



**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**Board of Directors**

*Finance and Budget Committee*

*Thursday, July 28, 2016*

11:00 a.m.

1. **Call to Order**..... Timothy L. Firestine, Chairperson
2. **June 2016 Financial Report (Attachment 1)**..... Mark Kim
3. **Review of RSF Policy (Attachment 2)** ..... Mark Kim
4. **FY 2016 Projected Net Cash Surplus Recommendation (Attachment 3)** ..... Mark Kim
5. **Environmental Impact Bond Financing Presentation (Attachment 4)** ..... Mark Kim
6. **Action Items**
  - A. **Approval of FY 2016 Projected Net Cash Surplus Recommendation (Attachment 5)**
  - B. **Approval of Environmental Impact Bond Financing Documents (Attachment 6)**
    1. **Board Resolution**
    2. **Private Placement Agreement**
    3. **Twenty-First Supplemental Indenture of Trust**
    4. **Term Sheet**
7. **Agenda for September Committee Meeting (Attachment 7)** ..... Timothy L. Firestine
8. **Adjournment**

***FOLLOW-UP ITEMS – Follow-up items from the meeting held June 23, 2016.***

1. Provide a comparison of potential cost for financing under the different ranges of the EIB versus using a tax exempt bond. **(Chairman Firestine) Status: See attachment 4.**
2. **ROCIP Audit. (Chairman Firestine) Status: Completed. (Attachment 8)**

\* 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)(1); 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.

ATTACHMENT 1



Fiscal Year 2016

# Monthly Financial Report

Period Ending June 30, 2016

**DEPARTMENT OF FINANCE, ACCOUNTING & BUDGET**

**Mark Kim**, Chief Financial Officer

**Gail Alexander-Reeves**, Director, Budget

**Robert Hunt**, Director, Finance

**Syed Khalil**, Director, Rates & Revenue

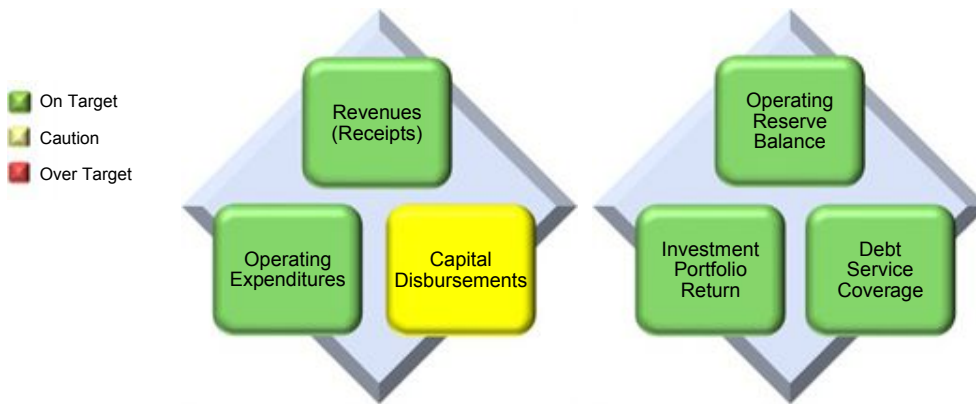
**John Madrid**, Controller

**Monthly Financial Report**

**JUNE 2016**

**EXECUTIVE SUMMARY**

At the end of the third quarter, with 75 percent of the FY completed, we are on track with budgetary expectations and targeted performance metrics. However, year-end capital disbursements are projected to slightly exceed budget. The table below summarizes detailed information provided in the report.



(\$ in millions)

	Budget	YTD Budget	YTD Actual	Variance		Actual % Budget	Year-End Projections
				Favorable (Unfavorable)			
<b>Revenues (Receipts)*</b>	\$580.5	\$435.4	\$430.5	(\$4.9)	(1.1%)	74%	\$579.1
<b>Expenditures*</b>	\$541.6	\$406.2	\$343.2	\$63.0	15.5%	63%	\$496.7
<b>Capital Disbursements</b>	\$549.0	\$424.0	\$426.3	(\$2.3)	(0.5%)	78%	\$540.6

\* Straight-lined (9/12 of budget)

