations under the System Agreements.

2. The Federal Act was duly enacted by Congress and the Act was duly enacted by the Council of the District of Columbia. The Acts remain in full force and effect. The Act transferred all assets and liabilities of the Water and Sewer Utility Administration (“WASUA”) as indicated on the balance sheet prepared by WASUA, effective April 17, 1996, on an interim basis for the exclusive use and possession of the Authority for so long as any revenue bonds of the Authority, including the Bonds, remain outstanding.

3. The Resolution was adopted by the Authority and has not been amended since the date of the adoption thereof and remains in full force and effect as of the date hereof.

4. (i) The adoption of the Resolution, the issuance of the Bonds, the execution and delivery of the Bond Documents and the performance of the Authority’s obligations thereunder, and (ii) the performance of the Authority’s obligations under the System Agreements, under the circumstances contemplated thereby, do not and will not in any material respect conflict with or constitute on the part of the Authority, a breach of or default under any agreement or other instrument to which the Authority is a party, or any existing law, administrative regulation, court order, settlement order or consent decree to which the Authority is subject.

5. Except as otherwise described in the Preliminary Official Statement and the Official Statement, there is no action, suit, proceeding, inquiry or investigation, at law or in equity, before or by any court, government agency, public board or body, pending or, to the best of my knowledge, threatened against the Authority (i) seeking to prohibit, restrain or enjoin the issuance, sale or delivery of the Bonds, the use of the Official Statement or the collection of the revenues pledged to the payment of the principal of and interest on the Bonds, (ii) in any way contesting or affecting any authority for the issuance of the Bonds or the validity, enforceability,

due authorization, execution or delivery of the Bonds, including the Bond Purchase Agreement or the other Bond Documents, or the validity or enforceability of the System Agreements, (iii) questioning the tax-exempt status of the Bonds under the laws of the District or the United States, (iv) in any way contesting the corporate existence or powers of the Authority or the titles of the officers of the Authority to their respective offices, (v) which may result in any material adverse change in the business or the financial condition or the financial prospects of the Authority or (vi) asserting that the Preliminary Official Statement or the Official Statement contains any untrue statement of a material fact or omits any material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

6. The statements and information contained in the Preliminary Official Statement and the Official Statement under the caption entitled "LITIGATION," are true, correct and complete in all material respects, and the information under such caption does not contain any untrue statement of a material fact and does not omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading in any material respect.

7. Pursuant to the Acts, the Authority has the full legal right, power and authority to operate the System and to collect and pledge the Revenues therefrom in accordance with the Indenture.

8. The Authority has approved the form of the Preliminary Official Statement and the Official Statement, the execution of the Official Statement and the delivery of the Official Statement to the purchasers of the Bonds.

9. The Authority has obtained the consents, approvals, authorizations or other orders required for the consummation of the transactions contemplated by the Bond Purchase Agreement, including the issuance of the Bonds.

This opinion and all documents which relate to this opinion are to be construed in accordance with the laws of the District and the United States of America. This opinion is rendered solely for the use of the Authority and may not be relied on by any other person.

Very truly yours,

Interim Executive Vice President Legal Affairs



EXHIBIT C

FORM OF OPINION OF UNDERWRITERS' COUNSEL

\_\_\_\_\_, 2019

\$125,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds)

\$75,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019B

Siebert Cisneros Shank & Co., L.L.C., as Representative  
100 Wall Street, 18<sup>th</sup> floor  
New York, NY 10005

Ladies and Gentlemen:

We have acted as counsel for you as the representative (the "Representative") acting on behalf of yourself and other underwriters (the "Underwriters") in connection with your purchase from the District of Columbia Water and Sewer Authority (the "Authority") of its Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds), in the original principal amount of \$125,000,000\* (the "Series 2019A Bonds") and its Public Utility Subordinate Lien Revenue Bonds, Series 2019B, in the original principal amount of \$75,000,000\* (the "Series 2019B Bonds" and collectively with the Series 2019A Bonds, the "Bonds"), pursuant to the Bond Purchase Agreement, dated \_\_\_\_\_, 2019 (the "Purchase Agreement"), between you and the Authority. The Bonds are to be issued pursuant to the Master Indenture of Trust, dated as of April 1, 1998 (the "Master Indenture"), as amended and supplemented to the date of delivery of the Bonds (the "Indenture"), including by the Twenty-Fourth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Bonds (the "Twenty-Fourth Supplemental Indenture"), each by and between the Authority and Wells Fargo Bank, N.A., as trustee (the "Trustee"). The proceeds of the Bonds will be used to pay (i) a portion of the costs of the Authority's DC Clean Rivers Project, (ii) a portion of the costs of certain other capital improvements to the System and (iii) pay costs of issuing the Bonds. Capitalized terms not otherwise defined herein shall have the meanings ascribed thereto in the Purchase Agreement.

In that connection, we have reviewed the Indenture, the Preliminary Official Statement of the Authority dated \_\_\_\_\_, 2019 (the "Preliminary Official Statement") and the Official Statement of the Authority, dated \_\_\_\_\_, 2019, with respect to the Bonds (the "Official Statement"), the Continuing Disclosure Agreement, dated \_\_\_\_\_, 2019 (the "Continuing Disclosure Agreement"), the Purchase Agreement, certificates of the Authority, the Trustee and

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\* Preliminary, subject to change.

others, the opinions referred to in paragraph 10(f)(vi) of the Purchase Agreement, and such records and documents, and we have made such investigations of law, as we have deemed appropriate as a basis for the opinions and conclusions hereinafter expressed. We do not assume any responsibility for any electronic version of the Official Statement and assume that any such version is identical in all material respects to the printed version.

In arriving at the opinions and conclusions hereinafter expressed, we are not expressing any opinion or view on, and with your permission are assuming and relying on, the validity, accuracy and sufficiency of the records, documents, certificates and opinions referred to above, including the accuracy of all factual matters represented and legal conclusions contained therein, including (without limitation) any representations and legal conclusions regarding the due authorization, issuance, delivery, validity and enforceability of the Bonds, and any laws, documents and instruments that may be related to the issuance, payment or security of the Bonds. We have assumed that all records, documents, certificates and opinions that we have reviewed, and the signatures thereto, are genuine.

Based on and subject to the foregoing, and in reliance thereon, as of the date hereof, we are of the following opinions or conclusions:

1. The Bonds are not subject to the registration requirements of the Securities Act of 1933, as amended, and the Indenture is exempt from qualification pursuant to the Trust Indenture Act of 1939, as amended.

2. We are not passing upon and do not assume any responsibility for the accuracy, completeness or fairness of any of the statements contained in the Preliminary Official Statement and the Official Statement and make no representation that we have independently verified the accuracy, completeness or fairness of any such statements. In our capacity as your counsel, to assist you with your responsibility with respect to the Preliminary Official Statement and the Official Statement, we participated in conferences with your representatives and representatives of the Authority, Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, as co-bond counsel and as co-disclosure counsel, financial advisors, feasibility consultants and others, during which the contents of the Official Statement and related matters were discussed. Based on our participation in the above-mentioned conferences (which did not extend beyond the date of the Official Statement), and in reliance thereon, on oral and written statements and representations of the Authority and others and on the records, documents, certificates, opinions and matters herein mentioned (as set forth above), we advise you as a matter of fact and not opinion that, during the course of our representation of you on this matter, no facts came to the attention of the attorneys in our firm rendering legal services to you in connection with the Preliminary Official Statement and the Official Statement which caused us to believe that the Preliminary Official Statement and the Official Statement as of their dates and as of the date hereof (except for any CUSIP numbers, financial, accounting, statistical or economic, engineering or demographic data or forecasts, numbers, charts, tables, graphs, estimates, projections, assumptions or expressions of opinion, any information about litigation to which the Authority is a party, any management discussion and analysis, Appendices to the Preliminary Official Statement and the Official Statement, or any information about book-entry, DTC, ratings, rating agencies, and tax exemption of the Bonds, which we expressly exclude from the

scope of this paragraph and as to which we express no opinion or view) contained or contains any untrue statement of a material fact or omitted or omits to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. No responsibility is undertaken or view expressed with respect to any other disclosure document, materials or activity, or as to any information from another document or source referred to by or incorporated by reference in the Preliminary Official Statement and the Official Statement.

3. In our opinion, the Continuing Disclosure Agreement with respect to the Bonds for the benefit of the holders thereof, satisfies in all material respects the requirements for such an agreement in paragraph (b) (5) of the Rule 15c2-12; provided that, for purposes of this opinion, we are not expressing any view regarding the content of the Official Statement that is not expressly stated in numbered paragraph 2 of this letter.

We are furnishing this letter to you pursuant to paragraph 10(f)(vi) of the Purchase Agreement solely for your benefit as the Representative. We disclaim any obligation to update this letter. This letter is not to be used, circulated, quoted or otherwise referred to or relied upon for any other purpose or by any other person. This letter is not intended to, and may not, be relied upon by owners of Bonds or by any other party to whom it is not specifically addressed.

Very truly yours,

EXHIBIT D

FORM OF UNDERWRITERS' CERTIFICATE

\$125,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds)

\$75,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Revenue Bonds, Series 2019B

UNDERWRITERS' CERTIFICATE

\_\_\_\_\_, 2019

Siebert Cisneros Shank & Co., L.L.C. ("Siebert Cisneros Shank"), for itself and as representative of the other underwriters for the bonds identified above (the "Issue"), issued by the District of Columbia Water and Sewer Authority (the "Issuer"), based on its knowledge regarding the sale of the Issue, certifies as of this date as follows:

**1. Issue Price.**

**[If the issue price is determined using only the general rule (actual sales of at least 10%) in Regulations § 1.148-1(f)(2)(i) and at least 10% of each maturity has been sold as of the Closing Date:**

1.1 As of the date of this certificate, for each Maturity of the Issue, the first price at which at least 10% of such Maturity of the Issue was sold to the Public is the respective price listed in the final Official Statement, dated \_\_\_\_\_, 2019 for the Issue (the "Sale Price" as applicable to respective Maturities). The aggregate of the Sale Prices of each Maturity is \$\_\_\_\_\_ (the "Issue Price").]

**[If the issue price is determined using only the general rule (actual sales of at least 10%) in Regulations § 1.148-1(f)(2)(i) and at least 10% of each maturity has not been sold as of the Closing Date:**

1.1 As of the date of this Certificate, for each [Maturity] [of the \_\_\_\_\_ Maturities] of the Issue, the first price at which at least 10% of [each] such Maturity of the Issue was sold to the Public (the "10% Test") are the respective prices listed in **Schedule A** attached hereto.

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\* Preliminary, subject to change.

1.2 With respect to each of the \_\_\_\_\_ Maturities of the Issue:

(i) As of the date of this Certificate, the Underwriters have not sold at least 10% of these Maturities of the Issue at any single price.

(ii) As of the date of this Certificate, the Siebert Cisneros Shank reasonably expects that the price at which at least 10% of each of these Maturities of the Issue will be sold to the Public will be the respective price or prices listed on the attached **Schedule A** as the “Reasonably Expected Sale Prices for Undersold Maturities.”

(iii) Siebert Cisneros Shank will provide actual sales information (substantially similar to the information contained on **Schedule B**) as to the price at which at least 10% of each such Maturity (i.e., the Undersold Maturity or Maturities) of the Issue is sold to the Public.

(iv) On the date the 10% Test is satisfied with respect to all Maturities of the Issue, Siebert Cisneros Shank will execute a supplemental certificate substantially in the form attached hereto as **Schedule C** with respect to any Maturities for which the 10% Test has not been satisfied as of the Closing Date.\*\*]

**[If the issue price is determined using a combination of actual sales (Regulations § 1.148-1(f)(2)(i)) and hold-the-offering-price (Regulations § 1.148-1(f)(2)(ii)):**

1.1 As of the date of this certificate, for each Maturity of the Issue listed on Schedule A as the “General Rule Maturities,” the first price at which at least 10% of such Maturity was sold to the Public is the respective price listed in Schedule A (the “Sale Price” as applicable to each Maturity of the General Rule Maturities).

1.2 The Underwriters offered the Maturities listed on Schedule A as the “Hold-the-Offering-Price Maturities” to the Public for purchase at the respective initial offering prices listed in Schedule A (the “Initial Offering Prices” as applicable to each Maturity of the Hold-the-Offering-Price Maturities) on or before the Sale Date. A copy of the pricing wire or equivalent communication for the Issue is attached to this certificate as Schedule B.

1.3 As set forth in the Bond Purchase Agreement dated \_\_\_\_\_, 2019, between the Authority and Underwriters, the Underwriters agreed in writing that, (i) for each Maturity of the Hold-the-Offering-Price Maturities, it would neither offer nor sell any of the Issue of such Maturity to any person at a price that is higher than the Initial Offering Price for such Maturity during the Holding Period for such Maturity (the “hold-the-offering-price rule”), and (ii) any selling group agreement contains the agreement of each dealer who is a member of the selling group, and any retail distribution agreement contains the agreement of each broker-dealer who is a party to the retail distribution agreement, to comply with the hold-the-offering-price rule. The Underwriters have not offered or sold any Maturity of the Hold-the-Offering-Price Maturities at

a price that is higher than the respective Initial Offering Price for that Maturity of the Issue during the Holding Period.

The aggregate of the Sale Prices of the General Rule Maturities and the Initial Offering Prices of the Hold-the-Offering-Price Maturities is \$[\_\_\_\_\_] (the “Issue Price”).]

**[If the issue price is determined using only the hold-the-offering-price rule in Regulations § 1.148-1(f)(2)(ii):**

1.1 As set forth in the Bond Purchase Agreement dated \_\_\_\_\_, 2019, between the Authority and the Underwriters, the Underwriters agreed in writing that, (i) for each Maturity of the Issue, it would neither offer nor sell any of such Maturity of the Issue to any person at a price that is higher than the Initial Offering Price for such Maturity during the Holding Period for such Maturity (the “hold-the-offering-price rule”), and (ii) any selling group agreement contains the agreement of each dealer who is a member of the selling group, and any retail distribution agreement contains the agreement of each broker-dealer who is a party to the retail distribution agreement, to comply with the hold-the-offering-price rule. The Underwriters have not offered or sold any Maturity of the Issue at a price that is higher than the respective Initial Offering Price for that Maturity of the Issue during the Holding Period.]

[1.2, 1.3, 1.4, 1.2] Definitions. [NOTE: If issue price is determined using only the general rule (actual sales of 10%), delete the definitions of “Holding Period” and “Sale Date.”]

[“Holding Period” means, for each Hold-the-Offering-Price Maturity of the Issue, the period starting on the Sale Date and ending on the earlier of (i) the close of the fifth business day after the Sale Date (\_\_\_\_\_, 2019), or (ii) the date on which the Underwriters sold at least 10% of such Maturity of the Issue to the Public at prices that are no higher than the Initial Offering Price for such Maturity.]

“Maturity” means bonds of the Issue with the same credit and payment terms. Bonds of the Issue with different maturity dates, or bonds of the Issue with the same maturity date but different stated interest rates, are treated as separate Maturities.

“Public” means any person (including an individual, trust, estate, partnership, association, company, or corporation) other than an Underwriter or a related party to an Underwriter. The term “related party” for purposes of this certificate generally means any two or more persons who have greater than 50 percent common ownership, directly or indirectly.

[“Sale Date” means the first day on which there is a binding contract in writing for the sale of a Maturity of the Issue. The Sale Date of the Issue is \_\_\_\_\_, 2019.]

“Underwriter” means (i) any person that agrees pursuant to a written contract with the Authority (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Issue to the Public, and (ii) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (i) of this paragraph to participate

in the initial sale of the Issue to the Public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Issue to the Public).

All capitalized terms not defined in this Certificate have the meaning set forth in the Authority's Tax Compliance Certificate or in Attachment A to it.

**[2. Reserve Fund.**

The funding of the Reserve Fund as provided in the Trust Agreement securing the Issue is reasonably required, was a vital factor in marketing the Issue, facilitated the marketing of the Issue at an interest rate comparable to that of bonds and other obligations of a similar type and is not in excess of the amount necessary for such purpose.]

**[3. Yield.**

**3.1** The Yield on the Issue is \_\_\_\_\_%, being the discount rate that, when used in computing the present worth of all payments of principal and interest to be paid on the Issue, computed on the basis of a 360-day year and semi-annual compounding, produces an amount equal to the Issue Price of the Issue as stated in paragraph 1.1 [and computed with the adjustments stated in paragraphs 3.2 and 4.3].

**3.2 Discount Bonds Subject to Mandatory Early Redemption.** [No bond of the Issue that is subject to mandatory early redemption has a stated redemption price that exceeds the Initial Offering Price of such bond by more than one-fourth of 1% multiplied by the product of its stated redemption price at maturity and the number of years to its weighted average maturity date.] **[Or]** [The stated redemption price at maturity of the bonds of the Issue maturing in the year[s] 20\_\_, which are the only bonds of the Issue that are subject to mandatory early redemption, exceeds the Initial Offering Price of such bonds by more than one-fourth of 1% multiplied by the product of the stated redemption price at maturity and the number of years to the weighted average maturity date of such bonds. Accordingly, in computing the Yield on the Issue stated in paragraph 3.1, those bonds were treated as redeemed on each mandatory early redemption date at their present value rather than at their stated principal amount.]

**3.3 Premium Bonds Subject to Optional Redemption.** No bond of the Issue:

- Is subject to optional redemption within five years of the Issuance Date of the Issue.
- That is subject to optional redemption has an Initial Offering Price that exceeds its stated redemption price at maturity by more than one-fourth of 1% multiplied by the product of its stated redemption price at maturity and the number of complete years to its first optional redemption date.]]

**[4. Weighted Average Maturity.**

The weighted average maturity (defined below) of the Issue is \_\_\_\_\_ years [**For refunding issues:** and the remaining weighted average maturity of the Refunded Bonds is \_\_\_\_\_ years. The weighted average maturity of an issue is equal to the sum of the products of the Initial Offering Price of each maturity of the issue and the number of years to the maturity date of the respective maturity (taking into account mandatory but not optional redemptions), divided by the Initial Offering Price of the entire Issue. ]

**5. Underwriter's Discount.** The Underwriter's discount is \$ \_\_\_\_\_, being the amount by which the aggregate Issue Price (as set forth in paragraph 1.1) exceeds the price paid by Siebert Cisneros Shank to the Authority for the Issue.

The signer is an officer of Siebert Cisneros Shank and duly authorized to execute and deliver this Certificate of the Underwriters for itself and as representative of the other Underwriters. Siebert Cisneros Shank understands that the certifications contained in this Certificate will be relied on by the Issuer in making certain of its representations in its Tax Compliance Certificate and in completing and filing the Information Return for the Issue, and by Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, as co-bond counsel ("Bond Counsel"), in rendering certain of their legal opinions in connection with the issuance of the Issue.

Siebert Cisneros Shank has performed these calculations with the express understanding and agreement of Bond Counsel and the Issuer that, notwithstanding the performance of these calculations and the delivery of this certificate: (i) in doing so we are not acting as Municipal Advisor (as defined in Section 15 of the Securities Exchange Act), (ii) we do not have a fiduciary duty to the Issuer, and (iii) we are not to be construed as a "paid preparer" of any tax returns of the Issuer, including specifically (but not limited to) Form 8038-G.

Notwithstanding the foregoing, Siebert Cisneros Shank reminds you that we are not accountants or actuaries, nor are we engaged in the practice of law. Accordingly, while we believe the calculations described above to be correct, we do not warrant them to be so, nor do we warrant their validity for purposes of Sections 103 and 141 through 150 of the Code.

The representations set forth in this certificate are limited to factual matters only. Nothing in this certificate represents Siebert Cisneros Shank's interpretation of any laws, including specifically Sections 103 and 148 of the Code and the Treasury Regulations thereunder.

Dated: \_\_\_\_\_, 2019

SIEBERT CISNEROS SHANK & CO., L.L.C.  
FTN FINANCIAL CAPITAL MARKETS  
JEFFERIES LLC  
MORGAN STANLEY & CO., LLC  
RAYMOND JAMES  
STERN BROTHERS & CO.

By: SIEBERT CISNEROS SHANK & CO., L.L.C.,  
as Representative of the Underwriters



**[NOTE: If the general rule is used for each Maturity** (i.e., actual sales of at least 10% of each Maturity) and at least 10% of each Maturity has been sold as of the Closing, there is no schedule to attach if the initial offering prices set forth in the Official Statement for the Issue are the first prices at which at least 10% of each Maturity is sold. Otherwise, attach a schedule that shows the first price at which at least 10% of each Maturity was sold.]

**[OR]**

**[If the issue price is determined using a combination of the general rule (actual sales) and hold-the-offering-price rule:**

**SCHEDULE A**  
**SALE PRICES OF THE GENERAL RULE MATURITIES AND**  
**INITIAL OFFERING PRICES OF THE HOLD-THE-OFFERING-PRICE MATURITIES**  
*(Attached)*

**[NOTE:** With respect to each Maturity of the Issue, Schedule A should include each Maturity's (i) maturity date, (ii) principal amount, (iii) coupon, (iv) yield, and (v) the sale prices/initial offering prices (as applicable).]

**SCHEDULE B**  
**PRICING WIRE OR EQUIVALENT COMMUNICATION**  
*(Attached)*

**[OR]**

**[If the issue price is determined using only the hold-the-offering-price rule in Regulations § 1.148-1(f)(2)(ii):**

**SCHEDULE A**  
**INITIAL OFFERING PRICES OF THE ISSUE**  
*(Attached)*

**SCHEDULE B**  
**PRICING WIRE OR EQUIVALENT COMMUNICATION**  
*(Attached)*

**[OR]**

**If the issue price is determined using only the general rule (actual sales of at least 10%) in Regulations § 1.148-1(f)(2)(i) and at least 10% of each maturity has not been sold as of the Closing Date:**

SCHEDULE A  
TO  
ISSUE PRICE CERTIFICATE

**Actual Sales Information as of Closing Date**

<b><u>Maturity/CUSIP</u></b>	<b><u>Coupon</u></b>	<b><u>Date Sold</u></b>	<b><u>Time Sold</u></b>	<b><u>Par Amount</u></b>	<b><u>Sale Price</u></b>
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**]\*\*Reasonably Expected Sales Prices for Undersold Maturities as of Closing Date**

<b><u>Maturity/CUSIP</u></b>	<b><u>Coupon</u></b>	<b><u>Par Amount</u></b>	<b><u>Offering Prices</u></b>
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[\*\*SCHEDULE B  
TO  
ISSUE PRICE CERTIFICATE

**Actual Sales for Undersold Maturities as of the Closing Date**

<b><u>Maturity/CUSIP</u></b>	<b><u>Date Sold</u></b>	<b><u>Time Sold</u></b>	<b><u>Par Amount</u></b>	<b><u>Sale Price</u></b>
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**SPB DRAFT: 7/18/19**

**TWENTY-FOURTH SUPPLEMENTAL INDENTURE OF TRUST**

**between**

**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**and**

**WELLS FARGO BANK, NATIONAL ASSOCIATION  
AS TRUSTEE**

**Dated [November \_\_, 2019]**

**THIS TWENTY-FOURTH SUPPLEMENTAL INDENTURE OF TRUST** dated the \_\_\_ day of [November], 2019 (as defined in more detail below, the “**Twenty-Fourth Supplemental Indenture**”), by and between the District of Columbia Water and Sewer Authority (the “**Authority**”), an independent authority of the District of Columbia (the “**District**”), and Wells Fargo Bank, National Association, a national banking association, having a corporate trust office in Philadelphia, Pennsylvania, as trustee (in such capacity, together with any successor in such capacity, herein called the “**Trustee**”), provides:

**WHEREAS**, the Authority and the Trustee (its predecessor in that capacity having been Norwest Bank, N.A.) entered into the Master Indenture of Trust, dated as of April 1, 1998 (the “**Master Indenture**” and, as previously supplemented and amended by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture and the Twenty-Third Supplemental Indenture, all as hereinafter defined, and as it may further be supplemented and amended in accordance with its terms, the “**Indenture**”), to provide for financing or refinancing the acquisition, construction, operation, maintenance and extension of the System (as defined in the Master Indenture) by the issuance of bonds, notes and other obligations payable solely from Net Revenues (as defined in the Master Indenture); and

**WHEREAS**, pursuant to the First Supplemental Indenture of Trust, dated as of April 1, 1998 (the “**First Supplemental Indenture**”), between the Authority and the Trustee, the Authority issued its Public Utility Revenue Bonds, Series 1998 (the “**Series 1998 Senior Lien Bonds**”) in the aggregate principal amount of \$266,120,000, to finance Costs of the System (as defined in the Master Indenture) and to refund then outstanding debt of the Authority; and

**WHEREAS**, the Master Indenture permits the Authority, for certain purposes and subject to certain conditions, to issue Other System Indebtedness (as defined therein) secured on a parity with the Series 1998 Senior Lien Bonds and referred to collectively with the Series 1998 Senior Lien Bonds as “Senior Debt,” and also permits the Authority to issue Subordinate Debt (as defined therein), to which it has pledged to its payment Net Revenues, as a subordinate lien pledge after the pledge of Net Revenues to Senior Debt; and

**WHEREAS**, pursuant to the Second Supplemental Indenture of Trust, dated as of November 1, 2001 (the “**Second Supplemental Indenture**”), between the Authority and the Trustee, the Authority amended and supplemented the Master Indenture in accordance with its terms to clarify provisions thereof related to certain forms of Indebtedness (as defined in the Master Indenture, i.e., Senior Debt and Subordinate Debt) and thereby facilitate the issuance of such forms of Indebtedness; and

**WHEREAS**, pursuant to the Third Supplemental Indenture of Trust, dated as of November 1, 2001 (the “**Third Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Commercial Paper Notes defined therein as the Series A-B Notes, (ii) designated the Series A-B Notes as Subordinate Debt for purposes of the Indenture, and (iii) made provision for the securing of the Series A-B Notes and of the Reimbursement Obligations to the Bank that provided the Letters of Credit (all as defined therein) that secure the Series A-B Notes; and

**WHEREAS**, pursuant to the Fourth Supplemental Indenture of Trust, dated August 12, 2003 (the “**Fourth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Bonds, Series 2003, dated August 12, 2003 (the “**Series 2003 Subordinated Bonds**”), in the aggregate principal amount of \$176,220,000 to finance certain Costs of the System and retire the Series 2001 Notes, (ii) designated the Series 2003 Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2003 Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Fifth Supplemental Indenture of Trust, dated August 3, 2004 (the “**Fifth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Bonds, Series 2004, as Subseries 2004A-1, Subseries 2004A-2, Subseries 2004B-1 and Subseries B-2 (collectively, the “**Series 2004 Subordinated Bonds**”) in the aggregate principal amount of \$295,000,000 to finance certain Costs of the System, (ii) designated the Series 2004 Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2004 Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Sixth Supplemental Indenture of Trust, dated June 6, 2007 (the “**Sixth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Bonds, Series 2007A (the “**Series 2007A Subordinated Bonds**”), in the aggregate principal amount of \$218,715,000 to finance certain Costs of the System and retire the Series 2001 Notes, (ii) designated the Series 2007A Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2007A Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Seventh Supplemental Indenture of Trust, dated June 6, 2007 (the “**Seventh Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Taxable Revenue Bonds, Series 2007B (the “**Series 2007B Subordinated Bonds**”), in the aggregate principal amount of \$59,000,000 to finance certain Costs of the System, (ii) designated the Series 2007B Subordinated Bonds as

Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2007B Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Eighth Supplemental Indenture of Trust, dated April 24, 2008 (the “**Eighth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Refunding Bonds, Series 2008 (the “**Series 2008 Subordinated Bonds**”), in the aggregate principal amount of \$290,375,000 to (a) currently refund all of the outstanding Series 2004 Subordinated Bonds and a portion of the Series 2007B Subordinated Bonds, and (b) pay issuance costs of the Series 2008 Subordinated Bonds, (ii) designated the Series 2008 Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2008 Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Ninth Supplemental Indenture of Trust, dated December 19, 2008 (the “**Ninth Supplemental Indenture**”), between the Authority and the Trustee, the Authority agreed to confer on the Holders of the Series 2003 Subordinated Bonds additional rights related to the Reserve Credit Facility (as defined therein) and to cure any ambiguity or omission in the Indenture regarding the obligations of the Authority as a consequence of a downgrade of the Reserve Policy related to the Series 2003 Subordinated Bonds, or in the event that the Reserve Policy were to cease to be in effect; and

**WHEREAS**, pursuant to the Tenth Supplemental Indenture of Trust, dated February 12, 2009 (the “**Tenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Senior Lien Revenue Bonds, Series 2009A (the “**Series 2009A Senior Lien Bonds**”), in the aggregate principal amount of \$300,000,000 to finance certain Costs of the System and retire Series 2001 Notes, (ii) designated the Series 2009A Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (iii) secured the Series 2009A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Eleventh Supplemental Indenture of Trust, dated June 2, 2010, as supplemented and amended by the First Amendment to Eleventh Supplemental Indenture of Trust, dated April 5, 2013, and by the Second Amendment to Eleventh Supplemental Indenture of Trust, dated May 18, 2015 (together, the “**Eleventh Supplemental Indenture**”), each between the Authority and the Trustee, the Authority: (i) authorized the issuance of its (a) Commercial Paper Notes, Series A (the “**2010 Series A Notes**”) in the aggregate principal amount of \$0 to finance certain Costs of the System, (b) Commercial Paper Notes, Series B (the “**2010 Series B Notes**”) in the aggregate principal amount of \$100,000,000 to finance certain Costs of the System, and (c) Commercial Paper Notes, Series C (the “**2010 Series C Notes**”) and, together with the 2010 Series A Notes and the 2010 Series B Note, the

“**Series 2010 Notes**”) in the aggregate principal amount of \$50,000,000 to finance certain Costs of the System, (ii) designated the Series 2010 Notes as Subordinate Debt for purposes of the Indenture, and (iii) made provision for the securing of the Series 2010 Notes and of the Authority’s reimbursement obligations to the Bank (as defined in the Eleventh Supplemental Indenture) that provided the Substitute Letters of Credit (as defined in the Eleventh Supplemental Indenture) that secure the Series 2010 Notes; and

**WHEREAS**, pursuant to the Twelfth Supplemental Indenture of Trust, dated October 27, 2010 (the “**Twelfth Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2010A (Federally Taxable – Issuer Subsidy – Build America Bonds) (the “**Series 2010A Subordinated Bonds**”) in the aggregate principal amount of \$300,000,000 to finance certain Costs of the System and fund capitalized interest on a portion of the Series 2010A Subordinate Bonds, subject to specified limitations, (ii) designated the Series 2010A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, (iii) secured the Series 2010A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, and (iv) included provisions in the Indenture related to potential Direct Payments (as defined therein) received or expected to be received by the Authority, including certain provisions requiring the consent of the holders of a majority of Outstanding Bonds; and

**WHEREAS**, pursuant to the Thirteenth Supplemental Indenture of Trust, dated March 22, 2012 (the “**Thirteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i)(a) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2012A (the “**Series 2012A Subordinate Bonds**”) in the aggregate principal of \$177,430,000 to finance certain Costs of the System and pay certain costs of issuance, (b) designated the Series 2012A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (c) secured the Series 2012A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, (ii)(a) issued its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2012B (the “**Series 2012B Subordinate Bonds**”) in the aggregate principal amount of \$100,000,000 to finance certain Costs of the System, fund capitalized interest on a portion of the Series 2012B Subordinate Bonds subject to specified limitations, and pay certain costs of issuance, (b) designated the Series 2012B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (c) secured the Series 2012B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, and (iii)(a) issued its Public Utility Subordinate Lien Revenue Refunding Bonds, Series 2012C (the “**Series 2012C Subordinate Bonds**”) in the aggregate principal amount of \$163,215,000, and applied the proceeds thereof, together with any other funds of the Authority, to advance refund the Series 2003 Subordinated Bonds and caused them to be deemed paid and no longer Outstanding for purposes of the Indenture, and paid certain costs of issuance, (b) designated the Series 2012C Subordinate Bonds as Subordinate



Debt for purposes of the Indenture, and (c) secured the Series 2012C Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Fourteenth Supplemental Indenture of Trust, dated as of August 1, 2013 (the “**Fourteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2013A in the aggregate principal amount of \$300,000,000 (the “**Series 2013A Subordinate Bonds**”) to finance certain Costs of the System and pay certain costs of issuance, (ii) designated the Series 2013A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2013A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Fifteenth Supplemental Indenture of Trust, dated July 23, 2014 (the “**Fifteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Senior Lien Revenue Bonds, Series 2014A (Federally Taxable) (Green Bonds) in the aggregate principal amount of \$350,000,000 (the “**Series 2014A Senior Lien Bonds**”) to finance certain Costs of the System and pay certain costs of issuance, (ii) designated the Series 2014A Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (iii) secured the Series 2014A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Sixteenth Supplemental Indenture of Trust, dated July 23, 2014 (the “**Sixteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2014B, in the aggregate principal amount of \$100,000,000 (the “**Series 2014B Subordinate Bonds**”) to finance certain Costs of the System and pay certain costs of issuance, (ii) designated the Series 2014B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2014B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Seventeenth Supplemental Indenture of Trust, dated November 20, 2014 (the “**Seventeenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Refunding Bonds, Series 2014C, in the aggregate principal amount of \$377,700,000 (the “**Series 2014C Subordinate Bonds**”) to (a) advance refund all or a portion of the Authority’s outstanding Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, and the Series 2009A Senior Lien Bonds, and current refund all of the Authority’s outstanding Subseries 2012B-1 of the Series 2012 Subordinate Bonds, and (b) pay issuance costs of the Series 2014C Subordinate

Bonds, (ii) designated the Series 2014C Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2014C Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Eighteenth Supplemental Indenture of Trust, dated October 15, 2015 (the “**Eighteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2015A in the aggregate principal amount of \$100,000,000 (the “**Series 2015A Subordinate Bonds**”) to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2015A Subordinate Bonds, (ii) designated the Series 2015A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, (iii) secured the Series 2015A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, (iv) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2015B in an aggregate principal amount of \$250,000,000 (the “**Series 2015B Subordinate Bonds**” and, together with the Series 2015A Subordinate Bonds, the “**Series 2015A/B Subordinate Bonds**”) to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2015B Subordinate Bonds, (v) designated the Series 2015B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (vi) secured the Series 2015B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Nineteenth Supplemental Indenture of Trust, dated December 1, 2015 (the “**Nineteenth Supplemental Indenture**”) between the Trustee and the Authority, the Authority authorized (i) the issuance of its Extendable Municipal Commercial Paper Notes, Series A (the “**Series A EMCP Notes**”) in the aggregate principal amount of not to exceed \$100,000,000 outstanding at any time to finance certain Costs of the System, (ii) designated the Series A EMCP Notes as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series A EMCP Notes by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twentieth Supplemental Indenture of Trust, dated February 24, 2016 (the “**Twentieth Supplemental Indenture**”) between the Trustee and the Authority, the Authority (i) issued its Public Utility Subordinate Lien Revenue Refunding Bonds, Series 2016A in the aggregate principal amount of \$389,110,000 (the “**Series 2016A Subordinate Bonds**”) to (a) refund all or a portion of the Authority’s outstanding Series 2007A Subordinated Bonds, Series 2008A Subordinated Bonds, and Series 2009A Senior Lien Bonds, and (b) pay issuance costs of the Series 2016A Subordinate Bonds, (ii) designated the Series 2016A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2016A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of

Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-First Supplemental Indenture of Trust, dated September 29, 2016 (the “**Twenty-First Supplemental Indenture**”) between the Trustee and the Authority, the Authority (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2016B (Environmental Impact Bonds) in the aggregate principal amount of \$25,000,000 (the “**Series 2016B Subordinate Bonds**”) to (a) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project); and (b) pay certain costs of issuance, (ii) designated the Series 2016B Subordinate Bonds as Subordinate Debt, as Variable Rate Indebtedness and as Tender Indebtedness for purposes of the Indenture, and (iii) secured the Series 2016B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-Second Supplemental Indenture of Trust, dated February 23, 2017 (the “**Twenty-Second Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Senior Lien Revenue Bonds, Series 2017A in the aggregate principal amount of \$100,000,000 (the “**Series 2017A Senior Lien Bonds**”) to (a) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (b) pay issuance costs of the Series 2017A Senior Lien Bonds, (ii) designated the Series 2017A Senior Lien Bonds as Senior Debt for purposes of the Indenture, (iii) secured the Series 2017A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future, (iv) issued its Public Utility Senior Lien Revenue Bonds, Series 2017B in an aggregate principal amount of \$200,000,000 (the “**Series 2017B Senior Lien Bonds**” and, together with the Series 2017A Senior Lien Bonds, the “**Series 2017A/B Senior Lien Bonds**”) to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2017B Senior Lien Bonds, (v) designated the Series 2017B Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (vi) secured the Series 2017B Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-Third Supplemental Indenture of Trust, dated April 30, 2018 (the “**Twenty-Third Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2018A in the aggregate principal amount of \$100,000,000 (the “**Series 2018A Senior Lien Bonds**”) to (a) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (b) pay issuance costs of the Series 2018A Senior Lien Bonds, (ii) designated the Series 2018A Senior Lien Bonds as Senior Debt for purposes of the Indenture, (iii) secured the Series 2018A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future, (iv)

issued its Public Utility Senior Lien Revenue Bonds, Series 2018B in an aggregate principal amount of \$200,000,000 (the “**Series 2018B Senior Lien Bonds**” and, together with the Series 2018A Senior Lien Bonds, the “**Series 2018A/B Senior Lien Bonds**”) to (a) finance certain Costs of the System, (b) pay issuance costs of the Series 2018B Senior Lien Bonds and (c) refund all of the Authority’s then outstanding Commercial paper Notes, Series B, (v) designated the Series 2018B Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (vi) secured the Series 2018B Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, the Authority now intends to: (i)(a) issue Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) in the aggregate principal amount of \$\_\_\_\_\_ (the “**Series 2019A Subordinate Bonds**”) to (1) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (2) pay issuance costs of the Series 2019A Subordinate Bonds, (b) designate the Series 2019A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secure the Series 2019A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, and (ii)(a) issue the Public Utility Subordinate Revenue Bonds, Series 2019B in an aggregate principal amount of \$\_\_\_\_\_ (the “**Series 2019B Subordinate Bonds**” and, together with the Series 2019A Subordinate Bonds, the “**Series 2019A/B Subordinate Bonds**”) to (1) finance certain Costs of the System, and (2) pay issuance costs of the Series 2019B Subordinate Bonds, (b) designate the Series 2019B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secure the Series 2019B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**NOW THEREFORE**, in consideration of the premises and the mutual covenants and agreements hereinafter contained, the parties hereto agree, as follows:

**ARTICLE I  
TWENTY-FOURTH SUPPLEMENTAL INDENTURE**

**Section 101. Authorization of Twenty-Fourth Supplemental Indenture.**

This Twenty-Fourth Supplemental Indenture is authorized and executed by the Authority and delivered to the Trustee pursuant to and in accordance with Articles III and X of the Master Indenture. All terms, covenants, conditions and agreements of the Indenture shall apply with full force and effect to the Series 2019A/B Subordinate Bonds as Subordinate Debt and to the Holders thereof as Holders of Subordinate Debt, except as otherwise provided in this Twenty-Fourth Supplemental Indenture.

**Section 102. Definitions.**

Except as otherwise defined in this Twenty-Fourth Supplemental Indenture, capitalized words and terms defined in the Master Indenture as amended by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture and the Twenty-Third Supplemental Indenture are used in this Twenty-Fourth Supplemental Indenture with the meanings assigned to them therein. In addition, the following words as used in this Twenty-Fourth Supplemental Indenture have the following meanings unless the context or use clearly indicates another or different intent or meaning:

“Book-entry form” or “book-entry system” means a form or system under which the physical Series 2019A/B Subordinate Bond certificates in fully registered form are issued only to a Depository or its nominee as Holder, with the certificated Series 2019A/B Subordinate Bonds held by and “immobilized” in the custody of the Depository, and the book-entry system, maintained by and the responsibility of the Depository and not maintained by or the responsibility of the Authority or the Trustee, is the record that identifies, and records the transfer of the interests of, the owners of beneficial, book-entry interests in the Series 2019A/B Subordinate Bonds.

“Depository” means any securities depository that is a clearing agency under federal law operating and maintaining, with its participants or otherwise, a book-entry system to record ownership of book-entry interests in Series 2019A/B Subordinate Bonds, and to effect transfers of book-entry interests in Series 2019A/B Subordinate Bonds, and includes and means initially The Depository Trust Company (a limited purpose trust company) (“DTC”), New York, New York.

“Interest Payment Dates” for the Series 2019A/B Subordinate Bonds means each April 1 and October 1 commencing [April 1, 2020], and thereafter during the time the Series 2019A/B Subordinate Bonds are outstanding.

“Series 2019A Construction Account” means the Series 2019A Construction Account established by this Twenty-Fourth Supplemental Indenture in the Construction Fund.

“Series 2019A Costs of Issuance Subaccount” means the Series 2019A Costs of Issuance Subaccount established by this Twenty-Fourth Supplemental Indenture in the Series 2019A Construction Account of the Construction Fund.

“Series 2019B Construction Account” means the Series 2019B Construction Account established by this Twenty-Fourth Supplemental Indenture in the Construction Fund.

“Series 2019B Costs of Issuance Subaccount” means the Series 2019B Costs of Issuance Subaccount established by this Twenty-Fourth Supplemental Indenture in the Series 2019B Construction Account of the Construction Fund.

“Series 2019A/B Rebate Fund” means the Series 2019A/B Rebate Fund established by this Twenty-Fourth Supplemental Indenture.

“Series 2019A/B Resolution” means Resolution No. \_\_\_\_\_, adopted by the Authority’s Board of Directors on \_\_\_\_\_, authorizing the Series 2019A/B Subordinate Bonds.

“Series 2019A/B Subordinate Bond Event of Default” means any of the events defined as such in Section 703 of this Twenty-Fourth Supplemental Indenture.

“Series 2019A/B Subordinate Bondholder” or “holder of Series 2019A/B Subordinate Bonds” means the registered owner of a Series 2019A/B Subordinate Bond.

“Series 2019A/B Subordinate Bonds Interest Subaccount” means the Series 2019A/B Subordinate Bonds Interest Subaccount established by this Twenty-Fourth Supplemental Indenture in the Interest Account in the Bond Fund.

“Series 2019A/B Subordinate Bonds Principal Subaccount” means the Series 2019A/B Subordinate Bonds Principal Subaccount established by this Twenty-Fourth Supplemental Indenture in the Principal Account in the Bond Fund.

“Series 2019A/B Subordinate Debt Service Reserve Requirement” means zero.

“Twenty-Fourth Supplemental Indenture” means this Twenty-Fourth Supplemental Indenture of Trust, dated [November \_\_, 2019], between the Authority and the Trustee, which supplements and amends the Master Indenture, as previously supplemented and amended by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture and the Twenty-Third Supplemental Indenture.

**Section 103. Reference to Articles and Sections.**

Unless otherwise indicated, all references herein to particular articles or sections are references to articles or sections of this Twenty-Fourth Supplemental Indenture.

**ARTICLE II  
AUTHORIZATION, DETAILS AND FORM  
OF SERIES 2019A/B SUBORDINATE BONDS**

**Section 201. Authorization of Series 2019A/B Subordinate Bonds.**

Pursuant to Article III of the Master Indenture and, specifically, Section 305 thereof, and the Series 2019A/B Resolution, the Authority is authorized to issue:

(i) Series 2019A Subordinate Bonds in the aggregate principal amount of \$\_\_\_\_\_, for the purpose of (a) financing Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (b) paying issuance costs of the Series 2019A Subordinate Bonds. The Series 2019A Subordinate Bonds shall be issued as Subordinate Debt pursuant to the Indenture; and

(ii) Series 2019B Subordinate Bonds in the aggregate principal amount of \$\_\_\_\_\_, for the purpose of (a) financing Costs of the System, and (b) paying issuance costs of the Series 2019B Subordinate Bonds. The Series 2019B Subordinate Bonds shall be issued as Subordinate Debt pursuant to the Indenture.

**Section 202. Details of Series 2019A/B Subordinate Bonds.**

The Series 2019A Subordinate Bonds shall be designated “Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds)”, shall be dated [November \_\_, 2019], shall be issuable only as fully registered bonds in denominations of \$5,000 and multiples thereof, shall be numbered RA-1 upward and shall bear interest at rates, payable semiannually on the Interest Payment Dates, until their final payment or maturity, and shall mature on October 1 in years and amounts, as follows:

<b>Due (Oct. 1)</b>	<b>Principal Amount</b>	<b>Interest Rate</b>
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The Series 2019B Subordinate Bonds shall be designated “Public Utility Subordinate Lien Revenue Bonds, Series 2019B”, shall be dated [November \_\_, 2019], shall be issuable only as fully registered bonds in denominations of \$5,000 and multiples thereof, shall be numbered RB-1 upward and shall bear interest at rates, payable semiannually on the Interest Payment Dates, until their final payment or maturity, and shall mature on October 1 in years and amounts, as follows:

<b>Due (Oct. 1)</b>	<b>Principal Amount</b>	<b>Interest Rate</b>
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Each Series 2019A/B Subordinate Bond shall bear interest: (a) from its date, if such Series 2019A/B Subordinate Bond is authenticated prior to the first Interest Payment Date, or (b) otherwise from the Interest Payment Date that is, or immediately precedes, the date on which such Series 2019A/B Subordinate Bond is authenticated; provided, however, that if at the time of authentication of any Series 2019A/B Subordinate Bond payment of interest is in default, such Series 2019A/B Subordinate Bond shall bear interest from the date to which interest has been paid. The interest payable on the Series 2019A/B Subordinate Bonds will be computed on the basis of a 360-day year of twelve 30-day months.

Principal of and premium, if any, on the Series 2019A/B Subordinate Bonds shall be payable to the registered owners thereof upon the surrender of the applicable Series 2019A/B Subordinate Bonds at the designated office of the Trustee. Interest on the Series 2019A/B Subordinate Bonds shall be payable by check or draft mailed to the registered owners at their addresses as they appear on the fifteenth day of the month preceding the Interest Payment Date on the registration books kept by the Trustee; provided, however, if the Series 2019A/B



Subordinate Bonds are registered in the name of a Depository or its nominee as registered owner or at the option of a registered owner of at least \$1,000,000 of Series 2019A/B Subordinate Bonds, payment shall be made by wire transfer to an account within the United States pursuant to the wire instructions received by the Trustee with respect to each such payment from such registered owner. Principal, premium, if any, and interest shall be payable in lawful money of the United States of America.

**Section 203. Form of Bonds.**

The Series 2019A/B Subordinate Bonds shall be in substantially the forms set forth in **Exhibits A-1 and A-2**, with such appropriate variations, omissions and insertions as are permitted or required by the Indenture.

**Section 204. Depository Provisions.**

The Series 2019A/B Subordinate Bonds shall initially be issued to a Depository for holding in a book-entry system. Those Series 2019A/B Subordinate Bonds shall be registered in the name of the Depository or its nominee, as registered owner, and immobilized in the custody of the Depository or the Trustee on behalf of the Depository; and shall not be transferable or exchangeable, except for transfer to another Depository or to another nominee of a Depository, without further action by the Authority.

If any Depository determines not to continue to act as a Depository for the Series 2019A/B Subordinate Bonds for holding in a book-entry system or the Authority determines to remove the Series 2019A/B Subordinate Bonds from a Depository, the Authority may attempt to have established a securities depository/book-entry system relationship with another qualified Depository. If the Authority does not or is unable to do so, the Authority, after making provision for notification of the owners of book-entry interests by appropriate notice to the then Depository and any other arrangements it deems necessary, shall permit withdrawal of the Series 2019A/B Subordinate Bonds from the Depository, and shall execute and direct the Trustee to authenticate and deliver Series 2019A/B Subordinate Bond certificates, in fully registered form, to the assigns of the Depository or its nominee (if such Series 2019A/B Subordinate Bonds were held by a nominee), all at the cost and expense (including costs of printing or otherwise preparing and delivering replacement Series 2019A/B Subordinate Bonds), if the event is not the result of Authority action or inaction, of those persons requesting that authentication and delivery. Series 2019A/B Subordinate Bond certificates authenticated and delivered pursuant to this paragraph shall be in authorized denominations. In the event that Series 2019A/B Subordinate Bonds shall cease to be in book-entry form, then the Authority or the Depository shall provide to the Trustee the name, address of record and taxpayer identification number of each registered holder thereof. The Trustee may rely on such information without any investigation.

If the Series 2019A/B Subordinate Bonds are withdrawn from a Depository and printed bond certificates in fully registered form are or are to be authenticated and delivered pursuant to this Section, and if, in the opinion of Bond Counsel addressed to the Trustee, the delivery of coupon bonds payable to bearer would not result in the interest on any of the Series 2019A/B Subordinate Bonds then outstanding becoming includable in gross income for federal income tax purposes, the Authority, without the consent of or notice to any of the holders of the Series

2019A/B Subordinate Bonds, may authorize the exchange of Series 2019A/B Subordinate Bond certificates in fully registered form or Series 2019A/B Subordinate Bonds under a book-entry system for coupon bonds payable to bearer, in an aggregate principal amount not exceeding the then unmatured and unredeemed principal amount of the Series 2019A/B Subordinate Bonds, bearing interest at the same rate and maturing on the same date, with coupons attached representing all unpaid interest due or to become due thereon. Such certificated Series 2019A/B Subordinate Bonds will be registrable, transferable and exchangeable as set forth in Section 204 and Section 205 of the Master Indenture.

So long as a Depository holds the Series 2019A/B Subordinate Bonds in a book-entry system (i) it or its nominee shall be the registered owner of the Series 2019A/B Subordinate Bonds, (ii) notwithstanding anything to the contrary in this Twenty-Fourth Supplemental Indenture, determinations of persons entitled to payment of principal, premium, if any, and interest, transfers of ownership and exchanges and receipt of notices shall be the responsibility of the Depository and shall be effected pursuant to rules and procedures established by such Depository, (iii) the Authority and the Trustee shall not be responsible or liable for maintaining, supervising or reviewing the records maintained by the Depository, its participants or persons acting through such participants, and (iv) references in this Twenty-Fourth Supplemental Indenture to registered owners of the Series 2019A/B Subordinate Bonds shall mean such Depository or its nominee and shall not mean the beneficial owners of the Series 2019A/B Subordinate Bonds.

**Section 205. Delivery of Series 2019A/B Subordinate Bonds.**

The Trustee shall authenticate and deliver the Series 2019A/B Subordinate Bonds when there have been filed with or delivered to it the following items:

- (i) An original executed counterpart of this Twenty-Fourth Supplemental Indenture;
- (ii) A certified copy of applicable resolution(s) of the Board of Directors of the Authority and related Certificate of Award: (a) authorizing the execution and delivery of the Twenty-Fourth Supplemental Indenture, and (b) authorizing the issuance, sale, award, execution and delivery of the Series 2019A/B Subordinate Bonds.
- (iii) A certificate signed by an Authorized Representative of the Authority and dated the date of such issuance, to the effect that:
  - (a) Either: (1) upon and immediately following such issuance, no Event of Default has occurred which has not been cured or waived, and no event or condition exists which, with the giving of notice or lapse of time or both, would become an Event of Default, or (2) if any such event or condition is happening or existing, specifying such event or condition, stating that the Authority will act with due diligence to correct such event or condition after the issuance of the Series 2019A/B Subordinate Bonds, and describing in reasonable detail the actions to be taken by the Authority toward such correction; and

(b) All required approvals, limitations, conditions and provisions precedent to the issuance of the Series 2019A/B Subordinate Bonds have been obtained, observed, met and satisfied.

(iv) An Opinion or Opinions of Counsel, subject to customary exceptions and qualifications, substantially to the effect that this Twenty-Fourth Supplemental Indenture has been duly authorized, executed and delivered to the Trustee, is a valid, binding and enforceable obligation of the Authority, and complies in all respects with the requirements of the Indenture.

(v) An opinion or opinions of Bond Counsel, subject to customary exceptions and qualifications, substantially to the effect that the issuance of the Series 2019A/B Subordinate Bonds has been duly authorized, that the Series 2019A/B Subordinate Bonds are valid and binding limited obligations of the Authority, and that the interest on the Series 2019A/B Subordinate Bonds is excludable from gross income for purposes of Federal income taxation.

(vi) A certificate of an Authorized Representative of the Authority, stating that rates, fees and charges are in effect or scheduled to go into effect to meet the Rate Covenant immediately after the issuance of the Series 2019A/B Subordinate Bonds.

(vii) A request and authorization of the Authority, signed by an Authorized Representative of the Authority, to the Trustee to authenticate and deliver such Bonds to the purchaser upon payment to the Trustee in immediately available funds for the account of the Authority of a specified sum plus accrued interest to the date of delivery.

**ARTICLE III  
REDEMPTION OF SERIES 2019A/B SUBORDINATE BONDS**

**Section 301. Redemption Dates and Prices.**

The Series 2019A/B Subordinate Bonds may not be called for redemption by the Authority except as provided below:

(i) Optional Redemption. (a) The Series 2019A Subordinate Bonds maturing on or after \_\_\_\_\_ 1, 20\_\_, are subject to redemption prior to maturity at the option of the Authority on or after \_\_\_\_\_ 1, 20\_\_, from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

(b) The Series 2019B Subordinate Bonds maturing on or after \_\_\_\_\_ 1, 20\_\_, are subject to redemption prior to maturity at the option of the Authority on and after \_\_\_\_\_ 1, 20\_\_, from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date

(ii) Mandatory Redemption. (a) The Series 2019A Subordinate Bonds bearing interest at a rate of \_\_\_\_%, and maturing on \_\_\_\_\_ 1, 20\_\_ (the “\_\_\_\_ Term Series 2019A Subordinate Bonds”), are required to be redeemed prior to maturity on October 1 in years and

amounts upon payment of 100% of the principal amount thereof plus interest accrued to the redemption date, as follows:

Year	Amount
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\_\_\_\_\_  
† Final Maturity

(b) The Series 2019B Subordinate Bonds each bearing interest at a rate of \_\_\_\_% and maturing on \_\_\_\_\_ 1, 20\_\_ (the “\_\_\_\_ Term Series 2019B Subordinate Bonds”) and \_\_\_\_\_ 1, 20\_\_ (the “\_\_\_\_ Term Series 2019B Subordinate Bonds”), respectively, are required to be redeemed prior to maturity on October 1 in years and amounts upon payment of 100% of the principal amount thereof plus interest accrued to the redemption date, as follows:

The \_\_\_\_ Term Series 2019B Subordinate Bonds are subject to mandatory sinking fund redemption on each October 1 as set forth below:

Year	Amount
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\_\_\_\_\_  
† Final Maturity

The \_\_\_\_ Term Series 2019B Subordinate Bonds are subject to mandatory sinking fund redemption on each October 1 as set forth below:

Year	Amount
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\_\_\_\_\_  
† Final Maturity

The Trustee shall provide for a mandatory redemption of the Term Series 2019A/B Subordinate Bonds in accordance with the schedules set forth above; provided, however, that on or before the 70th day next preceding any such mandatory redemption date, the Authority may:

(i) deliver to the Trustee for cancellation Term Series 2019A/B Subordinate Bonds of the maturity required to be redeemed on such mandatory redemption date in any aggregate principal amount desired; or

(ii) instruct the Trustee in writing to apply a credit against the Authority's next mandatory redemption obligation for any such Term Series 2019A/B Subordinate Bonds that previously have been redeemed (other than through mandatory redemption) and canceled but not theretofore applied as a credit against any mandatory redemption obligation.

Upon the occurrence of any of the events described in clauses (i) or (ii) of the preceding sentence, the Trustee shall credit against the Authority's mandatory redemption obligation on the next mandatory redemption date the amount of such Term Series 2019A/B Subordinate Bonds so delivered or previously redeemed. Any principal amount of such Term Series 2019A/B Subordinate Bonds in excess of the principal amount required to be redeemed on such mandatory redemption date shall be similarly credited in an amount equal to the principal of such Term Series 2019A/B Subordinate Bonds so purchased towards the sinking fund installments for the Term Series 2019A/B Subordinate Bonds of such maturity on a pro rata basis in accordance with a certificate of an Authorized Representative of the Authority, which will direct the reduction of a ratable portion of each annual mandatory sinking fund installment requirement in accordance with the procedures set forth below. Within seven days of receipt of such Term Series 2019A/B Subordinate Bonds or instructions to apply as a credit, any amounts remaining in the Sinking Fund Account in excess of the amount required to fulfill the remaining required mandatory redemption obligation on the next mandatory redemption date shall be used in such manner as determined at the written direction of the Authority.

The particular maturities of the Series 2019A/B Subordinate Bonds to be redeemed at the option of the Authority will be determined by the Authority in its sole discretion.

If fewer than all of the Series 2019A/B Subordinate Bonds are called for redemption, they shall be called in such order of maturity as the Authority may determine and direct the Trustee in writing. If less than all of the Series 2019A/B Subordinate Bonds of any maturity date is called for redemption, the Series 2019A/B Subordinate Bonds to be redeemed shall be selected by the Depository pursuant to its rules and procedures or, if the book-entry system is discontinued, shall be selected by the Trustee by lot in such manner as the Trustee in its discretion may determine. The portion of any Series 2019A/B Subordinate Bond to be redeemed shall be in the principal amount of \$5,000 or some integral multiple thereof. In selecting Series 2019A/B Subordinate Bonds for redemption, each Series 2019A/B Subordinate Bond shall be considered as representing that number of Bonds which is obtained by dividing the principal amount of such Series 2019A/B Subordinate Bond by \$5,000. If a portion of a Series 2019A/B Subordinate Bond shall be called for redemption, a new Series 2019A/B Subordinate Bond in principal amount equal to the unredeemed portion thereof shall be issued to the registered owner upon the surrender thereof.

**Section 302. Notice of Redemption.**

Notice of redemption of Series 2019A/B Subordinate Bonds shall be given in the manner set forth in Section 402 of the Master Indenture; provided, however, that notices of redemption of Series 2019A/B Subordinate Bonds sent pursuant to Section 402 of the Master Indenture shall either (i) explicitly state that the proposed redemption is conditioned on there being on deposit in the applicable fund or account on the redemption date sufficient money to pay the full redemption price of the Series 2019A/B Subordinate Bonds to be redeemed, or (ii) be sent only if sufficient money to pay the full redemption price of the Series 2019A/B Subordinate Bonds to be redeemed is on deposit in the applicable fund or account. Notwithstanding the foregoing and the otherwise applicable requirement of Section 402 of the Master Indenture that the Trustee send notice of a call for redemption not fewer than 30 days prior to the redemption date, the Trustee may send any notice of redemption of Series 2019A/B Subordinate Bonds not fewer than 20 days prior to the redemption date or such shorter period of time as may be acceptable to the Depository while the Series 2019A/B Subordinate Bonds are in book-entry form and registered with a Depository, initially DTC.

**ARTICLE IV**

**APPLICATION OF PROCEEDS OF SERIES 2019A/B SUBORDINATE BONDS**

**Section 401. Application of Proceeds of Series 2019A/B Subordinate Bonds; Application of Related Amounts.**

The net proceeds of the Series 2019A/B Subordinate Bonds in the amount of \$ \_\_\_\_\_, which represents the par amount of the Series 2019A/B Subordinate Bonds (\$ \_\_\_\_\_), minus the underwriters' discount (\$ \_\_\_\_\_), and plus original issue premium (\$ \_\_\_\_\_) by the Original Purchasers, at the request and direction of the Authority shall be applied as follows:

(i) \$ \_\_\_\_\_ from the net proceeds of the Series 2019A Subordinate Bonds shall be deposited in the Series 2019A Construction Account.

(ii) \$ \_\_\_\_\_ from the net proceeds of the Series 2019B Subordinate Bonds shall be deposited in the Series 2019B Construction Account.

(iii) \$ \_\_\_\_\_ from the net proceeds of the Series 2019A Subordinate Bonds shall be deposited in the Series 2019A Costs of Issuance Subaccount of the Series 2019A Construction Account of the Construction Fund and used to pay costs of issuance of the Series 2019A Subordinate Bonds.

(iv) \$ \_\_\_\_\_ from the net proceeds of the Series 2019B Subordinate Bonds shall be deposited in the Series 2019B Costs of Issuance Subaccount of the Series 2019B Construction Account of the Construction Fund and used to pay costs of issuance of the Series 2019B Subordinate Bonds.

**ARTICLE V  
FUNDS AND ACCOUNTS**

**Section 501. Series 2019A Construction Account and Series 2019B Construction Account.**

(i) In the Construction Fund, there shall be established a Series 2019A Construction Account and, within that Account, a Series 2019A Costs of Issuance Subaccount. The portion of the proceeds of the Series 2019A Subordinate Bonds specified in Section 401(iii) shall be deposited in the Series 2019A Costs of Issuance Subaccount and used to pay costs of issuance related to the Series 2019A Subordinate Bonds. When all costs of issuance have been paid or moneys have been reserved to pay all remaining unpaid costs of issuance, the balance of any Series 2019A Subordinate Bond proceeds remaining in excess of the amount to be reserved for payment of unpaid costs of issuance shall, as directed by the Authority, either (i) be deposited in the Series 2019A Construction Account of the Construction Fund and used to pay Costs of the System, or (ii) be deposited in the Bond Fund to be used solely to pay principal of and interest on the Series 2019A Subordinate Bonds, in either case to the extent approved by Bond Counsel.

(ii) In the Construction Fund, there shall be established a Series 2019B Construction Account and, within that Account, a Series 2019B Costs of Issuance Subaccount. The portion of the proceeds of the Series 2019B Subordinate Bonds specified in Section 401(iv) shall be deposited in the Series 2019B Costs of Issuance Subaccount and used to pay costs of issuance related to the Series 2019B Subordinate Bonds. When all costs of issuance have been paid or moneys have been reserved to pay all remaining unpaid costs of issuance, the balance of any Series 2019B Subordinate Bond proceeds remaining in excess of the amount to be reserved for payment of unpaid costs of issuance shall, as directed by the Authority, either (i) be deposited in the Series 2019B Construction Account of the Construction Fund and used to pay Costs of the System, or (ii) be deposited in the Bond Fund to be used solely to pay principal of and interest on the Series 2019B Subordinate Bonds, in either case to the extent approved by Bond Counsel.

**Section 502. Series 2019A/B Subordinate Bonds Subaccounts in the Interest Account and Principal Account.**

(i) Within the Interest Account there shall be established a “Series 2019A/B Subordinate Bonds Interest Subaccount.” Within the Principal Account there shall be established a “Series 2019A/B Subordinate Bonds Principal Subaccount.”

(ii) In accordance with Section 604(e) of the Master Indenture, Net Revenues shall be deposited in the Series 2019A/B Subordinate Bond Interest Subaccount on or prior to the last Business Day of each of the six months prior to any month in which an Interest Payment Date occurs, in an amount equal to one-sixth (1/6) of the interest due and payable on the Series 2019A/B Subordinate Bonds on such Interest Payment Date.

(iii) In accordance with Section 604(e) of the Master Indenture, Net Revenues shall be deposited in the Series 2019A/B Subordinate Bonds Principal Subaccount on or prior to the last Business Day of each of the twelve months prior to any month in which principal of Series 2019A/B Subordinate Bonds is payable on their stated maturity date or pursuant to mandatory

redemption requirements, in an amount equal to one-twelfth (1/12) of the principal amount scheduled to be due and payable on the Series 2019A/B Subordinate Bonds in such month.

**Section 503. Series 2018A/B Rebate Fund.** There is hereby established the Series 2018A/B Rebate Fund which shall be used in accordance with (i) Article VIII hereof, and (ii) the Authority's covenants in the Tax Compliance Certificate of the Issuer, executed by the Authority, dated as of [November \_\_, 2019].

## **ARTICLE VI SECURITY FOR SERIES 2019A/B SUBORDINATE BONDS**

### **Section 601. Security for Series 2019A/B Subordinate Bonds.**

The Series 2019A/B Subordinate Bonds shall be secured as Subordinate Debt under the Indenture, including, without limitation, by a pledge of: (i) Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures Subordinate Debt, including, without limitation, any other Subordinate Debt that the Authority may issue in the future, without preference, priority or distinction of any Series 2019A/B Subordinate Bond over any other Series 2019A/B Subordinate Bond or of any Subordinate Debt over any other Subordinate Debt, as provided in the Indenture; and (ii) the moneys and Permitted Investments in the Subordinate Bond Fund on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, any other Subordinate Debt that the Authority may issue in the future, without preference, priority or distinction of any Series 2019A/B Subordinate Bond over any other Series 2019A/B Subordinate Bond or of any Subordinate Debt over any other Subordinate Debt, as provided in the Indenture.

Pursuant to the WASA Act (as defined in the Master Indenture), the Authority hereby includes in this Twenty-Fourth Supplemental Indenture the pledge of the District to the Authority and any holders of its bonds that, except as provided in the WASA Act, the District will not limit or alter rights vested in the Authority to fulfill agreements made with holders of the bonds, or in any way impair the rights and remedies of the holders of the bonds until the bonds, together with the interest thereon, with interest on any unpaid installments of interest, and all costs and expenses in connection with any action or proceedings by or on behalf of the holders of the bonds are fully met and discharged.

## **ARTICLE VII DEFAULTS AND REMEDIES**

### **Section 701. Application of Article IX and Other Remedies Provisions of the Master Indenture.**

The Series 2019A/B Subordinate Bonds do not constitute "Bonds" under the Master Indenture. Accordingly, the provisions of Article IX of the Master Indenture that confer certain rights upon the Holders of Bonds or a specified percentage thereof do not apply to the Series 2019A/B Subordinate Bonds or to the Series 2019A/B Subordinate Bondholders. Pursuant to Section 305 of the Master Indenture, the Series 2019A/B Subordinate Bonds, as Subordinate Debt, may not be accelerated if any Senior Debt is outstanding.



**Section 702. Rights of Series 2019A/B Subordinate Bondholders Upon Occurrence of Events of Default.**

In addition to and in furtherance and implementation of the rights that Series 2019A/B Subordinate Bondholders have under the penultimate paragraph of Section 906 of the Master Indenture, Sections 703 through 711, inclusive, of this Twenty-Fourth Supplemental Indenture shall apply to the Series 2019A/B Subordinate Bonds.

**Section 703. Events of Default.**

Each of the following events shall be a Series 2019A/B Subordinate Bond Event of Default:

- (i) Default in the due and punctual payment of the principal of or premium, if any, on any Series 2019A/B Subordinate Bond (whether at maturity or call for redemption);
- (ii) Default in the due and punctual payment of the interest on any Series 2019A/B Subordinate Bond;
- (iii) Failure of the Authority to make the deposits required by subsection (e) or subsection (f) of Section 604 of the Master Indenture at the time and in the amount required from Net Revenues available for such deposit under the Indenture; or
- (iv) Failure of the Trustee to apply moneys in accordance with the penultimate paragraph of Section 906 of the Master Indenture.

**Section 704. Remedies of Series 2019A/B Subordinate Bondholders.**

Upon the occurrence and continuation of a Series 2019A/B Subordinate Bond Event of Default, the Trustee may, and if requested by the holders of not less than 25% in aggregate principal amount of outstanding Series 2019A/B Subordinate Bonds and if indemnified to its reasonable satisfaction, shall proceed to protect and enforce their rights by mandamus or other suit, action or proceeding at law or in equity, including an action for specific performance.

No remedy conferred by this Indenture upon or reserved to the Trustee and Series 2019A/B Subordinate Bondholders is intended to be exclusive of any other remedy, but each such remedy shall be cumulative and shall be in addition to any other remedy given to the Trustee and Series 2019A/B Subordinate Bondholders hereunder or now or hereafter existing at law, in equity or by statute.

No delay or omission to exercise any right or power accruing upon any default or Series 2019A/B Subordinate Bond Event of Default shall impair any such right or power or shall be construed to be a waiver of any such default or Series 2019A/B Subordinate Bond Event of Default or acquiescence therein, and every such right and power may be exercised from time to time and as often as may be deemed expedient.

No waiver of any default or Series 2019A/B Subordinate Bond Event of Default hereunder by the Trustee or Series 2019A/B Subordinate Bondholders shall extend to or shall affect any subsequent Series 2019A/B Subordinate Bond Event of Default or shall impair any rights or remedies consequent thereon.

**Section 705. Right of Series 2019A/B Subordinate Bondholders to Direct Proceedings.**

The holders of a majority in aggregate principal amount of Series 2019A/B Subordinate Bonds then outstanding shall have the right, at any time, by an instrument or instruments in writing executed and delivered to the Trustee, to direct the method and place of conducting all proceedings to be taken in connection with the enforcement of the terms and conditions of this Twenty-Fourth Supplemental Indenture or any other proceedings hereunder; provided, however, that such direction shall not be otherwise than in accordance with the provisions of law and of the Indenture.

**Section 706. Application of Moneys.**

All moneys received by the Trustee pursuant to any right given or action taken under the provisions of this Article shall, after payment of the cost and expenses of the proceedings resulting in the collection of such moneys, the expenses, liabilities and advances incurred or reasonably anticipated to be made by the Trustee, and its fees and the expenses of the Authority in carrying out this Twenty-Fourth Supplemental Indenture, be deposited in the Series 2019A/B Subordinate Bonds Interest Subaccount or the Series 2019A/B Subordinate Bonds Principal Subaccount, as the case may be, and applied as follows and for no other purpose:

- (i) All such moneys shall be applied:

First - To the payment to the persons entitled thereto of all installments of interest then due on the Series 2019A/B Subordinate Bonds, in the order of the maturity of the installments of such interest and, if the amount available shall not be sufficient to pay in full any particular installment, then to the payment ratably, according to the amounts due on such installment, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Series 2019A/B Subordinate Bonds; and

Second - To the payment to the persons entitled thereto of the unpaid principal of and premium, if any, on any of the Series 2019A/B Subordinate Bonds which shall have become due (other than Series 2019A/B Subordinate Bonds called for redemption for the payment of which moneys are held pursuant to the provisions of the Indenture), in the order of their due dates, and, if the amount available shall not be sufficient to pay in full Series 2019A/B Subordinate Bonds due on any particular date, then to the payment of such principal and premium, if any, ratably, according to the amount of such principal due on such date, to the persons entitled thereto, without any discrimination or preference.

(ii) Whenever moneys are to be applied pursuant to the provisions of this Section, such moneys shall be applied at such times and from time to time as the Trustee shall determine, having due regard to the amount of such moneys available for application and the likelihood of additional moneys becoming available for such application in the future. Whenever the Trustee shall apply such moneys, it shall fix the date (which shall be an Interest Payment Date unless it shall deem another date more suitable) on which such application is to be made and on such date interest shall cease to accrue on the amounts of principal to be paid. The Trustee shall give such notice as it may deem appropriate of the deposit with it of any such moneys and of the fixing of any such date.

**Section 707. Remedies Vested in Trustee.**

All rights of action (including the right to file proof of claims) under this Twenty-Fourth Supplemental Indenture or under any of the Series 2019A/B Subordinate Bonds may be enforced by the Trustee without the possession of any of the Series 2019A/B Subordinate Bonds or the production thereof in any trial or other proceeding relating thereto and any such suit or proceeding instituted by the Trustee may be brought in its name as Trustee without the necessity of joining as plaintiffs or defendants any Series 2019A/B Subordinate Bondholders, and any recovery of judgment shall be for the equal benefit of the Series 2019A/B Subordinate Bondholders.

**Section 708. Limitation on Suits.**

Except to enforce the rights given under Sections 704 and 705 of this Twenty-Fourth Supplemental Indenture, no Series 2019A/B Subordinate Bondholder shall have any right to institute any action, suit or proceeding at law or in equity for the enforcement of the Indenture or for the execution of any trust thereof or any other remedy hereunder, unless: (i) a Series 2019A/B Subordinate Bond Event of Default has occurred and is continuing and the Holders of 25% in aggregate principal amount of Series 2019A/B Subordinate Bonds then outstanding have made written request to the Trustee and offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name, (ii) such requesting Series 2019A/B Subordinate Bondholders have offered to the Trustee indemnity as provided in Section 1101(l) of the Master Indenture, (iii) the Trustee has thereafter failed or refused to exercise the powers hereinbefore granted, or to institute such action, suit or proceeding in its own name, (iv) no direction inconsistent with such written request has been given to the Trustee by the holders of a majority in aggregate principal amount of Series 2019A/B Subordinate Bonds then outstanding, and (v) notice of such action, suit or proceeding is given to the Trustee; it being understood and intended that no one or more Series 2019A/B Subordinate Bondholders shall have any right in any manner whatsoever to affect, disturb or prejudice the Indenture by its or their action or to enforce any rights hereunder except in the manner herein provided, and that all proceedings at law or in equity shall be instituted and maintained in the manner herein provided and for the equal benefit of all Series 2019A/B Subordinate Bondholders then outstanding. The notification, request and offer of indemnity set forth above, at the option of the Trustee, shall be conditions precedent to the execution of the powers and trusts of this Twenty-Fourth Supplemental Indenture and to any action or cause of action for the enforcement of this Twenty-Fourth Supplemental Indenture or for any other remedy hereunder.

**Section 709. Termination of Proceedings.**

In case the Trustee shall have proceeded to enforce any right under this Twenty-Fourth Supplemental Indenture and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee, then and in every such case the Authority and the Trustee shall be restored to their former positions and rights hereunder, and all rights, remedies and powers of the Trustee shall continue as if no such proceedings had been taken.

**Section 710. Waivers of Events of Default.**

Subject to the Indenture (including, without limitation, Section 1101 of the Master Indenture), the Trustee may in its discretion waive any Series 2019A/B Subordinate Bond Event of Default hereunder or any action taken pursuant to any Series 2019A/B Subordinate Bond Event of Default, and shall do so at the written request of the holders of: (i) a majority in aggregate principal amount of Series 2019A/B Subordinate Bonds then outstanding in respect of which default in the payment of principal and/or premium, if any, and/or interest exists, or (ii) a majority in aggregate principal amount of Series 2019A/B Subordinate Bonds then outstanding in the case of any other Series 2019A/B Subordinate Bond Event of Default; provided, however, that there shall not be waived without the written consent of all then Outstanding Series 2019A/B Subordinate Bondholders (a) any Series 2019A/B Subordinate Bond Event of Default in the payment of the principal of any Outstanding Series 2019A/B Subordinate Bonds (whether at maturity or by mandatory redemption), or (b) any default in the payment when due of the interest on any such Series 2019A/B Subordinate Bonds unless, prior to such waiver or rescission,

- (1) there shall have been paid or provided for all arrears of interest with interest, to the extent permitted by law, at the rate borne by the Series 2019A/B Subordinate Bonds on overdue installments of interest, all arrears of principal and premium, if any, and all expenses of the Trustee in connection with such default, and
- (2) in case of any such waiver or rescission or in the case of any discontinuance, abandonment or adverse determination of any proceeding taken by the Trustee on account of any such default, the Authority, the Trustee, and the Series 2019A/B Subordinate Bondholders shall be restored to their former positions and rights hereunder respectively.

No such waiver or rescission relating to the Series 2019A/B Subordinate Bonds shall extend to any subsequent or other default or impair any right consequent thereon.

**Section 711. Non-Impairment of Authority's Obligation to Pay Principal, Premium and Interest.**

Nothing in this Twenty-Fourth Supplemental Indenture shall, however, affect or impair the obligation of the Authority to pay the principal of, premium, if any, and interest on each of the Series 2019A/B Subordinate Bonds to the respective Holders thereof at the time and place, from the source and in the manner specified in the Indenture.

**ARTICLE VIII  
TAX COVENANTS**

**Section 801. Tax Covenants – General.**

(i) The Authority covenants that it will use, and will restrict the use and investment of, the proceeds of the Series 2019A/B Subordinate Bonds in such manner and to such extent as may be necessary so that (a) the Series 2019A/B Subordinate Bonds will not constitute private activity bonds, arbitrage bonds or hedge bonds under Sections 141, 148 or 149 of the Code, or be treated other than as bonds to which Section 103(a) of the Code applies, and (b) the interest on the Series 2019A/B Subordinate Bonds will not be treated as an item of tax preference under Section 57 of the Code.

(ii) The Authority further covenants that (a) it will take or cause to be taken such actions that may be required of it for the interest on the Series 2019A/B Subordinate Bonds to be and remain excluded from gross income for federal income tax purposes, (b) it will not take or authorize to be taken any actions that would adversely affect that exclusion, and (c) it, or persons acting for it, will, among other acts of compliance, (1) apply the proceeds of the Series 2019A/B Subordinate Bonds to the governmental purposes of the borrowing, (2) restrict the yield on investment property, (3) make timely and adequate payments to the federal government, including but not limited to the required payment of any Rebate Amounts under Section 148(f) of the Code, as further provided in Section 702 hereof, (4) maintain books and records and make calculations and reports, and (5) refrain from certain uses of those proceeds and, as applicable, of property financed with such proceeds, all in such manner and to the extent necessary to assure that exclusion of that interest under the Code.

(iii) The Authorized Representative of the Authority is hereby authorized (a) to make or effect any election, selection, designation, choice, consent, approval or waiver on behalf of the Authority with respect to the Series 2019A/B Subordinate Bonds as the Authority is permitted to make or give under the federal income tax laws, including, without limitation, any of the elections provided for or available under Section 148 of the Code, for the purpose of assuring, enhancing or protecting favorable tax treatment or status of the Series 2019A/B Subordinate Bonds or interest thereon or assisting compliance with requirements for that purpose, reducing the burden or expense of such compliance, reducing the rebate amount or payments of penalties, or making payments of special amounts in lieu of making computations to determine, or paying, excess earnings as rebate, or obviating those amounts or payments, as determined by the Authorized Representative of the Authority, which action shall be in writing and signed by the Authorized Representative of the Authority, (b) to take any and all other actions, make or obtain

calculations, make payments, and make or give reports, covenants and certifications of and on behalf of the Authority, as may be appropriate to assure the exclusion of interest from gross income and the intended tax status of the Series 2019A/B Subordinate Bonds, and (c) to give one or more appropriate certificates, for inclusion in the transcript of proceedings for the Series 2019A/B Subordinate Bonds, setting forth the reasonable expectations of the Authority regarding the amount and use of all the proceeds of the Series 2019A/B Subordinate Bonds, the facts, circumstances and estimates on which they are based, and other facts and circumstances relevant to the tax treatment of the interest on and the tax status of the Series 2019A/B Subordinate Bonds.

**Section 802. Calculation and Payment of Rebate.**

(i) As used in this Section 802:

“Bond Year” means the annual period (or such shorter period from the date of issuance of the Series 2019A/B Subordinate Bonds) provided for the computation of the Rebate Amount for the Series 2019A/B Subordinate Bonds under Section 148(f) of the Code. The last day of a Bond Year shall be the close of business on the day preceding the anniversary of the issuance of the Series 2019A/B Subordinate Bonds unless the Authority selects another date on which to end a Bond Year in the manner permitted by the Code, and notifies the Trustee in writing of such selection.

“Computation Date” means:

(i) (a) the last day of each fifth Bond Year while the Series 2019A/B Subordinate Bonds are outstanding, and (b) the date on which the last Series 2019A/B Subordinate Bonds are retired, or

(ii) such other date or dates elected by the Authority as may be permitted under the Code for computation of the Rebate Amount.

“Rebate Amount” means, as of any Computation Date, the amount then payable (or payable within 60 days of such date) to the United States pursuant to Section 148(f) of the Code and the applicable Treasury Regulations (final or temporary) thereunder.

(ii) Promptly after each Computation Date, the Authority, or an independent public accounting firm or Bond Counsel engaged by or on behalf of the Authority, shall calculate the Rebate Amount, if any, as of that Computation Date.

(iii) Within 60 days after each Computation Date, and at any other time directed by the Authorized Representative of the Authority, the Authority shall pay to the United States in accordance with Section 148(f), from any lawfully available funds, an amount equal to 90% (or such greater percentage not in excess of 100% as the Authorized Representative of the Authority may determine to pay) of the Rebate Amount determined from the Delivery Date to the end of such fifth Bond Year (but less any portion of the Rebate Amount previously paid to the United States pursuant to this Section). Within 60 days after the payment in full of all outstanding

Series 2019A/B Subordinate Bonds, the Authorized Representative of the Authority, on behalf of the Authority shall pay to the United States in accordance with Section 148(f), from any lawfully available funds, an amount equal to 100% of the Rebate Amount determined from the Delivery Date to the date of such payment in full of all outstanding Series 2019A/B Subordinate Bonds (but less any portion of the Rebate Amount previously paid to the United States pursuant to this Section 802(iii)).

(iv) The Authority shall keep or provide for the keeping of records of the computations made pursuant to this Section 802, payments made pursuant to this Section and all original source documents pertaining to the investment of gross proceeds and the expenditure of gross proceeds for at least six years after the maturity or retirement of the Series 2019A/B Subordinate Bonds.

(v) The Authority, in connection with investments of the proceeds of the Series 2019A/B Subordinate Bonds in nonpurpose investments, will not pay or agree to pay to a party other than the United States any portion of the Rebate Amount with respect to the Series 2019A/B Subordinate Bonds through a transaction or series of transactions that reduce the aggregate amount earned on all nonpurpose investments in which gross proceeds of the Series 2019A/B Subordinate Bonds are invested or that result in a smaller profit or a larger loss than would have resulted in an arm's length transaction in which yield on the Series 2019A/B Subordinate Bonds was not relevant to the Authority or the other party.

(vi) If the Authority and the Trustee receive a written opinion of Bond Counsel that such action would not adversely affect the exclusion from gross income for federal income tax purposes of interest on the Series 2019A/B Subordinate Bonds, the Authorized Representative of the Authority may, without the consent of or notice to any bondholders, adopt supplements to this Twenty-Fourth Supplemental Indenture to the extent necessary or desirable to modify, supplement or replace this Section 802 consistent with the other covenants of the Authority in this Twenty-Fourth Supplemental Indenture.

(vii) If at any time the Authority receives a written opinion of Bond Counsel that failure to comply with this Section 802 or any part of this Section 802 would not adversely affect the exclusion of interest on the Series 2019A/B Subordinate Bonds from gross income for federal income tax purposes, the Authority may discontinue compliance with this Section 802 or part of this Section 802 to the extent set forth in that opinion.

## **ARTICLE IX MISCELLANEOUS**

### **Section 901. Limitation of Rights.**

With the exception of rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Twenty-Fourth Supplemental Indenture or the Series 2019A/B Subordinate Bonds is intended or shall be construed to give to any person other than the parties hereto and the Series 2019A/B Subordinate Bondholders any legal or equitable right, remedy or claim under or in respect to this Twenty-Fourth Supplemental Indenture or any covenants, conditions and agreements herein contained since this Twenty-Fourth Supplemental Indenture

and all of the covenants, conditions and agreements hereof are intended to be and are for the sole and exclusive benefit of the parties hereto and the Series 2019A/B Subordinate Bondholders as herein provided.

**Section 902. Severability.**

If any provision of this Twenty-Fourth Supplemental Indenture shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof, and this Twenty-Fourth Supplemental Indenture shall be construed and enforced as if such illegal provision had not been contained herein.

**Section 903. Successors and Assigns.**

This Twenty-Fourth Supplemental Indenture shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

**Section 904. Limitations on Liability.**

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board of Directors of the Authority or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board of Directors of the Authority nor any officer of the Authority executing the Series 2019A/B Subordinate Bonds shall be liable personally on the Series 2019A/B Subordinate Bonds or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board of Directors of the Authority or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him or her pursuant to this Twenty-Fourth Supplemental Indenture or the Indenture or any other document authorized by the Indenture, provided such member, officer, employee, agent or advisor acts in good faith.

**Section 905. Applicable Law.**

This Twenty-Fourth Supplemental Indenture shall be governed by the applicable laws of the District of Columbia.

**Section 906. Counterparts.**

This Twenty-Fourth Supplemental Indenture may be executed in several counterparts, each of which shall be deemed an original and all of which together shall constitute but one and the same instrument.

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**IN WITNESS WHEREOF**, the Authority and the Trustee have caused this Twenty-Fourth Supplemental Indenture to be executed in their respective corporate names as of the date first above written.

**DISTRICT OF COLUMBIA WATER  
AND SEWER AUTHORITY**

By \_\_\_\_\_  
Chief Financial Officer and Executive Vice  
President, Finance and Procurement

**WELLS FARGO BANK, NATIONAL  
ASSOCIATION, AS TRUSTEE**

By \_\_\_\_\_

Its \_\_\_\_\_

**EXHIBIT A-1**

**SERIES 2019A SUBORDINATE BOND FORM**

Unless this certificate is presented by an authorized representative of The Depository Trust Company, a New York corporation (“DTC”), to the Authority or its agent for registration of transfer, exchange, or payment, and any certificate is registered in the name of Cede & Co., or in such other name as is requested by an authorized representative of DTC (and any payment is made to Cede & Co. or to such other entity as is requested by an authorized representative of DTC), **ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL** inasmuch as the registered owner hereof, Cede & Co., has an interest herein.

**REGISTERED NO.**  
RA-1

**REGISTERED**  
\$ \_\_\_\_\_

**UNITED STATES OF AMERICA**

**DISTRICT OF COLUMBIA**

**WATER AND SEWER AUTHORITY**

**PUBLIC UTILITY SUBORDINATE LIEN REVENUE BOND  
SERIES 2019A  
(Green Bonds)**

<b>INTEREST RATE</b>	<b>MATURITY DATE</b>	<b>DATED DATE</b>	<b>CUSIP</b>
_____%	October 1, [____]	[November __, 2019]	254845[____]

**REGISTERED OWNER: CEDE & CO.**

**PRINCIPAL AMOUNT: \_\_\_\_\_ DOLLARS**

The District of Columbia Water and Sewer Authority (the “Authority”), for value received, hereby promises to pay upon surrender hereof at the designated corporate trust office of Wells Fargo Bank, National Association, as trustee, or its successor in trust (the “Trustee”), under the Indenture, as hereinafter defined, solely from the sources and as hereinafter provided, to the registered owner hereof, or registered assigns or legal representative, the principal sum stated above on the maturity date stated above, subject to prior redemption as hereinafter provided, and to pay, solely from such sources, interest hereon semiannually on each April 1 and October 1, beginning \_\_\_\_\_, at the annual rate stated above, calculated on the basis of a 360-day year of twelve 30-day months. Interest is payable from the date of this Series 2019A Subordinate Bond (unless payment of interest hereon is in default, in which case this Series 2019A Subordinate Bond shall bear interest from the date to which interest has been paid). Interest is payable by check or draft mailed to the registered owner hereof at its address as it

appears on the fifteenth day of the month preceding each interest payment date on registration books kept by the Trustee; provided, however, that if the Series 2019A Subordinate Bonds, as hereinafter defined, are registered in the name of a securities depository or its nominee as registered owner or at the option of a registered owner of at least \$1,000,000 of Series 2019A Subordinate Bonds, payment will be made by wire transfer to an account within the United States pursuant to the most recent wire instructions received by the Trustee from such registered owner. Principal, premium, if any, and interest are payable in lawful money of the United States of America. Capitalized terms which are not defined herein shall have the meanings set forth in the Indenture.

Notwithstanding any other provision hereof, this Series 2019A Subordinate Bond is subject to book-entry form maintained by The Depository Trust Company (“DTC”), and the payment of principal, premium, if any, and interest, the providing of notices and other matters shall be made as described in the Authority’s Blanket Letter of Representations to DTC.

This Series 2019A Subordinate Bond is one of an issue of \$\_\_\_\_\_ Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) (the “Series 2019A Subordinate Bonds”), of like date and tenor, except as to number, denomination, rate of interest, privilege of redemption and maturity. The Series 2019A Subordinate Bonds are being issued on the same day as the Authority’s \$\_\_\_\_\_ Public Utility Subordinate Lien Revenue Bonds, Series 2019B (the “Series 2019B Subordinate Bonds” and, together with the Series 2019A Subordinate Bonds, the “Series 2019A/B Subordinate Bonds”). The Series 2019A Subordinate Bonds are issued under a Master Indenture of Trust, dated as of April 1, 1998, between the Authority and the Trustee (f.k.a. Norwest Bank, N.A.) (the “Master Indenture”), as amended and supplemented by the Twenty-Fourth Supplemental Indenture of Trust, dated as of [November \_\_, 2019], between the Authority and the Trustee (the “Twenty-Fourth Supplemental Indenture”), and as previously amended and supplemented by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture and the Twenty-Third Supplemental Indenture, all as defined in the Twenty-Fourth Supplemental Indenture (the “Indenture”). The Series 2019A Subordinate Bonds are secured under the Indenture as Subordinate Debt by a pledge of Net Revenues subordinate to the pledge that secures Senior Debt and on a parity to the pledge that secures other Subordinate Debt. Reference is hereby made to the Indenture for a description of the provisions, among others, with respect to the nature and extent of the security, the rights, duties and obligations of the Authority and the Trustee, the rights of the holders of the Series 2019A Subordinate Bonds and the terms upon which the Series 2019A Subordinate Bonds are issued and secured.

The Series 2019A Subordinate Bonds and the premium, if any, and the interest thereon are limited obligations of the Authority payable from Net Revenues of the System, subject to the

prior payment therefrom of the principal of and interest due and payable on all Senior Debt heretofore and hereafter issued or incurred by the Authority, and from certain other funds and accounts pledged thereto by, and on the terms set forth in, the Indenture. The Series 2019A Subordinate Bonds shall be without recourse to the District of Columbia (the "District"). The Series 2019A Subordinate Bonds shall not be general obligations of the District, shall not be a pledge of or involve the faith and credit or the taxing power of the District, shall not constitute a debt of the District, and shall not constitute lending of the public credit for private undertakings.

The Series 2019A Subordinate Bonds maturing on or after \_\_\_\_\_, are subject to redemption prior to maturity at the option of the Authority on or after \_\_\_\_\_, from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

The Term Series 2019A Subordinate Bonds maturing on \_\_\_\_\_, and bearing interest at rates of \_\_\_\_% , are required to be redeemed prior to maturity on October 1 in years and amounts upon payment of 100% of the principal amount thereof plus interest accrued to the redemption date, as follows:

Year	Amount
------	--------

† Final Maturity

If fewer than all of the Series 2019A Subordinate Bonds are called for redemption, they shall be called in such order of maturity as the Authority may determine and direct the Trustee in writing. If less than all of the Series 2019A Subordinate Bonds of any maturity date are called for redemption, the Series 2019A Subordinate Bonds to be redeemed shall be selected by DTC pursuant to its rules and procedures or, if the book-entry system is discontinued, shall be selected by the Trustee by lot in such manner as the Trustee in its discretion may determine. The portion of any Series 2019A Subordinate Bond to be redeemed shall be in the principal amount of \$5,000 or some integral multiple thereof. In selecting Series 2019A Subordinate Bonds for redemption, each Series 2019A Subordinate Bond shall be considered as representing that number of Bonds which is obtained by dividing the principal amount of such Series 2019A Subordinate Bond by \$5,000. If a portion of a Series 2019A Subordinate Bond shall be called for redemption, a new Series 2019A Subordinate Bond in principal amount equal to the unredeemed portion thereof shall be issued to the registered owner upon the surrender thereof.

If any of the Series 2019A Subordinate Bonds or portions thereof are called for redemption, the Trustee shall send notice of the call for redemption, identifying the Series 2019A Subordinate Bonds or portions thereof to be redeemed, not fewer than 30 nor more than 60 days prior to the redemption date, by facsimile, registered or certified mail or overnight express delivery, to the registered owner of each such Series 2019A Subordinate Bond. Provided funds for their redemption are on deposit at the place of payment on the redemption date, all Series 2019A Subordinate Bonds or portions thereof so called for redemption shall cease to bear

interest on such date, shall no longer be secured by the Indenture and shall not be deemed to be Outstanding under the provisions of the Indenture. If a portion of the Series 2019A Subordinate Bonds shall be called for redemption, a new Series 2019A Subordinate Bond in principal amount equal to the unredeemed portion hereof will be issued to DTC or its nominee upon the surrender hereof, or if the book-entry system is discontinued, to the registered owners of the Series 2019A Subordinate Bonds.

The registered owner of this Series 2019A Subordinate Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants therein or to take any action with respect to any Event of Default or Series 2019A/B Subordinate Bond Event of Default under the Indenture or to institute, appear in or defend any suit or other proceedings with respect thereto, except as provided in the Indenture. Specifically, and without limiting the generality of the foregoing, the Series 2019A Subordinate Bonds, as Subordinate Debt, may not be accelerated if any Senior Debt is outstanding. Modifications or alterations of the Indenture, or of any supplement thereto, may be made only to the extent and in the circumstances permitted by the Indenture.

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board of Directors of the Authority or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board of Directors of the Authority nor any officer of the Authority executing the Series 2019A Subordinate Bonds shall be liable personally on the Series 2019A Subordinate Bonds or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board of Directors of the Authority or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him or her pursuant to this Series 2019A Subordinate Bond, the Twenty-Fourth Supplemental Indenture or the Indenture or any other document authorized by the Indenture, provided such member, officer, employee, agent or advisor acts in good faith.

The Series 2019A Subordinate Bonds are issuable as registered bonds in denominations of \$5,000 and integral multiples thereof. Upon surrender for transfer or exchange of this Series 2019A Subordinate Bond at the principal corporate trust office of the Trustee, together with an assignment duly executed by the registered owner or its duly authorized attorney or legal representative in such form as shall be satisfactory to the Trustee, the Authority shall execute, and the Trustee shall authenticate and deliver in exchange, a new Series 2019A Subordinate Bond or Series 2019A Subordinate Bonds in the manner and subject to the limitations and conditions provided in the Indenture, having an equal aggregate principal amount, in authorized denominations, of the same series, form and maturity, bearing interest at the same rate and registered in the name or names as requested by the then registered owner hereof or its duly authorized attorney or legal representative. Any such exchange shall be at the expense of the Authority, except that the Trustee may charge the person requesting such exchange the amount of any tax or other governmental charge required to be paid with respect thereto.

The Trustee shall treat the registered owner as the person exclusively entitled to payment of principal, premium, if any, and interest and the exercise of all other rights and powers of the owner, except that interest payments shall be made to the person shown as owner on the fifteenth day of the month preceding each interest payment date.

All acts, conditions and things required to happen, exist or be performed precedent to and in the issuance of this Series 2019A Subordinate Bond have happened, exist and have been performed.

This Series 2019A Subordinate Bond shall not become obligatory for any purpose or be entitled to any security or benefit under the Indenture or be valid until the Trustee shall have executed the Certificate of Authentication appearing hereon and inserted the date of authentication hereon.

IN WITNESS WHEREOF, the DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY has caused this Series 2019A Subordinate Bond to be executed by the manual or facsimile signatures of the Chairman of the Board of Directors, its seal to be affixed hereto or a facsimile to be printed hereon and attested by the manual or facsimile signature of the Secretary to the Authority, and this Series 2019A Subordinate Bond to be dated [November \_\_, 2019].

ATTEST:

Secretary to the Authority

Chairman

[SEAL]

**CERTIFICATE OF AUTHENTICATION**

Date Authenticated: \_\_\_\_\_

This Series 2019A Subordinate Bond is one of the Series 2019A Subordinate Bonds described in the within mentioned Indenture.

**Wells Fargo Bank, National Association,**  
Trustee

By \_\_\_\_\_  
Authorized Officer or Employee



**ASSIGNMENT**

FOR VALUE RECEIVED the undersigned hereby sell(s), assign(s) and transfer(s) unto

\_\_\_\_\_  
\_\_\_\_\_

(please print or typewrite name and address, including zip code, of Transferee)

PLEASE INSERT SOCIAL SECURITY OR OTHER  
IDENTIFYING NUMBER OF TRANSFEREE

\_\_\_\_\_  
: :  
: :  
: :  
: :  
\_\_\_\_\_

the within Series 2019A Subordinate Bond and all rights thereunder, hereby irrevocably  
constituting \_\_\_\_\_ and \_\_\_\_\_ appointing

\_\_\_\_\_, Attorney, to transfer said Series  
2019A Subordinate Bond on the books kept for the registration thereof, with full power of  
substitution in the premises.

Dated: \_\_\_\_\_

Signature Guaranteed

\_\_\_\_\_  
NOTICE: Signature(s) must be guaranteed  
by an Eligible Guarantor Institution such  
as a Commercial Institution such as a  
Commercial Bank, Trust Company,  
Securities Broker/Dealer, Credit Union, or  
Savings Association who is a member of a  
medallion program approved by The  
Securities Transfer Association, Inc.

\_\_\_\_\_  
NOTICE: The signature above must  
correspond with the name of the registered  
owner as it appears on the front of this Series  
2019A Subordinate Bond in every particular,  
without alteration or enlargement or any  
change whatsoever.

**EXHIBIT A-2**

**SERIES 2019B SUBORDINATE BOND FORM**

Unless this certificate is presented by an authorized representative of The Depository Trust Company, a New York corporation (“DTC”), to the Authority or its agent for registration of transfer, exchange, or payment, and any certificate is registered in the name of Cede & Co., or in such other name as is requested by an authorized representative of DTC (and any payment is made to Cede & Co. or to such other entity as is requested by an authorized representative of DTC), ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL inasmuch as the registered owner hereof, Cede & Co., has an interest herein.

**REGISTERED NO.**  
RB-1

**REGISTERED**  
\$ \_\_\_\_\_

**UNITED STATES OF AMERICA**

**DISTRICT OF COLUMBIA**

**WATER AND SEWER AUTHORITY**

**PUBLIC UTILITY SUBORDINATE LIEN REVENUE BOND  
SERIES 2019B**

<b>INTEREST RATE</b>	<b>MATURITY DATE</b>	<b>DATED DATE</b>	<b>CUSIP</b>
_____%	October 1, [____]	[November __, 2019]	254845[____]

**REGISTERED OWNER: CEDE & CO.**

**PRINCIPAL AMOUNT: \_\_\_\_\_ THOUSAND DOLLARS**

The District of Columbia Water and Sewer Authority (the “Authority”), for value received, hereby promises to pay upon surrender hereof at the designated corporate trust office of Wells Fargo Bank, National Association, as trustee, or its successor in trust (the “Trustee”), under the Indenture, as hereinafter defined, solely from the sources and as hereinafter provided, to the registered owner hereof, or registered assigns or legal representative, the principal sum stated above on the maturity date stated above, subject to prior redemption as hereinafter provided, and to pay, solely from such sources, interest hereon semiannually on each April 1 and October 1, beginning \_\_\_\_\_, at the annual rate stated above, calculated on the basis of a 360-day year of twelve 30-day months. Interest is payable from the date of this Series 2019B Subordinate Bond (unless payment of interest hereon is in default, in which case this Series 2019B Subordinate Bond shall bear interest from the date to which interest has been paid). Interest is payable by check or draft mailed to the registered owner hereof at its address as it

appears on the fifteenth day of the month preceding each interest payment date on registration books kept by the Trustee; provided, however, that if the Series 2019B Subordinate Bonds, as hereinafter defined, are registered in the name of a securities depository or its nominee as registered owner or at the option of a registered owner of at least \$1,000,000 of Series 2019B Subordinate Bonds, payment will be made by wire transfer to an account within the United States pursuant to the most recent wire instructions received by the Trustee from such registered owner. Principal, premium, if any, and interest are payable in lawful money of the United States of America. Capitalized terms which are not defined herein shall have the meanings set forth in the Indenture.

Notwithstanding any other provision hereof, this Series 2019B Subordinate Bond is subject to book-entry form maintained by The Depository Trust Company (“DTC”), and the payment of principal, premium, if any, and interest, the providing of notices and other matters shall be made as described in the Authority’s Blanket Letter of Representations to DTC.

This Series 2019B Subordinate Bond is one of an issue of \$\_\_\_\_\_ Public Utility Subordinate Lien Revenue Bonds, Series 2019B (the “Series 2019B Subordinate Bonds”), of like date and tenor, except as to number, denomination, rate of interest, privilege of redemption and maturity. The Series 2019B Subordinate Bonds are being issued on the same day as the Authority’s \$\_\_\_\_\_ Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) (the “Series 2019A Subordinate Bonds” and, together with the Series 2019B Subordinate Bonds, the “Series 2019A/B Subordinate Bonds”). The Series 2019B Subordinate Bonds are issued under a Master Indenture of Trust, dated as of April 1, 1998, between the Authority and the Trustee (f.k.a. Norwest Bank, N.A.) (the “Master Indenture”), as amended and supplemented by the Twenty-Fourth Supplemental Indenture of Trust, dated as of \_\_\_\_\_, between the Authority and the Trustee (the “Twenty-Fourth Supplemental Indenture”), and as previously amended and supplemented by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture and the Twenty-Third Supplemental Indenture, all as defined in the Twenty-Fourth Supplemental Indenture (the “Indenture”). The Series 2019B Subordinate Bonds are secured under the Indenture as Subordinate Debt by a pledge of Net Revenues subordinate to the pledge that secures Senior Debt and on a parity to the pledge that secures other Subordinate Debt. Reference is hereby made to the Indenture for a description of the provisions, among others, with respect to the nature and extent of the security, the rights, duties and obligations of the Authority and the Trustee, the rights of the holders of the Series 2019B Subordinate Bonds and the terms upon which the Series 2019B Subordinate Bonds are issued and secured.

The Series 2019B Subordinate Bonds and the premium, if any, and the interest thereon are limited obligations of the Authority payable from Net Revenues of the System, subject to the

prior payment therefrom of the principal of and interest due and payable on all Senior Debt heretofore and hereafter issued or incurred by the Authority, and from certain other funds and accounts pledged thereto by, and on the terms set forth in, the Indenture. The Series 2019B Subordinate Bonds shall be without recourse to the District of Columbia (the "District"). The Series 2019B Subordinate Bonds shall not be general obligations of the District, shall not be a pledge of or involve the faith and credit or the taxing power of the District, shall not constitute a debt of the District, and shall not constitute lending of the public credit for private undertakings.

The Series 2019B Subordinate Bonds maturing on or after \_\_\_\_\_, are subject to redemption prior to maturity at the option of the Authority on and after \_\_\_\_\_, from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

The Term Series 2019B Subordinate Bonds maturing on \_\_\_\_\_ and \_\_\_\_\_, and bearing interest at the rates of \_\_\_\_%, respectively, are required to be redeemed prior to maturity on October 1 in years and amounts upon payment of 100% of the principal amount thereof plus interest accrued to the redemption date, as follows:

The Term Series 2019B Subordinate Bonds maturing \_\_\_\_\_, and bearing interest at a rate of \_\_\_\_%, are subject to mandatory sinking fund redemption on each October 1 as set forth below:

Year	Amount
------	--------

\_\_\_\_\_  
 † Final Maturity

The Term Series 2019B Subordinate Bonds maturing \_\_\_\_\_, and bearing interest at a rate of \_\_\_\_%, are subject to mandatory sinking fund redemption on each October 1 as set forth below:

Year	Amount
------	--------

\_\_\_\_\_  
 † Final Maturity

If fewer than all of the Series 2019B Subordinate Bonds are called for redemption, they shall be called in such order of maturity as the Authority may determine and direct the Trustee in writing. If less than all of the Series 2019B Subordinate Bonds of any maturity date are called for redemption, the Series 2019B Subordinate Bonds to be redeemed shall be selected by DTC pursuant to its rules and procedures or, if the book-entry system is discontinued, shall be selected by the Trustee by lot in such manner as the Trustee in its discretion may determine. The portion of any Series 2019B Subordinate Bond to be redeemed shall be in the principal amount of \$5,000 or some integral multiple thereof. In selecting Series 2019B Subordinate Bonds for redemption, each Series 2019B Subordinate Bond shall be considered as representing that number of Bonds which is obtained by dividing the principal amount of such Series 2019B Subordinate Bond by \$5,000. If a portion of a Series 2019B Subordinate Bond shall be called for redemption, a new Series 2019B Subordinate Bond in principal amount equal to the unredeemed portion thereof shall be issued to the registered owner upon the surrender thereof.

If any of the Series 2019B Subordinate Bonds or portions thereof are called for redemption, the Trustee shall send notice of the call for redemption, identifying the Series 2019B Subordinate Bonds or portions thereof to be redeemed, not fewer than 30 nor more than 60 days prior to the redemption date, by facsimile, registered or certified mail or overnight express delivery, to the registered owner of each such Series 2019B Subordinate Bond. Provided funds for their redemption are on deposit at the place of payment on the redemption date, all Series 2019B Subordinate Bonds or portions thereof so called for redemption shall cease to bear interest on such date, shall no longer be secured by the Indenture and shall not be deemed to be Outstanding under the provisions of the Indenture. If a portion of the Series 2019B Subordinate Bonds shall be called for redemption, a new Series 2019B Subordinate Bond in principal amount equal to the unredeemed portion hereof will be issued to DTC or its nominee upon the surrender hereof, or if the book-entry system is discontinued, to the registered owners of the Series 2019B Subordinate Bonds.

The registered owner of this Series 2019B Subordinate Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants therein or to take any action with respect to any Event of Default or Series 2019A/B Subordinate Bond Event of Default under the Indenture or to institute, appear in or defend any suit or other proceedings with respect thereto, except as provided in the Indenture. Specifically, and without limiting the generality of the foregoing, the Series 2019B Subordinate Bonds, as Subordinate Debt, may not be accelerated if any Senior Debt is outstanding. Modifications or alterations of the Indenture, or of any supplement thereto, may be made only to the extent and in the circumstances permitted by the Indenture.

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board of Directors of the Authority or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board of Directors of the Authority nor any officer of the Authority executing the Series 2019B Subordinate Bonds shall be liable personally on the Series 2019B Subordinate Bonds or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board of Directors of the Authority or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him or her pursuant to this Series 2019B Subordinate Bond, the Twenty-Fourth

Supplemental Indenture or the Indenture or any other document authorized by the Indenture, provided such member, officer, employee, agent or advisor acts in good faith.

The Series 2019B Subordinate Bonds are issuable as registered bonds in denominations of \$5,000 and integral multiples thereof. Upon surrender for transfer or exchange of this Series 2019B Subordinate Bond at the principal corporate trust office of the Trustee, together with an assignment duly executed by the registered owner or its duly authorized attorney or legal representative in such form as shall be satisfactory to the Trustee, the Authority shall execute, and the Trustee shall authenticate and deliver in exchange, a new Series 2019B Subordinate Bond or Series 2019B Subordinate Bonds in the manner and subject to the limitations and conditions provided in the Indenture, having an equal aggregate principal amount, in authorized denominations, of the same series, form and maturity, bearing interest at the same rate and registered in the name or names as requested by the then registered owner hereof or its duly authorized attorney or legal representative. Any such exchange shall be at the expense of the Authority, except that the Trustee may charge the person requesting such exchange the amount of any tax or other governmental charge required to be paid with respect thereto.

The Trustee shall treat the registered owner as the person exclusively entitled to payment of principal, premium, if any, and interest and the exercise of all other rights and powers of the owner, except that interest payments shall be made to the person shown as owner on the fifteenth day of the month preceding each interest payment date.

All acts, conditions and things required to happen, exist or be performed precedent to and in the issuance of this Series 2019B Subordinate Bond have happened, exist and have been performed.

This Series 2019B Subordinate Bond shall not become obligatory for any purpose or be entitled to any security or benefit under the Indenture or be valid until the Trustee shall have executed the Certificate of Authentication appearing hereon and inserted the date of authentication hereon.

IN WITNESS WHEREOF, the DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY has caused this Series 2019B Subordinate Bond to be executed by the manual or facsimile signatures of the Chairman of the Board of Directors, its seal to be affixed hereto or a facsimile to be printed hereon and attested by the manual or facsimile signature of the Secretary to the Authority, and this Series 2019B Subordinate Bond to be dated [November \_\_, 2019].

ATTEST:

Secretary to the Authority

Chairman

[SEAL]

**CERTIFICATE OF AUTHENTICATION**

Date Authenticated: \_\_\_\_\_

This Series 2019B Subordinate Bond is one of the Series 2019B Subordinate Bonds described in the within mentioned Indenture.

**Wells Fargo Bank, National Association,**  
Trustee

By \_\_\_\_\_  
Authorized Officer or Employee



**ASSIGNMENT**

FOR VALUE RECEIVED the undersigned hereby sell(s), assign(s) and transfer(s) unto

\_\_\_\_\_  
\_\_\_\_\_

(please print or typewrite name and address, including zip code, of Transferee)

PLEASE INSERT SOCIAL SECURITY OR OTHER  
IDENTIFYING NUMBER OF TRANSFEREE

\_\_\_\_\_  
: :  
: :  
: :  
: :  
\_\_\_\_\_

the within Series 2019B Subordinate Bond and all rights thereunder, hereby irrevocably  
constituting \_\_\_\_\_ and \_\_\_\_\_ appointing

\_\_\_\_\_, Attorney, to transfer said Series  
2019B Subordinate Bond on the books kept for the registration thereof, with full power of  
substitution in the premises.

Dated: \_\_\_\_\_

Signature Guaranteed

\_\_\_\_\_  
NOTICE: Signature(s) must be guaranteed  
by an Eligible Guarantor Institution such  
as a Commercial Institution such as a  
Commercial Bank, Trust Company,  
Securities Broker/Dealer, Credit Union, or  
Savings Association who is a member of a  
medallion program approved by The  
Securities Transfer Association, Inc.

\_\_\_\_\_  
NOTICE: The signature above must  
correspond with the name of the registered  
owner as it appears on the front of this Series  
2019B Subordinate Bond in every particular,  
without alteration or enlargement or any  
change whatsoever.

**Presented and Adopted: September 5, 2019**  
**Subject: Authorizing the Sale and Setting Terms and Details of the**  
**Series 2019C Subordinate Bonds**

**#19-50**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

The members of the Board of Directors (“Board”) of the District of Columbia Water and Sewer Authority (“Authority”), at the Board meeting held on September 5, 2019, upon consideration of a joint use matter, decided by a vote of \_\_\_\_\_ (\_\_\_\_\_) in favor and \_\_\_\_\_ (\_\_\_\_\_) opposed, to authorize and approve the sale of the Authority’s Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C (the “Series 2019C Subordinate Bonds”) on the following terms and details.

**WHEREAS**, the Authority is authorized pursuant to the *Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996*, as amended, D.C. Code Section 34-2201.01 et seq. (the “WASA Act”), and the *District of Columbia Water and Sewer Authority Act of 1996*, Public Law 104-184; 110 Stat. 1696, to issue revenue bonds for undertakings authorized by the WASA Act, including to finance or refinance any cost, as defined in the WASA Act, D.C. Code Section 34-2202.01(2); and

**WHEREAS**, in accordance with the WASA Act, the Authority and Wells Fargo Bank, National Association, as trustee (the “Trustee”) (its predecessors in that capacity having been Norwest Bank Minnesota, N.A. and Wells Fargo Bank Minnesota, N.A.), entered into the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture” and, as supplemented and amended, the “Indenture”), to provide for financing or refinancing the acquisition, construction, operation, maintenance and extension of the System (as defined in the Master Indenture) by the issuance of bonds, notes and other obligations payable solely from Net Revenues (as such terms are defined in the Master Indenture); and

**WHEREAS**, the Authority has heretofore entered into twenty-three (23) supplemental indentures of trust with the Trustee in connection with the issuance of Senior Debt and Subordinate Debt (both as defined in the Indenture) or to amend or clarify provisions of the Master Indenture; and

**WHEREAS**, the Authority now intends (i) to issue Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C (the “Series 2019C Subordinate Bonds”) to finance certain Costs of the System, fund a Series 2019C Debt Service Reserve Requirement (as defined herein), if determined necessary, and pay certain costs of

issuance, (ii) to designate the Series 2019C Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) to secure the Series 2019C Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, there have been presented at this meeting drafts of the following documents, all as hereinafter defined: the Twenty-Fifth Supplemental Indenture, the form of the Series 2019C Subordinate Bond (attached as an Exhibit to the Twenty-Fifth Supplemental Indenture); the Bond Purchase Agreement, the Remarketing Agreement with the initial Remarketing Agent, the Official Statement and the Continuing Disclosure Agreement; and

**WHEREAS**, the CEO and General Manager, the Chief Financial Officer and Executive Vice President, Finance and Procurement, Executive Vice President Operations and Engineering, the Senior Vice President and Chief Engineer and the Interim Executive Vice President, Legal Affairs of the Authority have informed the Board that their offices have established “due diligence” procedures for reviewing the documents authorized by this Resolution with the Authority’s bond counsel, disclosure counsel, financial advisors, underwriters, underwriters’ counsel and other consultants and advisors, with a view to ensuring the accuracy of disclosure; and

**WHEREAS**, the Finance and Budget Committee met on July 25, 2019, to review the issuance of the Series 2019C Subordinate Bonds and has recommended approval of this Resolution by the Board.

**NOW THEREFORE BE IT RESOLVED THAT:**

Section 1. Definitions and Interpretations. Unless otherwise defined herein and unless the context indicates otherwise, the terms used herein and defined in the Indenture (including the Twenty-Fifth Supplemental Indenture as hereby approved) shall have the meanings assigned to them therein. In addition, the following terms used as defined terms in this Resolution shall have the meaning ascribed to them in this Section:

“Authorized Officials” means the Chairman and Vice Chairman of the Board and the CEO and General Manager, Chief Financial Officer and Executive Vice President, Finance and Procurement, Controller, Budget Director, Finance Director and Rates and Revenue Director of the Authority, including any of the foregoing who are in an interim, acting or similar capacity, provided that any official other than the Chairman shall be designated by the Chairman as his designee for the purpose of executing and delivering any document authorized hereunder.

“Bond Purchase Agreement” means the Bond Purchase Agreement between the Series 2019C Original Purchasers and the Authority dated as of the same date as the Certificate of Award.

“Certificate of Award” means the certificate of an Authorized Official awarding the Series 2019C Subordinate Bonds to the Series 2019C Original Purchasers and specifying terms of the Series 2019C Subordinate Bonds, as provided for in Section 4 of this Resolution.

“Continuing Disclosure Agreement” means the Continuing Disclosure Agreement executed by the Authority, dated as of the same date as the date of issuance and delivery of the Series 2019C Subordinate Bonds, as originally executed and as it may be amended from time to time in accordance with its terms.

“Financial Advisor” means PFM Financial Advisors LLC.

“Interest Payment Dates” means the “Interest Payment Date” as defined for the Series 2019C Subordinate Bonds in the Twenty-Fifth Supplemental Indenture.

“Remarketing Agent” means any Remarketing Agent designated for the Series 2019C Subordinate Bonds under the Twenty-Fifth Supplemental Indenture. J.P. Morgan Securities is the initial Remarketing Agent.

“Remarketing Agreement” means any Remarketing Agreement entered into for the Series 2019C Subordinate Bonds under the Twenty-Fifth Supplemental Indenture.

“Series 2019C Debt Service Reserve Requirement” means a required fund balance, if determined necessary, in the Series 2019C Debt Service Reserve Account or Accounts established under the Twenty-Fifth Supplemental Indenture, the amount of which shall be specified in the Certificate of Award, but which shall not exceed the maximum amount permitted to constitute a “reasonably required reserve or replacement fund” under Section 1.148-2(f)(2) of the Code (taking into account any moneys in any other fund or account that may be required to be included in such computation) unless the Authority furnishes to the Trustee the opinion of nationally recognized bond counsel to the effect that the required balance in the Series 2019C Debt Service Reserve Account does not exceed the amount that qualifies as a “reasonably required reserve or replacement fund” within the meaning of Section 148(d) of the Code and the Treasury Regulations thereunder and that the existence of a balance in the Series 2019C Debt Service Reserve Account in the amount of the required fund balance will not cause the interest on any Series 2019C Subordinate Bonds that had been excluded from gross income for federal income tax purposes to cease to be so.

“Series 2019C Original Purchasers” for the Series 2019C Subordinate Bonds means the purchasers identified as such in the Bond Purchase Agreement for the Series 2019C Subordinate Bonds.

“Tender Agent” means any Tender Agent designated for the Series 2019C Subordinate Bonds under the Twenty-Fifth Supplemental Indenture. The Trustee is the initial Tender Agent.

“Twenty-Fifth Supplemental Indenture” means the Twenty-Fifth Supplemental Indenture of Trust by and between the Authority and the Trustee, dated as of the same date as and relating to the Series 2019C Subordinate Bonds.

Any reference to the Authority or the Board, or to their members or officers, or to other public officers, boards, commissions, departments, institutions, agencies, bodies or entities, shall include those which succeed to their functions, duties or responsibilities by operation of law and also those who at the time may legally act in their place.

**Section 2. Authorization, Designation and Purposes of Series 2019C Subordinate Bonds.** The Authority is authorized to issue, sell and deliver, as provided in this Resolution and the Certificate of Award, not to exceed (except as provided below) One Hundred Million Dollars (\$100,000,000) principal amount of bonds of the Authority, which shall be designated “Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C” and constituting Subordinate Debt for purposes of the Indenture, for the purpose of: (i) financing certain Costs of the System,; (ii) funding a Series 2019C Debt Service Reserve Requirement, if determined necessary; and (iii) paying issuance costs of the Series 2019C Subordinate Bonds. For those purposes the proceeds from the sale of the Series 2019C Subordinate Bonds shall be allocated and deposited, as provided in the Twenty-Fifth Supplemental Indenture. If and to the extent that any Series 2019C Subordinate Bonds are issued for the purpose of funding a Series 2019C Debt Service Reserve Requirement, then the aggregate principal amount of Series 2019C Subordinate Bonds hereby authorized may exceed \$100,000,000 by the aggregate principal amount of the Series 2019C Subordinate Bonds to be issued for that purpose.

**Section 3. Terms and Provisions Applicable to Series 2019C Subordinate Bonds.**

(a) **Form, Numbering, Transfer and Exchange.** The Series 2019C Subordinate Bonds: (i) shall initially be issued only in fully registered form and substantially in the form attached as Exhibit A to the Twenty-Fifth Supplemental Indenture; (ii) shall initially be issued only to a Depository for holding in a book entry system, and shall be registered in the name of the Depository or its nominee, as Holder, and immobilized in the custody of the Depository, and (iii) shall not be transferable or exchangeable except as provided in the Twenty-Fifth Supplemental Indenture.

(b) **Denominations and Dates.** The Series 2019C Subordinate Bonds shall be dated as of the date of issuance and delivery, but in no event later than December 31, 2019, and there shall be a single Series 2019C Subordinate Bond for each maturity of the Series 2019C Subordinate Bonds bearing the same series or subseries designation as provided in the Twenty-Fifth Supplemental Indenture.

(c) **Maturities.** The principal of the Series 2019C Subordinate Bonds shall be payable in such amounts on each principal retirement date (whether at stated maturity date or a mandatory redemption date) as set forth in the Certificate of Award, provided that the final principal retirement date shall be no later than December 31, 2059.

(d) Interest Rates and Interest Rate Periods for the Series 2019C Subordinate Bonds. The Series 2019C Subordinate Bonds shall initially be issued as Long-Term Rate Bonds. The initial interest rate for the Series 2019C Subordinate Bonds will be the rate that the Series 2019C Original Purchasers determine is necessary to sell the Series 2019C Subordinate Bonds at a minimum price of ninety-eight percent (98%) of the principal amount of the Series 2019C Subordinate Bonds and subject to the Maximum Rate. The Series 2019C Subordinate Bonds initially may be issued in multiple subseries, as determined in the Certificate of Award. The provisions of Section 403 of the Twenty-Fifth Supplemental Indenture shall govern the interest rates per annum and payment terms of the Series 2019C Subordinate Bonds. After the Initial Period, the Series 2019C Subordinate Bonds may bear interest at Daily Rates, Weekly Rates, Short-Term Rates, Index Rates or Fixed Rates, or may continue to bear interest at Long-Term Rates, all determined in accordance with the Twenty-Fifth Supplemental Indenture, and shall be subject to conversion between Interest Rate Periods on the terms, in the manner, and subject to the conditions set forth in the Indenture.

(e) Tender, Purchase, Remarketing and Optional Redemption. For the purpose of effecting the provisions of the Twenty-Fifth Supplemental Indenture relating to the tender, purchase and remarketing of the Series 2019C Subordinate Bonds, the Authority shall appoint or engage the Tender Agent and Remarketing Agent at the times, in the manner, and subject to the conditions set forth in the Twenty-Fifth Supplemental Indenture. The Series 2019C Subordinate Bonds shall be subject to redemption prior to stated maturity as and to the extent provided in the Twenty-Fifth Supplemental Indenture and shall be subject from time to time to optional and mandatory tender for purchase as provided in the Twenty-Fifth Supplemental Indenture.

(f) Places and Manner of Payment, and Paying Agents. The principal and tender price of and the interest and any redemption premium on the Series 2019C Subordinate Bonds shall be payable as specified in the Twenty-Fifth Supplemental Indenture.

(g) Execution. The Authorized Officials are, and each of them is, authorized and directed to execute the Series 2019C Subordinate Bonds, and the Secretary of the Board is authorized and directed to affix the seal of the Authority to the Series 2019C Subordinate Bonds and to deliver them to the Trustee for authentication in accordance with the Indenture.

#### Section 4. Sale of Series 2019C Subordinate Bonds.

(a) General. The Series 2019C Subordinate Bonds shall be awarded and sold to the Series 2019C Original Purchasers in accordance with the Bond Purchase Agreement and the Certificate of Award, at a purchase price of not less than ninety-five percent (95%) of the aggregate of the products from multiplying the principal amount of each Series 2019C Subordinate Bond times the percentage of such principal amount at which such Series 2019C Subordinate Bond shall be initially offered to the public.

(b) Bond Purchase Agreement. The Authorized Officials are, and each of them is, authorized and directed to execute and deliver the Bond Purchase Agreement between the Authority and the Series 2019C Original Purchasers, substantially in the form presented to this Authority, but with such changes not inconsistent with the Indenture and this Resolution and not substantially adverse to the Authority as may be approved by the Authorized Official executing the same on behalf of the Authority. The approval of any such changes by such Authorized Official and the determination by such Authorized Official that no such change is substantially adverse to the Authority shall be conclusively evidenced by the execution of the Bond Purchase Agreement by such Authorized Official. The price for and terms of the Series 2019C Subordinate Bonds and the sale thereof, all as provided in this Resolution, the Bond Purchase Agreement, the Certificate of Award, and the Twenty-Fifth Supplemental Indenture, are hereby approved and determined to be in the best interests of the Authority.

(c) Certificate of Award. Such sale and award shall be further evidenced by the Certificate of Award executed by an Authorized Official. The terms of the Series 2019C Subordinate Bonds approved in the Certificate of Award shall be incorporated into the Twenty-Fifth Supplemental Indenture. The Certificate of Award, subject to the restrictions set forth herein, shall: (i) state, with respect to the Series 2019C Subordinate Bonds, the aggregate principal amount, the purchase price, the Interest Payment Dates, the principal retirement dates, the mandatory sinking fund requirements (if any), the mandatory tender date (if any), the redemption dates, and the redemption prices thereof; (ii) specify whether a municipal bond insurance policy, letter of credit, or other credit or liquidity facility shall be obtained with respect to the Series 2019C Subordinate Bonds and, if so, from whom and on what terms; (iii) specify the amount, if determined necessary, of the Series 2019C Debt Service Reserve Requirement and determine whether it shall be met entirely with (X) cash and Permitted Investments; (Y) a Qualified Reserve Credit Facility (as defined in the Twenty-Fifth Supplemental Indenture); or (Z) a specified combination of (X) and (Y); and (iv) include any additional information that may be required or permitted to be stated therein by the terms of this Resolution and the Bond Purchase Agreement. A separate Certificate of Award may be delivered for each subseries of the Series 2019C Subordinate Bonds, and each reference in this Resolution to the Certificate of Award shall refer to each and all such Certificates of Award. A separate Bond Purchase Agreement, and Continuing Disclosure Agreement may be entered into for each subseries of the Series 2019C Subordinate Bonds, and each reference in this Resolution to the Bond Purchase Agreement or to the Continuing Disclosure Agreement shall refer to each and all such Bond Purchase Agreements or Continuing Disclosure Agreements, respectively.

(d) Authorization of Bond Insurance and Qualified Reserve Credit Facilities. The submission of applications to: (i) recognized providers of municipal bond insurance requesting the issuance of one or more municipal bond insurance policies to insure the Authority's obligation to make payments of principal of and interest on the Series 2019C Subordinate Bonds, and (ii) potential providers of Qualified Reserve Credit Facilities, is hereby ratified and approved. The Authorized Officials are, and each of them is, hereby authorized to specify in the Certificate of Award that the Authority shall accept one or more commitments for insurance from such providers, and one or more commitments for

a Qualified Reserve Credit Facility. There is hereby authorized to be paid from the moneys deposited in the Series 2019C Costs of Issuance Subaccount such amount as is required to pay the premium and expenses for such insurance policies and Qualified Reserve Credit Facilities relating to the Series 2019C Subordinate Bonds. The Authorized Officials are, and each of them is, hereby further authorized to enter into a reimbursement agreement with the provider of any Qualified Reserve Credit Facility to provide for the Authority's reimbursement of the provider for any amounts drawn under the Qualified Reserve Credit Facility in a manner consistent with the Indenture. Any determination of the Authorized Officials under this paragraph shall be based on the written advice of the Financial Advisor.]

(e) Certificates. The Authorized Officials are, and each of them is, authorized and directed, in their official capacities, and only in those capacities, to execute and deliver to the Series 2019C Original Purchasers the certificates required by the Bond Purchase Agreement to be executed on behalf of the Authority.

(f) Delivery of Bonds. The Authorized Officials are, and each of them is, authorized and directed to make the necessary arrangements with the Series 2019C Original Purchasers to establish the date, location, procedure and conditions for the delivery of the Series 2019C Subordinate Bonds to the Series 2019C Original Purchasers. The Authorized Officials are, and each of them is, further authorized and directed to make the necessary arrangements for the printing of the Series 2019C Subordinate Bonds, and the execution, authentication and delivery of the Series 2019C Subordinate Bonds to DTC for the accounts of the Series 2019C Original Purchasers in accordance with this Resolution and the Indenture, and upon the receipt of payment of the purchase price, to cause such amount to be applied in accordance with the terms and provisions of this Resolution and the Indenture.

Section 5. Allocation of Proceeds of the Series 2019C Subordinate Bonds; Tax Covenants.

(a) Allocation of Proceeds of the Series 2019C Subordinate Bonds. The proceeds from the sale of the Series 2019C Subordinate Bonds, including any accrued interest, shall be allocated, deposited and credited for the purposes approved in this Resolution and as specified in the Twenty-Fifth Supplemental Indenture.

(b) Tax Covenants. The Board authorizes the Authorized Officials to approve the tax covenants, authorizations and agreements necessary to achieve and maintain the tax-exempt status of the Series 2019C Subordinate Bonds.

Section 6. Twenty-Fifth Supplemental Indenture and Other Documents. The Authorized Officials are, and each of them is, authorized in connection with the issuance of the Series 2019C Subordinate Bonds, to execute, acknowledge and deliver in the name of and on behalf of the Authority, the Twenty-Fifth Supplemental Indenture and the Remarketing Agreement with the initial Remarketing Agent, substantially in the respective forms thereof submitted to the Authority at or prior to this meeting, but with such changes therein as may be permitted by the Indenture and approved by the



Authorized Officer executing the document on behalf of the Authority. The approval of those changes shall be conclusively evidenced by the execution of the document by an Authorized Official.

The Authorized Officials and any other member, officer or employee of the Authority are each authorized to execute and deliver, on behalf of the Authority, such other certificates, documents and instruments related to the Series 2019C Subordinate Bonds as are necessary in connection with the transactions authorized in this Resolution, and to do all other things required of them or the Authority pursuant to the Indenture, the Twenty-Fifth Supplemental Indenture, the Bond Purchase Agreement and this Resolution.

Following the issuance of the Series 2019C Subordinate Bonds, if a successor Remarketing Agent is appointed by the Authority, the Authorized Officials are, and each of them is, authorized to execute, acknowledge and deliver, in the name of and on behalf of the Authority, the Remarketing Agreement with the successor Remarketing Agent in a form then determined by the Authorized Officer executing the document on behalf of the Authority to be consistent with the Indenture and this Resolution. The determination of such consistency shall be conclusively evidenced by the execution of the document by an Authorized Official.

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board nor any officer of the Authority executing the Series 2019C Subordinate Bonds shall be liable personally thereon or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him pursuant to this Resolution or the Indenture or any other document authorized by this Resolution, provided such member, officer, employee, agent or advisor acts in good faith.

Section 7. Official Statement; Continuing Disclosure. The Authorized Officials shall cause to be prepared and issued on behalf of the Authority, an official statement (the "Official Statement") relating to the original issuance of the Series 2019C Subordinate Bonds. The Authorized Officials are, and each of them is, authorized to execute the Official Statement on behalf of the Authority, which shall be in substantially the form of the Official Statement submitted to the Authority at this meeting, with such changes as the Authorized Official who executes it may approve, the execution thereof on behalf of the Authority by an Authorized Official to be conclusive evidence of such authorization and approval (including approval of any such changes), and copies thereof are hereby authorized to be prepared and furnished to the Series 2019C Original Purchasers for distribution to prospective purchasers of the Series 2019C Subordinate Bonds and other interested persons. The preliminary Official Statement shall be "deemed substantially final" by the Authority within the meaning of Rule 15c2-12 of the Securities Exchange Commission, subject to completion as provided below.

The distribution by the Authority and by the Series 2019C Original Purchasers of the preliminary Official Statement and the Official Statement, in such form and with any changes as may be approved in writing by an Authorized Official, is hereby authorized and approved.

The Authority shall make sufficient copies of the Official Statement, with any supplements, available to the Series 2019C Original Purchasers to sell book-entry interests in the Series 2019C Subordinate Bonds, and will provide copies as appropriate to the Municipal Securities Rulemaking Board through its Electronic Municipal Market Access.

The Authorized Officials are each hereby authorized to furnish such information, to execute such instruments and to take such other action in cooperation with the Series 2019C Original Purchasers as may be reasonably requested to qualify the Series 2019C Subordinate Bonds for offer and sale under the Blue Sky or other securities laws and regulations and to determine their eligibility for investment under the laws and regulations of such states and other jurisdictions of the United States of America as may be designated by the Series 2019C Original Purchasers; provided, however, that the Authority shall not be required to register as a dealer or broker in any such state or jurisdiction or become subject to the service of process in any jurisdiction in which the Authority is not now subject to such service.

The Authorized Officials are each hereby further authorized: (i) to supplement and complete the “deemed substantially final” preliminary Official Statement by affixing thereto or inserting therein information to identify the Series 2019C Original Purchasers, and to specify the final principal amount, interest rates and redemption provisions of the Series 2019C Subordinate Bonds, the price of the Series 2019C Subordinate Bonds to the general public and such other information as is necessary to supplement and complete the Official Statement with the approved and agreed upon terms of Series 2019C Subordinate Bonds, and (ii) to make such other changes to the preliminary Official Statement or the Official Statement as are, in the judgment of an Authorized Official, necessary and appropriate in order to make the preliminary Official Statement or the Official Statement not materially misleading, and to comply with applicable securities laws or otherwise to enable the Authority to fulfill its obligations regarding the preliminary Official Statement or the Official Statement under the Bond Purchase Agreement.

The Authority hereby covenants and agrees that it will comply with and carry out all of the provisions of the Continuing Disclosure Agreement. Notwithstanding any other provision of this Resolution or the Indenture, failure of the Authority to comply with the Continuing Disclosure Agreement shall not be considered an Event of Default; however, any Holder of Series 2019C Subordinate Bonds may, and the Trustee may (and, at the request of the Holders of at least 25% in aggregate principal amount of Outstanding Series 2019C Subordinate Bonds, shall) take such actions as may be necessary and appropriate, including seeking mandamus or specific performance by court order, to cause the Authority to comply with its obligations under this paragraph. The Authorized Officials are, and each of them is, hereby authorized and directed to execute and deliver the Continuing Disclosure Agreement in substantially the form submitted to the Authority

at or prior to this meeting with such changes therein as may be approved by the officer executing the Continuing Disclosure Agreement. The approval of those changes shall be conclusively evidenced by the execution of the Continuing Disclosure Agreement by an Authorized Official.

Section 8. General. The appropriate officers and employees of the Authority will do all things necessary and proper to implement and carry out the orders and agreements set forth or approved in this Resolution for the proper fulfillment of the purposes thereof. The Authority shall furnish to the Series 2019C Original Purchasers a true and certified transcript of all proceedings relating to the authorization and issuance of the Series 2019C Subordinate Bonds along with other information as is necessary or proper with respect to the Series 2019C Subordinate Bonds.

This Resolution is effective immediately.

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\_\_\_\_\_  
Secretary to the Board of Directors

**PRELIMINARY OFFICIAL STATEMENT DATED \_\_\_\_\_, 2019****NEW ISSUE – BOOK-ENTRY ONLY**RATINGS: Standard & Poor's: Moody's: Fitch: 

See "RATINGS" herein

*In the opinion of Co-Bond Counsel, under existing law (i) assuming continuing compliance with certain covenants and the accuracy of certain representations, interest on the Series 2019C Bonds is excluded from gross income for federal income tax purposes, and is not an item of tax preference for purposes of the federal alternative minimum tax, and (ii) the Series 2019C Bonds and the interest thereon are exempt from District taxation, except estate, inheritance and gift taxes. Interest on the Series 2019C Bonds may be subject to certain federal taxes imposed only on certain corporations. For a more complete discussion of the tax aspects, see "TAX MATTERS" herein.*

[DC Water Logo]

**[\$100,000,000]\***

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Multimodal Revenue Bonds,**  
**Series 2019C**

**Dated: Date of Delivery****Due: As shown on inside cover**

**Authority for Issuance.** The Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C (the "Series 2019C Bonds") are being issued by the District of Columbia Water and Sewer Authority (the "Authority," also commonly referred to as "DC Water") pursuant to a Master Indenture of Trust, dated as of April 1, 1998 (the "Master Indenture"), by and between the Authority and Wells Fargo Bank, N.A., as trustee (the "Trustee"), as amended and supplemented from time to time, including as amended and supplemented by the Twenty-Fifth Supplemental Indenture of Trust, by and between the Authority and the Trustee, dated the date of issuance and delivery of the Series 2019C Bonds (the "Twenty-Fifth Supplemental Indenture" and, together with the Master Indenture, as previously amended and supplemented, the "Indenture").

**Use of Proceeds.** The proceeds of the Series 2019C Bonds will be used to pay (i) pay a portion of the costs of certain capital improvements to the System (the "Series 2019C Project"), and (ii) pay the costs of issuing the Series 2019C Bonds.

**Denominations and Interest.** The Series 2019C Bonds will be issued initially in denominations of \$100,000 and integral multiples of \$5,000 in excess thereof and will mature in the years and amounts and accrue interest from their date of delivery at the rates set forth on the inside cover page of this Official Statement. Interest on the Series 2019C Bonds will initially bear interest at a Soft Tender Long-Term Rate during the Initial Period. Interest on the Series 2019C Bonds will be calculated on the basis of a 360-day year of twelve 30-day months, during the Initial Period, payable semi-annually on each April 1 and October 1, commencing April 1, 2020. After the Initial Period, the Series 2019C Bonds will continue to bear interest in the specified Interest Period unless and until all of the Series 2019C Bonds are converted to a different Interest Period. The applicable interest rate for the Initial Period shall be determined by J.P. Morgan Securities LLC for the Series 2019C Bonds, all in the manner described in this Official Statement.

**Book-Entry Only.** The Series 2019C Bonds will be issued in fully registered form in the name of Cede & Co., as nominee of The Depository Trust Company ("DTC") under the book-entry only system maintained by DTC or its nominee. So long as Cede & Co. is the registered owner of the Series 2019C Bonds, the principal of and premium, if any, and interest on the Series 2019C Bonds will be payable by the Trustee to DTC, which will in turn remit such payments to its participants for subsequent disbursement to beneficial owners of the Series 2019C Bonds, as more fully described herein. See APPENDIX E – "DTC Book-Entry Only System."

**Redemption.** The Series 2019C Bonds are subject to redemption prior to maturity, as more fully described herein. See "THE SERIES 2019C BONDS – Redemption Provisions."

**No Initial Liquidity Support.** During the Initial Period, the Series 2019C Bonds are not subject to the benefit of a Credit Facility provided by a third party. Accordingly, a failure by the Remarketing Agent (defined herein) to remarket the Series 2019C Bonds subject to mandatory tender on the Rate Adjustment Date (defined herein) will result in the rescission of the notice of mandatory tender with respect thereto and the Authority not having any obligation to purchase such Series 2019C Bonds at that time. The occurrence of the foregoing will not result in an event of default under the Indenture or the Series 2019C Bonds. Until such time as the Authority redeems or remarkets such Series 2019C Bonds that have not been successfully remarketed as described above, those Series 2019C Bonds shall be converted to a Weekly Rate Period and bear interest at the Penalty Rate (defined herein), calculated on the basis of a 365- or 366-day year for the actual number of days elapsed. See "THE SERIES 2019C BONDS – Conversion of Interest Modes; Mandatory Tender; Purchase of Tendered Bonds" herein.

**Remarketing and Tender Agents.** The Authority has selected J.P. Morgan Securities LLC as a Remarketing Agent (the "Remarketing Agent") to remarket the Series 2019C Bonds. The Trustee will initially be the Tender Agent (the "Tender Agent").

**Security.** The Series 2019C Bonds will be secured by a pledge of Net Revenues that will be subordinate to the pledge of Net Revenues that secures the Outstanding Senior Debt and any other Senior Debt the Authority may issue from time to time in the future, and on a parity with the pledge of Net Revenues that secures the Outstanding Subordinate Debt and any other Subordinate Debt the Authority may issue from time to time in the future, without preference, priority or distinction of any Subordinate Debt over any other Subordinate Debt, all as further described and defined herein. The Series 2019C Bonds will not be secured by a Debt Service Reserve Fund. See "SECURITY FOR THE SERIES 2019C BONDS."

**Limited Obligation.** The Series 2019C Bonds shall be special, limited obligations of the Authority payable solely from the Net Revenues of the Authority. The Series 2019C Bonds shall be without recourse to the District of Columbia (the "District"). The Series 2019C Bonds shall not be general obligations of the District or of the Authority. The Series 2019C Bonds shall not be a pledge of or involve the faith and credit or the taxing power of the District, shall not constitute a debt of the District, the United States of America or any User Jurisdiction (as defined herein) or any agency or instrumentality of any User Jurisdiction, and neither the District, the United States, any User Jurisdiction nor any agency or instrumentality of any User Jurisdiction shall be liable thereon. The Series 2019C Bonds also shall not constitute the lending of the public credit for private undertakings as prohibited by the Home Rule Act (as defined herein). The Authority has no taxing power.

The Series 2019C Bonds are offered when, as and if issued by the Authority and received by the Underwriter (as defined herein). Certain legal matters with respect to the issuance of the Series 2019C Bonds are subject to the approval of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, Co-Bond Counsel to the Authority. Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP also serve as Co-Disclosure Counsel to the Authority in connection with the preparation of this Official Statement. Certain legal matters will be passed upon for the Authority by its General Counsel and for the Underwriter by Orrick, Herrington & Sutcliffe LLP and McKenzie & Associates, Co-Underwriter's Counsel. It is expected that the Series 2019C Bonds will be available for delivery through the facilities of DTC in New York, New York on or about [\_\_\_], 2019.

**J.P. MORGAN**

*This cover page, including the inside cover page, contains certain information for quick reference only. It is not a summary of this Official Statement. Prospective purchasers must read the entire Official Statement to obtain the information essential to the making of an informed investment decision.*

Dated: [\_\_\_], 2019

\* Preliminary; subject to change.

**INITIAL INTEREST PERIOD INFORMATION**

**\$(100,000,000)\***

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds,  
Series 2019C**

Initial Interest Period Commencement	Initial Interest Period Expiration	Mandatory Tender Date <sup>1</sup>	Initial Interest Rate (%)	Initial Yield (%) <sup>2</sup>	Penalty Rate (%)	CUSIP No. <sup>3</sup>
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\* Preliminary, subject to change

<sup>1</sup> The Series 2019C Bonds have a stated maturity date of \_\_\_\_\_.

<sup>2</sup> Calculated to Mandatory Tender Date.

<sup>3</sup> CUSIP® is a registered trademark of the American Bankers Association. CUSIP Global Services (CGS) is managed on behalf of the American Bankers Association by S&P Global Market Intelligence. Copyright(c) 2019 CUSIP Global Services. All rights reserved. CUSIP® data herein is provided by CUSIP Global Services. This data is not intended to create a database and does not serve in any way as a substitute for the CGS database. CUSIP® numbers are provided for convenience of reference only. Neither the Authority nor the Underwriter or their agents or counsel are responsible for the accuracy of such numbers. No representation is made as to their correctness on the Series 2019C Bonds or as included herein. The CUSIP number for a specific maturity is subject to being changed after the issuance of the Series 2019C Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part or as a result of the procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of certain maturities of the Series 2019C Bonds.

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**District of Columbia Water and Sewer Authority**  
**1385 Canal Street, S.E.**  
**Washington, D.C. 20003**  
**(202) 787-2714**  
[www.dewater.com](http://www.dewater.com)

**Principal Board Members    Jurisdiction**

Tommy Wells, Chairman	<i>District of Columbia</i>
Randy Bartlett	<i>Fairfax County</i>
Ellen O. Boardman	<i>District of Columbia</i>
Krystal J. Brumfield	<i>District of Columbia</i>
Rachna Bhatt	<i>District of Columbia</i>
David Franco	<i>District of Columbia</i>
Floyd Holt	<i>Prince George's County</i>
Fariba Kassiri	<i>Montgomery County</i>
Adam Ortiz	<i>Montgomery County</i>
Major F. Riddick, Jr.	<i>Prince George's County</i>
Emile Thompson	<i>District of Columbia</i>

**Alternate Board Members    Jurisdiction**

Lavinia Baxter	<i>Prince George's County</i>
Kendrick Curry	<i>District of Columbia</i>
Ivan Frishberg	<i>District of Columbia</i>
Anthony Giancola	<i>District of Columbia</i>
Howard Gibbs	<i>District of Columbia</i>
Joseph Gill	<i>Prince George's County</i>
Adriana Hochber	<i>Montgomery County</i>
Sarah Motsch	<i>Fairfax County</i>
Jed Ross	<i>District of Columbia</i>
Steven Shofar	<i>Montgomery County</i>
Vacant	<i>District of Columbia</i>

**Authority Management**

<i>CEO and General Manager</i>	David Gadis
<i>Chief Financial Officer and Executive Vice President, Finance and Procurement</i>	Matthew T. Brown
<i>Executive Vice President, Operations and Engineering</i>	Biju George
<i>Chief of Staff</i>	Mustaafa Dozier
<i>Interim Executive Vice President, Legal Affairs</i>	Gregory Hope
<i>Senior Vice President and Chief Engineer</i>	Leonard R. Benson
<i>Director of DC Clean Rivers Project</i>	Carlton Ray
<i>Vice President, Wastewater Operations and Engineering</i>	Aklile Tesfaye
<i>Executive Vice President, Administration</i>	Maureen Holman

**Authority Consultants and Counsel**

<i>Co-Bond Counsel</i>	Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP
<i>Co-Disclosure Counsel</i>	Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP
<i>Financial Feasibility Consultant</i>	Amawalk Consulting Group LLC
<i>Engineering Feasibility Consultant</i>	Johnson, Mirmiran, & Thompson, Inc.
<i>Financial Advisor</i>	PFM Financial Advisors LLC

## IMPORTANT NOTICES

**No Offering May be Made Except by this Official Statement.** No dealer, broker, salesperson or other person has been authorized by the Authority or the Underwriter to give any information or to make any representations with respect to this offering, other than as contained in this Official Statement and, if given or made, such other information or representations must not be relied upon as having been authorized by the Authority or the Underwriter.

**No Unlawful Offer, Solicitation or Sale.** This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the Series 2019C Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale.

**Use of this Official Statement.** This Official Statement is provided in connection with the sale of the Series 2019C Bonds referred to herein and may not be reproduced or be used, in whole or in part, for any other purpose. This Official Statement is not to be construed as a contract or agreement among the Authority, the Underwriter and the purchasers or owners of any offered Series 2019C Bonds. This Official Statement is being provided to prospective purchasers either in bound printed form (“original bound format”) or in electronic format on the following website: [www.munios.com](http://www.munios.com). This Official Statement may be relied upon only if it is in its original bound format or if it is printed in its entirety directly from such website.

**Preparation of this Official Statement.** The information contained in this Official Statement has been derived from information provided by the Authority and other sources which are believed to be reliable. Additional information, including financial information, concerning the Authority is available from the Authority’s website. Any such information that is inconsistent with the information set forth in this Official Statement should be disregarded. The information and expressions of opinions herein are subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof. Such information and expressions of opinion are made for the purpose of providing information to prospective investors and are not to be used for any other purpose or relied on by any other party. The Underwriter have reviewed the information in this Official Statement in accordance with, and as part of, their respective responsibilities to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriter do not guarantee the accuracy or completeness of such information.

**No Registration or Approval.** The Series 2019C Bonds have not been registered with the U.S. Securities and Exchange Commission (the “SEC”) under the Securities Act of 1933, as amended, in reliance upon exceptions contained in the Act. Neither the SEC nor any other federal or state securities commission or regulatory authority has approved or disapproved of the Series 2019C Bonds or passed upon the accuracy or adequacy of this Official Statement. Any representation to the contrary is a criminal offense.

**Public Offering Prices.** In connection with this offering, the Underwriter may over allot or effect transactions which stabilize or maintain the market price of the Series 2019C Bonds at a level above that which might otherwise prevail in the open market; such stabilizing, if commenced, may be discontinued at any time.

**Forecasts and Forward-Looking Statements.** Statements contained in this Official Statement that do not reflect historical facts are forward-looking statements. Forward-looking statements can be identified by words such as “estimate,” “project,” “anticipate,” “expect,” “intend,” “believe,” “plan,” “budget,” “predict,” “may,” “should,” and similar expressions. Projections, forecasts, assumptions, expressions of opinions, estimates and other forward-looking statements are not to be construed as representations of fact and are qualified in their entirety by the cautionary statements set forth in this Official Statement. The forward-looking statements are based on various assumptions and estimates and are inherently subject to risks and uncertainties, including, but not limited to, risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in various important factors. Accordingly, actual results may vary from the projections, forecasts and estimates contained in this Official Statement and such variations may be material, which could affect the ability to fulfill some or all of the obligations under the Series 2019C Bonds. All forward-looking statements included in this Official Statement are based on information available on the date of this Official Statement, and the Authority assumes no obligation to update any such forward-looking statements.

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## OFFICIAL STATEMENT

**[\$100,000,000]\***

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds,  
Series 2019C**

### INTRODUCTION

#### General

This Official Statement, including the cover page and the appendices hereto (the “Official Statement”), is provided in connection with the issuance by the District of Columbia Water and Sewer Authority (the “Authority,” also commonly referred to as “DC Water”) of its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C in the original principal amount of \$[100,000,000]\* (the “Series 2019C Bonds”).

Capitalized terms used in this Official Statement and not otherwise defined herein shall have the meanings ascribed thereto in APPENDIX C – “Glossary and Summary of the Indenture.”

#### Authorization

The Series 2019C Bonds are being issued pursuant to the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), as amended and supplemented to the date of delivery of the Series 2019C Bonds (the “Indenture”), including by the Twenty-Fifth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Series 2019C Bonds (the “Twenty-Fifth Supplemental Indenture”), each by and between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”), and a resolution of the Authority’s Board of Directors passed at its [DATE, 2019] meeting authorizing the issuance of the Series 2019C Bonds.

The Public Utility Subordinate Lien Revenue Bonds, Series 2019A (Green Bonds) (the “Series 2019A Subordinate Bonds”) and the Public Utility Subordinate Lien Revenue Bonds, Series 2019B (the “Series 2019B Subordinate Bonds”) and, together with the Series 2019A Bonds, the “Series 2019A/B Subordinate Bonds”) are being issued at the same time as the Series 2019C Bonds pursuant to the Indenture as supplemented by the Twenty-Fourth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Series 2019A/B Subordinate Bonds (the “Twenty Fourth Supplemental Indenture”) in an amount not to exceed \$[250,000,000].

#### District of Columbia Water and Sewer Authority

The Authority is an independent authority of the District of Columbia (the “District”), which was created in April 1996 and began operating on October 1, 1996, under and pursuant to an act of the Council of the District (the “Council”), which is entitled the “Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996” (D.C. Law 11-111) (D.C. Code §§ 34-2201.01 *et seq.*), as amended and supplemented (the “Act”), and an act of the U.S. Congress entitled the “District of Columbia Water and Sewer Authority Act of 1996” (Public Law 104-184) (the “Federal Act”). The Council was authorized to adopt the Act pursuant to the authority set forth in the District of Columbia Self-Government and Governmental Reorganization Act (P.L. 93-198; 87 Stat 774; D.C. Official Code, 2006 Repl., §§ 1-201 *et. seq.*), as amended (the “Home Rule Act”). See “THE AUTHORITY.”

The Authority provides retail water and wastewater services to approximately 700,000 residents in the District and wholesale wastewater conveyance and treatment to approximately 1.6 million people in major suburban areas of Prince George’s and Montgomery Counties in Maryland and Fairfax and Loudoun Counties in Virginia (collectively, the “User Jurisdictions”). Pursuant to the Act, the District authorized the Authority to use all of the property and assets of the water distribution system (the “Water System”) and the wastewater collection, treatment and disposal system (the “Wastewater System”) and, together with the Water System, the “System”) formerly operated by the District, for as long as any revenue bonds of the Authority, including the Series 2019C Bonds, remain outstanding. In accordance with the Act, the District retains full legal title to and a complete equitable interest in the System. See “THE SYSTEM.”

The Authority’s service area consists of the District and certain areas of the User Jurisdictions and, therefore, certain demographic, economic and statistical information relating to the District and the User Jurisdictions

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\* Preliminary; subject to change.

may be relevant to prospective purchasers of the Series 2019C Bonds. The Authority makes no representation as to the accuracy or completeness of information derived from other sources.

#### **Use of the Series 2019C Bond Proceeds**

The proceeds of the Series 2019C Bonds will be used to (i) pay the costs of certain capital improvements to the System (the “Series 2019C Project”) and (ii) pay the costs of issuing the Series 2019C Bonds.

The proceeds of the Series 2019C Bonds to be used to pay the costs of the Series 2019C Project will be deposited in a segregated account of the Construction Fund established and maintained under the Indenture (the “2019C Construction Account”). Such proceeds will be invested in Permitted Investments pursuant to the Indenture. See “PLAN OF FINANCE” and “CAPITAL IMPROVEMENT PROGRAM.”

#### **Security and Source of Payment**

Under the Indenture, the Authority may issue “Senior Debt” and “Subordinate Debt” from time to time. The Series 2019C Bonds will constitute Subordinate Debt under the Indenture. The Series 2019C Bonds will be secured by a lien on and a pledge of Net Revenues that is subordinate to the pledge of Net Revenues that secures the Outstanding Senior Debt and any other Senior Debt the Authority may issue from time to time in the future, and on a parity with the pledge of Net Revenues that secures the Outstanding Subordinate Debt and any other Subordinate Debt the Authority may issue from time to time in the future, without preference, priority or distinction of any Subordinate Debt over any other Subordinate Debt.

Prior to the issuance of the Series 2019C Bonds, \$1,050,305 aggregate principal amount of Senior Debt and \$2,223,295 aggregate principal amount of Subordinate Debt will be outstanding. See “OUTSTANDING INDEBTEDNESS.”

The Series 2019C Bonds will be payable solely from Net Revenues after the funding of certain Funds and Accounts established under the Indenture. The principal sources of Net Revenues are the payments received by the Authority pursuant to its rates and charges imposed for the use of and the services furnished by the System, as described in the Indenture. See “SECURITY FOR THE SERIES 2019C BONDS – Lien and Pledge of the Master Indenture” and “RATES AND CHARGES.” The Series 2019C Bonds will not be secured by a Debt Service Reserve Fund.

**The Series 2019C Bonds shall be special and limited obligations of the Authority. The Series 2019C Bonds shall be without recourse to the District. The Series 2019C Bonds shall not be general obligations of the District or of the Authority. The Series 2019C Bonds shall not be a pledge of or involve the faith and credit or the taxing power of the District, shall not constitute a debt of the District, the United States of America or any User Jurisdiction or any agency or instrumentality of any User Jurisdiction, and neither the District, the United States, any User Jurisdiction, nor any agency or instrumentality of any User Jurisdiction shall be liable thereon. The Series 2019C Bonds also shall not constitute the lending of the public credit for private undertakings as prohibited by the Home Rule Act of the District. The Authority has no taxing power.**

#### **Concurrent Issuance of Bonds by the Authority**

Concurrently with the issuance of the Series 2019C Bonds, the Authority issued the Series 2019A/B Subordinate Bonds, in an amount of \$[ ] pursuant to the Indenture, as supplemented by the Twenty-Fourth Supplemental Indenture. The Series 2019A/B Subordinate Bonds are expected to finance (i) certain costs of the Authority’s DC Clean Rivers Project (for a description of the DC Clean Rivers Project, see “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Combined Sewer Overflow Projects”); (ii) certain costs of the System; and (iii) certain costs of issuance. The Authority expects that the Series 2019A/B Subordinate Bonds will bear interest at a fixed rate as identified in the Twenty-Fourth Supplemental Indenture. The Series 2019A/B Subordinate Bonds will be secured by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future. The issuance of the Series 2019A/B Subordinate Bonds is not dependent upon the Authority’s issuance of the Series 2019C Bonds, and such Series 2019C Bonds will be sold separately and independently from the Series 2019A/B Subordinate Bonds.

#### **Rate Covenant and Financial Forecast**

The Master Indenture includes a rate covenant as described below. Rates, fees and charges are established by the Authority and are not subject to regulatory approval, nor are they subject to other regulations under current law. In general, and as more fully described herein, the Rate Covenant provides that the Authority covenants to fix, charge, revise and collect rates, fees and other charges for the use of and the services furnished by the System sufficient in each Fiscal Year so that:

(i) Revenues collected by the Authority in such Fiscal Year will be sufficient to pay at least the actual Operating Expenses and required deposits and payments; and

(ii) Net Revenues shall be sufficient in each Fiscal Year to be at least equal to the sum of (a) an amount equal to one hundred and twenty percent (120%) of the Annual Debt Service on Senior Debt; and (b) one hundred percent (100%) of the Annual Debt Service on Subordinate Debt.

See “SECURITY FOR THE SERIES 2019C BONDS – Rate Covenant.” Additional financial information, including certain projections of revenues, disbursements and debt service coverage, is included in “FINANCIAL OPERATIONS – Projected Financial Operations” herein.

### **Capital Improvement Program**

The Authority utilizes an annually adopted ten-year Capital Improvement Program (the “Capital Improvement Program” or the “CIP”) to plan and manage the capital investments necessary to fulfill its service missions, comply with regulatory requirements and preserve and upgrade its water and wastewater systems. The Authority updates the CIP annually in conjunction with its budget process, based on detailed project review by engineering staff, external engineering consultants retained by the Authority, operations staff and senior management. The Authority intends to finance the costs of the CIP from a number of sources, including proceeds of the Series 2019C Bonds, future bonds and other forms of indebtedness, grants, certain operating revenues and wholesale customer contributions. As more fully described herein, the Authority estimates the cost of the current ten-year CIP at \$4.96 billion on a cash disbursement basis. The Board approved the CIP on April 4, 2019. See “CAPITAL IMPROVEMENT PROGRAM.”

### **Miscellaneous**

This Official Statement contains brief descriptions of the Series 2019C Bonds, the Authority, the System, the Capital Improvement Program, the Indenture and certain provisions of the Act. Such descriptions and the summaries of and references to all documents, statutes, reports and other instruments referred to herein do not purport to be comprehensive or definitive, and each such document, statute, report or instrument is qualified in its entirety by reference to each such document, statute, report or instrument, copies of which are available from the Authority. All references to the Series 2019C Bonds are qualified in their entirety by reference to the definitive forms thereof and the information with respect thereto contained in the Indenture. Insofar as any statements are made in this Official Statement involving matters of opinion, regardless of whether expressly so stated, they are intended merely as such and not as representations of fact.

The information in this Official Statement is subject to change without notice, and neither the delivery of this Official Statement, nor any sale made hereunder shall under any circumstances create an implication that there has been no change in the affairs of the Authority since the date hereof. This Official Statement is not to be construed as a contract or agreement between the Authority or the Underwriter and the purchasers or owners of any of the Series 2019C Bonds.

Inquiries regarding information about the Authority and the financial matters contained in this Official Statement may be directed to the Chief Financial Officer and Executive Vice President, Finance and Procurement of the Authority at (202) 787-2000.

## **THE SERIES 2019C BONDS**

### **General**

The Series 2019C Bonds will be dated their date of delivery and will initially bear interest at a Long-Term Rate as set forth on the inside cover page of this Official Statement. Interest on the Series 2019C Bonds will be calculated on the basis of a 360-day year of twelve 30-day months, and during the Initial Period will bear interest at a Long-Term Rate, payable semi-annually on each April 1 and October 1, commencing April 1, 2020 (each, an “Interest Payment Date”). The Series 2019C Bonds will mature on [DATE].\* The initial Long-Term Rate for the Series 2019C Bonds shall commence on the date of issuance and end on [DATE].\* The Series 2019C Bonds will not be secured by a Credit Facility during the Initial Period.

### **Conversions of Interest Modes; Mandatory Tender; Purchase of Tendered Bonds**

#### *Conversions*

The Authority, may elect to convert all or a portion of the Series 2019C Bonds from one Rate Period to another Rate Period. Any such conversion shall be subject to the provision of certain notices required by the Twenty-Fifth Supplemental Indenture and the satisfaction of certain conditions precedent. With respect to the Series 2019C Bonds, while bearing interest in a Long-Term Rate, the following conditions apply:

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\* Preliminary, subject to change.

- i. Any Credit Facility to be held by the Trustee after the Conversion Date that relates to a converted Series 2019C Bond shall be in an amount equal to the aggregate principal amount of all of the Series 2019C Bonds to which it relates, plus an amount for payment of interest equal to at least (a) 34 days' interest, plus, in the case of a Credit Facility that does not automatically reinstate coverage for interest following a draw upon the Credit Facility to pay interest on the related the Series 2019C Bonds, the number of days during which the related the Series 2019C Bonds may continue to bear interest until purchased upon mandatory tender, or (b) in the event that a rating will be maintained on the Series 2019C Bonds, then such other number of days of interest as may be required by any Rating Agency;
- ii. If the conversion is to a Fixed Rate Period, the Authority shall provide written notice of the conversion to the Remarketing Agent, in addition to the Trustee. Such notice shall also be accompanied by a Favorable Opinion of Bond Counsel required by the Twenty-Fifth Supplemental Indenture and a firm underwriting or purchase contract from a firm, which may be the Remarketing Agent, to underwrite or purchase all of the Series 2019C Bonds to be converted to a Fixed Rate Period at a price of 100% of the principal amount thereof at an agreed upon interest rate which such firm certifies is the lowest rate that will permit such Series 2019C Bonds to be sold at par, or at a discount or premium, on the first day of the Fixed Rate Period, and containing a Mandatory Sinking Fund Requirements schedule, as required by the Twenty-Fifth Supplemental Indenture. Upon receipt of such notice, the Trustee shall promptly cause the same information to be delivered to the Tender Agent, any affected Credit Facility Provider, and any Rating Agency. A conversion to a Fixed Rate Period shall not occur unless the Authority shall also file with the Trustee a Favorable Opinion of Bond Counsel relating to the conversion;
- iii. The conversion shall not occur unless the Conversion Date is a date on which the Series 2019C Bonds being converted could be redeemed without premium pursuant to the Twenty-Fifth Supplemental Indenture;
- iv. If the conversion of the Series 2019C Bonds is to a Short-Term Rate Period, (a) the Authority, at its own expense, must engage a commercial paper trustee and paying agent (the "Issuing Agent"), which may or may not be the Trustee and which shall be reasonably acceptable to the Trustee, any Credit Facility Provider and the Tender Agent, having access to the Depository's electronic money market issuing and payment system and otherwise eligible to serve as an issuing and paying agent under the Depository's policies and procedures for the issuance and payment of commercial paper; and (b) the Remarketing Agent must arrange for the execution and delivery to the Depository of its required letter of representation for the eligibility of the Series 2019C Bonds in the Short-Term Rate Period in the Depository's book-entry system and the provision of any needed CUSIP numbers; and (c) the Authority shall take all other action needed to comply with the Depository's requirements applicable to the issuance and payment of the Series 2019C Bonds while in the Short-Term Rate Period; and (d) the Authority shall enter into any amendment of the Twenty-Fifth Supplemental Indenture permitted under such Indenture that is needed to comply with the Depository's or any Rating Agency's requirements concerning the issuance and payment of the Series 2019C Bonds in the Short-Term Rate Period.

If any condition precedent to a conversion is not fulfilled, (i) the Conversion Date shall not occur; (ii) the mandatory tender for purchase, if otherwise required by the Twenty-Fifth Supplemental Indenture, shall not occur; and (iii) the Series 2019C Bonds shall continue to bear interest in the then-existing Rate Period with the length and interest rate of such Rate Period being determined pursuant to the Twenty-Fifth Supplemental Indenture. Notice of withdrawal of a conversion notice shall be given by the Authority to the Trustee, the Remarketing Agent, the Tender Agent, any Credit Facility Provider, and the Holders as provided in the Twenty-Fifth Supplemental Indenture. No failure or cancellation of conversion for failure to satisfy a condition precedent to such conversion shall constitute an Event of Default.

For a complete discussion of the conditions that must be met to convert the Series 2019C Bonds from one Rate Period to another Rate Period, see APPENDIX C – "Glossary and Summary of the Indenture."

*Tender Provisions Generally.*

The Series 2019C Bonds are not subject to optional or mandatory tender during the Initial Period. The Series 2019C Bonds are, however, subject to mandatory tender (without right of retention) after the conclusion of the Initial Period (see "Mandatory Tender" below); provided that when there exists no Credit Facility relating to the Series 2019C Bonds, which includes the Series 2019C Bonds in their Initial Period, a failure to remarket such Series 2019C Bonds subject to mandatory tender will not constitute an event of default under either the Indenture or the affected Series 2019C Bonds and, in such instance, the mandatory tender will be deemed to be rescinded until the Remarketing Agent is able to remarket or the Authority redeems the affected Series 2019C Bonds, all in accordance with the Indenture.

As stated above, the Series 2019C Bonds, during the Initial Period, are not secured by a Credit Facility provided by a third party. Accordingly, a failure by the Remarketing Agent to remarket Series 2019C Bonds subject to mandatory tender on the Rate Adjustment Date immediately after conclusion of the Initial Period will result in the rescission of the notice of mandatory tender with respect thereto and the Authority will not have any obligation to purchase such Series 2019C Bonds at that time. The occurrence of the foregoing will not result in an event of default under the Indenture or the Series 2019C Bonds. Until such time as the Authority redeems or remarkets such Series 2019C Bonds that have not been successfully remarketed as described above, such Series 2019C Bonds will be converted to a Weekly Rate Period and will bear interest at the Penalty Rate, calculated on the basis of a 365- or 366-day year for the actual number of days elapsed.

In the event that less than all of the Series 2019C Bonds are successfully remarketed on the Purchase Date, the Tender Agent (defined herein) will provide notice to DTC of the partial mandatory tender of such Series 2019C Bonds (including the principal amount of such Series 2019C Bonds that have been successfully remarketed), and the Series 2019C Bonds to be remarketed shall be selected in accordance with the arrangements between the Authority and DTC. DTC's current practice is to perform such selection by lot, in the same manner that DTC selects Series 2019C Bonds in connection with a partial redemption. See "THE SERIES 2019C BONDS — Book-Entry Only System." In the event that less than all of the Series 2019C Bonds are to be remarketed as described above and such Series 2019C Bonds are not registered in book-entry form, the Series 2019C Bonds to be remarketed shall be selected by the Tender Agent by lot or other customary random method in such manner as the Tender Agent in its discretion may deem proper. The Tender Agent will provide notice to all registered owners of such Series 2019C Bonds that were not successfully remarketed, including the Penalty Rate (which is the Penalty Rate applicable to the Series 2019C Bonds evidenced herein) that will be applicable to such Series 2019C Bonds as a result of such failed remarketing.

*Mandatory Tender.*

On the first day after the conclusion of the Initial Period (such date, a "Rate Adjustment Date"), the Series 2019C Bonds are subject to mandatory tender without right of retention (though if such Rate Adjustment Date is not a Business Day, actual tender for purchase will occur on the next Business Day thereafter). Each owner of Series 2019C Bonds will be required to tender, and in any event will be deemed to have tendered, such Series 2019C Bonds (or the applicable portion thereof) to the Tender Agent on the Rate Adjustment Date for purchase at a purchase price equal to at least 100% of the principal amount plus accrued interest, if any (payable from the limited sources of funds described below), through the conclusion of the Initial Period.

The Tender Agent is required to give notice of mandatory tender to each registered owner of the Series 2019C Bonds affected thereby by mail, first class postage prepaid, not more than 60 nor less than 30 days, while the Series 2019C Bonds are in a Long Term Rate Period (which includes the Series 2019C Bonds in their Initial Period). While the Series 2019C Bonds are registered in the name of Cede & Co., only Cede & Co. will receive such notice from the Tender Agent. See "THE SERIES 2019C BONDS — Book-Entry Only System" herein. However, beneficial owners may register to receive such information directly by contacting the Tender Agent. See "CONTINUING DISCLOSURE" herein.

In the event that the Series 2019C Bonds are not converted and remarketed to new purchasers on the Rate Adjustment Date, the Authority shall have no obligation to purchase such Series 2019C Bonds tendered on such date, the failed conversion and remarketing shall not constitute an event of default under the Indenture or the Series 2019C Bonds, the mandatory tender will be deemed to have been rescinded for that date with respect to the Series 2019C Bonds subject to such failed remarketing only, and the Series 2019C Bonds (i) will continue to be Outstanding, (ii) will be purchased upon the availability of funds to be received from the subsequent remarketing of such Series 2019C Bonds, (iii) will be converted to a Weekly Rate Period, (iv) will be subject to redemption and mandatory tender for purchase on any date during such time that the Series 2019C Bonds bear interest at the Penalty Rate (and which shall occur, at the Authority's discretion and upon delivery of at least one day's notice of such redemption or requirement of mandatory tender to the holders of the Series 2019C Bonds then bearing interest at the Penalty Rate), and (v) will be deemed to continue in the Initial Period for all other purposes of the Indenture, though bearing interest during such time in a Weekly Rate Period at the Penalty Rate until remarketed or redeemed in accordance with the terms of the Indenture. In the event of a failed conversion and remarketing as described above, the Authority has covenanted in the Indenture to cause the Series 2019C Bonds to be converted and remarketed on the earliest reasonably practicable date on which they can be sold at par, or at a discount or premium, in such Rate Period as the Authority directs, at a rate not exceeding the Maximum Rate.

*Tender Procedures.*

While the Series 2019C Bonds are all registered in the name of Cede & Co., as nominee for DTC, Bondholders shall tender the Series 2019C Bonds for purchase by giving DTC sufficient instructions to transfer beneficial ownership of such Series 2019C Bonds to the account of the Tender Agent against payment. In the event that the Book-Entry Only System herein is discontinued and registered bonds are issued, all notices and the Series 2019C Bonds are required to be delivered to the Tender Agent.

**Book-Entry Only System**

The Series 2019C Bonds will be issued in fully registered form and, when issued, will be held by DTC or its nominee, as securities depository with respect to the Series 2019C Bonds. Individual purchases of interests in the Series 2019C Bonds will be made in book-entry form only, in the principal amount of \$5,000 or any integral multiple thereof. Individual purchasers will not receive physical delivery of bond certificates. So long as Cede & Co. is the registered owner of the Series 2019C Bonds as nominee of DTC, references herein to the holders or registered owners of the Series 2019C Bonds will mean Cede & Co. and will not mean the beneficial owners (“Beneficial Owners”) of the Series 2019C Bonds. Beneficial interests in the Series 2019C Bonds may be held through DTC directly as a participant or indirectly through organizations that are participants. See APPENDIX E – “DTC Book-Entry Only System.”

As long as the Series 2019C Bonds are held by DTC or its nominee, interest will be paid to Cede & Co., as nominee of DTC, in same-day funds on each Interest Payment Date. If the book-entry only system is discontinued, bond certificates will be delivered as described in the Indenture, and Beneficial Owners (as defined herein) will become registered owners of the Series 2019C Bonds (the “Bondholders”). If the book-entry only system is discontinued, interest on the Series 2019C Bonds shall be payable on each Interest Payment Date by check or draft mailed to the registered owner at the address as it appears on the 15th day of the month preceding an Interest Payment Date on the registration books kept by the Trustee.

Neither the Authority, the Trustee nor the Underwriter will have any responsibility or obligation to the Participants, DTC or the persons for whom they act with respect to (i) the accuracy of any records maintained by DTC or by any Direct or Indirect Participant of DTC, (ii) the providing of notice or payments to the Direct Participants, Indirect Participants or beneficial owners, (iii) the selection by DTC or by any Direct or Indirect Participant of any beneficial owner to receive payment in the event of a partial redemption of the Series 2019C Bonds or (iv) any other action taken by DTC or its partnership nominee as owner of the Series 2019C Bonds. For more information on DTC and the book-entry only system, see APPENDIX E – “DTC Book-Entry Only System.”

**Redemption Provisions**

*Optional Redemption*

The Series 2019C Bonds are not subject to optional redemption during the Initial Period. The Series 2019C Bonds are subject to optional redemption, at the price of par, plus accrued but unpaid interest, on the first Interest Payment Date after the conclusion of the Initial Period.

*Mandatory Sinking Fund Redemption*

The Series 2019C Bonds are subject to mandatory sinking fund redemption by the Authority prior to their scheduled maturity at a redemption price equal to 100% of the principal amount thereof, without premium on [DATE] of the years and in the principal amounts indicated below:

Year*	Amount*
[ ]	\$[ ]
[ ]	[ ]
[ ]	[ ]
[ ]	[ ]

\* Preliminary, subject to change.

The principal amount of the Series 2019C Bonds required to be redeemed pursuant to the operation of such mandatory redemption provisions shall be reduced, at the option of the Authority, by the principal amount of any of the Series 2019C Bonds and of such stated maturity which, at least 50 days prior to the mandatory redemption date (1) shall have been defeased or acquired by the Authority and delivered to the Trustee for cancellation, (2) shall have been purchased and canceled by the Trustee at the request of the Authority with money in the Bond Fund, or (3) shall have been redeemed pursuant to the optional redemption provisions set forth herein and not theretofore credited against a mandatory redemption requirement.

*Selection of the Series 2019C Bonds to be Redeemed*

The particular maturities of the Series 2019C Bonds to be redeemed at the option of the Authority will be determined by the Authority in its sole discretion.

If less than all of a Series 2019C Bond of a maturity is called for prior redemption and if the Series 2019C Bonds are registered in book-entry only form and DTC or a successor securities depository is the sole registered

owner of such Series 2019C Bonds, the particular Series 2019C Bonds or portions thereof to be redeemed shall be selected by DTC in accordance with DTC procedures, or, if the book-entry only system is discontinued, by the Trustee by lot in such manner as the Trustee in its discretion may determine. In either case, (i) the portion of any Series 2019C Bond to be redeemed shall be in the principal amount of \$5,000 or integral multiples thereof and (ii) in selecting Series 2019C Bonds for redemption, each Series 2019C Bond shall be considered as representing that number of the Series 2019C Bonds that is obtained by dividing the principal amount of such Series 2019C Bond by \$5,000.

*Notice of Redemption*

The Authority shall not be responsible for mailing a notice of redemption to anyone other than DTC or another qualified securities depository or its nominee unless no qualified securities depository is the registered owner of the Series 2019C Bonds. If no qualified securities depository is the registered owner of the Series 2019C Bonds, a notice of redemption shall be mailed to the registered owners of the Series 2019C Bonds. See “THE SERIES 2019C BONDS – Book-Entry Only System.”

The Trustee shall send notice of the call for redemption, identifying the Series 2019C Bonds or portions thereof to be redeemed, not fewer than 20 days prior to the redemption date or such shorter period as may be acceptable to DTC while the Series 2019C Bonds are in book-entry form and registered to DTC (i) by registered or certified mail or overnight express delivery, to the holder of each Series 2019C Bond to be redeemed at the address as it appears on the registration books kept by the Trustee, (ii) by registered or certified mail or overnight express delivery, to all organizations registered as securities depositories with the SEC and (iii) to each nationally recognized municipal securities information repository designated as such by the SEC. Failure to give any notice specified in (i) above, or any defect therein, shall not affect the validity of any proceedings for the redemption of any Series 2019C Bond with respect to which no such failure or defect has occurred. Failure to give any notice specified in (ii) or (iii) above, or any defect therein, shall not affect the validity of any proceedings for the redemption of any Series 2019C Bond with respect to which the notice specified in (i) above is correctly given. If the notices of redemption are sent before there is sufficient money on deposit in the applicable fund or account to pay the full redemption price of the Series 2019C Bonds, the notice of redemption of the Series 2019C Bonds shall specify that the redemption is conditional upon there being on deposit in the applicable fund or account on the redemption date sufficient money to pay the full redemption price of the Series 2019C Bonds to be redeemed.

Any notice of redemption shall be mailed by first-class mail, postage prepaid. Notice of redemption also shall be given by Electronic Means to a Depository. A certificate of the Trustee shall conclusively establish the mailing of any such notice for all purposes.

## PLAN OF FINANCE

**Series 2019C Bonds.** A portion of the net proceeds of the Series 2019C Bonds will be used to pay the costs of the Series 2019C Project. See “CAPITAL IMPROVEMENT PROGRAM.” Such proceeds will be deposited in the 2019C Construction Account. The proceeds therein will be invested in Permitted Investments pursuant to the Indenture. The remainder of the proceeds of the Series 2019C Bonds will be used to pay costs of issuing the Series 2019C Bonds.



**SOURCES AND USES OF FUNDS**

The proceeds of the Series 2019C Bonds are expected to be applied as follows:

	<u>Series 2019C Bonds</u>
<b>Sources of Funds</b>	
Par Amount	
Original Issue Premium	
Total Sources	_____
 <b>Uses of Funds</b>	
Deposit to Series 2019C Construction Account	
Underwriter's Discount	
Other Costs of Issuance	
Total Uses	_____

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## SECURITY FOR THE SERIES 2019C BONDS

### Lien and Pledge of the Master Indenture

*General.* The Series 2019C Bonds are authorized and when issued will be issued in accordance with the statutes of the District and the United States, and will constitute valid and legally binding special and limited obligations of the Authority.

The Series 2019C Bonds will constitute Subordinate Debt under the Indenture, payable solely from the Net Revenues of the System. Net Revenues are Revenues less Operating Expenses (as defined in the Indenture). Revenues are defined as all moneys received as income, rates, fees, charges, receipts, profits and other moneys derived by the Authority from its ownership and operation of the System, and for the use of and for the services furnished by the System, including Connection Fees (as defined in the Indenture), transfers from the Rate Stabilization Fund to the Revenue Fund, proceeds of any business interruption insurance, and investment earnings on all of the funds held by the Trustee under the Indenture and the Authority, except any rebate fund that may be created under the Indenture. Revenues do not include refundable customer deposits, the IMA Capital Payments (as defined in the Indenture) or other payments solely in aid of construction, the EPA Grants or similar payments, or the proceeds resulting from the sale of all or a portion of the System.

The Series 2019C Bonds are payable and secured on a subordinate basis to the Outstanding Senior Debt and all other Senior Debt hereafter issued or incurred by the Authority pursuant to the Indenture, and on a parity basis with the Outstanding Subordinate Debt and all other Subordinate Debt hereafter issued or incurred by the Authority pursuant to the Indenture. The Authority expects to issue additional Senior Debt and Subordinate Debt in the future. For a listing of the Authority's Outstanding Senior Debt and Subordinate Debt, see "OUTSTANDING INDEBTEDNESS."

The Master Indenture defines "Senior Debt" as Bonds and Other System Indebtedness, and "Bonds" as bonds, notes or other obligations issued pursuant to the Master Indenture, but not including Other System Indebtedness and Subordinate Debt. "Other System Indebtedness" means any indebtedness issued or incurred in connection with the System that the Authority is required, or has elected, to treat as payable on a parity basis with the Bonds with respect to the pledge of Net Revenues. "Subordinate Debt" means bonds, notes or other obligations issued in connection with the System that are expected to be paid from and have pledged to their payment Net Revenues on a subordinate lien basis after the pledge of Net Revenues to Senior Debt.

The Indenture pledges to the payment of the principal of and premium, if any, and interest on all Senior Debt and Subordinate Debt (at their respective levels of priority of security) that may from time to time be outstanding: (i) all right, title and interest of the Authority in and to the Net Revenues; (ii) all moneys or securities in any of the funds or Accounts established under the Indenture (other than the Operating Fund, and all Accounts in the Construction Fund other than the Construction Account, except to the extent a specific Account or subaccount therein relates, and is pledged, solely to specific series of Bonds or Subordinate Debt); and (iii) all rights and privileges of every kind and nature appurtenant to, all proceeds of, and all right, title and claim which the Authority now or may hereafter acquire in the aforesaid property, subject only to the provisions of the Indenture and the Act relating to the use and application thereof. Furthermore, the Indenture provides for specific Accounts in the Debt Service Reserve Fund to be pledged solely to the Senior Debt to which they relate and specific Accounts in the Subordinate Debt Service Reserve Fund to be pledged solely to the Subordinate Debt to which they relate. No Account in the Subordinate Debt Service Reserve Fund will be established for the Series 2019C Bonds.

*Statutory Lien.* The Act provides that a pledge of the Authority is binding from the time it is made. Any funds, or property pledged, are subject to the lien of a pledge without physical delivery. The lien of a pledge is binding as against parties having any tort, contract, or other claim against the Authority regardless of notice. Neither the resolution stipulating the terms for sale of Authority bonds nor any other instrument creating a pledge need be recorded.

*Segregated Funds.* The Act establishes the Water and Sewer Enterprise Fund and requires the Authority to operate it in accordance with generally accepted accounting principles. The Revenue Fund created by the Master Indenture constitutes the Water and Sewer Enterprise Fund. The Revenue Fund is required to be held by the Authority, subject to the lien of the Indenture.

According to the Act, subject to the provisions made by the Authority for security of revenue bonds, all revenues, proceeds, and moneys from whatever source derived (except those collected or received from the stormwater fee) which are collected or received by the Authority will be credited to the Revenue Fund and will not, at any time, be transferred to, lapse into, or be commingled with the General Fund of the District, or any other funds or accounts of the District, except for limited circumstances under which such funds shall be transferred to the District to pay for goods and services and property contracted for by the Authority from the District, or as otherwise authorized by law.

See “THE AUTHORITY – Authority’s Relationship to the District” and “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – Stormwater Fee.”

### **Direct Payments**

*General.* The Series 2010A Bonds are Build America Bonds, a form of “direct payment bonds” issued pursuant to the American Recovery and Reinvestment Act of 2009 (the “Recovery Act”), which allowed an issuer to apply to receive subsidy payments directly from the Secretary of the United States Treasury. An amount equal to thirty-five percent (35%) of the Authority’s semiannual interest payments on the Series 2010A Bonds is to be paid to the Authority by the federal government in the form of Direct Payments.

The Direct Payments on the Series 2010A Bonds do not constitute Revenues under the Indenture and so are not part of the pledged Net Revenues, but, upon receipt, all Direct Payments are required to be deposited by the Authority or the Trustee into the appropriate subaccount in the Subordinate Interest Account in the Subordinate Bond Fund and, upon deposit, become available to be applied solely to the purposes for which the Indenture permits funds in such subaccount, account and fund to be applied, including to pay debt service on the Series 2010A Bonds.

*Rate Covenant Amendment.* On October 26, 2010, the Twelfth Supplemental Indenture amended the Master Indenture to provide that, for purposes of determining the Authority’s compliance with the Rate Covenant, the amount of any Direct Payment received by the Authority or the Trustee in any Fiscal Year shall be credited against (i) Annual Debt Service on Senior Debt in such Fiscal Year if such Direct Payment is related to Senior Debt or (ii) Annual Debt Service on Subordinate Debt in such Fiscal Year if such Direct Payment is related to Subordinate Debt. This amendment became effective upon the execution of the Twelfth Supplemental Indenture.

*Additional Bonds Test Amendment.* The Twelfth Supplemental Indenture also amended the Master Indenture to provide that, subject to the requirements of the Master Indenture for obtaining bondholder consent, for the purposes of computing Annual Debt Service on any Direct Payment BABs or Other System Indebtedness as to which Direct Payments are expected to be made (whether previously issued or proposed to be issued by the Authority) in connection with any proposed issuance of additional Bonds or Other System Indebtedness, the amount of any Direct Payment expected to be received by the Authority or the Trustee in the then current or any future Fiscal Year shall be credited against the Annual Debt Service on such Direct Payment BABs. This amendment became effective on November 20, 2014, upon the issuance of the Authority’s Series 2014C Bonds, in connection with which the Authority obtained the required consent of a majority (specifically, 50.5%) of the Holders of the Outstanding Bonds.

*No Assurances.* No assurances are provided that the Authority will receive the Direct Payments. The Direct Payments do not constitute a full faith and credit guarantee of the United States of America. Such payments are required to be paid by the United States Treasury under the Recovery Act, but the amount of any Direct Payment is subject to change by the United States Congress. The Authority is obligated to make all payments of principal and interest on the Series 2010A Bonds whether or not it receives the Direct Payments pursuant to the Recovery Act.

*Sequestration.* Direct Payments are classified under federal budget rules as mandatory spending programs. Since 2013, mandatory spending programs, such as Direct Payments, have been subject to an automatic reduction (sequestration) pursuant to the provisions of the Budget Control Act of 2011 (the “Budget Control Act”). As a result of the sequestration, payments due to the Authority on the Series 2010A Bonds have been reduced in the following approximate amounts: (i) \$248,000 (4.3%) (Fiscal Year 2013), (ii) \$411,000 (7.2%) (Fiscal Year 2014), (iii) \$417,000 (7.3%) (Fiscal Year 2015), (iv) \$400,000 (7.0%) (Fiscal Year 2016), (v) \$394,000 (6.9%) (Fiscal Year 2017), (vi) \$377,000 (6.6%) (Fiscal Year 2018), and (vii) \$354,000 (6.2%) (Fiscal Year 2019).

According to the Report of the Office of Management and Budget (“OMB”) to the Congress for Fiscal Year 2020, and as **confirmed by the Internal Revenue Service**, interest subsidy payments to issuers of direct payment bonds processed on or after October 1, 2019, through and including September 30, 2020, will be reduced by 5.9%, unless intervening Congressional action changes the reduction percentage.

Under the Budget Control Act there may be additional sequester orders for future fiscal years through and including fiscal year 2029. Any such additional sequester order signed by the President may or may not establish a different reduction value. The Authority cannot predict what percentage, if any, cuts may be made to Direct Payments in the future. The projected financial operations of the Authority, as presented herein (see “FINANCIAL OPERATIONS – Projected Financial Operations”), assume that Direct Payments will be 32% of the interest payments on Series 2010A Bonds in each year starting in Fiscal Year 2021. The projected debt service shown in “DEBT SERVICE REQUIREMENTS – Outstanding Senior and Subordinate Debt” reflects the known subsidy reduction of 5.9% for Fiscal Year 2020, and assumes Direct Payments equal to 32% of the interest payments on Series 2010A Bonds in each year starting in Fiscal Year 2021. The Authority is obligated to make all payments of principal of and interest on the Series 2010A Bonds whether or not such Direct Payments are received.

### **Limited Remedies of Holders of Subordinate Debt**

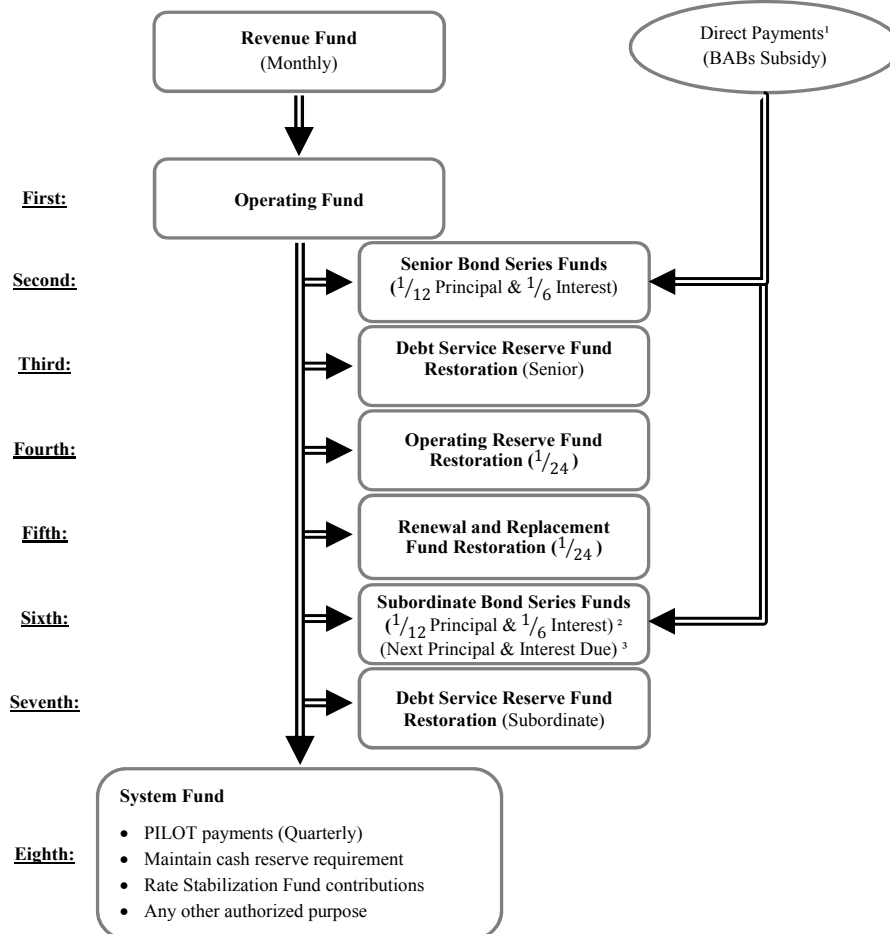
The Indenture prohibits the acceleration of Subordinate Debt if any Senior Debt (including Bonds) is outstanding. The Indenture confers upon the holders of not less than 25% of the aggregate principal amount of

Outstanding Bonds (which includes Senior Debt only, not Subordinate Debt) the right to direct the Trustee to protect and enforce their rights by mandamus or other suit, action or proceeding, and confers upon the holders of a majority of the aggregate principal amount of Outstanding Bonds the right to direct the method and place of conducting all proceedings to be taken in connection with the enforcement of the terms and conditions of the Indenture or any other proceedings under the Indenture, in accordance with the provisions of law and the Indenture. The Indenture does not confer those rights upon any specified percentage of the holders of Subordinate Debt.

**Flow of Funds**

The Authority deposits all revenues, as received, in the Revenue Fund. The chart below depicts a simplified flow of Revenues required by the Indenture after being deposited into the Revenue Fund. This chart is for illustrative purposes only, is in no way comprehensive or definitive, and must be read in conjunction with the entire Official Statement.

**Indenture Revenue Flow of Funds**



<sup>1</sup> The Twelfth Supplemental Indenture amended the above-described deposit requirements in the Master Indenture by providing that, upon receipt of any Direct Payment, the Authority or the Trustee shall cause it to be deposited (i) in the appropriate subaccounts in the Interest Account in the Bond Fund if such Direct Payment relates to Bonds or Other System Indebtedness, and (ii) in the appropriate subaccount in the Subordinate Interest Account in the Subordinate Bond Fund if such Direct Payment relates to Subordinate Debt, and shall cause it to be applied solely to the purposes to which the Indenture permits funds in such subaccount, account and fund to be applied.

<sup>2</sup>For fixed rate Subordinate Debt

<sup>3</sup>For variable rate Subordinate Debt

Pursuant to the Indenture, all Revenues received by the Authority shall be deposited in the Revenue Fund to be held by the Authority; provided, however, that upon an Event of Default, the Authority will transfer all amounts in all Authority-held funds to the Trustee, and the Trustee shall hold such moneys in trust for the benefit of the holders of Indebtedness.

Each month, the Authority shall transfer from the Revenue Fund to the Operating Fund an amount sufficient to pay Operating Expenses during such month. Thereafter, Net Revenues shall be disbursed on the last Business Day of each month in the following order (as noted above, the term “Series of Bonds” refers to Senior Debt):

- i. To the subaccounts in the Interest Account established for each Series of Bonds the amounts, if any, set forth in the applicable Supplemental Indentures with respect to each Series of Bonds, and an amount equal to 1/6 of the interest due on each Series of Bonds to pay interest required to be paid on any interest payment date related to such Series of Bonds.
- ii. On a parity with (i) above, to the subaccounts in the Principal Account established for each Series of Bonds and Sinking Fund Account in the Bond Fund the amounts, if any, set forth in the applicable Supplemental Indentures with respect to each Series of Bonds and an amount equal to 1/12 of the principal due on each Series of Bonds.
- iii. To the applicable Account in the Debt Service Reserve Fund with respect to each Series of Bonds the amounts, if any, necessary to restore the amount on deposit therein to the related Series Debt Service Reserve Requirement. For a description of the requirements for and the uses of the Debt Service Reserve Fund, see “Certain Reserve Funds – Debt Service Reserve Fund and Subordinate Debt Service Reserve Fund” below.
- iv. To the Operating Reserve Fund the amounts, if any, necessary to restore the amounts on deposit therein to the Operating Reserve Requirement, which requirement shall be funded within 24 months of any withdrawal and replenished from time to time by depositing 1/24 of the Operating Reserve Requirement on the last Business Day of each month after such withdrawal, if necessary. For a description of the requirements for and the uses of the Operating Reserve Fund, see “Certain Reserve Funds – Operating Reserve Fund” below.
- v. To the Renewal and Replacement Reserve Fund, to the extent that there has been a withdrawal from such fund, the amounts necessary to make the amounts on deposit therein equal to the Renewal and Replacement Reserve Requirement. Such withdrawn amounts shall be funded within 24 months by depositing in such fund 1/24 of the Renewal and Replacement Reserve Requirement on the last Business Day of each month after such withdrawal. For a description of the uses of the Renewal and Replacement Reserve Fund, see “Certain Reserve Funds – Renewal and Replacement Reserve Fund” below.
- vi. To the Subordinate Bond Fund, the amount equal to the deposits to such funds and Accounts required by the related Supplemental Indentures or other documents evidencing such debt. Generally, an amount equal to 1/6 of the interest and 1/12 of the principal next due on any fixed rate Subordinate Debt shall be deposited each month, and generally an amount equal to interest and principal next due on any variable rate Subordinate Debt shall be deposited prior to any date on which such interest and principal is due.
- vii. To the applicable Account, if any, in the Subordinate Debt Service Reserve Fund with respect to each Subordinate Debt issue the amounts, if any, necessary to restore the amount on deposit therein to the related Subordinate Debt Reserve Requirement or to reimburse the provider of any Qualified Reserve Credit Facility for amounts drawn thereunder and to pay related costs.
- viii. To the System Fund, any moneys remaining in the Revenue Fund, after all deposits and transfers required by (i) through (vii) above have been made. Moneys in the System Fund may be used for any authorized purpose. On the following dates, moneys on deposit in the System Fund shall be used to make the following payments:
  - (a) on each May 15, and quarterly thereafter, to the District to make the payment in lieu of taxes (the “PILOT”) required by the District Memorandum of Understanding relating to the PILOT dated January 29, 1998, as amended;

- (b) on each September 1, an amount retained by the Authority in the System Fund necessary to satisfy the Cash Reserve Requirement (\$125.5 million as of the date of this Official Statement); and
- (c) on each September 30, to the Rate Stabilization Fund, the amount that the Board determines based on an analysis of the Authority's financial performance conducted by the CEO and General Manager (the "CEO") and reported to the Board for approval not later than its regularly scheduled meeting in July of each Fiscal Year. For a description of the uses of the Rate Stabilization Fund, see "Certain Reserve Funds – Rate Stabilization Fund" below.

The Twelfth Supplemental Indenture amended the above-described deposit requirements in the Master Indenture by providing that, upon receipt of any Direct Payment, the Authority or the Trustee shall cause it to be deposited (i) in the appropriate subaccount in the Interest Account in the Bond Fund if such Direct Payment relates to Bonds or Other System Indebtedness, and (ii) in the appropriate subaccount in the Subordinate Interest Account in the Subordinate Bond Fund if such Direct Payment relates to Subordinate Debt, and shall cause it to be applied solely to the purposes to which the Indenture permits funds in such subaccount, account and fund to be applied. See "– Pledge of Master Indenture – Direct Payments – Sequestration" above.

For a more extensive discussion of the terms and provisions of the Indenture including the security for the Series 2019C Bonds, the funds and Accounts established by the Indenture and the purposes to which moneys in such funds and Accounts may be applied, see APPENDIX C – "Glossary and Summary of the Indenture."

#### **Certain Reserve Funds**

*Debt Service Reserve Fund and Subordinate Debt Service Reserve Fund.* The Indenture creates a Debt Service Reserve Fund and a Subordinate Debt Service Reserve Fund, each to be held by the Trustee. The Indenture permits, but does not require, the Authority to specify a debt service reserve requirement for each issuance of Senior Debt or Subordinate Debt and to make provision for the means by which any such reserve requirements will be met. The Authority will not specify a debt service reserve requirement for the Series 2019C Bonds.

*Operating Reserve Fund.* The Master Indenture creates an Operating Reserve Fund in which the Authority must maintain a balance equal to at least 60 days of operating and maintenance expenses of the prior year. Money in the Operating Reserve Fund shall be used to pay, to the extent necessary, Operating Expenses of the Authority. In addition, to the extent that the amount on deposit in the Bond Fund is insufficient to make the required interest and principal payments on Senior Debt, money in the Operating Reserve Fund shall be used prior to any withdrawal from the Debt Service Reserve Fund to satisfy any such deficiencies. The Board has adopted a policy of funding operating reserves to a level in excess of that required by the Master Indenture. See "– Discretionary Reserves" below. As of March 31, 2019 the balance in the Operating Reserve Fund was \$54.0 million, which represents 60 days of operating and maintenance expenses.