**Highlights:**

- Proposed FY 2018 budget planning process is underway with Committee and Board reviews anticipated in Fall 2016
- Published proposed FY 2017 and FY 2018 Rates in DC Register on July 22, 2016 for:
  - Water & Sewer Rates
  - Clean Rivers Impervious Surface Area Charge (CRIAC)
  - PILOT/ROW
- Board approval of fact sheets for replacement of 90,000 water meters and transmission units. Purchasing process is underway
- FY 2016 year-end closeout and audit processes underway
- ROCIP Audit completed with report to the Audit Committee planned for July 28, 2016

**Mark T. Kim, Chief Financial Officer**

## Monthly Financial Report

Fiscal Year-to-Date  
As of June 30, 2016

### Operating Revenues (\$000's)

Category	A	B*	C	D=C/A	E=C-B	F=E/B	G	H=G/A
	FY 2016 BUDGET	YTD BUDGET	YTD ACTUAL	ACTUAL % BUDGET	VARIANCE \$ Fav/(Unfav)	VARIANCE % Fav/(Unfav)	Year-End Projections	% of Budget
Res. / Comm. / Multi.	\$311,897	233,923	\$236,804	75.9%	\$2,882	1.2%	\$321,086	102.9%
Federal	62,989	47,242	47,242	75.0%	(0)	(0.0%)	62,989	100.0%
Municipal (DC Govt.)	15,175	11,381	11,785	77.7%	404	3.5%	15,657	103.2%
DC Housing	8,083	6,062	6,730	83.3%	668	11.0%	8,812	109.0%
Metering Fee	10,776	8,082	8,579	79.6%	497	6.2%	11,386	105.7%
Water System Replacement Fee (WSRF)	40,000	30,000	21,599	54.0%	(8,401)	(28.0%)	29,756	74.4%
Wholesale	79,458	59,594	59,723	75.2%	129	0.2%	79,458	100.0%
PILOT/ROW	20,584	15,438	16,008	77.8%	570	3.7%	21,527	104.4%
All Other	31,552	23,664	22,050	69.9%	(1,614)	(6.8%)	28,412	90.0%
<b>TOTAL</b>	<b>\$580,514</b>	<b>\$435,386</b>	<b>\$430,521</b>	<b>74.2%</b>	<b>(\$4,865)</b>	<b>(1.1%)</b>	<b>\$579,083</b>	<b>99.8%</b>

\* Straight-lined (9/12 of budget)

### VARIANCE ANALYSIS FOR MAJOR REPORTED ITEMS

At the end of June 2016, cash receipts totaled \$430.5 million, or 74.2 percent of the revised FY 2016 budget. Several categories of customers make payments on a quarterly basis, including the Federal Government and wholesale customers.

Residential, Commercial and Multi-Family – Receipts for this category are higher at \$236.8 million or 75.9 percent of the revised budget. The higher receipts are on account of collection of \$2.6 million on October 5, 2015 (FY 2016) from DC Events/Sports Authority, which falls under Commercial category, following resolution of the dispute with D.C. Government regarding the Clean Rivers Impervious Surface Area Charges (CRIAC) associated with RFK stadium.

District Government – Receipts are slightly higher at \$11.8 million or 77.7 percent of the revised budget.

DC Housing – Receipts are higher at \$6.7 million or 83.3 percent of the revised budget. The DC Housing Authority did not pay the August billed amount of \$807,477.89 in September. The overdue amount was collected in October (FY2016), which resulted in higher receipts compared to the revised budget.

Water System Replacement Fee – Receipts are lower at \$21.6 million or 54.0 percent of the revised budget. The lower receipts for this new fee are due to (a) partial billing of WSRF for the month of October 2015, (b) time lag for collections, which follow billings by a month and (c) non-receipt of WSRF for Federal category since the 2016 Federal Bill, prepared in April 2014, did not include account-wise estimates for WSRF. The FY 2016 WSRF will be trued-up in the FY 2019 Federal Bill.

Wholesale – The Wholesale customers' actual receipts through June total \$59.7 million or 75.2 percent of the revised FY 2016 budget. Wholesale customers' third quarter payment was received in the month of May 2016.

Other Revenue – Receipts are slightly lower than the straight-lined budget at \$22.1 million or 69.9 percent of the budget. Recent refinancing will also lower debt service for FY 2016.