*Renewal and Replacement Reserve Fund.* The Master Indenture creates a Renewal and Replacement Reserve Fund to be held by the Authority to provide funding for unforeseen or emergency needs. Money in the Renewal and Replacement Reserve Fund may be used to pay for any capital expenditures related to the System. In addition, to the extent that the amounts on deposit in the Bond Fund and the Operating Reserve Fund are insufficient to make the required interest and principal payments on Senior Debt, money in the Renewal and Replacement Reserve Fund shall be used prior to any withdrawal from the Debt Service Reserve Fund to satisfy any such deficiencies. The Master Indenture allows this requirement to be met if an amount equal to 2% of the original cost value of plant in service, or some other amount as approved by the Board, is held by the Authority. The Board has adopted a policy requiring the Authority to maintain a balance of at least \$35.0 million in the Renewal and Replacement Reserve Fund. As of March 31, 2019, the balance in the Renewal and Replacement Reserve Fund was \$35.0 million.

*Rate Stabilization Fund.* The Master Indenture creates a Rate Stabilization Fund to be held by the Authority, the moneys in which may be transferred by the Authority to the Revenue Fund at any time. The Board has adopted a policy allowing moneys to be transferred to the Rate Stabilization Fund from the System Fund annually based on an analysis of the Authority's financial performance conducted by the CEO or designee and reported to the Board for approval during the fourth quarter of each Fiscal Year, and at other times at the direction of the Board. As of March 31, 2019, the balance in the Rate Stabilization Fund was \$61.5 million. The Authority may withdraw funds from the Rate Stabilization Fund in the future to reduce rate increases that might otherwise be required. See "FINANCIAL OPERATIONS – Reserve Funds – Rate Stabilization Fund" and "FINANCIAL OPERATIONS – Projected Financial Operations."

*Discretionary Reserves.* The Board has adopted a policy of funding operating reserves at a level in excess of the 60-day operating and maintenance reserve required by the Master Indenture. To comply with the Board's policy, the Authority is required to have cash reserves equal to 120 days of budgeted operating and maintenance costs calculated on an average daily balance basis, with the objective of maintaining at least \$125.5 million in operating

reserves. For purposes of calculating this requirement, the balances in the Operating Reserve Fund and the Renewal and Replacement Reserve Fund are included. For Fiscal Year 2019, the operating reserves requirement is \$125.5 million. As of March 31, 2019, the Authority had an operating reserve cash balance of \$166.3 million which exceeded the Board's policy requirement.

Pursuant to Board policy, the Authority's reserves are independently evaluated every five years. In February 2018, Amawalk independently evaluated the adequacy of the Authority's reserves and concluded that current Board policy provides for an appropriate level of reserves. Amawalk recommended that the Board may wish to amend its current policy to require the higher of \$140.0 million or 140 days of operating reserves to be consistent with the projected reserve balances in the Authority's Financial Plan. In January 2019, Authority staff recommended to further enhance the Authority's cash position and maintain a target of 250 days of cash on hand. As of March 31, 2019, there were no material differences in the balances shown above for the preceding reserve funds and the Rate Stabilization Fund.

### **Rate Covenant**

*Master Indenture Covenant.* The Master Indenture includes a rate covenant (the "Rate Covenant") as described below. Rates, fees and charges are established by the Authority and are not subject to regulatory approval, nor are they subject to other regulations under current law. (For a description of the pledge of the District not to limit or alter rights vested in the Authority to fulfill agreements made with holders of its bonds, see "COVENANT BY THE DISTRICT OF COLUMBIA.") The Authority has never failed to satisfy the Rate Covenant, which provides that the Authority shall fix, charge, revise and collect rates, fees and other charges for the use of and the services furnished by the System sufficient in each Fiscal Year so that:

- i. Revenues collected by the Authority in such Fiscal Year will be sufficient to pay at least: (a) the actual Operating Expenses; (b) Annual Debt Service on Senior Debt; (c) any amount necessary to be deposited in any Account in the Debt Service Reserve Fund relating to a Series of Bonds to restore the amount on deposit therein to the Series Debt Service Reserve Requirement; (d) the amount required to pay Annual Debt Service on the Subordinate Debt (including any reserves in connection therewith and the restoration thereof); (e) any amount necessary to be deposited in the Operating Reserve Fund and the Renewal and Replacement Reserve Fund to maintain the required balances therein; and (f) any amount necessary to make any PILOT payments in such Fiscal Year; and
- ii. Net Revenues shall be sufficient in each Fiscal Year to be at least equal to the sum of (a) an amount equal to one hundred and twenty percent (120%) of the Annual Debt Service on Senior Debt; and (b) one hundred percent (100%) of the Annual Debt Service on Subordinate Debt.

If at the end of any Fiscal Year the Authority is not in compliance with the Rate Covenant, or if the Authority fails for three consecutive months to make the deposits required under the Indenture to the Interest Account and the Principal Account (or the Sinking Fund Account, as applicable) or there is a deficiency in a Series Debt Service Reserve Account for longer than three consecutive months, the Authority shall immediately request a Qualified Independent Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the System and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant. The report and recommendations shall be filed with the Trustee and the Authority within 120 days from the date of discovery of noncompliance with the Rate Covenant. The Authority shall promptly revise its rates, fees and charges, and alter its operations and services to conform with the report and recommendations of the Qualified Independent Consultant to the extent permitted by law.

*Deposit and Crediting of Direct Payments.* The Twelfth Supplemental Indenture amended the Master Indenture to provide that, for purposes of determining the Authority's compliance with the Rate Covenant, the amount of any Direct Payment received by the Authority or the Trustee in any Fiscal Year shall be credited against (i) Annual Debt Service on Senior Debt in such Fiscal Year if such Direct Payment related to Senior Debt or (ii) Annual Debt Service on Subordinate Debt in such Fiscal Year if such Direct Payment related to Subordinate Debt. This amendment became effective upon the execution of the Twelfth Supplemental Indenture. See "SECURITY FOR THE SERIES 2019C BONDS – Direct Payment Bonds – Sequestration."

*Additional Board Policy.* In addition to the Rate Covenant described above, in 1997, the Board adopted a financial policy of fixing, charging, revising and collecting rates, fees and other charges for the use of and the services furnished by the System sufficient in each Fiscal Year so that Net Revenues shall be at least equal to one hundred and forty percent (140%) of the Annual Debt Service on Senior Debt in each such Fiscal Year. See "FINANCIAL OPERATIONS – Financial Policies." To date, the Authority consistently has met or exceeded this policy goal. There can be no assurance, however, that the Board will not change this financial policy or that the Authority will continue to meet this policy goal.

### **Additional Senior Debt**

The Indenture provides that the Authority may issue additional Senior Debt and Other System Indebtedness, including Bonds, to pay Costs of the System only upon satisfaction of certain requirements, including, among other things, receipt by the Trustee of the following:

- i. evidence that upon issuance of such Bonds, each Series Debt Service Reserve Account within the Debt Service Reserve Fund will contain the applicable Series Debt Service Reserve Requirement; and
- ii. either: (a) a certificate of the Authorized Representative of the Authority stating that, based on the Authority's financial records, the Authority would have been able to meet the Rate Covenant taking into account (1) the maximum Annual Debt Service on the proposed additional Series of Bonds, and (2) the rates, fees and other charges which are in effect at the time of the delivery of the proposed additional Series of Bonds; or (b) a written statement of a Qualified Independent Consultant, which projects Operating Expenses, Revenues and Net Revenues for five full Fiscal Years following the date of issuance of such proposed additional Series of Bonds, which projection does not include the actual debt service for any Indebtedness to be refunded, and which demonstrates that, on the basis of such projection, the Authority can comply with the Rate Covenant.

If any Bonds are issued to refund any Indebtedness, the Trustee must receive the following:

- i. evidence that the Authority has made provision as required by the Indenture for the payment or redemption of all Indebtedness to be refunded; and
- ii. either: (a) a written determination by the Authorized Representative of the Authority that the Annual Debt Service requirements for each Fiscal Year in which there will be Outstanding Indebtedness not to be refunded will not increase more than 5% over what the Annual Debt Service requirements for such Fiscal Year would have been on all Senior Debt immediately prior to the issuance of such Bonds, and that the final maturity of Indebtedness being refunded has not been extended; or (b) a certificate of the Authority stating that, based on the Authority's financial records, the Authority would have been able to meet the Rate Covenant, taking into account (1) the maximum Annual Debt Service on the proposed additional Series of Bonds, and (2) the rates, fees and other charges which are in effect at the time of the delivery of the proposed additional Series of Bonds; or (c) a written statement of a Qualified Independent Consultant, that projects Operating Expenses, Revenues and Net Revenues for five full Fiscal Years following the date of issuance of such proposed additional Series of Bonds, which projection does not include the actual debt service for any Indebtedness to be refunded, and that demonstrates that, on the basis of such projection, the Authority can comply with the Rate Covenant.

The Authority may incur or refinance Other System Indebtedness provided that: (i) the documents relating to the Other System Indebtedness acknowledge that such debt constitutes Other System Indebtedness under the Master Indenture and is subject to the applicable terms and conditions thereof, and specify the amounts and due dates of Annual Debt Service with respect to the Other System Indebtedness; (ii) the conditions of the Master Indenture regarding the issuance of Bonds have been met as if the Other System Indebtedness was an additional Series of Bonds; (iii) the Trustee receives written notice of the issuance of the Other System Indebtedness and the material terms and conditions thereof, and the Trustee shall register the holder as owner thereof as such on its books and records; and (iv) the Trustee receives an Opinion of Counsel that the documents creating the Other System Indebtedness have been duly authorized, executed and delivered on behalf of the Authority and constitute valid, binding and enforceable obligations. In connection with the incurrence of any Other System Indebtedness, the Trustee shall enter into an intercreditor arrangement with the holder of such Other System Indebtedness, the terms of which shall be determined at the time of incurrence of such Other System Indebtedness.

The Master Indenture was amended with bondholder consent to include provisions regarding the crediting of Direct Payments for the purposes of computing Annual Debt Service on any Direct Payment BABs or Other System Indebtedness as to which Direct Payments are expected to be made in connection with any proposed issuance of additional Bonds or Other System Indebtedness. See "SECURITY FOR THE SERIES 2019C BONDS – Direct Payments – Sequestration."

### **Additional Subordinate Debt**

Under the Indenture, the Authority may at any time issue Subordinate Debt and pledge Net Revenues thereto so long as rates, fees and charges are in effect or scheduled to go into effect to meet the Rate Covenant immediately after the issuance of such Subordinate Debt. The Authority has modified the Master Indenture to include provisions regarding the crediting of Direct Payments for the purposes of computing Annual Debt Service on any



Direct Payment BABs or other Indebtedness as to which Direct Payments are expected to be made in connection with any proposed issuance of additional Bonds, Subordinate Debt or Other System Indebtedness. See “SECURITY FOR THE SERIES 2019C BONDS – Direct Payments – Sequestration.”

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**DEBT SERVICE REQUIREMENTS**

**Outstanding Senior and Subordinate Debt**

The following tables set forth the annual principal and interest requirements for (i) Outstanding Senior Debt, (ii) Outstanding Subordinate Debt, (iii) the Series 2019A/B Bonds and (iv) the Series 2019C Subordinate Bonds, as well as annual and aggregate totals.

Fiscal Year Ending September 30 <sup>1</sup>	Outstanding Subordinate Debt	Series 2019A/B Bonds			Series 2019C Subordinate Bonds <sup>1,5</sup>	Total Outstanding Subordinate Debt <sup>1,2,3,4,5,6,7</sup>	Direct payments Relating to Series 2010A Bonds	Total Subordinate Debt <sup>10</sup>	Outstanding Senior Debt	Total Senior and Subordinate Debt
		Principal	Interest	Total						
2020	130,988,118			1,805,556	132,793,674	(5,373,250)	127,420,424	76,385,100	203,805,524	
2021	136,707,080			2,000,000	138,707,080	(5,161,933)	133,545,147	76,386,225	209,931,372	
2022	137,362,379			2,000,000	139,362,379	(5,099,176)	134,263,203	76,385,850	210,649,053	
2023	137,289,675			2,000,000	139,289,675	(5,033,083)	134,256,593	76,395,200	210,651,793	
2024	152,473,365			2,000,000	154,473,365	(4,963,430)	149,509,935	61,134,725	210,644,660	
2025	152,378,341			3,250,000	155,628,341	(4,878,673)	150,749,667	61,134,950	211,884,617	
2026	152,282,487			3,250,000	155,532,487	(4,791,835)	150,740,652	61,133,200	211,873,852	
2027	152,183,426			3,250,000	155,433,426	(4,702,827)	150,730,599	61,137,400	211,867,999	
2028	152,095,687			3,250,000	155,345,687	(4,611,477)	150,734,210	61,134,950	211,869,160	
2029	159,633,009			3,250,000	162,883,009	(4,426,435)	158,456,574	53,018,750	211,475,324	
2030	159,423,544			3,250,000	162,673,544	(4,232,061)	158,441,483	50,157,500	208,598,983	
2031	159,076,435			3,250,000	162,326,435	(4,034,152)	158,292,282	49,849,750	208,142,032	
2032	158,990,243			3,250,000	162,240,243	(3,830,589)	158,409,653	53,363,500	211,773,153	
2033	158,759,204			3,250,000	162,009,204	(3,618,456)	158,390,748	53,022,250	211,412,998	
2034	160,238,264			3,250,000	163,488,264	(3,399,962)	160,088,302	53,023,750	213,112,052	
2035	159,995,850			3,250,000	163,245,850	(3,174,929)	160,070,921	53,020,000	213,090,921	
2036	160,033,895			3,250,000	163,283,895	(2,944,242)	160,339,653	53,024,500	213,364,153	
2037	147,913,487			3,250,000	151,163,487	(2,705,427)	148,458,060	55,525,000	203,983,060	
2038	146,594,099			3,250,000	149,844,099	(2,459,985)	147,384,114	52,574,750	199,958,864	
2039	146,030,490			3,250,000	149,280,490	(2,207,298)	147,073,192	51,263,000	198,336,192	
2040	147,172,963			3,250,000	150,422,963	(1,948,692)	148,474,271	51,257,750	199,732,021	
2041	138,698,608			3,250,000	141,948,608	(971,165)	140,977,442	55,319,750	196,297,192	
2042	140,395,952			3,250,000	143,645,952	(741,097)	142,904,855	55,316,450	198,221,305	
2043	146,507,434			3,250,000	149,757,434	(502,723)	149,254,711	55,312,700	204,567,411	
2044	146,170,915			3,250,000	149,420,915	(255,779)	149,165,136	55,321,450	204,486,586	
2045	74,090,504			3,250,000	77,340,504	-	77,340,504	64,570,000	141,910,504	
2046	49,159,025			3,250,000	52,409,025	-	52,409,025	64,569,550	116,978,575	
2047	42,708,762			3,250,000	45,958,762	-	45,958,762	64,569,300	110,528,062	
2048	42,708,463			3,250,000	45,958,463	-	45,958,463	60,525,500	106,483,963	
2049	14,507,998			3,250,000	17,757,998	-	17,757,998	60,524,000	78,281,998	
2050	11,873,750			23,250,000	35,123,750	-	35,123,750	30,502,750	65,626,500	
2051	-			22,600,000	22,600,000	-	22,600,000	30,498,000	53,098,000	
2052	-			21,950,000	21,950,000	-	21,950,000	30,499,000	52,449,000	
2053	-			21,300,000	21,300,000	-	21,300,000	16,849,000	38,149,000	
2054	-			20,650,000	20,650,000	-	20,650,000	16,849,000	37,499,000	
2055-2014 <sup>8</sup>	-			-	-	-	-	16,849,000	16,849,000	
2105	-			-	-	-	-	44,918,000	44,918,000	
2106	-			-	-	-	-	44,917,758	44,917,758	
2107	-			-	-	-	-	44,918,480	44,918,480	
2108	-			-	-	-	-	44,917,986	44,917,986	
2109	-			-	-	-	-	44,918,053	44,918,053	
2110	-			-	-	-	-	44,918,215	44,918,215	
2111	-			-	-	-	-	44,917,860	44,917,860	
2112	-			-	-	-	-	44,918,233	44,918,233	
2113	-			-	-	-	-	44,918,340	44,918,340	
2114	-			-	-	-	-	44,918,040	44,918,040	
<b>Total<sup>9</sup></b>	<b>\$3,974,443,450</b>			<b>\$200,805,556</b>	<b>\$4,175,249,006</b>	<b>\$(86,068,676)</b>	<b>\$4,089,180,330</b>	<b>\$3,193,185,515</b>	<b>\$7,282,365,845</b>	

\* Certain totals may not add due to rounding. Data shown as of date of posting.

DC Water Board of Directors - X. Consent Items (Joint Use)

<sup>1</sup> Amounts due October 1 are shown as debt service for the preceding Fiscal Year ending September 30 (since the amounts actually are required to be set aside in such Fiscal Year). For example, debt service payments due October 1, 2020, are shown in the Fiscal Year ending September 30, 2020.

<sup>2</sup> Outstanding Subordinate Debt is calculated excluding the impact of Direct Payments related to the Series 2010A Bonds. See “SECURITY FOR THE SERIES 2019C BONDS – Direct Payments – Sequestration.”

<sup>3</sup> Interest on Series 2016B Bonds (Environmental Impact Bonds) is calculated through the mandatory tender date of April 1, 2021 at the fixed term rate of 3.43%, and at an assumed rate of 3.25% thereafter through final maturity.

<sup>4</sup> The Authority currently has \$29.2 million of Commercial Paper outstanding, all of which is assumed to remain outstanding upon issuance of the Series 2019C Bonds. Debt service is based on a hypothetical amortization of \$29.2 million of Commercial Paper over 20 years with an assumed interest rate of 3.25%.

<sup>5</sup> Includes the Authority's Debt Service requirements for Government Notes associated with Jennings Randolph.

<sup>6</sup> Series 2014B Bonds are weekly-reset variable rate bonds payable through a Liquidity Facility provided by TD Bank, N.A., which expires on July 23, 2020. For calculation of the projected debt service requirement, the all-inclusive rate was assumed to be 2.00% in 2020, 2.50% in 2021 and 3.25% thereafter. The debt is assumed to amortize in Fiscal Year 2041 – Fiscal Year 2050.

<sup>7</sup> The Authority currently has \$50.0 million of Extendable Maturity Commercial Paper outstanding. Debt service is based on a hypothetical amortization of 30 years with an assumed interest rate of 3.25%.

<sup>8</sup> Amounts shown for Fiscal Year 2055 – Fiscal Year 2104 are annual totals for each fiscal year and do not represent the cumulative total.

<sup>9</sup> Amounts represent cumulative totals for all fiscal years shown. Totals from consolidated rows are included.

<sup>10</sup> Total Subordinate Debt is calculated including the impact of Direct Payments related to the Series 2010A Bonds. With respect to the effect of sequestration on the receipt by the Authority of Direct Payments on its Series 2010A Bonds, a reduction of 5.9% was applied to 2020. Thereafter, the subsidy amount is assumed to be 32% of the interest payments. See “SECURITY FOR THE SERIES 2019C BONDS – Amendment of the Master Indenture” and for a discussion of the effect of sequestration on the Direct Payments to be received by the Authority, see “SECURITY FOR THE SERIES 2019C BONDS – Direct Payments - Sequestration.”

<sup>11</sup> Series 2019C Subordinate Bonds anticipated to be issued by November 6, 2019; Assumes \$100.0 million in proceeds issued at par with an equal principal structure from 10/1/2050 - 10/1/2054; Assumed initial rate of 2.00% through the assumed mandatory tender date of 10/1/2024 and then assumed 3.25% thereafter.

Source: Authority records.

**List of Outstanding Indebtedness**

The Authority's indebtedness as of the date of this Official Statement is set forth in Table 1 below. For a summary of the annual debt service payments for the Authority's existing indebtedness, see "FINANCIAL OPERATIONS – Debt Service."

**Table 1. Outstanding Indebtedness**  
(**\$ in thousands**)

	Original Principal Amount	Interest Rates	Final Maturity	Amount Outstanding as of 10/1/2019 <sup>1</sup>
<b>Senior Debt</b>				
Series 1998 Bonds	\$266,120	5.50%	2028	\$109,870
Series 2014A Bonds	350,000	4.81	2114	350,000
Series 2017A Bonds	100,000	4.00-5.00	2052	100,000
Series 2017B Bonds	200,000	4.00-5.00	2044	193,760
Series 2018A Bonds	100,000	5.00	2049	100,000
Series 2018B Bonds	200,000	5.00	2049	196,675
Total Senior Debt				\$1,050,305
<b>Subordinate Debt</b>				
<i>Subordinate Bonds</i>				
Series 2010A Bonds	300,000	4.07-5.52 <sup>2</sup>	2044	300,000
Series 2012A Bonds	177,430	4.00-5.00	2037	142,665
Series 2012C Bonds	163,215	4.00-5.00	2033	163,215
Series 2013A Bonds	300,000	4.75-5.00	2048	300,000
Series 2014B Bonds	100,000	VR <sup>3</sup>	2050	100,000
Series 2014C Bonds	377,700	3.00-5.00	2044	376,580
Series 2015A Bonds	100,000	2.00-5.00	2045	97,420
Series 2015B Bonds	250,000	5.00-5.25	2044	250,000
Series 2016A Bonds	389,110	5.00-5.25	2039	377,575
Series 2016B Bonds (Environmental Impact Bonds)	25,000	3.43 <sup>4</sup>	2046	25,000
<i>Government Notes</i>				
Jennings Randolph Reservoir Debt	\$18,269	3.25%	2041	\$11,640
<i>Commercial Paper Notes<sup>5</sup></i>				
Series C CP Notes (taxable)	\$29,200 <sup>6</sup>	VR	2020 <sup>7</sup>	\$29,200
<i>Extendable Municipal Commercial Paper Notes</i>				
Series A EMCP Notes	\$50,000 <sup>8</sup>	VR	N/A <sup>9</sup>	\$50,000
Total Subordinate Debt				\$2,223,295
<b>Total</b>				<b>\$3,273,600</b>

<sup>1</sup> Amounts outstanding do not reflect any amortization of accrued principal.

<sup>2</sup> Taking into account the Direct Payment subsidy, the Series 2010A Bonds had an all-in-true interest cost of 3.6%. With respect to the effect of sequestration on the receipt by the Authority of Direct Payments on its Series 2010A Bonds, see "SECURITY FOR THE SERIES 2019C BONDS – Direct Payments – Sequestration."

<sup>3</sup> The Series 2014B Bonds are weekly-reset variable rate bonds supported by a Liquidity Facility provided by TD Bank, N.A.

<sup>4</sup> Interest on Series 2016B Bonds (Environmental Impact Bonds) is calculated through the mandatory tender date of April 1, 2021 at the fixed term rate of 3.43%, and at an assumed rate of 3.25% thereafter through final maturity.

<sup>5</sup> Maximum amount authorized for the CP Notes (Series B CP Notes and Series C CP Notes) is \$150 million; the CP Notes are supported by a Letter of Credit provided by Landesbank Hesse-Thüringen Girozentrale; the Series A CP Notes are not currently authorized for issuance.

<sup>6</sup> Maximum amount authorized to be outstanding at any one time for the Series C CP Notes is \$50 million.

<sup>7</sup> Final maturity of the CP Notes reflects expiration of current credit facility.

<sup>8</sup> Maximum amount authorized to be outstanding at any one time for the Series A EMCP Notes is \$100 million.

<sup>9</sup> The Series A EMCP notes are placed for an original maturity date not to exceed 90 days. At their original maturity date, the EMCP notes may be repaid, remarketed and resold as new Series A EMCP notes, or extended at the option of the Authority to an extended maturity date not greater than 270 days from their initial issuance. Should the Series A EMCP Notes be remarketed and resold, upon such resale the Series A EMCP Notes will mature on such date or dates as provided in the terms of the remarketing and resale (up to a maximum original maturity date of 90 days and a maximum extended maturity date of 270 days).

Source: Authority records.

### Outstanding Senior Debt

As indicated in Table 1, as of October 1, 2019, the Authority had Senior Debt outstanding in the aggregate principal amount of \$1,050,305,000 consisting of its Public Utility Senior Lien Revenue Bonds, Series 1998 (the “Series 1998 Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2014A (Federally Taxable) (Green Bonds) (the “Series 2014A Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2017A (Green Bonds) (the “Series 2017A Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2017B (the “Series 2017B Senior Bonds”), its Public Utility Senior Lien Revenue Bonds, Series 2018A (Green Bonds) (the “Series 2018A Senior Bonds”) and its Public Utility Senior Lien Revenue Bonds, Series 2018B (the “Series 2018B Senior Bonds”). The Authority expects to issue additional Senior Debt in the future to finance capital improvements to the System. See “CAPITAL IMPROVEMENT PROGRAM.”

### Outstanding Subordinate Debt

The Subordinate Debt summarized in Table 1 consists of the following categories of outstanding debt: (i) Subordinate bonds (including Environmental Impact Bonds); (ii) Government Notes; (iii) Commercial Paper Notes; and (iv) Extendable Municipal Commercial Paper Notes (the “EMCP Notes”). As of October 1, 2019, the Authority had Subordinate Debt outstanding in the aggregate principal amount of \$2,223,295,266.

*Subordinate Bonds.* As of October 1, 2019, \$2,132,455,000 of Subordinate bonds was outstanding, consisting of its Public Utility Subordinate Lien Revenue Bonds of various series listed in Table 1. The Authority expects to issue additional Subordinate bonds in the future to finance capital improvements to the System. See “CAPITAL IMPROVEMENT PROGRAM.”

*Environmental Impact Bonds.* On September 29, 2016, the Authority issued \$25 million of tax-exempt Public Utility Subordinate Lien Revenue Bonds, Series 2016B (Environmental Impact Bonds) (the “Series 2016B Bonds”). The Series 2016B Bonds are multimodal variable rate bonds, initially issued bearing a 3.43% fixed rate through the mandatory tender date, April 1, 2021. The Series 2016B Bonds are the Authority’s first environmental impact bonds to finance green infrastructure. The Series 2016B Bonds are designated as environmental impact bonds and, as such, include provisions for the possibility of an outcome payment by the Authority to the original purchasers of the Series 2016B Bonds, and for the possibility of a risk share payment by such original purchasers to the Authority depending upon the results achieved by the green infrastructure financed with the proceeds of the Series 2016B Bonds. The potential outcome payment by the Authority is an unsecured obligation and is estimated to be \$3.3 million, due in Fiscal Year 2021. The net proceeds of the issuance are being used for construction of green infrastructure for the Rock Creek Project A (RC-A). The green infrastructure is designed to mimic natural processes to absorb and slow surges of stormwater during periods of heavy rainfall, reducing the incidence and volume of combined sewer overflows that pollute the District’s waterways. As of October 1, 2019, \$25 million of the Series 2016B Bonds was outstanding.

#### [Discussion of WIFIA LOAN.]

*WIFIA Loans.* The Authority has applied for loans to finance a portion of its CIP pursuant to the Water Infrastructure Finance and Innovation Act of 2014 (WIFIA), a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. The application amount is a total of \$144 million to be disbursed over multiple years. If such loans are approved, it is anticipated that (i) the amount of the bonds issued in future years by the Authority will be reduced by the principal amount of the loans received from the WIFIA program; and (ii) the annual debt service payments on such loans will be approximately equal to or less than the debt service that would be required if the Authority issued bonds in lieu of accepting the loan proceeds.

*Government Notes.* The Authority is responsible for debt service on notes payable to the federal government for the construction of the Jennings Randolph Reservoir. As of October 1, 2019, \$11,640,266 of Government Notes was outstanding. Upon the issuance of the Series 2019C Bonds, the amount of outstanding Government Notes will remain unchanged.

*Commercial Paper Notes.* The Authority has established a commercial paper program to provide interim financing for Costs of the System, consisting of three series of notes, each as Subordinate Debt: (i) the tax-exempt Series A CP Notes, which are currently not authorized or enhanced by a liquidity facility (although the Authority has the right to authorize the Series A CP Notes in the future), (ii) the tax-exempt Series B CP Notes in an aggregate principal amount not to exceed \$100 million, and (iii) the taxable Series C CP Notes in an aggregate principal amount not to exceed \$50 million (collectively, the “Commercial Paper Notes”). To provide liquidity and credit support for the Series B CP Notes and the Series C CP Notes, the Authority obtained irrevocable, direct-pay letters of credit (the “Letters of Credit”) issued by Landesbank Hessen-Thüringen Girozentrale, New York Branch (the “Bank”) which expire on May 15, 2020. In connection with the Bank’s issuance of the Letters of Credit, the Authority and the Bank entered into a Reimbursement Agreement for each series of CP Notes, each dated as of May 1, 2015, each as amended (collectively, the “Reimbursement Agreements”) that obligates the Authority to pay Bank Obligations and

Reimbursement Obligations (both as defined in the Eleventh Supplemental Indenture relating to the Commercial Paper Notes) and Fee Obligations (as defined in each Reimbursement Agreement) to the Bank. The Bank Obligations, the Reimbursement Obligations and Fee Obligations are Subordinate Debt under the Indenture. As of October 1, 2019, \$29.2 million of the Series C CP Notes was outstanding.

*Extendable Municipal Commercial Paper Notes.* The Authority has established an extendable municipal commercial program to provide an additional source of interim financing for Costs of the System. The EMCP Notes are not supported by a credit facility or credit enhancement, but instead are solely supported by a subordinate lien on and pledge of Net Revenues on a parity with the lien on and pledge of Net Revenues that secures Outstanding Subordinate Debt and any other Subordinate Debt that the Authority may issue in the future. The Board has authorized one series of EMCP Notes not to exceed \$100 million outstanding at any one time. As of October 1, 2019, \$50 million of the EMCP Notes was outstanding.

### **Interest Rate Exchange Agreements and Guaranteed Investment Contracts**

The Authority has not previously entered into any interest rate exchange agreements or any guaranteed investment contracts.

## **THE AUTHORITY**

### **General**

The Authority is a corporate body and an independent authority created pursuant to the Act that has a separate legal existence within the District government. It was created in 1996 to expedite the repair, replacement, rehabilitation, modernization and extension of existing water distribution and sewage collection, treatment and disposal systems, and the financing, on a self-sustaining basis, of capital and operation expenses relating thereto. The Authority began operations on October 1, 1996, and in June 2010, adopted a new logo and rebranded itself as “DC Water.” Prior to creation of the Authority, the District, through its Department of Public Works, Water and Sewer Utility Administration (“WASUA”), owned, operated and maintained the System. In accordance with the Act, the District authorized the Authority to use all of the property and assets of the System and transferred to the Authority any liabilities of the District that were directly attributable to the System. The District has retained full legal title to, and a complete equitable interest in, the System. In accordance with the Act, however, the System must remain under the control of the Authority for as long as any Authority revenue bonds remain outstanding.

The Authority currently provides retail water and wastewater services to approximately 700,000 residents of the District of Columbia and wholesale wastewater conveyance and treatment to approximately 1.6 million residents of Prince George’s and Montgomery Counties in Maryland and Fairfax and Loudoun Counties in Virginia. In addition, the Authority annually serves approximately 22.0 million visitors to the area and approximately 800,000 workers in the District. In addition to providing services to the White House, the U.S. Congress and the Supreme Court, the Authority also counts among its customers a number of international organizations, including the International Monetary Fund and numerous diplomatic embassies. The Authority also provides services to a number of nationally recognized cultural and educational institutions, including the John F. Kennedy Center for the Performing Arts, and Georgetown, Howard, American, Catholic and George Washington Universities.

The Authority operates the largest advanced wastewater treatment facility in the United States and is in material compliance with all requisite permits. Since its creation as an independent authority of the District, the Authority has become a leader in the water and wastewater industry. The Board has provided stable leadership and a focus on establishing long-term policies and planning, particularly financial stability. Under its leadership, the Authority has adopted and implemented financial and rate-setting policies that have enhanced financial performance. The Authority’s unrestricted cash, cash equivalents and investment balances have increased from \$55.8 million as of September 30, 1998, to \$232.0 million as of September 30, 2018. The Authority’s operating revenues have increased from \$258.4 million in Fiscal Year 1998 to \$684.5 million in Fiscal Year 2018.

The Authority’s accomplishments are consistently recognized by industry associations and publications. The Government Finance Officers Association (“GFOA”) has given the Authority the Certificate of Achievement for Excellence in Financial Reporting Program every year since 1997, and the Distinguished Budget Presentation Award every year since 2001. In 2016, the Authority also received the Excellence in Government Finance Award, and the Excellence in Public Finance Award for its Environmental Impact Bond, both from the GFOA, the Healthiest Employer Award from *SmartCEO*, the Utility of the Future Award from the *National Association of Clean Water Agencies*, and the Non-Traditional Deal of the Year from *The Bond Buyer* for its Environmental Impact Bond.

In 2017, the Authority received (i) the Utility of the Future in Beneficial Biosolids Refuse from *WEF/WERF/NACWA/EPA*, (ii) the Platinum Peak Performance Award for 5 years of 100% compliance with NPDES requirements from the *National Association of Clean Water Agencies*, (iii) the “Unbuilt” Award and Jurors’ Citation in Conceptual Unbuilt Architecture for the Authority’s Headquarters Building from the *American Institute of Architects*,

*Maryland and Northern Virginia Chapters*, (iv) the Tunneling Achievement Award for the Blue Plains Tunnel from *Breakthroughs in Tunneling*, (v) the Project of the Year, Water/Environment Project of the Year overall and for the Mid-Atlantic for the Blue Plains Tunnel from *Engineering News Record*, (vi) the Sustainability Initiative of the Year for the Anacostia River Tunnel from the *International Tunneling Awards*, (vii) Excellence in Concrete Award for the First Street Tunnel from *National Capital Chapter American Concrete Institute*, and (viii) 100 Best Fleets and Green Fleet Awards from *National Association of Fleet Administrators*, and (ix) Leading Fleet Award from *Government Fleet*.

In 2018, the Authority received (i) the Utility of the Future Award from the *National Association of Clean Water Agencies*, (ii) Honorable Mention in the Spaces, Place and Cities category in the 2018 Innovation by Design Awards Program by *Fast Company*, (iii) Global Best Project Award – Award of Merit in Water/Wastewater for the Anacostia River Tunnel project from *Engineering News-Record*, (iv) Mid-Atlantic Best Project Awards – Award of Merit Water/Wastewater for the Anacostia River Tunnel from *Engineering News-Record*, (v) Tunneling and Underground Space Award – Sustainability Initiative of the Year from the *International Tunneling Association* for the DC Clean Rivers Project, (vi) 2018 Outstanding Shotcrete Project of the Year in the Underground Category from the *American Shotcrete Association* for the Tuber Creek Sewer Repair, (vii) Excellence in Dispute Avoidance and Resolution Award from the *Disputes Review Board Foundation*, (viii) Distinguished Budget Presentation Award from the *Government and Finance Officers Association*, (ix) Certificate of Achievement for Excellence in Financial Reporting from the *Government and Finance Officers Association*, (x) 100 Best Fleets from *National Association of Fleet Administrators*, (xi) Platinum Peak Performance Award recognizing 100 percent compliance with the NPDES permit limits for a consecutive five-year period from *National Association of Clean Water Agencies*, (xii) Certification in Business Continuity Management System, (xiii) Conditional Accreditation from the *Emergency Management Accreditation Program*.

### **Purposes and Powers**

The Act requires the Authority to establish, fix and revise fees, rates or other charges for the use of, or services furnished, rendered or made available by the System, owned, leased or utilized by the Authority at least in an amount sufficient, together with other revenues available to the Authority, if any, to pay its costs, the principal of and interest on and other requirements pertaining to its bonds, and to make transfers to the District of amounts equal to the debt service payments on the District General Obligation Bonds, which financed WASUA capital projects, as such debt service and transfers become due and payable. All such General Obligation Bonds are now retired.

Pursuant to the Home Rule Act, the Council delegated to the Authority, under the Act, its power to issue revenue bonds, including the Series 2019C Bonds, for the purpose of financing “water and sewer facilities” (as such term is defined in the Home Rule Act). Pursuant to the Home Rule Act and the Act, the Authority is required to submit its annual operating budget to the District for its review and recommendations; however, the District has no power to change the annual budget of the Authority. After receiving the Authority’s budget, the District then submits its annual operating budget, of which the Authority’s budget is a part, to the U.S. Congress for approval. See “– Authority’s Relationship to the District” and “FINANCIAL OPERATIONS – Annual Budget.”

### **Board of Directors**

The Authority is governed by a Board of Directors consisting of 11 principal and 11 alternate members, each appointed for a staggered four-year term. Six principal members (appointed by the Mayor of the District with the advice and consent of the Council) represent the District and five principal members (appointed by the Mayor on the recommendations of the User Jurisdictions) represent the User Jurisdictions, two each from Prince George’s and Montgomery Counties in Maryland, and one from Fairfax County, Virginia. The powers of the Authority are vested in and exercised by the Board at meetings duly called and held where a quorum of at least six members is present. All Board members participate in decisions directly affecting the management of joint-use facilities which are those facilities used by all three jurisdictions. Only the six members appointed to represent the District participate in those matters that affect District ratepayers and in setting rates, fees and charges for various services that affect only District residents. The Board meets monthly and operates through various standing and ad-hoc committees. The committees include Environmental Quality and Operations, Finance and Budget, Human Resources and Labor Relations, Audit, Strategic Planning, Governance, and District of Columbia Retail Water and Sewer Rates. The current principal members of the Board are listed below.

<b>Principal Board Members</b>	<b>Appointing Authority</b>	<b>Term Start Date*</b>	<b>Term Expiration</b>
Tommy Wells, Chairman	District of Columbia	December 2016	September 2020
Randy Bartlett	Fairfax County	February 2019	September 2019
Ellen O. Boardman	District of Columbia	July 2013	September 2020
Krystal J. Brumfield	District of Columbia	December 2018	September 2022
Rachna Bhatt	District of Columbia	July 2012	September 2022
David Franco	District of Columbia	May 2017	September 2019
Floyd Holt	Prince George's County	February 2019	September 2022
Fariba Kassiri	Montgomery County	June 2019	May 2020
Adam Ortiz	Montgomery County	June 2019	May 2020
Major F. Riddick, Jr.	Prince George's County	March 2019	September 2022
Emile Thompson	District of Columbia	December 2016	September 2020

\* Term start date indicates start of the Board member's initial term as a principal member.

Source: Authority records.

The following are short biographies of the principal members of the Board.

*Tommy Wells (District of Columbia)*

Mr. Wells was appointed as principal member of the Board in December 2016 and as chairman of the Board in September 2017. Mr. Wells has served as the Director of the District of Columbia Department of Energy & Environment since January 2015. He is chiefly responsible for protecting the environment and conserving the natural resources of the District of Columbia. Mr. Wells served as the District Council member representing Ward 6 from 2006 until 2014. During his time on Council, he garnered broad support for his efforts to make the District livable and walkable for all. In 2009, Mr. Wells crafted *The Anacostia River Clean Up and Protection Act of 2009*, to implement a \$0.05 fee on disposable bags. This landmark legislation prompted thousands of District residents to curb use of plastic bags and, instead, opt for reusable green alternatives. Mr. Wells earned a Bachelor of Science in Psychology from the University of Alabama, a Juris Doctor from the Columbus School of Law at Catholic University and a Master of Social Work from the University of Minnesota.

*Randy Bartlett (Fairfax County)*

Mr. Bartlett was appointed a principal member of the Board in 2019. Mr. Bartlett was appointed director of Fairfax County's Department of Public Works and Environmental Services in November 2018. He has more than 40 years of public works and private engineering experience, including serving as Public Works director in Bedford, VA., Blacksburg, VA., and Arlington County, VA. Mr. Bartlett's areas of responsibility have included water treatment and distribution and wastewater collection and treatment. Prior to his current position, Mr. Bartlett served as the deputy director, leading Fairfax County's Wastewater and Stormwater Management programs. He is a registered engineer in the Commonwealth of Virginia. Mr. Bartlett received a Bachelor of Science in Civil Engineering from Virginia Tech.

*Ellen O. Boardman (District of Columbia)*

Ms. Boardman was appointed as a principal member of the Board in 2013. Ms. Boardman is a partner at O'Donoghue & O'Donoghue LLP. Prior to joining O'Donoghue & O'Donoghue LLP in 1986, Ms. Boardman served as an attorney for the National Labor Relations Board. Ms. Boardman is a member of the District of Columbia and Maryland bar associations, numerous federal district and appellate courts, and the U.S. Supreme Court. Ms. Boardman is a fellow of the College of Labor and Employment Lawyers, and is listed as a Washington, D.C. Super Lawyer. Ms. Boardman holds a Bachelor of Arts in History from Catholic University and a Juris Doctor from the Columbus School of Law at Catholic University.

*Krystal J. Brumfield (District of Columbia)*

Ms. Brumfield was appointed as a principal member of the Board in 2018. Ms. Brumfield currently serves as the President and Chief Executive Officer of the Airport Minority Advisory Council (AMAC), a non-profit dedicated to promoting the full participation of minority-owned, women-owned and disadvantaged business enterprises (M/W/DBEs) in contracting opportunities and professional development throughout the aviation and aerospace industries. As President and CEO, Ms. Brumfield works consistently with Congress, the Federal government, aviation trade associations and others serving as a resource for information, education and guidance on business and employment matters. She also provides leadership to AMAC's strategic planning process and implements new programmatic strategic initiatives. Ms. Brumfield previously served as the Vice President and Chief Operating Officer at the DC Chamber of Commerce where she was responsible for developing, implementing, and managing the operational aspects of the annual budget. A graduate of Southern University with a Bachelor of Science



in Accounting, Ms. Brumfield earned a Juris Doctorate from the Southern University Law Center, and obtained a Master of Laws in Taxation from the University of Florida Levin College of Law.

*Rachna Bhatt (District of Columbia)*

Ms. Bhatt was appointed as a principal member to the Board in July 2012. Ms. Bhatt serves as Director at HRGM Corporation, and has been with HRGM since 2001. Previously, Ms. Bhatt served as an Associate for Wachovia Securities, and as a consultant for Deloitte & Touche, LLP. Ms. Bhatt serves as a board member for the Professional Women in Construction and holds a Virginia Class A Contractor's License. Ms. Bhatt holds a Bachelor of Science in Business Administration from Georgetown University and a Master in Business Administration from The Wharton School, University of Pennsylvania, with a major in Real Estate and Management.

*David Franco (District of Columbia)*

Mr. Franco was appointed as a principal member to the Board in May 2017. Mr. Franco is principal of Level 2 Development. Mr. Franco co-founded several businesses in the District, including Discount Mart, Trumpets Restaurants, Tracks Nightclub, and Universal Gear. Mr. Franco is committed to helping the residents of the District and has led efforts in the past to address community needs, including preserving the 48-unit Cresthill Apartments, which created home ownership opportunities along the 14th Street corridor for low to medium income residents. Mr. Franco attended the University of Maryland, College Park.

*Floyd Holt (Prince George's County)*

Mr. Holt was appointed a principal member of the Board in 2019. Mr. Holt is Deputy Chief Administrative Officer for Government Infrastructure, Technology and the Environment for Prince George's County Maryland. He previously worked as Prince George's County's Deputy Director of Central Services. Mr. Holt served as Chief of University Police at Gallaudet University; the world's only liberal arts university for the deaf before joining the Washington Suburban Sanitary Commission as Chief of Public Safety and Internal Investigations. He was later appointed Director of General Services, overseeing Fleet Management and Transportation, Warehousing, Quality Assurance, Procurement and Contracting. Mr. Holt attended the University of Maryland where he received a Bachelor's Degree in Government and Politics with a minor in Law Enforcement. Mr. Holt also holds a Master's in Business Administration from Gallaudet University.

*Fariba Kassiri (Montgomery County)*

Ms. Kassiri was appointed principal member of the Board in 2019. Ms. Kassiri is the Montgomery County Deputy Chief Administrative Officer (DCAO) and joined the Office of the County Executive in 2006. She is responsible for assisting the Chief Administrative Officer (CAO) in managing the operations and performance of County Government. In doing so, she provides administrative oversight to the directors of County departments and ensures that departments' core activities align with the County's Effective and Sustainable priority outcome and comply with all applicable policies, procedures, and regulations. Prior to joining Montgomery County, Ms. Kassiri spent four years as Special Advisor to the Prince George's County Chief Administrative Officer, providing recommendations to the County Executive and Chief Administrative Officer on a wide array of issues, programs, and policies. Ms. Kassiri holds a Bachelor of Science degree in Civil and Environmental Engineering from the University of Colorado, and a Master's degree in Public Policy specializing in finance and management from the University of Maryland.

*Adam Ortiz (Montgomery County)*

Mr. Ortiz was appointed principal member of the Board in 2019. Mr. Ortiz is the Director of the Montgomery County Department of Environmental Protection, a \$140 million agency with 300 employees and contractors. The Department oversees programs for watershed restoration, greenhouse gas reduction, renewable energy, sustainability, and environmental compliance. Prior to joining Montgomery County, Mr. Ortiz served as the Director of the Department of Environment for Prince George's County, Maryland, from 2012 through 2018. During his time, Mr. Ortiz oversaw stormwater management, recycling, waste management, animal services, and sustainability programs. From 2007 to 2012, Mr. Ortiz served in the administration of Governor Martin O'Malley where he focused on workforce, higher education, and veterans' affairs as Deputy Chief of Staff for Lieutenant Governor Anthony Brown. From 2005 to 2011, Mr. Ortiz served as Mayor of Edmonston, Maryland. Mr. Ortiz has a B.A. in Public Policy from Goucher College in Towson, Maryland.

*Major F. Riddick, Jr. (Prince George's County)*

Major Riddick was appointed principal member of the Board in 2019. Major Riddick currently serves as Acting Chief Administrative Officer for Prince George's County government, which he was appointed to in December 2018. Prior to serving as Acting Chief Administrative Officer for Prince George's County, Major Riddick served as President and CEO of Strategic Solutions Center where he worked with clients and partners to focus on technology solutions and management services to improve government efficiency. In 1995, Major Riddick was appointed Chief of Staff for the Governor of Maryland. As Chief of Staff, Mr. Riddick was responsible for the daily operations of state government and for implementing the Governor's priorities. During the last several months of state service, Major

Riddick served as Chief of Technology. In this role, he spearheaded the Governor's mission and vision to make Maryland a digital state by making technology available to all citizens of Maryland. Major Riddick was the first African-American to serve as the Governor's Chief of Staff in the State of Maryland and was the first African-American appointed Chief Administrative Officer for Prince George's County. Major Riddick holds a Bachelor's Degree in Political Science and a Master's Degree in Public Administration from Virginia Tech. He also completed the Executive Training Institute at the J.F.K School of Government, Harvard University.

*Emile C. Thompson (District of Columbia)*

Mr. Thompson was appointed as a principal member to the Board in December 2016. Mr. Thompson currently serves as an Assistant United States Attorney for the District of Columbia. Prior to that role, Mr. Thompson served as the Chief of Staff to the Deputy Mayor for Public Safety and Justice in the Bowser Administration. In that capacity, Mr. Thompson advised the Deputy Mayor on policies and initiatives throughout the cluster. Mr. Thompson began his legal career as law clerk to the Honorable Herbert B. Dixon, Jr. of the D.C. Superior Court. Mr. Thompson earned a Bachelor of Science in Computer Science from Morehouse College and a Juris Doctorate from the Wake Forest University School of Law.

### **Organizational Structure**

The Authority's day-to-day operations are managed by the Chief Executive Officer (CEO), who is appointed by the Board. The CEO is supported by the Chief Financial Officer and Executive Vice President, Finance and Procurement (CFO); the Chief of Staff; the Executive Vice President, Operations and Engineering; the Executive Vice President, Performance; the Executive Vice President, Administration; and the Executive Vice President, Customer Service. Also reporting to the CEO is the Executive Vice President, Legal Affairs and the Executive Vice President of People and Talent.

The CFO oversees the departments of Finance, Accounting, Budget and Rates and Revenue, and Procurement. The Chief of Staff is responsible for the evaluation, oversight and implementation of all Authority business-related processes, policies, operating procedures. The Executive Vice President of Operations and Engineering oversees Water Operation and Water Quality, Engineering, Wastewater, Permit Operation, and Clean Rivers. The Executive Vice President of Administration oversees Security, Safety, Emergency Management, Fleet Management, and Facilities Management.

The Executive Vice President of Performance oversees Sustainability & Watershed Management, Integration & Delivery, Business Performance Management, and Enterprise Program Management. The Executive Vice President of Customer Experience oversees Customer Care, Marketing & Communication, Business Relations, IT (Infrastructures and application).

### **Senior Management**

The Authority has in place a senior and mid-level management team with a broad range of private and public sector utility experience. The following are short biographies of key members of the Authority's senior management.

*David Gadis, CEO and General Manager*

Mr. Gadis was appointed CEO and General Manager in 2018. Mr. Gadis brings 20 years of industry experience to the role, most recently as Executive Vice President of Veolia North America (VNA), where he led North American business development operations, and was responsible for corporate growth and \$3 billion in revenue. Mr. Gadis has been a frequent presenter at utility and government services conferences, including the U.S. Conference of Mayors, speaking on both Underground Infrastructure and Managing Utilities, as well as the National League of Cities and the National Association of Public Private Partnerships. Mr. Gadis earned a basketball scholarship to Southern Methodist University and was a four-year basketball player and team captain before graduating from SMU with a B.A. in Marketing Communications.

*Matthew T. Brown, CFO and Executive Vice President, Finance and Procurement*

Mr. Brown was appointed CFO and Executive Vice President, Finance and Procurement in 2017. From 2015 until his appointment as Chief Financial Officer and Executive Vice President, Finance and Procurement, Mr. Brown served as a principal member and chairman of the Board. Mr. Brown previously served as the Director of the Office of Budget and Finance for the District of Columbia. Prior to that position, Mr. Brown served as the Director of the District's Department of Transportation. Mr. Brown began his career with the New York Office of Management and Budget and has held positions in the Milwaukee Metropolitan Sewerage District, Public Financial Management and the Metropolitan Washington Area Transit Authority. Mr. Brown holds a B.A. in Political Science from Texas Wesleyan University, and an M.P.A. in Budget and Public Finance from The George Washington University.

*Biju George, Executive Vice President, Operations and Engineering*

Mr. George was appointed Executive Vice President, Operations and Engineering in September 2018, after serving as Chief Operating Officer since February 2015. Mr. George is responsible for the performance management of all operations of the Authority. He participates in the implementation of the Authority's strategic plan and assists the General Manager in developing and implementing the Authority's business plans. Mr. George is the 2014 recipient of the Innovator of the Year Award from the U.S. Environmental Protection Agency. Mr. George has a bachelor's degree in mechanical engineering from the PDA College of Engineering at Gulbarga University. He is a licensed professional engineer in Ohio.

*Mustaafa Dozier, Chief of Staff*

Mr. Dozier assumed the position of Chief of Staff in August 2015. Mr. Dozier initially joined the Authority in 2011 as the Labor Relations Manager. Prior to joining the Authority, Mr. Dozier served as the Employment and Labor Relations Advisor to the District's Department of Public Works. Mr. Dozier holds a B.A. from Alabama State University and a J.D. from the Howard University School of Law.

*Gregory A. Hope, Interim Executive Vice President, Legal Affairs*

Mr. Hope was appointed Interim, EVP, Legal Affairs in December 2018, after serving as Associate General Counsel since May 2017, and Principal Counsel since 2013. Prior to joining the Authority in 2005, Mr. Hope worked as the Water Quality Manager for the District of Columbia Environmental Health Administration (now the Department of Energy and Environment) enforcing District water quality laws and regulations in water and wastewater regulatory compliance, enforcement, management and engineering. Mr. Hope holds a B.S. in Chemical Engineer from Howard University and a JD from the University of Maryland. Mr. Hope is a Patent Attorney before the U.S. Patent and Trademark Office. Mr. Hope is admitted to practice law in the District of Columbia, Maryland, the Court of Appeals for the Federal Circuit, and the U.S. Supreme Court.

*Leonard R. Benson, Senior Vice President and Chief Engineer*

Mr. Benson was appointed Senior Vice President, Engineering in September 2018, after serving as Chief Engineer since August 2010, and previously serving as Acting Chief Engineer and Deputy General Manager since May 2008. Mr. Benson transferred to the Authority as Director of Engineering and Technical Services from its predecessor agency when the Authority was created in 1996. Mr. Benson began his career as a Project Manager for the District of Columbia's Department of Highways and Traffic in 1968 and later transferred to the Department of Sanitary Engineering and successor agencies including the Department of Environmental Services and the Department of Public Works. Mr. Benson holds a B.S. in Civil Engineering from the University of Maryland.

*Carlton Ray, Director of DC Clean Rivers Project*

Mr. Ray joined the Authority in July 2009, and is responsible for the planning, design, construction and implementation of the DC Clean Rivers Project. The 20-year, \$2.4 billion project is designed to capture nearly all combined sewer overflows to the Potomac and Anacostia Rivers and to the Rock Creek during periods of wet weather through a system of deep underground tunnels. Previously, Mr. Ray managed the capital program for the City of Indianapolis, including successfully developing and managing a similar combined sewer overflow abatement program. Mr. Ray has over 30 years' experience in water and wastewater engineering and holds a B.S. in Civil Engineering from Auburn University.

*Aklile Tesfaye, Vice President, Wastewater Operations and Engineering*

Mr. Tesfaye joined the Authority in 1994. Mr. Tesfaye formerly served as the Director of Wastewater Treatment Operations for the Authority. Mr. Tesfaye is a licensed engineer with the American Academy of Environmental Engineers, and holds several other professional certifications. Mr. Tesfaye received a B.S. in Civil Engineering from the University of Rourke (India; now known as Indian Institute of Technology), an M.S. in Civil Engineering from Tampore University of Technology (Finland) and an M.S. in Environmental Engineering from the University of Maryland (College Park).

*Maureen Holman, Executive Vice President, Administration*

Ms. Holman has been with DC Water for almost a decade, serving in the Office of the CEO, and was appointed EVP, Administration in November, 2018. Prior to joining DC Water, Ms. Holman served as Interim Director of the District Department of Energy & Environment and as a senior policy analyst in the Office of the City Administrator. Ms. Holman represents DC Water on the Metropolitan Washington Council of Governments Climate, Energy, and Environmental Policy Committee and the DC Green Building Advisory Council; while also serving a Mayoral appointee to the DC Urban Forestry Advisory Committee, the DC Commission on Climate Change and Resiliency and the Leadership Council for a Cleaner Anacostia River. Ms. Holman holds a bachelor's degree in environmental studies from the University of Southern California, a juris doctorate from the University of Georgia School of Law, and a graduate environmental ethics certificate from the UGA College of Environment and Design.

### Authority's Relationship to the District

*General.* In accordance with section 207(e) of the Act, the District retained full legal title to, and a complete equitable interest in, the System; however, the System must remain under the control of the Authority for as long as any Authority revenue bonds remain outstanding. The District also has the power to appoint certain Board members, see “– Board of Directors” above.

According to the Home Rule Act, as amended by the “District of Columbia Water and Sewer Authority Independence Preservation Act,” P.L. 110-273, enacted by the Congress on July 15, 2008, (i) the authority of the District’s Chief Financial Officer to hire, supervise and remove certain financial management employees, set forth in Section 424A of the Home Rule Act (D.C. Official Code Section 1-204.25), does not apply to personnel of the Authority and (ii) the financial management, personnel and procurement functions and responsibilities of the Authority shall be established exclusively pursuant to the rules and regulations adopted by the Board.

Pursuant to the Home Rule Act and the Act, the Authority is required to submit its annual operating budget to the District for its review and recommendations; however, the District has no power to change the annual budget of the Authority. After receiving the Authority’s budget, the District then submits its annual operating budget, of which the Authority’s budget is a part, to the U.S. Congress for approval. See “FINANCIAL OPERATIONS – Annual Budget.”

The Act provides that, subject to the provisions made by the Authority for security of revenue bonds, all revenues, proceeds, and moneys (except those collected or received from the stormwater fee) which are collected or received by the Authority will be credited to a segregated fund and will not, at any time, be transferred to, lapse into, or be commingled with the General Fund of the District or any other funds or accounts of the District, except for limited circumstances under which funds will be transferred to the District to pay for goods and services and property contracted for by the Authority from the District, or as otherwise authorized by law. See “SECURITY AND SOURCE OF PAYMENT FOR THE SERIES 2019C BONDS – Lien on and Pledge of Net Assets – *Segregated Funds.*”

The Act also provides that, except as provided in the Act, the District will not limit or alter rights vested in the Authority to fulfill agreements made with holders of Authority bonds, or in any way impair the rights and remedies of the holders of Authority bonds. See “COVENANT BY THE DISTRICT OF COLUMBIA.”

The DC Water Consumer Protection Amendment Act of 2018, DC Law 22-299, effective April 11, 2019 (the “OPC Act”), amended the Act authorizing the Office of the People’s Counsel, an independent agency of the District of Columbia government to (1) represent District of Columbia rate payers at DC Water administrative hearings; (2) represent and advocate for District of Columbia ratepayer’s at public hearings; (3) represent and advocate for District of Columbia ratepayers at proceedings before local and federal regulatory agencies and courts; (4) investigate the services given by, and the rates charges by, the Authority; and (5) advise and educate the Authority customers about their legal rights and responsibilities pursuant to the rules governing service by the Authority. The OPC Act also requires the Authority to provide the public at least 45 days notice to consider adjustments to water and wastewater rates before a public hearing is held and to provide a written response to the OPC if it submits any written comments on the establishment or adjustments of water and wastewater rates. The OPC Act will not have a material impact on the Authority or its finances. See “Customer Base, Rates and Charges – Customer Assistance Programs”.

The Fiscal Year 2019 Budget Support Act of 2018, D.C. Law 22-168, effective October 30, 2018 (the “Budget Act”), amended the Act authorizing the Mayor to establish a financial assistance program to assist residential and nonprofits organizations located in the District with their payment of the Clean Rivers Impervious Area Charge. The District also included \$7 million to fund the programs. On December 28, 2018, DC Water expanded its Customer Assistance Program (CAP) to establish the CAPII program to provide benefits to customers whose household income exceeded the current CAP program of 60% of the state median income, but below 80% of the area median income. DC Water also transferred \$6 million from its Rate Stabilization Fund to fund this program. Based on the level of customer participation in these programs during FY 2019, and the amount of funds remaining, the District and DC Water plan to carryover the remaining funds into FY 2020. The Budget Act will not have a material impact on the Authority or its finances.

*Memoranda of Understanding.* The Authority is presently operating under, and is in compliance with, the following Memoranda of Understanding (each, a “Memorandum of Understanding” or “MOU”) with the District.

- A January 29, 1998, Memorandum of Understanding provides that the Authority will pay the District a PILOT for government services it receives from the District (the “1998 PILOT MOU”). This MOU provides that, beginning in Fiscal Year 1999, the annual PILOT will be based on the amount due from the Authority to the District for the previous Fiscal Year plus a percentage increase in an amount equivalent to the Authority’s System-wide rate increase for the current Fiscal Year. The District and the Authority amended the 1998 PILOT MOU pursuant to a September 4, 2014 Memorandum of Understanding, as amended and restated on December 15, 2014 (the “2014 PILOT MOU”). According to the 2014 PILOT MOU, the amount of the PILOT payment increases by two percent per annum based

on the amount of the prior year's annual PILOT payment. In addition, the Authority will deduct one-fourth of the annual fire protection service fee for services provided by the Authority to the District from the annual PILOT payment. In Fiscal Year 2018, the Authority made a PILOT payment to the District in the amount of \$16.3 million. The 2014 PILOT MOU will remain in effect until September 30, 2024. If the parties have not executed a new amendment to the 1998 PILOT MOU before September 30, 2024, the terms of the 2014 PILOT MOU will remain in force until a new amendment has been executed.

- A September 12, 2003, Memorandum of Understanding provides that the Authority will make quarterly payments to the District for its public right of way occupancy permit fee (the "2003 ROW MOU"). Under the terms of this MOU, the Authority was obligated to pay the District an annual fee of \$5.1 million through September 30, 2013, the expiration date of the MOU. On October 2, 2014, the District and the Authority entered in a new Memorandum of Understanding (the "2014 ROW MOU") that amended the 2003 ROW MOU to establish the amount of the ROW Fee payment of \$5.1 million to the District for Fiscal Years 2015 to 2024 and revised the expiration date to September 30, 2024. As with the 2014 PILOT MOU, if the parties have not executed a new ROW MOU before September 30, 2024, the terms of the 2014 ROW MOU will remain in force until a new amendment has been executed.
- A July 25, 2008, Memorandum of Understanding between the District Department of Energy and Environment ("DOEE") and the Authority establishes the basis for the billing and collection of a stormwater fee by the Authority on behalf of DOEE, and the transfer of those fees on a pass-through basis to DOEE. This MOU extends for one-year periods at the option of the Parties. See "THE SYSTEM – The Wastewater System – District Stormwater Permit and Management Program" and "CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges."
- A May 3, 2013, Memorandum of Understanding between the District of Columbia Fire and Emergency Medical Services Department ("FEMS") and the Authority memorializes the ongoing commitment between the two agencies to share information about public fire hydrant inspections and upgrades. The Authority is required to inspect all public fire hydrants once per year in accordance with National Fire Protection Association ("NFPA") guidelines, and FEMS may, as time permits, also conduct a second inspection of fire hydrants in coordination with the Authority. The Authority is responsible for identifying and installing new hydrants as part of its ongoing capital program, developing manuals and protocols for hydrant inspection and inspection data management, and ensuring that the required preventative maintenance is performed on each hydrant as required by the manufacturer. The Authority is required to flow test all hydrants every six years, and those hydrants that have been upgraded as part of the capital program will be tested upon being placed in service to ensure proper pressure and operation. Furthermore, the Authority has committed to providing water supply personnel on scene to FEMS when requested for two-alarm or greater fires. The Authority annually bills the District to recover the Authority's costs for these fire hydrant protection services activities.
- A September 11, 2014, Memorandum of Understanding provides the terms by which the District and the Authority will cooperate in the execution of the Northeast Boundary Neighborhood Protective Project (the "2014 Bloomingdale MOU"). This MOU established the value of incremental capital expenditures totaling \$58,579,499.00 incurred by the Authority at the request of the District in order to mitigate overland flooding and wastewater backups in the Bloomingdale and LeDroit Park neighborhoods in Northwest Washington, D.C. The District has entered into an agreement with the Authority for the amounts spent pursuant to the 2014 Bloomingdale MOU, to be paid in ten equal annual installments, commencing January 2016, and has made the payments on a timely basis.

*Proposed Legislation.* In March 2019, legislation was introduced in the Council for the District of Columbia, "Green Building Residential Metering Amendment Act of 2019" that, three (3) years after enactment, would require every residential unit in all new residential buildings to have individual meters for electric, gas and water utility service. **As of the date of this Official Statement, this proposed legislation had not been reported out of committee, but even if it were enacted, it would not have a material impact on the Authority or its finances.**

### **Employees and Labor Relations**

The total number of authorized positions for the Authority for Fiscal Year 2019 is 1,223. As of March 31, 2019, the Authority had 1,120 full-time equivalent employees, of whom 710 were represented by five unions:

- American Federation of Government Employees ("AFGE") consisting of Locals 631, 872 and 2553, representing 473 employees;

- American Federation of State, County and Municipal Employees (“AFSCME”), Local 2091, representing 221 employees; and,
- National Association of Government Employees (“NAGE”), representing 16 employees.

The Authority and the unions operate under a single Master Agreement on Compensation which was signed on July 6, 2017 and is set to expire on September 30, 2019. Negotiations were underway between the Authority and the unions to agree upon a new Master Agreement on Compensation. Between May 21, 2019 and July 31, 2019, however, negotiations were suspended due to the filing of a Notice of Impasse by the unions. On July 31, 2019, the Authority received a ruling from the Public Employee Relation Board stating that the unions and the Authority are to continue negotiating. [As of the date of this Official Statement, the Authority and the union signed a new Master Agreement on Compensation, which is set to expire on [DATE].]

There are five separate working condition agreements with the unions. The working condition agreement with NAGE expired on September 30, 2019. The Authority was negotiating successor agreements on working conditions with the other four unions.

The percentage of current employees eligible to retire within the next five and ten years (based on age and years of service) is shown in Table 2.

**Table 2. Percentage of Current Employees Eligible to Retire Within the Next Five and Ten Years**  
(based on age and years of service)

	03/31/2019	12/31/2024	12/31/2029
Employees	12%	21%	34%
Directors and Executives	9%	21%	42%

*Source: Authority records.*

People & Talent within the Authority’s Human Resources department launched a Succession Development Pilot Program in the 3<sup>rd</sup> Quarter of the fiscal year 2019. The pilot program includes critical positions from both leadership and operational rolls across the Authority. The program uses a systematic approach of identifying critical positions, developing internal talent, retaining organizational knowledge, and fostering interdepartmental collaboration.

**Retirement/Pension Plan**

Most DC Water employees participate in Defined Contribution type retirement plans. In the 401(a) Defined Contribution plan, all contributions are made by DC Water, who contributes 7% of employee base pay each pay period. An additional matching contribution is made (dollar for dollar) when employees defer money into the 457(b). The maximum match is 5%. Employees with salaries more than the social security wage base receive an additional 5% contribution each pay period for the salary above the social security wage base. This plan requires three (3) years of service to be fully vested (Cliff Vesting Schedule). In the 457(b) Deferred Compensation plan, employees may defer salary on a pre-tax basis up to the annual limits established by the IRS. Finally, in the Retirement Health Savings Plan, non-union employees who leave DC Water after 5 years of service with an unused sick leave balance of equal or greater than 100 hours have the value of the sick leave cashed out and deposited into a Retirement Health Savings Plan for the benefit of the employee.

The Authority has a small group (88 as of June 2019) of employees participating under Federal Benefits. Most of the employees were hired before October 1, 1987. In the Civil Service Retirement (CSR) plan, each pay period DC Water contributes 7% of base pay and the employee contributes 7% of base pay into the CSR system. When these employees retire, their pension is paid by the Federal Government and administered by the Office of Personnel Management. DC Water bears no post retirement cost. The Federal Retirement Health and Life plan consists of a grandfathered group who may continue to participate in the Federal Health Benefits Plan at the same cost share arrangement as active employees. The employer share is assumed by the federal government and administered by OPM after retirement.

The Authority has no unfunded pension liability or other post-employment benefits liability under any of the plans described above.

**Risk Management and Insurance**

The Authority has developed a comprehensive risk management and insurance program which is annually reviewed and periodically bid by management and their independent insurance advisors through qualified

brokers and direct insurance writers. The most recent risk management, insurance assessment and bid process was completed in July 2018. The Authority's insurance policies (including liability insurance and workers' compensation, property, equipment, crime, fiduciary, public officials' and employment practices liability) were renewed July 1, 2018 with coverage through July 1, 2019. Since the passage of the Terrorism Risk Insurance Act of 2002 ("TRIA"), terrorism coverage is included under all insurance policies.

### **Risks from Unexpected Events**

#### *General*

The Authority's infrastructure could sustain damage and loss of use as a result of certain unexpected events, such as terrorist attacks, extreme weather events and other natural occurrences, fires and explosions, spills of hazardous substances, strikes and lockouts, sabotage, wars, blockades and riots. While the Authority has attempted to address the risk of loss through the purchase of insurance, certain of these events may not be covered. Furthermore, even for events that are covered by insurance, the Authority cannot guarantee that coverage will be sufficient or that insurers will pay claims in a timely manner. From time to time, the Authority may change the types of, and limits and deductibles on, the insurance coverage that it carries. The Authority cannot predict what effects any of these events may have on the Authority's ability to generate Revenues but the effects may be materially adverse.

#### *Global Climate Change*

Numerous scientific studies on global climate change show that, among other effects on the global ecosystem, sea levels will rise, extreme temperatures will become more common and extreme weather events will become more frequent as a result of increasing global temperatures attributable to atmospheric pollution. Over the next 25 to 100 years, such extreme events and conditions are expected to increasingly disrupt and damage critical infrastructure and property as well as regional economies and industries that depend on natural resources and favorable climate conditions. Disruptions could include more frequent and longer-lasting power outages, fuel shortages and service disruptions. Coastal public infrastructure may be threatened by the continued increase in the frequency and extent of high-tide flooding due to sea level rise, and inland infrastructure, including access to roads, the viability of bridges and the safety of pipelines, may be affected by increases in the severity and frequency of heavy precipitation events. Near-coastal areas like the greater Washington, D.C. metropolitan area (which contains areas of land that are at or near sea level) may be at risk of substantial flood damage over time, affecting private development and public infrastructure. As a result, many residents, businesses, and governmental operations within this area could be negatively impacted and possibly displaced, reducing the number of rate payers and users of the system. In addition, local public agencies and governmental entities, could be required to mitigate these climate change effects at a potentially material cost.

#### *Ensure a Safe & Reliable Computing Environment*

As a retail utility and critical infrastructure asset, the Authority is at risk from an array of threat sources including the casual hacker to a state sponsored cyber terrorist. It is the Authority's priority and responsibility to maintain a safe and reliable computing environment 24/7. The Authority was the first water utility to adopt the voluntary Cyber Security framework outlined in Executive Order 13636, "Improving Critical Infrastructure Cyber Security," issued in February 2013. This Cyber Security framework is now formally known as the NIST Cybersecurity Framework (the "NIST Framework"). The NIST Framework forms the foundation of the Authority's Cyber Security program. Coupled with a layered defense approach, a default deny strategy, a privilege access control policy and a comprehensive cyber awareness program, the Authority strives to ensure the highest level of protection across its computing environment.

The NIST Framework focuses on five (5) primary pillars of excellence. The Authority helps to:

*Identify* – Develop an organizational understanding to manage cybersecurity risks to systems, people, assets, data and capabilities. The activities in the Identify Function are foundational for effective use of the NIST framework. Understanding the business context, the resources that support critical functions, and the related cybersecurity risks enables an organization to focus and prioritize its efforts, consistent with its risk management strategy and business needs. Examples of outcome categories include: Asset Management, Business Environment, Governance, Risk Assessment and Risk Management

*Protect* – Develop and implement appropriate safeguards to ensure delivery of critical services. The Protect Function supports the ability to limit or contain the impact of a potential cybersecurity event. Examples of outcome categories include: Identity Management and Access Control, Awareness and Training, Data Security, Information Protection Processes and Procedures and Patch Management and Protective Technology.

*Detect* – Develop and implement appropriate activities to identify the occurrence of a cybersecurity event. The Detect Function enables timely discovery of cybersecurity events. Examples of outcome categories include: Anomalies and Event detection, Security Continuous Monitoring and Correlation Analysis.

*Respond* – Develop and implement appropriate activities to take action when cybersecurity incident is suspected or detected. The Respond Function supports the ability to contain the impact of a potential cybersecurity incident. Examples of outcome categories include: Response Planning, Communications Analysis, Mitigation and Incident Management.

*Recover* – Develop and implement appropriate activities to maintain plans for resilience and to restore any capabilities or services that were impaired due to a cybersecurity incident. The Recover Function supports timely recovery to normal operations to reduce the impact from a cybersecurity incident. Examples of outcome categories include: Recovery Planning, Backup and Replication and Recovery Management.

In addition to the NIST Framework, the Authority has implemented information systems with consideration to IT-related risks that could impact the Authority or the Water and Waste Water Systems of the Authority. The information system’s goal is met through the following security objectives: confidentiality – data stored on an information systems is not disclosed to unauthorized individuals; integrity – there has not been an unauthorized alteration of the data while in storage or in transit, and the information system is free from unauthorized changes; availability – the system functions as designed and service is available to authorized users upon demand; accountability – actions of an entity may be traced uniquely to that entity; assurance – confidence that the security measures protect the information system and the information it processes.

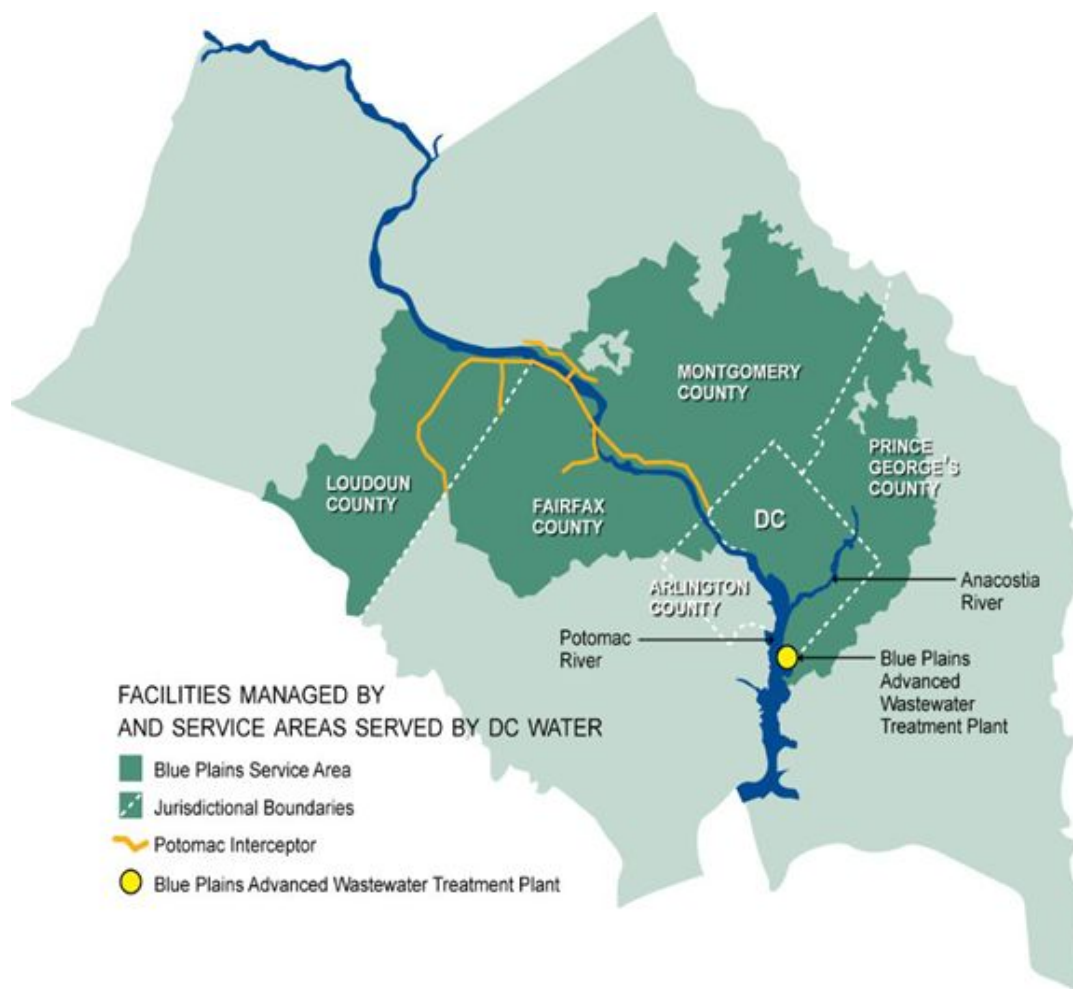
The Authority also has an established network of resources, which it leverages to proactively assess new and evolving risks including: vendors, WaterISAC, DHS, auditors and peer utilities. These resources contribute to continuously improving the Authority’s capabilities. Finally, the Authority has purchased Cyber Liability and Breach Notification insurance coverage for third party liability and privacy notification expenses resulting from data breaches. The total aggregate coverage is \$5 million.

Adopting the NIST Framework and implementing information systems alone will not ensure the Authority and the Water and Waste Water Systems are protected from a cyber-threat. The Authority’s success is achieved by institutionalizing the elements of the NIST Framework and information system, so it becomes the way of doing business not something else the Authority does.

## **THE SYSTEM**

The Authority provides retail water distribution to the District and wastewater treatment, collection and disposal services to the District and certain neighboring counties in Maryland and Virginia. The following section describes the Water and Wastewater Systems of the Authority, including a description of the Aqueduct.





**The Wastewater System**

*Blue Plains Advanced Wastewater Treatment Plant*

The Authority operates the Blue Plains Advanced Wastewater Treatment Plant (“Blue Plains”), the largest advanced wastewater treatment facility in the United States. The original wastewater treatment facility at the site of Blue Plains was built in 1938. The original facility provided only primary treatment for up to 130 million gallons per day (“mgd”). Subsequently, there have been several expansions and upgrades. Since 1983, Blue Plains has provided advanced treatment, which includes nutrient removal, filtration and dechlorination. The most recent expansion of Blue Plains was completed in 1997, which increased the plant’s capacity to 384 mgd.

*Service Area*

The Blue Plains service area includes the District (retail service), parts of Fairfax and Loudoun Counties, the Town of Vienna in Virginia, parts of Prince George’s and Montgomery Counties in Maryland, Washington Dulles International Airport and various U.S. Government agencies located in Virginia and Maryland (wholesale service). The population of the Blue Plains service area totals approximately 2.3 million, consisting of approximately 700,000 residents of the District and 1.6 million residents of the surrounding jurisdictions. In addition, the Authority annually serves approximately 22.0 million visitors to the area and approximately 800,000 workers in the District.

### *Wholesale Customer Agreements*

*Intermunicipal Agreements* – In 1985, the District signed the Blue Plains Intermunicipal Agreement of 1985 (the “1985 IMA”) with Fairfax County in Virginia, Montgomery and Prince George’s Counties in Maryland and the Washington Suburban Sanitary Commission (the “WSSC”) in order to address wastewater treatment, biosolids management and cost allocation rights, obligations and objectives with respect to Blue Plains. A significant portion of the wastewater collection and all of the wastewater treatment and related biosolids management required by the 1985 IMA was provided by the District at Blue Plains until 1996, when the District created the Authority as an independent authority with regional responsibilities to provide those services through the operation and management of Blue Plains and associated facilities. The District, however, retained and continues to hold title to the real property, appurtenances and fixtures of Blue Plains.

The 1985 IMA was replaced in 2012 by a new Intermunicipal Agreement (the “2012 IMA”), which was negotiated, approved and executed by each of the signatories to the 1985 IMA, in addition to the Authority. The 2012 IMA incorporates provisions and establishes terms relating to: facility location; current and long-range infrastructure planning and development; allocation of wastewater treatment capacity of Blue Plains and associated facilities and related peak flows for the collection system; funding and allocation of the capital costs of wastewater treatment, biosolids management and O&M costs; responsibilities with respect to pretreatment and operational requirements; the process of making future wastewater capacity planning decisions, including load allocations; mechanisms for coordination among the parties; and long-term management of the wastewater treatment and disposal process. Under those terms, the cost of operations and maintenance of Blue Plains are shared among the 2012 IMA signatories on an actual basis, whereas the costs of the capital program of Blue Plains are shared among the 2012 IMA signatories commensurate with their respective capacity allocations, with 45.8% of Blue Plains flow capacity allocated to the District and the remainder to the WSSC (on behalf of Montgomery and Prince George’s Counties) and Fairfax County. The 2012 IMA also establishes the Authority’s right to require the User Jurisdictions to off-load flows to other wastewater treatment plants as necessary to provide the Authority capacity as needed to serve the District’s portion of the service area.

*Potomac Interceptor Agreements* – Since October 1963, the District has entered into separate, limited allocation agreements with several entities that were tributaries to the Potomac Interceptor sewer as provided by statute. Certain of those agreements remain in effect and include users that did not participate in the IMA as signatories, but are allocated flow capacity under the 2012 IMA in accordance with the original individual agreements they entered into with the District prior to the 1985 IMA. Those entities include the Department of Transportation/Federal Aviation Administration on behalf of Washington Dulles International Airport, the Department of the Navy, the National Park Service, and the Town of Vienna, Virginia, which together account for less than 1% of Blue Plains allocated flow capacity. These Potomac Interceptor agreements provide for the pro-rata recovery, through the District, of the Authority’s costs of constructing, operating and maintaining the Potomac Interceptor sewer and certain major interceptor sewers within the Blue Plains service territory. A separate Potomac Interceptor agreement was executed after the 1985 IMA with the Loudoun County Sanitation Authority and is described below.

*Loudoun County Sanitation Authority Agreement* – In November 1998, the Authority and the District executed an agreement with the Loudoun County Sanitation Authority (“LCSA”) allocating the right to limited Potomac Interceptor flow capacity to the LCSA, including the treatment and disposal of the associated wastewater at Blue Plains. Consistent with that agreement, the 2012 IMA allocates commensurate Blue Plains flow capacity to the LCSA, although it is also not a signatory to the IMA. The agreement requires LCSA to pay for its share of the Potomac Interceptor and Blue Plains operating and capital costs, following the IMA methodology (i.e., based upon metered flows for operating costs and a pro rata capacity allocation for capital costs).

### *Wastewater Collection*

The wastewater collection system consists of approximately 1,900 miles of sanitary, stormwater and combined sewers, 125,000 building sewer laterals, 22 flow-metering stations, nine off-site wastewater pumping stations and 16 stormwater pumping stations. The Authority has completed detailed assessments and a large number of improvements to many of the pumping stations. See “THE SYSTEM – Wastewater Regulation and Permits” below.

### *Sanitary Sewer System*

A sanitary sewer system serves two-thirds of the District’s land area. The system includes 600 miles of interceptor and sewer collection pipes with eight sanitary pumping stations. The typical operation is a gravity flow system with a few pumping stations to pump across higher grades in the District. Over the last 15 years, the Authority has completed a number of upgrades to its sanitary sewer system, which have made the system compliant with new code standards and regulations, and increased the efficiency and effectiveness of several of the system’s pump stations.

*Combined Sewer Overflow Wastewater System*

Approximately one-third of the District's land area is served by a combined sewer overflow ("CSO") wastewater system that combines both stormwater and wastewater in a single conveyance system. Combined sewer systems are common among older cities throughout the United States. The District's combined sewer system conveys only sanitary flow to Blue Plains during dry weather. During and immediately following periods of heavy rainfall, however, the combined sanitary and stormwater flows frequently exceed the capacity of the combined sewer system and a combination of stormwater and untreated wastewater is discharged through one or more of the 53 existing CSO outfalls authorized in the Authority's NPDES Permit. See "THE SYSTEM - Wastewater Regulation and Permits – NPDES Permit" below.

*Biosolids Disposal*

In the second quarter of Fiscal Year 2015, the Authority fully implemented its new Blue Plains biosolids processing facilities featuring thermal hydrolysis and anaerobic digestion. Operation of these facilities resulted in a reduction in biosolids production from 1200 tons per day (60 truckloads) to approximately 500 tons per day (25 truckloads). These biosolids are considered Class A (as defined by EPA) and are currently applied directly to farmland at various sites in Virginia, Maryland, and Pennsylvania with disposal in landfills being utilized as an alternate method if weather conditions do not allow land application. Because the biosolids are Class A, the Authority has greater flexibility in its efforts to recycle biosolids produced at Blue Plains than it did prior to the new processing facilities. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Wastewater Treatment Projects."

**Wastewater Regulation and Permits**

*NPDES Permit.* Blue Plains is authorized to discharge treated effluent to the Potomac River through two outfalls (Outfalls 001 and 002) pursuant to an NPDES permit (the "NPDES Permit") that was reissued to the Authority by the U.S. Environmental Protection Agency (the "EPA") effective August 26, 2018. Discharges through Outfall 002, which consist of sanitary flow and some combined sewer flow from the CSO system during and following rainfall events, receive complete treatment. Combined sewer flows that exceed Blue Plains' capacity to provide complete treatment receive partial treatment and are discharged through Outfall 001. The NPDES Permit also authorizes discharges to the Anacostia River, the Potomac River and Rock Creek from the combined sewer system through a total of 53 CSO outfalls and four emergency relief outfalls.

The NPDES Permit requires that discharges from the CSO outfalls not exceed those limits necessary to comply with applicable water quality standards under the Clean Water Act, 33 U.S.C. § 1251 et seq. (the "Clean Water Act"). The Authority was the first agency to meet the voluntary nutrient reduction goal of the 1987 Chesapeake Bay Agreement. See "*The Chesapeake Bay Agreements*" below. The NPDES Permit also requires the development and implementation of a Nine Minimum Controls program (the "NMC Program"), consisting of proper operation and maintenance of the existing collection and treatment system to minimize untreated discharges from the CSO outfalls, as well as the implementation of a CSO Long-Term Control Plan (the "DC Clean Rivers Project")\* designed to control CSO discharges to prevent them from causing or contributing to violations of applicable water quality standards.

The DC Clean Rivers Project is being implemented pursuant to a consent decree among the Authority, the District, and the United States dated March 25, 2005 (the "2005 LTCP Consent Decree"). In 2016, the Authority successfully renegotiated an amendment to the 2005 LTCP Consent Decree that modifies the DC Clean Rivers Project to include green/gray infrastructure in the Potomac Watershed and green infrastructure in the Rock Creek Watershed. According to the amended 2005 LTCP Consent Decree, pursuant to the DC Clean Rivers Project, the Authority will construct 17 miles of tunnels with a combined storage capacity of 187 million gallons, five new tunnels, a low lift pumping station, several diversion structures and sewers to collect CSO overflows, and green infrastructure to control selected CSOs. The amended 2005 LTCP Consent Decree does not have an expiration date.

The DC Clean Rivers Project continues on schedule. The FY 2019 – FY 2028 CIP includes approximately \$1.42 billion for the costs of the DC Clean Rivers Project and combined sewer projects. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Combined Sewer Overflow Projects." Effective May 1, 2009, the Authority implemented a rate structure that more equitably allocates the costs of the DC Clean Rivers Project to retail customers based on the impervious surface area on customers' properties. See "CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – *Clean Rivers Impervious Area Charge*."

*Industrial Pretreatment Program.* As with most large wastewater systems, the Authority, under the provisions of the Clean Water Act, operates an industrial pretreatment program to control the discharge into the wastewater system of industrial wastewater containing certain toxins or prohibited pollutants. The Authority regulates

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\* Note that in prior Official Statements of the Authority the DC Clean Rivers Project was referred to as the "CSO LTCP".

50 “significant industrial users” as defined by EPA regulations. Fourteen of these users are located within the District; the remaining users are located in the User Jurisdictions.

*Wastewater Consent Decree and Stipulated Agreement and Orders.* Upon its creation, the Authority assumed responsibility for compliance with various legal actions taken against the District related to the operation of, and discharges from, Blue Plains, specifically including a judicial Consent Decree issued in 1995 (the “1995 Consent Decree”) and a subsequent Stipulated Agreement and Order (the “1996 Stipulated Agreement and Order”). The Authority is presently in compliance with all of the requirements under each of the 1995 Consent Decree and the 1996 Stipulated Agreement and Order. The EPA Region III has acknowledged satisfaction of these requirements, although the 1995 Consent Decree remains in effect.

*The Chesapeake Bay Agreements.* In 1987, the Mayor of the District and the Governors of the Commonwealths of Virginia and Pennsylvania and the State of Maryland entered into the 1987 Chesapeake Bay Agreement, committing each jurisdiction to, and subsequently achieving, a 40% reduction of nutrients, such as nitrogen and phosphorus, reaching the main stem of the Chesapeake Bay by the year 2000. Unlike many municipal wastewater treatment facilities that discharge into the Chesapeake Bay, the Authority has historically removed phosphorus and nitrogen. As a supplemental environmental project in settlement of liability for stipulated penalties under the 1995 Consent Decree, the Authority installed a pilot program to test a nitrogen reduction process on one-half of its wastewater, which demonstrated a greater than 40% nitrogen reduction in completely treated effluent. As a result, in 2000, the Authority began operation of full plant scale biological nutrient removal.

In 2000, the parties entered into Chesapeake 2000, a comprehensive agreement to guide further efforts to improve the water quality in the Chesapeake Bay through 2010. In April 2007, the EPA issued a modification to the Authority’s NPDES Permit, reflecting a new total nitrogen effluent limit for Blue Plains, which was developed to match the goals of Chesapeake 2000. In addition to meeting the new effluent limit for total nitrogen, the Authority had existing NPDES Permit requirements for treating wet weather flows at Blue Plains as part of its long-term control plan for the combined sewer system. In October 2007, the Authority submitted to the EPA the Blue Plains Total Nitrogen Removal/Wet Weather Plan (“TN/Wet Weather Plan”), setting forth the Authority’s proposal and schedule to attain the new nitrogen limit and to satisfy its wet weather treatment obligations. The principal TN/Wet Weather systems include the Blue Plains Enhanced Nitrogen Removal Facilities program (“ENRF”), which was designed to achieve advanced effluent treatment with nitrification and denitrification facilities, and the extension of the tunnels system from Poplar Point to Blue Plains, including tunnel dewatering and enhanced clarification facilities at the tunnels system terminus. In September 2008, the Authority submitted to the EPA a summary report that provided a plan for implementing the wet weather aspects of the TN/Wet Weather Plan. The EPA approved the TN/Wet Weather Plan in July 2010 and incorporated these changes into the amended 2005 LTCP Consent Decree.

The Authority’s current NPDES Permit, issued on September 30, 2010, required the Authority to comply with a new total nitrogen discharge limit by January 1, 2015. The ENRF was completed and began treating the full Blue Plains plant flow in October 2014, satisfying the Authority’s obligation to begin compliance by January 1, 2015. See “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Wastewater Treatment Projects.”

On June 16, 2014, the parties to Chesapeake 2000 and the Governors of the State of Delaware, New York and West Virginia entered into the Chesapeake Watershed Agreement (“2014 Chesapeake Agreement”) committing to have in place practices and controls to achieve 60% reduction of nutrients and sediments by 2017. On March 9, 2018, the Authority began operation of all TN/Wet Weather systems, which satisfies the requirements of the 2014 Chesapeake Agreement.

*Air Quality Regulations.* The Authority has applied for and received from the DOEE numerous air quality permits under Chapter 2 of Title 20 of the District of Columbia Municipal Regulations for several emission sources. The terms of the Chapter 2 air quality permits as well as other applicable requirements relating to air pollution will eventually be incorporated into an air quality operating permit under Chapter 3 of Title 20 of the District of Columbia Municipal Regulations (“Chapter 3 Operating Permit”). The Authority submitted an application to the DOEE for the Chapter 3 Operating Permit in March 2008 and the application was updated in 2016 to include all new sources.

*Future Matters.* In addition to continued compliance with its current permits and regulations described above, in the future, the Authority’s wastewater discharges may become subject to additional requirements based on new federal or local requirements. As the EPA or the District promulgate additional regulations, the Authority may be required to modify operations and/or construct facilities beyond those contemplated in the CIP. As an example, on November 23, 2015, the Authority filed a declaratory action in the U.S. District Court for the District of Columbia against the EPA, seeking to correct alleged technical errors in a regulatory action related to the Total Maximum Daily Load (“TMDL”) for E. coli. The TMDL, as approved, did not account for the normal day-to-day variability at Blue Plains and, if enforced against the Authority, could have required significant capital improvements at Blue Plains. On January 13, 2017, EPA issued a revised decision rationale, which resolved the issues that the Authority challenged. On March 13, 2017, the parties filed a motion to dismiss the Authority’s complaint and that case was closed. However, the EPA’s revised decisional rationale was challenged in a separate proceeding. On August 12, 2019, the U.S. District Court for the District of Columbia held that the TMDL for E. coli that DOEE developed and the EPA’s approval

(based on its revised decision rationale) did not comply with the Clean Water Act. The court vacated the TMDL, but stayed the vacatur for one year to allow for the development of new TMDL. The Authority will monitor the development of new TMDL and will advocate, as necessary, on behalf of itself and its rate payers.

## The Water System

### *The Washington Aqueduct*

Established in 1852, the Washington Aqueduct Division of the U.S. Army Corps of Engineers (the “USACE”) provides water to the District and parts of Virginia. The USACE owns and operates the Washington Aqueduct (the “Aqueduct”), including its two water treatment plants, raw water conduits, reservoirs, pumping stations and treated water transmission lines.

The Aqueduct facilities supply treated water to distribution systems of the Authority, Arlington County, Fairfax County Water Authority (“FCWA”) (collectively, the “Aqueduct Customers”), the federal government, and other parts of northern Virginia. In January 2014, FCWA assumed ownership and operation of the water distribution system previously owned and operated by the City of Falls Church. The Authority is responsible for managing the treated Water System that serves the District and several other governmental customers outside the District. The Authority purchases approximately 73% of the finished water produced by the Aqueduct, and Arlington County and the FCWA purchase the remainder. The Authority’s share of the water purchased from the Aqueduct in the last ten Fiscal Years is set forth in Table 3. For a discussion regarding the reduction in consumption and customer demand, see “CUSTOMER BASE, RATES AND CHARGES – Customer Demand.”

**Table 3. Historical Water Demand**

Fiscal Year ended September 30	Annual Deliveries to System (MG)	Average Day (MGD)	Max Day (MGD)
2009	39,998	109.6	150.4
2010	38,589	105.7	146.9
2011	37,556	102.9	143.7
2012	36,930	100.9	142.9
2013	34,714	95.1	129.7
2014	34,708	95.1	123.7
2015	38,146	104.5	148.4
2016	36,363	99.4	127.7
2017	35,827	98.2	122.7
2018	34,343	94.1	132.5

*Source: Authority records.*

The Aqueduct draws water from the Potomac River, which is the predominant source of water in the District and the User Jurisdictions. As a result of the Potomac River’s importance for maintaining adequate water supply, the Interstate Commission on the Potomac River Basin (“ICPRB”) and the Metropolitan Washington Council of Governments (“COG”), have maintained a drought plan since 1978, through which the Potomac River’s water supply is supplemented by a 23.5 billion gallon reserve that is stored at three separate off-river reservoirs. Due to the maintenance of this strategic reserve, the ICPRB has been able to effectively manage drought conditions and effectively allocate water resources during drought events.

The federal Safe Drinking Water Act Amendments of 1996 authorized the Secretary of the Army with the consent of the Authority, the City of Falls Church and Arlington County to either establish a non-federal public or private utility to receive title to operate, maintain and manage the Aqueduct or to allow the USACE to remain as owner and operator with the Authority, the City of Falls Church and Arlington County having some input into strategic operations, direction, operations and capital improvement of the Aqueduct. In May 1998, the Authority, the City of Falls Church, Arlington County and the USACE executed a Memorandum of Understanding that the USACE would continue to own and operate the Aqueduct facilities. In December 2013, the Authority, FCWA, Arlington County and the USACE executed a revised Memorandum of Understanding to include the FCWA as the successor in interest to the City of Falls Church.

The Aqueduct has developed a capital improvement program, including improvements to the Dalecarlia and McMillan Water Treatment Plants (each a “WTP”), raw water conduits, pumping stations and reservoirs. Over the next ten years, the Authority estimates that its share of the cost of the Aqueduct capital improvements will be \$187

million, which is accounted for in the CIP. See “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Washington Aqueduct Projects.”

The Trump Administration’s proposed 2018-20 budgets include a proposal to divest the Aqueduct currently operated by USACE to a State or local government or the private sector. In response to those proposals, the Authority is working with the other Aqueduct customers to consider and evaluate a range of possibilities, including, among others: transfer of ownership to an existing public authority (which could include the Authority); enhancing operations and maintaining current ownership; or creating a new regional water authority. At this point, no prediction can be made as to whether a divesting of the Aqueduct will occur, or, if it does, who might acquire the Aqueduct, or what the terms of the acquisition might be.

#### *Water Sales Agreement*

Pursuant to a Water Sales Agreement, dated as of July 31, 1997, by and between the Authority and the USACE (the “Water Sales Agreement”), the USACE sells and furnishes to the Authority all of the finished water that the Authority requires for the operation of the Water System to the extent that the USACE has water and facilities available at the Aqueduct. In accordance with the Water Sales Agreement, the Authority is obligated to make monthly payments into an escrow account to be used by the USACE to cover the Authority’s pro rata share, based on its consumption of water, of the costs of the operation and capital improvement of the Aqueduct. The Authority currently contributes approximately 73% of capital and operating expenditures of the Aqueduct. The Water Sales Agreement will remain in effect until September 30, 2023, unless earlier terminated in accordance with its terms. Thereafter, the Water Sales Agreement may continue until terminated by either party giving the other party not less than six months’ prior written notice.

#### *Water Supply*

The Aqueduct obtains its water supply from two Potomac River intakes at Great Falls and Little Falls. Two other regional water suppliers, FCWA and WSSC, also obtain for processing at their drinking water treatment facilities water from the same area of the Potomac River. Water for the Authority is withdrawn at the Great Falls intake and flows by gravity through two nine-mile conduits and is then pumped to the Dalecarlia Reservoir. Water also may be withdrawn from the Little Falls intake and pumped to the Dalecarlia Reservoir. The Dalecarlia Reservoir acts as a presedimentation basin for water drawn into the Dalecarlia WTP and for water diverted to the Georgetown Reservoir for subsequent treatment at the McMillan WTP.

In 1978, the United States, the District, the State of Maryland, the Commonwealth of Virginia and the FCWA entered into a Low Flow Allocation Agreement to provide a basis for allocation of resources during severe drought conditions and outline procedures to be followed in such circumstances. Water supply reservoirs developed on Little Seneca Creek and the north branch of the Potomac River are designed to augment the natural flow of the Potomac River during low flow conditions and ensure that the Washington metropolitan area will have sufficient water for years to come.

#### *Raw Water Supply Agreements*

A series of agreements ensures the continuous adequate supply of water to the Aqueduct’s and the Authority’s customers. The following are the Authority’s raw water supply agreements:

*The Savage Reservoir Maintenance and Operation Cost Sharing Agreement* was executed in June 1982. Pursuant to the laws of the State of Maryland, the Upper Potomac River District contracted with the District, WSSC, FCWA and Allegheny County, Maryland, to share the operation, maintenance, repair and replacement costs of the Savage Reservoir project located in western Maryland. This agreement provides for releases from Savage Reservoir that mix with, and thereby reduce, the acidic nature of the Jennings Randolph Lake waters. The Savage Reservoir cost-sharing agreement was incorporated by reference into the Water Supply Coordination Agreement described below.

*The Little Seneca Lake Cost Sharing Agreement* was executed in July 1982 by and among the District, WSSC and FCWA to construct a dam and reservoir to provide an adequate supply of potable water continuing into the current century. This agreement calls for WSSC to finance, construct, operate and maintain Little Seneca Lake. The Authority’s share of the project and operating and maintenance costs under the agreement is 40%. The Little Seneca Lake Cost Sharing Agreement was incorporated by reference into the Water Supply Coordination Agreement described below.

*The Water Supply Coordination Agreement* was executed in July 1982 by and among WSSC, FCWA and the Aqueduct to provide for the coordinated operation of its water supply sources and cooperative regional management of the water supply system and the cost-sharing arrangement for any water supply projects for the Washington metropolitan area, if and when they are needed.

*The Novation and Future Water Supply Storage Agreement* was executed in July 1982, by and among the United States, the Maryland Potomac Water Authority, WSSC, FCWA and the District, to provide for initial water supply storage in the Jennings Randolph Lake reservoir of approximately two billion gallons. The Novation and Future Water Supply Storage Agreement increases the amount of water supply storage to 13.4 billion gallons, or 32% of the reservoir's total storage. Of the remaining reservoir storage 40% is designated for water quality and 28% for flood control.

#### *Water Treatment and Storage*

The Authority receives finished water from the Dalecarlia and McMillan WTPs. The original Dalecarlia WTP was completed in 1928, and underwent major expansion and improvements in 1964. The McMillan WTP was constructed in 1985 on the site of the original 1905 plant. The design capacity of the Dalecarlia and McMillan WTPs was based on population growth and water use projections that are greater than have been realized to date. The total treatment capacity of the plants of 384 mgd currently exceeds the day-to-day demands and peak requirements of their respective service areas.

Finished water from the Dalecarlia WTP and McMillan WTPs is pumped by the Dalecarlia Pumping Station and Bryant Street Pumping Station, respectively, to (i) five underground reservoirs (Brentwood, Soldier's Home, Fort Reno No. 1, Fort Stanton No.1 and Fort Stanton No. 2) and three elevated tanks (Fort Reno Elevated Tank No. 2, Good Hope Elevated Tank and Boulevard Elevated Tank) operated by the Authority, and (ii) three reservoirs owned and operated by the Aqueduct (Foxhall, Van Ness and Fort Reno Reservoir No. 2). The combined facilities can store up to 110 million gallons ("mg") of finished water. Flexibility in the distribution system is provided so that each of the two water pumping stations can pump to other reservoirs in the distribution system as circumstances dictate.

In addition to the existing three elevated tanks, the Authority completed a fourth elevated tank – the St. Elizabeth's Elevated Tank in the summer of 2018, which can store up to 2 mg of finished water. The Authority also plans to replace the Ft. Reno Elevated Tank No. 2, which is currently out of service, with another elevated tank with 2 mg capacity in Fiscal Year 2024.

#### *Sold vs. Pumped Ratio*

The Authority regularly monitors the ratio of water billed to customers (sold water) versus water it purchases from the Aqueduct (pumped water). Unlike many other water utilities, the Authority does not adjust this ratio for water used in normal system activities, such as firefighting and system maintenance, including flushing of water mains and hydrant testing.

The sold versus pumped ratio increased from 72.14% in 2017 to 74.33% in 2018. Water sales figures are derived from the operating budget of the Authority and may not be consistent with the audited financial statements for each year. The cost of unbilled water is not substantial relative to total annual expenses of the Authority.

### **Water System Regulation and Permits**

#### *Drinking Water Quality*

The water operations of the Aqueduct and the Authority are subject to the requirements of the federal Safe Drinking Water Act of 1974, 42 U.S.C. § 300f et. seq., as amended in 1986 and 1996 by Congress. The 1986 amendments to the Safe Drinking Water Act extended the regulatory agenda of the EPA to include, among other things, the development of drinking water standards for 90 contaminants.

The Aqueduct and the Authority are in substantial compliance with all physical, chemical, radiological and bacteriological standards established by the regulations currently in effect under the Safe Drinking Water Act and are studying the potential impacts of proposed rules as well as those still under development by the EPA. As the EPA promulgates additional regulations, there is a potential that the Aqueduct or the Authority will be required to modify operations and/or construct facilities beyond those contemplated by the CIP. The Aqueduct and the Authority management believe, however, that planned capital projects should address all current regulatory requirements.

#### *NPDES Permit and Water Treatment System Sediments*

Until April 2003, during high flow periods, the Aqueduct discharged into the Potomac River the river sediments that are removed during the treatment process. The NPDES Permit issued in March 2003 included discharge limitations on sediments. The Aqueduct entered into a Federal Facilities Compliance Agreement ("FFCA") with EPA Region III, which provides a legally mandated plan and an enforceable compliance schedule for achieving the effluent discharge limitations in the NPDES Permit. The Aqueduct evaluated various options for residuals collection, conveyance, processing and disposal and selected a process which dewateres the residuals on site and transports them off-site for disposal. Construction on this project commenced in Fiscal Year 2008, was completed and placed into service on November 22, 2012. The Authority's share of the total cost of this project was \$98.6

million. See “CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Washington Aqueduct Projects.”

#### *Lead Levels*

Pursuant to the Safe Drinking Water Act, the Lead and Copper Rule promulgated in 1991 by the EPA (the “Lead and Copper Rule”) establishes maximum contaminant level goals and action levels for lead and copper. Large water suppliers, such as the Authority, are required to perform periodic monitoring and optimize corrosion control of water so as to minimize leaching of lead and copper contaminants into drinking water. If more than 10% of the tap water samples contain lead above the “action level” of 15 micrograms per liter, the water supplier is required to perform public education and to optimize the corrosion control treatment. If, after optimal corrosion control treatment has been implemented, the lead level in water at the tap continues to exceed the action level, the supplier must annually replace 7% of existing lead service lines that it owns. Alternatively, the water supplier may demonstrate through testing that individual lead service lines that it owns do not have lead levels above the action level (called “sampling in lieu of replacement”). The supplier may perform a combination of these two actions to attain the 7% annual replacement level. In the District, property owners own the lead service lines.

In August 2002, the Authority reported to EPA Region III that results for the sampling period from July 2001 to June 2002 demonstrated lead levels in excess of the threshold for action established by the Lead and Copper Rule. Elevated lead levels were believed to be linked to changes in the Aqueduct’s water treatment methods. In November 2000, the Aqueduct had switched from free chlorine to chloramines disinfection to reduce the concentration of disinfection byproducts under the federal Disinfectant Byproducts Rule. Elevated lead levels began appearing within a year of the chlorine/chloramines switchover.

In February 2004, EPA Region III commenced an audit of the Authority’s compliance with the Lead and Copper Rule and found noncompliance with regard to sampling, monitoring, public notification and reporting requirements. In an Administrative Order dated June 17, 2004, as supplemented on January 14, 2005, and amended on June 8, 2005 (collectively, the “Administrative Order”), EPA Region III and the Authority agreed to remedies for the issues identified by the compliance audit. The Authority and the Aqueduct undertook appropriate measures to implement corrosion control treatment. Lead levels have consistently been below the action level since 2005 and the Authority is no longer subject to the Administrative Order from EPA Region III.

Pursuant to a Consent Agreement and Final Order (“CAFO”) executed on May 2, 2007, the Authority agreed to pay a civil penalty in the amount of \$10,000 to EPA Region III for certain alleged reporting violations of the Lead and Copper Rule. The CAFO resolved all of the civil claims in connection with these allegations. EPA Region III and the DOJ also conducted an investigation to determine whether any criminal violations occurred in connection with the Annual Report on Lead Service Replacement Program the Authority filed with EPA Region III in October 2003 and the two different methods the Authority used to test lead levels. In October 2008, EPA Region III and the DOJ informed the Authority that it would take no adverse action against the Authority, thereby resolving all criminal claims against the Authority in connection with this matter.

In addition to the measures undertaken by the Authority pursuant to the Administrative Order, in 2004 the Authority commenced a voluntary lead service replacement program, even though not legally required to do so under the Lead and Copper Rule. In order to reduce adverse impacts and costs to ratepayers, lead service replacement construction work was performed in conjunction with sewer laterals, small valves and water main repair work, and the replacement of broken or defective hydrants. However, this resulted in a large number of partial lead service replacements because many property owners declined to replace the lead service line on their private property. In 2008, in response to research indicating that partial lead service replacements are not effective in reducing lead levels, the Authority discontinued its accelerated replacement program. In September 2009, the Board approved modifications of the Authority’s lead service replacement policy to encourage full service line replacements and to manage costs. Under the modified policy, public lead service lines (between the main and the property line) will continue to be replaced with copper pipes in conjunction with: (i) the Authority’s water main replacement projects when the Authority must replace the water service pipe to connect to a new water main, and (ii) when the customer replaces the private portion of lead service lines and requests that the Authority replace the public portion of the lead service line.

A study authored by Marc Edwards, PhD, an engineer at the Virginia Polytechnic Institute and State University, and Dana Best, MD, a physician at the Children’s National Medical Center, published in the March 1, 2009, issue of *Environmental Science and Technology*, found that the number of toddlers and infants with high blood-lead concentrations more than doubled in certain District neighborhoods that experienced rising lead concentrations in 2001 (the “Edwards Study”). These findings contradicted a report published by the Centers for Disease Control and Prevention (the “CDC”) on March 30, 2004 (the “2004 CDC Report”), which found that lead might have contributed a small increase in blood lead levels and claimed that no children with dangerously high blood lead levels were found in the District.

The Edwards Study prompted the U.S. House of Representative’s Committee on Science and Technology to open an investigation into the 2004 CDC Report. The Majority Staff of the Subcommittee on



Investigations and Oversight of the Committee on Science and Technology issued a report on May 20, 2010, releasing its findings. The Subcommittee's primary findings include, among others, that (i) the CDC knowingly used flawed data in drafting the 2004 CDC Report, leading to "scientifically indefensible" claims being included in the 2004 CDC Report, and (ii) the CDC failed to publicize later research showing that the harm was more serious than the 2004 CDC Report suggested. In May and June 2010, the CDC issued two notices to the readers of its digest, *Morbidity and Mortality Weekly Report*, admitting that the 2004 CDC Report was misleading and that it "should not be used to make conclusions about the contribution of water lead to blood levels in DC, to predict what might occur in other situations where lead levels in drinking water are high, or to determine safe levels of lead in drinking water."

In December 2010, the CDC published a study of the District's water supply conducted from 1998 to 2006, which concluded that children living in the District were exposed to high levels of lead despite an attempt to prevent the water from being contaminated by partial lead service replacements. The 2010 CDC Study confirms information the Authority received in previous years which led the Authority in 2008 to discontinue the partial lead service line replacements. Partial line replacements can cause agitation that temporarily releases lead into the home, which can cause a temporary spike in lead levels. As described above, the Authority modified its lead service line replacement program in 2009 and continues its efforts to address lead in drinking water by: (i) monitoring household lead levels to ensure drinking water is in compliance with the EPA drinking water standards, (ii) conducting research on household plumbing characteristics, (iii) offering free lead testing, (iv) recommending full lead service replacements on public and private property, (v) providing free water filters and lead testing following a full or partial lead service line replacement, (vi) recommending that pregnant women and children under the age six should use filtered tap water for drinking and cooking until all sources of lead impacting water are removed, and (vii) participating in coordinated District interagency meetings and responses to lead in water issues.

The Authority estimates the cost of the lead service line replacement program in the CIP at \$63.2 million over the next 10 years. From the inception of the line replacement program through September 30, 2018, the Authority expended \$214.8 million on the lead service line replacement program. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Water Projects."

The Lead Water Service Line Replacement and Disclosure Amendment Act of 2018, D.C. Law 22-241, effective March 13, 2019 (the "Line Replacement Act"), established new programs that will fund the replacement of the lead service lines on private property. The Authority is prohibited, however, from replacing only a portion of a lead water service line that is on public property. The Line Replacement Act accomplishes four things:

- (1) Full Lead Water Service Line Replacement. The Line Replacement Act authorizes the Authority to use District appropriated funds to pay for the costs to replace the lead water service line on private property when the Authority is replacing the lead water service line in conjunction with water main replacements or after an emergency replacement of the water main or lead water service line;
- (2) Lead Water Service Line Replacement Payment Assistance Program. In cases where the water service line on public property is not lead, the District has budgeted appropriated funds to assist all District homeowners to provide 50% to 100% of the costs, depending on their household income, to pay for the lead water service line replacement on private property. This provision was funded by the District's budget and included in the Authority's Fiscal Year 2020 budget. Under this program, the Authority is responsible for certifying that the work is done, and paying the contractor from funds provided by the District;
- (3) Voluntary Lead Service Pipe Replacement Program. In cases when there are lead service lines on private property and in public space, but the District's funds are insufficient to cover the costs, or where the Authority does not have any planned activities to replace water mains and the lead water service lines connected to them within two years, or the street is not under a DDOT moratorium, the property owner may participate in the Authority's Voluntary Lead Service Pipe Replacement program. Under this program, the property owner agrees to pay the costs for the replacement of the lead pipe on private property and the Authority will replace the pipe in the public space at the same time; and
- (4) Education. Creates a new series of outreach, education and disclosure requirements for home sellers and real estate agents to increase awareness of lead service issues.

As of the date of this Official Statement, the District has proposed funding for both these programs in the Fiscal Year 2020 Budget, but their implementation will not have a material impact on the Authority or its finances.

### **Protection of the Water System and Wastewater System**

In 2000, the Authority developed and implemented an extensive security program in conjunction with the District's Metropolitan Police Department and various federal agencies, including the Federal Bureau of Investigation and the Bureau of Alcohol, Tobacco and Firearms (the "2000 Security Program"). After the events of

September 11, 2001, and in response to certain provisions of the Bioterrorism Act of 2002 and amendments to the Safe Drinking Water Act pertaining to security for community water systems, the Authority implemented additional security measures beyond the 2000 Security Program.

The Aqueduct and each of the Aqueduct Customers have independent obligations under law to protect the community water systems they operate. Both the Authority and the Aqueduct completed studies of Water System vulnerability using the Sandia National Laboratories RAM-W methodology. The vulnerability reports were submitted to EPA Region III in March 2003 to fulfill the Bioterrorism Act requirement for a vulnerability assessment.

Blue Plains and the primary water and wastewater distribution facilities it operates are fenced, gated and manned 24 hours a day by security officers. Major security technology video surveillance, intrusion alarm monitoring, and access control management system upgrades are utilized, with significant security technology upgrades in progress at several facilities and properties. The secondary distribution facilities are monitored by vehicular security patrols as well as some security technologies. The Authority also employs cameras and other monitoring equipment at these facilities.

Access to facilities operated by the Aqueduct is also controlled, and the Aqueduct has increased security at both staffed and remotely operated facilities. In conformance with the requirements of the Safe Drinking Water Act, the Aqueduct contracted with the Interstate Commission on the Potomac River Basin to develop a source water assessment and monitoring program. The program was implemented in 2002. In 2003, the Aqueduct together with the Fairfax County Water Authority and the WSSC founded the Potomac River Drinking Water Source Protection Partnership to further the goals of watershed protection. In 2014, the Aqueduct and the Authority collaborated with the Metropolitan Washington Council of Governments to pilot a web-based regional source water assessment tool (“WaterSuite”) building on the static 2002 assessment prepared by the Interstate Commission on the Potomac River Basin. The WaterSuite tool emphasizes chemicals stored throughout the watershed and draws upon federal, state, and local databases for insights into potential chemical contaminants. The physical security of the Aqueduct facilities that (i) collect water from the Potomac River, (ii) process the water to Safe Drinking Water Act standards, and (iii) deliver the water into the Authority’s distribution system are all maintained via a wide variety of means including gated facilities, armed guards, video surveillance, and employee protocols. All Aqueduct employees have current federal background investigations that are required for their employment. The electronic business records of the Aqueduct are handled on systems accredited by the Department of Defense to give a high assurance of control over unauthorized intrusion. The industrial control systems that function to control treatment plant processes and data transfer operate in a contained environment (i.e., no connection to the Internet). These systems are also accredited by Department of Defense and Department of the Army agencies and are constantly monitored for possible compromise. The Aqueduct is currently upgrading all elements of its industrial control system for both increased reliability as well as security.”

For information regarding the cyber security measures taken to protect the Authority and the Water and Waste Water Systems, see “THE AUTHORITY – Risks from Unexpected Events – Ensure a Safe and Reliable Computing Environment.”

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## CAPITAL IMPROVEMENT PROGRAM

### General

The Authority utilizes an annually adopted ten-year Capital Improvement Program to plan and manage the capital investments necessary to fulfill its service missions, comply with regulatory requirements and preserve and upgrade its Water and Wastewater Systems. The Authority updates the CIP annually in conjunction with its budget process, based on detailed project review by engineering staff, external engineering consultants retained by the Authority and senior management.

The Authority evaluates and prioritizes capital projects based on specific criteria. These criteria are fundamental in developing a CIP based on demonstrated needs and are set forth in Table 4 and described below.

**Table 4. Capital Improvement Program Criteria**  
(\$ in thousands)<sup>1</sup>

Fiscal Year	Mandates <sup>2</sup>	Health and Safety <sup>3</sup>	Board Policy <sup>4</sup>	Potential Failure <sup>5</sup>	High Profile Good Neighbor <sup>6</sup>	Good Engineering/High Payback <sup>7</sup>	Good Engineering/Lower Payback <sup>8</sup>	Total
FY 2019	\$210,807	\$13,874	\$33,472	\$36,117	\$8,132	\$87,332	\$49,385	\$439,117
FY 2020	150,388	3,821	67,776	42,560	501	98,520	56,776	420,342
FY 2021	139,790	5,858	72,529	41,437	924	112,534	93,944	467,016
FY 2022	191,411	6,928	53,535	37,742	3,315	149,552	119,241	561,724
FY 2023	151,297	2,099	42,382	72,801	1,281	151,811	108,335	530,006
FY 2024	64,692	5,368	50,055	34,511	558	158,304	109,120	422,607
FY 2025	55,919	12,457	54,634	35,514	1,415	183,675	106,744	450,358
FY 2026	144,295	18,846	48,081	40,102	2,679	162,071	169,379	585,454
FY 2027	97,067	8,604	44,926	31,137	89	152,165	201,677	535,666
FY 2028	<u>83,286</u>	<u>1,511</u>	<u>65,369</u>	<u>33,705</u>	--	<u>167,928</u>	<u>192,690</u>	<u>544,490</u>
Total	<b>1,288,951</b>	<b>79,366</b>	<b>532,760</b>	<b>405,626</b>	<b>18,893</b>	<b>1,423,892</b>	<b>1,207,291</b>	<b>4,956,780</b>
% of Total	<b>26.0%</b>	<b>1.6%</b>	<b>10.7%</b>	<b>8.2%</b>	<b>0.4%</b>	<b>28.7%</b>	<b>24.4%</b>	

<sup>1</sup> Column and row totals may not add due to rounding.

<sup>2</sup> Agreements, regulatory standards, court orders, issues and permits requirements, stipulated agreements, etc.

<sup>3</sup> Projects required to address public safety.

<sup>4</sup> Projects undertaken as a result of the Board's commitment to outside agencies.

<sup>5</sup> Projects related to facilities in danger of failing or critical to meeting permit requirements.

<sup>6</sup> Projects that address public concerns.

<sup>7</sup> Projects that are necessary to fulfill mission and upgrade facilities.

<sup>8</sup> Lower priority projects.

Source: Authority records.

Since its creation in 1996 through September 30, 2018, the Authority has expended approximately \$5.9 billion, on a cash disbursement basis, for capital improvement projects, including \$2.6 billion for projects at Blue Plains, \$883.3 million for Water System infrastructure projects, \$1.9 billion for the DC Clean Rivers Project and combined sewer projects, \$423.9 million for sanitary sewer projects, \$65.7 million for non-process facilities, and \$112.9 million for meter replacement/Automated Meter Reading ("AMR") projects.

The Authority estimates the cost of the Fiscal Year 2019 - 2028 CIP at \$4.96 billion on a cash disbursement basis, including approximately \$979 million for wastewater treatment projects at Blue Plains, \$1.3 billion for the DC Clean Rivers Project and combined sewer projects, \$945 million for Water System infrastructure projects, \$957 million for sanitary sewer projects, \$69 million for stormwater projects, \$138 million for non-process facilities, \$295 million for capital equipment, \$187 million for Washington Aqueduct Division projects and \$45 million for meter replacement/AMR projects. The Board approved the CIP on April 4, 2019.

An overview of the CIP project categories and the sources of funding is set forth in Table 5.

DC Water Board of Directors - X. Consent Items (Joint Use)

**Table 5. Fiscal Year 2019 - 2028 Capital Improvement Program  
Sources and Uses of Capital Funds  
Fiscal Years ended/ending September 30  
(\$ in thousands)<sup>1,2</sup>**

Actual(s) <sup>3</sup>	Projected										Total (FY19-FY28)	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		2028
<b>BEGINNING BALANCE</b>	<b>\$172,706</b>	<b>\$282,107</b>	<b>\$146,623</b>	<b>\$126,525</b>	<b>\$121,691</b>	<b>\$122,820</b>	<b>\$122,241</b>	<b>\$142,368</b>	<b>\$152,463</b>	<b>\$101,684</b>	<b>\$110,769</b>	<b>\$282,107</b>
<b>SOURCES OF FUNDS:</b>												
Proceeds from Rev. Bonds	\$346,672	\$110,000	\$190,000	\$225,470	\$282,036	\$224,077	\$125,000	\$140,000	\$168,381	\$176,895	\$172,490	\$1,814,349
System Availability Fee (SAF)	0	1,130	5,775	7,700	7,700	7,700	7,700	7,700	7,700	7,700	7,700	68,505
Transfer from Operations (CRIAC)	0	31,270	34,769	39,522	42,586	45,708	47,120	47,247	48,193	49,571	50,415	436,401
Transfer from Operations (Pay-Go)	113,021	69,989	59,732	100,316	113,858	132,832	165,152	164,901	179,571	182,295	198,129	1,366,775
EPA Grants /FEMA Grants/DC												
Reimbursement	25,332	16,385	38,990	15,858	15,858	15,858	15,858	15,858	10,000	10,000	10,000	164,665
CSO Grants	14,054	8,000	-	-	-	-	-	-	-	-	-	8,000
Wholesale Customer Capital												
Contributions	98,522	63,877	67,321	71,625	97,995	101,012	80,655	83,347	119,146	116,520	119,986	921,484
Interest Income	1,730	2,981	3,658	1,691	2,820	2,241	1,250	1,400	1,684	1,769	1,725	21,219
<b>Total Sources</b>	<b>\$599,330</b>	<b>\$303,633</b>	<b>\$400,244</b>	<b>\$462,182</b>	<b>\$562,853</b>	<b>\$529,428</b>	<b>\$442,735</b>	<b>\$460,453</b>	<b>\$534,675</b>	<b>\$544,750</b>	<b>\$560,446</b>	<b>\$4,801,398</b>
<b>USES OF FUNDS:</b>												
Water System Projects	\$69,006	\$61,885	\$71,721	\$96,300	\$101,039	\$84,395	\$96,491	\$103,325	\$106,145	\$105,338	\$118,377	\$945,016
Blue Plains Projects	106,104	69,979	66,620	76,510	97,635	110,047	82,434	81,249	133,338	137,575	123,351	978,738
Sanitary Sewer Projects	46,888	44,927	43,646	57,249	85,588	97,220	98,194	115,011	140,020	134,664	140,615	957,134
Combined Sewer	12,420	7,490	4,219	9,444	8,015	8,647	13,519	8,852	5,801	5,593	7,598	79,178
Combined Sewer LTCP (DC Clean Rivers Project)	175,874	187,859	147,208	139,786	191,573	151,411	64,415	55,689	144,295	97,067	83,286	1,262,589
Stormwater Projects	1,988	4,220	8,571	8,118	8,587	3,725	4,987	7,564	7,494	5,239	10,102	68,607
Non Process Facilities	35,526	15,309	36,002	26,793	20,665	6,831	11,058	10,396	3,901	3,553	3,560	138,068
Washington Aqueduct Division	13,194	12,930	15,532	15,909	15,536	35,006	14,830	32,731	9,034	12,298	23,321	187,127
Capital Equipment	14,430	27,400	17,105	30,027	29,656	29,295	33,750	32,610	32,496	31,409	31,349	295,097
Meter Replacement / AMR / CIS	14,499	7,118	9,718	6,880	3,430	3,430	2,930	2,930	2,930	2,930	2,930	45,226
<b>Total Uses</b>	<b>\$489,929</b>	<b>\$439,117</b>	<b>\$420,342</b>	<b>\$467,016</b>	<b>\$561,724</b>	<b>\$530,007</b>	<b>\$422,608</b>	<b>\$450,357</b>	<b>\$585,454</b>	<b>\$535,666</b>	<b>\$544,489</b>	<b>\$4,956,780</b>
<b>Sources Minus Uses</b>	109,401	(135,484)	(20,098)	(4,834)	1,129	(579)	20,127	10,096	(50,779)	9,084	15,957	(155,382)
Capital Contingency Reserve for Clean Rivers	-	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
<b>Sources Minus Uses Net of Reserves</b>	<u>109,401</u>	<u>(165,484)</u>	<u>(50,098)</u>	<u>(34,834)</u>	<u>(28,871)</u>	<u>(30,579)</u>	<u>(9,873)</u>	<u>(19,904)</u>	<u>(80,779)</u>	<u>(20,916)</u>	<u>(14,043)</u>	<u>(185,382)</u>
<b>Ending Balance</b>	<b>\$282,107</b>	<b>\$146,623</b>	<b>\$126,525</b>	<b>\$121,691</b>	<b>\$122,820</b>	<b>\$122,241</b>	<b>\$142,368</b>	<b>\$152,463</b>	<b>\$101,684</b>	<b>\$110,769</b>	<b>\$126,725</b>	<b>\$126,725</b>

<sup>1</sup> Totals may not add due to rounding.

<sup>2</sup> Beginning in Fiscal Year 2019, the Authority will set aside \$30 million of cash on hand from the above sources to serve as a contingency for the DC Clean Rivers Project. The ending balance shown above in each year beginning in Fiscal Year 2019 is inclusive of these funds and assumes that such funds are not drawn down through Fiscal Year 2028.

<sup>3</sup> Preliminary results, unaudited.

Source: Authority records.

## Categories of CIP Projects

*Water System Projects.* Projects in the water service area are designed to maintain an adequate and reliable potable water supply to customers and to provide required fire protection for the District. Categories of projects include the rehabilitation and replacement of water mains, water service connections, storage facilities, and pumping stations. The Authority has completed several critical improvements to the Water System, including cross connection removal, and major pumping station and storage facility rehabilitation.

The CIP includes approximately \$945 million in projected disbursements for Water System projects, including new system storage facilities, large diameter water main rehabilitation, 1% renewal of small diameter water mains (including ancillary items, such as fire hydrants, valves and service connections) DDOT-related water main projects, and continued funding for the water lead program. See “THE SYSTEM – The Water System – Water System Regulation and Permits – Lead Levels.”

*Blue Plains – Wastewater Treatment Projects.* Capital projects in the wastewater treatment service area are required to rehabilitate, upgrade or provide new facilities at Blue Plains to ensure that it can reliably meet its NPDES Permit requirements and produce a consistent, high-quality dewatered solids product for land application. The Authority has undertaken several major capital improvement projects to rehabilitate, replace or add new processes and capacity at Blue Plains in recent years, including: (i) a new facility was placed in service in 2015 to comply with NPDES requirements to reduce nitrogen in the plant effluent; (ii) facilities to digest solids after thermal hydrolysis treatment were placed in operation in 2015, reducing the volume by 50% (reducing hauling and recycling costs) and resulting in production of Class A biosolids, which can be applied to land without any pathogen-related restrictions at the site and also can be bagged and marketed to the public for application to lawns and gardens, thereby increasing beneficial reuse options; (iii) a combined heat and power facility to utilize digester gas produced by the process to generate electricity (up to one-third of plant needs) along with steam for the thermal hydrolysis and digestion process, and a belt filter press facility to dewater the Class A product were placed in service in 2016; (iv) a facility upgrade to improve secondary treatment performance for more efficient overall nitrogen removal capability was completed in 2018; (v) construction of a new facility to treat high nitrogen load dewatering recycles was completed in 2018; (vi) the design phase for an upgrade of a raw wastewater pump station, the filtration and disinfection facility and the gravity thickener complex will be completed in 2018; and (vii) an upgrade of one of the influent pumping facilities, which is expected to be completed in 2019; and (viii) a tunnel dewatering pump station and enhanced clarification facilities to pump out and treat flows captured through the Authority’s ongoing combined sewer overflow projects were completed and placed in operation in 2018.

The projected ten-year disbursements for wastewater treatment projects are approximately \$979 million, which includes approximately \$901 million in disbursements for liquid, plant-wide and solids processing projects such as major improvements to filtration and pumping facilities, and \$78 million for the ENRF program projects such as the Tunnel Dewatering Pump Station and Enhanced Clarification Facility.

*Sanitary Sewer Projects.* The CIP includes approximately \$957 million in projected disbursements for sanitary sewer projects including the rehabilitation of six sanitary sewer pumping stations – Potomac, Main & O, Swirl Facility, East Side, and 3rd & Constitution Avenue, as well as sewer condition assessments that cover 60 miles of the system per year through year 2026. Rehabilitation of the District’s major assets including the Potomac Interceptor, B Street/New Jersey Avenue Trunk Sewer, Northeast Boundary Trunk Sewer, Anacostia Force Main and portions of the other 35 major sewers are also included. Creekbed sewers and sewers under buildings will largely be rehabilitated as part of these projects. The program to rehabilitate other small and large diameter sewers including replacement and lining of laterals, and replacement of manholes, is an ongoing project of the Authority.

In 2016, the Authority completed a Sewer System Asset Management Plan. This Plan includes a risk tool that calculates the consequence of failure and likelihood of failure for each sewer in the system. This information can then be used to prioritize sewers for inspection/condition assessment and/or rehabilitation. The Plan also includes a high level risk assessment for all pumping stations in the system which can also be used to help prioritize proposed CIP projects for these facilities. The Sewer System Facilities Plan represents the culmination of an initiative involving sewer inspection and condition assessment, development of a sewer GIS database, hydraulic monitoring and modeling to assess system capacity and the development of prioritized activities for system improvement.

*Combined Sewer Overflow Projects.* The CIP includes \$1.34 billion for the DC Clean Rivers Project and combined sewer projects. The DC Clean Rivers Project is designed to control combined sewer overflow discharges to prevent them from causing or contributing to violations of applicable water quality standards. See “THE SYSTEM – Wastewater Regulation and Permits – NPDES Permit.” Through the DC Clean Rivers Project, the Authority will construct combined sewage storage/conveyance tunnels that are designed to intercept and store water until Blue Plains can receive and treat the combined sewage. The DC Clean Rivers Project includes a variety of capital improvement projects throughout the System including three large tunnel systems which will accommodate the storage of combined sewer overflows (“CSOs”) from storm events until they can be conveyed to Blue Plains for treatment. Approximately one-third of the System is served by a combined sewer system, in which both sanitary sewage and

stormwater flow through the same pipes. When the collection system reaches capacity, typically during periods of heavy rainfall, the system is designed to overflow the excess diluted sewage or CSOs.

The DC Clean Rivers Project also includes the Authority's green infrastructure initiative. See "THE SYSTEM – Wastewater Regulation and Permits." The green infrastructure initiative is cost-neutral (as compared to the Authority's tunnel options) and will reduce the size of the tunnels required to serve the Rock Creek and Potomac River by implementing new environmental technologies on a significant scale. Green infrastructure technologies capture, infiltrate, treat and reuse polluted stormwater runoff before it enters the sewer system. Examples of green infrastructure technologies include rain gardens, porous pavements, bioswales, green roofs, infiltration planters, trees and tree boxes, and rainwater harvesting for non-potable uses such as landscape irrigation. See "DEBT SERVICE REQUIREMENTS – Outstanding Subordinate Debt – Subordinate Bonds - Environmental Impact Bonds."

When completed, the DC Clean Rivers Project will reduce the combined sewer overflows by at least 96% (exceeding the EPA standard of 85%), reducing pollution to the Potomac, Anacostia and Rock Creek waterways, improving water quality, and reducing locally generated debris from the combined sewer system and local waterways. The Authority expects to implement the DC Clean Rivers Project, which commenced in March 2005, over a 25-year period, at a total estimated cost (including funds spent prior to Fiscal Year 2018) of \$2.8 billion.

*Stormwater Projects.* The projected disbursements for the stormwater service area in the CIP are approximately \$69 million and include extensions to the system and relief of certain sewers as well as rehabilitation or replacement of deteriorated storm sewers. Also, included in the budget is the rehabilitation of the stormwater pumping stations operated and maintained by the District.

*Non-Process Facilities Projects.* This area accommodates projects approved under the non-process facilities master plan and related improvements necessary to support Authority critical operations. The CIP includes approximately \$138 million in projected disbursements for facility land use projects. In fiscal year 2019, the Authority completed its Administrative Headquarters Building at the Main & O Street Campus and relocated over 300 employees into the new LEED Platinum facility.

*Washington Aqueduct Projects.* The Washington provides wholesale water treatment services to the Authority and other Aqueduct Customers. See "THE SYSTEM – The Water System – The Washington Aqueduct." Under federal legislation enacted and a memorandum of understanding executed in 1997, the Aqueduct Customers have a role in the oversight of the Aqueduct's operations and its capital improvement program. The Aqueduct successfully designed, constructed and implemented a new orthophosphate corrosion control system at its water treatment plants in 2005 that meets the optimal corrosion control requirements of the Lead and Copper Rule. As a result, periodic sampling by the Authority shows that lead levels are below the action level, which supported the decision of the Authority to significantly modify its lead pipe replacement program. The CIP includes approximately \$187 million for Aqueduct projects. See "THE SYSTEM – The Water System – Water System Regulation and Permits – NPDES Permit and Water Treatment System Sediments."

*Capital Equipment Projects.* The CIP includes approximately \$295 million for major information technology projects, vehicle fleet upgrades, and large equipment projects at Blue Plains and the major water and sewer pumping stations.

*Meter Replacement Projects.* The CIP includes approximately \$45 million for ongoing meter replacements and continued automated meter reading system improvements and upgrades to the AMR equipment. This planned upgrade is part of the Authority's preventative maintenance program for the advanced meter infrastructure, which collects data from approximately 120,000 meter readings per day and is an essential asset to the Authority's billing process. The upgrades allow the Authority to move to the current version of AMI software and replace aging meters and meter data communication equipment.

#### **CIP Financing Sources**

The Authority expects to finance the CIP from multiple sources including (i) revenue bonds, (ii) income from certain fees and charges, pay-as-you-go funds and interest income (all of which constitute Revenues under the Indenture), as well as (iii) federal and other grants and wholesale customer contributions (which are excluded from the definition of Revenues under the Indenture). The CIP financing sources are summarized below.

*Revenue Bonds/Commercial Paper Notes.* The Authority expects to finance approximately \$1.81 billion, or 37.8%, of the sources of funds with new long-term debt. The Authority has used, and expects to use in the future, its Commercial Paper Notes and EMCP Notes to fund capital needs on an interim basis, followed by issuance of long-term revenue bonds (or other forms of indebtedness, as appropriate) to retire outstanding Commercial Paper Notes and EMCP Notes and provide permanent financing for CIP costs. As approved by the Board, the total amount of Commercial Paper Notes outstanding at any time cannot exceed \$150 million. As of the date of this Official Statement, \$29.2 million of the Series C CP Notes were outstanding. In addition, the Authority anticipates using proceeds from the EMCP Notes as an additional CIP financing source. As approved by the Board, the total amount of Series A

EMCP Notes outstanding at any one time cannot exceed \$100 million. As of the date of this Official Statement, \$50 million of the Series A EMCP Notes were outstanding.

*System Availability Fee.* On February 1, 2018, the Board approved a new System Availability Fee (“SAF”) to be effective June 1, 2018. The SAF is intended to be a one-time fee, assessed to a property owner of any premises, building or structure, to recover the cost of system capacity servicing all metered water service and sanitary sewer connections renovation or redevelopment projects that require an upsized meter size connection to the water and sewer system in the District. For a renovation or redevelopment project on a property that already has the Authority meters and accounts, credits will be applied for the older meters being removed from the system. Such fees are common in the industry and among utilities in the region. The SAF is based on meter size. The Authority currently expects to finance \$68 million, or 1.4%, of the sources of funds with revenues generated by the SAF.

*Clean Rivers Impervious Area Charge.* The Authority currently expects to finance about \$436 million, or 9.1%, of the sources of funds with revenues received from the Clean Rivers Impervious Area Charge (“CRIAC”), which was implemented in Fiscal Year 2009 to recover the costs of the DC Clean Rivers Project. For more information regarding the CRIAC, see “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – Clean Rivers Impervious Area Charge.”

*Pay-As-You-Go Funds.* The Authority expects to finance approximately \$1.36 billion, or 28.5%, of the sources of funds with pay-as-you-go funds. Revenues in excess of those required to meet operating and maintenance expenses, to make debt service payments and to fund reserves can be used, at the discretion of the Authority, to fund a portion of the CIP. The projected financial operations of the Authority assume that such amounts are used as a source of funds for the CIP. In addition, the Authority established a separate line item in its operating budget beginning in Fiscal Year 2015 to provide funds for additional cash-financed capital construction, the defeasance of debt, or other uses at the discretion of the Authority. The projected financial operations of the Authority assume that the amounts in this line item are also used as a source of funds for the CIP. The Board has also adopted a policy that authorizes any funds in excess of the operations and maintenance reserve and any other significant one-time cash infusions to be used to finance the CIP or to pay off higher cost debt. The projected financial operations of the Authority assume at this time that no funds are available from these potential sources.

*Interest Income on Bond Proceeds.* The Authority estimates that \$21 million in interest income, or 0.4%, will be available to finance the CIP. Subject to Federal tax law requirements relating to use of the proceeds of tax-exempt bonds, the Authority uses interest earned on the proceeds of its bonds as a source of funds for the CIP. This interest income is treated as non-operating revenue of the Authority that is available to pay debt service, if needed. The use of this income for capital funding purposes represents another source of pay-as-you-go capital.

*Federal and Other Grants.* The Authority expects to finance approximately \$172 million, or 3.6%, of the sources of funds with federal and other grants. The Authority receives annual grants from the federal government under the Clean Water Act and Safe Drinking Water Act for a variety of projects at Blue Plains and for the Water System to improve drinking water supplies and wastewater treatment. Unlike most public water or wastewater utilities, the Authority receives appropriations in the form of grants and not as loans pursuant to a State Revolving Fund program. Under the terms of these grants, payments to the Authority are made on a reimbursable basis, with unclaimed appropriations remaining available to be obligated in subsequent years. In addition, the Authority has received a special Congressional appropriation for improvements to the combined sewer system. Under the Wet Weather Water Quality Act of 2000 that codified the EPA’s 1994 National CSO Policy, the U.S. Congress authorized grant funding for the DC Clean Rivers Project. These appropriations require a 50% match from the Authority. As of March 2019, the Authority received \$8.0 million in grant funding for the DC Clean Rivers Project, and in Fiscal Years 2016 through 2018, the Authority received an average of \$14 million each year for such funding. The Authority also expects to be reimbursed by the District for certain capital investments. Federal and other grants do not constitute Revenues under the Indenture.

*Wholesale Customer Contributions.* The Authority expects to finance approximately \$921 million, or 19.2%, of the sources of funds with wholesale customer contributions. Under the terms of the 2012 IMA, the Authority’s wholesale customers share the cost of operating, maintaining and making capital improvements at Blue Plains. A separate agreement with the Loudoun County Sanitation Authority (“LCSA”) allows the Authority to recoup capital and operating costs from the LCSA on the same basis as provided for in the 2012 IMA. Contribution levels are governed by the agreements that provide for the pro-rata reimbursement for capital improvements based on the capacity allocated to each wholesale customer. As of the date of this Official Statement, all wholesale customers were current on their capital contributions payments. Wholesale customer contributions do not constitute Revenues under the Indenture.

## Cost Estimates

Although actual bid prices for recent construction projects, on average, have been slightly below the engineering cost estimates for such projects, the costs shown in the CIP reflect the Authority’s practice of increasing

construction cost estimates by 3% annually to the midpoint of construction. There are no assurances that the actual rate of inflation in construction costs will not increase significantly above the assumed rate of inflation or that such increases will not have an adverse impact on the financial operations of the Authority.

An additional consideration regarding the construction cost estimates is the value of change orders relative to the total cost of construction work performed. The cost of construction-related change orders executed by the Authority for contracts closed during the five-year period from Fiscal Year 2014 through Fiscal Year 2018 was \$50,872,045, or 5.7% of the total original value of the contracts of \$897,320,435 for this period. The relatively low value of change orders compared to the total construction costs incurred is an indication that project designs are thorough and that projects are being effectively managed during construction.

## CUSTOMER BASE, RATES AND CHARGES

### Customer Categories and Accounts

As of September 30, 2018, the System had 124,906 active, metered water and wastewater accounts (30 of which are accounts of the Authority and 2 of which are accounts of the Aqueduct). Except for wholesale accounts, the majority of accounts receive both water and wastewater service. The Authority's customer accounts are divided into three categories: (i) residential, multifamily and commercial, (ii) governmental and (iii) wholesale. The number of accounts in each of the categories as of September 30, 2018 is set forth in Table 6.

**Table 6. Customer Categories and Accounts**

<u>Customer Category</u>	<u>Number of Accounts</u>	<u>% of Total Operating Revenue</u>
Residential, Multifamily, Commercial	122,793	62%
Governmental (Federal, District and D.C. Housing Authority) <sup>1</sup>	2,106	17
Wholesale	7	18
<b>Total</b>	<b>124,906</b>	<b>97%<sup>2</sup></b>

<sup>1</sup> The D.C. Housing Authority is the only District agency that is billed separately. The remaining District agencies are billed as part of a composite bill for the government.

<sup>2</sup> The remaining 3% of the Authority's operating revenue comes from capital contributions, interest income, and other revenue.

Source: Authority records and the Authority's CAFR.

### Customer Base

The Authority's customer and revenue base is diverse, consisting of a wide variety of residential, commercial and governmental customers, as well as wholesale wastewater customers. In Fiscal Year 2018, the residential, commercial and multifamily customer revenue represented approximately 62% of total operating revenue.

The commercial portion of the customer base includes a variety of uses, including nationally recognized universities and regional hospitals, commercial office space with tenants that are national associations, lobbying firms, major law firms and large hotels. Table 7 reflects the Authority's ten largest commercial customer accounts in Fiscal Year 2018, which in aggregate represented 2.57% of total operating revenues.



**Table 7. Ten Largest Commercial Customers (2018)**

<b>Customer</b>	<b>Revenue</b>	<b>% of Total Operating Revenues</b>
Howard University	\$3,879,664	0.57%
George Washington University	2,522,689	0.37%
Georgetown University	2,118,763	0.31%
William C Smith & Co.	2,078,614	0.30%
Washington Hospital Center	2,003,511	0.29%
Metropolitan Washington Airports Authority	1,280,248	0.19%
Amtrak	1,046,179	0.15%
American University	1,004,977	0.15%
Medstar - Georgetown University Hospital	850,673	0.12%
Children's Hospital	831,854	0.12%
<b>Total</b>	<b>\$17,617,172</b>	<b>2.57%</b>

Source: Authority records.

Table 8 reflects the Authority's ten largest government customers in Fiscal Year 2018, which in aggregate represented 5.57% of total operating revenues.

**Table 8. Ten Largest Government Customers (2018)**

<b>Customer</b>	<b>Revenue</b>	<b>% of Total Operating Revenues</b>
U.S General Service Administration	\$8,096,034	1.18%
D.C. Housing Authority	5,176,951	0.76%
U.S. Congress	5,061,870	0.74%
Smithsonian Institution	4,683,524	0.68%
Bolling Air Force Base	4,187,710	0.61%
U.S. National Park Service	3,298,927	0.48%
Federal Naval Research Lab	2,209,408	0.32%
U.S. Department of Defense	2,082,125	0.30%
U.S. Department of the Navy	1,732,073	0.25%
D.C. Board of Education	1,569,405	0.23%
<b>Total</b>	<b>\$38,098,027</b>	<b>5.57%</b>

Source: Authority records.

### Customer Demand

Table 9 shows the average percentage of annual water consumption by customer category from Fiscal Year 2014 through Fiscal Year 2018. The results illustrate the diversification of the Authority's customer base.

**Table 9. Average Annual Consumption By Customer Category**  
Fiscal Years 2014 – 2018  
(millions of Ccf)

<b>Customer</b>	<b>Average Annual Consumption</b>	<b>% of Total Consumption</b>
Residential Single-Family	7.27	21.0
Commercial	12.76	36.9
Residential Multi-Family	8.27	23.9
D. C. Municipal Government	1.05	3.0
Federal Government	4.44	12.8
D. C. Housing Authority	0.78	2.3
<b>Total Consumption</b>	<b>34.56</b>	<b>100.0</b>

Source: Authority Records. Totals may not add due to rounding.

Table 10 shows projected annual consumption for the Authority's customer categories for Fiscal Years 2019 through 2023. The Authority's use of the AMR program, including the replacement and repair of meters, significantly reduces estimated meter readings and improves the reporting of actual consumption.

**Table 10. Projected Annual Consumption by Major Customer Category<sup>1,2</sup>**  
Fiscal Years ending September 30  
(millions of Ccf)

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Residential Single-Family	7.00	6.93	6.86	6.79	6.72
Commercial <sup>3</sup>	11.54	11.42	11.31	11.20	11.09
Residential Multi-Family	8.38	8.30	8.21	8.13	8.05
D. C. Municipal Government <sup>4</sup>	1.01	1.00	0.99	0.98	0.97
Federal Government	4.30	4.26	4.22	4.18	4.13
D.C. Housing Authority	0.79	0.78	0.77	0.77	0.76
<b>Total Consumption</b>	<b>33.02</b>	<b>32.69</b>	<b>32.36</b>	<b>32.04</b>	<b>31.72</b>

<sup>1</sup> Totals may not add due to rounding.

<sup>2</sup> Total water consumption in Fiscal Years 2020 - 2023 reflects the assumption of a 1% annual decline.

<sup>3</sup> Reflects consumption at commercial facilities and selected facilities at Soldiers' Home.

<sup>4</sup> Reflects consumption at District of Columbia Government facilities and the Authority facilities.

Source: Amawalk

Some fluctuation in consumption can occur in a given year due to variations in weather conditions and other factors such as billing adjustments. Consumption declined in Fiscal Year 2014 by 3.6%. About 70% of the total decline in Fiscal Year 2014 was attributable to reductions in use by the federal government due to federal initiatives to reduce water use, billing adjustments and other factors. In Fiscal Year 2015, total consumption increased by 5.0% with nearly all of that increase attributable to the federal government. In Fiscal Year 2016 and 2017, total consumption decreased by 1.7% each year. In Fiscal Year 2018, total consumption decreased by 0.9%. See "– Rate-Setting Authority" for additional information.

The Authority anticipates that consumption will total 33.02 million Ccf in Fiscal Year 2019, representing a decrease of 3.0% from the prior year. The Authority assumes that long-term total water consumption will decline at the rate of 1% per year beginning in Fiscal Year 2020, recognizing that weather conditions and other factors may affect water demand in a given year. The expectation that future sales will decline is consistent with recent trends in the Washington, D.C. region as well as the projected sales in other large cities in the northeast United States.

There is some risk that consumption could be lower than anticipated during the Projection Period. The risk is mitigated to some extent in that revenues from the federal government are determined in advance and then subject to a true-up after the year is completed. For example, the significant reduction in actual federal consumption in Fiscal Year 2014 (compared to the budgeted consumption that was billed for Fiscal Year 2014) was reflected in the

reconciliation credit to the federal government for Fiscal Year 2017. In addition, the consumption risk is mitigated to a significant extent by retail revenue that is not consumption-related: customer receipts from the meter charge, the Water System Replacement Fee and the CRIAC, are unaffected by changes in the quantity of customer water use. Consumption-based retail water and wastewater revenues within the District are estimated to comprise about 61% of total revenues (excluding the PILOT/ROW Fee) in Fiscal Years 2019 through 2023. The Authority evaluates its water consumption projections annually in connection with its budget preparations and more frequently if the need arises.

### **Rate-Setting Authority**

The Authority recovers the costs of operations, maintenance and debt service through retail rates and fees, wholesale customer charges and other miscellaneous non-operating income such as interest earnings. The Board establishes the Authority's rates, fees and charges. Only the six Board members representing the District vote on setting retail water and wastewater rates and fees for the retail customers who are customers within the District. No approvals from federal or local officials are required in order to set rates.

#### *Retail Rates, Fees and Charges*

The Authority adopted several changes to its retail rate structure that went into effect in Fiscal Year 2016. These changes were designed to better align the Authority's revenues and expenditures by establishing customer class-based volumetric water rates based upon peaking factors, to create a more progressive rate structure for its residential customers by establishing lifeline water rates that discount core consumption and to fund the Authority's water main replacement program by establishing the monthly, fixed Water System Replacement Fee (the "Water System Replacement Fee"). For a summary of the Authority's retail rates, fees and charges, see "-- Components of Retail Rates and Charges" and "-- Historical and Projected Retail Rates" below.

Historically, the Authority adopted its budgets and its retail rates and charges on an annual basis. The budget process is expected to remain the same during the Projection Period: budgeted revenues, operating expenses and CIP expenditures will be adopted annually by the Board. Beginning with Fiscal Year 2017, the Authority started setting retail rates and charges for a two-year period – i.e., in calendar year 2016 the Board adopted (i) rates and charges effective October 1, 2016 (Fiscal Year 2017) and (ii) rates and charges to be effective October 1, 2017 (Fiscal Year 2018). Similarly, in calendar year 2018 the Board adopted (i) rates and charges to be effective October 1, 2018 (Fiscal Year 2019) and (ii) rates and charges to be effective October 1, 2019 (Fiscal Year 2020). The benefits of the multi-year rate setting include: greater revenue certainty, increased budget discipline, and better alignment between revenues and expenditures. The retail rates and charges are expected to change in each year. See "-- Historical and Projected Retail Rates" and "THE AUTHORITY – Authority's Relationship to the District." If the Authority determines that revenues are materially less than expected and/or debt service or operating expenses are materially higher than budgeted, the Authority has the ability to adjust its retail rates and charges during the Fiscal Year. Historically, there has been no need for the Authority to make such changes during a Fiscal Year.

The total revenues and revenue requirements remain unchanged for Fiscal Year 2020 from the budget adopted by the Board in calendar year 2018; however, the Authority is considering modifying the adopted wastewater rate and the adopted CRIAC. As described herein, the proposed wastewater rate for Fiscal Year 2020 would increase from the adopted rate and the CRIAC would decrease from the adopted rate, with the resulting revenues being relatively unchanged.

The Authority receives annual grant funding under the Clean Water Act which requires the maintenance of wastewater charges sufficient to defray costs of operation, maintenance and replacement and surcharges for industrial discharges into the System's sewers levied in conformity with formulas set forth in the Clean Water Act and regulations thereunder. See "CAPITAL IMPROVEMENT PROGRAM - CIP Financing Sources."

#### *Federal Government Charges*

The Authority's forecasted water and wastewater charges for the federal government are prepared and included in the federal budget 18 months in advance of the commencement of the Authority's Fiscal Year based on the prevailing consumption estimates, projected retail rate increases as included in the current ten-year financial plan and adjustments for prior year true-ups. The federal government budgets for and pays its bills quarterly directly from the U.S. Treasury based on the estimates provided by the Authority in advance. Under the current billing process, any differences between the projected and the actual charges are netted against a future year's billing. Federal government revenues are expected to constitute approximately 7.5% of the Authority's total annual revenues during Fiscal Year 2019 through Fiscal Year 2023 (excluding the PILOT/ROW Fee).

Water consumption billed to Federal accounts in recent years has shown significant year to year fluctuation and an overall reduction compared to prior years. The Authority has adjusted its future forecasts for federal revenue primarily due to four factors:

- i. A previous executive order created a requirement for federal agencies to reduce potable water and landscaping use water by 2% annually through conservation measures until 2020; Authority

conversations and investigations with federal property managers show that significant progress is being made toward this goal through plumbing fixture replacement.

- ii. In the District, the Telework Enhancement Act (the “Telework Act”) has resulted in a significant shift to employees working from home, reducing water used at the workplace, and, pursuant to the Telework Act, GSA has strategically reduced the number of buildings it owns and operates in the District in favor of placing employees in shared rental spaces. In the latter case, the water reduction observed in federal buildings is partially made up in the commercial customer billing of the Authority.
- iii. There have been significant adjustments made to federal bills as a result of property sales and transfers between the federal and District governments.
- iv. The Authority accelerated a testing and calibration program on large capacity meters installed at federal properties and observed that some of the meters had degraded and were measuring less water than was actually being consumed. Where possible, the Authority is retroactively billing for the difference in consumption.

#### *Wholesale Customer Charges*

The Authority provides wholesale wastewater treatment services to User Jurisdictions at Blue Plains. Each wholesale customer’s share of operating costs at Blue Plains is recovered in accordance with the Blue Plains Intermunicipal Agreement of 1985, the 2012 IMA, the Potomac Interceptor Agreements and the Loudoun County Sanitation Authority Agreement (as discussed in more detail in “THE SYSTEM – The Wastewater System”), and is based on actual costs of operating and maintaining the plant and the collection facilities, prorated to each User Jurisdiction based on its respective actual share of wastewater flows. A User Jurisdiction’s share of capital costs is based on its share of capacity allocations in the plant. Both operating and capital payments are made on a quarterly basis. Wholesale customer revenues are expected to constitute approximately 11.5% of the Authority’s total annual revenues during Fiscal Year 2019 through Fiscal Year 2023 (excluding the PILOT/ROW Fee).

Wholesale customers are billed based on the adopted budget for that Fiscal Year. Capital-related charges are billed quarterly with payments due on the 15th day of the second month following the end of the quarter. The operating and maintenance-related charges are billed annually by mid-October and payments are due each November, February, May and August. Following each Fiscal Year, the Authority prepares a reconciliation that determines the actual costs and each wholesale customer’s appropriate share of such costs. Adjustments are then billed or credited to the wholesale customers in the first quarter of the subsequent Fiscal Year.

#### **Components of Retail Rates and Charges**

The primary retail rates and fees include water and wastewater charges, the clean rivers impervious area charge, the PILOT/ROW Fee and the stormwater fee.

#### *Water and Wastewater Charges*

Water and Wastewater Consumption Rates. Water and wastewater consumption rates are based on metered water usage and are stated in terms of hundred cubic feet (“Ccf”). Through Fiscal Year 2015, each of the Authority’s three customer classes (i.e., Residential, Multi-Family and Non-Residential) were charged the same consumption rates. In Fiscal Year 2015, the Authority retained Raftelis Financial Consultants, Inc. (“RFC”) to analyze the allocation of costs between the water and wastewater rates, as well as the peak demand factors of its various customer classes, and to prepare a cost of service study (the “2015 COS Study”). Based on the findings of the 2015 COS Study, the Authority’s management recommended a restructuring of the rates, charges and fees to the Board to include water rate classes for Residential, Multi-Family and Non-Residential customers. Wastewater rates remain uniform for all customers. The Board adopted this new rate structure for Fiscal Year 2016, effective October 1, 2015. Water and wastewater consumption rates increased 5.0% in each of Fiscal Years 2017 and 2018.

The Authority undertakes a cost of service study every three years to ensure that its rates are appropriately capturing actual expenditures. The cost of service study prepared by RFC in 2018 (the “2018 COS Study”) recommended no changes to the water rate structure and classes in Fiscal Year 2019, but did recommend decreases in water rates, an increase to the wastewater rate and a reduction in the CRIAC to better align rates and revenues with the cost of providing services. The estimated overall increase in water and wastewater consumption-based rates for Fiscal Year 2019 is 13.0% and Fiscal Year 2020 is 11.5%. The CRIAC was reduced by 8.7% and 9.0%, respectively.

Customer Metering Fee. The Authority assesses a metering fee to recover costs associated with installing, operating and maintaining meters and the AMR system. The metering fee is charged as a separate line item on retail customer bills and varies by meter size. The metering fee is assumed to remain unchanged in Fiscal Years 2019 through 2023, providing \$11.5 million in Fiscal Year 2019 and \$10.8 million in revenue per year each year after.

Water System Replacement Fee. The Authority implemented the meter-based Water System Replacement Fee in Fiscal Year 2016 in order to recover the cost of the 1% renewal and replacement program for water service lines. The Water System Replacement Fee is assumed to remain unchanged in Fiscal Years 2019 through 2023. It is anticipated that the Water System Replacement Fee will generate \$40.5 million in Fiscal Year 2019 and \$39.7 million in revenue per year from Fiscal Years 2020 through 2023.

*Clean Rivers Impervious Area Charge*

Overview. In Fiscal Year 2009, the Authority approved the development and implementation of the CRIAC to recover the costs of the DC Clean Rivers Project, mandated by the EPA Region III pursuant to the 2005 LTCP Consent Decree. The DC Clean Rivers Project will be implemented over a 25-year period at a total cost of \$2.8 billion. See “THE SYSTEM – Wastewater Regulation and Permits – NPDES Permit.” For an explanation of the different term contemplated for the DC Clean Rivers Project in the CIP and under the 2005 LTCP Consent Decree, see “CAPITAL IMPROVEMENT PLAN – Categories of CIP Projects – Combined Sewer Overflow Projects.” Prior to the implementation of the CRIAC, the DC Clean Rivers Project cost was bundled in the wastewater rate based on the amount of water consumed.

The CRIAC is based on the amount of impervious area on a property, rather than on the amount of water consumption, which is a more equitable method of recovering the DC Clean Rivers Project costs. It allows the Authority to expand its customer base by charging all properties that generate stormwater, including those that may not use water (e.g., parking lots). An impervious area is a man-made surface that cannot be easily penetrated by water, such as a rooftop, a paved driveway, a patio, a swimming pool or a parking lot that impedes the percolation of water into the subsoil and plant growth. The Authority maintains a database in which it classifies each parcel located within the District as pervious or impervious. This database and the classifications therein provide the basis for the District’s billing of the CRIAC.

All residential customers are charged Equivalent Residential Units (“ERUs”) based upon six tiers that reflect the amount of impervious surface area on each residential lot. The tiers and the number of properties within each tier are shown as of September 30, 2018 in Table 11.

**Table 11. Equivalent Residential Unit Tiers**

<u>Tiers</u>	<u>Size of Impervious Area (square feet)</u>	<u>Equivalent Residential Unit</u>	<u>No. of Properties (as of August 2019)</u>
Tier 1	100 – 600	0.6	18,799
Tier 2	700 – 2,000	1.0	81,034
Tier 3	2,100 – 3,000	2.4	6,255
Tier 4	3,100 – 7,000	3.8	2,796
Tier 5	7,100 – 11,000	8.6	146
Tier 6	11,100 and more	13.5	68

*Source: Authority records.*

The CRIAC is applied to all lots, parcels, properties and private streets throughout the District that are greater than 100 square feet, except for District or federally owned rights-of-way. The CRIAC is added to the customer’s metered service bill and billed monthly unless the property is impervious only and has no other metered water or wastewater service. The CRIAC will be reviewed regularly and adjusted as appropriate by the Board.

CRIAC rates in Fiscal Year 2020 are expected to be lower than in the prior year and wastewater rates are expected to be higher due to both: a) increases in the cost of service, and b) an allocation of a portion of the costs of the LTCP to wastewater charges in lieu of the CRIAC. The allocation of a portion of LTCP costs to wastewater charges is based on an analysis prepared by the Authority which estimates that sanitary sewage comprises 37% of combined wastewater and stormwater. DC Water expects to allocate a portion of the LTCP costs to wastewater charges in three stages, beginning with an 18% allocation in Fiscal Year 2020. In Fiscal Years 2021 and 2022, the allocated portions will be 28% and 37%, respectively. Allocated LTCP costs in Fiscal Year 2023 are expected to remain at the 37% level. Amawalk reviewed the Authority’s analysis and found it to be reasonable and consistent with industry practice. As a result of the changes in LTCP cost allocation, the CRIAC rate in Fiscal Year 2020 is expected to be \$20.94 per ERU, a decrease of 9.0% from the prior year. In Fiscal Years 2021 and 2022, with an increasing share of

LTCP costs being assigned to the wastewater rate instead of the CRIAC, the projected CRIAC rates are \$20.95 and \$19.85 per ERU, respectively. In Fiscal Year 2023, the projected CRIAC rate is \$21.45 per ERU.

**CRIAC Incentive Program.** The Water and Sewer Authority Equitable Ratemaking Amendment Act of 2008 (the “2008 Amendment Act”), approved by the Council in 2008, and signed by the Mayor of the District on January 23, 2009, amended the Act to authorize the Authority’s CEO to restrict combined sewer flow into the District from Maryland and Virginia and to require the Authority to, among other things, offer financial assistance programs to mitigate the impact of any increases in retail water and wastewater rates on low-income residents of the District, including a low-impact design incentive program. The 2008 Amendment Act also amended the District of Columbia Public Works Act of 1954 to broaden the bases for the determination of sanitary sewer service charges to include impervious surface area and to provide for an appeal process for the assessment of an impervious surface fee.

The 2008 Amendment Act requires the Authority, together with the DOEE, to establish an incentive program to institute certain eligible best management practices that reduce the amount of stormwater runoff generated from a property. In 2013, the Authority created the CRIAC Incentive Program, which provides a 4% maximum incentive credit. In 2019, the Authority strengthened the CRIAC Incentive Program to provide a 20% maximum incentive credit. The actual credit amount is calculated based upon a formula provided by the DOEE.

**CRIAC Credit.** In Fiscal Year 2016, the Board asked management to evaluate and propose recommendations for expansion of the Customer Assistance Program (“CAP”) to include fees assessed for the CRIAC. The staff evaluated the three options for CRIAC credit: (i) dollar credit, (ii) ERU credit, and (iii) percent of CRIAC credit (25%, 50%, 75%). Based on the detailed analysis, the management made recommendations to the Board to expand the CAP to low-income customers to include a CRIAC credit in the monthly bills. On December 1, 2016, the Board adopted the expansion of the CAP for eligible single-family residential accounts and individually metered accounts to include a fifty percent (50%) credit of the monthly billed CRIAC. The CRIAC credit was implemented in Fiscal Year 2017. See “– Customer Assistance Programs” below.

#### *PILOT/Right of Way Occupancy Fee*

These fees recover the cost of the PILOT and Right of Way fees (collectively, the “PILOT/ROW Fee”), which are charges levied by the District for payments in lieu of taxes and occupancy or use of public spaces or rights of way including that used by the Authority for its underground infrastructure. The Authority passes the PILOT/ROW Fee through to retail customers based on metered water consumption as a separate line item on the bills. Effective October 1, 2018 (i.e., for Fiscal Year 2019), the Authority’s PILOT/ROW Fee is \$0.68 per Ccf. The PILOT/ROW Fee is expected to increase to \$0.70 per Ccf effective October 1, 2019 (Fiscal Year 2020) and then increase gradually each year through Fiscal Year 2023.

#### *Stormwater Fee*

The Authority’s retail water and wastewater bills also include a stormwater fee levied on behalf of the District government, which the Authority transfers to DOEE on a pass-through basis. The stormwater fee is charged as a separate line item on retail customer bills. The DOEE has rate-setting authority for stormwater services provided by the District and the Authority expects to work collaboratively with the DOEE to set future rates. See “THE AUTHORITY – Authority’s Relationship to the District.” The stormwater fee charged to retail customers is \$2.67 per ERU, which rate has been in effect since October 1, 2016. The stormwater fee is expected to remain the same for Fiscal Years 2020 through 2023.

Although the Authority no longer administers the program, pursuant to the July 25, 2008 MOU with DOEE, the Authority retains a portion of the stormwater fee revenues to cover its share of District stormwater expenditures. See “THE AUTHORITY – Authority’s Relationship to the District – *Memoranda of Understanding*” and “FINANCIAL OPERATIONS – System Revenues – *Stormwater Revenues*.” The stormwater fees that are transferred to the District do not constitute Revenues under the Indenture, however, the stormwater fee revenues that are retained by the Authority to cover its share of stormwater expenditures are considered non-operating revenues of the Authority and do constitute Revenues under the Indenture.

### **Historical and Projected Retail Rates**

The Board approves the Authority’s retail water and wastewater rates as part of the ten-year financial plan, which includes annual rate increases, in line with the Board’s policy of implementing rate increases in a gradual and predictable manner.

Table 12 sets forth historical water and wastewater rates and the CRIAC of the Authority. Table 13 sets forth the adopted and projected water consumption and wastewater usage rates as well as the CRIAC of the Authority for Fiscal Years 2019 through 2023. Revenue resulting from the CRIAC will recover the majority of the cost of the LTCP for the period of Fiscal Year 2019 through Fiscal Year 2023.

Federal government customers in Virginia pay the Arlington County retail rate, which is currently \$3.52 per Ccf for water. Federal government customers in Maryland pay according to the WSSC rates, which include a fixed charge and a consumption-based charge that increases with higher levels of usage.

**Table 12. Historical Water and Wastewater Retail Rates and Charges<sup>1</sup>**  
 (\$ per Ccf for Water and Wastewater, Other Charges are \$ Per Unit as Noted)

<u>Fiscal Year</u>	<u>Water Consumption Rate</u>	<u>Wastewater Usage Rate</u>	<u>Combined Rate</u>	<u>Water and Wastewater Percent Increase</u>	<u>CRIAC Rate (Per ERU)</u>	<u>Meter Charge (Per 5/8" Meter)<sup>3</sup></u>	<u>Water System Replacement Fee (Per 5/8" Meter)<sup>3</sup></u>
2014	3.61	4.41	8.02	5.5%	11.85	3.86	
2015	3.88	4.74	8.62	7.5	16.75	3.86	
2016 <sup>2</sup>							
Residential – 0-4 Ccf	3.08	5.44	8.52	6.5	20.30	3.86	6.30
Residential - >4 Ccf	3.87	5.44	9.31				
Multi-Family	3.45	5.44	8.89				
Non-Residential	3.99	5.44	9.43				
2017 <sup>2</sup>							
Residential – 0-4 Ccf	3.23	5.71	8.94	5.0	22.24	3.86	6.30
Residential - >4 Ccf	4.06	5.71	9.77				
Multi-Family	3.62	5.71	9.33				
Non-Residential	4.19	5.71	9.90				
2018 <sup>2</sup>							
Residential – 0-4 Ccf	3.39	6.00	9.39	5.0	25.18	3.86	6.30
Residential - >4 Ccf	4.26	6.00	10.26				
Multi-Family	3.80	6.00	9.80				
Non-Residential	4.40	6.00	10.40				

<sup>1</sup> Rates and charges are billed monthly.

<sup>2</sup> Percent increase reflects the overall average increase for all customers; the increases for individual customers vary by customer class and consumption.

<sup>3</sup> The Meter Charge and the Water System Replacement Fee as shown reflect a customer with a 5/8" meter. The Charge and the Fee vary by the size of the meter.

Source: Authority records.

**Table 13. Current and Projected Retail Rates and Charges<sup>1</sup>**  
(\$ per Ccf for Water and Wastewater, Other Charges are \$ Per Unit as Noted)

	Units	Current	Proposed <sup>2</sup>	Projected <sup>2</sup>		
		2019	2020	2021	2022	2023
Water Rates						
Residential - 0-4 Ccf	Ccf	2.91	3.06	3.44	3.84	4.17
Residential - >4 Ccf	Ccf	3.90	4.10	4.61	5.14	5.58
Multi-Family	Ccf	3.37	3.54	3.98	4.44	4.82
Non-Residential	Ccf	4.05	4.25	4.78	5.33	5.78
Wastewater Rates	Ccf	7.75	8.89	10.00	11.15	12.10
Water & Wastewater % Change <sup>3,4,5</sup>	%	13.0%	11.5%	12.5%	11.5%	8.5%
CRIAC	ERU	23.00	20.94	20.95	19.85	21.45
Meter Charge <sup>6</sup>	5/8" Meter	3.86	3.86	3.86	3.86	3.86
Water System Replacement Fee <sup>6</sup>	5/8" Meter	6.30	6.30	6.30	6.30	6.30

<sup>1</sup> Rates and charges are billed monthly.

<sup>2</sup> Rates for Fiscal Years 2020 through 2023 are projected and subject to change.

<sup>3</sup> Water and wastewater percent change reflects the overall average increase for all customers; the increases for individual customers will vary by customer class and consumption.

<sup>4</sup> In Fiscal Year 2019, the decrease in water rates and the CRIAC and the increase in wastewater rates is based on adjustments recommended by the Cost of Service Study. See "Components of Retail Rates and Charges." The net increase in total charges (i.e., water, sewer, CRIAC, Meter Charge, WSRF) relative to Fiscal Year 2018 for an average residential customer is expected to be 5.9%.

<sup>5</sup> In Fiscal Year 2020 through 2022, an increasing percentage of the cost of the LTCP is recovered through wastewater rates, resulting in higher wastewater rates and a decrease in the CRIAC compared to Fiscal Year 2019. The net increase in total charges (i.e., water, sewer, CRIAC, Meter Charge, WSRF) relative to the prior year for an average residential customer is projected to be 5.7%, 8.5%, and 7.3%, respectively.

<sup>6</sup> The Meter Charge and the Water System Replacement Fee as shown reflect a customer with a 5/8" meter. The Charge and the Fee vary by the size of the meter.

Source: Authority records.

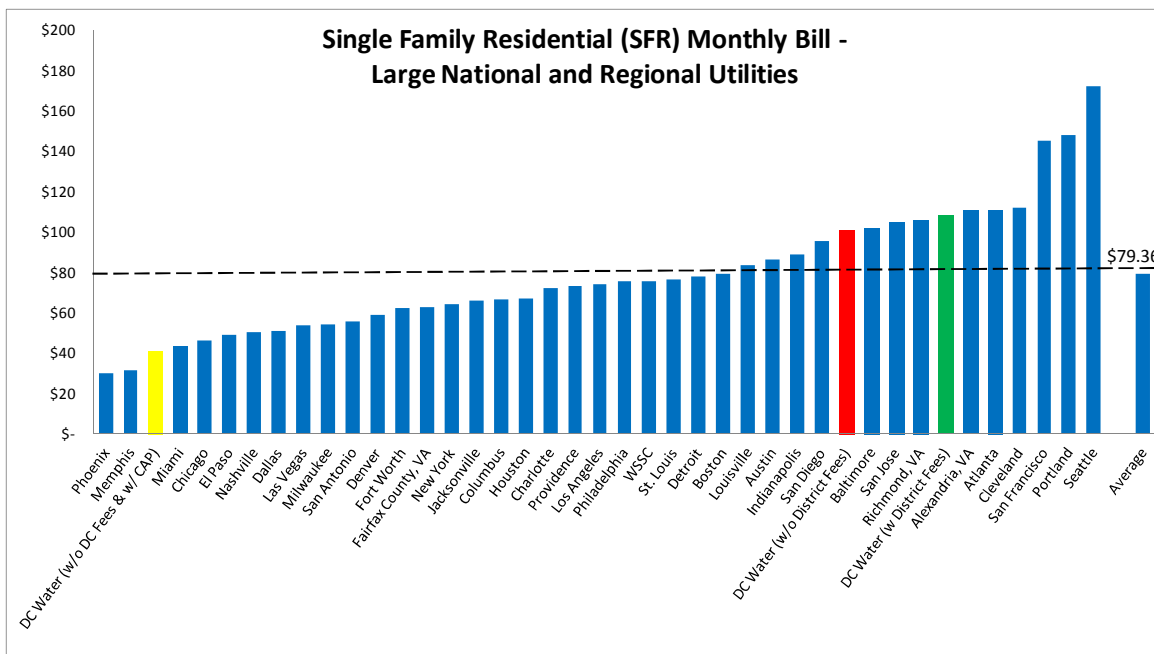
### Retail Rate Comparison

The Authority's retail rates are comparable to those of other utilities in the metropolitan Washington, D.C., region and other similar utilities in the eastern United States and nationally. Table 14 compares the Authority's combined water, wastewater and impervious area residential charges to these utilities. The table reflects the Authority's Fiscal Year 2019 rate and fee charges; rates for other utilities are as of July 1, 2019. The Authority's Fiscal Year 2019 rate and fee charges are shown both with and without the pass-through of the District's PILOT/ROW Fee in the amount of \$0.68 per Ccf, and the DOEE residential stormwater rate of \$2.67 per ERU per month.

The Authority offers assistance to qualifying low income ratepayers through its Customer Assistance Program (CAP). Table 14 also illustrates the monthly bill for a CAP customer with average Single Family Residential characteristics.



**Table 14. Comparison of Average Authority Water and Wastewater Bill to Bills of Other Utilities<sup>1,2</sup>**

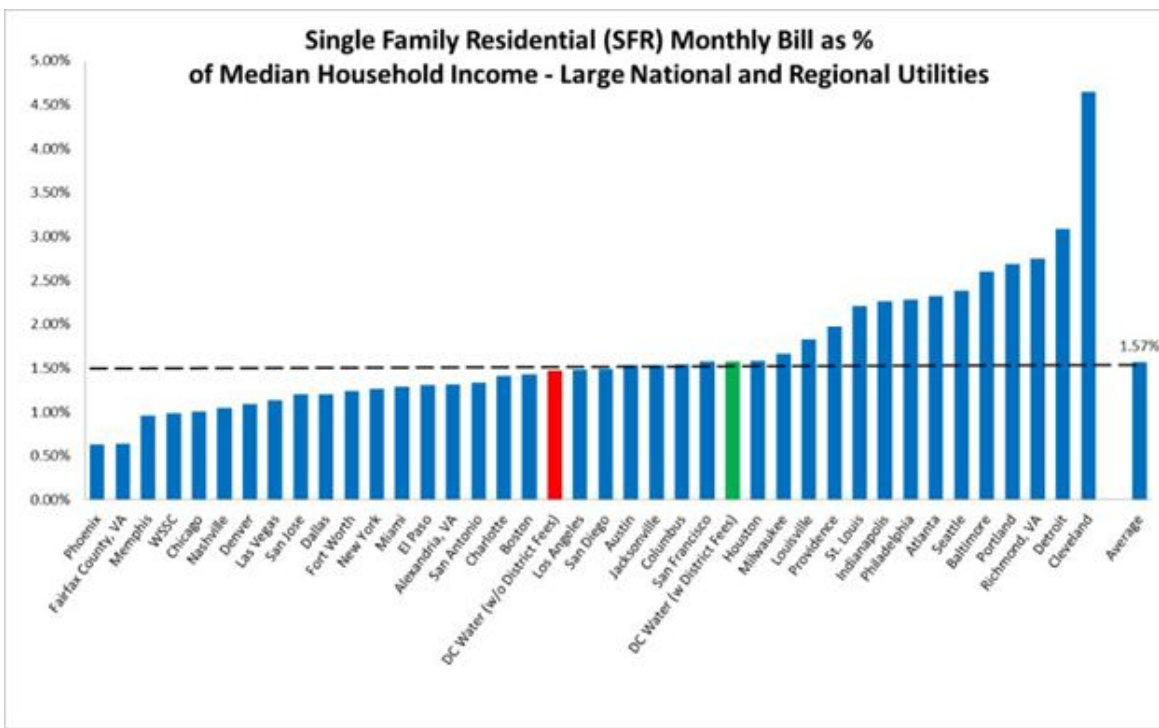


<sup>1</sup> Assumes average residential consumption of 6.20 Ccf, or 4,638 gallons, per month.  
<sup>2</sup> User charges are based upon information provided by the identified cities and standardized assumptions regarding water consumption, wastewater discharge, stormwater drainage area and other factors. Actual charges in each city will vary in accordance with local usage patterns. There may be significant differences in typical single family residential usage among cities which results in charges that are different than shown above. Some cities bill for sewer use on the basis of winter water consumption which could affect sewer billings if a customer's use was not uniform throughout the year. Wastewater charges include stormwater charges in those cities where separate stormwater fees are assessed. Some cities use property tax revenue or other revenues to pay for part of the cost of water, wastewater or stormwater services. In such situations, the user charges will not reflect the full cost of water, wastewater or stormwater services. Some cities impose charges that become part of the cost of water/wastewater services. Water/wastewater bills in some cities are subject to sales taxes, gross receipts taxes and/or other fees. Affordability programs are used by many cities to reduce the annual charges to eligible customers.  
<sup>3</sup> Charges for all cities reflect rate schedules in effect on July 1, 2019.

Source: Amawalk

The median income in the District is competitive with the median income in many other jurisdictions. Table 15 illustrates the Authority's charges for a single family residential customer as a percentage of median income compared to similar data for other water and wastewater utilities.

**Table 15. Comparison of Average Authority Water and Wastewater Bill (As Percentage of Median Income) to Bills of Other Utilities<sup>1,2</sup>**



<sup>1</sup> Assumes average residential consumption of 6.20 Ccf, or 4,638 gallons, per month.

<sup>2</sup> Reflects rates and fee in place as of July 1, 2019.

Source: Amawalk

**Collections**

The Authority has implemented policies and business practices intended to optimize the collection of customer billings. Measures are taken, including cross checks with property records, to ensure that all users of the Authority’s system are being billed. With the implementation of the AMR system, the Authority can access customer usage data at any time and can alert customers to apparent leaks promptly. In September 2013, the Authority achieved the lowest 90-day receivable balance in the Authority’s history at \$4.9 million. The Authority typically maintains a 90-day receivable balance of less than 2.0% of Operating Reserves. This is the result of a comprehensive strategy that integrates several consumer services functions along with an aggressive customer contact process that addresses collections issues early when outstanding balances are within the range of customers’ ability to pay, improved lien processing for delinquent accounts, and enhanced coordination efforts with other District agencies.

The Authority’s collection program includes: (i) assessing customers a 10% late fee if their bill is not paid by day 31 after the date of billing, and sending customers a friendly reminder notice; (ii) placing a call to the customer using an automatic notification call program on day 34; (iii) sending the customer notice of intent to disconnect service on day 39 (which, in accordance with District laws and regulations gives customer 15 days to pay the delinquent bill and maintain service); (iv) mailing to the owner of the property an intent to place a lien on the property on day 65 (which gives the owner 10 additional days to pay the bill before a lien is placed on their property) and imposing an additional 1% penalty per month on all delinquent balances after 60 days; (v) placing a call to the customer on day 67 to inform him/her of the Authority’s intent to place a lien on the property if the delinquent bill is not paid; and (vi) placing a lien on the property on day 80. The lien becomes a part of the public record and appears on the owner’s credit report and adversely affects their FICO score. The Authority will remove a lien only if the delinquent account balance is paid in full, and/or if the lien was placed in error. Once paid, the lien is removed and reflected as “satisfied” on the credit report but the customer’s FICO score is not changed unless the customer contacts the credit bureau. The Authority’s liens are continuous, which entitles the Authority to collect the current outstanding balance owed by a customer regardless of the balance at the time the lien was placed.

The Authority utilizes collection analysts who make calls to owners of delinquent accounts with a focus on the top 250 delinquent accounts. The Authority also takes legal action to have delinquent multi-family apartment building owners placed in receivership. This may result in the Authority receiving a percentage of the tenants' rent that is collected by a court-appointed Receiver before the owner can collect any rent. The account stays in receivership until paid in full.

After all efforts to collect have been exhausted, and as a last resort, the Authority will disconnect service for non-payment and not restore it until the delinquent bill is paid. The AMR system allows the Authority to know if water is being used after service has been disconnected due to non-payment. If this occurs, the meter will be removed or locked and service will not be restored until the delinquent amount, plus any applicable fees, are paid in full.

Table 16 shows the cumulative retail (including commercial) customer balances that were delinquent more than 90 days. There is one government delinquency to report, which is related to DC Government/Municipal property. It is noted that collection efforts were suspended in October 2017 in preparation for the implementation of the new Customer Information System. Collection efforts resumed in July 2018. The receivable balances have declined during the first six months of Fiscal Year 2019 as shown in Table 16.

**Table 16. Retail Customer Cumulative Delinquent Balances**  
(\$ in millions)

<u>As of September 30,</u>	<u>Amount<sup>1</sup></u>	<u>Percent of Operating Revenue</u>
2014	5.3	1.1
2015	6.5	1.2
2016	7.7	1.3
2017	8.4	1.4
2018	13.4	2.1
2019 (Q2 YTD March)	11.8 <sup>2</sup>	1.7 <sup>3</sup>

<sup>1</sup> Amounts shown are as of the end of each Fiscal Year for amounts delinquent more than 90 days and do not include previously disputed amounts for Howard University (now resolved) and the Soldiers' Home discussed below.

<sup>2</sup> Amount shown is from October 2018 Finance & Budget Committee - through September 30, 2018 and April 2019 Finance & Budget Committee - through March 31, 2019.

<sup>3</sup> This percentage is for the projected revenue of FY 2019.

Source: Authority records.

### Special Accounts

The Authority has historically provided some U.S. Soldiers and Airmen's Home ("Soldiers' Home") accounts with free water service in exchange for the use of certain parcels of Soldiers' Home property to maintain a reservoir that provides water to the District. The Authority contends that the Soldiers' Home is required to pay for sewer service and impervious area fees, as well as water services for certain accounts, and has sought payment for these services and fees since 2010. The parties were unable to resolve this matter over the years, and in January 2018, the Authority filed a lawsuit against the Soldier's Home to recover payments for sewer service charges from 2010 to present. The amount of unpaid charges sought is \$13.7 million. Other than the free water service provided to the Soldier's Home, there are no other exempt accounts, nor does the Authority anticipate the addition of any new exempted accounts.

### Customer Assistance Programs

The Authority sponsors two programs to assist low income customers in paying their water bills: Customer Assistance Program and Serving People by Lending A Supporting Hand ("S.P.L.A.S.H.").

*Customer Assistance Program.* The Authority implemented the CAP in 2001 providing a discount of up to 4 Ccf per month of water service for single family residential homeowners that meet income eligibility guidelines. The CAP has been enhanced in subsequent years, as summarized below. Enhancements were effective either on the first day of the Fiscal year or during the year shown.

<u>Fiscal Year</u>	<u>CAP Enhancement</u>
--------------------	------------------------

2004	Include tenants who meet the financial eligibility requirements and whose primary residence is separately metered by the Authority
2009	Provide a discount of 4 Ccf per month of water and sewer services
2011	Provide a discount of the first 4 Ccf of PILOT/ROW Fee
2016	Provide a 100% discount of the new Water System Replacement Fee (WSRF)
2017	Provide a 50% credit on the billed Clean Rivers Impervious Area Charge (CRIAC)
2018	Provide a discount of 3 Ccf per month of water and sewer services (excluding PILOT/ROW) for expanded income guidelines
2018	Provide a 50% credit on the billed Clean Rivers Impervious Area Charge (CRIAC) for expanded income guidelines
2018	Provide a 75% credit on the billed Clean Rivers Impervious Area Charge (CRIAC) for eligible customers under expanded income guidelines (excludes water and sewer services credits)
2018	Provide up to 90% credit on the billed Clean Rivers Impervious Area Charge (CRIAC) for eligible non-profit organizations
2019	Introduced CAP II and CAP III program for customers not eligible for the CAP program

Table 17A sets forth the number of customers assisted and the total discount provided through the CAP discount since Fiscal Year 2015. The projected revenues of the Authority take into consideration the discounts provided to low-income customers under the CAP. As of Fiscal Year 2019, DC Water proposed an expanded program (CAP II) for low-income residential customers who do not qualify for CAP with a household income up to 80% of the Area Median Income (AMI). Eligible customers receive a discount of up to 3 Ccf per month for water and sewer services and a 50% discount for the CRIAC. Additionally, a new District-funded program (CAP III) will provide benefits to DC Water customers with household income greater than 80% and up to 100% Area Median Income (AMI) who do not qualify for CAP or CAP II. An eligible customer under CAP III receives a 75% discount for the CRIAC. Table 17B sets forth the number of customers assisted and the total discount provided through the CAP II and CAP III discount for Fiscal Year 2019. The CRIAC Nonprofit Relief Program, was also created in 2019 and is designed to provide CRIAC credits to nonprofit organizations as determined by the District Department of the Environment. An eligible customer under the Nonprofit Relief Program receives up to a 90% discount for CRIAC.

**Table 17A. Customer Assistance Program Discount**

<b>Fiscal Year</b>	<b>Customers Assisted</b>	<b>Water/Wastewater PILOT/ROW (\$)</b>	<b>WSRF Discount (\$)</b>	<b>CRIAC Credit (\$)</b>	<b>Total Amount</b>
2015	4,498	1,207,986	-	-	1,207,986
2016	4,379	808,797	185,013	-	993,810
2017	4,244	810,295	195,328	129,674	1,135,297
2018	4,324	737,199	176,403	274,972	1,188,574
2019 <sup>2</sup>	3,846	279,430	61,706	91,299	432,435

<sup>1</sup> The CAP data for 2016 and 2017 reflect partial-year benefits for the WSRF discount and CRIAC credit, as they became effective on May 1, 2017. Benefits provided in Fiscal Year 2018 and future Fiscal Years will include the full effect of the WSRF discount and the CRIAC credit.

Source: Authority records.

**Table 17B. Customer Assistance Program II and III Discount**

<b>Fiscal Year</b>	<b>Customers Assisted</b>	<b>Water/Wastewater PILOT/ROW (\$)</b>	<b>WSRF Discount (\$)</b>	<b>CRIAC Credit (\$)</b>	<b>Total Amount</b>
2019 – CAP II <sup>1</sup>	66	9,252	-	3,936	13,187
2019 – CAP III <sup>1</sup>	27	-	-	4,716	4,716

<sup>1</sup> Q2 YTD March

Source: Authority records

*S.P.L.A.S.H.* Through the S.P.L.A.S.H. program, the Authority offers assistance to families in need so that they can receive critical water services. S.P.L.A.S.H. is funded solely by contributions from the community, customers and from the Authority employees. The Authority has redesigned its water and sewer bills to make it easier for its customers to make contributions to S.P.L.A.S.H. The Authority pays all administrative costs of this program, which is administered directly by the Greater Washington Urban League (GWUL). All contributions are deposited in a bank account from which the (GWUL) makes payments on behalf of eligible customers. Every dollar received by the Authority is distributed to eligible customers. Table 18 shows the number of customers assisted by the Authority and the total amount distributed through the S.P.L.A.S.H. program since Fiscal Year 2015.

**Table 18. S.P.L.A.S.H Program Distribution**

<b>Fiscal Year</b>	<b>Participating Customers</b>	<b>S.P.L.A.S.H Value</b>
2015	351	115,684
2016	309	101,098
2017	331	103,283
2018	212	104,361
2019 (Q2 YTD March)	155	52,454.02

*Source: Authority records.*

### Customer Service Operations

The Department of Customer Services reports to the Assistant General Manager of Customer Care and Operations and is responsible for meter installations, meter reading, meter testing, billing and collections. The Authority continuously evaluates its customer service offerings to ensure that customers receive the best possible service.

## FINANCIAL OPERATIONS

### Historical Financial Operations

The Authority derives its revenues primarily from retail customer payments for water, wastewater and stormwater services, which account for 82.0% of total revenues, and wholesale customer payments for wastewater treatment services, which account for 11.5% of total revenues (excluding the PILOT/ROW Fee for Fiscal Years 2019 through 2023). The Authority's operating revenues have steadily increased since its creation, due largely to rate and fee increases approved by the Board, which are discussed in more detail in the section entitled "RATES AND CHARGES – Historical and Projected Water and Wastewater Retail Rates."

The Authority is committed to optimizing the cost of service it offers and as a result places emphasis on managing its expenses. The Authority's Budget Department closely monitors spending to ensure compliance with approved operating and capital budgets. This includes preparation of daily and monthly management reports for each operating unit and financial system controls that prevent overspending. The Authority's Finance Department provides detailed monthly reports on cash and investments, revenues, operating budget and capital spending to the Board's Finance and Budget Committee. In addition, the Authority's Department of Engineering and Technical Services provides quarterly updates on the CIP status to the Board's Environmental Quality and Sewerage Services and Water Quality and Water Services Committees, as well as to the Finance and Budget Committee. For Fiscal Years 2014 through 2018, actual expenses of the Authority were less than the budgeted amount.

Table 19A presents historical revenues, expenses and changes in net position using information contained in the audited financial statements for Fiscal Years 2014 through 2018. Table 19B presents historical revenues, expenses and changes in net position for the first six months of Fiscal Year 2018 and the first six months of Fiscal Year 2019. The Authority's complete financial statements for the Fiscal Years ended September 30, 2018, and 2017, are attached hereto as APPENDIX B.

**Table 19A. Historical Revenues, Expenses and Change in Net Position**  
(\$ in thousands)

	Fiscal Year Ended September 30				2018
	2014	2015	2016	2017	
<b>Operating revenues</b>					
Residential, commercial and multi-family customers	\$295,209	\$335,711	\$382,552	\$401,246	\$425,492
Federal government	39,001	54,274	63,417	67,672	73,551
District government and DC Housing Authority	28,852	32,948	38,185	40,683	42,710
Charges for wholesale wastewater treatment	96,845	112,522	91,873	101,619	121,961
Other	13,917	14,460	19,762	32,149	20,788
<b>Total Operating Revenues</b>	<b>473,824</b>	<b>549,915</b>	<b>595,789</b>	<b>643,169</b>	<b>684,502</b>
<b>Operating expenses</b>					
Personnel services	108,467	115,233	124,239	132,124	142,342
Contractual services	68,172	66,241	74,086	72,611	74,627
Chemicals, supplies and small equipment	31,748	32,935	29,524	33,381	31,152
Utilities and rent	29,939	30,848	23,934	24,262	26,163
Depreciation and amortization	77,833	83,857	89,512	97,900	115,453
Water purchases	28,407	29,109	26,345	26,796	28,357
Payment in lieu of taxes and right of way fee	11,458	20,437	20,744	21,057	21,376
<b>Total operating expenses</b>	<b>356,024</b>	<b>378,660</b>	<b>388,384</b>	<b>408,131</b>	<b>439,470</b>
<b>Operating income</b>	<b>117,800</b>	<b>171,255</b>	<b>207,405</b>	<b>235,038</b>	<b>245,032</b>
<b>Nonoperating revenue (expenses)</b>					
Interest income	977	1,316	2,629	3,740	5,866
Interest expense and fiscal charges	(69,288)	(61,409)	(69,118)	(68,293)	(93,956)
<b>Total nonoperating revenue (expenses)</b>	<b>(68,311)</b>	<b>(60,093)</b>	<b>(66,489)</b>	<b>(64,553)</b>	<b>(88,090)</b>
Change in net position before Federal grants and contributions	49,489	111,162	140,916	170,485	156,942
Contributions of capital from Federal government	94,690	67,965	32,431	24,066	30,419
<b>Change in net position</b>	<b>144,179</b>	<b>179,127</b>	<b>173,347</b>	<b>194,551</b>	<b>187,361</b>
<b>Net position, beginning of year</b>	<b>\$1,206,636</b>	<b>\$1,350,815</b>	<b>\$1,529,942</b>	<b>\$1,703,289</b>	<b>\$1,897,840</b>
<b>Net position, end of year</b>	<b>\$1,350,815</b>	<b>\$1,529,942</b>	<b>\$1,703,289</b>	<b>\$1,897,840</b>	<b>\$2,085,201</b>

*Source: Authority records.*

**Table 19B. Statements of Revenues, Expenses and Changes in Net Position**  
**For the six months ended March 31, 2019 and March 31, 2018**  
(\$ in thousands)

	<b>2019</b>	<b>2018</b>
<b>Operating revenues</b>		
Residential, commercial and multi-family customers	\$212,473	\$194,218
Federal government	35,513	33,372
District government and DC Housing Authority	22,222	20,955
Charges for wholesale wastewater treatment	58,556	61,433
Other	13,555	9,061
<b>Total Operating Revenues</b>	<u>342,319</u>	<u>319,039</u>
<b>Operating expenses</b>		
Personnel services	74,779	74,351
Contractual services	33,652	34,509
Chemicals, supplies and small equipment	17,525	16,734
Utilities and rent	13,500	13,525
Depreciation and amortization	72,596	52,458
Water purchases	14,905	12,439
Payment in lieu of taxes and right of way fee	10,851	10,688
<b>Total operating expenses</b>	<u>237,781</u>	<u>214,704</u>
<b>Operating income</b>	104,538	104,335
<b>Nonoperating revenue (expenses)</b>		
Interest income	4,861	1,656
Interest expense and fiscal charges	(31,499)	(31,561)
<b>Total nonoperating revenue (expenses)</b>	<u>(26,638)</u>	<u>(29,905)</u>
Change in net position before Federal grants and contributions	77,900	74,430
Contributions of capital from Federal government	6,622	7,739
<b>Change in net position</b>	84,522	82,169
<b>Net position, beginning of period</b>	<u>\$2,085,201</u>	<u>\$1,897,840</u>
<b>Net position, end of period</b>	<u>\$2,169,723</u>	<u>\$1,980,009</u>

Source: Unaudited Quarterly Authority records.

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*Historical Debt Service Coverage*

The Authority has exceeded the Rate Covenant requirement of 1.20x Senior Debt service coverage set forth in the Indenture and the Authority's policy goal of 1.40x Senior Debt service coverage in each of the last five Fiscal Years, as shown in Table 20.

**Table 20. Historical Debt Service Coverage<sup>1</sup>**  
(\$ in thousands)

	Fiscal Year ended September 30				
	2014	2015	2016	2017	2018
Revenues:					
Retail	\$351,148	\$382,012	\$451,467	\$474,462	\$498,394
Wholesale	70,763	81,230	79,784	81,136	81,022
Other Non-Operating	56,082	75,354	58,078	61,419	51,756
(Contributions to/Transfers from Rate Stabilization Fund)	6,500	(10,000)	(19,000)	(10,000)	-
Total Revenues (A)	\$484,493	\$528,596	\$570,329	\$607,017	\$631,172
Operating Expenses (B)	281,918	273,486	298,452	292,812	298,761
Revenues Less Operating Expenses (C=A-B)	\$202,575	\$255,109	\$271,877	\$314,205	\$332,411
Debt Service:					
Senior Debt Service (D)	\$42,041	\$55,746	\$46,829	\$51,945	\$67,296
Subordinate Debt Service (E)	78,124	84,925	105,252	109,263	111,104
Total Outstanding and Projected Debt Service (F=D+E)	\$120,165	\$140,671	\$152,081	\$161,208	\$178,400
Calculation of Net Revenues Available for Senior Debt Service:					
Revenues Less Operating Expenses (C)	\$202,575	\$255,109	\$271,877	\$314,205	\$332,411
Prior Year Federal Billing Reconciliation	(6,000)	(5,053)	(11,679)	(19,201)	(9,019)
(Refund to)/Payment from wholesale customers	(10,069)	(2,483)	(13,017)	(10,906)	8,987
(Additions to)/Transfers from DC PILOT Fund	(7,676)	-	-	-	-
Customer Rebate	(5,100)	-	-	-	-
Net Revenues Available for Senior Debt Service (G)	\$173,730	\$247,574	\$247,181	\$284,098	\$332,379
<b>Senior Debt Service Coverage (G/D)</b>	<b>4.13x</b>	<b>4.44x</b>	<b>5.28x</b>	<b>5.47x</b>	<b>4.94x</b>
Calculation of Subordinate Debt Service Coverage:					
Net Revenue Available for Senior Debt Service	\$173,730	\$247,574	\$247,181	\$284,098	\$332,379
Less Senior Debt Service (D)	(42,041)	(55,746)	(46,829)	(51,945)	(67,296)
Net Revenues Available for Subordinate Debt Service (G-D)	\$ 131,689	\$191,827	\$200,352	\$232,153	\$265,083
<b>Subordinate Debt Service Coverage ((G-D)/E)</b>	<b>1.69x</b>	<b>2.26x</b>	<b>1.90x</b>	<b>2.12x</b>	<b>2.39x</b>
<b>Combined Debt Service Coverage (G/F)</b>	<b>1.45x</b>	<b>1.76x</b>	<b>1.63x</b>	<b>1.76x</b>	<b>1.86x</b>

<sup>1</sup> Prepared in accordance with the Indenture, which closely corresponds to cash basis accounting. Debt service on the Series 2010A Bonds (which is included in Subordinate Debt Service above) reflects the Direct Payments the Authority receives from the U.S. Treasury. The Authority has agreed to deposit the Direct Payments related to the Series 2010A Bonds directly into the Series 2010A Interest Account of the Subordinate Lien Bond Fund to pay interest when due on the Series 2010A Bonds. With respect to the effect of Sequestration on the receipt by the Authority of Direct Payments on its Series 2010A Bonds, see "SECURITY FOR THE SERIES 2019C BONDS – Direct Payments – Sequestration."

Source: Authority records.