## Monthly Financial Report

### Fiscal Year-to-Date As of June 30, 2016

#### Operating Expenditures (\$000's)

Category	A	B*	C	D=C/A	E=B-C	F=E/B	G	H=G/A
	FY 2016 BUDGET	YTD BUDGET	YTD ACTUAL	ACTUAL % BUDGET	VARIANCE \$ Fav/(Unfav)	VARIANCE % Fav/(Unfav)	Year-End Projections	% of Budget
Personnel	\$140,034	\$105,026	\$104,675	74.7%	\$351	0.3%	\$142,836	102.0%
Contractual Services	79,244	59,433	50,089	63.2%	9,344	15.7%	71,969	90.8%
Water Purchases	30,740	23,055	18,921	61.6%	4,134	17.9%	27,986	91.0%
Supplies & Chemicals	35,951	26,963	21,095	58.7%	5,868	21.8%	29,145	81.1%
Utilities	35,018	26,264	19,152	54.7%	7,111	27.1%	25,706	73.4%
Small Equipment	1,465	1,099	500	34.2%	598	54.5%	616	42.0%
<b>SUBTOTAL O&amp;M</b>	<b>\$322,452</b>	<b>\$241,839</b>	<b>\$214,433</b>	<b>66.5%</b>	<b>\$27,406</b>	<b>11.3%</b>	<b>\$298,258</b>	<b>92.5%</b>
Debt Service	174,766	131,075	113,175	64.8%	17,900	13.7%	154,244	88.3%
PILLOT/ROW	20,744	15,558	15,558	75.0%	(0)	(0.0%)	20,744	100.0%
Cash Financed Capital Improvements	23,644	17,733	0	0.0%	17,733	100.0%	23,475	99.3%
<b>TOTAL OPERATING</b>	<b>\$541,606</b>	<b>\$406,205</b>	<b>\$343,166</b>	<b>63.4%</b>	<b>\$63,039</b>	<b>15.5%</b>	<b>\$496,721</b>	<b>91.7%</b>
Capital Labor	(18,993)	(14,245)	(13,350)	70.3%	(895)	6.3%	(18,335)	96.5%
<b>TOTAL NET OPERATING</b>	<b>\$522,613</b>	<b>\$391,960</b>	<b>\$329,816</b>	<b>63.1%</b>	<b>\$62,144</b>	<b>15.9%</b>	<b>\$478,386</b>	<b>91.5%</b>

\*Straight-lined (9/12 of budget)

#### VARIANCE ANALYSIS FOR MAJOR REPORTED ITEMS

At the end of June 2016, with 75 percent of the fiscal year completed, operating expenditures totaled \$343.2 million, or 63 percent of the FY 2016 budget of \$541.6 million. These numbers include estimated, incurred but unpaid, invoices and are subject to revision in subsequent months.

Personnel Services – YTD expenditures are on track at \$104.7 million, or 75 percent of budget. Of the 1260 positions authorized, 1136 positions were filled with YTD vacancy rate of 9.8 percent. Overtime spending totals \$5.1 million of the annual budget of \$6.6 million.

Contractual Services – Underspensing is attributable to various contracts throughout the Authority. This includes materialized savings from biosolids hauling costs and impact of the delayed fee to operate the CHP project. Biosolids production during the fiscal year to date averaged 428 wet tons/day as compared to the 600 wet tons/day assumed value when the budget was prepared.

Supplies & Chemicals – YTD underspensing is primarily from chemicals due to lower unit prices for methanol and the use of safer and less expensive chemical (lime slurry in lieu of sodium hydroxide) as a main source to control alkalinity and pH balance.

Utilities – YTD underspensing is consistent with expectation for onsite electricity generation from the CHP which represents approximately 6MW or 25 percent of Authority-wide usage. We have 15MW of the Authority's FY 2016 electricity load locked at an average Western Hub unit price of \$40.43/MWh, 17MW at \$36.95/MWh for FY 2017 and 10MW at \$35.75/MWh for FY 2018.

Debt Service – YTD actual debt service continues to trend below the Board-adopted budget primarily due to current interest rates being lower than forecast.