**Annual Budget***Annual Budget Process*

The Authority's budgetary process is based on an integrated approach that links its operating and capital requirements to its ten-year financial plan. Preparation of the Authority's budget begins with the preparation of the ten-year financial plan in the spring of each year. The Authority's operating budgets and the CIP are developed based on the financial parameters laid out in the financial plan and in Board policy. Management presents its proposed operating budgets, the CIP and the ten-year financial plan to the Board's Environmental Quality and Sewerage Services, Water Quality and Water Services, and Finance and Budget Committees for their review, with final action by the full Board typically scheduled for January of each year. Upon final approval by the Board, the Authority's budget is forwarded to the District for inclusion in its submission to the President as described below.

Under the Act and the Federal Act, the Authority is required to prepare and annually submit to the Mayor of the District for inclusion in the annual budget of the District estimates of the expenditures and appropriations necessary for the operation of the Authority for each Fiscal Year. All such estimates are required to be forwarded by the Mayor to the Council for its action without revision, but subject to the Mayor's recommendations. The Council may comment or make recommendations concerning such annual estimates but has no authority to revise such estimates. Such annual estimates constitute a part of the annual budget of the District required to be submitted by the



Mayor to the President of the United States for transmission by the President to the U.S. Congress. In accordance with the District's Home Rule Act, except as noted below, no amount may be obligated or expended by any officer or employee of the District, including the Authority, unless such amount has been approved by act of Congress and then only according to such act. Pursuant to the Federal Act, the limitation described in the preceding sentence is not applicable to expenditures by the Authority for any of the following purposes: (i) any amount obligated or expended from the proceeds of any revenue bonds of the Authority; (ii) any amount obligated or expended for debt service on such revenue bonds; (iii) any amount obligated or expended to secure any revenue bonds of the Authority; or (iv) any amount obligated or expended for repair, maintenance, or capital improvement to the System facilities financed by any revenue bonds of the Authority. In addition, pursuant to Public Law 105-33 (D.C. Code Section 1-204.45a(b)), if the Authority has excess revenues, such excess revenues may be obligated or expended for capital projects.

*The Approved Fiscal Year 2019 and Fiscal Year 2020 Budgets*

The Board adopted the Fiscal Year 2019 operating budget (the "Fiscal Year 2019 Budget") on March 1, 2018 and the Fiscal Year 2020 operating budget (the "Fiscal Year 2020 Budget") on April 4, 2019.

The Fiscal Year 2019 Budget for operating expenditures totals \$582.8 million, which is \$20.8 million or 3.7% higher than the Approved Fiscal Year 2018 Budget, primarily due to the increase in debt service cost associated with the Authority's CIP. The Fiscal Year 2020 Budget for operating expenditures totals \$614.5 million, which is \$31.7 million or 5.4% higher than the Approved Fiscal Year 2019 Budget, primarily due to increase in debt service cost associated with the Authority's CIP and an increase to the Professional Services in the Operations and Maintenance budget.

Commencing in Fiscal Year 2018, the Authority anticipates that the difference between actual and budgeted operating expenses will be less than in previous years due to budget planning that focuses on having actual expenses more closely aligned with budgeted expenses. Beginning in Fiscal Year 2015, the Authority includes a separate line item in its operating budget to provide funds for additional cash-financed capital construction, the defeasance of debt, or other uses at the discretion of the Authority. The amounts in this line item could alternatively be used by the Authority to help address potential shortfalls in cash receipts or increases in expenses, should the need arise. In addition, the Authority has the ability to adjust its rates, as necessary, to provide the required revenues in each year.

**Projected Financial Operations**

Table 21 was prepared by Amawalk in its capacity as the financial feasibility consultant to the Authority, and it shows (i) the actual cash flows, cash reserves and debt service coverage for Fiscal Year 2018 and (ii) projected cash flows, cash reserves and debt service coverage for Fiscal Years 2019 through 2023. The projected revenues reflect the increases in rates and charges adopted by the Authority for Fiscal Year 2019 and the anticipated increases in rates and charges for Fiscal Years 2020 through 2023.

The projected financial results for Fiscal Years 2019 through 2023 incorporate assumptions as of the date of this Official Statement. The projected debt service requirements include anticipated debt service on the Series 2019C Bonds and the Series 2019A/B Subordinate Bonds. The first payment of debt service for the Series 2019C Bonds and the Series 2019A/B Subordinate Bonds is expected to be made in Fiscal Year 2020. Excluding the issuance of the Series 2019C Bonds and the Series 2019A/B Subordinate Bonds, the Authority anticipates issuing approximately \$731.6 million of new money bonds from Fiscal Year 2021 through and including Fiscal Year 2023. There are no deposits to the debt service reserve fund assumed for the Series 2019C Bonds, and any anticipated future bonds; the Authority may decide to make contributions to the debt service reserve fund in the future at its discretion.

The Authority has the option to issue future bonds as either Senior Debt or Subordinate Debt. The combined debt service coverage would remain the same if the Authority were to elect to issue Senior Debt in lieu of Subordinate Debt or vice versa in a given year. Decisions regarding the issuance of future debt as Senior Debt will be made by the Authority at the time of debt issuance.

For more information in respect of Amawalk's analysis, see "FINANCIAL FEASIBILITY OPINION LETTER" in Appendix A.

**Table 21. Analysis of Actual and Projected Financial Results**Fiscal Years ended/ending September 30  
(\$ in thousands)

	Actual			Projected		
	2018 <sup>2</sup>	2019	2020	2021	2022	2023
<b>Revenues and Payment Obligations</b>						
<b>Revenues</b>						
Retail Revenues <sup>1</sup>	\$498,394	\$530,984	\$538,362	\$589,407	\$629,329	\$672,857
Wholesale Revenues	81,022	82,992	79,224	81,600	84,048	86,570
Other Non-Operating Revenues	51,756	62,361	62,886	69,183	74,083	76,885
Transfer from RSF	0	6,000	0	0	0	0
(Contributions to RSF)	0	(6,000)	0	0	0	0
<b>Total Revenues</b>	<b>631,173</b>	<b>676,337</b>	<b>680,472</b>	<b>740,191</b>	<b>787,461</b>	<b>836,313</b>
Prior Year Federal Billing Reconciliation	(9,019)	(5,821)	1,317	2,233	0	0
Projected Billing Refunds	0	(11,000)	(4,000)	(4,000)	0	0
(Refund to)/Payment from IMA	8,987	(15,446)	(3,448)	0	0	0
Transfer to CAP Fund	0	(10,246)	0	0	0	0
Curing Pad + ERP	0	0	(4,316)	0	0	0
<b>Net Revenues (A)</b>	<b>631,141</b>	<b>633,825</b>	<b>670,025</b>	<b>738,424</b>	<b>787,461</b>	<b>836,313</b>
<b>Operating Expenses (B)</b>	<b>298,761</b>	<b>311,166</b>	<b>325,847</b>	<b>335,892</b>	<b>346,249</b>	<b>356,928</b>
<b>Net Revenues Available for Debt Service (C=A-B)</b>	<b>332,380</b>	<b>322,659</b>	<b>344,178</b>	<b>402,533</b>	<b>441,212</b>	<b>479,385</b>
Total Senior Debt Service (D) <sup>3,4,5</sup>	67,296	75,609	76,385	76,386	76,386	84,239
Total Subordinate Debt Service (E) <sup>3,4,5,6,7,8</sup>	111,104	118,412	136,826	151,236	168,964	178,835
<b>Total Outstanding &amp; Projected Debt Service (F=D+E)</b>	<b>178,399</b>	<b>194,021</b>	<b>213,211</b>	<b>227,622</b>	<b>245,350</b>	<b>263,074</b>
<b>Debt Service Coverage</b>						
Calculation of Net Revenues Available for Senior Debt Service						
<b>Senior Debt Service Coverage (C/D)</b>	<b>4.94x</b>	<b>4.27x</b>	<b>4.51x</b>	<b>5.27x</b>	<b>5.78x</b>	<b>5.69x</b>
Calculation of Subordinate Debt Service Coverage						
Net Revenue Available for Senior Debt Service (C)	332,380	322,659	344,178	402,533	441,212	479,385
Less Senior Debt Service (D)	(67,296)	(75,609)	(76,385)	(76,386)	(76,386)	(84,239)
Net Revenue Available for Subordinate Debt Service (C-D)	265,084	247,049	267,793	326,146	364,826	395,146
<b>Subordinate Debt Service Coverage [(C-D)/E]</b>	<b>2.39x</b>	<b>2.09x</b>	<b>1.96x</b>	<b>2.16x</b>	<b>2.16x</b>	<b>2.21x</b>
<b>Combined Debt Service Coverage (C/F)</b>	<b>1.86x</b>	<b>1.66x</b>	<b>1.61x</b>	<b>1.77x</b>	<b>1.80x</b>	<b>1.82x</b>
<b>Subordinated Payment Obligations</b>						
Payment In Lieu of Taxes/Right of Way Fee (G)	21,376	21,702	22,034	22,372	22,718	23,070
Defeasance/Cash Financed Capital Construction (H) <sup>9</sup>	35,260	26,999	28,556	30,589	39,123	48,715
<b>Revenues Less Disbursements (I=A-B-F-G-H)</b>	<b>97,344</b>	<b>79,937</b>	<b>80,378</b>	<b>121,949</b>	<b>134,021</b>	<b>144,525</b>
<b>Reserve Balances</b>						
Beginning Cash Reserve Balance (J)	147,212	166,796	171,342	180,000	185,000	194,000
Cash Reserve Balance Breakdown						
Beginning Undesignated Reserve Balance	63,078	80,091	86,548	93,139	95,692	103,018
Additions to/(Transfers from) Undesignated Reserve						
Annual Balance from Operations	97,376	122,450	90,825	123,715	134,021	144,525
Prior Year Federal Billing Reconciliation	(9,019)	(5,821)	1,317	2,233	0	0
Projected Billing Refunds	0	(11,000)	(4,000)	(4,000)	0	0
(Refund to)/Payment from IMA	8,987	(15,446)	(3,448)	0	0	0
Transfer to CAP Fund	0	(10,246)	0	0	0	0
Curing Pad + ERP	0	0	(4,316)	0	0	0
Pay-Go Capital Financing	(77,761)	(75,391)	(71,720)	(116,949)	(125,021)	(137,525)
(Transfers to)/Transfers from 60-Day Reserve	(2,571)	1,912	(2,067)	(2,447)	(1,674)	(1,726)
Ending Undesignated Reserve Balance	80,091	86,548	93,139	95,692	103,018	108,292
Beginning 60-Day Operating Reserve Balance	49,134	51,705	49,794	51,861	54,308	55,982
Additions to/(Transfers from) 60-Day Reserve	2,571	(1,912)	2,067	2,447	1,674	1,726
60-Day Operating Reserve Balance	51,705	49,794	51,861	54,308	55,982	57,708
Beginning Renewal & Replacement Balance	35,000	35,000	35,000	35,000	35,000	35,000
Additions to/(Transfers from) Renewal & Replacement Reserve	0	0	0	0	0	0
Renewal & Replacement Balance	35,000	35,000	35,000	35,000	35,000	35,000
<b>Ending Balance Cash Reserve</b>	<b>166,796</b>	<b>171,342</b>	<b>180,000</b>	<b>185,000</b>	<b>194,000</b>	<b>201,000</b>

DC Water Board of Directors - X. Consent Items (Joint Use)

District Stormwater Fee - DC Water Share (K)	1,247	1,263	1,000	1,000	1,000	1,000
Cash Reserve Requirement Per Board Policy [Maximum of (B-K)*(120/365) or \$125.5 Million] <sup>10</sup>	125,500	125,500	125,500	125,500	125,500	125,500
Beginning Rate Stabilization Fund Balance	61,450	61,450	61,450	61,450	61,450	61,450
Transfers from Operations (Additions to Rate Stabilization Fund)	0	6,000	0	0	0	0
Additions to Operations/(Transfers from) Rate Stabilization Fund	0	(6,000)	0	0	0	0
Rate Stabilization Fund Balance	61,450	61,450	61,450	61,450	61,450	61,450

<sup>1</sup> Includes retail revenue from water and wastewater charges as well as the Clean Rivers Impervious Area Charge.

<sup>2</sup> Preliminary results, unaudited.

<sup>3</sup> Debt service is shown on a cash basis, and may differ from the CAFR.

<sup>4</sup> Anticipated future bonds in Fiscal Year 2023 are currently assumed to be issued on a senior lien basis. Anticipated future bonds in Fiscal Years 2019, 2021, and 2022 are currently assumed to be issued on a subordinate lien basis. The Authority may decide in the future to issue bonds on a senior or subordinate basis. Debt service for the anticipated Fiscal Year Series 2019A/B Subordinate Bonds is calculated based on an assumed annual true interest cost of 3.34%, a term of 30 years and level debt service. Debt service for the anticipated 2019 Series C Bonds is based on an assumed annual true interest cost of 3.09%, a term of 35 years and with no principal payments during the period of Fiscal Year 2019 through Fiscal Year 2023. Debt service for anticipated future bonds starting in Fiscal Year 2020 is calculated based on a term of 35 years and level annual debt service and assumed annual interest rates of 5.50% in Fiscal Year 2020, and 6.00% in Fiscal Year 2021 and all subsequent years.

<sup>5</sup> Total Senior Debt Service (D) and Total Subordinate Debt Service (E) includes debt service payments on anticipated future bonds of the Authority, based on the terms noted in footnote 4 above. The Authority has applied for loans to finance a portion of its CIP pursuant to the Water Infrastructure Finance and Innovation Act of 2014 (WIFIA), a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. The application amount is a total of \$144 million to be disbursed over multiple years. If such loans are approved, it is anticipated that: a) the amount of the bonds issued in future years by DC Water will be reduced by the principal amount of the loans received from the WIFIA program; and b) the annual debt service payments on such loans will be approximately equal to or less than the debt service that would be required if the Authority issued bonds in lieu of accepting the loan proceeds.

<sup>6</sup> The Total Subordinate Debt Service is net of the Build America Bonds (BABs) subsidies the Authority expects to receive from the United States Treasury equal to approximately 32% of the interest payable on the Series 2010A Bonds. It reflects the reduction in BABs subsidy payments due to expected effects of sequestration. See "SECURITY FOR THE SERIES 2019C BONDS - Direct Payments - Sequestration."

<sup>7</sup> Subordinated debt service includes an allowance in each year for the interest costs of both Commercial Paper and Extendible Maturity Commercial Paper. See "DEBT SERVICE REQUIREMENTS."

<sup>8</sup> The Series 2016B Bonds are designated as environmental impact bonds and, as such, include provisions for the possibility of an outcome payment by the Authority to the original purchasers of the Series 2016B Bonds, and for the possibility of a risk share payment by such original purchasers to the Authority depending upon the results achieved by the green infrastructure financed with the proceeds of the Series 2016B Bonds. The Series 2016B Bonds are subordinate, multimodal variable rate bonds, initially issued bearing a 3.43% fixed rate through the mandatory tender date, April 1, 2021 (Fiscal Year 2021). The subordinate debt service shown above includes principal and interest payments through Fiscal Year 2021 and assumes that no outcome payment is payable by the Authority. In the event that an outcome payment is necessary, the Authority estimates that its maximum obligation would be \$3.3 million, payable in full in Fiscal Year 2021. Any outcome payment up to and including the maximum obligation would not be material to the annual cash flows of the Authority. In the event that the maximum obligation amount has to be paid in Fiscal Year 2021: a) the projected Senior Debt Service Coverage does not change, b) the projected Subordinate Debt Service Coverage would be 2.12, and c) the Projected Combined Coverage would be 1.75.

<sup>9</sup> Beginning in Fiscal Year 2016, the Authority included funds in its annual budget that are intended to be used to defease outstanding debt or pay for construction on a cash basis. These funds are separate from the Pay-Go Capital Financing amounts referenced under Reserve Funds above and are presently assumed to be added to the Pay-Go amounts and deposited in total as a source of funds for the CIP. Alternatively, these funds could be used to cover unexpected declines in revenues or increases in expenses. The Authority reserves the right to modify the amount of the funds and the usage of funds during each year.

<sup>10</sup> Board financial policy requires the maintenance of a cash equivalent to 120 days of operating costs less District stormwater revenues, but not less than a cash balance of \$125.5 million. Actual results are projected to be higher than required under Board policy; see the explanation provided herein.

Source: Amavalk (Totals may not add due to rounding.)

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## System Revenues

The Authority collects revenues from retail and wholesale customers as well as other sources that include fees paid by developers and interest earnings on available funds. Authority revenues also include transfers from the Rate Stabilization Fund. Table 22 shows historical revenues of the Authority for Fiscal Year 2018, and the projected revenues for Fiscal Years 2019 through 2023.

**Table 22. Historical and Projected Revenue on a Cash Basis**

Fiscal Years ended/ending September 30  
(\$ in thousands)<sup>1</sup>

	Actual <sup>2</sup>		Projected <sup>3</sup>			
	2018	2019	2020	2021	2022	2023
<b>Retail Revenue</b>						
Residential, Commercial, Multi-Family	\$260,495	\$299,698	\$321,081	\$361,757	\$399,734	\$429,339
D.C. Municipal Government	10,979	7,066	10,000	11,114	12,263	13,172
Federal Government	39,552	41,525	47,940	56,031	60,915	65,432
D.C. Housing Authority	7,137	9,269	9,720	10,828	11,973	12,860
Groundwater <sup>4</sup>	0	0	5	5	5	5
Metering Fee	11,745	11,544	10,776	10,776	10,776	10,776
Water System Replacement Fee <sup>5</sup>	40,896	40,527	39,717	39,717	39,717	39,717
CRIAC	<u>127,591</u>	<u>121,356</u>	<u>99,123</u>	<u>99,179</u>	<u>93,946</u>	<u>101,556</u>
<b>Total Retail Revenue</b>	<b>\$498,394</b>	<b>\$530,984</b>	<b>\$538,362</b>	<b>\$589,407</b>	<b>\$629,329</b>	<b>\$672,857</b>
<b>Wholesale Revenue</b>						
Loudoun County & Potomac Interceptor	\$9,942	\$10,257	\$10,203	\$10,509	\$10,825	\$11,149
WSSC	57,210	58,335	54,520	56,155	57,840	59,575
Fairfax County	<u>13,870</u>	<u>14,401</u>	<u>14,501</u>	<u>14,936</u>	<u>15,384</u>	<u>15,845</u>
<b>Total Wholesale Revenue</b>	<b>\$81,022</b>	<b>\$82,992</b>	<b>\$79,224</b>	<b>\$81,600</b>	<b>\$84,048</b>	<b>\$86,570</b>
<b>Other Revenues</b>						
District Stormwater Fee – D.C. Water Share	\$1,247	\$1,263	\$1,000	\$1,000	\$1,000	\$1,000
Transfer from Rate Stabilization Fund	0	6,000	0	0	0	0
Miscellaneous Revenues	26,881	36,719	35,615	36,836	36,928	37,108
Aqueduct Debt Service Revenue from Falls Church and Arlington	193	193	193	193	193	193
Interest Income	2,200	3,151	3,966	8,782	13,244	15,514
PILOT/D.C. Right of Way Occupancy Fee	<u>21,236</u>	<u>21,035</u>	<u>22,113</u>	<u>22,372</u>	<u>22,718</u>	<u>23,070</u>
<b>Total Other Revenue</b>	<b>\$51,756</b>	<b>\$68,361</b>	<b>\$62,886</b>	<b>\$69,183</b>	<b>\$74,083</b>	<b>\$76,885</b>
<b>Total Operating Cash Receipts</b>	<b>\$631,173</b>	<b>\$682,337</b>	<b>\$680,472</b>	<b>\$740,191</b>	<b>\$787,461</b>	<b>\$836,313</b>
<b>Less: Contributions to Rate Stabilization Fund</b>	<b>0</b>	<b>(6,000)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Operating Cash Receipts with RSF Transfers</b>	<b>\$631,173</b>	<b>\$676,337</b>	<b>\$680,472</b>	<b>\$740,191</b>	<b>\$787,461</b>	<b>\$836,313</b>

<sup>1</sup> All figures are presented on a cash receipt basis. Totals may not add due to rounding.

<sup>2</sup> Preliminary results, unaudited.

<sup>3</sup> Fiscal Year 2019 - 2023 revenue projections are based on the Authority's financial plan.

<sup>4</sup> Groundwater revenue refers to receipts from customers that pump groundwater into the sewer system.

<sup>5</sup> The meter-based Water System Replacement Fee to recover the cost of the 1% renewal and replacement program for water service lines was implemented beginning in Fiscal Year 2016.

Source: Amawalk.

An overview of the revenue components on a cash basis is provided below.

#### *Retail Water and Wastewater Revenues*

Retail revenues comprise the vast majority of all System revenues. In Fiscal Years 2014 through 2018, retail revenues accounted for approximately 78.6% of total revenue (excluding the PILOT/ROW Fee and the effects of withdrawals from the Rate Stabilization Fund), wholesale customer payments represented about 14.4% of total revenues, with the remaining 7.0% coming from a variety of sources, such as interest income, the District fire protection fee, IMA contributions for indirect costs and fees from service installations. Retail revenues are derived primarily from water and wastewater service charges of the Authority that are based on water consumption as described earlier in this Official Statement. Other sources of retail revenue include the customer metering fee, CRIAC, and Water System Replacement Fee. See “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges.”

The Authority has projected that revenues from retail customers, excluding the PILOT/ROW Fees, will be \$531.0 million in Fiscal Year 2019, or 81% of the Authority’s total revenues (excluding the PILOT/ROW Fee and transfers from the Rate Stabilization Fund). This amount includes approximately \$121.4 million from the CRIAC and \$40.5 million from the Water System Replacement Fee. Without the CRIAC and the Water System Replacement Fee, Fiscal Year 2019 projected revenue is expected to be \$39.2 million, or 11.9%, higher than the Fiscal Year 2018 revenues from retail customers. The projected increase in retail revenue assumes the consumption of retail customers will be lower in Fiscal Year 2019 compared to Fiscal Year 2018. Cash Receipts for the first nine months of Fiscal Year 2019 (through March 31, 2019) (excluding the PILOT/ROW Fee) were slightly higher than budget for this period. As of the date of this Official Statement, it is not possible to predict whether full-year cash receipts will be higher, lower or the same as the budgeted receipts.

Revenues from retail customers are projected to be \$538.4 million in Fiscal Year 2020. This amount includes approximately \$99.1 million from the CRIAC and \$39.7 million from the Water System Replacement Fee and excludes the PILOT/ROW Fee. Without the effects of the CRIAC and the Water System Replacement Fee, the Fiscal Year 2020 projected revenue represents an increase of \$30.4 million or 8.2% compared to the projected Fiscal Year 2019 revenues.

Revenues from retail customers are projected to be \$589.4 million in Fiscal Year 2021. This amount includes approximately \$99.2 million from the CRIAC and \$39.7 million from the Water System Replacement Fee and excludes the PILOT/ROW Fee. Without the effects of the CRIAC and the Water System Replacement Fee, the Fiscal Year 2020 projected revenue represents an increase of \$51.0 million or 12.8% compared to the projected Fiscal Year 2020 revenues.

Retail revenues in Fiscal Years 2022 and 2023 are anticipated to increase in each year reflecting both the effects of anticipated changes in rates (as illustrated in Table 13) as well as the expectation that water demand will decrease by 1% annually.

#### *Clean Rivers Impervious Area Charge Revenues*

The revenues from the CRIAC were \$127.6 million in Fiscal Year 2018. CRIAC revenues are projected to decrease to \$121.4 million in Fiscal Year 2019 due to a rate adjustment. Rates and revenues from the CRIAC in Fiscal Year 2020 are expected to be lower than in the prior year and rates and revenues from wastewater charges are expected to be higher due to both: a) increases in the cost of service, and b) an allocation of a portion of the costs of the LTCP to wastewater charges in lieu of the CRIAC. The allocation of a portion of LTCP costs to wastewater charges is based on an analysis prepared by the Authority which estimates that sanitary sewage comprises 37% of combined wastewater and stormwater. DC Water expects to allocate a portion of the LTCP costs to wastewater charges in three stages, beginning with an 18% allocation in Fiscal Year 2020. In Fiscal Years 2021 and 2022, the allocated portions are expected to be 28% and 37%, respectively. Allocated LTCP costs in Fiscal Year 2023 are expected to remain at the 37% level. Amawalk reviewed the Authority’s analysis and found it to be reasonable and consistent with industry practice. The expected reduction in Fiscal Year 2020 CRIAC revenue of \$22.2 million represents a decrease of 18.3% from the prior year. The revenues from the CRIAC in Fiscal Year 2023 are expected to increase reflecting the effects of projected rate increases.

#### *Water System Replacement Fee*

The revenues from Water System Replacement Fee were \$40.9 million in Fiscal Year 2018. It is anticipated that the Water System Replacement Fee will generate \$40.5 million in Fiscal Year 2019 and \$39.7 million in revenue per year from Fiscal Years 2020 through 2023.

#### *Stormwater Revenues*

In Fiscal Year 2018, the Authority collected \$1.2 million in stormwater fees from its retail accounts to cover its share of District stormwater expenditures, and it anticipates that it will collect \$1.3 million in Fiscal Year 2019. The Authority assumes that it will continue collecting \$1.0 million in stormwater fees in each of the Fiscal Years

2020 through 2023. The District Council has stormwater rate-setting authority for stormwater services provided by the District. The projected revenue from stormwater fees that are payable to the District are based on the current stormwater rate. For more information regarding the stormwater fee, see “CUSTOMER BASE, RATES AND CHARGES – Components of Retail Rates and Charges – Stormwater Fee.”

#### *Wholesale Revenues*

The Authority’s wholesale revenues for wastewater operations are stable and reflect modest increases in the cost of service and changes in the volumes of wastewater flow from suburban customers. In Fiscal Year 2018, the Authority received \$81.0 million in revenue from its wholesale customers pursuant to the IMA. Revenues from wholesale customers are expected to increase to \$83.0 million in Fiscal Year 2019 and then decrease to \$79.2 million in Fiscal Year 2020. The revenues from the wholesale customers in Fiscal Years 2021 through 2023 are projected to increase reflecting the effects of projected rate increases as well as the expectation that water demand will decrease by 1% annually.

#### *Loan Repayment from Arlington County and Falls Church*

The Authority provided a loan to the Aqueduct to finance certain improvements at the Aqueduct. This loan is repaid to the Authority by Arlington County, Virginia, and Falls Church, Virginia, as Aqueduct Customers, in the form of a credit that is issued to the Authority on the monthly water bills generated by the Aqueduct. The amount of the credit is determined by the Aqueduct in accordance with the Water Sales Agreement, and the annual amount is expected to be \$193,246 from Fiscal Year 2019 through Fiscal Year 2023.

#### *Interest Income on Reserve Funds*

Interest income is earned on the available funds of the Authority and a portion of the interest earnings may be used to pay operating and maintenance expenses or capital costs of the Authority.

Interest earnings will fluctuate from year to year based on changes in cash flow, reserve requirements, fund balances and market conditions affecting interest rates and other investment terms. The Authority has projected interest earnings of \$3.2 million in Fiscal Year 2019, \$4.0 million in Fiscal Year 2020, \$8.8 million in Fiscal Year 2021, \$13.2 million in Fiscal Year 2022 and \$15.5 million in Fiscal Year 2023, including interest earned from the bond reserves. The assumed annual interest earnings rates for the funds are 1.5% in Fiscal Year 2019, 2.0% in Fiscal Year 2020, 3.0% in Fiscal Year 2021 and 4.0% in Fiscal Years 2022 and 2023. Projected fund balances and interest rate assumptions are reviewed annually as part of the Authority’s budget process. The Authority assumes for forecasting purposes that interest earnings rates will increase over time while simultaneously assuming that borrowing rates for future Authority debt will be higher than the assumed rates for Fiscal Year 2019.

#### *Miscellaneous Revenue*

The Authority realizes revenue from several sources classified as miscellaneous, such as charges for late payments by customers, service installation charges, service line repairs, engineering reviews, the sale of manuals, the District fire protection fee, and fees charged to commercial waste haulers. Miscellaneous revenues in Fiscal Year 2018 were \$26.9 million. Revenues from these sources are expected to increase to \$36.7 million in Fiscal Year 2019. Miscellaneous revenues are expected to total \$35.6 million per year in Fiscal Year 2020, \$36.8 million in Fiscal Year 2021, \$36.9 million in Fiscal Year 2022, and \$37.1 million in Fiscal Year 2023.

These amounts also include payments for various development-related services provided by the Authority and charges to the District for fire protection services. The Authority’s annual investments (operating and capital) in fire protection assets and services increased significantly following the execution of the Memorandum of Understanding between the Authority and the District of Columbia Fire and EMS Department (FEMS) on October 25, 2007. The fees charged by the Authority are intended to recover the costs incurred by the Authority related to fire protection services provided by the water system including, but not limited to, the ability to deliver water for firefighting as well as maintaining and upgrading fire hydrants. The Authority’s investments will continue in future years but at a pace that is much lower than the peak years of Fiscal Year 2008 and Fiscal Year 2009. The projected miscellaneous revenues assume that the District will make such payments in each year or that a combination of payments and credits against Authority payments to the District will result in the Authority receiving the full amounts expected from the District.

#### *PILOT/ROW Fee*

The total combined revenues from the PILOT/ROW Fee are assumed in the financial forecast to total \$21.7 million in Fiscal Year 2019, and increase to \$23.1 million in Fiscal Year 2023. The Authority and the District have negotiated new MOUs for both the PILOT and the ROW (see “THE AUTHORITY – Authority’s Relationship to the District”).

**System Expenditures***Operating Expenses*

Table 23 presents the historical Operating and Maintenance (“O&M”) expenses of the Authority for Fiscal Year 2018, and the projected O&M expenses for Fiscal Years 2019 through 2023 on a cash disbursement basis.

The projected expenses for Fiscal Year 2019 reflect the current adopted budget of the Authority which represents a 4.2% increase over the expenses for Fiscal Year 2018, excluding the PILOT/ROW Fee payments to the District. The anticipated expenses for Fiscal Year 2020 reflect an annual increase of 4.7% over the projected expenses for Fiscal Year 2019, excluding the PILOT/ROW Fee payments to the District.

**Table 23. Historical and Projected Operation and Maintenance Costs on a Cash Disbursement Basis**  
Fiscal Years ended/ending September 30  
(\$ in thousands)<sup>1</sup>

	<b>Actual</b> <sup>2</sup>		<b>Projected</b> <sup>3</sup>			
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Personnel Services	\$138,993	\$137,253	\$147,932	\$152,370	\$156,941	\$161,649
Contractual Services	73,404	78,725	81,886	84,343	86,873	89,479
Water Purchases	27,665	32,617	34,929	35,977	37,056	38,168
Chemical & Supplies	34,679	35,738	33,158	34,153	35,177	36,233
Utilities & Rent	23,414	25,966	26,953	28,031	29,152	30,318
Small Equipment	606	867	989	1,019	1,049	1,081
Total O&M Expenses	298,761	311,166	325,847	335,892	346,249	356,928
PILOT/D.C. ROW Occupancy Fee	\$21,376	\$21,702	\$22,034	\$22,372	\$22,718	\$23,070
<b>Total Expenses</b>	<b>\$320,137</b>	<b>\$332,868</b>	<b>\$347,881</b>	<b>\$358,264</b>	<b>\$368,967</b>	<b>\$379,998</b>

<sup>1</sup> All figures are presented on a cash disbursement basis. Totals may not add due to rounding.

<sup>2</sup> Preliminary results; unaudited.

<sup>3</sup> Fiscal Year 2019 - 2023 cost projections are based on the Authority’s financial plan.

Source: Amawalk

Table 24 provides a comparison of the budgeted versus actual costs for Fiscal Years 2017 and 2018 as well as the first six months of Fiscal Year 2019 on an accrual basis. As illustrated in Table 24, the Authority has historically under-spent its annual budget as a whole as well as its O&M expenses as one component of the budget. Individual line items of expense may be higher or lower in a given year but aggregate expenses are historically less than budgeted.

**Table 24. Budget to Actual Expense Comparison**  
Fiscal Years Ended September 30  
(\$ in thousands)<sup>1</sup>

Category	2017			2018			2019 (YTD March)		
	Approved Budget	Actual Cost	Variance	Approved Budget	Actual Cost	Variance	Approved Budget	Actual Cost	Variance
Personnel Service	\$144,761	\$149,293	\$ (4,532)	\$149,193	\$138,993	\$10,200	\$162,620	\$75,717	\$86,903
Contractual Service	82,760	72,951	9,809	79,353	73,404	5,949	81,679	38,012	43,667
Water Purchase	29,278	26,796	2,482	30,156	27,665	2,491	30,520	14,737	15,783
Chemical & Supplies	34,709	31,373	3,336	30,659	34,679	(4,020)	32,091	17,523	14,568
Utilities & Rent	28,670	24,260	4,410	29,399	23,414	5,985	32,091	12,909	19,182
Small Equipment	1,230	1,178	52	1,071	606	465	1,240	177	1,063
Debt Service	169,346	165,836	3,510	185,480	178,399	7,081	199,025	95,937	103,088
Cash Financed Capital Improvements	24,014	24,199	(185)	35,260	35,260	0	26,999	-	26,999
PILOT/ROW	21,057	21,057	-	21,376	21,376	(0)	21,702	10,851	10,851
Total Budgetary Basis Expenditures	\$535,825	\$516,943	\$23,510	\$540,886	\$533,796	\$7,090	\$582,781	\$265,863	\$316,918

<sup>1</sup> All figures are presented on an accrual basis.  
Source: Authority records.

Several factors affecting future expenses are described herein. The Authority has undertaken long-term initiatives to optimize the cost of service. Management's forecast of operations and maintenance expenses reflects continued emphasis on managing such expenses. Examples of historical and ongoing initiatives are outlined in the description of the major categories of expense. Management continually monitors expenditures and reports the results monthly to the Board's Finance and Budget Committee. The Authority also has the option, in any given year, to defer certain expenses in order to stay within its budget and conform to Board policy requirements.

#### *Labor-Related Expenses*

Personnel costs are directly affected by staffing levels, salaries and wages, fringe benefits including retirement contributions, overtime expenditures and other factors.

Certain individuals at the Authority are responsible for planning and implementing the CIP. The salaries, wages and fringe benefits of such personnel are charged to capital projects and are paid for through the sources of funds for the CIP.

**Salaries and Fringe Benefits.** The Authority provides its employees with a comprehensive fringe benefit package, including coverage for health insurance, group term life insurance, dental care, vision care, disability coverage and retirement plans. The fringe benefit component of total labor costs in recent years has been impacted by the increasing cost of health care coverage. Fringe benefits are budgeted to be 22% of the total personnel services budget in Fiscal Year 2019 and 23% of the total personnel services budget in Fiscal Year 2020.

While employed by the Authority, employees contribute to a retirement fund and the Authority contributes a proportional match. Once an employee retires, the Authority has no further financial obligations relating to those employees. Some retired employees may be eligible to receive a federal pension. In addition, the federal government also may assume the employer portion of the healthcare coverage for eligible employees. The Authority is and expects to continue to remain current with its benefit payments.

See "THE AUTHORITY – Employees and Labor Relations" herein for further information regarding the Authority's labor force and the status of collective bargaining agreements.

**Overtime Expenses.** The Authority uses overtime work by its employees to address unplanned repairs and service needs (e.g., to repair water main breaks that occur outside of normal business hours) as well as to provide resources to offset unfilled positions and to reduce the need for contractual labor. Overtime expenses in Fiscal Year 2018, including an allowance for fringe benefits, totaled \$42.8 million, or about 27.2% of total personnel services costs.

**Total Personnel Expenses.** On an accrual basis, the Authority's personnel costs increased at an annual average of 5.8% per year from Fiscal Year 2014 through Fiscal Year 2018. Budgeted personnel expenses for Fiscal Year 2019 are \$162.6 million, a 3.2% increase over Fiscal Year 2018. In Fiscal Year 2020, personnel expenses are expected to increase 5.0% from the prior year. Beginning in Fiscal Year 2021, personnel expenses are projected to increase at an average annual rate of 3.0%. The projected rate of increase is supported by the Authority's demonstrated ability to maintain adequate staffing levels and reduce overtime costs through improvements in its facilities and business practices, as well as the expectation that new employees in the upcoming years will have lower salaries and benefits compared to the employees who will retire during that same period.



*Non-Labor Operating Expenses*

There are four major categories of non-labor related operating expenses: contractual services (which includes the processing and disposal of biosolids), water purchases, chemicals and supplies, and utilities and rent (which includes electricity needed to operate the Authority facilities). A brief overview of the four major categories of non-labor expenses is provided below.

Contractual Services. Contractual services include the outside services necessary for the Authority to operate and maintain facilities, including the hauling of biosolids from the Blue Plains treatment facility to the disposal location, building maintenance and repair, the maintenance of certain machinery, equipment and vehicles, and other contractual or professional services.

The actual costs on an accrual basis for contractual services in FY 2019 (Q2) were \$38.0 million. The budgeted amounts for contractual services in Fiscal Year 2019 and Fiscal Year 2020 are \$81.7 million and \$81.9 million, respectively. Contractual services expenses are assumed to increase at the average annual rate of 3.0% for Fiscal Years 2021 through 2023.

Also included within contractual services is the Authority's purchase of annual insurance policies. The policies cover property, equipment, worker's compensation, umbrella and excess liability, crime and fidelity, public officials' liability, and fiduciary liability.

Water Purchases. The Authority purchases all of its treated drinking water from the Aqueduct on the basis of a 1997 agreement between the Authority and the Corps of Engineers, the operator of the Aqueduct. Under the terms of the agreement and based on its usage in relation to the other Aqueduct Customers, the Authority pays an average of approximately 75% of the Aqueduct's operating costs. The Authority's share of Aqueduct capital costs is reflected in the Authority's CIP.

On an accrual basis, the actual operating costs for water purchases in Fiscal Year 2019(Q2) were \$14.7 million. The budgeted amount for water purchases in Fiscal Year 2019 and Fiscal Year 2020 is \$30.5 million and \$34.9 million, respectively. An average annual increase in water supply costs is assumed at approximately 3.0% in Fiscal Years 2021 through 2023.

Chemicals and Supplies. The chemicals and supplies component of the Authority's operating and maintenance expenses includes, but is not limited to, office, laboratory, custodial and maintenance supplies, automotive supplies, uniforms, and chemicals. Chemicals are the largest portion of this component. The Authority continues to implement a QA/QC program for managing dry polymer selection, procurement, and use. The most cost effective dry polymer products, for different process applications at Blue Plains, are selected based on laboratory and full scale tests. The selected products are "fingerprinted" to verify the consistency in the quality of future deliveries.

The actual expenses for chemicals and supplies in Fiscal Year 2019(Q2), on an accrual basis, were \$17.5 million. The budgeted expenses for chemicals and supplies in Fiscal Year 2019 and Fiscal Year 2020 are \$32.1 million and \$33.2 million, respectively. The average annual increase of costs for chemicals and supplies is assumed at 3.0% in Fiscal Years 2021 through 2023.

Utilities and Rent. The Authority is a major user of energy, primarily for the operation of the Blue Plains Wastewater Treatment Facilities. In Fiscal Year 2018, approximately 63% of the expenses associated with utilities and rent were attributable to the cost of power. The combined heat and power facility provides over 23% of the plant's energy needs. See "CAPITAL IMPROVEMENT PROGRAM – Categories of CIP Projects – Blue Plains – Wastewater Treatment Projects." The Authority has taken a proactive approach to the procurement of power and its pricing. On October 1, 2014, the Authority entered into a five-year full service electricity contract, with five optional years, to purchase power from Constellation New Energy, Inc., previously ConEdision Solutions. As part of its power purchasing strategy in the deregulated environment, this contract allows the Authority to lock in blocks of power at a fixed price when futures pricing meets budget targets. To the extent that the Authority has power needs that exceed the locked in fixed price blocks, the price of the additional power would be established each day at market rates with direct pass-through of all costs. This contract includes an enhanced process for block power purchases that gives the Authority access to the wholesale market. The Authority's Department of Finance, Accounting and Budget monitors the energy market on a continuous basis. The contract was modified and extended through September 30, 2020. [ADD DISCUSSION OF PPA AT BLUE PLAINS.]

**Reserve Funds**

The Authority maintains various reserve funds as previously described herein. See "SECURITY FOR THE SERIES 2019C BONDS – Certain Reserve Funds – Discretionary Reserves; – Operating Reserve Fund; – Rate Stabilization Fund; and – Renewal and Replacement Reserve Fund."

## Financial Policies

The Authority has developed a ten-year financial plan to ensure compliance with certain Indenture requirements and the Board's financial policies. This plan is updated annually, taking into account revisions to the CIP, current and prior year financial performance and other changes. The Board adopted a series of financial policies in 1997 that the Authority utilizes to develop its ten-year financial plan, operating budgets and rate proposals. The policies summarized below reflect revisions adopted by the Board and effective September 30, 2018.

### *Capital Financing Policy*

In order to secure the lowest practical cost of capital to finance the Authority's long-term capital program, the Authority will aim to achieve the following goals:

- i. Maintain Senior Debt service coverage of 1.40x.\*
- ii. Maintain cash reserves equivalent to 120 days of budgeted operations and maintenance costs calculated on an average daily balance basis with the objective of maintaining at least \$125.5 million in operating reserves. The annual reserve amount will be formally approved by the Board as part of its annual approval of the operating and capital budgets. The operating reserve requirement will be evaluated every five years by the Authority's independent rate consultant in conjunction with the Indenture-required system assessment. At a minimum include in the operating reserve any reserve requirements contained in the Indenture, excluding any debt service reserve funds and the rate stabilization fund.
- iii. Utilize operating cash in excess of the Board's reserve requirement and any other significant one-time cash infusions for capital financing or for repayment of higher cost debt.
- iv. Whenever possible, use the least costly type of financing for capital projects, based on a careful evaluation of the Authority's capital and operating requirements and financial position for each year.
- v. Attempt to match the period of debt repayment, in total, with the lives of the assets financed by any such debt.
- vi. Finance its capital equipment needs (e.g., computer equipment and systems; minor utility equipment such as pumps, motors, etc.) and certain taxable costs of the Aqueduct with operating cash or short-term financing instruments with the same or shorter average lives as the related assets.

### *Rate-Setting Policies*

The Authority's rate-setting policies are based on the following principles:

- i. Rates and fees will be based on the actual cost to deliver each service.
- ii. Current rates must be sufficient to cover current costs and to meet all bond covenants.
- iii. The Authority will achieve a positive net income and cash flow each year.
- iv. Rates will be based on an annually updated ten-year financial plan (both operating and capital).
- v. Rate increases will be implemented in a gradual and predictable manner, avoiding large one-time rate increases.
- vi. Contributions to and usage of the Rate Stabilization Fund as needed to avoid "rate shock." Each year, after reviewing financing improvements from cash and any other non-recurring financing uses of excess operating cash, the annual Rate Stabilization Fund deposit, if any, is determined.

### *Debt Policy*

On October 1, 2015, the Board adopted a revised debt policy. This policy provides detailed guidelines that the Authority's management applies to the Authority's current and future debt portfolio. The goals of this policy

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\*This policy goal exceeds the Rate Covenant requirement of 1.20x as provided in the Indenture.

are to ensure compliance with all laws, legal agreements, contracts and adopted policies related to debt issuance and management; to promote cooperation and coordination with all stakeholders in the financing and delivery of services; to promote sound financial management to maximize and best utilize future debt capacity; and to ensure that the duties and responsibilities of those charged with the implementation of the Debt Policy are clearly conveyed and understood.

*Cash Management and Investment Policies*

In May 2014, the Board amended its comprehensive Statement of Investment Policy. The statement outlines broad investment policies to include delegation of certain authority to the CEO, investment objectives, collateralization of deposits, selection of financial institutions, protection of funds, permitted investments, limits on maturities, investment of bond proceeds and investment reporting.

The Office of Treasury and Debt produces daily and monthly internal reports on all cash management and investment activities, with significant peer oversight within the Chief Financial Officer's office, monthly reports to the CEO and quarterly reports to the Board's Finance and Budget Committee that enables them to monitor compliance with Board policies.

*Extendable Municipal Commercial Paper Policy*

On October 1, 2015, the Board adopted a formal policy relating to the Authority's EMCP Notes. The goal of this policy is to ensure that the Authority is able to pay (either from its own funds, the proceeds of a new issuance of Series A Notes, or a new issue of bonds or Commercial Paper Notes) the principal of and interest on any outstanding EMCP Notes on the original maturity date or extended maturity date thereof, as the case may be.

## **ENGINEERING FEASIBILITY REPORT**

The Authority retained Johnson, Mirmiran & Thompson, Inc. ("JMT") to prepare the Independent Engineering Inspection of the DC Water Wastewater and Water Systems dated March 25, 2018 (the "Independent Engineering Inspection"), a copy of which is available on the Authority's website at [www.dewater.com](http://www.dewater.com). Pursuant to the Indenture requirement for an inspection of the System at least once every five years, an independent engineering inspection reviews the Authority's progress in implementing capital projects and its plans to initiate additional capital improvements. The inspection evaluates the adequacy of the Authority's CIP to maintain its water and wastewater infrastructure and to continue providing reliable service of a high quality to its customers.

The Engineering Feasibility Opinion Letter summarizes the findings and conclusions from the Independent Engineering Inspection, which are based upon information provided by the Authority or others which is summarized or referred to therein. JMT's principal findings and conclusions are set forth below. The Engineering Feasibility Opinion Letter should be read in combination with the Independent Engineering Inspection. The Independent Engineering Inspection should be read in its entirety for a complete understanding of the assumptions, considerations, estimates and calculations upon which these conclusions are based.

- The Authority has continued implementing its vision and strategic plan, focusing on increasing the operational efficiency of the Water and Wastewater Systems and providing satisfactory service to its customers.
- The Authority staff, including both management and key operations and maintenance personnel, is well qualified, effectively organized, and is staffed at a sufficient level to meet the mission of providing a safe and dependable drinking water and sanitary sewer service while striving to sustain the environment.
- The existing Water and Wastewater Systems appear to be effectively maintained and operated.
- The Authority has priorities establishing best management practices to maintain all of its assets with the goal to maximize service life while minimizing costs and ensuring sustainability.
- The Authority has developed and continues to implement thorough capital programs for ensuring the integrity of the Water and Wastewater Systems.
- Through appropriate management, operational practices, technology, staffing, tools and equipment and selective outsourcing, the Authority has developed capital, operations and maintenance programs that should ensure the continued effective operation of the systems for the foreseeable future. The systems should continue to provide high levels of service with minimal disruption.
- The Authority's wastewater and drinking water facilities are in material compliance with all applicable permits and regulations and continue to provide uninterrupted service to its wholesale and retail

customers. Such compliance is anticipated to continue through the foreseeable future without any identified negative impacts.

- Substantial progress has been made by the Authority in improving the operating condition of existing facilities. The CIP is structured to provide a systematic program to replace and rehabilitate aging infrastructure on a priority basis.
- Implementation of the Authority's CIP is intended to address identified system needs and priorities and within a controlled budgetary process.

### **FINANCIAL FEASIBILITY OPINION LETTER**

The Authority retained Amawalk Consulting Group LLC as its financial feasibility consultant, in which capacity Amawalk prepared the Financial Feasibility Opinion Letter dated [ ], 2019, which is attached hereto as APPENDIX A. Amawalk provides financial and management consulting services to water and wastewater utilities, local governments and other organizations. Examples of the consulting services offered by the firm include: cost of service and rate studies; financial modeling; feasibility studies to support the issuance of debt; competitive assessments, including benchmarking and implementation of best practices; analyses supporting the consolidation of services; and the formation/start-up of public authorities including transition planning.

The conclusions set forth in the Financial Feasibility Opinion Letter reflect Amawalk's analysis of the Authority's anticipated financial results for Fiscal Years 2019 to 2023. Amawalk has assisted the Authority in preparing certain portions of this Official Statement relating to historical and projected financial performance of the Authority. The Financial Feasibility Opinion Letter has not been updated to reflect any changes occurring after the date of the Financial Feasibility Opinion Letter. The Financial Feasibility Opinion Letter presents findings and conclusions based upon the analysis of financial statements and reports prepared by or for the Authority and other information provided by the Authority or others which is summarized or referred to therein, including conclusions, assumptions, considerations and recommendations regarding the operation of the System, the necessary improvements and betterments thereto and the steps that should be taken to assure adequate reliable bulk power supply at reasonable cost. Set forth below are Amawalk's principal conclusions. The Financial Feasibility Opinion Letter and this Official Statement should be read in its entirety for a complete understanding of the assumptions, considerations, estimates and calculations upon which these conclusions are based.

Amawalk concluded that the Authority has the ability to effectively execute its mission, operate its System to provide uninterrupted service, maintain regulatory compliance, and finance and implement its CIP within the parameters set forth in the Indenture and the applicable Board policies. In addition, Amawalk makes the following observations:

- The Authority's financial forecast is viable, consistent with industry standards, and its projections are expected to meet the Board's debt service coverage and reserve requirements and targets.
- Revenues of the Authority (including projected revenue increases resulting from anticipated future rate increases to be implemented by the Authority) in the Reporting Period will be sufficient to pay: (i) the actual Operating Expenses; (ii) Annual Debt Service on Senior Debt; (iii) any amount necessary to be deposited in any Account in the Debt Service Reserve Fund relating to a Series of Bonds to restore the amount on deposit therein to the Series Debt Service Reserve Requirement; (iv) the amount required to pay Annual Debt Service on the Subordinate Debt (including any reserves in connection therewith and the restoration thereof); (v) any amount necessary to be deposited in the Operating Reserve Fund and the Renewal and Replacement Reserve Fund to maintain the required balances therein; and (vi) any amount necessary to make any payments in lieu of taxes in such Fiscal Years. Sufficient funds are projected to be on deposit in each of the required reserve funds during the Reporting Period.
- Pursuant to Board policy, the Authority maintains operating reserves that are greater than \$125.5 million or 120 days of budgeted operation and maintenance expenses. This policy requirement exceeds the minimum Operating Reserve fund requirements set forth in the Indenture. The Authority's actual cash on hand has exceeded the levels required by Board policy in recent years. Amawalk reviewed the operating reserve policies of the Authority in 2018 and concluded that the current Board policy provides for an appropriate level of reserves. Amawalk further recommended that the Board consider amending its policy to a minimum of \$140.0 million or 140 days of budgeted operation and maintenance expenses which would be consistent with the projected balances in the Authority's Financial Plan. In January 2019, Authority staff recommended to further enhance the Authority's cash position and maintain a target of 250 days of cash on hand. There can be no assurance that the Board will maintain or modify its current financial policy.

- The water and wastewater rates, fees and charges of the Authority, including projected increases for FY 2020 through FY 2023, are somewhat higher than the average of other utilities. Relative to median household income, the single family residential charges of the Authority are reasonable and affordable compared to the charges of other major cities as well as utilities in the region. In addition, the Authority utilizes its well-established affordability programs to assist low income customers in paying their bills.

**In the analysis of the forecast of future operations summarized in this Official Statement, Amawalk has reviewed certain assumptions with respect to conditions, events and circumstances which may occur in the future. These assumptions are reasonable and attainable as of the date of the Financial Feasibility Opinion Letter, although actual results may differ from those forecast as influenced by the conditions, events and circumstances which actually occur.**

## TAX MATTERS

In the opinion of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, Co-Bond Counsel, under existing law: (i) interest on the Series 2019C Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), and is not an item of tax preference for purposes of the federal alternative minimum tax; and (ii) the Series 2019C Bonds and the interest thereon are exempt from District taxation, except estate, inheritance and gift taxes. Co-Bond Counsel expresses no opinion as to any other tax consequences regarding the Series 2019C Bonds.

The opinion on federal tax matters will be based on and will assume the accuracy of certain representations and certifications, and continuing compliance with certain covenants of the Authority contained in the transcript of proceedings, and that are intended to evidence and assure the foregoing, including that the Series 2019C Bonds are and will remain obligations the interest on which is excluded from gross income for federal income tax purposes. Co-Bond Counsel will not independently verify the accuracy of the Authority's certifications and representations or the continuing compliance with the Authority's covenants.

The opinion of Co-Bond Counsel is based on current legal authority and covers certain matters not directly addressed by such authority. It represents Co-Bond Counsel's legal judgment as to exclusion of interest on the Series 2019C Bonds from gross income for federal income tax purposes but is not a guaranty of that conclusion. The opinion is not binding on the Internal Revenue Service ("IRS") or any court. Co-Bond Counsel expresses no opinion about (i) the effect of future changes in the Code and the applicable regulations under the Code or (ii) the interpretation and the enforcement of the Code or those regulations by the IRS.

The Code prescribes a number of qualifications and conditions for the interest on state and local government obligations to be and to remain excluded from gross income for federal income tax purposes, some of which require future or continued compliance after issuance of the obligations. Noncompliance with these requirements by the Authority may cause loss of such status and result in the interest on the Series 2019C Bonds being included in gross income for federal income tax purposes retroactively to the date of issuance of the Series 2019C Bonds. The Authority has covenanted to take the actions required of it for the interest on the Series 2019C Bonds to be and to remain excluded from gross income for federal income tax purposes, and not to take any actions that would adversely affect that exclusion. After the date of issuance of the Series 2019C Bonds, Co-Bond Counsel will not undertake to determine (or to so inform any person) whether any actions taken or not taken, or any events occurring or not occurring, or any other matters coming to Co-Bond Counsel's attention, may adversely affect the exclusion from gross income for federal income tax purposes of interest on the Series 2019C Bonds or the market value of the Series 2019C Bonds.

Interest on the Series 2019C Bonds may be subject to a federal branch profits tax imposed on certain foreign corporations doing business in the United States and to a federal tax imposed on excess net passive income of certain S corporations. Under the Code, the exclusion of interest from gross income for federal income tax purposes may have certain adverse federal income tax consequences on items of income, deduction or credit for certain taxpayers, including financial institutions, certain insurance companies, recipients of Social Security and Railroad Retirement benefits, those that are deemed to incur or continue indebtedness to acquire or carry tax-exempt obligations, and individuals otherwise eligible for the earned income tax credit. The applicability and extent of these and other tax consequences will depend upon the particular tax status or other tax items of the owner of the Series 2019C Bonds. Co-Bond Counsel will express no opinion regarding those consequences.

Payments of interest on tax-exempt obligations, including the Series 2019C Bonds, are generally subject to IRS Form 1099-INT information reporting requirements. If a Series 2019C Bond owner is subject to backup withholding under those requirements, then payments of interest will also be subject to backup withholding. Those requirements do not affect the exclusion of such interest from gross income for federal income tax purposes.

Co-Bond Counsel's engagement with respect to the Series 2019C Bonds ends with the issuance of the Series 2019C Bonds, and, unless separately engaged, Co-Bond Counsel is not obligated to defend the Authority or the owners of the Series 2019C Bonds regarding the tax status of interest thereon in the event of an audit examination by the IRS. The IRS has a program to audit tax-exempt obligations to determine whether the interest thereon is includible in gross income for federal income tax purposes. If the IRS does audit the Series 2019C Bonds, under current IRS procedures, the IRS will treat the Authority as the taxpayer and the beneficial owners of the Series 2019C Bonds will have only limited rights, if any, to obtain and participate in judicial review of such audit. Any action of the IRS, including but not limited to selection of the Series 2019C Bonds for audit, or the course or result of such audit, or an audit of other obligations presenting similar tax issues, may affect the market value of the Series 2019C Bonds.

Prospective purchasers of the Series 2019C Bonds upon their original issuance at prices other than the respective prices indicated on the inside cover of this Official Statement, and prospective purchasers of the Series 2019C Bonds at other than their original issuance, should consult their own tax advisors regarding other tax considerations such as the consequences of market discount, as to all of which Co-Bond Counsel expresses no opinion.

### **Risk of Future Legislative Changes and/or Court Decisions**

Legislation affecting tax-exempt obligations is regularly considered by the United States Congress. Court proceedings may also be filed, the outcome of which could modify the tax treatment of obligations such as the Series 2019C Bonds. There can be no assurance that legislation enacted or proposed, or actions by a court, after the date of issuance of the Series 2019C Bonds will not have an adverse effect on the tax status of interest on the Series 2019C Bonds or the market value or marketability of the Series 2019C Bonds. These adverse effects could result, for example, from changes to federal or state income tax rates, changes in the structure of federal or state income taxes (including replacement with another type of tax), or repeal (or reduction in the benefit) of the exclusion of interest on the Series 2019C Bonds from gross income for federal or state income tax purposes for all or certain taxpayers.

For example, federal tax legislation that was enacted on December 22, 2017 reduced corporate tax rates, modified individual tax rates, eliminated many deductions, repealed the corporate alternative minimum tax, and eliminated the tax-exempt advance refunding of tax-exempt bonds and tax-advantaged bonds, among other things. Additionally, investors in the Series 2019C Bonds should be aware that future legislative actions might increase, reduce or otherwise change (including retroactively) the financial benefits and the treatment of all or a portion of the interest on the Series 2019C Bonds for federal income tax purposes for all or certain taxpayers. In all such events, the market value of the Series 2019C Bonds may be affected and the ability of holders to sell their Bonds in the secondary market may be reduced.

Investors should consult their own financial and tax advisors to analyze the importance of these risks.

### **Original Issue Discount and Original Issue Premium**

Certain of the Series 2019C Bonds ("Discount Bonds") may be offered and sold to the public at an original issue discount ("OID"). OID is the excess of the stated redemption price at maturity (the principal amount) over the "issue price" of a Discount Bond. The issue price of a Discount Bond is the initial offering price to the public (other than to bond houses, brokers or similar persons acting in the capacity of underwriters or wholesalers) at which a substantial amount of the Discount Bonds of the same maturity is sold pursuant to that offering. For federal income tax purposes, OID accrues to the owner of a Discount Bond over the period to maturity based on the constant yield method, compounded semiannually (or over a shorter permitted compounding interval selected by the owner). The portion of OID that accrues during the period of ownership of a Discount Bond (i) is interest excluded from the owner's gross income for federal income tax purposes to the same extent, and subject to the same considerations discussed above, as other interest on the Series 2019C Bonds, and (ii) is added to the owner's tax basis for purposes of determining gain or loss on the maturity, redemption, prior sale or other disposition of that Discount Bond. A purchaser of a Discount Bond in the initial public offering at the issue price (described above) for that Discount Bond who holds that Discount Bond to maturity will realize no gain or loss upon the retirement of that Discount Bond.

Certain of the Series 2019C Bonds ("Premium Bonds") may be offered and sold to the public at a price in excess of their stated redemption price at maturity (the principal amount). That excess constitutes bond premium. For federal income tax purposes, bond premium is amortized over the period to maturity of a Premium Bond, based on the yield to maturity of that Premium Bond (or, in the case of a Premium Bond callable prior to its stated maturity, the amortization period and yield may be required to be determined on the basis of an earlier call date that results in the lowest yield on that Premium Bond), compounded semiannually. No portion of that bond premium is deductible by the owner of a Premium Bond. For purposes of determining the owner's gain or loss on the sale, redemption (including redemption at maturity) or other disposition of a Premium Bond, the owner's tax basis in the Premium Bond is reduced by the amount of bond premium that is amortized during the period of ownership. As a result, an owner may realize taxable gain for federal income tax purposes from the sale or other disposition of a Premium Bond for an amount equal to or less than the amount paid by the owner for that Premium Bond. A purchaser of a Premium Bond in the initial public offering who holds that Premium Bond to maturity (or, in the case of a callable Premium Bond, to its earlier call date that results in the lowest yield on that Premium Bond) will realize no gain or loss upon the retirement of that Premium Bond.

***Owners of Discount and Premium Bonds should consult their own tax advisors as to the determination for federal income tax purposes of the existence of OID or bond premium, the determination for federal income tax purposes of the amount of OID or bond premium properly accruable or amortizable in any period with respect to the Discount or Premium Bonds, other federal tax consequences in respect of OID and bond premium, and the treatment of OID and bond premium for purposes of state and local taxes on, or based on, income.***

#### **COVENANT BY THE DISTRICT OF COLUMBIA**

Under the Act, the District pledges to the Authority and any holders of the bonds that, except as provided under the Act, the District will not limit or alter rights vested in the Authority to fulfill agreements made with holders of the bonds, or in any way impair the rights and remedies of the holders of the bonds until the bonds, together with interest thereon, with interest on any unpaid installments of interest and all costs and expenses in connection with any action or proceedings by or on behalf of the holders of the bonds, are fully met and discharged.

#### **LITIGATION**

There is not now pending or, to the best of the Authority's knowledge, threatened any litigation restraining or enjoining the issuance or delivery of the Series 2019C Bonds or questioning or affecting the validity of the Series 2019C Bonds, the proceedings and authority under which they are to be issued, nor is the creation, organization, or existence of the Authority being contested. Nor is there any litigation pending or, to the best of the Authority's knowledge, threatened which (i) in any manner questions the right of the Authority to operate the System or its right to conduct its activities in accordance with the provisions of the Act and of the Indenture or (ii) if determined adversely to the Authority, would have a material adverse impact on the financial condition of the Authority.

The Authority is subject to a variety of suits and proceedings arising out of its ordinary course of operations, some of which may be adjudicated adversely to the Authority. Any such litigation is of a routine nature which does not affect the right of the Authority to conduct its business or the validity of its obligations.

#### **LEGAL MATTERS**

Certain legal matters relating to the issuance of the Series 2019C Bonds are subject to the approving opinions of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, Co-Bond Counsel, which will be furnished upon delivery of the Series 2019C Bonds, substantially in the form set forth as APPENDIX F. Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP also serve as Co-Disclosure Counsel to the Authority in connection with the preparation of this Official Statement. Certain legal matters will be passed upon for the Authority by its General Counsel, and for the Underwriter by their co-counsel, Orrick, Herrington & Sutcliffe LLP and McKenzie & Associates.

#### **INDEPENDENT AUDITORS**

The financial statements of the Authority for Fiscal Years ended September 30, 2018 and 2017 included in this Official Statement have been audited by KPMG LLP ("KPMG"). KPMG has not been engaged to perform and has not performed, since the date of its report included herein, any procedures on the financial statements addressed in that report. KPMG also has not performed any procedures relating to this Official Statement.

#### **THE TRUSTEE**

The Authority has appointed Wells Fargo Bank, N.A., a national banking association organized under the laws of the United States, to serve as Trustee. The Trustee is to carry out those duties assignable to it under the Master Indenture. Except for the contents of this section, the Trustee has not reviewed or participated in the preparation of this Official Statement and assumes no responsibility for the nature, contents, accuracy or completeness of the information set forth in this Official Statement or for the recitals contained in the Indenture or the Series 2019C Bonds, or for the validity, sufficiency, or legal effect of any of such documents.

Furthermore, the Trustee has no oversight responsibility, and is not accountable, for the use or application of the proceeds of such Series 2019C Bonds by the Authority. The Trustee has not evaluated the risks, benefits, or propriety of any investment in the Series 2019C Bonds and makes no representation, and has reached no conclusions, regarding the value or condition of any assets or revenues pledged or assigned as security for the Series

2019C Bonds, the technical or financial feasibility of the Project, or the investment quality of the Series 2019C Bonds, about all of which the Trustee expresses no opinion and expressly disclaims the expertise to evaluate.

### **RATINGS**

Standard & Poor's Global Ratings Services ("S&P"), Moody's and Fitch Ratings ("Fitch") have assigned long-term municipal bond ratings of "[ ]", "[ ]" and "[ ]" respectively, to the Series 2019C Bonds. A securities rating is not a recommendation to buy, sell or hold the Series 2019C Bonds and may be subject to revision or withdrawal at any time. A rating reflects only the view of the rating agency giving such rating. An explanation of the significance of the ratings may be obtained from: S&P at 55 Water Street, New York, New York 10041; from Moody's at 7 World Trade Center, New York, New York 10007; and from Fitch Ratings at 300 West 57th Street New York, New York 10019. There is no assurance that a rating will apply for any given period of time, or that a rating will not be revised or withdrawn. A revision or withdrawal of a rating may have an effect on the market price of or the market for the Series 2019C Bonds.

### **CONTINUING DISCLOSURE**

In accordance with the requirements of the Rule promulgated by the SEC, the Authority will enter into the Continuing Disclosure Agreement dated the date of delivery of the Series 2019C Bonds, which will constitute a written undertaking for the benefit of the Owners of the Series 2019C Bonds, solely to assist the Underwriter in complying with subsection (b)(5) of the Rule. Pursuant to the Continuing Disclosure Agreement, the Authority has covenanted to provide certain financial information on an annual basis and to provide notice of certain enumerated events. See APPENDIX D – "Form of the Continuing Disclosure Agreement" for detailed provisions of the Continuing Disclosure Agreement.

### **FINANCIAL ADVISOR**

PFM Financial Advisors LLC has served as financial advisor (the "Financial Advisor") to the Authority with respect to the issuance of the Series 2019C Bonds.

### **UNDERWRITING**

J.P. Morgan Securities LLC on behalf of itself as Underwriter, (the "Underwriter"), has agreed to purchase from the Authority the Series 2019C Bonds at an aggregate purchase price equal to \$[ ] (which amount constitutes the aggregate principal amount of the Series 2019C Bonds of \$[ ], plus original issue premium of \$[ ], less the Underwriter's discount of \$[ ]).

The Bond Purchase Agreement by and among the Authority and the Underwriter dated [ ], 2019 (the "Series 2019C Bond Purchase Agreement"), provides that the Underwriter will purchase all of the Series 2019C Bonds, if any are purchased, and the obligation to make such purchases is subject to certain terms and conditions set forth in the Series 2019C Bond Purchase Agreement, the approval of certain legal matters by counsel and certain other conditions.

The Series 2019C Bonds may be offered and sold to certain dealers (including dealers depositing the Series 2019C Bonds into investment trusts) at prices lower than the public offering prices and such public offering prices may be changed from time to time by the Underwriter.

The Underwriter is a full service financial institution engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. The Underwriter has provided, and may in the future provide, a variety of these services to the Authority and to persons and entities with relationships with the Authority, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriter and its respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the Authority (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the Authority. The Underwriter may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in



respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

In addition, the Underwriter has entered into a distribution agreement with other broker-dealers (that have not been designated by the Authority as Underwriters) for the distribution of the Series 2019C Bonds at the original issue prices. Such agreements generally provide that the relevant Underwriter will share a portion of its underwriting compensation or selling concession with such broker-dealers.

#### **LEGALITY FOR INVESTMENT**

The Act provides that the bonds of the Authority are legal instruments in which public officers and public bodies of the District, insurance companies, insurance company associations and other persons carrying on an insurance business, banks, bankers, banking institutions, including savings and loan associations, building and loan associations, trust companies, savings banks, savings associations, investment companies and other persons carrying on a banking business, administrators, guardians, executors, trustees and other fiduciaries and other persons authorized to invest in bonds or in other obligations of the District, may legally invest funds, including capital, in their control.

The bonds are also, by the Act, securities which legally may be deposited with, and received by, public officers and public bodies of the District or any agency of the District for any purpose for which the deposit of bonds or other obligations of the District is authorized by law.

#### **RELATIONSHIP OF PARTIES**

In addition to representing the Authority as Co-Bond Counsel and Co-Disclosure Counsel, Squire Patton Boggs (US) LLP from time to time represents the Authority in other matters, including environmental, regulatory and personnel matters. From time to time, Squire Patton Boggs (US) LLP also represents one or more members of the underwriting group as its or their counsel in municipal bond transactions and other matters, but not in any matters related to the Authority.

**MISCELLANEOUS**

All estimates, assumptions, statistical information and other statements contained herein, while taken from sources considered reliable, are not guaranteed. To the extent that any statements herein include matters of opinion, or estimates of future expenses and income, whether or not expressly so stated, they are intended merely as such and not as representations of fact.

The agreement of the Authority with the holders of the Series 2019C Bonds is fully set forth in the Indenture. Neither any advertisement of the Series 2019C Bonds nor this Official Statement is to be construed as constituting an agreement with the purchasers of the Series 2019C Bonds.

The information contained herein should not be construed as representing all conditions affecting the Authority or the Series 2019C Bonds. The foregoing statements relating to the Act, the Federal Act, the Indenture and other documents are summaries of certain provisions thereof, and in all respects are subject to and qualified in their entirety by express reference to the provisions of such documents in their complete forms.

The attached Appendices A through F are integral parts of this Official Statement and should be read in their entirety, together with all of the foregoing statements.

**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

By: \_\_\_\_\_  
Matthew T. Brown  
Chief Financial Officer and Executive Vice  
President, Finance and Procurement

**APPENDIX A**  
**FINANCIAL FEASIBILITY OPINION LETTER OF**  
**AMAWALK CONSULTING GROUP LLC**  
**DATED [\_\_\_], 2019**

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**APPENDIX B**

**AUDITED FINANCIAL STATEMENTS OF THE AUTHORITY  
FOR THE YEARS ENDED SEPTEMBER 30, 2018, AND 2017**

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**APPENDIX C**  
**GLOSSARY AND SUMMARY OF THE INDENTURE**

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**APPENDIX D**  
**FORM OF CONTINUING DISCLOSURE AGREEMENT**

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## FORM OF CONTINUING DISCLOSURE AGREEMENT

This Continuing Disclosure Agreement (the “Disclosure Agreement”) is executed and delivered by the District of Columbia Water and Sewer Authority (the “Issuer”) in connection with the issuance of its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C (the “Series 2019C Bonds”). The Series 2019C Bonds are being issued pursuant to the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), as amended and supplemented to the date of delivery of the Series 2019C Bonds (the “Indenture”), including by the Twenty-Fifth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Series 2019C Bonds (the “Twenty-Fifth Supplemental Indenture”), each by and between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”). The Issuer covenants and agrees as follows:

**SECTION 1. Purpose of the Disclosure Agreement.** This Disclosure Agreement is being executed and delivered by the Issuer for the benefit of the Holders and Beneficial Owners of the Series 2019C Bonds and in order to assist the Participating Underwriter in complying with Securities and Exchange Commission (“S.E.C.”) Rule 15c2-12(b)(5).

**SECTION 2. Definitions.** In addition to the definitions set forth in the Indenture, which apply to any capitalized term used in this Disclosure Agreement unless otherwise defined in this Section, the following capitalized terms shall have the following meanings:

“Annual Report” shall mean any Annual Report provided by the Issuer pursuant to, and as described in, Sections 3 and 4 of this Disclosure Agreement.

“Beneficial Owner” shall mean any person who has or shares the power, directly or indirectly, to make investment decisions concerning ownership of any Bonds (including persons holding Bonds through nominees, depositories or other intermediaries).

“Dissemination Agent” shall mean the Issuer, or any successor Dissemination Agent designated in writing by the Issuer and which has filed with the Issuer a written acceptance of such designation.

“Holder” shall mean the person in whose name any Bond shall be registered.

“Listed Events” shall mean any of the events listed in Section 5(a) or (b) of this Disclosure Agreement.

“MSRB” shall mean the Municipal Securities Rulemaking Board or any other entity designated or authorized by the Securities and Exchange Commission to receive reports pursuant to the Rule. Until otherwise designated by the MSRB or the Securities and Exchange Commission, filings with the MSRB are to be made through the Electronic Municipal Market Access (EMMA) website of the MSRB, currently located at <http://emma.msrb.org>.

“Participating Underwriter” shall mean the original underwriter of the Series 2019C Bonds required to comply with the Rule in connection with offering of the Series 2019C Bonds.

“Rule” shall mean Rule 15c2-12(b)(5) adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as the same may be amended from time to time.

### **SECTION 3. Provision of Annual Reports.**

(a) The Issuer shall, or shall cause the Dissemination Agent to, not later than 240 days after the end of the Issuer’s fiscal year (which shall be June 1 of each year, so long as the Issuer’s fiscal year ends on September 30), commencing with the report for the fiscal year ending September 30, 2019 (which is due not later than June 1, 2019), provide to the MSRB an Annual Report which is consistent with the requirements of Section 4 of this Disclosure Agreement. The Annual Report may cross-reference other information as provided in Section 4 of this Disclosure Agreement; provided that the audited financial statements of the Issuer may be submitted separately from the balance of the Annual Report and later than the date required above for the filing of the Annual Report if they are not available by that date. If the Issuer’s fiscal year changes, it shall give notice of such change in a filing with the MSRB. The Annual Report shall be submitted on a standard form in use by industry participants or other appropriate form and shall identify the Series 2019C Bonds by name and CUSIP number.

(b) Not later than 15 business days prior to said date, the Issuer shall provide the Annual Report to the Dissemination Agent (if other than the Issuer). If the Issuer is unable to provide to the MSRB an Annual Report by the date required in subsection (a), the Issuer shall, in a timely manner, send or cause to be sent to the MSRB a notice to that effect.

(c) The Dissemination Agent shall (if the Dissemination Agent is other than the Issuer) file a report with the Issuer certifying that the Annual Report has been provided pursuant to this Disclosure Agreement, stating the date it was provided to the MSRB.

**SECTION 4. Content of Annual Reports.** The Issuer’s Annual Report shall contain or include by reference the following:

(a) the Issuer’s comprehensive annual financial report (the “CAFR”), which includes audited financial statements prepared in accordance with generally accepted accounting principles in effect from time to time. If the Issuer’s audited financial statements are not available by the time the Annual Report is required to be provided to the MSRB pursuant to Section 3(a), the Annual Report shall contain unaudited financial statements in a format similar to the financial statements contained in the final Official Statement, and the audited financial statements shall be provided to the MSRB in the same manner as the Annual Report when they become available; and

(b) to the extent not included in the CAFR, material historical financial and operating data concerning the Issuer and the Revenues of the Issuer generally of the type found in the tables included in the Issuer’s Official Statement dated April 17, 2018 relating to the Series 2019C Bonds (the “Official Statement”) under the captions “THE SYSTEM,” “CAPITAL IMPROVEMENT PROGRAM,” “CUSTOMER BASE, RATES AND CHARGES” and “FINANCIAL OPERATIONS.”

Any or all of the items listed above may be set forth in one or a set of documents or may be included by specific reference to other documents, including Official Statements of debt issues of the Issuer or related public entities, which have been made available to the public on the MSRB’s website. The Issuer shall clearly identify each such other document so included by reference.

SECTION 5. Reporting of Significant Events.

(a) The Issuer shall give, or cause to be given, notice of the occurrence of any of the following events with respect to the Series 2019C Bonds in a timely manner not later than ten business days after the occurrence of the event:

1. Principal and interest payment delinquencies;
2. Unscheduled draws on debt service reserves reflecting financial difficulties;
3. Unscheduled draws on credit enhancements reflecting financial difficulties;
4. Substitution of credit or liquidity providers, or their failure to perform;
5. Adverse tax opinions or issuance by the Internal Revenue Service of proposed or final determination of taxability or of a Notice of Proposed Issue (IRS Form 5701 TEB);
6. Tender offers;
7. Defeasances;
8. Rating changes; or
9. Bankruptcy, insolvency, receivership or similar event of the obligated person.

Note: for the purposes of the event identified in subparagraph (9), the event is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent or similar officer for an obligated person in a proceeding under the U.S. Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the obligated person, or if such jurisdiction has been assumed by leaving the existing governmental body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the obligated person.

(b) The Issuer shall give, or cause to be given, notice of the occurrence of any of the following events with respect to the Series 2019C Bonds, if material, in a timely manner not later than ten business days after the occurrence of the event:

1. Unless described in paragraph 5(a)(5), other material notices or determinations by the Internal Revenue Service with respect to the tax status of the Series 2019C Bonds or other material events affecting the tax status of the Series 2019C Bonds;
2. Modifications to rights of Bond holders;
3. Optional, unscheduled or contingent Bond calls;

4. Release, substitution, or sale of property securing repayment of the Series 2019C Bonds;
5. Non-payment related defaults;
6. The consummation of a merger, consolidation, or acquisition involving an obligated person or the sale of all or substantially all of the assets of the obligated person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms;
7. Appointment of a successor or additional trustee or the change of name of a trustee;
8. Incurrence of a financial obligation of the Issuer or obligated person, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the Issuer or obligated person, any of which affect security holders, if material; or
9. Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of the financial obligation of the Issuer or obligated person, any of which reflect financial difficulties.

For purposes of items 8 and 9 above, “financial obligation” means: (i) a debt obligation; (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (iii) a guarantee of (i) or (ii).

(c) Whenever the Issuer obtains knowledge of the occurrence of a Listed Event described in Section 5(b), the Issuer shall determine if such event would be material under applicable federal securities laws.

(d) If the Issuer learns of the occurrence of a Listed Event described in Section 5(a), or determines that knowledge of a Listed Event described in Section 5(b) would be material under applicable federal securities laws, the Issuer shall within ten business days of occurrence file a notice of such occurrence with the MSRB. Notwithstanding the foregoing, notice of the Listed Event described in subsections 5(a)(7) or 5(b)(3) need not be given under this subsection any earlier than the notice (if any) of the underlying event is given to Holders of affected Bonds pursuant to the Indenture.

SECTION 6. Format for Filings with MSRB. Any report or filing with the MSRB pursuant to this Disclosure Agreement must be submitted in electronic format, accompanied by such identifying information as is prescribed by the MSRB.

SECTION 7. Termination of Reporting Obligation. The Issuer’s obligations under this Disclosure Agreement shall terminate upon the legal defeasance, prior redemption or payment in full of all of the Series 2019C Bonds. If such termination occurs prior to the final maturity of the Series 2019C Bonds, the Issuer shall give notice of such termination in a filing with the MSRB.

SECTION 8. Dissemination Agent. The Issuer may, from time to time, appoint or engage a Dissemination Agent to assist it in carrying out its obligations under this Disclosure Agreement, and may discharge any such Dissemination Agent, with or without appointing a successor Dissemination Agent. The Dissemination Agent shall not be responsible in any manner for the content of any notice or report prepared by the Issuer pursuant to this Disclosure Agreement. The initial Dissemination Agent shall be the Issuer.

SECTION 9. Amendment; Waiver. Notwithstanding any other provision of this Disclosure Agreement, the Issuer may amend this Disclosure Agreement, and any provision of this Disclosure Agreement may be waived, provided that the following conditions are satisfied:

(a) If the amendment or waiver relates to the provisions of Sections 3(a), 4, 5(a) or 5(b), it may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature or status of an obligated person with respect to the Series 2019C Bonds, or the type of business conducted;

(b) The undertaking, as amended or taking into account such waiver, would, in the opinion of nationally recognized bond counsel, have complied with the requirements of the Rule at the time of the original issuance of the Series 2019C Bonds, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

(c) The amendment or waiver does not, in the opinion of nationally recognized bond counsel, materially impair the interests of the Holders or Beneficial Owners of the Series 2019C Bonds.

In the event of any amendment or waiver of a provision of this Disclosure Agreement, the Issuer shall describe such amendment in the next Annual Report, and shall include, as applicable, a narrative explanation of the reason for the amendment or waiver and its impact on the type (or in the case of a change of accounting principles, on the presentation) of financial information or operating data being presented by the Issuer. In addition, if the amendment relates to the accounting principles to be followed in preparing financial statements, (i) notice of such change shall be given in a filing with the MSRB, and (ii) the Annual Report for the year in which the change is made should present a comparison (in narrative form and also, if feasible, in quantitative form) between the financial statements as prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles.

SECTION 10. Additional Information. Nothing in this Disclosure Agreement shall be deemed to prevent the Issuer from disseminating any other information, using the means of dissemination set forth in this Disclosure Agreement or any other means of communication, or including any other information in any Annual Report or notice required to be filed pursuant to this Disclosure Agreement, in addition to that which is required by this Disclosure Agreement. If the Issuer chooses to include any information in any Annual Report or notice in addition to that which is specifically required by this Disclosure Agreement, the Issuer shall have no obligation under this Disclosure Agreement to update such information or include it in any future Annual Report or notice of occurrence of a Listed Event or any other event required to be reported.

SECTION 11. Default. In the event of a failure of the Issuer to comply with any provision of this Disclosure Agreement, any Holder or Beneficial Owner of the Series 2019C Bonds may take such actions as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Issuer to comply with its obligations under this Disclosure Agreement; provided, that any such action may be instituted only in the District of Columbia. The sole remedy under this Disclosure Agreement in the event of any failure of the Issuer to comply with this Disclosure Agreement shall be an action to compel performance.

SECTION 12. Beneficiaries. This Disclosure Agreement shall inure solely to the benefit of the Issuer, the Dissemination Agent, the Participating Underwriter and Holders and Beneficial Owners from time to time of the Series 2019C Bonds, and shall create no rights in any other person or entity.

Date: [ ], 2019

DISTRICT OF COLUMBIA WATER AND SEWER  
AUTHORITY

By: \_\_\_\_\_  
Matthew T. Brown  
Chief Financial Officer and Executive Vice President,  
Finance and Procurement

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**APPENDIX E**  
**DTC BOOK-ENTRY ONLY SYSTEM**



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### DTC BOOK-ENTRY ONLY SYSTEM

**The description that follows of the procedures and record keeping with respect to beneficial ownership interests in the Series 2019C Bonds, payments of principal, premium, if any, and interest on the Series 2019C Bonds to DTC, its nominee, Participants, or Beneficial Owners, confirmation and transfer of beneficial ownership interests in the Series 2019C Bonds and other bond-related transactions by and between DTC, Participants and Beneficial Owners is based on information furnished by DTC. The Authority and the Underwriter take no responsibility for the accuracy thereof.**

The Depository Trust Company, New York, New York (“DTC”) will act as securities depository for the Series 2019C Bonds. The Series 2019C Bonds will be issued as fully registered securities registered in the name of Cede & Co. (DTC’s partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully registered Series 2019C Bond will be issued for the Series 2019C Bonds of each series and maturity in the aggregate principal amount of such maturity, and will be deposited with DTC.

DTC, the world’s largest securities depository, is a limited purpose trust company organized under the New York Banking Law, a “banking organization” within the meaning of the New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC’s participants (“Direct Participants”) deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants’ accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation (“DTCC”). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers, and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (“Indirect Participants”). DTC has a Standard & Poor’s rating of AA+. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at [www.dtcc.com](http://www.dtcc.com) and [www.dtc.org](http://www.dtc.org).

Purchases of the Series 2019C Bonds under the DTC system must be made by or through Direct Participants, who will receive a credit for such Series 2019C Bonds on DTC’s records. The ownership interest of each actual purchaser of each Series 2019C Bonds Bond (the “Beneficial Owner”) is in turn to be recorded on the Direct and Indirect Participants’ records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Series 2019C Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Series 2019C Bonds, except in the event that use of the book-entry system for the Series 2019C Bonds is discontinued.

To facilitate subsequent transfers, all Series 2019C Bonds deposited by Direct Participants with DTC are registered in the name of DTC’s partnership nominee, Cede& Co., or such other name as may be requested by an authorized representative of DTC. The deposit of the Series 2019C Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series 2019C Bonds; DTC’s records reflect only the identity of the Direct Participants to whose accounts such Series 2019C Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices shall be sent to DTC. If less than all of the Series 2019C Bonds are being redeemed, DTC’s practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

THE TRUSTEE, AS LONG AS A BOOK-ENTRY ONLY SYSTEM IS USED FOR THE SERIES 2019C BONDS, WILL SEND ANY NOTICE OF REDEMPTION OR OTHER NOTICES ONLY TO DTC. ANY FAILURE OF DTC TO ADVISE ANY PARTICIPANT, OR OF ANY PARTICIPANT TO NOTIFY ANY BENEFICIAL OWNER OF ANY NOTICE AND OF ITS CONTENT OR EFFECT WILL NOT AFFECT THE

**VALIDITY OR SUFFICIENCY OF THE PROCEEDINGS RELATING TO THE REDEMPTION OF THE SERIES 2019C BONDS CALLED FOR REDEMPTION OR OF ANY OTHER ACTION PREMISED ON SUCH NOTICE.**

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series 2019C Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Series 2019C Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the Series 2019C Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or the Trustee on the payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Trustee, or the Authority, subject to any statutory or regulatory requirement as may be in effect from time to time. Payment of principal and interest to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC, is the responsibility of the Authority or the Trustee, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the Series 2019C Bonds at any time by giving reasonable notice to the Authority or the Trustee. Under such circumstances, in the event that a successor securities depository is not obtained, Series 2019C Bonds Bond certificates are required to be printed and delivered. The Authority may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Series 2019C Bonds Bond certificates will be printed and delivered.

So long as Cede & Co. is the registered owner of the Series 2019C Bonds, as partnership nominee for DTC, references herein to Bondholders or registered owners of the Series 2019C Bonds (other than under the caption "TAX MATTERS") shall mean Cede & Co. and shall not mean the Beneficial Owners of the Series 2019C Bonds.

When reference is made to any action which is required or permitted to be taken by the Beneficial Owners, such reference shall only relate to those permitted to act (by statute, regulation or otherwise) on behalf of such Beneficial Owners for such purposes.

NEITHER THE AUTHORITY NOR THE TRUSTEE WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO DTC PARTICIPANTS, TO INDIRECT PARTICIPANTS, OR TO ANY BENEFICIAL OWNER WITH RESPECT TO (I) THE ACCURACY OF ANY RECORDS MAINTAINED BY DTC, CEDE & CO., ANY DTC PARTICIPANT, OR ANY INDIRECT PARTICIPANT; (II) ANY NOTICE THAT IS PERMITTED OR REQUIRED TO BE GIVEN TO THE OWNERS OF THE SERIES 2019C BONDS; (III) THE SELECTION BY DTC OR ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT OF ANY PERSON TO RECEIVE PAYMENT IN THE EVENT OF A PARTIAL REDEMPTION OF THE SERIES 2019C BONDS; (IV) THE PAYMENT BY DTC OR ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT OF ANY AMOUNT WITH RESPECT TO THE PRINCIPAL OR REDEMPTION PREMIUM, IF ANY, OR INTEREST DUE WITH RESPECT TO THE SERIES 2019C BONDS; (V) ANY CONSENT GIVEN OR OTHER ACTION TAKEN BY DTC AS THE OWNER OF THE SERIES 2019C BONDS; OR (VI) ANY OTHER MATTER.

**APPENDIX F**  
**PROPOSED FORM OF OPINION OF CO-BOND COUNSEL**

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M&A draft 8/28/19

BOND PURCHASE AGREEMENT

\$100,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C

\_\_\_\_\_, 2019

District of Columbia Water and Sewer Authority  
1385 Canal Street S.E.  
Washington, DC 20003

Ladies and Gentlemen:

JP Morgan Securities LLC as the underwriter (the “Underwriter”), offers to enter into this bond purchase agreement (this “Agreement”) with the District of Columbia Water and Sewer Authority (the “Authority”). The offer made hereby is subject to acceptance thereof by execution of this Agreement and its delivery to the Underwriter, at or prior to 5:00 p.m., New York, New York Time, on the date hereof, or on such other date as may be agreed upon by the Underwriter. Upon such acceptance, this Agreement shall be in full force and effect in accordance with its terms and shall be binding upon the Authority and the Underwriter. If this offer is not so accepted, it is subject to withdrawal by the Underwriter upon written notice delivered to the Authority at any time prior to acceptance. Terms used but not defined herein are defined in the Indenture identified below.

1. **Purchase and Sale of Bonds.** On the terms and conditions and on the basis of the representations, warranties, covenants and agreements set forth herein, the Underwriter, hereby agrees to purchase from the Authority for offering to the public, and the Authority hereby agrees to sell and deliver to the Underwriter for such purpose, all (but not less than all) of its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C, in the original principal amount of \$100,000,000\* (the “Bonds”). The proceeds of the Series 2019C Bonds will be used to (i) pay the costs of certain capital improvements to the System, and (ii) pay the costs of issuing the Series 2019C Bonds. The purchase price of the Bonds will be \$\_\_\_\_\_ (the par amount of the Bonds less the Underwriter’s discount of \$\_\_\_\_\_ plus original issue premium of \$\_\_\_\_\_). The Bonds will mature on the dates and in the amounts and will bear interest and will be subject to redemption prior to maturity as set forth on Exhibit A hereto.

2. **Bond Authorization.** The Bonds shall be issued under and pursuant to provisions of the laws of the United States of America and the District of Columbia (the “District”), including particularly, an act of the Council of the District entitled the “Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996,”

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\* Preliminary, subject to change.

as amended, codified at District of Columbia Official Code Ann. Sections 34-2201.01 *et seq.*, and the acts amendatory thereof and supplemental thereto (the “Act”), and an act of the United States Congress entitled the “District of Columbia Water and Sewer Authority Act of 1996” (Public Law 104-184), as amended (the “Federal Act”), and all proceedings necessary to authorize and provide for the issuance of the Bonds, including Resolution No.19- adopted by the Board of Directors of the Authority, on September 5, 2019 (the “Resolution”), and the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”), as amended and supplemented, including by the Twenty-Fifth Supplemental Indenture of Trust, dated as of the Closing Date (as defined below) (the “Twenty-Fifth Supplemental Indenture,” and together with the Master Indenture as previously amended and supplemented, the “Indenture”), between the Authority and the Trustee, substantially in the forms previously delivered to us.

3. **Closing.** At 11:00 a.m. Eastern Standard Time on \_\_\_\_\_, 2019, or at such other time and date as may be mutually agreed upon by the Authority and the Underwriter (the “Closing Date”), the Authority will, subject to the terms and conditions hereof, deliver the Bonds to the Underwriter in definitive form, duly executed and authenticated, together with the other documents hereinafter required, and, subject to the terms and conditions hereof, the Underwriter will accept such delivery and pay the purchase price of the Bonds as set forth in Section 1 hereof in federal funds to the order of the Authority (the “Closing”). Delivery of the Bonds will be made through the facilities of The Depository Trust Company, New York, New York. The Closing will occur at the offices of Squire Patton Boggs (US) LLP, Washington, D.C., or such other place as may be mutually agreed on by the Authority and the Underwriter.

4. **Public Offering of the Bonds.** It is a condition of the Authority’s obligation to sell and deliver the Bonds to the Underwriter, and of the obligation of the Underwriter to purchase and accept delivery of the Bonds, that the entire principal amount of the Bonds is sold and delivered by the Authority and accepted and paid for by the Underwriter at the Closing. The Underwriter intend to make an initial public offering of all of the Bonds at prices not in excess of the initial public offering prices set forth on the cover page of the Official Statement. The Underwriter may offer and sell the Bonds to certain dealers (including dealers depositing Bonds into investment trusts) at prices lower than the initial public offering prices.

5. **Preliminary and Final Official Statement.** The Authority ratifies and consents to the legally permissible use by the Underwriter, prior to the date hereof, of the Preliminary Official Statement, dated \_\_\_\_\_, 2019, relating to the Bonds (the “Preliminary Official Statement”) in connection with the public offering of the Bonds and the Authority represents that such Preliminary Official Statement is deemed final as of its date and as of the date hereof under Rule15c2-12 (“Rule 15c2-12”) promulgated by the U.S. Securities and Exchange Commission (the “SEC”) under the Securities Exchange Act of 1934, as amended (the “1934 Exchange Act”), except for Permitted Omissions (as defined in Rule 15c2-12). The form of the final Official Statement of the Authority relating to the Bonds, dated \_\_\_\_\_, 2019, including the cover page and Appendices thereto, and any revisions, amendments or supplements thereto (the “Official Statement”) as have been approved by the Authority, Co-Bond Counsel, and the Underwriter. The Authority authorizes, approves, ratifies and confirms the distribution of the Preliminary Official Statement and the Official Statement in paper and electronic format by the Underwriter in connection with the public offering and sale of the Bonds.



The Authority agrees to provide to the Underwriter, at such addresses as the Underwriter specifies, as many copies of the Official Statement as the Underwriter reasonably requests as necessary to comply with Rule G-32 and all other applicable rules of the Municipal Securities Rulemaking Board (the “MSRB”). The Authority agrees to deliver the Official Statement within seven business days after the date hereof and not later than one business day before the Closing Date and in sufficient time to accompany any confirmation that requests payment from any customer and to permit the Underwriter to comply with the requirements of Rule 15c2-12 (defined below). The Preliminary Official Statement and the Official Statement may be revised, amended, changed or supplemented by the Authority after the execution of this Agreement only with the permission of the Underwriter.

If, during the period from the date hereof to and including the date which is 25 days after the “end of the underwriting period” (as hereinafter defined), there shall exist any event, including, but not limited to, any material adverse change in the financial condition, results of operation or condition, financial or otherwise, of the Authority, and of which the Authority has knowledge, which, in the opinion of the Underwriter and counsel to the Underwriter or in the opinion of the Authority, requires a supplement or amendment to the Official Statement so that it will not contain an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, when it is delivered to a potential investor, the Authority will supplement or amend or cause to be supplemented or amended the Official Statement in a form and in a manner approved by the Underwriter and the Authority and will furnish to the Underwriter such supplement or amendment in sufficient quantity to permit the Underwriter to comply with the requirements of Rule 15c2-12 (“Rule 15c2-12”) promulgated by the Securities and Exchange Commission (the “SEC”) under the 1934 Exchange Act.

For the purpose of the preceding paragraph, the Authority may assume that the “end of the underwriting period” (in accordance with and as defined in Rule 15c2-12) means the Closing Date unless the Underwriter advises the Authority in writing on the Closing Date that there remains an unsold balance of the Bonds, in which case the “end of the underwriting period” means the date as of which the Underwriter notifies the Authority that the Underwriter, directly or as a syndicate, no longer retain an unsold balance of the Bonds for sale to the public. The deemed end of the underwriting period, in order to allow the Underwriter to comply with Rule 15c2-12, shall be extended for additional periods of 30 days each upon receipt of written notification from the Underwriter that any Bonds remain unsold however, in no event shall the “end of the underwriting period” extend beyond the date sixty (60) days from the Closing Date. The Underwriter agrees to provide to the Authority written notification that none of the Bonds remain unsold which will be deemed the end of the underwriting period.

The Underwriter hereby agrees to deliver a copy of the printed paper form of the Official Statement to the MSRB in an electronic format prescribed by the MSRB for its Electronic Municipal Market Access (“EMMA”) website at [www.emma.msrb.org](http://www.emma.msrb.org) within one (1) business day of receipt of the executed final Official Statement by the Underwriter.

6. **Representations, Warranties and Covenants of the Authority.** The Authority hereby represents, warrants, covenants and agrees as follows:

a. The Authority is, and at the Closing Date will be, a duly organized and validly existing corporate body and independent authority of the District established under the laws of the United States and the District, including the Act and the Federal Act, with the full legal right, power and authority to (i) adopt the Resolution, (ii) execute, deliver and perform its obligations under this Agreement, the Indenture, the Certificate of Award of the Authority establishing the purchase price, maturities, interest rates, redemption provisions and other terms of the Bonds, dated the date hereof (the "Certificate of Award"), and the Continuing Disclosure Agreement of the Authority dated as of the Closing Date (the "Continuing Disclosure Agreement," and together with this Agreement and the Indenture, the "Bond Documents"); (iii) perform its obligations under the Water Sales Agreement, dated as of July 31, 1997, between the Authority and the United States of America, acting through the Secretary of the Army (the "Water Sales Agreement") and the Blue Plains Intermunicipal Agreement of 2012 between the District, Fairfax County, Virginia, Montgomery County, Maryland, Prince George's County, Maryland and the Washington Suburban Sanitary Commission (the "IMA," and together with the Water Sales Agreement, the "System Agreements"), (iv) sell, issue and deliver the Bonds to the Underwriter as provided herein, and (v) carry out and consummate the transactions contemplated by the Resolution, the Bond Documents, the Preliminary Official Statement, the Official Statement and the System Agreements; and the Authority has complied, and at the Closing Date will be in compliance, in all material respects, with the Act and the Federal Act and with the obligations on its part in connection with the issuance of the Bonds contained in the Bonds, the Resolution, the Indenture, the Preliminary Official Statement, the Official Statement and this Agreement.

b. The Authority (i) has duly and validly adopted the Resolution, (ii) has authorized the execution and delivery of the Bond Documents, (iii) is authorized to execute, issue, sell and deliver the Bonds in book-entry form, (iv) is authorized to appoint, and has appointed, Wells Fargo Bank, N.A., as Trustee (the "Trustee"), (v) is authorized to apply and will apply the proceeds of the Bonds as provided in and subject to all of the terms and provisions of the Resolution, including the payment or reimbursement of the Authority expenses incurred in connection with the negotiation, marketing, issuance and delivery of the Bonds to the extent required by Section 14, (vi) has taken or will take on or before the Closing Date, all action necessary or appropriate for (a) execution, issuance, sale and delivery of the Bonds in book-entry form to the Underwriter, (b) approval, execution and delivery of and the performance by the Authority of its obligations contained in the Bonds and the Bond Documents, (c) the approval, distribution and use of the Preliminary Official Statement and the approval, execution, distribution and use of the Official Statement for use by the Underwriter in connection with the public offering of the Bonds and (d) the consummation by it of all other transactions described in the Official Statement, the Bond Documents and any and all such other agreements and documents as may be required to be executed, delivered and/or received by the Authority in order to carry out, give effect to, and consummate the transactions described herein and in the Official Statement.

c. The adoption of the Resolution, the execution and delivery of the Bond Documents, the execution, issuance, sale and delivery of the Bonds in book-entry form and the performance by the Authority of its obligations hereunder and thereunder, and the performance by the Authority of its obligations under the System Agreements (collectively, the "Authority Undertakings") are within the corporate powers of the Authority and are not in conflict with and

will not constitute a breach, default or result in a violation of (i) the Act, (ii) any federal constitutional or federal or District statutory provision, including the Federal Act, (iii) any agreement or other instrument to which the Authority is a party, or (iv) any order, rule, regulation, decree or ordinance of any court of competent jurisdiction, government or governmental authority having jurisdiction over the Authority or its property.

d. The District has authorized the Authority to use all of the property and assets of the water distribution and wastewater collection, treatment and disposal systems of the Authority (the “System”), uninterrupted by the District, for as long as any revenue bonds of the Authority, including the Bonds, remain outstanding. The Authority has the full legal right, power and authority to operate the System and to collect and pledge the Revenues therefrom in accordance with the Indenture.

e. The Resolution or other appropriate actions adopted or taken by the Authority establishing the rates and charges for services of the System described in the Preliminary Official Statement and the Official Statement have been duly adopted or taken and are in full force and effect.

f. The System Agreements and all other agreements, permits, licenses, consents, approvals, actions, consent decrees and settlement orders material to the operation and management of the System, including the collection of the Revenues therefrom as described in the Preliminary Official Statement and the Official Statement, are in full force and effect as of the date hereof and will be on the Closing Date, and the Authority is not and will not be in default thereunder or in breach thereof. The System Agreements have been duly authorized, executed and delivered by the Authority and constitute valid and binding obligations of the Authority enforceable in accordance with their respective terms, subject to applicable bankruptcy, insolvency and similar laws affecting creditors’ rights generally and subject, as to enforceability, to general principles of equity.

g. The Bonds, when issued, delivered to the Underwriter and paid for, in accordance with the Act, the Resolution, the Indenture and this Agreement, will have been duly authorized, executed, issued and delivered by the Authority and will constitute valid and binding obligations of the Authority, enforceable against the Authority in accordance with their terms, subject to applicable bankruptcy, insolvency, reorganization, moratorium and similar laws affecting creditors’ rights generally and subject, as to enforceability, to general principles of equity. The Bonds are not a pledge of and do not involve the faith and credit or the taxing power of the District and the District shall not be liable thereon. The Bonds, the Indenture and the Resolution conform to the descriptions thereof contained in the Preliminary Official Statement and the Official Statement and the proceeds of the sale of the Bonds will be applied as described in the Preliminary Official Statement and the Official Statement.

h. The Authority is not currently failing to comply and except as disclosed in the Preliminary Official Statement and the Official Statement, has not failed to comply during the past five years with any continuing disclosure obligation pursuant to Rule 15c2-12. The Authority has agreed to deliver to the Underwriter a Continuing Disclosure Agreement with respect to the Bonds that complies with the requirements of Rule 15c2-12.

i. This Agreement constitutes, and, upon execution and delivery by the Authority and the other parties thereto, each of the other Bond Documents will constitute, the valid, binding and enforceable obligation of the Authority in accordance with their respective terms, subject to applicable bankruptcy, insolvency, and similar laws affecting creditors' rights generally and subject, as to enforceability, to general principles of equity.

j. The Authority is not in material breach of or material default under any applicable constitutional provision or law of the United States, the District or any applicable judgment or decree, or any loan agreement, indenture, bond, note, resolution, agreement or other instrument to which it is a party or to which it or any of its property or assets is otherwise subject, and no event has occurred and is continuing which, with the passage of time or the giving of notice, or both, would constitute a default or event of default under any such instrument; and the execution and delivery of the Bonds, this Agreement and the other Bond Documents and the adoption of the Resolution, and compliance with the provisions contained therein and herein, and in the System Agreements, do not conflict with or constitute a breach of or default under any constitutional provision, law, administrative regulation, judgment, decree, loan agreement, indenture, bond, note, resolution, agreement, or other instrument to which it is a party or any of its property or assets are otherwise subject, nor will any such execution, delivery, adoption, or compliance result in the creation or imposition of any lien, charge, or other security interest or encumbrance of any nature whatsoever upon any of its property or assets or under the terms of any such law, regulation or instrument, except as provided by the Bonds.

k. All authorizations, approvals, licenses, permits, consents and orders of any governmental authority, legislative body, board, agency or commission having jurisdiction of the matter have been duly obtained or, with respect to the issuance of the Bonds, will be obtained prior to the issuance of the Bonds, which are required for the due authorization by or which would constitute a condition precedent to or the absence of which would materially adversely affect the due performance by the Authority of its obligations in connection with the issuance of the Bonds and under this Agreement, except for such approvals, consents and orders as may be required under the Blue Sky or securities laws of any state in connection with the offering and sale of the Bonds.

l. Except as otherwise described in the Preliminary Official Statement and the Official Statement, there is no litigation, action, suit, proceeding, inquiry or investigation, at law or in equity, before or by any court, government agency, public board or body, pending or, to the best knowledge of the Authority, threatened against the Authority (i) affecting or seeking to prohibit, restrain or enjoin the issuance, sale or delivery of the Bonds, the use of the Preliminary Official Statement or the Official Statement or the collection of the Revenues pledged to the payment of the principal of and interest on the Bonds, (ii) in any way contesting or affecting any authority for the issuance of the Bonds or the validity, enforceability, due authorization, execution or delivery of the Bonds, including this Agreement or the other Bond Documents, or the validity or enforceability of the System Agreements, nor, to the best knowledge of the Authority, is there any basis therefor, wherein an unfavorable decision, ruling or finding would materially adversely affect the validity or enforceability of the Bonds or the Bond Documents, (iii) questioning the tax-exempt status of the Bonds under the laws of the District or the United States, (iv) affecting or in any way contesting the corporate existence or powers of the Authority or the titles of the officers of the Authority to their respective offices, (v) which may result in any

material adverse change in the business or the financial condition or the financial prospects of the Authority or (vi) asserting that the Preliminary Official Statement or the Official Statement or any supplement thereto contains any untrue statement of a material fact or omits any material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

m. The Authority will furnish such information, execute such instruments and take such other action in cooperation with the Underwriter as the Underwriter may reasonably request in order to (i) qualify the Bonds for offer and sale under the Blue Sky or other securities laws and regulations of such states and other jurisdictions of the United States as the Underwriter may designate, (ii) determine the eligibility of the Bonds for investment under the laws of such states and other jurisdictions, and (iii) continue such qualifications in effect so long as required for the distribution of the Bonds and will advise the Underwriter promptly of receipt by the Authority of any written notification with respect to the suspension of the qualification of the Bonds for sale in any jurisdiction or the initiation or threat of any proceeding for that purpose; provided, however, that the Authority will not be required to execute a general or special consent to service of process or qualify to do business in connection with any such qualification or determination in any jurisdiction.

n. The audited balance sheets of the Authority for the years ended September 30, 2018 and September 30, 2017, and the related statements of revenues, expenditures and changes in net assets and cash flows for the fiscal year ended on such date, as set forth in the Preliminary Official Statement and the Official Statement, are true, complete and correct and fairly present the financial condition of the Authority as of such date and the results of its operations for such fiscal year. There has been no material adverse change in the financial condition of the Authority since September 30, 2018, except as described in the Preliminary Official Statement and the Official Statement. The financial statements of, and other financial information of the Authority in the Preliminary Official Statement and in the Official Statement fairly present the financial position and results of the Authority as of the dates and for the periods therein set forth, and except as noted in the Preliminary Official Statement and in the Official Statement, the other historical financial information set forth in the Preliminary Official Statement and in the Official Statement has been presented on a basis consistent with that of the Authority's audited financial statements included or incorporated by reference in the Preliminary Official Statement and in the Official Statement.

o. The Authority has duly authorized, approved and delivered the Preliminary Official Statement and the Official Statement to the Underwriter.

p. The Preliminary Official Statement, as of its date and as of the date of this Agreement, did not and does not, and the Official Statement, is, as of its date and (unless the Official Statement is amended or supplemented pursuant to this Agreement) at all times subsequent thereto during the period up to and including the Closing Date, did not and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. If between the date of the Official Statement and the Closing Date any event shall occur or any pre-existing fact or condition shall become known to the Authority that might or would cause the Official Statement, as then supplemented or amended, to contain any untrue

statement of a material fact or to omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, the Authority shall promptly notify the Underwriter thereof, and if in the reasonable opinion of the Underwriter, such event, fact or condition requires the preparation and publication of a supplement or amendment to the Official Statement, the Authority will at its expense supplement or amend the Official Statement in a form and in a manner approved by the Underwriter, which approval shall not be unreasonably withheld. If the Official Statement is supplemented or amended as aforesaid, at the time of each supplement or amendment thereto and (unless subsequently again supplemented or amended pursuant to such paragraph) at all times subsequent thereto during the underwriting period, as defined in Section 5, the Official Statement as so supplemented or amended will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which made, not misleading.

q. The obligation of the Authority to know or provide information within the knowledge of the Authority is limited to providing information that is in the actual knowledge of, or reasonably should have been in the actual knowledge of, the key staff members of the Authority listed in the Official Statement under the caption "Senior Management" or their respective successors.

r. The Authority undertakes that, for a period beginning with the day on which the Bonds are delivered to the Underwriter and ending on the 25th day following the end of the underwriting period, as defined in Section 5, it will apprise the Underwriter of all material developments, if any, occurring with respect to the Authority, and if requested by the Underwriter, at the Authority's expense, prepare a supplement to the Official Statement in respect of any such material event.

s. The Authority has not been notified of any listing or proposed listing by the Internal Revenue Service to the effect that the Authority is a bond issuer whose arbitrage certificates may not be relied upon.

t. Any certificate signed by an authorized delegate of the Authority in connection with the transactions described in this Agreement will be deemed a representation, warranty, covenant and agreement by the Authority to the Underwriter as to the statements made therein.

u. Prior to the Closing, the Authority will not take any action within or under its control that will cause any adverse change of a material nature in the Authority's financial position, or its results of operations or condition, financial or otherwise.

v. The Authority will not, prior to the Closing, offer or issue any bonds, notes or other obligations for borrowed money or incur any material liabilities, direct or contingent, except in the ordinary course of business, without the prior approval of the Underwriter, other than its Public Utility Subordinate Lien Revenue Bonds Series 2019A and its Public Utility Subordinate Lien Revenue Bonds Series 2019B, each dated the date of Closing.

w. The Bonds and the Twenty-Fifth Supplemental Indenture conform to the descriptions thereof contained in the Preliminary Official Statement and the Official Statement under the caption “THE SERIES 2019C BONDS” and in Appendix C “GLOSSARY AND SUMMARY OF THE INDENTURE.”

7. **Representations of Underwriter.** The Underwriter represents and warrants that they will offer the Bonds only pursuant to the Official Statement and the Underwriter agrees to make a public offering of the Bonds at the initial offering prices or yields set forth in the Official Statement as the Underwriter may deem necessary or desirable in connection with the offering and sale of the Bonds and to sell the Bonds to dealers (including dealer banks and dealers depositing Bonds into investment trusts) and others at prices lower than the public offering prices. At the Closing, the Underwriter shall deliver to the Authority a certificate, acceptable to Co-Bond Counsel, substantially in the form of Exhibit D hereto. The Underwriter agrees to deliver a final Official Statement to all purchasers of the Bonds in accordance with all applicable legal requirements.

8. **Rights to Cancellation by Underwriter.** The Underwriter will have the right to cancel its obligation to purchase, accept delivery of and to pay for the Bonds if between the date hereof and the Closing Date, the market price or marketability of the Bonds or the ability of the Underwriter to enforce contracts for the sale of the Bonds shall be materially adversely affected in the reasonable judgment of the Underwriter, by the occurrence of any of the following: (a) legislation has been enacted by or introduced in Congress or a decision by a federal court of the United States or the United States Tax Court has been rendered, or a ruling, regulation or official statement by or on behalf of the Treasury Department of the United States, the Internal Revenue Service or other governmental agency has been made or proposed to be made with respect to federal taxation on revenues or other income to be derived from the operation of the Authority, or other actions or events have occurred which have the purpose or effect, directly or indirectly, of materially adversely affecting the federal income tax consequences of any of the transactions contemplated in connection herewith, including the tax-exempt status of bonds issued by the Authority under the Internal Revenue Code of 1986, as amended, or (b) legislation has been enacted, or actively considered for enactment with an effective date being prior to the date of the issuance of the Bonds, or a decision by a court of the United States has been rendered, or a ruling or regulation by the SEC or another governmental agency having jurisdiction of the subject matter has been made, the effect of which is that the Bonds are not exempt from the registration or other requirements of the Securities Act of 1933, as amended and as then in effect (the “1933 Securities Act”), or that the Indenture is not exempt from the qualification or other requirements of the Trust Indenture Act of 1939, as amended and as then in effect (the “Trust Indenture Act”), or (c) a stop order, ruling or regulation by the SEC has been issued or made, the effect of which is that the issuance, offering or sale of the Bonds as contemplated hereby or by the Official Statement is or would be in violation of any provision of the 1933 Securities Act, or of the 1934 Exchange Act, or of the Trust Indenture Act, or (d) there exists any event which in the reasonable judgment of the Underwriter either (i) makes untrue or incorrect any statement or information of a material fact contained in the Official Statement or (ii) is not reflected in the Official Statement but should be reflected therein in order to make the statements and information contained therein, in light of the circumstances under which they were made, not misleading, and, in either such event the Authority refuses to permit the Official Statement to be

supplemented to correct or supply such statement or information, or the statement or information as supplemented is such as in the reasonable judgment of the Underwriter would materially adversely affect the market for the Bonds or the sale, at the contemplated offering price, by the Underwriter of the Bonds, or (e) there has occurred any new outbreak of hostilities (including, without limitation, an act of terrorism) or escalation of hostilities existing prior to the date hereof or any other extraordinary event, material national or international calamity or crisis, including a financial crisis, not existing on the date hereof, or (f) any new restriction on transactions in securities materially affecting the market for securities (including the imposition of any limitation on interest rates or the establishment of minimum or maximum prices) or any material increase of restrictions now in force (including the extension of credit by, or a charge to the net capital requirements of, Underwriter) shall have been established by the New York Stock Exchange, the SEC, any other federal agency, the Congress of the United States, or by Executive Order, or (g) there is in force a general suspension of trading in securities on the New York Stock Exchange or any other national securities exchange or (h) a general banking moratorium has been declared by Federal, District or New York authorities, or (i) there has occurred since the date hereof any material adverse change in the affairs of the Authority from that reflected in the financial information and data of the Authority included in or as an appendix to the Official Statement, other than as previously disclosed to the Underwriter, or (j) a material disruption in securities settlement, payment or clearance services shall have occurred, or (k) there shall have occurred any downgrading or published negative credit watch or similar published information from a rating agency that on the date hereof has published a rating (or has been asked to furnish a rating on the Bonds) on any of the Authority's debt obligations, which action reflects a change or possible change in the ratings accorded any such obligations of the Authority (including any rating to be accorded to the Bonds) or (l) there shall have occurred any downgrading or published negative credit watch or similar published information from a rating agency that at the date of this Agreement has published a rating (or has been asked to furnish a rating on the Bonds) on any of the Authority's debt obligations, which action reflects a change or possible change, in the ratings accorded any such obligations of the Authority (including any rating to be accorded the Bonds).

9. **Rights to Cancellation by the Authority.** The Authority will have the right to cancel its obligation to issue, sell and deliver the Bonds if between the date hereof and the Closing Date, the market price or marketability of the Bonds shall be materially adversely affected, in the reasonable judgment of the Authority, by the occurrence of any of the following: (a) legislation has been enacted by or introduced in Congress or a decision by a federal court of the United States or the United States Tax Court has been rendered, or a ruling, regulation or official statement by or on behalf of the Treasury Department of the United States, the Internal Revenue Service or other governmental agency has been made or proposed to be made with respect to federal taxation on revenues or other income to be derived from the operation of the Authority, or other actions or events have occurred which have the purpose or effect, directly or indirectly, of materially adversely affecting the federal income tax consequences of any of the transactions contemplated in connection herewith, or (b) legislation has been enacted, or actively considered for enactment with an effective date being prior to the date of the issuance of the Bonds, or a decision by a court of the United States has been rendered, or a ruling or regulation by the SEC or another governmental agency having jurisdiction of the subject matter has been made, the effect of which is that the Bonds are not exempt from the registration or other requirements of the 1933 Securities Act, or that the Indenture is not exempt from the



qualification or other requirements of the Trust Indenture Act, or (c) a stop order, ruling or regulation by the SEC has been issued or made, the effect of which is that the issuance, offering or sale of the Bonds as contemplated hereby or by the Official Statement is or would be in violation of any provision of the 1933 Securities Act, or of the 1934 Exchange Act, or of the Trust Indenture Act, or (d) there has occurred any new outbreak of hostilities (including, without limitation, an act of terrorism) or escalation of hostilities existing prior to the date hereof or any other extraordinary event, material national or international calamity or crisis, including a financial crisis, not existing on the date hereof, or (e) any new restriction on transactions in securities materially affecting the market for securities (including the imposition of any limitation on interest rates or the establishment of minimum or maximum prices) or any material increase of restrictions now in force (including the extension of credit by, or a charge to the net capital requirements of, Underwriter) shall have been established by the New York Stock Exchange, the SEC, any other federal agency, the Congress of the United States, or by Executive Order, or (f) there is in force a general suspension of trading in securities on the New York Stock Exchange or any other national securities exchange or (g) a general banking moratorium has been declared by Federal, District or New York authorities, or (h) a material disruption in securities settlement, payment or clearance services shall have occurred.]

10. **Conditions to Obligations of Underwriter at Closing.** The Underwriter has entered into this Agreement in reliance on the representations, warranties, covenants and agreements of the Authority contained herein, and in reliance on the representations, warranties, covenants and agreements to be contained in the documents and instruments to be delivered at the Closing and on the performance by the Authority of its obligations hereunder, as of the Closing Date. Accordingly, the Underwriter's obligations under this Agreement to purchase, to accept delivery of and to pay for the Bonds, are conditioned on the performance by the Authority of its obligations to be performed hereunder and the delivery of such documents and instruments enumerated herein in form and substance reasonably satisfactory to the Underwriter and Orrick, Herrington & Sutcliffe LLP, and McKenzie & Associates, co-counsel to the Underwriter, at or before the Closing, and are also subject to the following additional conditions:

a. The representations, warranties, covenants and agreements of the Authority contained herein are true, complete and correct on the date hereof and on and as of the Closing Date, as if made on the Closing Date;

b. The provisions of the Act and the Federal Act, as in effect on the date of this Agreement, shall be in full force and effect and shall not have been amended, except as to amendments which, in the reasonable opinion of the Underwriter, are not adverse to the interest of the Underwriter or the Bondholders;

c. At the time of the Closing, the Resolution is in full force and effect in accordance with its terms and has not been amended, modified or supplemented, and the Official Statement has not been supplemented or amended, except in any such case as may have been agreed to by the Underwriter;

d. At the time of the Closing, all official action of the Authority relating to the Bonds, the Bond Documents and the System Documents are in full force and effect in

accordance with their respective terms and have not been amended, modified or supplemented, except in each case as may have been agreed to by the Underwriter;

e. At the time of the Closing the Authority will perform or will have performed all of its obligations required under or specified in this Agreement, the Resolution and the Indenture, or contemplated by the Resolution, the Indenture or the Official Statement, to be performed prior to the Closing; and

f. At or before the Closing, the Underwriter will have received true and correct copies of each of the following documents:

- i. A certified copy of the Resolution;
- ii. The Official Statement and each supplement or amendment, if any, thereto, executed by the Authority;
- iii. Counterparts of each of the fully executed Bond Documents and the System Agreements;
- iv. The approving opinion of Co-Bond Counsel in substantially the form attached to Preliminary Official Statement and the Official Statement as Appendix F and a supplemental opinion, dated the Closing Date, in form and substance satisfactory to the Underwriter, and reliance letters with respect to such opinions addressed to Wells Fargo Bank, N.A., as Trustee;
- v. An opinion, dated the Closing Date, of the Interim Executive Vice President Legal Affairs of the Authority, substantially in the form of Exhibit B hereto;
- vi. An opinion, dated the Closing Date, of Orrick, Herrington & Sutcliffe LLP and McKenzie & Associates, co-counsel to the Underwriter, substantially in the form of Exhibit C hereto;
- vii. An opinion, dated the Closing Date, of Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, in their capacity as co-disclosure counsel to the Authority, in form and substance satisfactory to the Underwriter and its co-counsel;
- viii. An opinion, dated the Closing Date, of counsel to the Trustee, in a form approved by the Underwriter and its co-counsel;
- ix. A manually signed Financial Feasibility Opinion Letter dated \_\_\_\_, 2019, of Amawalk Consulting Group LLC (the “Financial Feasibility Consultant”), regarding the financial feasibility of the issuance of the Bonds in substantially the form attached to the Preliminary Official Statement and the final Official Statement as Appendix A and a certificate of the Financial Feasibility Consultant with respect to the issuance and sale of the Bonds, permitting the use of such letter and references to said firm in the Preliminary Official Statement and the Official Statement in form and substance satisfactory to the Underwriter;

x. One or more certificates of the Authority, dated the Closing Date, (A) to the effect that the representations, warranties, covenants and agreements of the Authority herein are true and correct on and as of the Closing Date as if made on the Closing Date, and that the Authority has performed all obligations to be performed hereunder as of the Closing Date; (B) to the effect that the Bond Documents, the Bonds and the System Agreements have not been modified, amended or repealed after the date hereof without the written consent of the Underwriter; (C) to the effect that no material change has occurred with respect to the System from the period from the date of this Agreement through the Closing Date;

xi. Evidence of the completion of Internal Revenue Service Form 8038-G with respect to the issuance of the Bonds;

xii. Evidence that Moody's Investors Service, Inc. ("Moody's") and S&P Global Ratings Services ("S&P") and Fitch Ratings have issued ratings on the Bonds of "\_\_\_", "\_\_\_" and "\_\_\_" respectively;

xiii. Such additional legal opinions, certificates, instruments and other documents as the Underwriter may reasonably request to evidence the truth and accuracy, as of the Closing Date, of the Authority's representations, warranties, covenants and agreements contained herein and of the statements and information contained in the Official Statement and the due performance or satisfaction by the Authority on or prior to the Closing Date of all the agreements then to be performed and conditions then to be satisfied by it.

All the opinions, letters, certificates, instruments and other documents mentioned above or elsewhere in this Agreement will be deemed to be in compliance with the provisions hereof if, but only if, they are in form and substance satisfactory to the Underwriter.

11. **Obligations Upon Cancellation.** If the Authority is unable to satisfy the conditions to the obligations of the Underwriter to purchase, to accept the delivery of and to pay for the Bonds contained in this Agreement, or if the obligations of the Underwriter to purchase, to accept delivery of and to pay for the Bonds is terminated for any reason permitted by this Agreement, this Agreement will terminate and neither the Underwriter nor the Authority will be under any further obligation hereunder, except that the Authority and the Underwriter shall pay their respective expenses as set forth in Section 14.

12. **Certain Information Provided by Underwriter.** The Underwriter confirms and the Authority acknowledges that the statements with respect to the public offering of the Bonds by the Underwriter set forth on the cover page of the Official Statement, the legend concerning over-allotments in the Official Statement and the text under the caption "UNDERWRITING" in the Official Statement constitute the only information concerning the Underwriter furnished in writing to the Authority by or on behalf of the Underwriter for inclusion in the Official Statement.

13. **Establishment of Issue Price.**

a. The Underwriter agrees to assist the Authority in establishing the issue price of the Bonds and shall execute and deliver to the Authority at Closing an “issue price” or similar certificate, together with the supporting pricing wires or equivalent communications, substantially in the form attached hereto as **Exhibit D**, with such modifications as may be appropriate or necessary, in the reasonable judgment of the Underwriter, the Authority and Co-Bond Counsel, to accurately reflect, as applicable, the sales price or prices or the initial offering price or prices to the public of the Bonds. All actions to be taken by the Authority under this Section to establish the issue price of the Bonds may be taken on behalf of the Authority by PFM Financial Advisors LLC (the “Municipal Advisor”) and any notice or report to be provided to the Authority may be provided to the Municipal Advisor.

b. The Authority will treat the first price at which at least 10% of each maturity of the Bonds (the “10% test”) is sold to the public as the issue price of that maturity (if different interest rates apply within a maturity, each separate CUSIP number within that maturity will be subject to the 10% test). At or promptly after the execution of this Bond Purchase Agreement, the Underwriter shall report to the Authority the price or prices at which the Underwriter has sold to the public each maturity of Bonds. If at that time the 10% test has not been satisfied as to any maturity of the Bonds, the Underwriter agrees to promptly report to the Authority the prices at which Bonds of that maturity have been sold to the public. That reporting obligation shall continue, whether or not the Closing Date has occurred, until the 10% test has been satisfied as to the Bonds of that maturity or until all Bonds of that maturity have been sold to the public, [provided that, the Underwriters’ reporting obligation after the Closing Date may be reasonable periodic intervals or otherwise upon request of the Authority].

c. The Authority acknowledges that, in making the representation set forth in this subsection, the Underwriter will rely on (i) the agreement of the Underwriter to comply with the hold-the-offering price rule, if applicable, as set forth in an agreement among underwriters and the related pricing wires, (ii) in the event a selling group has been created in connection with the initial sale of the Bonds to the public, the agreement of each dealer who is a member of the selling group to comply with the hold-the-offering-price rule, if applicable, as set forth in a selling group agreement and the related pricing wires, and (iii) in the event that an Underwriter is a party to a retail distribution agreement that was employed in connection with the initial sale of the Bonds to the public, the agreement of each broker-dealer that is a party to such agreement to comply with the hold-the-offering-price rule, if applicable, as set forth in the retail distribution agreement and the related pricing wires. The Authority further acknowledges that the Underwriter shall solely be liable for its failure to comply with its agreement regarding the hold-the-offering-price rule and no Underwriter shall be liable for the failure of any other Underwriter, or of any dealer who is a member of a selling group, or of any broker-dealer that is a party to a retail distribution agreement, to comply with its corresponding agreement regarding the hold-the-offering-price rule as applicable to the Bonds.

d. The Underwriter confirms that:

(i) any agreement among underwriters, any selling group agreement and each retail distribution agreement (to which the Underwriter is a party) relating to the initial sale of the Bonds to the public, together with the related pricing wires, contains or will contain language obligating each Underwriter, each dealer who is a member of the selling group and each broker-

dealer that is a party to such retail distribution agreement, as applicable, to (A) report the prices at which it sells to the public the unsold Bonds of each maturity allotted to it until it is notified by the Underwriter that either the 10% test has been satisfied as to the Bonds of that maturity or all of the Bonds of that maturity have been sold to the public and (B) comply with the hold-the-offering-price rule, if applicable, in each case if and for so long as directed by the Underwriter and as set forth in the related pricing wires, and

(ii) any agreement among underwriters relating to the initial sale of the Bonds to the public, together with any related pricing wires, contains or will contain language obligating each Underwriter that is a party to a retail distribution agreement to be employed in connection with the initial sale of the Bonds to the public to require each broker-dealer that is a party to such retail distribution agreement to (A) report the prices at which it sells to the public the unsold Bonds of each maturity allotted to it until it is notified by the Underwriter that either the 10% test has been satisfied as to the Bonds of that maturity or all Bonds of that maturity have been sold to the public and (B) comply with the hold-the-offering-price rule, if applicable, in each case if and for so long as directed by the Underwriter and as set forth in the related pricing wires.

e. The Underwriter acknowledges that sales of any Bonds to any person that is a related party to an Underwriter shall not constitute sales to the public for purposes of this section. Further, for purposes of this section:

i. “public” means any person other than an underwriter or a related party,

ii. “underwriter” means (A) any person that agrees pursuant to a written contract with the Authority (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Bonds to the public and (B) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (A) to participate in the initial sale of the Bonds to the public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Bonds to the public),

iii. a purchaser of any of the Bonds is a “related party” to an underwriter if the underwriter and the purchaser are subject, directly or indirectly, to (A) at least 50% common ownership of the voting power or the total value of their stock, if both entities are corporations (including direct ownership by one corporation of another), (B) more than 50% common ownership of their capital interests or profits interests, if both entities are partnerships (including direct ownership by one partnership of another), or (C) more than 50% common ownership of the value of the outstanding stock of the corporation or the capital interests or profit interests of the partnership, as applicable, if one entity is a corporation and the other entity is a partnership (including direct ownership of the applicable stock or interests by one entity of the other), and

iv. “sale date” means the date of execution of this Bond Purchase Agreement by all parties.

14. **No Advisory or Fiduciary Role.** The Authority acknowledges and agrees that: (i) the transactions contemplated by this Agreement are arm’s-length, commercial

transactions between the Authority and the Underwriter in which the Underwriter is acting solely as a principal, and are not acting as an agent, a municipal advisor, financial advisor or fiduciary to the Authority; (ii) the Underwriter has not assumed any advisory or fiduciary responsibility to the Authority with respect to the transactions contemplated hereby and the discussions, conferences, negotiations, undertakings and procedures leading thereto (irrespective of whether the Underwriter or its affiliates have provided other services or are currently providing other services to the Authority on other matters); (iii) the only obligations the Underwriter has to the Authority with respect to the transaction contemplated hereby expressly are set forth in this Agreement; (iv) the Authority has consulted its own financial and/or municipal, legal, accounting, tax, and other advisors, as applicable, to the extent it has deemed appropriate; and (v) this Agreement expresses the entire relationship between the parties hereto.

15. **Expenses.** The Authority will pay all costs of issuance of the Bonds including, but not limited to (a) the cost of preparation and posting of the Preliminary Official Statement and the cost of preparation, posting, printing and delivery of the Official Statement, including the number of copies the Underwriter and the Authority deem reasonable; (b) any cost of preparation of the Bonds; (c) the fees and disbursements of Co-Bond Counsel; (d) the fees and disbursements of any accountants, consultants, financial advisors or additional legal counsel retained in connection with the issuance of the Bonds, including the Independent Engineer and the Financial Feasibility Consultant; (e) fees for Bond ratings and CUSIP numbers; (f) the expenses of travel, lodging and meals for Authority representatives in connection with the negotiation, marketing, issuance and delivery of the Bonds; (g) all advertising expenses in connection with the public offering of the Bonds, including investor meetings; (h) the costs of filing fees required by any of the Blue Sky laws; and (i) all reasonable and necessary out-of-pocket associated with the issuance of the Bonds. The Authority shall reimburse the Underwriter for the fees and expenses of Underwriter's counsel, any expense advanced or incurred by the Underwriter for which the Authority is responsible hereunder including (f) above and other reasonable expenses incurred in connection with the performance of Underwriter's obligations hereunder (reimbursement may be included in the expense component of the Underwriter's discount, which the Underwriter acknowledges includes their expenses as set forth in Section 1).

16. **Notices.** Any notice or other communication to be given to the Authority under this Agreement may be given by delivering the same in writing to the address shown on the first page of this Agreement to the attention of the Chief Financial Officer and Executive Vice President Finance and Procurement, and any notice or other communication to be given to the Underwriter under this Agreement may be given by delivering the same in writing to JP Morgan Securities LLC, \_\_\_\_\_, New York, NY100\_\_\_, Attention: \_\_\_\_\_, Managing Director.

17. **Parties in Interest; Survival of Representations and Warranties.** This Agreement, when accepted in accordance with the provisions hereof, shall constitute the entire agreement between the Authority and the Underwriter and is made solely for the benefit of the Authority and the Underwriter (including the successors or assigns of the Authority or the Underwriter) and no other person will acquire or have any right hereunder or by virtue hereof. All of the Authority's and Underwriter's representations, warranties, covenants and agreements contained in this Agreement will remain operative and full force and effect regardless of (a) any investigations made by or on behalf of the Underwriter; or (b) delivery of and payment for the Bonds pursuant to this Agreement.

18. **Effective Date.** This Agreement will become effective upon its acceptance by the Authority, as evidenced by the execution hereof by the appropriate official of the Authority, and will be valid and enforceable at the time of such acceptance.

19. **Execution in Counterparts.** This Agreement may be executed in counterparts each of which shall be regarded as an original and all of which shall constitute one and the same document.

20. **Finder.** The Authority represents and warrants that no finder or other agent of a finder has been employed or consulted by it in connection with this transaction.

21. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the District of Columbia.

By: JP MORGAN SECURITIES LLC,  
as the Underwriter

By: \_\_\_\_\_  
Authorized Representative

[SIGNATURE PAGE TO SERIES 2019C BOND PURCHASE AGREEMENT]



Accepted: \_\_\_\_\_, 2019

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

By \_\_\_\_\_

Name: Matthew Brown

Title: Chief Financial Officer and Executive Vice  
President Finance and Procurement

[SIGNATURE PAGE TO SERIES 2019C BOND PURCHASE AGREEMENT]

EXHIBIT A

\$100,000,000\*  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds  
Series 2019C

2019C Term Bonds

\$ \_\_,000,000 \_\_\_\_% Term Bonds, due October 1, 20 \_\_, Yield \_\_\_\_%\*

\_\_\_\_\_  
\*Priced to the par call date.

2019C Term Bonds

\$ \_\_,000,000 \_\_\_\_% Term Bonds, due October 1, 20 \_\_, Yield \_\_\_\_%\*

\_\_\_\_\_  
\*Priced to the par call date.

\_\_\_\_\_  
\* Preliminary, subject to change.

TERMS OF REDEMPTION

Optional Redemption

The Series 2019C Bonds are subject to optional redemption prior to maturity on or after April 1, 202\_ from any source, in whole or in part on any date, in such order of maturities as shall be determined by the Authority (and by lot within a maturity), at a redemption price of 100% of the principal amount thereof, together with accrued interest, if any, to the redemption date.

MANDATORY SINKING FUND REDEMPTION

The \$ \_\_0,000 Series 2019C Term Bonds maturing on October 1, 20\_\_ shall be subject to mandatory sinking fund redemption, on October 1 of that respective year, as follows:

<u>Year</u>	<u>Principal Amount</u>
20__	\$

\_\_\_\_\_  
\*Final maturity.

EXHIBIT B

FORM OF AUTHORITY'S INTERIM EXECUTIVE VICE PRESIDENT, LEGAL AFFAIRS  
OPINION

\_\_\_\_\_, 2019

District of Columbia Water and Sewer Authority  
1385 Canal Street S.E.  
Washington, DC 20003

\$100,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C

Ladies and Gentlemen:

I am the Interim Executive Vice President, Legal Affairs to the District of Columbia Water and Sewer Authority (the "Authority") and in connection with the issuance by the Authority of its and its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C, in the original principal amount of \$100,000,000\* (the "Bonds"). I have reviewed an executed copy of the Bond Purchase Agreement, dated \_\_\_\_\_, 2019, between the Authority and JP Morgan Securities LLC, as the Underwriter, with respect to the Bonds (the "Bond Purchase Agreement") and the Preliminary Official Statement, dated \_\_\_\_\_, 2019 (the "Preliminary Official Statement") and the Official Statement, dated \_\_\_\_\_, 2019, being distributed in connection with the issuance of the Bonds (collectively, the "Official Statement"). Capitalized terms used and not defined herein shall have the respective meanings given to such terms in the Bond Purchase Agreement.

I have also examined an act of the Council of the District of Columbia entitled the "Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996," codified, as amended, at District of Columbia Official Code Ann. Sections 34-2201.01 *et seq.*, and the acts amendatory thereof and supplemental thereto (the "Act"), and an act of the United States Congress entitled the "District of Columbia Water and Sewer Authority Act of 1996" (Public Law 104-184), as amended (the "Federal Act"), certified copies of proceedings of the Authority authorizing the issuance of the Bonds, including the Resolution and such other proceedings as I have considered necessary or advisable to render the following opinions.

In rendering the following opinions, I have relied on representations of the Authority as to matters of fact without independent investigation or verification and, as to matters of law, the representations of Co-Bond Counsel without independent research or verification and have assumed the genuineness of all signatures, the authenticity of all documents tendered to me as

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\* Preliminary, subject to change.

originals and the conformity to original documents of all documents submitted to me as certified or photostatic copies.

Based upon review of the materials described above and subject to the recitals and qualifications herein contained, to the best of my knowledge, information and belief, it is my opinion that:

1. The Authority is a body corporate duly created, organized and validly existing as an independent authority of the District under the Act and under the Federal Act (the Act and the Federal Act being sometimes hereinafter referred to as, the "Acts"). The Authority has the full legal right, power and authority to (i) adopt the Resolution, (ii) issue the Bonds, (iii) execute, deliver and perform its obligations under the Bond Documents, and (iv) perform its obligations under the System Agreements.

2. The Federal Act was duly enacted by Congress and the Act was duly enacted by the Council of the District of Columbia. The Acts remain in full force and effect. The Act transferred all assets and liabilities of the Water and Sewer Utility Administration ("WASUA") as indicated on the balance sheet prepared by WASUA, effective April 17, 1996, on an interim basis for the exclusive use and possession of the Authority for so long as any revenue bonds of the Authority, including the Bonds, remain outstanding.

3. The Resolution was adopted by the Authority and has not been amended since the date of the adoption thereof and remains in full force and effect as of the date hereof.

4. (i) The adoption of the Resolution, the issuance of the Bonds, the execution and delivery of the Bond Documents and the performance of the Authority's obligations thereunder, and (ii) the performance of the Authority's obligations under the System Agreements, under the circumstances contemplated thereby, do not and will not in any material respect conflict with or constitute on the part of the Authority, a breach of or default under any agreement or other instrument to which the Authority is a party, or any existing law, administrative regulation, court order, settlement order or consent decree to which the Authority is subject.

5. Except as otherwise described in the Preliminary Official Statement and the Official Statement, there is no action, suit, proceeding, inquiry or investigation, at law or in equity, before or by any court, government agency, public board or body, pending or, to the best of my knowledge, threatened against the Authority (i) seeking to prohibit, restrain or enjoin the issuance, sale or delivery of the Bonds, the use of the Official Statement or the collection of the revenues pledged to the payment of the principal of and interest on the Bonds, (ii) in any way contesting or affecting any authority for the issuance of the Bonds or the validity, enforceability, due authorization, execution or delivery of the Bonds, including the Bond Purchase Agreement or the other Bond Documents, or the validity or enforceability of the System Agreements, (iii) questioning the tax-exempt status of the Bonds under the laws of the District or the United States, (iv) in any way contesting the corporate existence or powers of the Authority or the titles of the officers of the Authority to their respective offices, (v) which may result in any material adverse change in the business or the financial condition or the financial prospects of the Authority or (vi) asserting that the Preliminary Official Statement or the Official Statement

contains any untrue statement of a material fact or omits any material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

6. The statements and information contained in the Preliminary Official Statement and the Official Statement under the caption entitled "LITIGATION," are true, correct and complete in all material respects, and the information under such caption does not contain any untrue statement of a material fact and does not omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading in any material respect.

7. Pursuant to the Acts, the Authority has the full legal right, power and authority to operate the System and to collect and pledge the Revenues therefrom in accordance with the Indenture.

8. The Authority has approved the form of the Preliminary Official Statement and the Official Statement, the execution of the Official Statement and the delivery of the Official Statement to the purchasers of the Bonds.

9. The Authority has obtained the consents, approvals, authorizations or other orders required for the consummation of the transactions contemplated by the Bond Purchase Agreement, including the issuance of the Bonds.

This opinion and all documents which relate to this opinion are to be construed in accordance with the laws of the District and the United States of America. This opinion is rendered solely for the use of the Authority and may not be relied on by any other person.

Very truly yours,

Interim Executive Vice President Legal Affairs

EXHIBIT C

FORM OF OPINION OF UNDERWRITER'S COUNSEL

\_\_\_\_\_, 2019

\$100,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C

JP Morgan Securities LLC, as Underwriter

New York, NY 100\_\_

Ladies and Gentlemen:

We have acted as counsel for you as the underwriter (the "Underwriter") in connection with your purchase from the District of Columbia Water and Sewer Authority (the "Authority") of its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C, in the original principal amount of \$100,000,000\* (the "Bonds"), pursuant to the Bond Purchase Agreement, dated \_\_\_\_\_, 2019 (the "Purchase Agreement"), between you and the Authority. The Bonds are to be issued pursuant to the Master Indenture of Trust, dated as of April 1, 1998 (the "Master Indenture"), as amended and supplemented to the date of delivery of the Bonds (the "Indenture"), including by the Twenty-Fifth Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Bonds (the "Twenty-Fifth Supplemental Indenture"), each by and between the Authority and Wells Fargo Bank, N.A., as trustee (the "Trustee"). The proceeds of the Bonds will be used to pay (i) a portion of the costs of the Authority's DC Clean Rivers Project, (ii) a portion of the costs of certain other capital improvements to the System and (iii) pay costs of issuing the Bonds. Capitalized terms not otherwise defined herein shall have the meanings ascribed thereto in the Purchase Agreement.

In that connection, we have reviewed the Indenture, the Preliminary Official Statement of the Authority dated \_\_\_\_\_, 2019 (the "Preliminary Official Statement") and the Official Statement of the Authority, dated \_\_\_\_\_, 2019, with respect to the Bonds (the "Official Statement"), the Continuing Disclosure Agreement, dated \_\_\_\_\_, 2019 (the "Continuing Disclosure Agreement"), the Purchase Agreement, certificates of the Authority, the Trustee and others, the opinions referred to in paragraph 10(f)(vi) of the Purchase Agreement, and such records and documents, and we have made such investigations of law, as we have deemed appropriate as a basis for the opinions and conclusions hereinafter expressed. We do not assume any responsibility for any electronic version of the Official Statement and assume that any such version is identical in all material respects to the printed version.

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\* Preliminary, subject to change.

In arriving at the opinions and conclusions hereinafter expressed, we are not expressing any opinion or view on, and with your permission are assuming and relying on, the validity, accuracy and sufficiency of the records, documents, certificates and opinions referred to above, including the accuracy of all factual matters represented and legal conclusions contained therein, including (without limitation) any representations and legal conclusions regarding the due authorization, issuance, delivery, validity and enforceability of the Bonds, and any laws, documents and instruments that may be related to the issuance, payment or security of the Bonds. We have assumed that all records, documents, certificates and opinions that we have reviewed, and the signatures thereto, are genuine.

Based on and subject to the foregoing, and in reliance thereon, as of the date hereof, we are of the following opinions or conclusions:

1. The Bonds are not subject to the registration requirements of the Securities Act of 1933, as amended, and the Indenture is exempt from qualification pursuant to the Trust Indenture Act of 1939, as amended.

2. We are not passing upon and do not assume any responsibility for the accuracy, completeness or fairness of any of the statements contained in the Preliminary Official Statement and the Official Statement and make no representation that we have independently verified the accuracy, completeness or fairness of any such statements. In our capacity as your counsel, to assist you with your responsibility with respect to the Preliminary Official Statement and the Official Statement, we participated in conferences with your representatives and representatives of the Authority, Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, as co-bond counsel and as co-disclosure counsel, financial advisors, feasibility consultants and others, during which the contents of the Official Statement and related matters were discussed. Based on our participation in the above-mentioned conferences (which did not extend beyond the date of the Official Statement), and in reliance thereon, on oral and written statements and representations of the Authority and others and on the records, documents, certificates, opinions and matters herein mentioned (as set forth above), we advise you as a matter of fact and not opinion that, during the course of our representation of you on this matter, no facts came to the attention of the attorneys in our firm rendering legal services to you in connection with the Preliminary Official Statement and the Official Statement which caused us to believe that the Preliminary Official Statement and the Official Statement as of their dates and as of the date hereof (except for any CUSIP numbers, financial, accounting, statistical or economic, engineering or demographic data or forecasts, numbers, charts, tables, graphs, estimates, projections, assumptions or expressions of opinion, any information about litigation to which the Authority is a party, any management discussion and analysis, Appendices to the Preliminary Official Statement and the Official Statement, or any information about book-entry, DTC, ratings, rating agencies, and tax exemption of the Bonds, which we expressly exclude from the scope of this paragraph and as to which we express no opinion or view) contained or contains any untrue statement of a material fact or omitted or omits to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. No responsibility is undertaken or view expressed with respect to any other disclosure document, materials or activity, or as to any information from another document or



source referred to by or incorporated by reference in the Preliminary Official Statement and the Official Statement.

3. In our opinion, the Continuing Disclosure Agreement with respect to the Bonds for the benefit of the holders thereof, satisfies in all material respects the requirements for such an agreement in paragraph (b) (5) of the Rule 15c2-12; provided that, for purposes of this opinion, we are not expressing any view regarding the content of the Official Statement that is not expressly stated in numbered paragraph 2 of this letter.

We are furnishing this letter to you pursuant to paragraph 10(f)(vi) of the Purchase Agreement solely for your benefit as the Underwriter. We disclaim any obligation to update this letter. This letter is not to be used, circulated, quoted or otherwise referred to or relied upon for any other purpose or by any other person. This letter is not intended to, and may not, be relied upon by owners of Bonds or by any other party to whom it is not specifically addressed.

Very truly yours,

EXHIBIT D

FORM OF UNDERWRITERS' CERTIFICATE

\$100,000,000\*

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C

UNDERWRITERS' CERTIFICATE

\_\_\_\_\_, 2019

JP Morgan Securities LLC ("JP Morgan"), for itself and as representative of the other underwriters for the bonds identified above (the "Issue"), issued by the District of Columbia Water and Sewer Authority (the "Issuer"), based on its knowledge regarding the sale of the Issue, certifies as of this date as follows:

**1. Issue Price.**

**[If the issue price is determined using only the general rule (actual sales of at least 10%) in Regulations § 1.148-1(f)(2)(i) and at least 10% of each maturity has been sold as of the Closing Date:**

1.1 As of the date of this certificate, for each Maturity of the Issue, the first price at which at least 10% of such Maturity of the Issue was sold to the Public is the respective price listed in the final Official Statement, dated \_\_\_\_\_, 2019 for the Issue (the "Sale Price" as applicable to respective Maturities). The aggregate of the Sale Prices of each Maturity is \$\_\_\_\_\_ (the "Issue Price").]

**[If the issue price is determined using only the general rule (actual sales of at least 10%) in Regulations § 1.148-1(f)(2)(i) and at least 10% of each maturity has not been sold as of the Closing Date:**

1.1 As of the date of this Certificate, for each [Maturity] [of the \_\_\_\_\_ Maturities] of the Issue, the first price at which at least 10% of [each] such Maturity of the Issue was sold to the Public (the "10% Test") are the respective prices listed in **Schedule A** attached hereto.

1.2 With respect to each of the \_\_\_\_\_ Maturities of the Issue:

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\* Preliminary, subject to change.

(i) As of the date of this Certificate, the Underwriter has not sold at least 10% of these Maturities of the Issue at any single price.

(ii) As of the date of this Certificate, the JP Morgan reasonably expects that the price at which at least 10% of each of these Maturities of the Issue will be sold to the Public will be the respective price or prices listed on the attached **Schedule A** as the “Reasonably Expected Sale Prices for Undersold Maturities.”

(iii) JP Morgan will provide actual sales information (substantially similar to the information contained on **Schedule B**) as to the price at which at least 10% of each such Maturity (i.e., the Undersold Maturity or Maturities) of the Issue is sold to the Public.

(iv) On the date the 10% Test is satisfied with respect to all Maturities of the Issue, JP Morgan will execute a supplemental certificate substantially in the form attached hereto as **Schedule C** with respect to any Maturities for which the 10% Test has not been satisfied as of the Closing Date.\*\*]

**[If the issue price is determined using a combination of actual sales (Regulations § 1.148-1(f)(2)(i)) and hold-the-offering-price (Regulations § 1.148-1(f)(2)(ii)):**

1.1 As of the date of this certificate, for each Maturity of the Issue listed on Schedule A as the “General Rule Maturities,” the first price at which at least 10% of such Maturity was sold to the Public is the respective price listed in Schedule A (the “Sale Price” as applicable to each Maturity of the General Rule Maturities).

1.2 The Underwriter offered the Maturities listed on Schedule A as the “Hold-the-Offering-Price Maturities” to the Public for purchase at the respective initial offering prices listed in Schedule A (the “Initial Offering Prices” as applicable to each Maturity of the Hold-the-Offering-Price Maturities) on or before the Sale Date. A copy of the pricing wire or equivalent communication for the Issue is attached to this certificate as Schedule B.

1.3 As set forth in the Bond Purchase Agreement dated \_\_\_\_\_, 2019, between the Authority and Underwriter, the Underwriter agreed in writing that, (i) for each Maturity of the Hold-the-Offering-Price Maturities, it would neither offer nor sell any of the Issue of such Maturity to any person at a price that is higher than the Initial Offering Price for such Maturity during the Holding Period for such Maturity (the “hold-the-offering-price rule”), and (ii) any selling group agreement contains the agreement of each dealer who is a member of the selling group, and any retail distribution agreement contains the agreement of each broker-dealer who is a party to the retail distribution agreement, to comply with the hold-the-offering-price rule. The Underwriter has not offered or sold any Maturity of the Hold-the-Offering-Price Maturities at a price that is higher than the respective Initial Offering Price for that Maturity of the Issue during the Holding Period.

The aggregate of the Sale Prices of the General Rule Maturities and the Initial Offering Prices of the Hold-the-Offering-Price Maturities is \$[\_\_\_\_\_] (the “Issue Price”).]

**[If the issue price is determined using only the hold-the-offering-price rule in Regulations § 1.148-1(f)(2)(ii):**

1.1 As set forth in the Bond Purchase Agreement dated \_\_\_\_\_, 2019, between the Authority and the Underwriter, the Underwriter agreed in writing that, (i) for each Maturity of the Issue, it would neither offer nor sell any of such Maturity of the Issue to any person at a price that is higher than the Initial Offering Price for such Maturity during the Holding Period for such Maturity (the “hold-the-offering-price rule”), and (ii) any selling group agreement contains the agreement of each dealer who is a member of the selling group, and any retail distribution agreement contains the agreement of each broker-dealer who is a party to the retail distribution agreement, to comply with the hold-the-offering-price rule. The Underwriter has not offered or sold any Maturity of the Issue at a price that is higher than the respective Initial Offering Price for that Maturity of the Issue during the Holding Period.]

[1.2, 1.3, 1.4, 1.2] Definitions. [NOTE: If issue price is determined using only the general rule (actual sales of 10%), delete the definitions of “Holding Period” and “Sale Date.”]

[“Holding Period” means, for each Hold-the-Offering-Price Maturity of the Issue, the period starting on the Sale Date and ending on the earlier of (i) the close of the fifth business day after the Sale Date (\_\_\_\_\_, 2019), or (ii) the date on which the Underwriter sold at least 10% of such Maturity of the Issue to the Public at prices that are no higher than the Initial Offering Price for such Maturity.]

“Maturity” means bonds of the Issue with the same credit and payment terms. Bonds of the Issue with different maturity dates, or bonds of the Issue with the same maturity date but different stated interest rates, are treated as separate Maturities.

“Public” means any person (including an individual, trust, estate, partnership, association, company, or corporation) other than an Underwriter or a related party to an Underwriter. The term “related party” for purposes of this certificate generally means any two or more persons who have greater than 50 percent common ownership, directly or indirectly.

[“Sale Date” means the first day on which there is a binding contract in writing for the sale of a Maturity of the Issue. The Sale Date of the Issue is \_\_\_\_\_, 2019.]

“Underwriter” means (i) any person that agrees pursuant to a written contract with the Authority (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Issue to the Public, and (ii) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (i) of this paragraph to participate in the initial sale of the Issue to the Public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Issue to the Public).

All capitalized terms not defined in this Certificate have the meaning set forth in the Authority’s Tax Compliance Certificate or in Attachment A to it.

**[2. Reserve Fund.**

The funding of the Reserve Fund as provided in the Trust Agreement securing the Issue is reasonably required, was a vital factor in marketing the Issue, facilitated the marketing of the Issue at an interest rate comparable to that of bonds and other obligations of a similar type and is not in excess of the amount necessary for such purpose.]

**[3. Yield.**

**3.1** The Yield on the Issue is \_\_\_\_\_%, being the discount rate that, when used in computing the present worth of all payments of principal and interest to be paid on the Issue, computed on the basis of a 360-day year and semi-annual compounding, produces an amount equal to the Issue Price of the Issue as stated in paragraph 1.1 [and computed with the adjustments stated in paragraphs 3.2 and 4.3].

**3.2 Discount Bonds Subject to Mandatory Early Redemption.** [No bond of the Issue that is subject to mandatory early redemption has a stated redemption price that exceeds the Initial Offering Price of such bond by more than one-fourth of 1% multiplied by the product of its stated redemption price at maturity and the number of years to its weighted average maturity date.] [Or] [The stated redemption price at maturity of the bonds of the Issue maturing in the year[s] 20\_\_, which are the only bonds of the Issue that are subject to mandatory early redemption, exceeds the Initial Offering Price of such bonds by more than one-fourth of 1% multiplied by the product of the stated redemption price at maturity and the number of years to the weighted average maturity date of such bonds. Accordingly, in computing the Yield on the Issue stated in paragraph 3.1, those bonds were treated as redeemed on each mandatory early redemption date at their present value rather than at their stated principal amount.]

**3.3 Premium Bonds Subject to Optional Redemption.** No bond of the Issue:

- Is subject to optional redemption within five years of the Issuance Date of the Issue.
- That is subject to optional redemption has an Initial Offering Price that exceeds its stated redemption price at maturity by more than one-fourth of 1% multiplied by the product of its stated redemption price at maturity and the number of complete years to its first optional redemption date.]]

**[4. Weighted Average Maturity.**

The weighted average maturity (defined below) of the Issue is \_\_\_\_\_ years [For refunding issues: and the remaining weighted average maturity of the Refunded Bonds is \_\_\_\_\_ years. The weighted average maturity of an issue is equal to the sum of the products of the Initial Offering Price of each maturity of the issue and the number of years to the maturity date of the respective maturity (taking into account mandatory but not optional redemptions), divided by the Initial Offering Price of the entire Issue. ]

**5. Underwriter's Discount.** The Underwriter's discount is \$\_\_\_\_\_, being the amount by which the aggregate Issue Price (as set forth in paragraph 1.1) exceeds the price paid by JP Morgan to the Authority for the Issue.

The signer is an officer of JP Morgan and duly authorized to execute and deliver this Certificate of the Underwriter for itself. JP Morgan understands that the certifications contained in this Certificate will be relied on by the Issuer in making certain of its representations in its Tax Compliance Certificate and in completing and filing the Information Return for the Issue, and by Squire Patton Boggs (US) LLP and Parker Poe Adams & Bernstein LLP, as co-bond counsel ("Bond Counsel"), in rendering certain of their legal opinions in connection with the issuance of the Issue.

JP Morgan has performed these calculations with the express understanding and agreement of Bond Counsel and the Issuer that, notwithstanding the performance of these calculations and the delivery of this certificate: (i) in doing so we are not acting as Municipal Advisor (as defined in Section 15 of the Securities Exchange Act), (ii) we do not have a fiduciary duty to the Issuer, and (iii) we are not to be construed as a "paid preparer" of any tax returns of the Issuer, including specifically (but not limited to) Form 8038-G.

Notwithstanding the foregoing, JP Morgan reminds you that we are not accountants or actuaries, nor are we engaged in the practice of law. Accordingly, while we believe the calculations described above to be correct, we do not warrant them to be so, nor do we warrant their validity for purposes of Sections 103 and 141 through 150 of the Code.

The representations set forth in this certificate are limited to factual matters only. Nothing in this certificate represents JP Morgan's interpretation of any laws, including specifically Sections 103 and 148 of the Code and the Treasury Regulations thereunder.

Dated: \_\_\_\_\_, 2019

By: JP MORGAN SECURITIES LLC,  
as the Underwriter

**[NOTE: If the general rule is used for each Maturity** (i.e., actual sales of at least 10% of each Maturity) and at least 10% of each Maturity has been sold as of the Closing, there is no schedule to attach if the initial offering prices set forth in the Official Statement for the Issue are the first prices at which at least 10% of each Maturity is sold. Otherwise, attach a schedule that shows the first price at which at least 10% of each Maturity was sold.]

**[OR]**

**[If the issue price is determined using a combination of the general rule (actual sales) and hold-the-offering-price rule:**

**SCHEDULE A**  
**SALE PRICES OF THE GENERAL RULE MATURITIES AND**  
**INITIAL OFFERING PRICES OF THE HOLD-THE-OFFERING-PRICE MATURITIES**  
*(Attached)*

**[NOTE:** With respect to each Maturity of the Issue, Schedule A should include each Maturity's (i) maturity date, (ii) principal amount, (iii) coupon, (iv) yield, and (v) the sale prices/initial offering prices (as applicable).]

**SCHEDULE B**  
**PRICING WIRE OR EQUIVALENT COMMUNICATION**  
*(Attached)*

**[OR]**

**[If the issue price is determined using only the hold-the-offering-price rule in Regulations § 1.148-1(f)(2)(ii):**

**SCHEDULE A**  
**INITIAL OFFERING PRICES OF THE ISSUE**  
*(Attached)*

**SCHEDULE B**  
**PRICING WIRE OR EQUIVALENT COMMUNICATION**  
*(Attached)*

**[OR]**

**If the issue price is determined using only the general rule (actual sales of at least 10%) in Regulations § 1.148-1(f)(2)(i) and at least 10% of each maturity has not been sold as of the Closing Date:**

SCHEDULE A  
TO  
ISSUE PRICE CERTIFICATE

**Actual Sales Information as of Closing Date**

<b><u>Maturity/CUSIP</u></b>	<b><u>Coupon</u></b>	<b><u>Date Sold</u></b>	<b><u>Time Sold</u></b>	<b><u>Par Amount</u></b>	<b><u>Sale Price</u></b>
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**]\*\*Reasonably Expected Sales Prices for Undersold Maturities as of Closing Date**

<b><u>Maturity/CUSIP</u></b>	<b><u>Coupon</u></b>	<b><u>Par Amount</u></b>	<b><u>Offering Prices</u></b>
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[\*\*SCHEDULE B  
TO  
ISSUE PRICE CERTIFICATE

**Actual Sales for Undersold Maturities as of the Closing Date**

<b><u>Maturity/CUSIP</u></b>	<b><u>Date Sold</u></b>	<b><u>Time Sold</u></b>	<b><u>Par Amount</u></b>	<b><u>Sale Price</u></b>
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M&A draft dated 8/28/19

REMARKETING AGREEMENT

Between

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

Issuer

and

**J.P. MORGAN SECURITIES LLC**

Remarketing Agent

Dated \_\_\_\_\_, 2019

Relating to

\$75,000,000 Public Utility Subordinate Lien Multimodal Revenue Bonds, Subseries 2019C

\_\_\_\_\_  
\_\_\_\_\_

This REMARKETING AGREEMENT (the “Agreement”), dated \_\_\_\_\_, 2019 (the “Closing Date”), between the DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY (the “Issuer” or the “Authority”) and J.P. MORGAN SECURITIES LLC (“JP Morgan” or the “Remarketing Agent”).

W I T N E S S E T H:

WHEREAS, the Issuer has issued \$75,000,000 aggregate principal amount of the District of Columbia Water and Sewer Authority Public Utility Subordinate Lien Multimodal Revenue Bonds, Subseries 2019C (the “Bonds”) under and pursuant to provisions of the laws of the United States of America and the District of Columbia (the “District”), including particularly, an act of the Council of the District entitled the “Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996,” as amended, codified at District of Columbia Official Code Sections 34-2201.01 *et seq.*, and the acts amendatory thereof and supplemental thereto, and an act of the United States Congress entitled the “District of Columbia Water and Sewer Authority Act of 1996” (Public Law 104-184), as amended, and all proceedings necessary to authorize and provide for the issuance of the Bonds, including a resolution adopted by the Board of Directors of the Authority, dated July \_\_, 2019 (the “Resolution”), and the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), between the Authority and Wells Fargo Bank, N.A., as trustee (the “Trustee”), as amended and supplemented, including by the Twenty-Fifth Supplemental Indenture of Trust, dated as of the Closing Date (the “Twenty-Fifth Supplemental Indenture,” and together with the Master Indenture as previously amended and supplemented, the “Indenture”);

WHEREAS, the Bonds and the Indenture provide among other things, that the owners of the Bonds (the “Owners”), may elect (or may be required) in certain instances to tender their Bonds for purchase upon the terms and conditions contained in the Bonds and the Indenture;

WHEREAS, the Indenture provides for the appointment of a remarketing agent to perform certain duties, including the use of its best efforts to remarket any Bonds tendered for purchase by the Owners; and

WHEREAS, JP Morgan has agreed to accept the duties and responsibilities of the remarketing agent under the Indenture and this Agreement;

NOW, THEREFORE, for and in consideration of the mutual covenants made herein and other valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

Section 1. Definitions. Unless otherwise defined herein, all capitalized terms shall have the meanings ascribed to them in the Indenture.

“MSRB” shall mean: the Municipal Securities Rulemaking Board.

“Rule G-34 Documents” shall mean: (i) the letter of credit agreement, reimbursement agreement, standby bond purchase agreement, loan agreement, guaranty agreement or any other document establishing an obligation to provide credit and/or liquidity support with respect to the Bonds; (ii) the Indenture, Resolution, or any other authorizing document under which the Bonds were issued; (iii) any amendments, extensions, renewals, replacements or terminations thereof; and (iv) any other document required to comply with MSRB Rule G-34(c), as it may be amended from time to time; and, in each case where required to be delivered, such delivery shall be by electronic means in a word-searchable PDF file (or in such other form as the Remarketing Agent shall notify the Issuer/Borrower in writing) labeled with the following information: (a) CUSIP number; (b) name of issuer; (c) name of transaction; (d) name of document; and (e) whether the document is an execution version or a redacted version.

“SHORT System” shall mean: the MSRB’s Short-term Obligation Rate Transparency System.

Section 2. Appointment of Remarketing Agent. Subject to the terms and conditions contained herein, the Issuer hereby appoints JP Morgan, as exclusive Remarketing Agent for the Bonds, and JP Morgan hereby accepts such appointment.

Section 3. Responsibilities of Remarketing Agent. Subject to the terms and conditions set forth in this Agreement, JP Morgan agrees to perform the duties of Remarketing Agent, with respect to the Bonds, set forth in the Indenture. It is understood that, in undertaking to perform such duties, and in the performance thereof, it is the intention of the parties that the Remarketing Agent will act solely as an agent and not as a principal except as expressly provided in Section 13. The Remarketing Agent shall not be liable for any action taken or omitted to be taken pursuant to this Agreement, except for its own gross negligence or willful misconduct.

(a) Determination of Interest Rates. The Remarketing Agent shall determine the interest rates on the Bonds in the manner and at the times specified therefor in the Indenture.

(b) Remarketing of Tendered Bonds.

(i) The Remarketing Agent shall use its best efforts to remarket Bonds to be purchased as described in the Indenture.

(ii) The Remarketing Agent

(A) will suspend its remarketing efforts upon the receipt of notice of the occurrence of an event of default under either the Indenture [or the Credit Facility (as defined in the Indenture)], which suspension will continue for so long as such event of default shall continue (the Remarketing Agent being under no obligation to determine when such event of default shall cease); and

(B) may suspend its remarketing efforts immediately upon the occurrence of any of the following events, which suspension will continue so long as the situation continues to exist:

(1) there shall hereafter be placed into effect a general suspension of trading on the New York Stock Exchange or minimum or maximum prices for trading shall have been fixed and be in force, or maximum ranges for prices for securities shall have been required and be in force on the New York Stock Exchange, whether by virtue of a determination by that Exchange or by order of the Securities and Exchange Commission or any other governmental authority having jurisdiction;

(2) a general moratorium on commercial banking activities in New York is declared by either federal or New York State authorities;

(3) there shall have occurred any new outbreak of hostilities or any material escalation in any present hostilities or other new national or international calamity, crisis or terrorist activity, the effect of such outbreak, escalation, calamity, crisis or terrorist activity on the financial markets of the United States being such, in the judgment of the Remarketing Agent, as to substantially adversely affect the marketability of the Bonds;

(4) legislation shall be introduced by committee, by amendment or otherwise, in, or be enacted by, the House of Representatives or the Senate of the Congress of the United States, or a decision by a court of the United States shall be rendered, or a stop order, ruling, regulation or official statement by, or on behalf of, the United States Securities and Exchange Commission or other governmental agency having jurisdiction of the subject matter shall be made or proposed, to the effect that the offering or sale of obligations of the general character of the Bonds, as contemplated hereby, is or would be in violation of any provision of the Securities Act of 1933, as amended (the "Securities Act") and as then in effect, or the Securities Exchange Act of 1934, as amended (the "Exchange Act") and as then in effect, or the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act") and as then in effect, or with the purpose or effect of otherwise prohibiting the offering or sale of obligations of the general character of the Bonds, or the Bonds, as contemplated hereby;

(5) any event shall occur or information shall become known, which, in the Remarketing Agent's reasonable opinion, makes untrue, incorrect or misleading in any material respect any statement or information contained in the disclosure documents provided to the Remarketing Agent in connection with the performance of its duties hereunder, whether provided pursuant to Section 5 or otherwise, or causes such documents to contain an untrue, incorrect or misleading statement of a material fact or to

omit to state a material fact required to be stated therein or necessary to make the statements made therein, in light of the circumstances under which they were made, not misleading;

(6) any governmental authority shall impose, as to the Bonds, or obligations of the general character of the Bonds, any material restrictions not now in force, or increase materially those now in force;

(7) any of the representations and warranties of the Issuer made hereunder shall not have been true and correct on the date made;

(8) the Issuer fails to observe any of the covenants or agreements made herein;

(9) any of the rating agencies then rating the Bonds [or the TD Bank, N.A. (the "Bank")] shall downgrade the ratings assigned to either the Bonds [or the Bank] so that the Bonds are not "Eligible Securities" as defined under Rule 2a-7 of the Investment Company Act of 1940, as amended;

(10) legislation shall have been enacted by the Congress of the United States, or shall have been reported out of committee of either body or be pending in committee of either body, or a decision shall have been rendered by a court of the United States, the Tax Court of the United States or a court of the District of Columbia, or a ruling shall have been made or a regulation or temporary regulation shall have been issued by the Treasury Department of the United States or the Internal Revenue Service or other federal authority, with respect to federal taxation upon revenues or other income of the general character to be derived by the Authority, or upon interest received on obligations of the general character of the Bonds, which, in the reasonable judgment of the Remarketing Agent, materially adversely affects the market for the Bonds;

(11) in the reasonable judgment of the Remarketing Agent, the market price or marketability of the Bonds or the ability of the Remarketing Agent to enforce contracts for the sale of Bonds shall have been materially adversely affected by an amendment of or supplement to the Official Statement, notwithstanding the Remarketing Agent's approval of such amendment or supplement prior to its distribution; or

(12) an actual or imminent default or a moratorium in respect of payment of any U.S. Treasury bills, bonds or notes the effect of which in either Remarketing Agent's judgment makes it

impractical to market the Bonds or to enforce contracts for the sale of the Bonds.

Section 4. Resignation and Removal of Remarketing Agent; Termination Events. The Remarketing Agent may at any time resign and be discharged of its duties and obligations hereunder upon providing the Trustee, the Issuer, the Tender Agent, and each Rating Agency with sixty (60) days' prior written notice. The Remarketing Agent may be removed at any time, at the direction of the Trustee, the Paying Agent, and the Issuer upon fifteen (15) days' prior written notice to the Remarketing Agent; provided, however, that no such resignation or removal shall be or become effective unless and until a successor Remarketing Agent shall have been appointed and accepted such appointment in accordance with the Indenture. Upon removal or resignation of the Remarketing Agent, the Issuer shall promptly cause the Paying Agent to give notice thereof by mail to all Bondholders and to any rating agency which has assigned a rating to the Bonds. The Remarketing Agent shall assign and deliver this Agreement to its successor, if any.

In addition to its ability to suspend its remarketing efforts as set forth above under Section 3(b)(ii)(B)(9), the Remarketing Agent may, upon notice to the Issuer, cease offering and selling the Bonds with immediate effect if any of the rating agencies then rating the Bonds [or the Bank] shall downgrade the ratings assigned to either the Bonds [or the Bank] so that the Bonds are not "Eligible Securities" as defined under Rule 2a-7 of the Investment Company Act of 1940, as amended. The Remarketing Agent shall also have the right to immediately terminate this Agreement if there is a down-rating below Baa3/BBB- or withdrawal of the rating on the Bonds.

Following termination, the provisions of Sections 6 and 7 hereof will continue in effect as to transactions prior to the date of termination, and each party will pay the other party any amounts owing at the time of termination.

Section 5. Disclosure Materials.

(a) General. If the Remarketing Agent determines that it is necessary or desirable to use an official statement or other disclosure document in connection with its remarketing of the Bonds, the Remarketing Agent will notify the Issuer which will provide the Remarketing Agent with a disclosure document in respect of the Bonds satisfactory to the Remarketing Agent and its counsel. The Issuer will supply the Remarketing Agent with such number of copies of the disclosure document as the Remarketing Agent requests from time to time and the Issuer will amend the document (and all documents incorporated by reference) so that at all times the document will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. In connection with the use of any disclosure document by the Remarketing Agent in its remarketing of the Bonds, the Issuer will furnish to the Remarketing Agent such certificates, accountants' letters and opinions of counsel as the Remarketing Agent reasonably requests.

(b) Compliance with Rule 15c2-12. In the event the Remarketing Agent is asked to remarket the Bonds in any situation which requires compliance with Rule 15c2-12 of the Exchange Act (the "Rule"),

(i) the Issuer will provide the Remarketing Agent with an official statement or other disclosure document in connection with its remarketing of the Bonds which the Issuer deems final as of its date (exclusive of pricing and other sales information), prior to the date the Remarketing Agent bids for, offers or sells any Bonds;

(ii) the Issuer will provide the Remarketing Agent with such number of copies of any official statement or other disclosure document prepared in connection therewith, as the Remarketing Agent may need to supply at least one copy thereof to each potential customer who requests it; and

(iii) the Issuer shall provide the Remarketing Agent within seven (7) Business Days after the interest rate is determined or by the time “money confirmations” are to be sent to customers, whichever is earlier, with a number of copies of the final official statement or other disclosure document adequate to provide at least one copy of such final official statement or disclosure document to any customer or any potential customer for a period commencing on the date such final official statement or disclosure document is available and extending for the underwriting period as defined in the Rule (the “Underwriting Period”) and, thereafter, for as long as may be required by the Rule. During the Underwriting Period, the Issuer agrees to update, by written supplement or amendment or otherwise, the final official statement or disclosure document such that at all times during such period the final official statement or disclosure document will not contain an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

Section 6. Fees and Expenses. For the Remarketing Agent's services under this Agreement and the Indenture, the Issuer will pay the Remarketing Agent an annual fee of \_\_\_ basis points (\_\_\_%) of the average aggregate principal amount of Bonds outstanding for the immediately preceding quarter. The Issuer will pay the fee quarterly in arrears commencing [January 1, 2020], and on each April 1, July 1, October 1 and January 1, thereafter. When Bonds are remarketed in connection with the conversion of the interest rate to a Term Rate or a Fixed Rate, the Issuer and the Remarketing Agent will agree on a fee.

The Issuer will pay all expenses of delivering remarketed Bonds and reimburse the Remarketing Agent for all direct, out-of-pocket expenses incurred by it as Remarketing Agent, including reasonable counsel fees and disbursements.

Section 7. Representations, Warranties, Covenants and Agreements of the Remarketing Agent. The Remarketing Agent, by its acceptance hereof, represents, warrants and covenants and agrees with the Issuer as follows:

(a) the Remarketing Agent is a member of the Financial Industry Regulatory Authority (FINRA), having a total capitalization of at least \$15,000,000, and otherwise meets the requirements for the Remarketing Agent set forth in the Indenture;

(b) the Remarketing Agent has been duly incorporated, is validly existing and is in good standing under the laws of the State of Delaware, and is authorized by law to



perform all the duties and obligations imposed upon it as Remarketing Agent by this Agreement and the Indenture; and

(c) the Remarketing Agent has full power and authority to take all actions required or permitted to be taken by the Remarketing Agent by or under, and to perform and observe the covenants and agreements on its part contained in, this Agreement and the Indenture.

Section 8. Representations, Warranties, Covenants and Agreements of the Issuer. The Issuer, by its acceptance hereof, represents, warrants, covenants, and agrees with the Remarketing Agent that:

(a) The Issuer is a duly organized and validly existing corporate body and independent authority of the District established under the laws of the United States and the District;

(b) it has full power and authority to take all actions required or permitted to be taken by the Issuer by or under, and to perform and observe the covenants and agreements on its part contained in, this Agreement and any other instrument or agreement relating thereto to which the Issuer is a party;

(c) it has, on or before the date hereof, duly taken all action necessary to be taken by it prior to such date to authorize (i) the execution, delivery and performance of this Agreement[, the Credit Facility] and any other instrument or agreement to which the Issuer is a party and which has been or will be executed in connection with the transactions contemplated by the foregoing documents; and (ii) the carrying out, giving effect to, consummation and performance of the transactions and obligations contemplated by the foregoing agreements and by the Official Statement; and

(d) it will promptly notify the Remarketing Agent by Electronic Means of any material adverse changes that may affect the remarketing of the Bonds or any fact or circumstance which may constitute, or with the passage of time will constitute, an event of default under the Indenture.

Section 9. Compliance with MSRB Rule G-34(c).

(a) The Issuer agrees that it shall provide the following to the Remarketing Agent to assist in complying with its obligations under MSRB Rule G-34(c):

(i) on the effective date of this Remarketing Agreement, a copy of each executed and currently effective Rule G-34 Document;

(ii) no later than ten (10) Business Days prior to the proposed date of any amendment, extension or renewal, replacement or termination of any of the then current Rule G-34 Documents, written notice that such document is proposed to be amended, extended, renewed, replaced or terminated, as the case may be, and the expected date of execution and delivery of such amendment, extension, renewal, replacement or termination, as the case may be;

(iii) within one (1) Business Day after the execution and delivery of any amendment, extension, renewal, replacement or termination, as the case may be, of any of the then current Rule G-34 Documents, a copy thereof; and

(iv) no later than three (3) Business Days after receiving a request from the Remarketing Agent for any Rule G-34 Document, a copy thereof.

In each instance that Rule G-34 Documents are delivered to the Remarketing Agent pursuant to this Section 10(a), the Issuer shall provide: (A) a clean final execution copy of each relevant document; and (B) in any such document where any redactions are made, (x) a redacted final execution copy of document, and (y) a file containing a list showing all redactions that have been made to such document.

(b) If the Issuer determines that any information in the Rule G-34 Documents is confidential or proprietary, the Issuer shall discuss such information and the potential redaction thereof with the Remarketing Agent and its counsel to ensure compliance with MSRB Rule G-34(c).

(c) In the event that the Issuer does not provide the Remarketing Agent with a copy of a document described in Section 10(a) above, the Issuer acknowledges that the Remarketing Agent may file a notice with the SHORT System that such document will not be provided at such times as specified by the MSRB and in the SHORT System users manual.

(d) The Issuer will, subject to the ADA, hold harmless the Remarketing Agent with respect to any confidential or proprietary information that is made public when the Remarketing Agent files the Rule G-34 Documents with the SHORT System.

(e) If there are any additional regulatory requirements, amendments or modifications to the securities laws with which the Remarketing Agent must comply, the Issuer shall take all steps reasonably requested by the Remarketing Agent or its counsel necessary to comply with such additional requirements.

(f) The Issuer shall reimburse the Remarketing Agent for any costs incurred in connection with compliance with MSRB Rule G-34(c) including, but not limited to, fees charged by trustees or other parties supplying missing documents.

Section 10. Term of Agreement. This Agreement shall become effective on the date hereof and shall continue in full force and effect until the payment in full of the Bonds or the earlier conversion of all Bonds to the [Fixed Rate Mode], subject to the right of termination as provided herein.

Section 11. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the District applicable to agreements made and to be performed in the District. The parties all agree that all actions and proceedings arising out of this Agreement or any of the transactions contemplated hereby shall be brought exclusively in the District and, in connection with any such action or proceeding, submit to the exclusive jurisdiction of, and venue in, federal or state courts located in the District.

Section 12. Dealing in Bonds by the Remarketing Agent.

(a) The Remarketing Agent, in its individual capacity, may in good faith buy, sell, own, hold and deal in any of the Bonds, including, without limitation, any Bonds offered and sold by the Remarketing Agent pursuant to this Agreement, and may join in any action which any Owner may be entitled to take with like effect as if it did not act in any capacity hereunder. The Remarketing Agent may sell any of such Bonds at prices above or below par, at any time. The Remarketing Agent, in its individual capacity, either as principal or agent, may also engage in or be interested in any financial or other transaction with the Issuer and may act as depository, trustee, or agent for any committee or body of Owners or other obligations of the Issuer as freely as if it did not act in any capacity hereunder.

(b) Nothing in this Agreement shall be deemed to constitute the Remarketing Agent an underwriter of the Bonds or to obligate the Remarketing Agent to purchase any Bonds at any time.

(c) The Issuer acknowledges and agrees that: (i) the Remarketing Agent has been engaged to remarket the Bonds hereunder and that the transactions contemplated by this Agreement are arm's length, commercial transactions between the Issuer and the Remarketing Agent is not acting as a municipal advisor, financial advisor or fiduciary to the Issuer and that the Remarketing Agent has financial and other interests that differ from those of the Issuer; (ii) the Remarketing Agent has not assumed any advisory or fiduciary responsibility to the Issuer with respect to the transactions contemplated hereby and the discussions, undertakings and procedures leading thereto (irrespective of whether the Remarketing Agent has provided other services or is currently providing other services to the Issuer on other matters); (iii) the only obligations the Remarketing Agent has to the Issuer with respect to the transactions contemplated hereby expressly are set forth in this Agreement; and (iv) the Issuer has consulted its own legal, accounting, tax, financial and other advisors, as applicable, to the extent it has deemed appropriate. If the Issuer would like a municipal advisor in this transaction that has legal fiduciary duties to the Issuer, then the Issuer is free to engage a municipal advisor to serve in that capacity.

Section 13. Intention of Parties. It is the express intention of the parties hereto that any purchase, sale or transfer of any Bonds, as herein provided, shall not constitute or be construed to be the extinguishment of any Bonds or the indebtedness represented thereby or the reissuance of any Bonds.

Section 14. Waiver of Trial by Jury. Each of the parties hereto also irrevocably waives all right to trial by jury in any action, proceeding or counterclaim arising out of this Agreement or the transactions contemplated hereby.

Section 15. Miscellaneous.

(a) Except as otherwise specifically provided in this Agreement, all notices, demands and formal actions under this Agreement shall be in writing and either (i) hand-delivered, (ii) sent by electronic means, or (iii) mailed by registered or certified mail, return receipt requested, postage prepaid, to:

The Remarketing Agent:

JP Morgan,

\_\_ Floor  
New York, New York 100\_\_

Attention: Municipal Markets Department  
Telephone:  
Telecopy:  
Email:

The Issuer: District of Columbia Water and Sewer Authority  
1385 Canal Street S.E.  
Washington, D.C. 20003  
Attention: Chief Financial Officer and Executive  
Vice President Finance and Procurement  
Telephone: 202-787-2000  
Telecopy: 202-787-2333

Tender Agent and  
Trustee: Wells Fargo Bank, N.A.  
Corporate Municipal and Escrow Solutions  
9062 Old Annapolis Road  
MAC: R1204-010  
Columbia, Maryland 21045  
Attention: Corporate Municipal and Escrow Solutions  
Telephone: 410-884-2007  
Telecopy: 410-367-2888

The Remarketing Agent, the Issuer, the Trustee, the Tender Agent and the Bank may, by notice given under this Agreement, designate other addresses to which subsequent notices, requests, reports or other communications shall be directed.

(b) This Agreement shall inure to the benefit of and be binding only upon the parties hereto and their respective successors and assigns. The terms “successors” and “assigns” shall not include any purchase of any of the Bonds merely because of such purchase. Neither the Bank nor any Owner or other third party shall have any rights or privileges hereunder.

(c) All of the representations and warranties of the Issuer and the Remarketing Agent in this Agreement shall remain operative and in full force and effect, regardless of (i) any investigation made by or on behalf of the Remarketing Agent or the Issuer, (ii) the offering and sale of and any payment for any Bonds hereunder or (iii) the termination or cancellation of this Agreement.

(d) This Agreement and each provision hereof may be amended, changed, waived, discharged or terminated only by an instrument in writing signed by the parties hereto.

(e) Nothing herein shall be construed to make any party an employee of the other or to establish any fiduciary relationship between the parties except as expressly provided herein.

(f) If any provision of this Agreement shall be held or deemed to be or shall, in fact, be invalid, inoperative or unenforceable for any reason, such circumstances shall not have the effect of rendering any other provision or provisions of this Agreement invalid, inoperative or unenforceable to any extent whatsoever.

(g) This Agreement may be executed in several counterparts, each of which shall be regarded as an original and all of which shall constitute one and the same document.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

By: \_\_\_\_\_  
Chief Financial Officer and Executive Vice President  
Finance and Procurement

J.P. MORGAN SECURITIES LLC

By: \_\_\_\_\_  
Managing Director

**SPB DRAFT: 8/24/19**

**TWENTY-FIFTH SUPPLEMENTAL INDENTURE OF TRUST**

**between**

**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**and**

**WELLS FARGO BANK, N.A.  
AS TRUSTEE**

**Dated November \_\_, 2019**

**THIS TWENTY-FIFTH SUPPLEMENTAL INDENTURE OF TRUST** dated the \_\_\_\_\_ day of November, 2019 (as defined in more detail below, the “**Twenty-Fifth Supplemental Indenture**”), by and between the District of Columbia Water and Sewer Authority (the “**Authority**”), an independent authority of the District of Columbia (the “**District**”), and Wells Fargo Bank, N.A., a national banking association, having a corporate trust office in Philadelphia, Pennsylvania, as trustee (in such capacity, together with any successor in such capacity, herein called the “**Trustee**”), provides:

**WHEREAS**, the Authority and the Trustee (its predecessor in that capacity having been Norwest Bank, N.A.) entered into the Master Indenture of Trust, dated as of April 1, 1998 (the “**Master Indenture**” and, as previously supplemented and amended by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture, the Twenty-Third Supplemental Indenture and the Twenty-Fourth Supplemental Indenture all as hereinafter defined, and as it may further be supplemented and amended in accordance with its terms, the “**Indenture**”), to provide for financing or refinancing the acquisition, construction, operation, maintenance and extension of the System (as defined in the Master Indenture) by the issuance of bonds, notes and other obligations payable solely from Net Revenues (as defined in the Master Indenture); and

**WHEREAS**, pursuant to the First Supplemental Indenture of Trust, dated as of April 1, 1998 (the “**First Supplemental Indenture**”), between the Authority and the Trustee, the Authority issued its \$266,120,000 Public Utility Revenue Bonds, Series 1998, dated as of April 1, 1998 (the “**Series 1998 Senior Lien Bonds**”), to finance Costs of the System (as defined in the Master Indenture) and to refund then outstanding debt of the Authority; and

**WHEREAS**, the Master Indenture permits the Authority, for certain purposes and subject to certain conditions, to issue Other System Indebtedness (as defined therein) secured on a parity with the Series 1998 Senior Lien Bonds and referred to collectively with the Series 1998 Senior Lien Bonds as “Senior Debt,” and also permits the Authority to issue Subordinate Debt (as defined therein), which has pledged to its payment Net Revenues as a subordinate lien pledge after the pledge of Net Revenues to Senior Debt; and

**WHEREAS**, pursuant to the Second Supplemental Indenture of Trust, dated as of November 1, 2001 (the “**Second Supplemental Indenture**”), between the Authority and the Trustee, the Authority amended and supplemented the Master Indenture in accordance with its terms to clarify provisions thereof related to certain forms of Indebtedness (as defined in the Master Indenture, i.e., Senior Debt and Subordinate Debt) and thereby facilitate the issuance of such forms of Indebtedness; and

**WHEREAS**, pursuant to the Third Supplemental Indenture of Trust, dated as of November 1, 2001 (the “**Third Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Commercial Paper Notes defined therein as the Series A-B Notes, (ii) designated the Series A-B Notes as Subordinate Debt for purposes of the Indenture, and (iii) made provision for the securing of the Series A-B Notes and of the Reimbursement Obligations to the Bank that provided the Letters of Credit (all as defined therein) that secure the Series A-B Notes; and

**WHEREAS**, pursuant to the Fourth Supplemental Indenture of Trust, dated August 12, 2003: (the “**Fourth Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Public Utility Subordinated Lien Revenue Bonds, Series 2003, dated August 12, 2003 (the “**Series 2003 Subordinated Bonds**”), in the aggregate principal amount of \$176,220,000 to finance certain Costs of the System and retire Series A-B Notes, (ii) designated the Series 2003 Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2003 Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Fifth Supplemental Indenture of Trust, dated August 3, 2004 (the “**Fifth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Bonds, Series 2004, as Subseries 2004A-1, Subseries 2004A-2, Subseries 2004B-1 and Subseries B-2 (collectively, the “**Series 2004 Subordinated Bonds**”) in the aggregate principal amount of \$295,000,000 to finance certain Costs of the System, (ii) designated the Series 2004 Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2004 Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Sixth Supplemental Indenture of Trust, dated June 6, 2007 (the “**Sixth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Bonds, Series 2007A, in the aggregate principal amount of \$218,715,000 to finance certain Costs of the System and retire Series A-B Notes, (ii) designated the Series 2007A Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2007A Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Seventh Supplemental Indenture of Trust, dated June 6, 2007 (the “**Seventh Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Taxable Revenue Bonds, Series 2007B, in the aggregate principal amount of \$59,000,000 to finance certain Costs of the System, (ii) designated the Series 2007B Subordinated Bonds as Subordinate Debt for purposes of the



Indenture, and (iii) secured the Series 2007B Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Eighth Supplemental Indenture of Trust, dated April 24, 2008 (the “**Eighth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinated Lien Revenue Refunding Bonds, Series 2008, in the aggregate principal amount of \$290,375,000 to (a) currently refund all of the outstanding Series 2004 Subordinated Bonds and a portion of the Series 2007B Subordinated Bonds, and (b) pay issuance costs of the Series 2008 Subordinated Bonds, (ii) designated the Series 2008 Subordinated Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2008 Subordinated Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Ninth Supplemental Indenture of Trust, dated December 19, 2008 (the “**Ninth Supplemental Indenture**”), between the Authority and the Trustee, the Authority agreed to confer on the Holders of the Series 2003 Subordinated Bonds additional rights related to the Reserve Credit Facility (as defined therein) and to cure any ambiguity or omission in the Indenture regarding the obligations of the Authority as a consequence of a downgrade of the Reserve Policy related to the Series 2003 Subordinated Bonds, or in the event that the Reserve Policy were to cease to be in effect; and

**WHEREAS**, pursuant to the Tenth Supplemental Indenture of Trust, dated February 12, 2009 (the “**Tenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Public Utility Senior Lien Revenue Bonds, Series 2009A, in the aggregate principal amount of \$300,000,000 to finance certain Costs of the System and retire Series A-B Notes, (ii) designated the Series 2009A Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (iii) secured the Series 2009A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures the other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Eleventh Supplemental Indenture of Trust, dated June 2, 2010 (the “**Eleventh Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Commercial Paper Notes defined therein as the Series A-B-C Notes, (ii) designated the Series A-B-C Notes as Subordinate Debt for purposes of the Indenture, and (iii) made provision for the securing of the Series A-B-C Notes and of the Reimbursement Obligations to the Bank that provided the Letters of Credit (all as defined therein) that secure the Series A-B-C Notes; and

**WHEREAS**, pursuant to the Twelfth Supplemental Indenture of Trust, dated October 27, 2010 (the “**Twelfth Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2010A (Federally Taxable – Issuer Subsidy – Build America Bonds) in the aggregate principal amount of

\$300,000,000 to finance certain Costs of the System, and fund capitalized interest on a portion of the Series 2010A Subordinate Bonds, subject to specified limitations, (ii) designated the Series 2010A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, (iii) secured the Series 2010A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, and (iv) included provisions in the Indenture related to potential Direct Payments (as defined therein) received or expected to be received by the Authority, including certain provisions requiring the consent of the holders of a majority of Outstanding Bonds; and

**WHEREAS**, pursuant to the Thirteenth Supplemental Indenture of Trust, dated March 22, 2012 (the “**Thirteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (A) (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2012A in the aggregate principal of \$177,430,000 to finance certain Costs of the System and pay certain costs of issuance, (ii) designated the Series 2012A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2012A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, (B) (i) issued its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2012B in the aggregate principal amount of \$100,000,000 to finance certain Costs of the System, fund capitalized interest on a portion of the Series 2012B Subordinate Bonds subject to specified limitations, and pay certain costs of issuance, (ii) designated the Series 2012B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2012B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, and (C) (i) issued its Public Utility Subordinate Lien Revenue Refunding Bonds, Series 2012C in the aggregate principal amount of \$163,215,000, and applied the proceeds thereof, together with any other funds of the Authority, to advance refund the Refunded Bonds (as defined in the Thirteenth Supplemental Indenture) and caused them to be deemed paid and no longer Outstanding for purposes of the Indenture, and paid certain costs of issuance, (ii) designated the Series 2012C Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2012C Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Fourteenth Supplemental Indenture of Trust, dated August 1, 2013 (the “**Fourteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2013A, in the aggregate principal amount of \$300,000,000 to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2013A Subordinate Bonds, (ii) designated the Series 2013A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the

Series 2013A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Fifteenth Supplemental Indenture of Trust, dated July 23, 2014 (the “**Fifteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority (i) issued its Public Utility Senior Lien Revenue Bonds, Series 2014A, in the aggregate principal amount of \$350,000,000 to finance certain Costs of the System, (ii) designated the Series 2014A Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (iii) secured the Series 2014A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures the other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Sixteenth Supplemental Indenture of Trust, dated July 23, 2014 (the “**Sixteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2014B, in the aggregate principal amount of \$100,000,000 (the “**Series 2014B Subordinate Bonds**”) to finance certain Costs of the System and pay certain costs of issuance, (ii) designated the Series 2014B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2014B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Seventeenth Supplemental Indenture of Trust, dated November 20, 2014 (the “**Seventeenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Refunding Bonds, Series 2014C, in the aggregate principal amount of \$377,700,000 (the “**Series 2014C Subordinate Bonds**”) to (a) advance refund all or a portion of the Authority’s outstanding Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, and the Series 2009A Senior Lien Bonds, and current refund all of the Authority’s outstanding Subseries 2012B-1 of the Series 2012 Subordinate Bonds, and (b) pay issuance costs of the Series 2014C Subordinate Bonds, (ii) designated the Series 2014C Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2014C Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Eighteenth Supplemental Indenture of Trust, dated October 15, 2015 (the “**Eighteenth Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2015A in the aggregate principal amount of \$100,000,000 (the “**Series 2015A Subordinate Bonds**”) to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2015A Subordinate Bonds, (ii) designated the Series 2015A Subordinate Bonds as Subordinate

Debt for purposes of the Indenture, (iii) secured the Series 2015A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, (iv) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2015B in an aggregate principal amount of \$250,000,000 (the “**Series 2015B Subordinate Bonds**” and, together with the Series 2015A Subordinate Bonds, the “**Series 2015A/B Subordinate Bonds**”) to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2015B Subordinate Bonds, (v) designated the Series 2015B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (vi) secured the Series 2015B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Nineteenth Supplemental Indenture of Trust, dated December 1, 2015 (the “**Nineteenth Supplemental Indenture**”) between the Trustee and the Authority, the Authority authorized (i) the issuance of its Extendable Municipal Commercial Paper Notes, Series A (the “**Series A EMCP Notes**”) in the aggregate principal amount of not to exceed \$100,000,000 outstanding at any time to finance certain Costs of the System, (ii) designated the Series A EMCP Notes as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series A EMCP Notes by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twentieth Supplemental Indenture of Trust, dated February 24, 2016 (the “**Twentieth Supplemental Indenture**”) between the Trustee and the Authority, the Authority (i) issued its Public Utility Subordinate Lien Revenue Refunding Bonds, Series 2016A in the aggregate principal amount of \$389,110,000 (the “**Series 2016A Subordinate Bonds**”) to (a) refund all or a portion of the Authority’s outstanding Series 2007A Subordinated Bonds, Series 2008A Subordinated Bonds, and Series 2009A Senior Lien Bonds, and (b) pay issuance costs of the Series 2016A Subordinate Bonds, (ii) designated the Series 2016A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2016A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-First Supplemental Indenture of Trust, dated September 29, 2016 (the “**Twenty-First Supplemental Indenture**”) between the Trustee and the Authority, the Authority (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2016B (Environmental Impact Bonds) in the aggregate principal amount of \$25,000,000 (the “**Series 2016B Subordinate Bonds**”) to (a) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project); and (b) pay certain costs of issuance, (ii) designated the Series 2016B Subordinate Bonds as Subordinate Debt, as Variable Rate Indebtedness and as Tender Indebtedness for purposes of the Indenture, and (iii) secured the

Series 2016B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-Second Supplemental Indenture of Trust, dated February 23, 2017 (the “**Twenty-Second Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Senior Lien Revenue Bonds, Series 2017A in the aggregate principal amount of \$100,000,000 (the “**Series 2017A Senior Lien Bonds**”) to (a) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (b) pay issuance costs of the Series 2017A Senior Lien Bonds, (ii) designated the Series 2017A Senior Lien Bonds as Senior Debt for purposes of the Indenture, (iii) secured the Series 2017A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future, (iv) issued its Public Utility Senior Lien Revenue Bonds, Series 2017B in an aggregate principal amount of \$200,000,000 (the “**Series 2017B Senior Lien Bonds**” and, together with the Series 2017A Senior Lien Bonds, the “**Series 2017A/B Senior Lien Bonds**”) to (a) finance certain Costs of the System, and (b) pay issuance costs of the Series 2017B Senior Lien Bonds, (v) designated the Series 2017B Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (vi) secured the Series 2017B Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-Third Supplemental Indenture of Trust, dated April 30, 2018 (the “**Twenty-Third Supplemental Indenture**”), between the Authority and the Trustee, the Authority: (i) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2018A in the aggregate principal amount of \$100,000,000 (the “**Series 2018A Senior Lien Bonds**”) to (a) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (b) pay issuance costs of the Series 2018A Senior Lien Bonds, (ii) designated the Series 2018A Senior Lien Bonds as Senior Debt for purposes of the Indenture, (iii) secured the Series 2018A Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future, (iv) issued its Public Utility Senior Lien Revenue Bonds, Series 2018B in an aggregate principal amount of \$200,000,000 (the “**Series 2018B Senior Lien Bonds**” and, together with the Series 2018A Senior Lien Bonds, the “**Series 2018A/B Senior Lien Bonds**”) to (a) finance certain Costs of the System, (b) pay issuance costs of the Series 2018B Senior Lien Bonds and (c) refund all of the Authority’s then outstanding Commercial paper Notes, Series B, (v) designated the Series 2018B Senior Lien Bonds as Senior Debt for purposes of the Indenture, and (vi) secured the Series 2018B Senior Lien Bonds by a pledge of Net Revenues on a parity with the pledge of Net Revenues that secures other Senior Debt, including, without limitation, other Senior Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, pursuant to the Twenty-Fourth Supplemental Indenture of Trust, dated \_\_\_\_\_, 2019 (the “**Twenty-Fourth Supplemental Indenture**”), between the Authority and

the Trustee, the Authority: (i)(a) issued its Public Utility Subordinate Lien Revenue Bonds, Series 2019A in the aggregate principal amount of \$\_\_\_\_\_ (the “**Series 2019A Subordinate Bonds**”) to (1) finance certain Costs of the System (specifically, a portion of the costs of the Authority’s DC Clean Rivers Project), and (2) pay issuance costs of the Series 2019A Subordinate Bonds, (b) designated the Series 2019A Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2019A Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future, and (ii)(a) issued its Public Utility Subordinate Revenue Bonds, Series 2019B in an aggregate principal amount of \$\_\_\_\_\_ (the “**Series 2019B Subordinate Bonds**”) and, together with the Series 2019A Subordinate Bonds, the “**Series 2019A/B Subordinate Bonds**”) to (1) finance certain Costs of the System, and (2) pay issuance costs of the Series 2019B Subordinate Bonds, (b) designated the Series 2019B Subordinate Bonds as Subordinate Debt for purposes of the Indenture, and (iii) secured the Series 2019B Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future; and

**WHEREAS**, the Authority now intends to: (i) issue Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C (the “**Series 2019C Subordinate Bonds**”), [fund a Series 2019C Debt Service Reserve Requirement], to finance certain Costs of the System and pay certain costs of issuance, (ii) designate the Series 2019C Subordinate Bonds as Subordinate Debt for purposes of the Indenture, (iii) secure the Series 2019C Subordinate Bonds by a pledge of Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, other Subordinate Debt that the Authority may issue from time to time in the future;

**NOW THEREFORE**, in consideration of the premises and the mutual covenants and agreements hereinafter contained, the parties hereto agree, as follows:

## ARTICLE I

### TWENTY-FIFTH SUPPLEMENTAL INDENTURE

#### **Section 101. Authorization of Twenty-Fifth Supplemental Indenture.**

This Twenty-Fifth Supplemental Indenture is authorized and executed by the Authority and delivered to the Trustee pursuant to and in accordance with Articles III and X of the Master Indenture. All terms, covenants, conditions and agreements of the Indenture shall apply with full force and effect to the Series 2019C Subordinate Bonds as Subordinate Debt and to the Holders thereof as Holders of Subordinate Debt, except as otherwise provided in this Twenty-Fifth Supplemental Indenture.