## Monthly Financial Report

Fiscal Year-to-Date  
As of June 30, 2016

### Capital Disbursements (\$000's)

Service Area	A	B	C	D=CA	E=B-C	F=E-B	G	H=G/A
	FY 2016 BUDGET	YTD BUDGET	YTD ACTUAL	ACTUAL % BUDGET	VARIANCE \$ Fav/(Unfav)	VARIANCE % Fav/(Unfav)	Year-End Projections	% of Budget
Non Process Area	\$9,309	\$3,681	\$4,207	45.2%	(527)	(14.3%)	\$4,776	51.3%
Wastewater Treatment	168,637	133,272	126,961	75.3%	6,311	4.7%	169,511	100.5%
Combined Sewer Overflow	223,105	174,766	179,783	80.6%	(5,016)	(2.9%)	224,097	100.4%
Stormwater	1,263	894	1,597	126.5%	(704)	(78.7%)	1,911	151.3%
Sanitary Sewer	34,786	25,057	36,069	103.7%	(11,012)	(43.9%)	45,424	130.6%
Water	61,878	47,563	64,689	104.5%	(17,126)	(36.0%)	67,808	109.6%
<b>SUBTOTAL: CAPITAL PROJECTS</b>	<b>\$498,977</b>	<b>\$385,232</b>	<b>\$413,307</b>	<b>82.8%</b>	<b>(\$28,074)</b>	<b>(7.3%)</b>	<b>\$513,527</b>	<b>102.9%</b>
Capital Equipment	39,226	30,647	11,289	28.8%	19,359	63.2%	19,751	50.4%
Washington Aqueduct	10,838	8,128	1,663	15.3%	6,465	79.5%	7,340	67.7%
<b>SUBTOTAL: ADD'L CAPITAL PROGRAMS</b>	<b>\$50,063</b>	<b>\$38,775</b>	<b>12,952</b>	<b>25.9%</b>	<b>\$25,824</b>	<b>66.6%</b>	<b>\$27,090</b>	<b>54.1%</b>
<b>TOTAL</b>	<b>\$549,040</b>	<b>\$424,008</b>	<b>\$426,258</b>	<b>77.6%</b>	<b>(\$2,251)</b>	<b>(0.5%)</b>	<b>\$540,617</b>	<b>98.5%</b>

### VARIANCE ANALYSIS FOR MAJOR REPORTED ITEMS

At the end of June 2016, capital disbursements are \$426.3 million or 77.6 percent of the FY 2016 budget.

Capital Projects - Project performance will be reviewed in detail as part of the quarterly CIP update by the Department of Engineering & Technical Services to the Environmental Quality & Sewerage Services, Water Quality & Water Services, and Finance & Budget Committees in September 2016.

Capital Equipment - Lower than planned disbursements are driven by the unspent reserve funds in Finance, Accounting and Budget to accommodate requests for Authority-wide projects, IT reserve funds for enterprise technology initiatives and long lead times for Fleet deliveries.

Acceleration of the Automated Meter Reading project is not expected to have a large impact on the current year-end projections as cash payments are assumed to begin in FY 2017. Purchasing is underway for the devices.

Washington Aqueduct (WAD) - Lower than planned disbursements represents WAD's plan to delay customer billing to draw down the pre-paid balances currently in escrow and US Treasury accounts.

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**Monthly Financial Report**

Fiscal Year-to-Date  
As of June 30, 2016

**Cash Investments and Insurance (\$ in millions)**
**Cash Balances**

Rate Stabilization Fund Account (RSF)	\$32.5
DC Insurance Reserve	1.0
Operating Reserve Accounts	<u>150.2</u>
<b>Operating Cash Balance Including RSF</b>	<b>\$183.7</b>
Debt Service Reserve - Series 1998	23.7
Bond Fund- Construction Fund 2015A	100.6
Bond Fund- Construction Fund 2015B	96.3
CSO Grants	14.0
<b>Total All Funds</b>	<b>\$418.3</b>

**OVERALL PORTFOLIO PERFORMANCE**

- The operating reserve balance was \$150.2 million as compared to the operating reserve level objective of \$125.5 million for FY 2016
- Average cash balance for the month of June was \$159.4 million
- Total investment portfolio was in compliance with the Authority's Investment Policy
- Operating funds interest income for June (on a cash basis) was \$121,616; YTD \$796,147
- A detailed investment performance report is attached