#### **Section 102. Definitions.**

Except as otherwise defined in this Twenty-Fifth Supplemental Indenture, capitalized words and terms defined in the Master Indenture as amended by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the Eighth Supplemental Indenture, the Ninth Supplemental Indenture, the Tenth Supplemental Indenture, the Eleventh Supplemental Indenture, the Twelfth Supplemental Indenture, the Thirteenth Supplemental Indenture, the Fourteenth Supplemental Indenture, the Fifteenth Supplemental Indenture, the Sixteenth Supplemental Indenture, the Seventeenth Supplemental Indenture, the Eighteenth Supplemental Indenture, the Nineteenth Supplemental Indenture, the Twentieth Supplemental Indenture, the Twenty-First Supplemental Indenture, the Twenty-Second Supplemental Indenture, the Twenty-Third Supplemental Indenture and the Twenty-Fourth Supplemental Indenture, and in the Series 2019C Resolution, are used in this Twenty-Fifth Supplemental Indenture with the meanings assigned to them therein. In addition, the following words and terms as used in this Twenty-Fifth Supplemental Indenture have the following meanings, unless the context or use clearly indicates another or different intent or meaning:

##### (a) Generally Applicable Definitions

“Book-entry form” or “book-entry system” means a form or system under which the physical Series 2019C Subordinate Bond certificates in fully registered form are issued only to a Depository or its nominee as Holder, with the certificated Series 2019C Subordinate Bonds held by and “immobilized” in the custody of the Depository, and the book-entry system, maintained by and the responsibility of the Depository and not maintained by or the responsibility of the Authority or the Trustee, is the record that identifies, and records the transfer of the interests of, the owners of beneficial, book-entry interests in the Series 2019C Subordinate Bonds.

“Depository” means any securities depository that is a clearing agency under federal law operating and maintaining, with its participants or otherwise, a book-entry system to record ownership of book-entry interests in Series 2019C Subordinate Bonds, and to effect transfers of book-entry interests in Series 2019C Subordinate Bonds, and includes and means initially The Depository Trust Company (a limited purpose trust company), New York, New York.

“Interest Payment Dates” means the “Interest Payment Dates” as defined under Section 102(b) below.

“Series 2019C Construction Account” means the Series 2019C Construction Account established by this Twenty-Fifth Supplemental Indenture in the Construction Fund.

“Series 2019C Costs of Issuance Subaccount” means the Series 2019C Costs of Issuance Subaccount established by this Twenty-Fifth Supplemental Indenture in the Series 2019C Construction Account of the Construction Fund.

“Series 2019C Rebate Fund” means the Series 2019C Rebate Fund established by this Twenty-Fifth Supplemental Indenture.

“Series 2019C Resolution” means Resolution No. \_\_\_\_\_, adopted by the Authority’s Board on \_\_\_\_\_, 2019, authorizing the Series 2019C Subordinate Bonds.

“Series 2019C Subordinate Bond Event of Default” means any of the events defined as such in Section 903 of this Twenty-Fifth Supplemental Indenture.

“Series 2019C Subordinate Bondholder” or “holder of Series 2019C Subordinate Bonds” means the registered owner of a Series 2019C Subordinate Bond.

“Series 2019C Subordinate Bonds Interest Subaccount” means the Series 2019C Subordinate Bonds Interest Subaccount established by this Twenty-Fifth Supplemental Indenture in the Subordinate Interest Account in the Subordinate Bond Fund.

“Series 2019C Subordinate Bonds Principal Subaccount” means the Series 2019C Subordinate Bonds Principal Subaccount established by this Twenty-Fifth Supplemental Indenture in the Subordinate Principal Account in the Subordinate Bond Fund.

“Series 2019C Subordinate Debt Service Reserve Requirement” means zero.

“Twenty-Fifth Supplemental Indenture” means this Twenty-Fifth Supplemental Indenture of Trust, dated November \_\_, 2019, between the Authority and the Trustee, which supplements and amends the Master Indenture, as previously supplemented and amended.

“Variable Rate Series 2019C Subordinate Bonds” means, collectively, each series or subseries of the Series 2019C Subordinate Bonds designated as such in the applicable Certificate of Award pursuant to the Series 2019C Resolution and constituting Variable Rate Indebtedness under the Indenture.

(b) Definitions Applicable to Variable Rate Series 2019C Subordinate Bonds

“Applicable Spread” means the number of basis points or schedule of basis points determined in accordance with Section 403(j) that, when added to the SIFMA Index or the LIBOR Index, as the case may be, would equal the minimum interest rate per annum that would enable the Remarketing Agent to sell the Variable Rate Series 2019C Subordinate Bonds on such



date at a price equal to the principal amount thereof (but subject to the provisions of the final sentence of Section 403(j)), plus accrued interest, if any, thereon.

“Authority Purchase Account” means the account of that name that may be established in the Purchase Fund pursuant to Section 407.

“Authorized Denominations” means (i) with respect to Fixed Rate Bonds, \$5,000 and integral multiples thereof, (ii) with respect to Daily Rate Bonds, Weekly Rate Bonds, Short-Term Rate Bonds and Long-Term Rate Bonds, \$100,000 and integral multiples of \$5,000 in excess thereof, and (iii) with respect to Index Rate Bonds, \$5,000 or \$100,000 and integral multiples thereof, as may be specified in writing by an Authorized Official.

“Authorized Officials” means the Chairman and Vice Chairman of the Board and the CEO and General Manager, Chief Financial Officer and Executive Vice President, Finance and Procurement, Controller, Budget Director, Finance Director and Rates and Revenue Director of the Authority, including any of the foregoing who are in an interim, acting or similar capacity.

“Business Day” means a day other than (i) a Saturday or Sunday, (ii) a day on which commercial banks located in New York, New York or the cities in which the Designated Office of the Trustee, the Tender Agent, the Remarketing Agent or the Credit Facility Provider are located, are required or authorized by law or executive order to close, and (iii) a day on which the New York Stock Exchange is closed.

“Calculation Agent” means any Person appointed by the Authority to serve as calculation agent for the Series 2019C Subordinate Bonds.

“Closing Date” means November \_\_, 2019, being the date of delivery of and payment for all of the Variable Rate Series 2019C Subordinate Bonds.

“Computation Date” means during any subsequent Index Rate Period, each Wednesday immediately preceding an Index Interest Period.

“Conversion Date” means a day on which the Variable Rate Series 2019C Subordinate Bonds are converted from one Rate Period to another Rate Period, in accordance with this Twenty-Fifth Supplemental Indenture.

“Credit Facility” means a letter of credit, liquidity facility or other credit enhancement instrument delivered by a Credit Facility Provider to the Trustee to secure the payment of the principal of and interest on, and any Purchase Price of, all or some of the Variable Rate Series 2019C Subordinate Bonds, or to provide liquidity for the purchase of tendered Variable Rate Series 2019C Subordinate Bonds. The term “Credit Facility” includes any Substitute Credit Facility. The Series 2019C Subordinate Bonds will not be secured by a Credit Facility during the Initial Period.

“Credit Facility Account” means the account by that name that may be established in the Subordinate Bond Fund pursuant to Section 701.

“Credit Facility Provider” means a bank, trust company, insurance company or other financial services company, or the Authority (if the Authority is providing liquidity for any Variable Rate Series 2019C Subordinate Bonds itself), issuing a Credit Facility then in effect in its capacity as provider of that Credit Facility.

“Credit Facility Provider Bonds” means Variable Rate Series 2019C Subordinate Bonds purchased by or on behalf of, or pledged to, a Credit Facility Provider pursuant to a Credit Facility and/or Reimbursement Agreement and the terms hereof but excluding Variable Rate Series 2019C Subordinate Bonds no longer considered Credit Facility Provider Bonds pursuant to the terms of a Credit Facility and/or Reimbursement Agreement.

“Credit Facility Provider Rate” means the interest rate(s) applicable from time to time on Credit Facility Provider Bonds as determined in accordance with the Credit Facility and/or Reimbursement Agreement; provided that no Credit Facility Provider Rate shall exceed the Maximum Rate.

“Credit Facility Purchase Account” means the account by that name that may be established in the Purchase Fund pursuant to Section 407.

“Credit Facility Request” means the submission by the Trustee to the Credit Facility Provider of a properly presented and conforming request or draw in accordance with the terms of the Credit Facility to provide funds to pay the Purchase Price of or Debt Service Charges on the Variable Rate Series 2019C Subordinate Bonds.

“Daily Interest Period” means each Interest Period described in Section 403(c) during which the Variable Rate Series 2019C Subordinate Bonds bear interest at a particular Daily Rate.

“Daily Rate” means the per annum interest rate for the Variable Rate Series 2019C Subordinate Bonds during a Daily Rate Period determined on a daily basis as provided in Section 403(c).

“Daily Rate Bonds” means Variable Rate Series 2019C Subordinate Bonds bearing interest at a Daily Rate.

“Daily Rate Period” means the Rate Period during which the Daily Rates are in effect for the Variable Rate Series 2019C Subordinate Bonds.

“Designated Office” means with respect to any entity performing functions under the Indenture, the office or offices of that entity or its affiliate at which those functions are performed, as designated in writing to the Authority, the Trustee, the Tender Agent, any Credit Facility Provider and the Remarketing Agent. The office initially designated by the Trustee for purposes of receiving notices under the Indenture is its Philadelphia, Pennsylvania corporate trust office located at 123 S. Broad Street, Suite 1500, MAC Y1379-157, Philadelphia, Pennsylvania 19109. The office initially designated by the Trustee for the purpose of presentation and surrender of Variable Rate Series 2019C Subordinate Bonds is its Minneapolis, Minnesota corporate trust operations office located at 600 South Fourth Street, 7th Floor, MAC N9300-070, Minneapolis, MN 55415. The Designated Office for any Credit Facility Provider is

the office at which Credit Facility Requests are to be submitted by the Trustee, in accordance with the Credit Facility.

“Electronic Means” means facsimile transmission, email transmission or other similar electronic means of communication providing evidence of transmission, including a telephone communication confirmed by any other method set forth in this definition.

“Eligible Account” means an account that is maintained with either (i) a federal or state-chartered depository institution or trust company that has a short-term debt rating assigned by a Rating Agency of at least A-2 (or, if it does not have a short-term debt rating, has a long-term debt rating assigned by the Rating Agency of at least BBB+); or (ii) the corporate trust department of a federal depository institution or state-chartered depository institution that, in either case, has corporate trust powers and is acting in its fiduciary capacity.

“Expiration Date” means, with respect to any Credit Facility, the date upon which the Credit Facility is stated to expire (taking into account any extensions of the Expiration Date) in accordance with its terms.

“Favorable Opinion of Bond Counsel” means an opinion of Bond Counsel addressed to the Authority, the Remarketing Agent, the Credit Facility Provider and the Trustee, to the effect that the proposed action to be taken regarding the Variable Rate Series 2019C Subordinate Bonds is authorized or permitted by this Twenty-Fifth Supplemental Indenture and will not adversely affect the exclusion of interest on the Variable Rate Series 2019C Subordinate Bonds from gross income for purposes of federal income taxation under Section 103 of the Code. If a Favorable Opinion of Bond Counsel is delivered in connection with the conversion from one Rate Period to another Rate Period, the opinion with respect to the exclusion of interest from gross income for federal income tax purposes may be limited to interest payable on or prior to the Conversion Date.

“Fixed Rate” means the interest rate or rates to maturity established in accordance with Section 403(g).

“Fixed Rate Bonds” means Variable Rate Series 2019C Subordinate Bonds bearing interest at a Fixed Rate.

“Fixed Rate Period” means the period of time, which shall end at the Maturity Date, during which the Variable Rate Series 2019C Subordinate Bonds bear interest at a Fixed Rate.

“Hard Tender Index Rate Bonds” means Index Rate Bonds that are specified in the applicable Notice of Conversion for any Subsequent Index Rate Period.

“Hard Tender Long-Term Rate Bonds” means Long-Term Rate Bonds designated as such in the applicable Notice of Conversion.

“Index Interest Period” means, during any Index Rate Period, each Interest Period during which the Variable Rate Series 2019C Subordinate Bonds bear interest at a particular Index Rate under Section 403(j) or (k).

“Index Rate” means the SIFMA Index Rate, the LIBOR Index Rate, or any other standardized rate index commonly utilized in municipal finance transactions as approved by the Authority’s Financial Advisor, as the case may be. If a rate index other than the SIFMA Index Rate or the LIBOR Index Rate is used, an Authorize Official of the Authority may execute an amendment to this Twenty-Fifth Supplemental Indenture to implement such additional rate index.

“Index Rate Bonds” means any Variable Rate Series 2019C Subordinate Bonds bearing interest at an Index Rate.

“Index Rate Bonds Purchase Date” means the date on which the Index Rate Bonds shall be required to be tendered for purchase in accordance with Section 408(a)(v).

“Index Rate Period” means any Rate Period during which the Variable Rate Series 2019C Subordinate Bonds bear interest at an Index Rate. For purposes of this definition, a [LIBOR Index Rate Period] and a SIFMA Index Rate Period shall be deemed to be different Index Rate Periods.

“Initial Period” means the initial Long-Term Rate Period commencing on the Issue Date and ending on the first to occur of (i) the Conversion Date next succeeding the Issue Date, or (ii) the Maturity Date.

“Interest Payment Date” means (i) when the Variable Rate Series 2019C Subordinate Bonds bear interest at a Daily Rate, a Weekly Rate or an Index Rate, the first Business Day of each calendar month; (ii) when the Variable Rate Series 2019C Subordinate Bonds bear interest at a Fixed Rate or Long-Term Rate, each April 1 and October 1 or such other date or dates as are specified in the applicable notice of conversion, commencing, during the Initial Period, on April 1, 2020; (iii) when the Variable Rate Series 2019C Subordinate Bonds bear interest at a Short-Term Rate, the last day of the Short-Term Rate Period; (iv) with respect to Credit Facility Provider Bonds, the interest payment dates set forth in the Credit Facility and/or Reimbursement Agreement; provided (unless otherwise provided in the Reimbursement Agreement with respect to Credit Facility Provider Bonds) that, if any such day is not a Business Day, any payment due on such date may be made on the next Business Day, without additional interest and with the same force and effect as if made on the specified date for such payment; and (v) each Conversion Date.

“Interest Period” means a (i) Daily Interest Period, (ii) a Weekly Interest Period, (iii) an Index Interest Period, (iv) a Short-Term Interest Period, (v) a Long-Term Interest Period, or (vi) a Fixed Interest Period.

“Issue Date” means November \_\_, 2019.

“LIBOR Index” means, for any day, the London interbank offered rate for U.S. dollar deposits for a one month period, as reported on Reuters Screen LIBOR01 Page or any successor thereto, which shall be that one-month LIBOR rate in effect two New York Banking Days prior to the LIBOR Index Reset Date, such rate rounded up to the nearest one-Twenty-Fifth of one percent and such rate to be reset monthly on each LIBOR Index Reset Date.

“LIBOR Index Rate” means a per annum rate of interest equal to the sum of the Applicable Spread plus the LIBOR Index.

“LIBOR Index Rate Period” means each Index Interest Period during which the Variable Rate Series 2019C Subordinate Bonds bear interest at the LIBOR Index Rate, from and including the Conversion Date to but excluding the earlier of (i) the immediately succeeding Index Rate Bonds Purchase Date and (ii) the maturity or redemption date of the Variable Rate Series 2019C Subordinate Bonds.

“LIBOR Index Reset Date” means the first Business Day of each month; provided, however, that with respect to determining the LIBOR Index for purposes of the Closing Date, the LIBOR Rate shall be the LIBOR Rate in effect two New York Banking Days prior to the Closing Date.

“Long-Term Interest Period” means each Interest Period described in Section 403(f) during which Variable Rate Series 2019C Subordinate Bonds accrue interest at a particular Long-Term Rate.

“Long-Term Rate” means the per annum interest rate to be determined on the Variable Rate Series 2019C Subordinate Bonds for a term of at least 12 months pursuant to Section 403(f).

“Long-Term Rate Bonds” means any Variable Rate Series 2019C Subordinate Bonds bearing interest at a Long-Term Rate.

“Long-Term Rate Period” means the Rate Period during which Long-Term Rates are in effect for the Variable Rate Series 2019C Subordinate Bonds.

“Mandatory Sinking Fund Redemption Requirements” means the mandatory redemption requirements set forth in Section 501(b).

“Maturity Dates” means, for the Variable Rate Series 2019C Subordinate Bonds October 1, 20\_\_, all subject to prior redemption as provided in Article V.

“Maximum Rate” means the least of (i) the maximum rate permitted by law, (ii) 12% per annum, and (iii) when a Credit Facility is in effect and solely with respect to Variable Rate Series 2019C Subordinate Bonds that are not Credit Facility Provider Bonds, the maximum rate utilized to determine the amount available under such Credit Facility.

“New York Banking Day” means any date (other than a Saturday or Sunday) on which commercial banks are open for business in New York, New York.

“Notice of Conversion” means any notice of conversion given by the Authority pursuant to Section 404(a)(i).

“Official’s Certificate” means a certificate signed by an Authorized Official.

“Participants” means those financial institutions for whom the Depository effects book-entry transfers and pledges of securities deposited with the Depository, as such listing of Participants exists at the time of such reference.

“Payment Date” means an Interest Payment Date or a Principal Payment Date.

“Payment Default” means a failure by the Authority to pay principal of or interest on Variable Rate Series 2019C Subordinate Bonds when due.

“Penalty Rate” means, for purposes of Section 407(e) with respect to (i) Soft Tender Index Rate Bonds and Soft Tender Long-Term Rate Bonds after they are tendered for purchase but not purchased, eight percent (8%) per annum, or (ii) Variable Rate Series 2019C Subordinate Bonds bearing interest at the Weekly Rate, Daily Rate, Short-Term Rate or Hard Tender Long-Term Rate Bonds with no Credit Facility in effect and funds are insufficient to purchase such Variable Rate Series 2019C Subordinate Bonds on a Purchase Date, the Maximum Rate.

“Prevailing Market Conditions” means, to the extent relevant (in the professional judgment of the Remarketing Agent) at the time of establishment of a rate or rates for Variable Rate Series 2019C Subordinate Bonds as provided in Section 403, (i) interest rates on comparable securities then being issued and traded, (ii) other financial market rates and indices that may have a bearing on rates of interest, (iii) general financial market conditions (including then current forward supply figures) that may have a bearing on rates of interest, and (iv) the financial condition, results of operation and credit standing of the Authority and the Credit Facility Provider to the extent such standing has a bearing on rates of interest.

“Principal Payment Date” means each date on which principal of a Variable Rate Series 2019C Subordinate Bond is due and payable, whether at maturity or upon redemption.

“Purchase Date” means each date on which Variable Rate Series 2019C Subordinate Bonds are subject to optional or mandatory purchase pursuant to Article IV.

“Purchase Fund” means the fund by that name established pursuant to Section 407 and held by the Tender Agent.

“Purchase Price” means, with respect to a Variable Rate Series 2019C Subordinate Bond subject to purchase on a Purchase Date, an amount equal to 100% of the principal amount thereof plus (if such Purchase Date is not an Interest Payment Date therefor) accrued and unpaid interest thereon to such Purchase Date.

“Rate Period” means (i) a Daily Rate Period (comprised of separate Daily Interest Periods), (ii) a Weekly Rate Period (comprised of separate Weekly Interest Periods), (iii) a Short-Term Rate Period (comprised of separate Short-Term Interest Periods), (iv) a Long-Term Rate Period (comprised of separate Long-Term Interest Periods), (v) a Fixed Rate Period, (vi) an Index Rate Period (comprised of separate Index Interest Periods) or (vii) a Subsequent Index Rate Period (comprised of separate Subsequent Index Interest Periods).

“Regular Record Date” means (i) with respect to each Interest Payment Date for Daily Rate Bonds, Weekly Rate Bonds, Index Rate Bonds or Short-Term Rate Bonds, the close of

business on the Business Day immediately preceding that Interest Payment Date, and (ii) with respect to each Interest Payment Date for Fixed Rate Bonds or Long-Term Rate Bonds, the close of business on the 15th day of the calendar month next preceding such Interest Payment Date.

“Reimbursement Agreement” means any reimbursement agreement (or standby bond purchase agreement) between the Authority and a Credit Facility Provider setting forth the obligations of the Authority to such Credit Facility Provider arising out of any payments under a Credit Facility and which provides that it shall be deemed to be a Reimbursement Agreement for the purpose of this Twenty-Fifth Supplemental Indenture.

“Reimbursement Obligations” means the Authority’s payment obligations pursuant to a Reimbursement Agreement.

“Remarketing Agent” means any Remarketing Agent designated for the Series 2019C Subordinate Bonds under this Twenty-Fifth Supplemental Indenture. J.P. Morgan Securities is the initial Remarketing Agent.

“Remarketing Agreement” means any Remarketing Agreement entered into for the Series 2019C Subordinate Bonds under this Twenty-Fifth Supplemental Indenture.

“Remarketing Proceeds Account” means the account of that name established in the Purchase Fund pursuant to Section 407.

“Short-Term Interest Period” means each Interest Period determined as provided in Section 403(e) during which the Variable Rate Series 2019C Subordinate Bonds bear interest at a particular Short-Term Rate.

“Short-Term Rate” means the per annum interest rate for the Variable Rate Series 2019C Subordinate Bonds during a Short-Term Rate Period determined on a periodic basis as provided in Section 403(e).

“Short-Term Rate Bonds” means any Variable Rate Series 2019C Subordinate Bonds bearing interest at a Short-Term Rate.

“Short-Term Rate Period” means the Rate Period during which Short-Term Rates are in effect for the Variable Rate Series 2019C Subordinate Bonds.

“SIFMA Index” means, for any Computation Date, the level of the index which is issued weekly and which is compiled from the weekly interest rate resets of tax-exempt variable rate issues included in a database maintained by Municipal Market Data which meet specific criteria established from time to time by the Securities Industry and Financial Markets Association and issued on Wednesday of each week, or if any Wednesday is not a Business Day, the next preceding Business Day. If the SIFMA Index is no longer published, then “SIFMA Index” shall mean the Standard & Poor’s Weekly High Grade Index. If the Standard & Poor’s Weekly High Grade Index is no longer published, then “SIFMA Index” shall mean the prevailing rate determined by the Calculation Agent for tax-exempt state and local government bonds meeting criteria determined in good faith by the Calculation Agent to be comparable under the circumstances to the criteria used by the Securities Industry and Financial Markets Association

to determine the SIFMA Index immediately prior to the date on which the Securities and Financial Markets Association ceased publication of the SIFMA Index.

“SIFMA Index Rate” means a per annum rate of interest equal to the sum of the Applicable Spread *plus* the relevant SIFMA Index.

“SIFMA Index Rate Period” means each Index Interest Period during which the Variable Rate Series 2019C Subordinate Bonds bear interest at the SIFMA Index Rate, from and including the Conversion Date to but excluding the earlier of (i) the immediately succeeding Index Rate Bonds Purchase Date and (ii) the maturity or redemption date of the Variable Rate Series 2019C Subordinate Bonds.

“SIFMA Index Reset Date” means Thursday of each week.

“Soft Tender Index Rate Bonds” means Index Rate Bonds that are designated as such in the applicable Notice of Conversion for any Subsequent Index Rate Period.

“Soft Tender Long-Term Rate Bonds” means Long-Term Rate Bonds designated as such in the Certificate of Award for purposes of the Initial Period or a Notice of Conversion.

“Subsequent Index Interest Period” means, during any Subsequent Rate Period, each period determined as provided in Section 403(j) during which the Variable Rate Series 2019C Subordinate Bonds bear interest at a particular Index Rate.

“Subsequent Index Rate Period” means any Rate Period during which the Variable Rate Series 2019C Subordinate Bonds bear interest at the Index Rate pursuant to Section 403(j).

“Substitute Credit Facility” means a letter of credit, standby bond purchase agreement or other similar agreement replacing a Credit Facility in accordance with Section 413.

“Substitution Date” means a date on which a Substitute Credit Facility is accepted by the Trustee and becomes effective with respect to the Variable Rate Series 2019C Subordinate Bonds, or a date on which an existing Credit Facility Provider assigns all or a portion of its rights and/or obligations to an assignee Credit Facility Provider (other than a participant), in each case, in accordance with Section 413(b).

“Tender Agent” means initially the Trustee, and any successor Tender Agent as determined or designated under or pursuant to this Twenty-Fifth Supplemental Indenture.

“Undelivered Bond” means any Variable Rate Series 2019C Subordinate Bond that is subject to purchase pursuant to Section 406 or 408 on a Purchase Date and that is not tendered and delivered for purchase on that Purchase Date but as to which the Tender Agent holds in the Purchase Fund sufficient funds to pay the Purchase Price of that Variable Rate Series 2019C Subordinate Bond.

“Undelivered Bond Payment Account” means the account by that name in the Purchase Fund established pursuant to Section 407.



“Voluntary Termination Date” means, with respect to any Credit Facility, the date chosen by the Authority on which the Credit Facility will terminate, as elected by the Authority.

“Weekly Interest Period” means each period described in Section 403(d) during which the Variable Rate Series 2019C Subordinate Bonds bear interest at a particular Weekly Rate.

“Weekly Rate” means the per annum interest rate for the Variable Rate Series 2019C Subordinate Bonds during a Weekly Interest Period determined on a weekly basis as provided in Section 403(d).

“Weekly Rate Bonds” means Variable Rate Series 2019C Subordinate Bonds bearing interest at a Weekly Rate.

“Weekly Rate Period” means the period during which Weekly Rates are in effect for the Variable Rate Series 2019C Subordinate Bonds.

“Written Request” means a request in writing signed by an Authorized Official.

**Section 103. Reference to Articles and Sections.**

Unless otherwise indicated, all references herein to particular articles or sections are references to articles or sections of this Twenty-Fifth Supplemental Indenture.

**ARTICLE II**

**AUTHORIZATION OF SERIES 2019C SUBORDINATE BONDS**

**Section 201. Authorization of Series 2019C Subordinate Bonds.**

Pursuant to Article III of the Master Indenture and, specifically, Section 305 thereof, and the Series 2019C Resolution, the Authority is authorized to issue its Series 2019C Subordinate Bonds in an aggregate principal amount of \$\_\_\_\_\_, designated “Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C,” issued for the purpose of: [(i) financing certain Costs of the System, and (ii) paying issuance costs of the Series 2019C Subordinate Bonds.]

The Series 2019C Subordinate Bonds are issued as Subordinate Debt pursuant to the Indenture. Under the Series 2019C Resolution, the Series 2019C Subordinate Bonds are designated in the Certificate of Award as Variable Rate Series 2019C Subordinate Bonds. The Series 2019C Subordinate Bonds will not be secured by a Credit Facility during the Initial Period.

### ARTICLE III

#### **Section 301. Delivery of Series 2019C Subordinate Bonds.**

The Trustee shall authenticate and deliver the Series 2019C Subordinate Bonds when there have been filed with or delivered to it the following items:

- (a) An original executed counterpart of this Twenty-Fifth Supplemental Indenture;
- (b) A certified copy of applicable resolution(s) of the Board of Directors of the Authority and related Certificate of Award: (i) authorizing the execution and delivery of the Twenty-Fifth Supplemental Indenture, and (ii) authorizing the issuance, sale, award, execution and delivery of the Series 2019C Subordinate Bonds.
- (c) A certificate signed by an Authorized Representative of the Authority and dated the date of such issuance, to the effect that:
  - (1) Either: (A) upon and immediately following such issuance, no Event of Default has occurred which has not been cured or waived, and no event or condition exists which, with the giving of notice or lapse of time or both, would become an Event of Default, or (B) if any such event or condition is happening or existing, specifying such event or condition, stating that the Authority will act with due diligence to correct such event or condition after the issuance of the Series 2019C Subordinate Bonds, and describing in reasonable detail the actions to be taken by the Authority toward such correction; and
  - (2) All required approvals, limitations, conditions and provisions precedent to the issuance of the Series 2019C Subordinate Bonds have been obtained, observed, met and satisfied.
- (d) An Opinion or Opinions of Counsel, subject to customary exceptions and qualifications, substantially to the effect that this Twenty-Fifth Supplemental Indenture has been duly authorized, executed and delivered to the Trustee and is a valid, binding and enforceable obligation of the Authority.
- (e) An opinion or opinions of Bond Counsel, subject to customary exceptions and qualifications, substantially to the effect that the issuance of the Series 2019C Subordinate Bonds has been duly authorized, and that the Series 2019C Subordinate Bonds are valid and binding limited obligations of the Authority.
- (f) A certificate of an Authorized Representative of the Authority, stating that rates, fees and charges are in effect or scheduled to go into effect to meet the Rate Covenant immediately after the issuance of the Series 2019C Subordinate Bonds.
- (g) A request and authorization of the Authority, signed by an Authorized Representative of the Authority, to the Trustee to authenticate and deliver such Bonds to the purchaser upon payment to the Trustee in immediately available funds for the account of the Authority of a specified sum plus accrued interest to the date of delivery.

## ARTICLE IV

### DETAILS AND FORM OF VARIABLE RATE SERIES 2019C SUBORDINATE BONDS

#### **Section 401. Issuance and Delivery of Variable Rate Series 2019C Subordinate Bonds, Principal Maturity and Initial Interest Rate.**

The Series 2019C Subordinate Bonds shall be designated “Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2019C.” The Variable Rate Series 2019C Subordinate Bonds shall be numbered in such manner and carry such other designations as determined by the Authority in order to distinguish each bond from any other bond and identify the interest payment and tender option provisions applicable thereto, shall be dated as of their date of original authentication and delivery, and shall bear interest from the most recent Interest Payment Date for which interest has been paid or duly provided for or, if no interest has been paid or duly provided for, from their date of original authentication and delivery. The Variable Rate Series 2019C Subordinate Bonds of the same maturity may bear interest at different interest rates.

The Series 2019C Subordinate Bonds shall mature on their Maturity Dates, subject to prior redemption as set forth herein.

The interest on the Variable Rate Series 2019C Subordinate Bonds shall be payable on the Interest Payment Dates applicable to the Rate Period then in effect. Interest on the Variable Rate Series 2019C Subordinate Bonds shall be payable by check or draft mailed to the registered owners at their addresses as they appear on the Regular Record Date preceding the Interest Payment Date on the registration books kept by the Trustee; provided, however, if the Variable Rate Series 2019C Subordinate Bonds are registered in the name of a Depository or its nominee as registered owner or at the option of a registered owner of at least \$1,000,000 of Variable Rate Series 2019C Subordinate Bonds, payment shall be made by wire transfer pursuant to the wire instructions received by the Trustee with respect to each such payment from such registered owner. Any interest that is not timely paid or duly provided for shall cease to be payable to the Holder hereof (or of one or more predecessor bonds) as of the Regular Record Date and shall be payable to the Holder hereof at the close of business on a special record date to be fixed by the Trustee for the payment of that overdue interest. Notice of such a special record date shall be mailed to Holders not less than ten days prior thereto. Principal, premium, if any, and interest shall be payable in lawful money of the United States of America.

The Variable Rate Series 2019C Subordinate Bonds shall be issued in Authorized Denominations.

During the Initial Period, the Variable Rate Series 2019C Subordinate Bonds shall bear interest at the Long-Term Rate.

The Variable Rate Series 2019C Subordinate Bonds are subject to optional redemption, purchase in lieu of optional redemption, and mandatory redemption through Mandatory Sinking Fund Requirements as provided in Article V.

In the event the Variable Rate Series 2019C Subordinate Bonds are designated Soft Tender Index Rate Bonds and are mandatorily tendered pursuant to Section 408(a)(v) and the Authority fails to pay the Purchase Price, the Variable Rate Series 2019C Subordinate Bonds shall bear interest at the Penalty Rate unless and until the Purchase Price is paid or the Variable Rate Series 2019C Subordinate Bonds otherwise cease to be Outstanding; provided, however, that the interest rate on the Variable Rate Series 2019C Subordinate Bonds shall at no time exceed the Maximum Rate.

In the event the Variable Rate Series 2019C Subordinate Bonds are designated Soft Tender Long-Term Rate Bonds and are mandatorily tendered pursuant to Section 408(a)(i) and the Authority fails to pay the Purchase Price, the Variable Rate Series 2019C Subordinate Bonds shall bear interest at the Penalty Rate unless and until the Purchase Price is paid or the Variable Rate Series 2019C Subordinate Bonds otherwise cease to be Outstanding; provided, however, that the interest rate on the Variable Rate Series 2019C Subordinate Bonds shall at no time exceed the Maximum Rate.

**Section 402. Depository Provisions.**

Notwithstanding any other provision of this Twenty-Fifth Supplemental Indenture or the Variable Rate Series 2019C Subordinate Bonds, so long as the Variable Rate Series 2019C Subordinate Bonds are in a Book Entry System and the Depository or its nominee is the Holder of the Variable Rate Series 2019C Subordinate Bonds:

(i) Presentation of Variable Rate Series 2019C Subordinate Bonds to the Trustee at redemption or at maturity, or delivery of Variable Rate Series 2019C Subordinate Bonds to the Tender Agent in connection with a purchase of tendered Variable Rate Series 2019C Subordinate Bonds, shall be deemed made to the Trustee when the right to exercise ownership rights in the Variable Rate Series 2019C Subordinate Bonds through the Depository or the Depository's participants is transferred by the Depository on its books.

(ii) Notice of a tender for purchase pursuant to Section 406 hereof shall be given by the beneficial owner of the Variable Rate Series 2019C Subordinate Bonds exercising ownership rights through the Depository or the Depository's participants by telephonic or written notice (confirmed in writing) to the Tender Agent at the times set forth in that Section.

(iii) The Depository may present notices, approvals, waivers, votes or other communications required or permitted to be made by Holders under this Twenty-Fifth Supplemental Indenture on a fractionalized basis on behalf of some or all of those persons entitled to exercise ownership rights in the Variable Rate Series 2019C Subordinate Bonds through the Depository or its participants.

(iv) Variable Rate Series 2019C Subordinate Bonds purchased by the Authority shall not be registered in the name of the Authority on the Register maintained by the Trustee and shall not be physically held by any party other than the Depository.

(v) Variable Rate Series 2019C Subordinate Bonds or any portion thereof shall not be transferable or exchangeable except:

(A) To any successor of the Depository;

(B) To any new Depository not objected to by the Trustee, upon (i) the resignation of then current Depository or its successor from its functions as Depository or (ii) termination of the use of the Depository by direction of the Authority;

(C) To any Persons who are the assigns of the Depository or its nominee, upon (i) the resignation of the Depository from its functions as Depository hereunder or (ii) termination by the Authority of use of the Depository.

Subject to any arrangements made by the Trustee with a Depository with respect to the Variable Rate Series 2019C Subordinate Bonds held in a Book Entry System, which arrangements are hereby authorized subject to the approval of an Authorized Official of the Authority, principal of, premium, if any, and interest shall be payable on any Variable Rate Series 2019C Subordinate Bond as provided in this Twenty-Fifth Supplemental Indenture.

**Section 403. Determination of Interest Rates.**

(a) General.

(i) The Variable Rate Series 2019C Subordinate Bonds may bear interest at any time in any Rate Period, and different subseries may bear interest in different Rate Periods.

(ii) The amount of interest payable with respect to Variable Rate Series 2019C Subordinate Bonds on any Interest Payment Date shall be computed (A) during a Daily Interest Period, Weekly Interest Period, Short-Term Interest Period or Index Rate Period, on the basis of a 365- or 366-day year for the number of days actually elapsed, and (B) during a Fixed Rate Period and any Long-Term Interest Periods, on the basis of a 360-day year of twelve 30-day months. Interest payable on each Interest Payment Date shall be the interest accrued and unpaid from and including the immediately preceding Interest Payment Date to and including the day preceding such Interest Payment Date. Notwithstanding the foregoing, the amount of interest payable with respect to Credit Facility Provider Bonds shall be calculated as provided in the Reimbursement Agreement.

(iii) All determinations of interest rates, amounts of interest payable on the Variable Rate Series 2019C Subordinate Bonds and Rate Periods pursuant to this Twenty-Fifth Supplemental Indenture shall be conclusive and binding upon the

Authority, the Trustee, the Tender Agent, the Credit Facility Provider and the Holders of the Variable Rate Series 2019C Subordinate Bonds to which such rates are applicable. The Authority, the Trustee, the Tender Agent, the Remarketing Agent and the Credit Facility Provider shall not be liable to any Holder for failure to give any notice specified in this Section or for the failure of any Holder to receive any such notice.

(b) Determination by Remarketing Agent.

(i) The interest rate for Daily Rate Bonds, Weekly Rate Bonds, Short-Term Rate Bonds, Long-Term Rate Bonds and, if engaged as Remarketing Agent in connection with the conversion to Fixed Rate Bonds, the Fixed Rate(s), for each Rate Period shall be determined by a Remarketing Agent, to be appointed by the Authority, as the lowest rate of interest that, in the judgment of the Remarketing Agent, would cause the Variable Rate Series 2019C Subordinate Bonds to be sold at a price as of the date of determination equal to the principal amount thereof plus or minus any premium or discount, taking into account Prevailing Market Conditions, provided that in no event will the interest rate on any Variable Rate Series 2019C Subordinate Bonds exceed the Maximum Rate.

(ii) In the event the Remarketing Agent fails for any reason to determine the interest rate for any Rate Period:

(A) If the applicable Variable Rate Series 2019C Subordinate Bonds are bearing interest at a Daily Rate, Weekly Rate or Short-Term Rate, the applicable Variable Rate Series 2019C Subordinate Bonds shall bear interest at a rate equal to the prior week's rate, unless there is a failure by the Remarketing Agent to set the rate for two consecutive Weekly Rate Periods or seven consecutive Daily Rate Periods, in which case the applicable Variable Rate Series 2019C Subordinate Bonds shall bear interest at 105% of the SIFMA Index, until the Trustee is notified of a new Daily Rate, Weekly Rate or Short-Term Rate, as appropriate, determined by the Remarketing Agent.

(B) If the applicable Variable Rate Series 2019C Subordinate Bonds are bearing interest at a Soft Tender Long-Term Rate the Rate Period shall be converted to a Weekly Rate Period and shall bear interest at Penalty Rate.

(iii) Notice of the interest rate for each Daily Rate Bond, Weekly Rate Bond, Short-Term Rate Bond, Long-Term Rate Bond and, if engaged as Remarketing Agent in connection with the conversion to Fixed Rate Bonds, the Fixed Rate(s), shall be communicated by the Remarketing Agent to the Authority, the Trustee and any Credit Facility Provider by Electronic Means, (a) in the case of Daily Rate Bonds on the date such interest rate is determined by 10:30 a.m., New York City time, and (b) in the case of Weekly Rate Bonds, Short-Term Rate Bonds, Long-Term Rate Bonds or Fixed Rate Bonds, not later than 5:00 p.m., New York City time, on the date such interest rate is determined, and shall be available to Holders after such time, from the Remarketing Agent at its Designated Office and shall also be communicated by the Remarketing Agent to any Holder upon request.

(c) Daily Rates.

(i) Whenever the Variable Rate Series 2019C Subordinate Bonds are to bear interest accruing at a Daily Rate, Daily Interest Periods shall commence on each Business Day and shall extend to, but not include, the next succeeding Business Day.

(ii) The interest rate for each Daily Interest Period shall be effective from and including the commencement date thereof and shall remain in effect to, but not including, the next succeeding Business Day.

(iii) Each such interest rate shall be determined by the Remarketing Agent no later than 10:00 a.m., New York City time, on the commencement date of the Daily Interest Period to which it relates.

(d) Weekly Rates.

(i) Whenever the Variable Rate Series 2019C Subordinate Bonds are to bear interest accruing at a Weekly Rate, Weekly Interest Periods shall commence on Thursday of each week and end on Wednesday of the following week; provided, however, that (A) in the case of a conversion to a Weekly Rate Period, the post-conversion initial Weekly Interest Period for the Variable Rate Series 2019C Subordinate Bonds shall commence on the Conversion Date and end on the next succeeding Wednesday; and (B) in the case of a conversion from a Weekly Rate to a Daily Rate, the last Weekly Interest Period prior to conversion shall end on the last day immediately preceding the Conversion Date.

(ii) The interest rate for each Weekly Interest Period shall be effective from and including the commencement date of such period and shall remain in effect through and including the last day thereof.

(iii) Each such interest rate shall be determined by the Remarketing Agent by 5:00 p.m., New York City time, on the Business Day immediately preceding the commencement date of the Weekly Interest Period to which it relates.

(e) Short-Term Rates. Short-Term Rates on, and Short-Term Interest Periods for, Short-Term Rate Bonds shall be determined as follows:

(i) Each Short-Term Interest Period shall be determined by the Remarketing Agent on the first Business Day of that Short-Term Interest Period as that Short-Term Interest Period which will, in the judgment of the Remarketing Agent, produce the greatest likelihood of the lowest net interest cost; provided that each Short-Term Interest Period (A) shall be from 1 to 270 days in length but shall not exceed the number of days of interest coverage provided by the Credit Facility minus five days, shall not extend beyond the date that is five days before the Expiration Date of the Credit Facility and shall not exceed the remaining number of days prior to the Conversion Date if the Remarketing Agent has given or received notice of any conversion to a different Rate Period, (B) shall commence on a Business Day (except in the case of a conversion to a Short-Term Rate Period, the initial Short-Term Interest Period shall commence on the Conversion Date), shall end on a day preceding a Business Day, and (C) in any event

shall end no later than the day preceding the Maturity Date. The Remarketing Agent may, in the reasonable exercise of its judgment, determine a Short-Term Interest Period that results in a Short-Term Rate on the Variable Rate Series 2019C Subordinate Bonds that is higher than would be borne by the Variable Rate Series 2019C Subordinate Bonds with a shorter Short-Term Interest Period in order to increase the likelihood of achieving the lowest net interest cost during the term of the Variable Rate Series 2019C Subordinate Bonds by assuring the effectiveness of such Short-Term Rate for a longer Short-Term Interest Period. The determination of a Short-Term Interest Period by the Remarketing Agent shall be based upon the relative market yields of the Variable Rate Series 2019C Subordinate Bonds and other securities that bear interest at a variable rate or at fixed rates that, in the reasonable exercise of the judgment of the Remarketing Agent are otherwise comparable to the Variable Rate Series 2019C Subordinate Bonds, or any fact or circumstance relating to the Variable Rate Series 2019C Subordinate Bonds or affecting the market for the Variable Rate Series 2019C Subordinate Bonds or affecting such other comparable securities in a manner that, in the reasonable exercise of the judgment of the Remarketing Agent, will affect the market for the Variable Rate Series 2019C Subordinate Bonds. The Remarketing Agent in its discretion, may consider such information and resources as it deems appropriate in making the determinations described in this paragraph, including consultations with the Authority, but the Remarketing Agent's determination of the Short-Term Interest Period will be based solely upon the reasonable exercise of the Remarketing Agent's judgment.

(ii) The interest rate for each Short-Term Interest Period shall be effective from and including the commencement date of that Short-Term Interest Period and shall remain in effect through and including the last day thereof.

(iii) All Short-Term Rate Bonds of a subseries of the Variable Rate Series 2019C Subordinate Bonds shall bear interest accruing at the same Short-Term Rate, and for the same Short-Term Interest Period.

(iv) Each such interest rate shall be determined by the Remarketing Agent by 4:00 p.m., New York City time, on the Business Day immediately preceding the commencement date of the Short-Term Interest Period to which it relates.

(f) Long-Term Rates. A Long-Term Rate for Long-Term Rate Bonds shall be determined for each Long-Term Interest Period as follows:

(i) The interest rate on each Variable Rate Series 2019C Subordinate Bond then being converted shall be the lowest interest rate that will enable such Variable Rate Series 2019C Subordinate Bond, upon conversion, to be remarketed at par or at a premium or discount (plus any accrued interest), taking into account (A) any market premium determined by the Authorized Official to be necessary to fund fees and expenses relating to the conversion and remarketing of the Variable Rate Series 2019C Subordinate Bonds, including fees and expenses relating to a Credit Facility, any deposit to the Debt Service Reserve Fund and any amount owed upon termination of any Hedge Agreement, (B) the principal amortization schedule for the Variable Rate Series 2019C



Subordinate Bonds, and (C) current market conditions for bonds that have similar tax status and a comparable credit rating.

(ii) Long-Term Interest Periods shall commence on a Conversion Date and subsequently on an Interest Payment Date which is at least 12 calendar months after the Conversion Date to a Long-Term Rate Period, and end on the day preceding either the commencement date of the following Long-Term Interest Period or the Conversion Date on which a different Rate Period shall become effective or the Maturity Date; provided, however, that in the case of the Initial Long-Term Rate Period for the Variable Rate Series 2019C Subordinate Bonds, such period shall commence on the Closing Date and end on \_\_\_\_\_, 20\_\_.

(iii) The Long-Term Rate for each Long-Term Interest Period shall be effective from and including the commencement date thereof and remain in effect to and including the last day thereof. Each such Long-Term Rate shall be determined on the Business Day immediately preceding the commencement date of such period.

(iv) Long-Term Interest Periods shall not extend to a date beyond the fifth day next preceding the Expiration Date of an applicable Credit Facility; provided, however, that in the case of the Initial Long-Term Rate Period, the Series 2019C Subordinate Bonds shall not be secured by a Credit Facility.

(v) The term of each Long-Term Interest Period shall be specified in writing by the Authority to the Remarketing Agent, the Trustee, the Tender Agent and the Credit Facility Provider, if applicable, at least 20 days before its commencement.

(g) Fixed Rate. The Fixed Rate shall be determined as set forth in this subsection (g). Variable Rate Series 2019C Subordinate Bonds bearing interest at a Fixed Rate may not be converted to any other type of Rate Period pursuant to Section 404.

The Fixed Rate Period shall commence on a Conversion Date and shall extend to the earlier of the date of redemption or the Maturity Date. The Fixed Rate shall be determined (1) by the Remarketing Agent, if the Remarketing Agent is engaged in connection with the conversion to Fixed Rate Bonds, not later than 12:00 noon, New York City time, on the Business Day prior to the Conversion Date; or (2) set in the firm underwriting or purchase contract described in Section 404(b)(v). Such determination shall be conclusive and binding on the Authority, the Trustee, any Credit Facility Provider and the Holders of the Variable Rate Series 2019C Subordinate Bonds to which such rate shall be applicable.

In determining the amount of interest and principal that shall be payable on the Payment Dates, the Remarketing Agent or the firm of underwriters or recognized institutional investors (the "Firm") underwriting or purchasing the Variable Rate Series 2019C Subordinate Bonds then being converted, as applicable, shall use the following guidelines:

(i) The interest rate on each Variable Rate Series 2019C Subordinate Bond then being converted shall be the lowest interest rate that will enable such Variable Rate Series 2019C Subordinate Bond, upon conversion, to be remarketed at par or at a premium or discount (plus any accrued interest), taking into account (A) any market

premium determined by the Authorized Official to be necessary to fund fees and expenses relating to the conversion and remarketing of the Variable Rate Series 2019C Subordinate Bonds, including fees and expenses relating to a Credit Facility, any deposit to the Debt Service Reserve Fund and any amount owed upon termination of any Hedge Agreement, (B) the principal amortization schedule for the Variable Rate Series 2019C Subordinate Bonds, and (C) current market conditions for bonds that have similar tax status and a comparable credit rating; and

(ii) If a Favorable Opinion of Bond Counsel has been obtained, the schedule of principal payments of the Variable Rate Series 2019C Subordinate Bonds may be modified based on a Mandatory Sinking Fund Requirements schedule agreed to by the Authority and the firm that agrees to underwrite or purchase the Variable Rate Series 2019C Subordinate Bonds being converted, in accordance with Section 404(b)(v), and delivered to the Trustee. If a Favorable Opinion of Bond Counsel is not received, all Variable Rate Series 2019C Subordinate Bonds shall mature on the Maturity Date and shall be subject to mandatory sinking fund redemption (or serial maturities pursuant to subparagraph (iii) below) on the dates and in the respective principal amounts established at the time of original delivery of the Variable Rate Series 2019C Subordinate Bonds.

(iii) The foregoing subparagraphs (i) and (ii) notwithstanding, upon provision of a Favorable Opinion of Bond Counsel, Variable Rate Series 2019C Subordinate Bonds may be scheduled to mature serially on October 1 in the years and respective principal amounts agreed to by the Authority and delivered to the Trustee, and the Remarketing Agent may establish more than one Fixed Rate to apply to the Variable Rate Series 2019C Subordinate Bonds being converted to Fixed Rate Bonds, in accordance with this Section, taking into account the scheduled mandatory redemption dates or serial maturity dates to be assigned to the Variable Rate Series 2019C Subordinate Bonds.

(h) Credit Facility Provider Bonds. Notwithstanding the above provisions of this Section, Credit Facility Provider Bonds shall bear interest at the Credit Facility Provider Rate and shall be payable at the times and by such means as provided in the Reimbursement Agreement. The Trustee shall register on its books and records the Credit Facility Provider as the Holder or the pledgee of such Credit Facility Provider Bonds, as directed by such Credit Facility Provider. The Credit Facility Provider Rate shall be supplied in writing to the Trustee by the Credit Facility Provider. If the Remarketing Agent has notified the Holder of any Credit Facility Provider Bonds that it has located a purchaser for some or all of that Holder's Credit Facility Provider Bonds, then, subject to Section 410, that Holder must deliver those Credit Facility Provider Bonds to the Tender Agent for purchase. Upon such delivery and receipt of the Purchase Price by that Holder, and provided no Event of Default has occurred and is continuing under the Reimbursement Agreement, the Tender Agent shall notify the Trustee that the Variable Rate Series 2019C Subordinate Bonds so purchased are no longer "Credit Facility Provider Bonds" and the Trustee shall note on the registration books for the Variable Rate Series 2019C Subordinate Bonds that those Variable Rate Series 2019C Subordinate Bonds are not Credit Facility Provider Bonds. Notwithstanding anything herein to the contrary, only the Credit Facility Provider or any Holder of Credit Facility Provider Bonds may receive interest on any Variable Rate Series 2019C Subordinate Bonds at the Credit Facility Provider Rate.

For all purposes of the Indenture, payments of principal and interest on the Credit Facility Provider Bonds are secured in the same manner as payments of principal and interest on the Variable Rate Series 2019C Subordinate Bonds. Amounts owed by the Authority to a Credit Facility Provider (including, without limitation, reimbursement obligations) shall be included in the calculation of “Annual Debt Service” under the Indenture if and to the extent required by the Indenture’s definition of “Annual Debt Service.”

(i) [Reserved].

(j) Index Rates. During any Index Rate Period, a Remarketing Agent shall determine the Applicable Spread that will be used in determining the Index Rate for each Index Interest Period as follows: (i) the Applicable Spread shall be the number of basis points or schedule of basis points as determined by the Remarketing Agent that, when added to the SIFMA Index or the LIBOR Index, as the case may be, would equal the minimum interest rate per annum that would enable the Remarketing Agent to sell the applicable Variable Rate Series 2019C Subordinate Bonds on the first day of such Subsequent Rate Period at a price equal to the principal amount thereof (but subject to the final sentence of this Section 403(j)), plus accrued interest, if any, thereon. The Remarketing Agent shall determine the Applicable Spread for any such Index Rate Period not later than the day preceding the commencement of such Index Rate Period and shall notify the Trustee, the Calculation Agent and the Authority thereof by telephone or such other manner as may be appropriate by not later than 2:00 P.M. New York City time on such date, which notice shall be promptly confirmed in writing. If at any time that the Remarketing Agent is required to determine the Applicable Spread, the Remarketing Agent recommends in writing to the Authority that the Variable Rate Series 2019C Subordinate Bonds may be remarketed at a specified discount from their principal amount that would enable the Authority to achieve a lower net interest cost than if such Variable Rate Series 2019C Subordinate Bonds were remarketed at their principal amount, and if the Authority accepts that recommendation in writing signed by an Authorized Official, then the Remarketing Agent shall determine the Applicable Spread based upon the minimum interest rate per annum that would enable the Remarketing Agent to sell the applicable Variable Rate Series 2019C Subordinate Bonds at the agreed upon discounted price.

(k) Index Rates – General. During any Index Rate Period, the Calculation Agent shall determine the Index Rate on each Computation Date, and such rate shall become effective on the SIFMA Index Reset Date or [LIBOR Index Reset Date], as the case may be, next succeeding the Computation Date; provided that in no event will the Index Rate exceed the Maximum Rate. The Calculation Agent shall (i) upon determining the Index Rate for each week, notify the Authority and the Trustee of such Index Rate by Electronic Means as promptly as practicable, and (ii) no later than the day preceding each Interest Payment Date, provide the Authority and the Trustee with a report that shows all the reset rates for the preceding month. The determination of the Index Rate (absent manifest error) shall be conclusive and binding upon the Authority and the Holders of the Variable Rate Series 2019C Subordinate Bonds. If for any reason the Index Rate shall not be established, the Variable Rate Series 2019C Subordinate Bonds shall bear interest at the Index Rate last in effect until such time as a new Index Rate shall be established pursuant to this Twenty-Fifth Supplemental Indenture.

**Section 404. Conversions Between Rate Periods.**

(a) Notice of Conversion. The Authority may, with the prior written consent of the Credit Facility Provider, if any, if the same Credit Facility will secure the Variable Rate Series 2019C Subordinate Bonds before and after the conversion, elect to convert all, but not less than all, of the Variable Rate Series 2019C Subordinate Bonds from one Rate Period to another Rate Period (other than from a Fixed Rate Period) as follows:

(i) Notices by Authority. The Authority shall give written notice of any proposed conversion of some or all Variable Rate Series 2019C Subordinate Bonds to the Trustee, and during an Index Rate Period to the Calculation Agent, not fewer than seven Business Days (14 Business Days in the case of a proposed conversion to a Short-Term Rate Period) prior to the date the notice to affected Holders must be given pursuant to Section 404(a)(ii).

(ii) Notices by Trustee. Upon receipt of the notice specified in Section 404(a)(i), the Trustee shall promptly give written notice of the proposed conversion, via Electronic Means or by written notice, to the Tender Agent, the Remarketing Agent, any Credit Facility Provider and any Rating Agency. The Trustee shall give notice (which may be combined, where applicable, with any notice required by Section 408(d) by first-class mail of the proposed conversion to the affected Holders of the Variable Rate Series 2019C Subordinate Bonds not less than 10 days before the proposed Conversion Date. Such notice shall state:

(A) the proposed Conversion Date and the proposed Rate Period to be effective on such date;

(B) that all or a specified portion of the Variable Rate Series 2019C Subordinate Bonds will be subject to mandatory tender for purchase on the Conversion Date and, if fewer than all;

(C) the conditions, if any, to the conversion pursuant to subsection (b), and the consequences of such conditions not being fulfilled pursuant to subsection (c);

(D) if the Variable Rate Series 2019C Subordinate Bonds are in certificated form, information with respect to required delivery of the Variable Rate Series 2019C Subordinate Bond certificates and payment of the Purchase Price;

(E) the new Interest Payment Dates and Regular Record Dates.

(b) Conditions to Conversion. No conversion of Rate Periods will become effective unless the prior written consent of the Credit Facility Provider, if any, if the same Credit Facility will secure the Variable Rate Series 2019C Subordinate Bonds before and after the conversion, is obtained, and:

(i) If the conversion is from a Short-Term Rate Period, the Trustee has received, prior to the date on which notice of conversion is required to be given to Holders, written confirmation from the Remarketing Agent that it has not established and will not establish any Short-Term Interest Periods extending beyond the day before the Conversion Date; and

(ii) If the conversion is either (A) from a Short-Term Rate Period, a Weekly Rate Period or a Daily Rate Period to a Long-Term Rate Period or a Fixed Rate Period, or (B) from a Long-Term Rate Period to a Short-Term Rate Period, a Weekly Rate Period or a Daily Rate Period, the Authority shall have provided to the Trustee, and the Remarketing Agent, no later than one day before the Conversion Date, a Favorable Opinion of Bond Counsel, which opinion shall be confirmed in writing on the Conversion Date; and

(iii) Any Credit Facility to be held by the Trustee after the Conversion Date shall be in an amount equal to the aggregate principal amount of all of the Outstanding Variable Rate Series 2019C Subordinate Bonds, plus an amount for payment of interest equal to at least (a) 34 days' interest (183 days' interest if the conversion is to Long-Term Rate Bonds or, if the conversion is to Short-Term Rate Bonds, the maximum number of days of a Short-Term Interest Period, as provided in Section 403(e)(i) plus five days), plus in the case of a Credit Facility that does not automatically reinstate coverage for interest following a drawing to pay interest on the Variable Rate Series 2019C Subordinate Bonds, the number of days during which the Variable Rate Series 2019C Subordinate Bonds may continue to bear interest until purchased upon mandatory tender under Section 408(a)(iv) following a drawing in which the Credit Facility Provider may notify the Trustee that interest coverage has not reinstated or (b) in the event that a rating will be maintained on the Variable Rate Series 2019C Subordinate Bonds, then such other number of days of interest as may be required by any Rating Agency; and

(iv) If an Index Rate is in effect prior to the Conversion, the Conversion Date must be on a date that would otherwise be an Interest Payment Date; and

(v) If the conversion is to a Fixed Rate Period, the Authority's written notice pursuant to Section 404(a)(i) shall also be provided to the Remarketing Agent and shall also specify the Conversion Date on which the Fixed Rate Period is to commence, and the Authority shall deliver with such notice any Favorable Opinion of Bond Counsel required pursuant to Section 403(g) and a firm underwriting or purchase contract from a firm, which can be the Remarketing Agent, to underwrite or purchase all of the Variable Rate Series 2019C Subordinate Bonds at a price of 100% of the principal amount thereof at an agreed upon interest rate which such firm certifies is the lowest rate that will permit the Variable Rate Series 2019C Subordinate Bonds to be sold at par on the first day of the Fixed Rate Period and containing a Mandatory Sinking Fund Requirements schedule prepared in accordance with Section 403(g). Upon receipt by the Trustee of such notice from the Authority, the Trustee shall promptly cause the same information contained in such notice to be delivered to the Tender Agent, any Credit Facility Provider and any Rating Agency. A conversion to the Fixed Interest Rate shall not occur unless the

Authority shall also file with the Trustee any Favorable Opinion of Bond Counsel to the same effect dated the Conversion Date; and

(vi) The conversion shall not occur unless the Conversion Date is a date on which the Variable Rate Series 2019C Subordinate Bonds being converted could be redeemed without premium pursuant to Section 501(a); and

(vii) If the conversion is to a Short-Term Rate Period, (A) the Authority must engage, at its expense, a commercial paper trustee and paying agent (the “Issuing Agent”), which may or may not be the Trustee and which shall be reasonably acceptable to the Trustee, any Credit Facility Provider and the Tender Agent, having access to the Depository’s electronic money market issuing and payment system and otherwise eligible to serve as an issuing and paying agent under the Depository’s policies and procedures for the issuance and payment of commercial paper; and (B) the Remarketing Agent must arrange for the execution and delivery to the Depository of its required letter of representation for the eligibility of the Variable Rate Series 2019C Subordinate Bonds in the Short-Term Rate Period in the Depository’s book entry system and the provision of any needed CUSIP numbers; and (C) the Authority shall take all other action needed to comply with the Depository’s requirements applicable to the issuance and payment of the Variable Rate Series 2019C Subordinate Bonds while in the Short-Term Rate Period; and (D) the Authority shall enter into any amendment of this Twenty-Fifth Supplemental Indenture permitted under the Indenture that is needed to comply with the Depository’s or any Rating Agency’s requirements concerning the issuance and payment of the Variable Rate Series 2019C Subordinate Bonds in the Short-Term Rate Period.

(c) Failure of Conditions to Conversion. In the event any condition precedent to a conversion is not fulfilled, (i) the Conversion Date shall not occur, (ii) the mandatory tender pursuant to Section 408(a)(ii) shall not occur and (iii) the Variable Rate Series 2019C Subordinate Bonds shall continue in the then existing Rate Period with the length of the Rate Period and the interest rate being determined in accordance with Section 403. Notice of withdrawal of a conversion notice shall be given by the Authority to the Trustee, the Remarketing Agent, the Tender Agent and any Credit Facility Provider by telephone, promptly confirmed in writing, and shall thereafter be promptly given to the Holders by the Trustee via Electronic Means or by first-class mail. No failure or cancellation of conversion pursuant to this subsection (c) shall constitute an Event of Default.

#### **Section 405. Tender Agent.**

The Trustee is the initial Tender Agent. There shall be a Tender Agent for the Variable Rate Series 2019C Subordinate Bonds as provided in this Section at all times that any Variable Rate Series 2019C Subordinate Bonds are Daily Rate Bonds, Weekly Rate Bonds, Short-Term Rate Bonds, Index Rate Bonds or Long-Term Rate Bonds. The Tender Agent shall be appointed by the Authority and shall be a commercial bank, national association or trust company organized and doing business under the laws of the United States of America or of any state thereof, authorized to exercise corporate trust powers in the State, subject to supervision or examination by federal or state authority, and authorized to perform all of the duties imposed upon it by this Twenty-Fifth Supplemental Indenture, and having a combined capital and surplus

of at least \$75,000,000. If such corporation or association publishes reports of condition at least annually, pursuant to law or to the requirements of such supervising or examining Authority, then for the purposes of this Section, the combined capital and surplus of such corporation or association shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published.

The Tender Agent shall perform the duties imposed upon the Tender Agent by this Twenty-Fifth Supplemental Indenture, but only upon the terms and conditions set forth herein, including the following:

(a) hold all Variable Rate Series 2019C Subordinate Bonds delivered to it hereunder in trust for the benefit of the respective Holders which shall have so delivered such Variable Rate Series 2019C Subordinate Bonds until moneys representing the Purchase Price of such Variable Rate Series 2019C Subordinate Bonds shall have been delivered to or for the account of or to the order of such Holders;

(b) hold all moneys delivered to it hereunder for the purchase of Variable Rate Series 2019C Subordinate Bonds in trust solely for the benefit of the Person which shall have so delivered such moneys until the Variable Rate Series 2019C Subordinate Bonds purchased with such moneys shall have been delivered to or for the account of such Person;

(c) hold all moneys, other than proceeds of payments under a Credit Facility, delivered to it hereunder for the purchase of Variable Rate Series 2019C Subordinate Bonds as agent of, and in escrow for the exclusive benefit of, the Person which shall have so delivered such moneys until the Variable Rate Series 2019C Subordinate Bonds purchased with such moneys shall have been delivered to or for the account of such Person;

(d) hold all moneys delivered to it hereunder from payments under a Credit Facility for the purchase of Variable Rate Series 2019C Subordinate Bonds as agent of, and in escrow for the exclusive benefit of, the Holders who shall deliver Variable Rate Series 2019C Subordinate Bonds to it for purchase until the Variable Rate Series 2019C Subordinate Bonds purchased with such moneys shall have been delivered to or for the account of the Credit Facility Provider;

(e) keep such books and records as shall be consistent with customary corporate trust industry practice that shall accurately reflect the transactions hereunder and to make such books and records available for inspection by the Authority, the Trustee, the Remarketing Agent and the Credit Facility Provider during normal business hours upon reasonable prior written notice;

(f) hold all Credit Facility Provider Bonds delivered to it hereunder as agent of, and in escrow for the benefit of, the Credit Facility Provider;

(g) deliver any notices required by this Twenty-Fifth Supplemental Indenture to be delivered by the Tender Agent; and

(h) perform all other duties of the Tender Agent under this Twenty-Fifth Supplemental Indenture.

The Tender Agent shall be entitled to reasonable compensation for its services as Tender Agent as agreed upon with the Authority.

The Tender Agent at any time may resign and be discharged of the duties and obligations imposed upon the Tender Agent by this Twenty-Fifth Supplemental Indenture, by giving written notice thereof to the Authority, the Trustee, the Remarketing Agent and the Credit Facility Provider at least 30 days prior to the effective date of such resignation. The Tender Agent shall resign at any time that it shall cease to be eligible in accordance with the provisions of this Section, effective upon the appointment of and acceptance of such appointment by a successor Tender Agent.

The Tender Agent may be removed at any time by the Authority by an instrument in writing delivered to the Tender Agent, the Trustee, the Remarketing Agent and the Credit Facility Provider.

If the Tender Agent shall resign, be removed or become incapable of acting for any cause, the Authority shall promptly appoint a successor Tender Agent by an instrument in writing delivered to the Trustee, the Remarketing Agent, the Credit Facility Provider, and the retiring Tender Agent. Every such successor Tender Agent appointed pursuant to the provisions of this Section shall meet the eligibility requirements of this Section. No successor Tender Agent shall accept its appointment unless at the time of such acceptance such successor Tender Agent shall be qualified and eligible under this Article.

Every successor Tender Agent appointed hereunder shall execute and deliver to the Authority, the Trustee, the Remarketing Agent, any Credit Facility Provider, and the retiring Tender Agent an instrument accepting such appointment, designating its Designated Office and accepting the duties and obligations imposed upon it hereunder. No resignation or removal of the Tender Agent and no appointment of a successor Tender Agent pursuant to this Section shall become effective until the acceptance of appointment by the successor Tender Agent hereunder.

The Trustee shall give notice of each resignation and each removal of the Tender Agent and each appointment of a successor Tender Agent by mailing written notice of such event by first-class mail, within 30 days of the resignation or removal of the Tender Agent or the appointment of a successor Tender Agent, to the Authority, any Credit Facility Provider, the Remarketing Agent, each Rating Agency and the Holders as their names and addresses appear in the Bond Register maintained by the Trustee. Each notice shall include the name of the successor Tender Agent and the address of its Designated Office.

In the event of the resignation or removal of the Tender Agent, and the appointment of a successor Tender Agent, the retiring Tender Agent shall pay over, assign and deliver any moneys and Variable Rate Series 2019C Subordinate Bonds held by it in such capacity to its successor.

In the event that the Tender Agent shall resign or be removed, or be dissolved, or if the property or affairs of the Tender Agent shall be taken under the control of any state or federal court or administrative body because of bankruptcy or insolvency, or for any other reason, and the Authority shall not have appointed a successor as Tender Agent, the Trustee shall ipso facto



be deemed to be the Tender Agent for all purposes of this Twenty-Fifth Supplemental Indenture until the appointment by the Authority of the successor Tender Agent.

Any corporation or association into which the Tender Agent in its individual capacity may be merged or converted or with which it may be consolidated, or any merger, conversion or consolidation to which the Tender Agent in its individual capacity shall be a party, or any corporation or association to which all or substantially all the corporate trust business of the Tender Agent in its individual capacity may be sold or otherwise transferred, shall be the Tender Agent under this Twenty-Fifth Supplemental Indenture without further act; provided, that the Tender Agent shall promptly give notice of such action to the Authority, and the Authority shall have 45 days to exercise an option to appoint a successor Tender Agent by an instrument in writing delivered to the Trustee, the Remarketing Agent, the Credit Facility Provider, and the then current Tender Agent. Every such successor Tender Agent appointed pursuant to the provisions of this Section shall meet the eligibility requirements of this Section. No successor Tender Agent shall accept its appointment unless at the time of such acceptance such successor Tender Agent shall be qualified and eligible under this Article.

**Section 406. Optional Tenders of Variable Rate Series 2019C Subordinate Bonds in Certain Rate Periods.**

(a) Holders of Daily Rate Bonds or Weekly Rate Bonds may elect to have their Variable Rate Series 2019C Subordinate Bonds (other than Credit Facility Provider Bonds or Variable Rate Series 2019C Subordinate Bonds owned by or for the benefit of the Authority), or portions thereof in Authorized Denominations, purchased at the applicable Purchase Price on the following Purchase Dates and, upon the giving of the following Electronic Means or written notices meeting the further requirements set forth in subsection (b) below, provided, however, that so long as the Variable Rate Series 2019C Subordinate Bonds are in book entry form the provisions set forth in Section 402 and the procedures established by the Depository generally for tenders of Variable Rate Series 2019C Subordinate Bonds shall apply with respect to notice of tenders, delivery of Variable Rate Series 2019C Subordinate Bonds, payment of Purchase Price and related matters. If less than all of the Variable Rate Series 2019C Subordinate Bonds of a Holder are tendered for purchase the amount retained by that Holder must be in an Authorized Denomination.

(i) Daily Rate Bonds (other than Credit Facility Provider Bonds or Variable Rate Series 2019C Subordinate Bonds owned by or for the benefit of the Authority) may be tendered for purchase at the Purchase Price payable in immediately available funds on any Business Day upon Electronic Means or written notice of tender to the Tender Agent and the Remarketing Agent not later than 11:00 a.m., New York City time, on the designated Purchase Date.

(ii) Weekly Rate Bonds (other than Credit Facility Provider Bonds or Variable Rate Series 2019C Subordinate Bonds owned by or for the benefit of the Authority) may be tendered for purchase at the Purchase Price payable in immediately available funds on any Business Day upon delivery of a written or Electronic Means notice of tender to the Tender Agent not later than 5:00 p.m., New York City time, on a Business Day not fewer than seven days prior to the designated Purchase Date.

(b) Each notice of tender for Daily Rate Bonds and Weekly Rate Bonds:

(i) shall, in case of a written notice, be delivered to the Tender Agent at its Designated Office and, with respect to Daily Rate Bonds, to the Remarketing Agent at its Designated Office, and be in form satisfactory to the Tender Agent;

(ii) shall state, whether delivered in writing or by Electronic Means, (A) the principal amount of the Daily Rate Bond or Weekly Rate Bond to which the notice relates and the CUSIP number of that Bond, (B) that the Holder irrevocably demands purchase of that Variable Rate Series 2019C Subordinate Bond or a specified portion thereof in an Authorized Denomination, (C) the Purchase Date on which that Variable Rate Series 2019C Subordinate Bond or portion thereof is to be purchased and (D) payment instructions with respect to the Purchase Price; and

(iii) shall automatically constitute, whether delivered in writing or by Electronic Means, (A) an irrevocable offer to sell the Variable Rate Series 2019C Subordinate Bond (or portion thereof) to which such notice relates on the Purchase Date to any purchaser selected by the Remarketing Agent (or to the Credit Facility Provider in the case of purchases made with funds paid under the Credit Facility), at a price equal to the Purchase Price, (B) an irrevocable authorization and instruction to the Tender Agent to effect transfer of such Variable Rate Series 2019C Subordinate Bond (or portion thereof) upon receipt by the Tender Agent of funds sufficient to pay the Purchase Price on the Purchase Date, (C) an irrevocable authorization and instruction to the Tender Agent to effect the exchange of the Variable Rate Series 2019C Subordinate Bond to be purchased in whole or in part for other Variable Rate Series 2019C Subordinate Bonds in an equal aggregate principal amount so as to facilitate the sale of that Variable Rate Series 2019C Subordinate Bond (or portion thereof to be purchased), (D) an acknowledgment that such Holder will have no further rights with respect to that Variable Rate Series 2019C Subordinate Bond (or portion thereof) upon deposit of an amount equal to the Purchase Price thereof with the Tender Agent on the Purchase Date, except for the right of such Holder to receive the Purchase Price upon surrender of that Variable Rate Series 2019C Subordinate Bond to the Tender Agent, and (E) an agreement of such Holder to deliver such Daily Rate Bonds or Weekly Rate Bonds, with all necessary endorsements for transfer and signature guarantees, to the Tender Agent at its Designated Office not later than 1:00 p.m., New York City time, on the Purchase Date.

The determination of the Tender Agent as to whether a notice of tender has been properly delivered pursuant to the foregoing shall be conclusive and binding upon the Holder. The Tender Agent may waive any irregularity or nonconformity in any notice of tender.

(c) Notwithstanding anything to the contrary herein, all Daily Rate Bonds or Weekly Rate Bonds as to which a written notice specifying the Purchase Date has been delivered pursuant to this Section (and which have not been tendered to the Tender Agent) shall be deemed tendered on the Purchase Date specified. From and after the specified Purchase Date of a Variable Rate Series 2019C Subordinate Bond tendered to the Tender Agent or deemed tendered pursuant to this Section, the former Holder of such Variable Rate Series 2019C Subordinate Bond shall be entitled solely to the payment of the applicable Purchase Price of the Variable Rate

Series 2019C Subordinate Bond tendered or deemed tendered which Purchase Price shall be payable only as set forth in Section 407(d).

(d) The Tender Agent shall promptly return any notice of tender delivered pursuant to this Section (together with the Variable Rate Series 2019C Subordinate Bonds submitted therewith) that is incomplete or improperly completed or not delivered within the times required by this Section to the Person or Persons submitting such notice.

(e) Notwithstanding the foregoing, if the Variable Rate Series 2019C Subordinate Bonds are held in a book-entry form at the Depository, the right to optionally tender Daily Rate Bonds or Weekly Rate Bonds may be exercised by the beneficial owners of those Variable Rate Series 2019C Subordinate Bonds. Such right shall be exercised by delivery by a beneficial owner to the Tender Agent no later than the times specified in subsection (a) of the notice described in subsection (b) stating that such beneficial owner will cause its beneficial interest (or portion thereof in an Authorized Denomination) to be tendered, the amount of such interest to be tendered, the date on which such interest will be tendered and the identity of the Participant through which the beneficial owner maintains its interest. Upon delivery of such notice, the beneficial owner must make arrangements to have its beneficial ownership interest in the Variable Rate Series 2019C Subordinate Bonds being tendered to the Tender Agent to be transferred on the records of the Depository to the Tender Agent at or prior to 1:00 p.m., New York City time, on the Purchase Date.

**Section 407. Purchase Fund; Purchase of Variable Rate Series 2019C Subordinate Bonds by Tender Agent; Procedures and Consequences Related to Inadequate Funds for Purchase Upon Tender.**

(a) The Tender Agent shall establish a special trust fund for the Variable Rate Series 2019C Subordinate Bonds to be designated the Purchase Fund. Within the Purchase Fund, the Tender Agent shall establish four separate accounts to be designated the Remarketing Proceeds Account, the Credit Facility Purchase Account, the Authority Purchase Account and the Undelivered Bond Payment Account, each of which shall be an Eligible Account. Only the Tender Agent shall have any right of withdrawal from the Purchase Fund; and the Purchase Fund and such right of withdrawal shall be for the sole and exclusive benefit of the Holders of the Variable Rate Series 2019C Subordinate Bonds subject to purchase on Purchase Dates (and the Credit Facility Provider to the extent provided in subsection (f)); and the Authority and the Holders of Variable Rate Series 2019C Subordinate Bonds not subject to purchase shall have no legal, beneficial or equitable interest in the Purchase Fund. Amounts on deposit in the Purchase Fund shall be held uninvested and without bearing interest. Amounts in a particular account of a Purchase Fund shall not be commingled with amounts in any other account of that Purchase Fund. Any moneys received by the Tender Agent by reason of the remarketing by the Remarketing Agent of any Variable Rate Series 2019C Subordinate Bonds subject to purchase on a Purchase Date shall be deposited by the Tender Agent in the Remarketing Proceeds Account and applied by the Tender Agent in accordance with subsections (d) and (e). Any moneys received by the Tender Agent representing amounts paid by the Credit Facility Provider under the Credit Facility for the purchase of a Variable Rate Series 2019C Subordinate Bond subject to purchase on a Purchase Date shall be deposited by the Tender Agent in the Credit Facility Purchase Account and applied by the Tender Agent in accordance with subsections (d)

and (e). Any moneys received by the Tender Agent representing amounts paid by the Authority for the purchase of a Variable Rate Series 2019C Subordinate Bond subject to purchase on a Purchase Date shall be deposited by the Tender Agent in the Authority Purchase Account of the Purchase Fund and applied by the Tender Agent in accordance with subsections (d) and (e). Moneys shall be transferred to the Undelivered Bond Payment Account from the other accounts of the Purchase Fund or to the Credit Facility Provider in accordance with subsection (e); and moneys shall be applied from the Undelivered Bond Payment Account in accordance with subsection (f) and (g).

(b) Upon receipt of notice, in writing or by any Electronic Means, of tender relating to Daily Rate Bonds, the Tender Agent shall promptly notify the Remarketing Agent, the Authority, the Trustee and any Credit Facility Provider by telephonic notice of the amount of the Variable Rate Series 2019C Subordinate Bonds to be tendered pursuant to such notice. The Tender Agent shall confirm such telephonic notice by Electronic Means by 11:15 a.m., New York City time, on the Purchase Date, with the Tender Agent including in such telephonic notice and the confirmation thereof the amount of the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds and the portion, if any, thereof representing accrued and unpaid interest on such Bonds to the Purchase Date. Upon receipt of notice, in writing or by any Electronic Means, of tender relating to Weekly Rate Bonds, the Tender Agent shall, not later than 5:00 p.m., New York City time, on the next Business Day, send notice of such tender to the Authority, the Remarketing Agent, the Trustee and any Credit Facility Provider by Electronic Means, with the Tender Agent including in such notice the amount of the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds and the portion, if any, thereof representing accrued and unpaid interest on the Variable Rate Series 2019C Subordinate Bonds to the Purchase Date. Simultaneously with giving notice pursuant to Section 408(d) of any mandatory tender of the Variable Rate Series 2019C Subordinate Bonds pursuant to Section 408(a), the Trustee shall give notice by telephone or Electronic Means, promptly confirmed in writing, to the Tender Agent, the Remarketing Agent, any Credit Facility Provider and the Authority specifying the Purchase Date, the aggregate principal amount and Purchase Price of the Variable Rate Series 2019C Subordinate Bonds subject to mandatory tender on such Purchase Date, and the portion, if any, of such Purchase Price representing accrued and unpaid interest on such Variable Rate Series 2019C Subordinate Bonds to such Purchase Date.

(c) Not later than 11:30 a.m., New York City time, on each Purchase Date, the Remarketing Agent shall notify the Trustee, the Tender Agent and any Credit Facility Provider by Electronic Means of (i) the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds to be sold by the Remarketing Agent and (ii) the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds tendered for purchase which will not be sold by the Remarketing Agent, and the Tender Agent shall then determine the amount, if any, by which the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds to be purchased on such Purchase Date exceeds the amount of the proceeds of the remarketing of such Variable Rate Series 2019C Subordinate Bonds by the Remarketing Agent on deposit in the Remarketing Proceeds Account at such time and shall immediately give telephonic or Electronic Means notice of that amount to the Trustee, the Authority and any Credit Facility Provider, which notice shall be promptly confirmed in writing; and

(i) if a Credit Facility is in effect on such Purchase Date, then, except with respect to Credit Facility Provider Bonds held pursuant to Section 411(b) and Variable Rate Series 2019C Subordinate Bonds held by the Authority, (A) the Trustee shall submit in accordance with the terms of the Credit Facility and by such time as is required to receive funds on the Purchase Date for the payment of the Purchase Price, a Credit Facility Request to the Credit Facility Provider requesting the purchase by that Credit Facility Provider under the Credit Facility, or the funding by the Credit Facility Provider under the Credit Facility of moneys for the purchase, of the Variable Rate Series 2019C Subordinate Bonds at a Purchase Price equal to the amount of the excess of the aggregate Purchase Price over any amounts on hand for payment to tendering Bondholders, and (B) not later than 2:00 p.m., New York City time, on such Purchase Date, the Trustee shall transfer to the Tender Agent and the Tender Agent shall deposit the proceeds of the Credit Facility Request received by the Trustee in the Credit Facility Purchase Account; or

(ii) if no Credit Facility is in effect on such Purchase Date, then (A) not later than 12:30 p.m., New York City time, on such Purchase Date, the Tender Agent shall notify the Authority of the amount of the excess of the aggregate Purchase Price over any amounts on hand for payment to tendering Bondholders, which shall thereupon be payable by the Authority to the Tender Agent for the purpose of causing the Tender Agent to purchase such Bonds on behalf of the Authority, and (B) not later than 2:30 p.m., New York City time, on such Purchase Date, the Tender Agent shall deposit the amount, if any, received by the Tender Agent from the Authority for such purpose in the Authority Purchase Account; provided, however, the Authority has no obligation to deposit moneys in the Authority Purchase Account and has no obligation to purchase tendered Variable Rate Series 2019C Subordinate Bonds.

(d) Not later than 2:30 p.m., New York City time, on each Purchase Date, the Tender Agent shall disburse the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds to be purchased on such Purchase Date to the Holders thereof (upon surrender thereof for payment of such Purchase Price), from the following sources and in the following order of priority:

(i) Moneys on deposit in the Remarketing Proceeds Account (representing the proceeds of the remarketing by the Remarketing Agent of such Variable Rate Series 2019C Subordinate Bonds); and

(ii) If a Credit Facility is in effect on such Purchase Date, moneys on deposit in the Credit Facility Purchase Account (representing the proceeds of a Credit Facility Request); and

(iii) Moneys on deposit in the Authority Purchase Account (representing amounts paid by the Authority to the Tender Agent for the purchase of such Variable Rate Series 2019C Subordinate Bonds). The Authority has no obligation to deposit moneys in the Authority Purchase Account and has no obligation to purchase tendered Variable Rate Series 2019C Subordinate Bonds that are not remarketed.

(e) If the funds available from the sources specified in the preceding clause (d) for the purchase of the Variable Rate Series 2019C Subordinate Bonds subject to purchase on a Purchase Date are insufficient to purchase all of the Variable Rate Series 2019C Subordinate Bonds subject to purchase on such Purchase Date (including Undelivered Bonds), then, no purchase of any of those Variable Rate Series 2019C Subordinate Bonds shall occur on such Purchase Date, and on such Purchase Date, the Tender Agent shall (i) return to the Holders all of such Variable Rate Series 2019C Subordinate Bonds that were tendered, (ii) return all moneys received by the Tender Agent for the purchase of such Variable Rate Series 2019C Subordinate Bonds to the respective Persons that provided such moneys (in the respective amounts in which such moneys were so provided), and (iii) notify the Trustee of the foregoing. If a Credit Facility is in effect with respect to such Variable Rate Series 2019C Subordinate Bonds, and if the Credit Facility Provider is not in default thereunder, then the failure to purchase the Variable Rate Series 2019C Subordinate Bonds shall cause the Variable Rate Series 2019C Subordinate Bonds to remain outstanding and to bear interest at the Penalty Rate from and after the Purchase Date and until the Purchase Price for all such Variable Rate Series 2019C Subordinate Bonds shall have been paid in full or until they otherwise cease to be Outstanding, but shall not constitute an Event of Default hereunder. Otherwise, (i) if such Variable Rate Series 2019C Subordinate Bonds shall have been designated Hard Tender Index Rate Bonds, then the failure to purchase the Variable Rate Series 2019C Subordinate Bonds shall constitute an Event of Default under Section 903(e), but (ii) if such Variable Rate Series 2019C Subordinate Bonds (a) shall have been designated Soft Tender Index Rate Bonds, or (b) bear interest at a Weekly Rate, Daily Rate or Short-Term Rate, then the failure to purchase the Variable Rate Series 2019C Subordinate Bonds shall not constitute an Event of Default under Section 903(e), and the Variable Rate Series 2019C Subordinate Bonds shall bear interest at the Penalty Rate from and after the Purchase Date and until the Purchase Price for all such Variable Rate Series 2019C Subordinate Bonds shall have been paid in full or until they otherwise cease to be Outstanding.

(f) Any moneys remaining in the Remarketing Proceeds Account, the Credit Facility Purchase Account or the Authority Purchase Account and representing (but not exceeding) the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds subject to purchase on the Purchase Date but not tendered and delivered for purchase on the Purchase Date (following the payments described in subsection (d)) shall be transferred by the Tender Agent to the Undelivered Bond Payment Account not later than 3:30 p.m., New York City time, on the Purchase Date (and retained therein, subject to subsection (a), for application in accordance with subsection (f)). Any moneys remaining in the Remarketing Proceeds Account, the Credit Facility Purchase Account and the Authority Purchase Account on a Purchase Date (after the payments described in subsection (d) and the transfer described in the preceding sentence of this subsection (e)) shall be wire transferred by the Tender Agent, in immediately available funds, prior to the close of business on such Purchase Date, to the Credit Facility Provider, to the extent of any amounts owed to the Credit Facility Provider in respect of a Credit Facility Request, and then to the Authority.

(g) Moneys transferred to the Undelivered Bond Payment Account of the Purchase Fund on any Purchase Date shall be applied, on or after such Purchase Date, by the Tender Agent to pay the Purchase Price of the Undelivered Bonds in respect of which they were so transferred, upon the surrender of such Variable Rate Series 2019C Subordinate Bonds to the Tender Agent for such purpose.

(h) Notwithstanding the foregoing, in the event that the Variable Rate Series 2019C Subordinate Bonds are converted to a Fixed Rate and remarketed at a premium over par, remarketing proceeds received by the Tender Agent in excess of the amount required to pay the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds tendered for purchase shall be delivered by the Tender Agent to the Trustee for deposit in a separate account in the custody of the Trustee. Such excess remarketing proceeds shall be disbursed by the Trustee in accordance with the written directions of an Authorized Official to pay fees and expenses relating to the conversion and remarketing, including any fees and expenses relating to any Credit Facility, to make any required deposit to the Debt Service Reserve Fund, to pay any amount owed upon early termination of any Hedge Agreement and otherwise to apply consistently with the Indenture.

**Section 408. Mandatory Tender and Purchase of Variable Rate Series 2019C Subordinate Bonds.**

(a) All the Variable Rate Series 2019C Subordinate Bonds shall be subject to mandatory tender for purchase by the Tender Agent at the Purchase Price, as follows:

(i) Short-Term and Long-Term Rate Bonds. Each Short-Term Rate Bond shall be subject to mandatory tender for purchase by the Tender Agent on the first day following the last day of each Short-Term Interest Period applicable to such Short-Term Rate Bond, and each Long-Term Rate Bond shall be subject to mandatory tender for purchase on the first day following the last day of each Long-Term Interest Period; provided that either in the Certificate of Award or in any applicable Notice of Conversion, Long-Term Rate Bonds shall be designated as either Hard Tender Long-Term Rate Bonds or Soft Tender Long-Term Rate Bonds.

(ii) Conversion of Modes. Each subseries of the Variable Rate Series 2019C Subordinate Bonds shall be subject to mandatory tender for purchase by the Tender Agent on each Conversion Date for such subseries.

(iii) Expiration of a Credit Facility, Voluntary Termination of a Credit Facility or Replacement of a Credit Facility With a Substitute Credit Facility. Variable Rate Series 2019C Subordinate Bonds requiring the maintenance of a Credit Facility are subject to mandatory tender for purchase by the Tender Agent (1) on a Business Day selected by the Trustee which shall be at least five days prior to the Expiration Date of the Credit Facility; (2) on a Business Day selected by the Trustee which shall be at least five days prior to the Voluntary Termination Date of the Credit Facility and (3) on each Substitution Date, which shall be at least five days prior to the Expiration Date of the Credit Facility being replaced. Payment of the Purchase Price shall be made from proceeds of remarketing or a draw of moneys upon the Credit Facility that is expiring or being replaced.

(iv) Notice by the Credit Facility Provider. While a Credit Facility is in effect, the Variable Rate Series 2019C Subordinate Bonds are subject to mandatory tender for purchase by the Tender Agent (a) on a Business Day selected by the Trustee that is not more than one Business Day after the Trustee's receipt of notification from that Credit

Facility Provider of that Credit Facility Provider's decision to exercise its right of mandatory tender as a result of the occurrence of certain events of default or termination under the Reimbursement Agreement, and (b) on the date designated by the Trustee following receipt by the Trustee of notice from the Credit Facility Provider that the Credit Facility Provider is not reinstating the Credit Facility following a draw, which date shall be a Business Day and shall be not more than one Business Day after the Trustee receives notice of non-reinstatement from the Credit Facility Provider.

(v) Index Rate Bonds Purchase Dates. Variable Rate Series 2019C Subordinate Bonds that are converted to Index Rate Bonds (regardless of whether they are then currently Index Rate Bonds) for any Index Rate Period shall be subject to mandatory tender (A) on the Index Rate Bonds Purchase Date specified in the applicable Notice of Conversion, which shall also specify if such Variable Rate Series 2019C Subordinate Bonds shall be Hard Tender Index Rate Bonds or Soft Tender Index Rate Bonds, and (B) at the option of the Authority on any Business Day on or after a date specified in the applicable Notice of Conversion.

(b) Variable Rate Series 2019C Subordinate Bonds to be purchased pursuant to subsection (a) shall be delivered by the Holders thereof to the Tender Agent (together with necessary assignments and endorsements) at or prior to 1:00 p.m., New York City time, on the applicable Purchase Date.

(c) Any Variable Rate Series 2019C Subordinate Bonds to be purchased by the Tender Agent pursuant to this Section that are not delivered for purchase on or prior to the Purchase Date, for which there has been irrevocably deposited in trust with the Tender Agent an amount sufficient to pay the Purchase Price of such Variable Rate Series 2019C Subordinate Bonds, shall be deemed to have been delivered to the Tender Agent for purchase, and the Holders of such Variable Rate Series 2019C Subordinate Bonds shall not be entitled to any payment (including any interest to accrue on or after the Purchase Date) other than the respective Purchase Prices of such Variable Rate Series 2019C Subordinate Bonds, and such Variable Rate Series 2019C Subordinate Bonds shall not be entitled to any benefits of the Indenture, except for payment of such Purchase Price out of the moneys deposited for such payment as aforesaid.

(d) In addition to any other requirements set forth in this Twenty-Fifth Supplemental Indenture, notices of mandatory tender shall be mailed to Holders and shall:

(i) specify the proposed Purchase Date and the event which gives rise to the proposed Purchase Date;

(ii) state that such Variable Rate Series 2019C Subordinate Bonds shall be subject to mandatory tender for purchase on such Purchase Date;

(iii) state that Holders may not elect to retain the Variable Rate Series 2019C Subordinate Bonds subject to mandatory tender;

(iv) state that all of the Variable Rate Series 2019C Subordinate Bonds subject to mandatory tender shall be required to be delivered to the Designated Office of the Tender Agent at or before 1:00 p.m., New York City time, on the Purchase Date;



(v) state that if the Holder of any Variable Rate Series 2019C Subordinate Bonds subject to mandatory tender fails to deliver such Variable Rate Series 2019C Subordinate Bonds to the Tender Agent for purchase on the Purchase Date, and if the Tender Agent is in receipt of funds sufficient to pay the Purchase Price thereof, such Variable Rate Series 2019C Subordinate Bonds shall nevertheless be deemed purchased on the Purchase Date and ownership of such Variable Rate Series 2019C Subordinate Bonds shall be transferred to the purchaser thereof;

(vi) state that any Holder that fails to deliver such Variable Rate Series 2019C Subordinate Bonds for purchase shall have no further rights thereunder or under the Indenture except the right to receive the Purchase Price thereof upon presentation and surrender of such Variable Rate Series 2019C Subordinate Bonds to the Tender Agent and that the Trustee will place a stop transfer against the Variable Rate Series 2019C Subordinate Bonds subject to mandatory tender registered in the name of such Holder(s) on the registration books;

(vii) in the case of mandatory tender upon any proposed conversion of Variable Rate Series 2019C Subordinate Bonds, state that such conversion and such mandatory tender will not occur if certain events and conditions specified in Section 404(b) do not occur or are not satisfied and summarize those events and conditions; and

(viii) in the case of mandatory tender on a Substitution Date, state the information required by Section 412(d).

(e) Notice of mandatory tender of Variable Rate Series 2019C Subordinate Bonds shall be given by the Trustee via Electronic Means or by first-class mail, to the Holders of the Variable Rate Series 2019C Subordinate Bonds (at their addresses as they appear on the Register as of the date of such notice), and to the Authority, any Remarketing Agent, the Tender Agent and any Credit Facility Provider, as follows. If the mandatory tender is by reason of the events described in clauses (ii) or (iii) of subsection (a), that notice shall be given no fewer than 10 days prior to the Purchase Date. If the mandatory tender is by reason of the events described in clause (iv) of subsection (a), that notice shall be given immediately. No notice of mandatory tender is required to be given when the tender is by reason of clause (i) of subsection (a).

(f) Failure to mail such notice or any defect therein shall not affect the rights or obligations of Holders and the Trustee shall not be liable to any Holder by reason of its failure to mail such notice or any defect therein.

(g) If, following the giving of notice of mandatory tender of Variable Rate Series 2019C Subordinate Bonds, an event occurs which, in accordance with the terms of this Twenty-Fifth Supplemental Indenture, causes such mandatory tender not to occur, then (i) the Trustee shall so notify the Holders of the Variable Rate Series 2019C Subordinate Bonds (at their addresses as they appear on the Bond Register on the date of such notice), via Electronic Means or by first-class mail, as soon as may be practicable after the Purchase Date, and (ii) the Tender Agent shall return to their Holders any of the Variable Rate Series 2019C Subordinate Bonds tendered to the Tender Agent in connection with such mandatory tender of the Variable Rate Series 2019C Subordinate Bonds.

**Section 409. The Remarketing Agent.**

(a) Each Remarketing Agent shall perform the duties of the Remarketing Agent pursuant to the Remarketing Agreement and this Twenty-Fifth Supplemental Indenture. Successor Remarketing Agents may be appointed from time to time by the Authority with the prior written consent of the Credit Facility Provider (which consent shall not be unreasonably withheld). The Remarketing Agents shall be corporations or other legal entities organized and doing business under the laws of the United States of America or of any state thereof, authorized under such laws to perform all duties imposed upon the Remarketing Agents by this Twenty-Fifth Supplemental Indenture, and shall be either (a) a member of the National Association of Securities Dealers, Inc. and registered as a Municipal Securities Dealer under the Securities Exchange Act of 1934, as amended, or (b) a national banking association, commercial bank or trust company. So long as the Variable Rate Series 2019C Subordinate Bonds are held in book-entry form at the Depository, each Remarketing Agent must be a Participant in the Depository with respect to the Variable Rate Series 2019C Subordinate Bonds.

(b) Each Remarketing Agent appointed in accordance with this Twenty-Fifth Supplemental Indenture shall designate its Designated Office and signify its acceptance of the duties and obligations imposed upon it as described herein by a written instrument of acceptance delivered to the Authority, the Trustee, the Tender Agent and any Credit Facility Provider, or by executing and delivering a Remarketing Agreement, in either case under which the Remarketing Agent will agree, particularly:

(i) to hold all moneys delivered to it hereunder for the purchase of the Variable Rate Series 2019C Subordinate Bonds in trust for the exclusive benefit of the Person or Persons that shall have so delivered such moneys until the Variable Rate Series 2019C Subordinate Bonds purchased with such moneys shall have been delivered to or for the account of such Person or Persons;

(ii) to keep such books and records as shall be consistent with prudent industry practice and to make such books and records available for inspection by the Authority, the Trustee, the Tender Agent and the Authority at all reasonable times;

(iii) to determine (A) the Daily Rates, Weekly Rates, Short-Term Rates and Long-Term Rates, and, pursuant to Section 403(j), during any Subsequent Index Rate Period, the Applicable Spread that will be used in determining the Index Rate for each Subsequent Index Interest Period, (B) if engaged as Remarketing Agent in connection with the conversion to Fixed Rate Bonds, the Fixed Rate(s), and give notice of such rates in accordance with Article IV;

(iv) to remarket Daily Rate Bonds, Weekly Rate Bonds, Short-Term Rate Bonds and Long-Term Rate Bonds at rates no higher than the rate of interest available under the Credit Facility, if a Credit Facility secures the Variable Rate Series 2019C Subordinate Bonds, and to remarket Short-Term Rate Bonds and Long-Term Rate Bonds for Short-Term Periods or Long-Term Rate Periods, as appropriate, no longer than interest is available under the Credit Facility if a Credit Facility secures the Variable Rate Series 2019C Subordinate Bonds all in accordance with Section 413;

(v) to offer for sale and use its best efforts to find purchasers for the Variable Rate Series 2019C Subordinate Bonds tendered for purchase, any such sale to be made in accordance with the terms of this Twenty-Fifth Supplemental Indenture;

(vi) to deliver to the Tender Agent all of the Variable Rate Series 2019C Subordinate Bonds held by it in accordance with the terms of this Twenty-Fifth Supplemental Indenture and the Remarketing Agreement; and

(vii) to perform such other duties and responsibilities (including with respect to Credit Facility Bonds) as are provided in this Twenty-Fifth Supplemental Indenture to be performed by a Remarketing Agent.

Notwithstanding the foregoing, a Remarketing Agent may be engaged for only certain types of Rate Periods, and in that event the Remarketing Agent shall not be required to perform the duties of the Remarketing Agent for any other type of Rate Period.

(c) A Remarketing Agent may at any time resign and be discharged of the duties and obligations described in this Twenty-Fifth Supplemental Indenture by giving at least 60 days' notice to the Authority, the Trustee, the Tender Agent, any Credit Facility Provider and each Rating Agency. A Remarketing Agent may be removed at any time upon the Written Request of the Authority and upon written notice to the Remarketing Agent, the Tender Agent, the Trustee and any Credit Facility Provider; provided, however, that no such resignation or removal shall be or become effective unless and until a successor Remarketing Agent shall have been appointed and accepted such appointment in accordance with subsection (a).

(d) If and so long as no successor Remarketing Agent is appointed by the Authority after the office of a Remarketing Agent becomes vacant, the Tender Agent or Trustee, at the expense of the Authority, may petition a court to appoint a successor Remarketing Agent.

(e) A Remarketing Agent may in good faith hold the Variable Rate Series 2019C Subordinate Bonds or any other form of indebtedness issued by the Authority; own, accept or negotiate any drafts, bills of exchange, acceptances or obligations thereof, and make disbursements therefor and enter into any commercial or business arrangement therewith; all without any liability on the part of the Remarketing Agent for any real or apparent conflict of interest by reason of any such actions.

**Section 410. Sale of Variable Rate Series 2019C Subordinate Bonds by Remarketing Agent.**

(a) Upon the receipt by a Remarketing Agent of (i) notice of tender of Daily Rate Bonds or Weekly Rate Bonds pursuant to Section 406, or (ii) notice of mandatory tender of the Variable Rate Series 2019C Subordinate Bonds pursuant to Section 408, the Remarketing Agent shall offer for sale and use its best efforts to solicit purchases of Variable Rate Series 2019C Subordinate Bonds subject to purchase on the Purchase Date at a price equal to the applicable purchase price.

(b) A Remarketing Agent shall direct that the proceeds of all purchases of the Variable Rate Series 2019C Subordinate Bonds solicited and arranged by the Remarketing Agent

be paid to the Tender Agent (for deposit in the Remarketing Proceeds Account), at or prior to 12:00 p.m., New York City time, on the Purchase Date, in immediately available funds (and, promptly upon receipt thereof, the Tender Agent shall deposit such proceeds in the Remarketing Proceeds Account).

(c) [Reserved].

(d) A Remarketing Agent shall offer for sale and use its best efforts to arrange for the sale and remarketing of all Credit Facility Provider Bonds, prior to the sale and remarketing of any Variable Rate Series 2019C Subordinate Bonds, at a price equal to 100% of the principal amount thereof plus accrued and unpaid interest thereon (at the rate that would be borne by such Credit Facility Provider Bonds if such Credit Facility Provider Bonds were not Credit Facility Provider Bonds). In connection with each remarketing of Credit Facility Provider Bonds by the Remarketing Agent:

(i) The Remarketing Agent shall (A) provide to the Authority, the Credit Facility Provider, the Trustee and the Tender Agent not less than one Business Day's prior notice of such remarketing, and (B) pay, or cause to be paid to the Credit Facility Provider, by wire transfer of immediately available funds, the proceeds of such remarketing;

(ii) The Trustee shall (A) in consultation with the Credit Facility Provider, calculate the Credit Facility Provider Bonds Purchase Price, (B) in consultation with the Remarketing Agent, determine the amount of remarketing proceeds paid to the Credit Facility Provider by the Remarketing Agent, and (C) pay to the Credit Facility Provider, from moneys in the Debt Service Fund and by wire transfer of immediately available funds, the balance of the Credit Facility Provider Bonds Purchase Price owed to the Credit Facility Provider (representing the difference between the accrued interest on the Credit Facility Provider Bonds paid by the purchaser of the Credit Facility Provider Bonds and the accrued interest on those Credit Facility Provider Bonds at the Credit Facility Provider Rate);

(iii) The Trustee shall confirm with the Credit Facility Provider the receipt by that Credit Facility Provider of the Credit Facility Provider Bonds Purchase Price, the reinstatement of the Credit Facility in respect of such Credit Facility Provider Bonds and the authorization of that Credit Facility Provider to release such Credit Facility Provider Bonds; and

(iv) After, and only after, receipt by the Trustee of confirmation by the Credit Facility Provider of the reinstatement of the Credit Facility to cover such Credit Facility Provider Bonds following remarketing thereof and authorization by that Credit Facility Provider of such transfer or such authentication and delivery, the Trustee shall (A) while a book-entry system is in effect with respect to the Variable Rate Series 2019C Subordinate Bonds, cause the ownership interest in such Credit Facility Provider Bonds to be transferred to or for the benefit of such purchaser or purchasers as are specified by the Remarketing Agent for such purpose, and (B) while a book-entry system is not in effect with the Depository with respect to the Variable Rate Series 2019C Subordinate

Bonds, authenticate other Variable Rate Series 2019C Subordinate Bonds in lieu of such Credit Facility Provider Bonds and to deliver the same to or upon the instruction of the Remarketing Agent.

(e) A Remarketing Agent shall offer for sale and use its best efforts to arrange for the sale and remarketing of (i) all Variable Rate Series 2019C Subordinate Bonds subject to purchase on a Purchase Date that are purchased with moneys provided by the Authority to the Tender Agent for such purpose (as described in Section 407(c)(ii)), and (ii) all of the Variable Rate Series 2019C Subordinate Bonds that are purchased by the Authority pursuant to the Credit Facility and not surrendered by the Authority for cancellation.

**Section 411. Delivery of Purchased Variable Rate Series 2019C Subordinate Bonds.**

(a) Upon application of the moneys described in Section 407(d)(i) to the purchase of Variable Rate Series 2019C Subordinate Bonds on a Purchase Date pursuant to Section 407(d)(i) (and/or to the transfer thereof to the Undelivered Bond Payment Account on a Purchase Date pursuant to Section 407(e)), the Tender Agent shall cause the Trustee to register the transfer of Variable Rate Series 2019C Subordinate Bonds purchased therewith in the names of the purchasers thereof in accordance with information provided by the Remarketing Agent for such purpose and to have such transferred Variable Rate Series 2019C Subordinate Bonds available for delivery against payment therefor.

(b) Upon application of the moneys described in Section 407(d)(ii) to the purchase of Variable Rate Series 2019C Subordinate Bonds on a Purchase Date pursuant to Section 407(d)(ii) (and/or to the transfer thereof to the Undelivered Bond Payment Account on a Purchase Date pursuant to Section 407(e)), (i) the Variable Rate Series 2019C Subordinate Bonds purchased (or, in the case of such transfer, provided to be purchased) with such moneys shall constitute Credit Facility Provider Bonds (unless and until such Variable Rate Series 2019C Subordinate Bonds cease to be Credit Facility Provider Bonds as described in the definition thereof), and (ii) if a book-entry system is in effect with the Depository with respect to the Variable Rate Series 2019C Subordinate Bonds, the ownership interest in such Credit Facility Provider Bonds shall be transferred on the books of the Depository to or for the account of the Tender Agent or a Participant acting on behalf of the Tender Agent and the Tender Agent shall, and shall cause such Participant to, mark its own books and records to reflect the beneficial ownership of such Credit Facility Provider Bonds by the Credit Facility Provider, and (iii) if a book-entry system is not in effect with the Depository with respect to the Variable Rate Series 2019C Subordinate Bonds, such Bonds shall be delivered by the Tender Agent to the Trustee for registration of transfer and shall be registered by the Trustee in the name of the Credit Facility Provider, or any nominee of the Credit Facility Provider, and delivered by the Trustee to the Tender Agent and held by the Tender Agent as the custodian of the Credit Facility Provider. The Tender Agent shall release and redeliver or transfer Credit Facility Provider Bonds (being remarketed by the Remarketing Agent) as provided in Section 410(d). Any other disposition of Credit Facility Provider Bonds shall be made only at the written direction or with the prior written consent of the Credit Facility Provider, subject to receipt by the Trustee of confirmation by the Credit Facility Provider of the reinstatement of the Credit Facility to cover such Credit Facility Provider Bonds.

(c) Upon the application of moneys described in Section 407(d)(iii) to the purchase of Variable Rate Series 2019C Subordinate Bonds on a Purchase Date pursuant to Section 407(d)(iii) (and/or to the transfer thereof to the Undelivered Bond Payment Account on a Purchase Date pursuant to Section 407(e)), the Variable Rate Series 2019C Subordinate Bonds purchased (or, in the case of such transfer, provided to be purchased) with such moneys shall be registered in the name of the Authority and shall, at the direction of the Authority, be delivered to the Trustee for cancellation (and canceled by the Trustee) or delivered to the Tender Agent for the account of the Authority and remarketed in accordance with Section 410(e).

(d) Any Variable Rate Series 2019C Subordinate Bonds canceled by the Trustee pursuant to this Section and any Variable Rate Series 2019C Subordinate Bonds surrendered by the Authority to the Trustee for cancellation shall be allocated to the next succeeding scheduled mandatory redemption obligation pursuant to Section 501(b) then as a credit against such future scheduled mandatory redemption obligation pursuant to Section 501(c) as the Authority may specify in a Written Request; provided, however, that there shall be first redeemed any Outstanding Credit Facility Provider Bonds. Prior to the Expiration Date, the Trustee shall notify the Credit Facility Provider of the aggregate principal amount of the Variable Rate Series 2019C Subordinate Bonds so canceled and shall submit to the Credit Facility Provider such documents, if any, as are required in accordance with the terms of the Credit Facility to cause the amounts available under the Credit Facility to be reduced in respect of such Variable Rate Series 2019C Subordinate Bonds so canceled.

**Section 412. Credit Facility.**

(a) The Trustee shall make Credit Facility Requests in accordance with Sections 407(c). The Trustee shall only draw upon a Credit Facility when that Credit Facility is in a stated amount not less than (i) the aggregate principal amount of the Variable Rate Series 2019C Subordinate Bonds, plus (ii) such number of days of interest as may accrue prior to any Interest Payment Date based on the Rate Period then in effect, and the Trustee shall not draw upon a Credit Facility that by its terms is not available during the Rate Period.

(b) The Trustee shall not terminate or reduce the amounts available under a Credit Facility except by reason of the redemption, cancellation and/or defeasance of the Variable Rate Series 2019C Subordinate Bonds, or unless the Authority has properly furnished a Substitute Credit Facility, as provided in Section 413.

(c) The Authority shall maintain a Credit Facility for the Variable Rate Series 2019C Subordinate Bonds in effect in accordance with Section 413 herein at all times it is required to do so by this Section.

(d) The Authority may furnish a Substitute Credit Facility in substitution for any then existing Credit Facility for the Variable Rate Series 2019C Subordinate Bonds upon satisfaction of the conditions set forth in Section 413. The Trustee shall give notice to the Holders of the Variable Rate Series 2019C Subordinate Bonds (at their addresses as they appear on the registration books of the Trustee as of the date of such notice), via Electronic Means or by first-class mail, of the proposed substitution of a Substitute Credit Facility for the Credit Facility then in effect for the Variable Rate Series 2019C Subordinate Bonds and the related Substitution Date

(stating the issuer or issuers and the term of such Substitute Credit Facility) at least 10 days prior to such Substitution Date. Such notice shall also constitute the notice of mandatory tender of the Variable Rate Series 2019C Subordinate Bonds on the related Substitution Date; provided, however, that, if the Substitution Date is more than 15 days prior to the Expiration Date of the Credit Facility being replaced, in addition to the information required by Section 408(d), such notice may state that such mandatory tender of the Variable Rate Series 2019C Subordinate Bonds will not occur if, on or prior to the proposed Substitution Date, the Trustee does not receive such Substitute Credit Facility, together with the supporting substitution documents. If, by reason of the conditions to such mandatory tender of the Variable Rate Series 2019C Subordinate Bonds (as stated in such notice), there is no mandatory tender of the Variable Rate Series 2019C Subordinate Bonds on the proposed Substitution Date, (i) the Tender Agent shall so notify the Trustee, (ii) the Trustee shall so notify the Holders of the Variable Rate Series 2019C Subordinate Bonds (at their addresses as they appear on the registration books of the Trustee as of the date of such notice) via Electronic Means or by first-class mail, and (iii) the Tender Agent shall return to their Holders any of the Variable Rate Series 2019C Subordinate Bonds tendered to the Tender Agent in connection with such mandatory tender of the Variable Rate Series 2019C Subordinate Bonds.

(e) No Credit Facility is required if the requirements of Section 413 are met for the expiration of any Credit Facility without substitution of a Substitute Credit Facility.

**Section 413. Substitute Credit Facility.**

(a) During any time that Variable Rate Series 2019C Subordinate Bonds are Daily Rate Bonds or Weekly Rate Bonds, the Authority shall maintain a Credit Facility for the Variable Rate Series 2019C Subordinate Bonds under which the Credit Facility Provider is required to purchase or provide funds for the purchase of the Variable Rate Series 2019C Subordinate Bonds tendered for purchase in accordance with this Twenty-Fifth Supplemental Indenture. The Credit Facility shall be issued by a bank, trust company, national banking association, insurance company or other financial services company or entity or the Authority, in an amount not less than (i) the aggregate principal amount of all Outstanding Variable Rate Series 2019C Subordinate Bonds, plus (ii) an amount equal to at least 34 days' interest on all Outstanding Variable Rate Series 2019C Subordinate Bonds at the Maximum Rate, plus (iii) in the case of a Credit Facility that does not automatically reinstate coverage for interest following a drawing to pay interest on the Variable Rate Series 2019C Subordinate Bonds, the number of days during which the Variable Rate Series 2019C Subordinate Bonds may continue to bear interest until purchased upon mandatory tender under Section 408(a)(iv) following a drawing in which the Credit Facility Provider may notify the Trustee that interest coverage has not reinstated. The Authority will not voluntarily terminate a Credit Facility while Variable Rate Series 2019C Subordinate Bonds are Daily Rate Bonds or Weekly Rate Bonds without at least 30 days' prior written notice to the Trustee and without providing for a Substitute Credit Facility (including the Authority providing its own Credit Facility) prior to the effective date of such termination.

(b) At any time the Authority may furnish a Substitute Credit Facility subject to the following limitations and the other limitations set forth in this Section:

(i) The principal amount of the Substitute Credit Facility must be not less than that required by Section 413(a).

(ii) The term of the Substitute Credit Facility must be at least 90 days.

(iii) On or prior to the effective date of a Substitute Credit Facility, the Authority shall furnish to the Trustee (i) an Opinion or Opinions of Counsel acceptable to the Trustee to the effect that the Credit Facility has been duly authorized, executed and delivered by the Credit Facility Provider and is a valid and binding obligation of the Credit Facility Provider enforceable in accordance with its terms (subject as to enforceability to standard exceptions respecting bankruptcy, insolvency and similar laws and principles of equity) and that the exemption of the Variable Rate Series 2019C Subordinate Bonds (or any securities evidenced thereby) from the registration requirements of the Securities Act of 1933, as amended, and the exemption of the Indenture from qualification under the Trust Indenture Act of 1939, as amended, shall not be impaired by such Substitute Credit Facility or that the registration or qualification requirements of such acts have been satisfied, and (ii) if such Bonds are then rated, notice from the Rating Agency to the effect that such Rating Agency has reviewed the proposed Substitute Credit Facility and the provision of such Substitute Credit Facility will not, by itself, result in (A) a permanent withdrawal of the rating on the Bonds or (B) a reduction in the then current rating on the Series 2019C Subordinate Bonds.

(iv) The Authority shall give written notice to the Trustee, the Tender Agent, the Credit Facility Provider, the Remarketing Agent and each Rating Agency, not less than 30 days prior to the Substitution Date and not less than 30 days prior to the Expiration Date of a Credit Facility then in effect, specifying that the Authority intends to replace the Credit Facility with a Substitute Credit Facility on or before the Expiration Date of the Credit Facility then in effect.

(v) The Authority shall cause to be delivered to the Trustee not less than 30 days prior to the Expiration Date of an existing Credit Facility a commitment by the Credit Facility Provider that will issue the Substitute Credit Facility. If the Substitution Date for that Substitute Credit Facility is less than 15 days prior to the Expiration Date for the existing Credit Facility, the Authority shall provide the Substitute Credit Facility or an irrevocable commitment therefor together with the opinion described in Section 413(b)(iii) not later than 15 days prior to the Expiration Date.

(vi) If there are outstanding any Credit Facility Provider Bonds, the Substitute Credit Facility must provide for the purchase of those Bonds.

(c) The Authority may provide its own Credit Facility for the Variable Rate Series 2019C Subordinate Bonds if the Authority has agreed to pay the Purchase Price of any tendered Variable Rate Series 2019C Subordinate Bonds itself. As a result, any references herein to the Credit Facility Provider of the Variable Rate Series 2019C Subordinate Bonds or to the Credit



Facility of the Variable Rate Series 2019C Subordinate Bonds shall be ignored or shall be construed as referencing the Authority for as long as the Authority has agreed to pay the Purchase Price of any tendered Variable Rate Series 2019C Subordinate Bonds itself. References to a Credit Facility Request or a “draw” or “drawing” (or a similar term) on the Credit Facility, for example, shall be construed in the absence of a Credit Facility to be a notice to the Authority of the need to provide funds for the purchase of the Variable Rate Series 2019C Subordinate Bonds. If the Authority provides its own Credit Facility, then the Variable Rate Series 2019C Subordinate Bonds are subject to mandatory tender under the same terms as that of providing a Substitute Credit Facility herein.

(d) In the case of mandatory tender because of the delivery of a Substitute Credit Facility in substitution for the existing Credit Facility, the Trustee shall submit any necessary Credit Facility Request to the existing Credit Facility Provider on and prior to the Substitution Date and shall not draw upon the Substitute Credit Facility that will become effective on or after such Substitution Date, and the Trustee shall not surrender the existing Credit Facility until the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds has been paid in full.

**Section 414. Subrogation Rights of Credit Facility Provider; Credit Facility Provider Bonds; Fees.**

(a) To the extent that proceeds of a Credit Facility Request are used to pay principal of or interest on the Variable Rate Series 2019C Subordinate Bonds (“Debt Service Charges”), and the amount of such Credit Facility Request is not subsequently reimbursed to such Credit Facility Provider pursuant to the provisions of the Reimbursement Agreement, as long as the amount of such Credit Facility Request has not been reimbursed, the Credit Facility Provider shall be subrogated to and assigned the rights of and be deemed a subrogee and assignee of the rights of the Holders of those Variable Rate Series 2019C Subordinate Bonds to receive such Debt Service Charges. For purposes of the subrogation and assignment rights of a Credit Facility Provider hereunder, (a) any reference to the Holders of those Variable Rate Series 2019C Subordinate Bonds shall mean the Credit Facility Provider, (b) any Debt Service Charges on the Variable Rate Series 2019C Subordinate Bonds paid with proceeds of the Credit Facility shall be deemed to be unpaid Debt Service Charges payable under and secured as Subordinate Debt by the lien of the Indenture, and (c) the Credit Facility Provider may exercise any rights it would have as Holder of the Variable Rate Series 2019C Subordinate Bonds. The subrogation rights granted to such Credit Facility Provider in this Twenty-Fifth Supplemental Indenture are not intended to be exclusive of any other remedy or remedies available to a Credit Facility Provider, and such subrogation rights shall be cumulative and in addition to every other remedy given under the Indenture, under the Reimbursement Agreement or under any other agreement or instrument with respect to the reimbursement of moneys paid by a Credit Facility Provider under a Credit Facility or with respect to security for the Reimbursement Obligations, and every other remedy now or hereafter existing at law or in equity. The Trustee, at the expense of the Authority, shall register in the name of the Credit Facility Provider the ownership of that portion of the Variable Rate Series 2019C Subordinate Bonds the principal of which was paid by such Credit Facility Provider from the proceeds of a Credit Facility Request that has not been reimbursed by the Authority in accordance with the Reimbursement Agreement. The Trustee also shall take such action, at the expense of the Authority, as is reasonably necessary to evidence the Credit Facility Provider as the subrogee and assignee of the Holders of the Variable

Rate Series 2019C Subordinate Bonds for which interest payments have been made by the Credit Facility Provider from the proceeds of a Credit Facility Request that has not been reimbursed by the Authority in accordance with the Reimbursement Agreement.

(b) To the extent that proceeds of a Credit Facility Request are used to pay the Purchase Price of the Variable Rate Series 2019C Subordinate Bonds and the amount of such Credit Facility Request is not subsequently reimbursed to the Credit Facility Provider pursuant to the provisions of the Reimbursement Agreement, those Variable Rate Series 2019C Subordinate Bonds shall be Credit Facility Provider Bonds, and the transfer and assignment of property to the Trustee pursuant to the granting clauses hereof and in the Indenture, and all covenants, agreement and other obligations of the Trustee to the Holders shall continue to exist and shall run to the benefit of the Credit Facility Provider, and such Credit Facility Provider Bonds shall bear interest and be payable and secured as provided in this Twenty-Fifth Supplemental Indenture and in the Reimbursement Agreement.

(c) Except as provided in subsections (a) and (b) above, all fees, expenses and other amounts payable by the Authority to the Credit Facility Provider under the Reimbursement Agreement shall be treated as Operating Expenses under the Indenture payable from the Revenue Fund.

**Section 415. Credit Facility Provider Deemed Holder of Variable Rate Series 2019C Subordinate Bonds.**

Notwithstanding any provision to the contrary in this Twenty-Fifth Supplemental Indenture, and provided that (a) the Credit Facility Provider is and remains solvent and not a party to any proceeding for the rehabilitation, liquidation, conservation or dissolution of the Credit Facility Provider, (b) the Credit Facility is in full force and effect, and (c) the Credit Facility Provider shall have made and be continuing to make all payments pursuant to Credit Facility Requests, then the Credit Facility Provider shall be deemed to be the Holder of all the Variable Rate Series 2019C Subordinate Bonds and may act in the place of the Holders of the Variable Rate Series 2019C Subordinate Bonds for purposes of making requests and giving directions and consents to the Trustee and exercising any and all other rights which the holders of those Variable Rate Series 2019C Subordinate Bonds would have the power and authority to make, give, or exercise as Holders of Subordinate Debt under Article IX hereof as a result of the occurrence and continuation of an Event of Default, and making or giving any other consent, direction, or approval permitted or required under the Indenture to be made or given by Holders of the Variable Rate Series 2019C Subordinate Bonds.

**Section 416. Trustee Provisions.**

(a) While any Credit Facility is in effect, the Trustee may seek indemnification pursuant to the Indenture before suffering, taking or omitting any action under the Indenture unless such action is directly related to (i) paying the Purchase Price of or Debt Service Charges on the Variable Rate Series 2019C Subordinate Bonds when due, (ii) submitting Credit Facility Requests, or (iii) exercising its obligations in connection with a mandatory tender of the Variable Rate Series 2019C Subordinate Bonds under Section 408, and (iv) exercising its obligations in connection with the redemption of Variable Rate Series 2019C Subordinate Bonds. The Trustee

may not use the proceeds from a Credit Facility Request or remarketing proceeds to pay any fees or costs of the Trustee.

(b) Upon resignation by or removal of the Trustee in accordance with Sections 1106 or 1107 of the Master Indenture, the Trustee shall transfer any Credit Facility to the successor Trustee. Such resignation or removal shall not take effect until the appointment of a successor Trustee and acceptance by the successor Trustee of such trusts as required by Article XI of the Master Indenture and transfer to the successor Trustee of any Credit Facility then outstanding.

(c) While a Credit Facility is in effect with respect to the Variable Rate Series 2019C Subordinate Bonds, the Trustee shall act as Tender Agent for the Variable Rate Series 2019C Subordinate Bonds.

**Section 417. Modification of Dates and Times.**

Notwithstanding any other provision of this Twenty-Fifth Supplemental Indenture, and with respect to this Article IV, the dates and times by which notices are to be given and draws, transfers, disbursements and deposits are to be made may be modified upon written approval by the Trustee of a letter of instructions from the Authority, any Credit Facility Provider and the Remarketing Agent setting forth the preferred dates and times and written confirmation from each of the Rating Agencies that have rated the Variable Rate Series 2019C Subordinate Bonds that such changes will not affect the rating(s) on the Variable Rate Series 2019C Subordinate Bonds.

**Section 418. Particular Defeasance Provisions.**

(a) If the Variable Rate Series 2019C Subordinate Bonds are to be deemed paid or discharged pursuant to Article XII of the Master Indenture (“Defeased Variable Rate Series 2019C Subordinate Bonds”), and the Rate Period for the Variable Rate Series 2019C Subordinate Bonds ends prior to the maturity or redemption date to which provision for payment of Debt Service Charges is to be made, then for purposes of calculating those Debt Service Charges, interest on the Variable Rate Series 2019C Subordinate Bonds shall be calculated at the Maximum Rate for each day after the end of the Rate Period and prior to such maturity or redemption date. The Defeased Variable Rate Series 2019C Subordinate Bonds will continue to be subject to all payment provisions under this Twenty-Fifth Supplemental Indenture until and including the maturity or redemption date, as applicable. Debt Service Charges on Defeased Variable Rate Series 2019C Subordinate Bonds subject to a remarketing shall not be paid with proceeds from a draw on a Credit Facility. At such time as the Debt Service Charges are paid on any Defeased Variable Rate Series 2019C Subordinate Bonds that were unsuccessfully remarketed, such Defeased Variable Rate Series 2019C Subordinate Bonds shall be cancelled.

(b) If and to the extent that payment of Debt Service Charges on Variable Rate Series 2019C Subordinate Bonds has been made from a draw on the Credit Facility then, so long as the Authority owes any amounts to the Credit Facility Provider pursuant to the Reimbursement Agreement (as certified in writing by the Credit Facility Provider to the Trustee): (a) the lien of the Indenture shall not be discharged; (b) the Credit Facility Provider shall be subrogated to the extent of such amounts owed by the Authority to that Credit Facility Provider to all rights of the

Holders of the Variable Rate Series 2019C Subordinate Bonds to enforce the payment of the Variable Rate Series 2019C Subordinate Bonds from the Net Revenues and all other rights of the Holders under the Variable Rate Series 2019C Subordinate Bonds and the Indenture; (c) the Credit Facility Provider shall be entitled in its own right upon payment in full of Debt Service Charges on the Variable Rate Series 2019C Subordinate Bonds to exercise all rights of enforcement and remedies set forth in Article IX of this Twenty-Fifth Supplemental Indenture of the Master Indenture; (d) the Holders will be deemed paid to the extent of money drawn by the Trustee under the Credit Facility; and (e) the Trustee shall sign, execute and deliver all documents or instruments and do all things that may be reasonably required by the Credit Facility Provider to effect the Credit Facility Provider's subrogation of rights of enforcement and remedies set forth in Article IX of this Twenty-Fifth Supplemental Indenture in accordance with the intent of this Section.

## ARTICLE V

### REDEMPTION OF VARIABLE RATE SERIES 2019C SUBORDINATE BONDS

#### Section 501. Redemption of the Variable Rate Series 2019C Subordinate Bonds.

The Variable Rate Series 2019C Subordinate Bonds shall be subject to redemption in Authorized Denominations prior to maturity under the circumstances, in the manner and subject to the conditions provided in this Section and in the form of the Variable Rate Series 2019C Subordinate Bonds.

(a) Optional Redemption. The Variable Rate Series 2019C Subordinate Bonds are subject to redemption and payment prior to maturity, in whole or in part, at the option of the Authority, upon written direction from the Authorized Official to the Trustee, as follows:

(i) Daily Rate Bonds and Weekly Rate Bonds are subject to optional redemption on any date at the redemption price of 100% of the principal amount thereof, plus accrued interest to the redemption date.

(ii) Short-Term Rate Bonds are subject to optional redemption on any Interest Payment Date at the redemption price of 100% of the principal amount thereof, plus accrued interest to the redemption date.

(iii) Long-Term Rate Bonds are subject to optional redemption, on any date or dates specified in the applicable Notice of Conversion (or for the Initial Period, in the Certificate of Award), as an optional redemption date, at a redemption price equal to 100% of the principal amount redeemed, plus interest accrued to the redemption date.

(iv) Index Rate Bonds are subject to optional redemption, in whole or in part, at a redemption price equal to the principal amount of the Index Rate Bonds to be redeemed plus interest accrued to, but not including, the redemption date on any date or dates specified in the applicable Notice of Conversion as an optional redemption date.

(v) Fixed Rate Bonds are subject to optional redemption at any time on and after the no-call period shown below, at the respective redemption prices set out below, plus accrued interest thereon to the redemption date (unless an alternate optional redemption schedule is determined pursuant to this subparagraph (v)):

<b>Period to Final Maturity</b>	<b>No Call Period</b>	<b>Redemption Price</b>
Greater than or equal to 11 Years	8 years	100%
Greater than or equal to 8 years and less than 11 years	6 years	100%
Greater than or equal to 4 years and less than 8 years	3 years	100%
Less than 4 years	No optional redemption	N/A

Notwithstanding the foregoing, if before the first day of a Fixed Rate Period an alternate optional redemption schedule is delivered by the Authority to the Trustee setting forth redemption dates and redemption prices during that Fixed Rate Period together with a certificate of the Remarketing Agent certifying that the redemption terms set forth therein are advantageous for the Remarketing Agent to remarket those Bonds for that period and a Favorable Opinion of Bond Counsel, then the Variable Rate Series 2019C Subordinate Bonds shall be subject to redemption during that period in accordance with that optional redemption schedule rather than the schedule set forth above, provided that ten (10) years shall be the longest period that any Variable Rate Series 2019C Subordinate Bonds shall not be subject to optional redemption.

If a Credit Facility in the form of a direct pay bank letter of credit is in effect for the Variable Rate Series 2019C Subordinate Bonds, the Trustee shall call the Variable Rate Series 2019C Subordinate Bonds for optional redemption only if the Trustee, prior to the mailing of the notice of redemption as provided in Section 502, is entitled to draw on that Credit Facility in an aggregate amount sufficient to pay the redemption price of the Variable Rate Series 2019C Subordinate Bonds called for redemption, plus accrued and unpaid interest.

[(b) Mandatory Sinking Fund Redemption Requirements of Variable Rate Series 2019C Subordinate Bonds. The Variable Rate Series 2019C Subordinate Bonds shall be redeemed by the Authority on October 1 (or, if the Variable Rate Series 2019C Subordinate Bonds are Daily Rate Bonds or Weekly Rate Bonds and that date is not an Interest Payment Date, on the Interest Payment Date immediately succeeding that date) in the years and the amounts set forth below (the Mandatory Sinking Fund Redemption Requirements) at a redemption price equal to the principal amount thereof plus accrued interest to the redemption date, without premium (subject to any adjustment in connection with a conversion of the interest rate to a Fixed Rate in accordance with this Twenty-Fifth Supplemental Indenture).]

**Mandatory Sinking Fund Redemption Requirements  
for SubSeries 2019C Subordinate Bonds**

<u>Year</u>	<u>Amount</u>
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(c) Credits Against Scheduled Mandatory Sinking Fund Redemption Requirements. At the option of the Authority, to be exercised by delivery of a certificate of the Authorized Official to the Trustee on or before the 45th day next preceding any scheduled mandatory redemption date, the Authority may (1) deliver to the Trustee for cancellation Variable Rate Series 2019C Subordinate Bonds subject to scheduled mandatory redemption on that date or portions thereof in Authorized Denominations or (2) specify a principal amount of Variable Rate Series 2019C Subordinate Bonds or portions thereof in Authorized Denominations which prior to that date have been purchased or redeemed (otherwise than pursuant to this Section) and canceled by the Trustee at the request of the Authority and not theretofore applied as a credit against any scheduled mandatory redemption payment of Variable Rate Series 2019C Subordinate Bonds. Each Variable Rate Series 2019C Subordinate Bond or portion thereof so delivered or previously redeemed shall be credited by the Trustee at the principal amount thereof against the obligation of the Authority to redeem Variable Rate Series 2019C Subordinate Bonds on the scheduled mandatory redemption date or dates designated in writing to the Trustee by the Authorized Official occurring at least 45 days after delivery of such designation to the Trustee, provided that if no such designation is made, such credit shall not be credited against such obligation.

(d) Special Mandatory Redemption of Credit Facility Provider Bonds. Credit Facility Provider Bonds shall be subject to special mandatory redemption upon the written direction to the Trustee from the Credit Facility Provider on the date and in the amount set forth in the Reimbursement Agreement with respect to any required principal amortization of Credit Facility Provider Bonds or upon an event of default under the Reimbursement Agreement.

**Section 502. Notice of Redemption.**

The Trustee shall cause notice of any redemption of Variable Rate Series 2019C Subordinate Bonds to be (i) mailed to the Holders of all Variable Rate Series 2019C Subordinate Bonds to be redeemed at the registered addresses appearing in the Register, (ii) transmitted by Electronic Means to each Depository and to the Electronic Municipal Market Access system of the Municipal Securities Rulemaking Board; provided however, failure to deliver notice as described in (ii) shall not affect the validity of the redemption of any Variable Rate Series 2019C

Subordinate Bond. Each such notice shall (i) be sent not more than 45 nor fewer than 15 calendar days (30 days for Long-Term Rate Bonds or Fixed Rate Bonds) prior to the date fixed for redemption, (ii) identify the Bonds to be redeemed (specifying the CUSIP numbers, if any, assigned to the Variable Rate Series 2019C Subordinate Bonds), (iii) specify the redemption date and the redemption price, (iv) set forth the name, address and telephone number of the person from whom information pertaining to the redemption may be obtained, and (v) state that on the redemption date the Variable Rate Series 2019C Subordinate Bonds called for redemption will be payable at the Designated Office of the Trustee, that from that date interest will cease to accrue, and that no representation is made as to the accuracy or correctness of the CUSIP numbers printed therein or on the Variable Rate Series 2019C Subordinate Bonds. No defect affecting any Variable Rate Series 2019C Subordinate Bond, whether in the notice of redemption or the delivery thereof (including any failure to mail such notice), shall affect the validity of the redemption proceedings for any other Variable Rate Series 2019C Subordinate Bonds.

If at the time of mailing of notice of an optional redemption of Variable Rate Series 2019C Subordinate Bonds there has not been deposited with the Trustee moneys sufficient to redeem all Variable Rate Series 2019C Subordinate Bonds called for such redemption, then such notice shall state that the redemption is conditional upon the deposit of moneys sufficient for the redemption with the Trustee and satisfaction of such requirements not later than the opening of business on the redemption date, and such notice will be of no effect and such Variable Rate Series 2019C Subordinate Bonds shall not be redeemed unless such moneys or such Direct Obligations are so deposited.

Any notice of redemption shall be mailed by first-class mail, postage prepaid. Notice of redemption also shall be given by Electronic Means to a Depository. A certificate of the Trustee shall conclusively establish the mailing of any such notice for all purposes.

### **Section 503. Partial Redemption.**

If fewer than all of the Variable Rate Series 2019C Subordinate Bonds that are stated to mature on different dates are called for redemption at one time, those Variable Rate Series 2019C Subordinate Bonds that are called shall be designated by the Authority; provided, that there shall be first redeemed any Credit Facility Provider Bonds. If fewer than all of the Variable Rate Series 2019C Subordinate Bonds of a single maturity are to be redeemed, the selection of the Variable Rate Series 2019C Subordinate Bonds to be redeemed, or portions thereof in amounts of \$5,000 or any integral multiple thereof, so long as the Variable Rate Series 2019C Subordinate Bonds remain in book-entry form, shall be made by the Depository (or any successor Depository) in accordance with the Depository's procedures and otherwise will be made as specified by and selected at the sole discretion of the Authority. In the case of a partial redemption of the Variable Rate Series 2019C Subordinate Bonds by lot when the Variable Rate Series 2019C Subordinate Bonds of Authorized Denominations greater than \$5,000 are then outstanding, each \$5,000 unit of principal thereof shall be treated as though it were a separate Variable Rate Series 2019C Subordinate Bond of the denomination of \$5,000.

If it is determined that one or more, but not all of the \$5,000 units of principal amount represented by a Variable Rate Series 2019C Subordinate Bond are to be called for redemption, then upon notice of redemption of a \$5,000 unit or units the Holder of that Variable Rate Series

2019C Subordinate Bond may, but is not required to surrender the Variable Rate Series 2019C Subordinate Bond to the Trustee (a) for payment of the redemption price of the \$5,000 unit or units called for redemption (including without limitation, the interest accrued to the date fixed for redemption and any premium), and (b) for issuance, without charge to the Holder thereof, of a new Variable Rate Series 2019C Subordinate Bond or Bonds, of any authorized denomination or denominations in an aggregate principal amount equal to the unmatured and unredeemed portion of, and bearing interest at the same rate and maturing on the same date or dates as, the Variable Rate Series 2019C Subordinate Bond surrendered.

**Section 504. Payment of Redeemed Variable Rate Series 2019C Subordinate Bonds.**

Notice having been mailed in the manner provided in Section 502, and moneys having been deposited with the Trustee sufficient to pay the redemption price, the Variable Rate Series 2019C Subordinate Bonds and portions thereof called for redemption shall become due and payable on the redemption date, and upon presentation and surrender thereof at the place or places specified in that notice, shall be paid at the redemption price, plus interest accrued to the redemption date.

If the moneys for the redemption of all of the Variable Rate Series 2019C Subordinate Bonds and portions thereof to be redeemed, together with interest accrued thereon to the redemption date, is held by the Trustee on the redemption date, so as to be available therefor on that date and if notice of redemption has been deposited in the mail as aforesaid, then from and after the redemption date those Variable Rate Series 2019C Subordinate Bonds and portions thereof called for redemption shall cease to bear interest and no longer shall be considered to be Outstanding under the Indenture. If those moneys shall not be so available on the redemption date, or that notice shall not have been deposited in the mail as aforesaid, those Variable Rate Series 2019C Subordinate Bonds and portions thereof shall continue to bear interest, until they are paid, at the same rate as they would have borne had they not been called for redemption.

All moneys held by the Trustee for the redemption of particular Variable Rate Series 2019C Subordinate Bonds shall be held in trust for the account of the Holders thereof and shall be paid to them, respectively, upon presentation and surrender of those Variable Rate Series 2019C Subordinate Bonds.

**Section 505. Purchase in Lieu of Redemption.**

By their acceptance of the Variable Rate Series 2019C Subordinate Bonds, the Holders irrevocably grant to the Authority the option to purchase any Variable Rate Series 2019C Subordinate Bond which is redeemable by optional redemption on any date on which the Variable Rate Series 2019C Subordinate Bond is redeemable at a purchase price no less than the redemption price to be paid to Holders upon optional redemption. The Authority may exercise such option by delivering written direction to the Trustee in time for the Trustee thereupon to give the Holders of the Variable Rate Series 2019C Subordinate Bonds to be purchased notice of such purchase in the manner specified in the Indenture as though such purchase were a redemption, and the Trustee shall thereupon do so, and the purchase of such Variable Rate Series 2019C Subordinate Bonds shall be mandatory and enforceable against the Holders. On the date



fixed for purchase pursuant to any exercise of such option, the Authority shall pay the purchase price of the Variable Rate Series 2019C Subordinate Bonds then being purchased to the Trustee in immediately available funds, and the Trustee shall pay the same to the Holders of such Variable Rate Series 2019C Subordinate Bonds against delivery. Following such purchase, the Trustee shall cause such Variable Rate Series 2019C Subordinate Bonds to be registered in the name of the Authority or its nominee and shall deliver them to the Authority or its nominee. In the case of the purchase of less than all of the Variable Rate Series 2019C Subordinate Bonds, the particular Variable Rate Series 2019C Subordinate Bonds to be purchased shall be selected in accordance with the provisions of the Master Indenture as though such purchase were a redemption; or in such other manner as the Authority shall direct, provided such selection method is described in the Written Request to the Trustee. No purchase of Variable Rate Series 2019C Subordinate Bonds pursuant to this paragraph shall operate to extinguish the indebtedness evidenced by the purchased Variable Rate Series 2019C Subordinate Bonds. Notwithstanding the foregoing, no purchase shall be made pursuant to the provisions of this paragraph unless the Authority shall have delivered to the Trustee concurrently therewith a Favorable Opinion of Bond Counsel with respect to such purchase.

## ARTICLE VI

### APPLICATION OF PROCEEDS OF SERIES 2019C SUBORDINATE BONDS

(a) The net proceeds of the Series 2019C Subordinate Bonds in the amount of \$ \_\_\_\_\_, which represents the par amount of the Series 2019C Subordinate Bonds less Underwriter's discount, at the request and direction of the Authority shall be applied as follows:

(1) \$ \_\_\_\_\_ shall be deposited in the Series 2019C Construction Account of the Construction Fund and used to pay Costs of the System.

(2) \$ \_\_\_\_\_ shall be deposited in the Series 2019C Costs of Issuance Subaccount of the Series 2019C Construction Account of the Construction Fund and used to pay costs of issuance.

**[ADD DEPOSITS AS NECESSARY]**

## ARTICLE VII

### FUNDS AND ACCOUNTS

#### **Section 701. Series 2019C Construction Account.**

In the Construction Fund, there shall be established a Series 2019C Construction Account and, within that Account, a Series 2019C Costs of Issuance Subaccount. The portions of the proceeds of the Series 2019C Subordinate Bonds specified in Section 601(a)(2) shall be deposited in the Series 2019C Costs of Issuance Subaccount and used to pay costs of issuance related to the Series 2019C Subordinate Bonds. When all costs of issuance have been paid or moneys have been reserved to pay all remaining unpaid costs of issuance, the balance of any Series 2019C Subordinate Bond proceeds remaining in excess of the amount to be reserved for payment of unpaid costs of issuance shall, as directed by the Authority, either (i) be deposited in

the Series 2019C Construction Account of the Construction Fund and used to pay Costs of the System, or (ii) be deposited in the Subordinate Bond Fund to be used solely to pay principal of and interest on the Series 2019C Subordinate Bonds, in either case subject to the condition of a Favorable Opinion of Bond Counsel.

In connection with the Authority's causing a Credit Facility to be delivered to the Trustee, the Trustee shall establish a Credit Facility Account for the purpose of receiving and disbursing such funds as are required to be paid to the Credit Facility Provider other than from the Series 2019C Subordinate Bonds Interest Subaccount.

**Section 702. Series 2019C Subordinate Bonds Subaccounts in the Subordinate Interest Account and Subordinate Principal Account.**

(a) Within the Subordinate Interest Account there shall be established a "Series 2019C Subordinate Bonds Interest Subaccount." Within the Subordinate Principal Account there shall be established a "Series 2019C Subordinate Bonds Principal Subaccount."

(b) In accordance with Section 604(e) of the Master Indenture, Net Revenues shall be deposited in the Series 2019C Subordinate Bond Interest Subaccount (i) on or prior to the last Business Day of each of the six months prior to any month in which an Interest Payment Date occurs for any Series 2019C Subordinate Bond that bears interest payable semi-annually, in an amount equal to one-sixth (1/6) of the interest due and payable on such Series 2019C Subordinate Bonds on such Interest Payment Date; and (ii) on or prior to the last Business Day of each of the six months prior to any month in which an Interest Payment Date occurs for any Series 2019C Subordinate Bond that bears interest more frequently than semi-annually, in an amount equal to the interest due and payable on such Series 2019C Subordinate Bonds on such Interest Payment Date.

(c) In accordance with Section 604(e) of the Master Indenture, Net Revenues shall be deposited in the Series 2019C Subordinate Bonds Principal Subaccount (i) on or prior to the last Business Day of each of the twelve months prior to any month in which principal of Series 2019C Subordinate Bonds is payable on their stated maturity date or pursuant to mandatory redemption requirements, in an amount equal to one-twelfth (1/12) of the principal amount scheduled to be due and payable on the Series 2019C Subordinate Bonds in such month; and (ii) on or prior to the last Business Day of each month prior to any month in which principal of Series 2019C Subordinate Bonds is payable on their stated maturity date or pursuant to mandatory redemption requirements, any amount that may be required to supplement the amounts deposited therein pursuant to the preceding clause (i) to cause the balance in the Series 2019C Subordinate Bonds Principal Subaccount to suffice for the payment of the principal due on that maturity or mandatory redemption date.

## ARTICLE VIII

### SECURITY FOR SERIES 2019C SUBORDINATE BONDS

#### **Section 801. Security for Series 2019C Subordinate Bonds.**

The Series 2019C Subordinate Bonds shall be secured as Subordinate Debt under the Indenture, including, without limitation, by a pledge of: (i) Net Revenues subordinate to the pledge of Net Revenues that secures Senior Debt and on a parity with the pledge of Net Revenues that secures Subordinate Debt, including, without limitation, any other Subordinate Debt that the Authority may issue in the future, without preference, priority or distinction of any Series 2019C Subordinate Bond over any other Series 2019C Subordinate Bond or of any Subordinate Debt over any other Subordinate Debt, as provided in the Indenture; and (ii) the moneys and Permitted Investments in the Subordinate Bond Fund on a parity with the pledge of Net Revenues that secures other Subordinate Debt, including, without limitation, any other Subordinate Debt that the Authority may issue in the future, without preference, priority or distinction of any Series 2019C Subordinate Bond over any other Series 2019C Subordinate Bond or of any Subordinate Debt over any other Subordinate Debt, as provided in the Indenture.

## ARTICLE IX

### DEFAULTS AND REMEDIES

#### **Section 901. Application of Article IX and Other Remedies Provisions of the Master Indenture.**

The Series 2019C Subordinate Bonds do not constitute “Bonds” under the Master Indenture. Accordingly, the provision of Article IX of the Master Indenture that confer certain rights upon the Holders of Bonds or a specified percentage thereof do not apply to the Series 2019C Subordinate Bonds or to the Series 2019C Subordinate Bondholders. Pursuant to Section 305 of the Master Indenture, the Series 2019C Subordinate Bonds, as Subordinate Debt, may not be accelerated if any Senior Debt is outstanding.

#### **Section 902. Rights of Series 2019C Subordinate Bondholders Upon Occurrence of Events of Default.**

In addition to and in furtherance and implementation of the rights that Series 2019C Subordinate Bondholders have under the penultimate paragraph of Section 906 of the Master Indenture, Sections 903 through 911, inclusive, of this Twenty-Fifth Supplemental Indenture shall apply to the Series 2019C Subordinate Bonds.

#### **Section 903. Events of Default.**

Each of the following events shall be a Series 2019C Subordinate Bond Event of Default:

(a) Default in the due and punctual payment of the principal of or premium, if any, on any Series 2019C Subordinate Bond (whether at maturity or call for redemption);

(b) Default in the due and punctual payment of the interest on any Series 2019C Subordinate Bond;

(c) Failure of the Authority to make the deposits required by subsection (e) or subsection (f) of Section 604 of the Master Indenture at the time and in the amount required from Net Revenues available for such deposit under the Indenture; or

(d) Failure of the Trustee to apply moneys in accordance with the penultimate paragraph of Section 906 of the Master Indenture.

(e) If the Series 2019C Subordinate Bonds are Index Rate Bonds and have been designated Hard Tender Index Rate Bonds, default in the due and punctual payment of the Purchase Price of any Series 2019C Subordinate Bond.

(f) If the Series 2019C Subordinate Bonds are Long-Term Rate Bonds and have been designated Hard Tender Long-Term Rate Bonds, default in the due and punctual payment of the Purchase Price of any such Series 2019C Subordinate Bonds.

**Section 904. Remedies of Series 2019C Subordinate Bondholders.**

Upon the occurrence and continuation of a Series 2019C Subordinate Bond Event of Default, the Trustee may, and if requested by the holders of not less than 25% in aggregate principal amount of outstanding Series 2019C Subordinate Bonds and if indemnified to its reasonable satisfaction, shall proceed to protect and enforce their rights by mandamus or other suit, action or proceeding at law or in equity, including an action for specific performance.

No remedy conferred by this Indenture upon or reserved to the Trustee and Series 2019C Subordinate Bondholders is intended to be exclusive of any other remedy, but each such remedy shall be cumulative and shall be in addition to any other remedy given to the Trustee and Series 2019C Subordinate Bondholders hereunder or now or hereafter existing at law, in equity or by statute.

No delay or omission to exercise any right or power accruing upon any default or Series 2019C Subordinate Bond Event of Default shall impair any such right or power or shall be construed to be a waiver of any such default or Series 2019C Subordinate Bond Event of Default or acquiescence therein, and every such right and power may be exercised from time to time and as often as may be deemed expedient.

No waiver of any default or Series 2019C Subordinate Bond Event of Default hereunder by the Trustee or Series 2019C Subordinate Bondholders shall extend to or shall affect any subsequent Series 2019C Subordinate Bond Event of Default or shall impair any rights or remedies consequent thereon.

The Authority agrees that the Trustee in its name or in the name of the Authority may, in the manner and to the extent provided herein, enforce all rights of the Trustee and of the Authority and all obligations of the Credit Facility Provider (including the obligation of the

Credit Facility Provider to honor drafts duly presented in accordance with the terms and conditions of the Credit Facility) under and pursuant to the Credit Facility, for the benefit of the Series 2019C Subordinate Bondholders. The Trustee agrees to assume and perform the duties and obligations contemplated under the Credit Facility to be assumed and performed by the Trustee.

If a Credit Facility is in effect, and if the provider thereof has failed to honor its payment obligations under the Credit Facility, twenty five percent (25%) of the Series 2019C Subordinate Bondholders enhanced by such Credit Facility (excluding Series 2019C Subordinate Bonds owned by the Authority and Bank Bonds), shall have the right at any time, by an instrument or instruments in writing executed and delivered to the Trustee, to direct the method and place of conducting all proceedings to be taken in connection with the enforcement of the terms and conditions of the Credit Facility, or any other proceedings thereunder; provided that such direction shall be in accordance with applicable law.

In the event the Credit Facility Provider wrongfully dishonors a conforming drawing for any payment with respect to the Series 2019C Subordinate Bonds or the Credit Facility Provider repudiates such obligation, the Trustee agrees to take all reasonable steps to enforce the obligation of the Credit Facility Provider to honor drafts duly presented in accordance with the terms and conditions of the Credit Facility for the benefit of the Series 2019C Subordinate Bondholders.

**Section 905. Right of Series 2019C Subordinate Bondholders to Direct Proceedings.**

The holders of a majority in aggregate principal amount of Series 2019C Subordinate Bonds then outstanding shall have the right, at any time, by an instrument or instruments in writing executed and delivered to the Trustee, to direct the method and place of conducting all proceedings to be taken in connection with the enforcement of the terms and conditions of this Twenty-Fifth Supplemental Indenture or any other proceedings hereunder, provided, however, that such direction shall not be otherwise than in accordance with the provisions of law and of the Indenture.

**Section 906. Application of Moneys.**

All moneys received by the Trustee pursuant to any right given or action taken under the provisions of this Article shall, after payment of the cost and expenses of the proceedings resulting in the collection of such moneys, the expenses, liabilities and advances incurred or reasonably anticipated to be made by the Trustee, and its fees and the expenses of the Authority in carrying out this Twenty-Fifth Supplemental Indenture, be deposited in the Series 2019C Subordinate Bonds Interest Subaccount or the Series 2019C Subordinate Bonds Principal Subaccount, as the case may be, and applied as follows and for no other purpose:

- (a) All such moneys shall be applied:

First - To the payment to the persons entitled thereto of all installments of interest then due on the Series 2019C Subordinate Bonds, in the order of the maturity of the

installments of such interest and, if the amount available shall not be sufficient to pay in full any particular installment, then to the payment ratably, according to the amounts due on such installment, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Series 2019C Subordinate Bonds; and

Second - To the payment to the persons entitled thereto of the unpaid principal of and premium, if any, on any of the Series 2019C Subordinate Bonds which shall have become due (other than Series 2019C Subordinate Bonds called for redemption for the payment of which moneys are held pursuant to the provisions of the Indenture), in the order of their due dates, and, if the amount available shall not be sufficient to pay in full Series 2019C Subordinate Bonds due on any particular date, then to the payment of such principal and premium, if any, ratably, according to the amount of such principal due on such date, to the persons entitled thereto, without any discrimination or preference.

For purposes of paragraphs First and Second above, the interest component of any Purchase Price payable by the Authority shall be treated as interest, and the principal component of any Purchase Price payable by the Authority shall be treated as principal.

(b) Whenever moneys are to be applied pursuant to the provisions of this Section, such moneys shall be applied at such times and from time to time as the Trustee shall determine, having due regard to the amount of such moneys available for application and the likelihood of additional moneys becoming available for such application in the future. Whenever the Trustee shall apply such moneys, it shall fix the date (which shall be an Interest Payment Date unless it shall deem another date more suitable) on which such application is to be made and on such date interest shall cease to accrue on the amounts of principal to be paid. The Trustee shall give such notice as it may deem appropriate of the deposit with it of any such moneys and of the fixing of any such date.

**Section 907. Remedies Vested in Trustee.**

All rights of action (including the right to file proof of claims) under this Twenty-Fifth Supplemental Indenture or under any of the Series 2019C Subordinate Bonds may be enforced by the Trustee without the possession of any of the Series 2019C Subordinate Bonds or the production thereof in any trial or other proceeding relating thereto and any such suit or proceeding instituted by the Trustee may be brought in its name as Trustee without the necessity of joining as plaintiffs or defendants any Series 2019C Subordinate Bondholders, and any recovery of judgment shall be for the equal benefit of the Series 2019C Subordinate Bondholders.

**Section 908. Limitation on Suits.**

Except to enforce the rights given under Sections 904 and 905 of this Twenty-Fifth Supplemental Indenture, no Series 2019C Subordinate Bondholder shall have any right to institute any action, suit or proceeding at law or in equity for the enforcement of the Indenture or for the execution of any trust thereof or any other remedy hereunder, unless: (a) a Series 2019C Subordinate Bond Event of Default has occurred and is continuing and the Holders of 25% in

aggregate principal amount of Series 2019C Subordinate Bonds then outstanding have made written request to the Trustee and offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name, (b) such requesting Series 2019C Subordinate Bondholders have offered to the Trustee indemnity as provided in Section 1101(1) of the Master Indenture, (c) the Trustee has thereafter failed or refused to exercise the powers hereinbefore granted, or to institute such action, suit or proceeding in its own name, (d) no direction inconsistent with such written request has been given to the Trustee by the holders of a majority in aggregate principal amount of Series 2019C Subordinate Bonds then outstanding, and (e) notice of such action, suit or proceeding is given to the Trustee; it being understood and intended that no one or more Series 2019C Subordinate Bondholders shall have any right in any manner whatsoever to affect, disturb or prejudice the Indenture by its or their action or to enforce any rights hereunder except in the manner herein provided, and that all proceedings at law or in equity shall be instituted and maintained in the manner herein provided and for the equal benefit of all Series 2019C Subordinate Bondholders then outstanding. The notification, request and offer of indemnity set forth above, at the option of the Trustee, shall be conditions precedent to the execution of the powers and trusts of this Twenty-Fifth Supplemental Indenture and to any action or cause of action for the enforcement of this Twenty-Fifth Supplemental Indenture or for any other remedy hereunder.

**Section 909. Termination of Proceedings.**

In case the Trustee shall have proceeded to enforce any right under this Twenty-Fifth Supplemental Indenture and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee, then and in every such case the Authority and the Trustee shall be restored to their former positions and rights hereunder, and all rights, remedies and powers of the Trustee shall continue as if no such proceedings had been taken.

**Section 910. Waivers of Events of Default.**

Subject to the Indenture (including, without limitation, Section 1101 of the Master Indenture), the Trustee may in its discretion waive any Series 2019C Subordinate Bond Event of Default hereunder or any action taken pursuant to any Series 2019C Subordinate Bond Event of Default, and shall do so at the written request of the holders of: (a) a majority in aggregate principal amount of Series 2019C Subordinate Bonds then outstanding in respect of which default in the payment of principal and/or premium, if any, and/or interest exists, or (b) a majority in aggregate principal amount of Series 2019C Subordinate Bonds then outstanding in the case of any other Series 2019C Subordinate Bond Event of Default; provided, however, that there shall not be waived without the written consent of all then Outstanding Series 2019C Subordinate Bondholders (A) any Series 2019C Subordinate Bond Event of Default in the payment of the principal of any Outstanding Series 2019C Subordinate Bonds (whether at maturity or by mandatory redemption or as part of the Purchase Price payable upon mandatory tender), or (B) any default in the payment when due of the interest on any such Series 2019C Subordinate Bonds unless, prior to such waiver or rescission,

(i) there shall have been paid or provided for all arrears of interest with interest, to the extent permitted by law, at the rate borne by the Series 2019C Subordinate

Bonds on overdue installments of interest, all arrears of principal and premium, if any, and all expenses of the Trustee in connection with such default, and

(ii) in case of any such waiver or rescission or in the case of any discontinuance, abandonment or adverse determination of any proceeding taken by the Trustee on account of any such default, the Authority, the Trustee, and the Series 2019C Subordinate Bondholders shall be restored to their former positions and rights hereunder respectively.

No such waiver or rescission relating to the Series 2019C Subordinate Bonds shall extend to any subsequent or other default or impair any right consequent thereon.

**Section 911. Non-Impairment of Authority's Obligation to Pay Principal, Premium and Interest.**

Nothing in this Twenty-Fifth Supplemental Indenture shall, however, affect or impair the obligation of the Authority to pay the principal of, premium, if any, and interest on each of the Series 2019C Subordinate Bonds to the respective Holders thereof at the time and place, from the source and in the manner specified in the Indenture.

**ARTICLE X  
TAX COVENANTS**

**Section 1001. Tax Covenants – General.**

(i) The Authority covenants that it will use, and will restrict the use and investment of, the proceeds of the Series 2019C Subordinate Bonds in such manner and to such extent as may be necessary so that (a) the Series 2019C Subordinate Bonds will not constitute private activity bonds, arbitrage bonds or hedge bonds under Sections 141, 148 or 149 of the Code, or be treated other than as bonds to which Section 103(a) of the Code applies, and (b) the interest on the Series 2019C Subordinate Bonds will not be treated as an item of tax preference under Section 57 of the Code.

(ii) The Authority further covenants that (a) it will take or cause to be taken such actions that may be required of it for the interest on the Series 2019C Subordinate Bonds to be and remain excluded from gross income for federal income tax purposes, (b) it will not take or authorize to be taken any actions that would adversely affect that exclusion, and (c) it, or persons acting for it, will, among other acts of compliance, (1) apply the proceeds of the Series 2019C Subordinate Bonds to the governmental purposes of the borrowing, (2) restrict the yield on investment property, (3) make timely and adequate payments to the federal government, including but not limited to the required payment of any Rebate Amounts under Section 148(f) of the Code, as further provided in Section 902 hereof, (4) maintain books and records and make calculations and reports, and (5) refrain from certain uses of those proceeds and, as applicable, of property financed with such proceeds, all in such manner and to the extent necessary to assure that exclusion of that interest under the Code.



(iii) The Authorized Representative of the Authority is hereby authorized (a) to make or effect any election, selection, designation, choice, consent, approval or waiver on behalf of the Authority with respect to the Series 2019C Subordinate Bonds as the Authority is permitted to make or give under the federal income tax laws, including, without limitation, any of the elections provided for or available under Section 148 of the Code, for the purpose of assuring, enhancing or protecting favorable tax treatment or status of the Series 2019C Subordinate Bonds or interest thereon or assisting compliance with requirements for that purpose, reducing the burden or expense of such compliance, reducing the rebate amount or payments of penalties, or making payments of special amounts in lieu of making computations to determine, or paying, excess earnings as rebate, or obviating those amounts or payments, as determined by the Authorized Representative of the Authority, which action shall be in writing and signed by the Authorized Representative of the Authority, (b) to take any and all other actions, make or obtain calculations, make payments, and make or give reports, covenants and certifications of and on behalf of the Authority, as may be appropriate to assure the exclusion of interest from gross income and the intended tax status of the Series 2019C Subordinate Bonds, and (c) to give one or more appropriate certificates, for inclusion in the transcript of proceedings for the Series 2019C Subordinate Bonds, setting forth the reasonable expectations of the Authority regarding the amount and use of all the proceeds of the Series 2019C Subordinate Bonds, the facts, circumstances and estimates on which they are based, and other facts and circumstances relevant to the tax treatment of the interest on and the tax status of the Series 2019C Subordinate Bonds.

**Section 1002. Calculation and Payment of Rebate.**

(i) As used in this Section 1002:

“Bond Year” means the annual period (or such shorter period from the date of issuance of the Series 2019C Subordinate Bonds) provided for the computation of the Rebate Amount for the Series 2019C Subordinate Bonds under Section 148(f) of the Code. The last day of a Bond Year shall be the close of business on the day preceding the anniversary of the issuance of the Series 2019C Subordinate Bonds unless the Authority selects another date on which to end a Bond Year in the manner permitted by the Code, and notifies the Trustee in writing of such selection.

“Computation Date” means:

(i) (a) the last day of each fifth Bond Year while the Series 2019C Subordinate Bonds are outstanding, and (b) the date on which the last Series 2019C Subordinate Bonds are retired, or

(ii) such other date or dates elected by the Authority as may be permitted under the Code for computation of the Rebate Amount.

“Rebate Amount” means, as of any Computation Date, the amount then payable (or payable within 60 days of such date) to the United States pursuant to Section 148(f) of the Code and the applicable Treasury Regulations (final or temporary) thereunder.

(ii) Promptly after each Computation Date, the Authority, or an independent public accounting firm or Bond Counsel engaged by or on behalf of the Authority, shall calculate the Rebate Amount, if any, as of that Computation Date.

(iii) Within 60 days after each Computation Date, and at any other time directed by the Authorized Representative of the Authority, the Authority shall pay to the United States in accordance with Section 148(f), from any lawfully available funds, an amount equal to 90% (or such greater percentage not in excess of 100% as the Authorized Representative of the Authority may determine to pay) of the Rebate Amount determined from the Delivery Date to the end of such fifth Bond Year (but less any portion of the Rebate Amount previously paid to the United States pursuant to this Section). Within 60 days after the payment in full of all outstanding Series 2019C Subordinate Bonds, the Authorized Representative of the Authority, on behalf of the Authority shall pay to the United States in accordance with Section 148(f), from any lawfully available funds, an amount equal to 100% of the Rebate Amount determined from the Delivery Date to the date of such payment in full of all outstanding Series 2019C Subordinate Bonds (but less any portion of the Rebate Amount previously paid to the United States pursuant to this Section 802(iii)).

(iv) The Authority shall keep or provide for the keeping of records of the computations made pursuant to this Section 1002, payments made pursuant to this Section and all original source documents pertaining to the investment of gross proceeds and the expenditure of gross proceeds for at least six years after the maturity or retirement of the Series 2019C Subordinate Bonds.

(v) The Authority, in connection with investments of the proceeds of the Series 2019C Subordinate Bonds in nonpurpose investments, will not pay or agree to pay to a party other than the United States any portion of the Rebate Amount with respect to the Series 2019C Subordinate Bonds through a transaction or series of transactions that reduce the aggregate amount earned on all nonpurpose investments in which gross proceeds of the Series 2019C Subordinate Bonds are invested or that result in a smaller profit or a larger loss than would have resulted in an arm's length transaction in which yield on the Series 2019C Subordinate Bonds was not relevant to the Authority or the other party.

(vi) If the Authority and the Trustee receive a written opinion of Bond Counsel that such action would not adversely affect the exclusion from gross income for federal income tax purposes of interest on the Series 2019C Subordinate Bonds, the Authorized Representative of the Authority may, without the consent of or notice to any bondholders, adopt supplements to this Twenty-Fifth Supplemental Indenture to the extent necessary or desirable to modify, supplement or replace this Section 1002 consistent with the other covenants of the Authority in this Twenty-Fifth Supplemental Indenture.

(vii) If at any time the Authority receives a written opinion of Bond Counsel that failure to comply with this Section 1002 or any part of this Section 1002 would not adversely affect the exclusion of interest on the Series 2019C Subordinate Bonds from gross income for federal income tax purposes, the Authority may discontinue compliance with this Section 802 or part of this Section 1002 to the extent set forth in that opinion.

## ARTICLE XI

### MISCELLANEOUS

#### **Section 1101. Limitation of Rights.**

With the exception of rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Twenty-Fifth Supplemental Indenture or the Series 2019C Subordinate Bonds is intended or shall be construed to give to any person other than the parties hereto, the Series 2019C Subordinate Bondholders any legal or equitable right, remedy or claim under or in respect to this Twenty-Fifth Supplemental Indenture or any covenants, conditions and agreements herein contained since this Twenty-Fifth Supplemental Indenture and all of the covenants, conditions and agreements hereof are intended to be and are for the sole and exclusive benefit of the parties hereto, the Series 2019C Subordinate Bondholders as herein provided.

#### **Section 1102. Severability.**

If any provision of this Twenty-Fifth Supplemental Indenture shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof, and this Twenty-Fifth Supplemental Indenture shall be construed and enforced as if such illegal provision had not been contained herein.

#### **Section 1103. Successors and Assigns.**

This Twenty-Fifth Supplemental Indenture shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

#### **Section 1104. Limitations on Liability.**

No covenant, agreement or obligation contained herein shall be deemed to be a covenant, agreement or obligation of any present or future member of the Board of Directors of the Authority or officer, employee or agent of the Authority in his or her individual capacity, and neither the members of the Board of Directors of the Authority nor any officer of the Authority executing the Series 2019C Subordinate Bonds shall be liable personally on the Series 2019C Subordinate Bonds or be subject to any personal liability or accountability by reason of the issuance thereof. No member of the Board of Directors of the Authority or officer, employee, agent or advisor of the Authority shall incur any personal liability with respect to any other action taken by him or her pursuant to this Twenty-Fifth Supplemental Indenture or the Indenture or any other document authorized by the Indenture, provided such member, officer, employee, agent or advisor acts in good faith.

**Section 1105. Applicable Law.**

This Twenty-Fifth Supplemental Indenture shall be governed by the applicable laws of the District of Columbia.

**Section 1106. Notice of Change.**

The Trustee shall give notice to the Rating Agency, at the address or addresses set forth in Article I hereof, of any of the following events:

- (i) a change in the Trustee;
- (ii) a change in the Remarketing Agent;
- (iii) a change in the Tender Agent;
- (iv) the expiration, cancellation, renewal or substitution of the term of the Credit Facility;
- (v) the delivery of an Substitute Credit Facility;
- (vi) an amendment or supplement to the Indenture, a Remarketing Agreement, a Reimbursement Agreement, or the Credit Facility at least fifteen (15) days in advance of the execution thereof;
- (vii) any declaration of acceleration of the Series 2019C Subordinate Bonds pursuant to Section 901;
- (viii) payment or provision therefor of all the Bonds;
- (ix) any conversion of the Interest Period applicable to the Series 2019C Subordinate Bonds; and
- (x) any other event notice of which a Rating Agency may reasonably request.

The Trustee shall have no liability to the Rating Agency or any liability or obligation to any other Person if it shall fail to give such notice.

**Section 1107. Counterparts.**

This Twenty-Fifth Supplemental Indenture may be executed in several counterparts, each of which shall be deemed an original and all of which together shall constitute but one and the same instrument.

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**IN WITNESS WHEREOF**, the Authority and the Trustee have caused this Twenty-Fifth Supplemental Indenture to be executed in their respective corporate names as of the date first above written.

**DISTRICT OF COLUMBIA WATER  
AND SEWER AUTHORITY**

By \_\_\_\_\_  
Chief Financial Officer and Executive Vice  
President, Finance and Procurement

**WELLS FARGO BANK, N.A.,  
AS TRUSTEE**

By \_\_\_\_\_

Its \_\_\_\_\_

**EXHIBIT A**  
**[FORM OF BONDS]**

**Presented and Approved: September 5, 2019**  
**SUBJECT: Approval to Execute Contract No. 190020**  
**Anchor Construction Corporation**

**#19-51**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**D.C. WATER AND SEWER AUTHORITY**

The Board of Directors ("Board") of the District of Columbia Water and Sewer Authority ("the Authority") at its meeting on September 5, 2019 upon consideration of a non-joint use matter, decided by a vote of \_\_\_ () in favor and \_\_\_() opposed to approve Contract No. 190020, Anchor Construction Corporation.

**Be it resolved that:**

The Board of Directors hereby authorizes the General Manager to execute Contract No. 190020, Anchor Construction Corporation. The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity emergency and scheduled repairs to the sewer lateral system on an as-needed basis during normal work hours, after-hours, weekends, and holidays. The contract not-to-exceed amount is \$9,971,935.

This Resolution is effective immediately.

\_\_\_\_\_  
Secretary to the Board of Directors

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

**ACTION REQUESTED**

**CONSTRUCTION CONTRACT:**

**Sanitary Sewer Lateral Replacement Contract for FY20 – FY22  
(Non-Joint Use)**

Approval to execute a construction contract for \$9,971,935.00

**CONTRACTOR/SUB/VENDOR INFORMATION**

<b>PRIME:</b>	<b>SUBS:</b>	<b>PARTICIPATION:</b>
Anchor Construction Corporation 2254 25th Place NE Washington, DC 20018	S&J Services, Inc. Hyattsville, MD	29.9%
MBE	AJK Enterprise LLC Washington, DC	2.2%
	R&R Contracting Utilities, Inc. Olney, MD	3.8%
	Acorn Supply & Distributing White Marsh, MD	2.3%

**DESCRIPTION AND PURPOSE**

Contract Value, Not-To-Exceed:	\$9,971,935.00
Contract Time:	1,095 Days (3 Years)
Anticipated Contract Start Date (NTP):	10-01-2019
Anticipated Contract Completion Date:	09-30-2022
Bid Opening Date:	05-29-2019
Bids Received:	3
Other Bids Received	
Fort Myer Construction Company	\$13,874,435.00
Sagres Construction Corporation	\$21,058,642.60

**Purpose of the Contract:**

To provide Indefinite Delivery and Indefinite Quantity (IDIQ) emergency and scheduled repairs to the sewer lateral system on an as-needed basis during normal work hours, after-hours, weekends, and holidays. This Contract allows DC Water to strategically utilize a combination of in-house and contractor crews to respond to emergency conditions impacting the sewer lateral system and address scheduled system rehabilitation work as needed.

**Contract Scope:**

- Emergency Repair Work of Sanitary Sewer Laterals
- Chemical Root Treatment of Sanitary Sewers
- Sewer Lateral Reinstatement Connection to CIPP Main
- Sewer Lateral Liner - CIPP
- Sewer Lateral CCTV Inspection
- General Cleaning of Sewer Laterals
- Replace/Extend/Reconnect Building Sewer Lateral/Connection Pipe 4-Inch thru and including 12-inch Diameter PVC
- Add or Replace Building Sewer Cleanout Pipe
- Add or Replace Street Wye or Thimble with Wye Saddle
- Any other contingent items that are deemed necessary



**Federal Grant Status:**

- Construction Contract is not eligible for Federal grant funding assistance.

**PROCUREMENT INFORMATION**

<b>Contract Type:</b>	Unit Price	<b>Award Based On:</b>	Lowest responsive, responsible bidder
<b>Commodity:</b>	Construction	<b>Contract Number:</b>	190020
<b>Contractor Market:</b>	Open Market		

**BUDGET INFORMATION**

<b>Funding:</b>	Capital	<b>Department:</b>	Sewer Services
<b>Service Area:</b>	Sanitary	<b>Department Head:</b>	Dunbar C Regis
<b>Project:</b>	JI, LN, M9		

**ESTIMATED USER SHARE INFORMATION**

User	Share %	Dollar Amount
District of Columbia	100.00%	\$9,971,935.00
Federal Funds	0.00%	\$0.00
Washington Suburban Sanitary Commission	0.00%	\$0.00
Fairfax County	0.00%	\$0.00
Loudoun County & Potomac Interceptor	0.00%	\$0.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$9,971,935.00</b>

*Leonard R. Benson*

July 12, 2019

Leonard R. Benson, SVP and Chief Engineer

Date

*Dan Bae*

July 12, 2019

Dan Bae, VP  
Procurement and Compliance

Date

*Matthew T. Brown*

July 12, 2019

Matthew T. Brown, CFO and EVP  
Finance and Procurement

Date

*David L. Gadis*

David L. Gadis (Aug 6, 2019)

August 6, 2019

David L. Gadis  
CEO and General Manager

Date

**Presented and Approved: September 5, 2019**  
**SUBJECT: Approval to Execute Contract No. 190030**  
**Anchor Construction Corporation**

**#19-52**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**D.C. WATER AND SEWER AUTHORITY**

The Board of Directors ("Board") of the District of Columbia Water and Sewer Authority ("the Authority") at its meeting on September 5, 2019 upon consideration of a non-joint use matter, decided by a vote of \_\_\_ () in favor and \_\_\_() opposed to approve Contract No. 190030, Anchor Construction Corporation.

**Be it resolved that:**

The Board of Directors hereby authorizes the General Manager to execute Contract No. 190030, Anchor Construction Corporation. The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity of lead service line replacements and temporary pavement restoration at various locations within the District of Columbia. The contract will also consist of providing private property side agreements and documentation. The contract not-to-exceed amount is \$7,289,400.

This Resolution is effective immediately.

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Secretary to the Board of Directors

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

**ACTION REQUESTED**

**CONSTRUCTION CONTRACT:**

**Lead Service Line Replacement Contract FY20-FY22  
(Non-Joint Use)**

Approval to execute a construction contract for \$7,289,400.00

**CONTRACTOR/SUB/VENDOR INFORMATION**

<b>PRIME:</b>	<b>SUBS:</b>	<b>PARTICIPATION:</b>
Anchor Construction Corp. 2254 25th Place NE Washington, DC 20018	Acorn Supply and Distribution Inc. White March, MD WBE	6.0%
MBE	S and J Services Inc. Hyattsville, MD MBE	32.0%

**DESCRIPTION AND PURPOSE**

Contract Value, Not-To-Exceed:	\$7,289,400.00
Contract Time:	1,095 Days (3 Years)
Anticipated Contract Start Date (NTP):	10-01-2019
Anticipated Contract Completion Date:	09-30-2022
Bid Opening Date:	06-05-2019
Bids Received:	3
Other Bids Received	
Capitol Paving Inc.	\$7,456,000.00
Fort Myer Corp.	\$9,134,600.00

**Purpose of the Contract:**

To provide Indefinite Delivery and Indefinite quantity (IDIQ) of lead service line replacements and temporary pavement restoration at various locations within the District of Columbia. The contract will also consist of providing private property side agreements and documentation. Scopes of work will be developed and issued to the contractor on a task order basis as needed by DC Water.

**Contract Scope:**

- Remove and replace existing lead service lines.
- Install new copper service line from corporation stop to building.
- Installation of Meter Boxes, Frame and Covers.
- Replace Water Service lines.
- Installation of Curb Stop and Curb Stop Box.
- Private side tie-in and negotiation / coordination with homeowners.

**Federal Grant Status:**

- Construction Contract is not eligible for Federal grant funding assistance.

**PROCUREMENT INFORMATION**

<b>Contract Type:</b>	Unit Price	<b>Award Based On:</b>	Lowest responsive, responsible bidder
<b>Commodity:</b>	Construction	<b>Contract Number:</b>	190030
<b>Contractor Market:</b>	Open Market		

**BUDGET INFORMATION**

<b>Funding:</b>	Capital	<b>Department:</b>	Water Services
<b>Service Area:</b>	Water	<b>Department Head:</b>	Jason Hughes
<b>Project:</b>	BW		

**ESTIMATED USER SHARE INFORMATION**

User	Share %	Dollar Amount
District of Columbia	100.00%	\$7,289,400.00
Federal Funds	0.00%	\$0.00
Washington Suburban Sanitary Commission	0.00%	\$0.00
Fairfax County	0.00%	\$0.00
Loudoun County & Potomac Interceptor	0.00%	\$0.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$7,289,400.00</b>

*Leonard R. Benson*

July 15, 2019

Leonard R. Benson, SVP and Chief Engineer

Date

*Dan Bae*

July 15, 2019

Dan Bae, VP  
Procurement and Compliance

Date

*Matthew T. Brown*

July 15, 2019

Matthew T. Brown, CFO and EVP  
Finance and Procurement

Date

*David L. Gadis*

David L. Gadis (Aug 6, 2019)

August 6, 2019

David L. Gadis  
CEO and General Manager

Date

**Presented and Approved: September 5, 2019**  
**SUBJECT: Approval to Execute Contract No. 190050, Fort Myer Construction Corp.**

**#19-53**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**D.C. WATER AND SEWER AUTHORITY**

The Board of Directors ("Board") of the District of Columbia Water and Sewer Authority ("the Authority") at its meeting on September 5, 2019 upon consideration of a non-joint use matter, decided by a vote of \_\_ () in favor and \_() opposed to approve Contract No. 190050, Fort Myer Construction Corp.

**Be it resolved that:**

The Board of Directors hereby authorizes the General Manager to execute Contract No. 190050, Fort Myer Construction Corp. The purpose of the contract is to provide Indefinite Delivery and Indefinite Quantity emergency water main repair and replacement of water service line in public and private space at various locations in Washington, D.C. The contract not-to-exceed amount is \$19,276,080.

This Resolution is effective immediately.

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Secretary to the Board of Directors

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

**ACTION REQUESTED**

**CONSTRUCTION CONTRACT:**

**Water Infrastructure Repair & Replacement Contract FY20-FY22  
(Non-Joint Use)**

Approval to execute a construction contract for \$19,276,080.00

**CONTRACTOR/SUB/VENDOR INFORMATION**

<b>PRIME:</b>	<b>SUBS:</b>	<b>PARTICIPATION:</b>
Fort Myer Construction Corp. 2237 33rd St NE Washington , DC 20018	V. Fernandes Construction Co. Inc. Silver Spring, MD MBE	16.4%
MBE	Amerigal Construction Co. Inc. Glenn Dale, MD MBE	15.9%
	United Construction Services LLC Upper Marlboro, MD WBE	6.0%

**DESCRIPTION AND PURPOSE**

Contract Value, Not-To-Exceed:	\$19,276,080.00
Contract Time:	1,095 Days (3 Years)
Anticipated Contract Start Date (NTP):	10-01-2019
Anticipated Contract Completion Date:	09-30-2022
Bid Opening Date:	06-12-2019
Bids Received:	3
Other Bids Received	
Capitol Paving, Inc.	\$21,772,790.00
Anchor Construction Corp.	\$25,980,337.80

**Purpose of the Contract:**

To provide Indefinite Delivery and Indefinite quantity (IDIQ) emergency water main repair and replacement of water service line in public and private space at various locations in Washington, DC. Scopes of work will be developed and issued to the contractor on a task order basis as needed by DC Water.

**Contract Scope:**

- Emergency rehabilitation of various size water mains.
- Rehabilitation and replacement of various types of valves, valve castings and valve boxes.
- Rehabilitation and replacement of fire hydrants, fire hydrants leads and lead service lines.
- Rehabilitation and replacement of Water Service Line in Public and Private Space.
- Cleaning and lining of six, eight and twelve inch diameter water mains.
- CCTV Water Main Inspection.

**Federal Grant Status:**

- Construction Contract is not eligible for Federal grant funding assistance.

**PROCUREMENT INFORMATION**

<b>Contract Type:</b>	Unit Price	<b>Award Based On:</b>	Lowest responsive, responsible bidder
<b>Commodity:</b>	Construction	<b>Contract Number:</b>	190050
<b>Contractor Market:</b>	Open Market		

**BUDGET INFORMATION**

<b>Funding:</b>	Capital	<b>Department:</b>	Water Services
<b>Service Area:</b>	Water	<b>Department Head:</b>	Jason Hughes
<b>Project:</b>	JA,KW,KX		

**ESTIMATED USER SHARE INFORMATION**

User	Share %	Dollar Amount
District of Columbia	100.00%	\$19,276,080.00
Federal Funds	0.00%	\$0.00
Washington Suburban Sanitary Commission	0.00%	\$0.00
Fairfax County	0.00%	\$0.00
Loudoun County & Potomac Interceptor	0.00%	\$0.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$19,276,080.00</b>

*Leonard R. Benson*

July 15, 2019

Leonard R. Benson, SVP and Chief Engineer

Date

*Dan Bae*

July 15, 2019

Dan Bae, VP  
Procurement and Compliance

Date

*Matthew T. Brown*

July 15, 2019

Matthew T. Brown, CFO and EVP  
Finance and Procurement

Date

*David L. Gadis*

David L. Gadis (Aug 6, 2019)

August 6, 2019

David L. Gadis  
CEO and General Manager

Date

**Presented and Approved: September 5, 2019**  
**SUBJECT: Approval to Execute Contract No. 170130, American Contracting & Environmental Services, Inc.**

**#19-54**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**D.C. WATER AND SEWER AUTHORITY**

The Board of Directors ("Board") of the District of Columbia Water and Sewer Authority ("the Authority") at its meeting on September 5, 2019 upon consideration of a non-joint use matter, decided by a vote of \_\_\_ () in favor and \_\_\_ () opposed to approve Contract No. 170130, American Contracting & Environmental Services, Inc.

**Be it resolved that:**

The Board of Directors hereby authorizes the General Manager to execute Contract No. 170130, American Contracting & Environmental Services, Inc. The purpose of the contract is to rehabilitate Soldiers' Home Reservoir based on inspection report recommendations and US Environmental Protection Agency Sanitary Survey noted significant deficiencies. The contract not-to-exceed amount is \$5,401,000.

This Resolution is effective immediately.

\_\_\_\_\_  
Secretary to the Board of Directors



**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

**ACTION REQUESTED**

**CONSTRUCTION CONTRACT:**

**Soldiers' Home Reservoir Upgrades  
(Non-Joint Use)**

Approval to execute a construction contract for \$5,401,000.00

**CONTRACTOR/SUB/VENDOR INFORMATION**

<b>PRIME:</b>	<b>SUBS:</b>	<b>PARTICIPATION:</b>
American Contracting & Environmental Services, Inc. 10330 Old Columbia Rd  Suite 102 Columbia, MD 21046	TAG Distribution & Supply, LLC Gwynn Oak, MD MBE	26.9%
	Matadi Construction, LLC Silver Spring, MD MBE	1.8%
	Dulles Geotech & Material Testing Srv Chantilly, VA MBE	1.6%
	SJ and Son Construction and Trucking Bowie, MD MBE	0.7%
	Monumental Concrete, LLC Washington, DC MBE	0.6%
	G.E. Frisco Co. Upper Marlboro, MD MBE	0.1%
	Premiums, LLC Ellicott City, MD WBE	3.7%
	MS. Pipe, LLC South Windsor, CT WBE	2.1%
	Robnet, Inc. Baltimore, MD WBE	0.1%

**DESCRIPTION AND PURPOSE**

Contract Value, Not-To-Exceed:	\$5,401,000.00
Contract Time:	420 Days (1 Year 2 Months)
Anticipated Contract Start Date (NTP):	10-10-2019
Anticipated Contract Completion Date:	12-03-2020
Bid Opening Date:	06-12-2019
Bids Received:	4
Other Bids Received	
CPP Construction Company, Inc.	\$6,334,000.00
W.M. Schlosser Company, Inc.	\$6,733,000.00
Norair Engineering Corporation	\$6,849,200.00

**Purpose of the Contract:**

Rehabilitate Soldiers' Home Reservoir located at Armed Forces Retirement Home Golf Course at 3700 N. Capital Street NW based on inspection report recommendations and United States Environmental Protection Agency Sanitary Survey noted significant deficiencies.

**Contract Scope:**

- Install impervious membrane system on reservoir roof and perimeter drain system.
- Repair reservoir cracks, spalls, and joints.
- Install concrete baffle wall section. Provide cross-connection elimination improvements.
- Install mechanical mixers, water quality sampling system, and overflow monitoring equipment.
- Construct concrete drainage chamber, piping modifications, and ventilation houses.
- Improve security, electrical, instrumentation and controls, and the Supervisory Control and Data Acquisition (SCADA) systems. Provide landscaping and irrigation system.

**Federal Grant Status:**

- Construction contract is funded in part by Federal grant.

**PROCUREMENT INFORMATION**

<b>Contract Type:</b>	Fixed Price	<b>Award Based On:</b>	Lowest responsive, responsible bidder
<b>Commodity:</b>	Construction	<b>Contract Number:</b>	170130
<b>Contractor Market:</b>	Open Market		

**BUDGET INFORMATION**

<b>Funding:</b>	Capital	<b>Department:</b>	Engineering and Technical Services
<b>Service Area:</b>	Water	<b>Department Head:</b>	Craig Fricke
<b>Project:</b>	FA		

**ESTIMATED USER SHARE INFORMATION**

User	Share %	Dollar Amount
District of Columbia	30.00%	\$1,620,200.00
Federal Funds	70.00%	\$3,780,800.00
Washington Suburban Sanitary Commission	0.00%	\$0.00
Fairfax County	0.00%	\$0.00
Loudoun County & Potomac Interceptor	0.00%	\$0.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$5,401,000.00</b>

*Leonard R. Benson*

July 12, 2019

Leonard R. Benson, SVP and Chief Engineer

Date

*Dan Bae*

July 12, 2019

Dan Bae, VP  
Procurement and Compliance

Date

*Matthew T. Brown*

July 12, 2019

Matthew T. Brown, CFO and EVP  
Finance and Procurement

Date

*david Gadis*

david Gadis (Aug 6, 2019)

August 6, 2019

David L. Gadis  
CEO and General Manager

Date

**Presented and Adopted: September 5, 2019**

**SUBJECT: Approval to Publish Notice of Final Rulemaking to Amend Regulations to Extend the Customer Assistance Program (CAP) to FY 2020, Effective October 1, 2019**

**#19-55  
RESOLUTION  
OF THE  
BOARD OF DIRECTORS  
OF THE  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

The District members of the Board of Directors ("Board") of the District of Columbia Water and Sewer Authority, ("the Authority"), at the Board meeting held on September 5, 2019 upon consideration of a non-joint use matter decided by a vote of \_\_\_ (\_\_) in favor and \_\_\_ (\_\_) opposed to Publish Notice of Final Rulemaking to Amend Regulations to Extend the Customer Assistance Program (CAP) to FY 2020, effective October 1, 2019.

**WHEREAS**, on July 5, 2018, the Board adopted Resolution #18-57, authorizing the General Manager to transfer \$6 Million from the Rate Stabilization Fund in the Fiscal Year 2019 budget to fund the expansion of the Customer Assistance Program to provide benefits to customers with household incomes up to 80% of the area median income for not more than one fiscal year beginning October 1, 2018 to September 30, 2019; and

**WHEREAS**, pursuant to Resolution #18-80, dated December 6, 2018, DC Water published the Notice of Final Rulemaking (NOFR) in the *D.C. Register* on December 28, 2018 at 65 DCR 13956, to establish the rules to implement the District funded CRIAC Nonprofit Relief Programs and DC Water's CAP and CAP2 Programs, effective on January 1, 2019; and

**WHEREAS**, the Board originally intended that the benefits provided under the CAP2 program would be provided only for the period October 1, 2018 through September 30, 2019; and

**WHEREAS**, in April 2019, the District informed DC Water that they would carry over the CAP2 unexpended District funds of \$1.2 million to FY 2020; and

**WHEREAS**, on May 28, 2019, the DC Retail Water and Sewer Rates Committee met to discuss the status of the CAP2 benefits provided to DC Water customers and were informed that approximately \$5.46 Million of the \$6 Million authorized by the Board would be unexpended in FY 2019; and

**WHEREAS**, on May 28, 2019, the DC Retail Water and Sewer Rates Committee met to discuss and consider the General Manager's recommendation to amend CAP2

regulations to continue the CAP2 program in FY 2020 to provide CAP2 benefits to applicants that submit a complete CAP2 application to the Department of Energy and Environment (DOEE) before November 1, 2019 for Fiscal year 2020 retroactive from October 1, 2019 and terminate on September 30, 2020 and provide CAP2 benefits to CAP2 applicants that submit a complete CAP2 application to DOEE on or after November 1, 2019 for FY 2020 from the date of submittal and terminate on September 30, 2020; and

**WHEREAS**, on May 28, 2019, the DC Retail Water and Sewer Rates Committee, after considering the General Manager's recommendation, recommended amending CAP2 regulations as proposed by the General Manager to extend the CAP2 program for FY 2020 providing eligible CAP2 customers 3 Ccfs off of their water and sewer service charges and 50% off of their monthly billed CRIAC charges, effective October 1, 2019; and

**WHEREAS**, on June 6, 2019, the Board through Resolution #19-37, approved the publication of the Notice of Proposed Rulemaking to receive comments during the public comment period and at a public hearing on the proposal to amend the regulations extending the CAP2 program through FY 2020, effective October 1, 2019; and

**WHEREAS**, on June 21, 2019, DC Water published the Notice of Proposed Rulemaking (NOPR) in the *D.C. Register* at 66 DCR 7460; and

**WHEREAS**, on June 21, 2019, DC Water also published a Notice of Public Hearing (NOPH) in the *D.C. Register* at 66 DCR 7385, for a public hearing on August 14, 2019; and

**WHEREAS**, pursuant to Resolution #19-44, dated July 11, 2019, the Board authorized the carryover of unexpended funds from the \$6 Million, authorized by the Board in Resolution #18-57, to the fiscal year 2020 budget to continue to provide benefits to low income customers with household incomes above 60% of the state median income limits and below 80% of the area median income, not capped by the U.S. median low-income limits, considering size of household; and

**WHEREAS**, on August 14, 2019, the DC Retail Water and Sewer Rates Committee held a public hearing to receive comments on the proposal to extend the CAP2 program through FY 2020; and

**WHEREAS**, on August 27, 2019, DC Retail Water and Sewer Rates Committee met to consider the comments received during the public comment period and during the public hearing and the recommendation of the General Manager on the proposal to extend the CAP2 program through FY 2020; and

**WHEREAS**, on August 27, 2019, DC Retail Water and Sewer Committee, after having evaluated the funding and enrollment to date of the CAP2 program and the projected unexpended balance, public comments, and the recommendation of the General

Manager, recommended that the Board take final action to adopt for final rulemaking the extension for the CAP2 program through FY 2020; and

**WHEREAS**, after consideration of the recommendations of the DC Retail Water and Sewer Rates Committee and the recommendation of the General Manager, the District members of the Board of Directors, upon further consideration and discussion, agreed to approve for final rulemaking the amendment of the CAP2 regulations as proposed by the General Manager.

**NOW THEREFORE, BE IT RESOLVED THAT:**

1. The District members of the Board authorize the General Manager to amend the CAP2 regulations extending DC Water's CAP2 benefits to FY 2020 for eligible CAP2 customers (households and tenants) of 3 Ccfs off of their water and sewer service charges and 50% off of their monthly billed CRIAC charges, effective October 1, 2019 as stated in Attachment A.
2. The General Manager is authorized to take all steps necessary in his judgment and as otherwise required, to publish the Notice of Final Rulemaking as provided in Attachment A in accordance with the District of Columbia's Administrative Procedure Act.

This Resolution is effective immediately.

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Secretary to the Board of Directors

## **Attachment A**

### **Extending DC Water's CAP2 Program - Final Rulemaking Effective October 1, 2019**

The amendment shall read as follows:

**Chapter 41, RETAIL WATER AND SEWER RATES AND CHARGES, of Title 21 DCMR, WATER AND SANITATION, is amended as follows:**

**Section 4102, CUSTOMER ASSISTANCE PROGRAMS, is amended as follows:**

**Paragraphs 4102.2(c), (d), and (e) of Subsection 4102.2, CUSTOMER ASSISTANCE PROGRAM II (CAP2), are amended to read as follows:**

#### **4102.2 CUSTOMER ASSISTANCE PROGRAM II (CAP2)**

...

- (c) Upon DC Water's receipt of notice from DOEE that the CAP2 customer meets the financial eligibility requirements, DC Water shall provide the CAP2 benefits for not more than the entire Fiscal Year 2020, beginning October 1, 2019 and terminating on September 30, 2020, subject to the availability of budgeted funds.
  - (1) CAP2 customers that submit a complete application to DOEE before November 1, 2019, shall receive CAP2 benefits retroactive to October 1, 2019 and terminating on September 30, 2020.
  - (2) CAP2 customers that submit a complete application on or after November 1, 2019, shall receive CAP2 benefits as of the date of submittal and terminating on September 30, 2020.
- (d) If DC Water determines that the remaining budgeted funds are insufficient to provide CAP2 benefits, DC Water may:
  - (1) Suspend the process for accepting CAP2 applicants; or
  - (2) Suspend or adjust providing CAP2 benefits to CAP2 recipients.
- (e) The CAP2 Program shall terminate on September 30, 2020.

**Presented and Adopted: September 5, 2019**  
**SUBJECT: Approval to Publish Notice of Final Rulemaking to Amend**  
**Retail Groundwater Sewer Service Rate**

**#19-56**  
**RESOLUTION**  
**OF THE**  
**BOARD OF DIRECTORS**  
**OF THE**  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

The District members of the Board of Directors (“Board”) of the District of Columbia Water and Sewer Authority (“the Authority” or “DC Water”) at the Board meeting held on September 5, 2019 upon consideration of a non-joint use matter, decided by a vote of \_\_\_ (0) in favor and \_\_\_(0) opposed, to take the following action to adopt and publish Notice of Final Rulemaking to amend the Retail Groundwater Sewer Service Rate.

**WHEREAS**, sections 203(11) and 216 of the Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996, effective April 18, 1996 (D.C. Law 11-111, §§ 203(11) and 216; D.C. Code § 34-2202.03(11) and 34-2202.16) (the “Enabling Legislation”) authorizes DC Water to establish, adjust and collect charges for services, facilities, or commodities furnished or supplied by DC Water and to adjust the retail rates for the services; and

**WHEREAS**, groundwater from unimproved real properties under construction or a property under groundwater remediation, cooling water, or non-potable water sources that discharge into the District’s wastewater sewer system and conveyed to and treated at the Blue Plains Advanced Waste Water Treatment Plant (WWTP), incur collection, transmission and treatment costs subject to recovery by DC Water; and

**WHEREAS**, section 207(a)(3) of the District of Columbia Public Works Act of 1954, effective May 18, 1954 (68 Stat. 101; D.C. Official Code § 34-2107 *et seq.*) (“Public Works Act”), as amended, further authorizes DC Water to charge for the discharge of groundwater from improved real properties under construction, cooling water, and water from a source or sources other than the District water supply system (non-potable water source) into the District’s wastewater sewer system; and

**WHEREAS**, the Public Works Act does not address or prohibit DC Water from charging for the discharge of groundwater from a property under groundwater remediation; and

**WHEREAS**, DC Water establishes rates, fees and charges in accordance with its Rate Setting Policy (Board Resolution #11-10), including the recovery of current costs to provide service; and

**WHEREAS**, the DC Retail Water and Sewer Rates Committee met on October 23, 2018 to consider the recommendations from the General Manager to adjust the retail sanitary

sewer service rate for discharges of groundwater from improved real properties, properties under construction and properties under groundwater remediation and to make a recommendation to the Board regarding the proposed adjustments to be effective January 18, 2019; and

**WHEREAS**, the DC Retail Water and Sewer Rates Committee recommended that the Board approve the publication of proposed fees and charges for public comment; and

**WHEREAS**, on November 1, 2018, the Board, through Resolution#18-73, approved the publication of the proposed rulemaking to receive comments during the public comment period and at a public hearing on the proposal to amend the Retail Groundwater Sewer Service Rate, effective October 1, 2019; and

**WHEREAS**, on November 16, 2018, DC Water published Notice of Proposed Rulemaking (NOPR) for the amended Retail Groundwater Sewer Service Rates in the D.C. Register (DCR) at 65 DCR 12831, which if adopted, would implement the amended Retail Groundwater Sewer Service Rate, effective October 1, 2019; and

**WHEREAS**, one comment was received during the public comment period from November 16, 2018 through December 17, 2018, which included the groundwater fees in two case studies calculations; and

**WHEREAS**, on June 21, 2019, DC Water published a Notice of Public Hearing (NOPH) in the *D.C. Register* at 66 DCR 7385, for a public hearing on August 14, 2019; and

**WHEREAS**, a notice of the public hearing on the proposed amended Retail Groundwater Sewer Service Rate was also published on DC Water's website; and

**WHEREAS**, on August 14, 2019, a public hearing was held to receive comments on the proposal to amend the Retail Groundwater Sewer Service Rate; and

**WHEREAS**, no public comments on the amend the Retail Groundwater Sewer Service Rate were provided during the public hearing; and

**WHEREAS**, on August 27, 2019, DC Retail Water and Sewer Rates Committee met to consider the comments received during the public comment period and at the public hearing on the proposed amended Retail Groundwater Sewer Service Rate; and

**WHEREAS**, after discussion and consideration of the public comments and the recommendation of the General Manager, the DC Retail Water and Sewer Rates Committee recommended that the Board take final action to adopt for final rulemaking the amendment of the Retail Groundwater Sewer Service Rate regulations, increasing it \$0.50 per Ccf (\$0.67 per 1,000 gallons) from \$2.33 per Ccf (\$3.11 per 1,000 gallons) to \$2.83 per Ccf (\$3.78 per 1,000 gallons), effective October 1, 2019; and

**WHEREAS**, after consideration of the recommendation of the DC Retail Water and Sewer Rates Committee and the recommendation of the General Manager, the District members



of the Board of Directors, upon further consideration and discussion, agreed to approve the amendment of the Retail Groundwater Sewer Service Rate, effective October 1, 2019; and

**NOW THEREFORE BE IT RESOLVED THAT:**

1. The Board directs the General Manager to publish a Notice of Final Rulemaking in the *D.C. Register* to adjust the Retail Groundwater Sewer Rate as summarized and provided below, effective October 1, 2019:

a.) Adjusted Retail Groundwater Sewer Charge

Per Unit	Existing		Adopted	
	CCF	1000 GAL	CCF	1000 GAL
Ground Sewer Charge	\$2.33	\$3.11	\$2.83	\$3.78

**Chapter 41, RETAIL WATER AND SEWER RATES AND CHARGES, of Title 21 DCMR, WATER AND SANITATION, is amended to read as follows:**

**21 DCMR 4101.2** The retail rates for sanitary sewer service for the discharge of groundwater, cooling water, and non-potable water sources shall be:

- (a) The retail groundwater sewer charge for an unimproved real property, property under construction or under groundwater remediation shall be two dollars and eighty-three cents (\$2.83) per Ccf (\$3.78 per 1,000 gallons) for groundwater discharged into the District's wastewater sewer system.
  - (b) The retail cooling water sewer charge shall be the retail sanitary sewer service rate as provided in section 4101.1(a) for cooling water discharged into the District's wastewater sewer system.
  - (c) The retail non-potable water source sewer charge shall be the retail sanitary sewer service rate as provided in section 4101.1(a) for non-potable water discharged into the District's wastewater sewer system.
2. The General Manager is authorized to take all steps necessary in his judgment and as otherwise required, to publish the Notice of Final Rulemaking in the *D.C. Register* in accordance with the District of Columbia's Administrative Procedure Act.

This resolution is effective immediately.

\_\_\_\_\_  
Secretary to the Board of Directors