## Monthly Financial Report

### Fiscal Year-to-Date As of June 30, 2016

#### Cash Flow Summary (\$000's)

	Ten-Year Plan Cash Basis	YTD 75% Cash Budget	YTD Actual Cash Oct. 1, 2015 - Jun. 30, 2016	Ten-Year Plan Variance Favorable (Unfavorable)	
<b>OPERATING BUDGET</b>					
<b>Cash Provided</b>					
Retail	\$448,920	\$336,690	\$332,739	(3,951)	-1%
Wholesale	79,458	\$59,593	59,723	130	0%
Other	51,890	\$38,918	38,053	(865)	-2%
<b>Total Cash Provided</b>	<b>580,268</b>	<b>435,201</b>	<b>430,515</b>	<b>(4,686)</b>	<b>-1%</b>
<b>Operating Cash Used</b>					
Personnel Services	121,041	90,781	90,898	(117)	0%
Contractual Services	79,243	59,432	58,484	949	2%
Chemicals & Supplies	35,951	26,963	28,598	(1,634)	-6%
Utilities	35,018	26,264	27,931	(1,667)	-6%
Water Purchases	30,740	23,055	19,721	3,334	14%
Small Equipment	1,465	1,099	500	599	55%
<b>Total Operating Cash Used</b>	<b>303,458</b>	<b>227,594</b>	<b>226,131</b>	<b>1,463</b>	<b>1%</b>
Defeasance D.S./Cash Financed Capital Improvements	23,475	17,606		17,606	100%
<b>Other Cash Used</b>					
Debt Service	157,640	118,230	113,175	5,055	4%
Payment In Lieu of Taxes/Right of Way	20,744	15,558	15,558		0%
<b>Total Other Cash Used</b>	<b>178,384</b>	<b>133,788</b>	<b>128,733</b>	<b>5,055</b>	<b>4%</b>
<b>Total Cash Used</b>	<b>505,317</b>	<b>378,988</b>	<b>354,864</b>	<b>24,124</b>	<b>6%</b>
<b>Net Cash Provided (Used) by Operating Act.</b>	<b>74,950</b>	<b>56,213</b>	<b>75,651</b>	<b>19,438</b>	
<b>CAPITAL BUDGET</b>					
<b>Cash Provided</b>					
Debt Proceeds	238,487	178,865	212,878	34,013	19%
EPA Grants/DC Bloomingdale Reimbursement	27,244	20,433	18,978	(1,455)	-7%
CSO Grants	14,000	10,500		(10,500)	-100%
Transfer from Operations	82,548	61,911			
Interest Income	998	748	839	91	12%
Wholesale Capital Contributions	126,693	95,020	120,092	25,072	26%
<b>Total Cash Provided</b>	<b>489,969</b>	<b>367,477</b>	<b>352,787</b>	<b>(14,691)</b>	<b>-4%</b>
<b>Cash Used</b>					
DC Water Capital Program	538,204	403,653	424,595	(20,942)	-5%
Washington Aqueduct Projects	10,838	8,129	1,663	6,466	80%
<b>Total Cash Used</b>	<b>549,042</b>	<b>411,782</b>	<b>426,258</b>	<b>(14,477)</b>	<b>-4%</b>
<b>Net Cash/PAYGO Provided (Used) by Cap. Act.</b>	<b>(\$59,073)</b>	<b>(\$44,304)</b>	<b>(\$73,472)</b>	<b>(\$29,167)</b>	
<b>Beginning Balance, October 1 (Net of Rate Stab. Fund) Projected</b>					
Plus (Less) Operating Surplus	74,950	56,213	75,651		
Wholesale Customer Refunds from Prior Years	(5,500)	(4,125)	(3,290)		
Interest Earned From Bond Reserve	247	185	6		
Transfer to Rate Stabilization Fund	(19,000)	(14,250)			
Prior Year Federal Billing Reconciliation	(11,679)	(8,759)	(8,759)		
Cash Used for Capital	(59,073)	(44,304)	(73,472)		
<b>Balance Attributable to O&amp;M Reserve</b>	<b>\$140,000</b>		<b>\$150,190</b>		
<b>OTHER CASH RESERVES</b>					
<b>Rate Stabilization Fund</b>	<b>\$32,450</b>				
<b>DC Insurance Reserve</b>	<b>\$1,041</b>				
<b>CSO Grant</b>	<b>\$14,017</b>				



**Monthly Financial Report**

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APPENDIX

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Monthly Financial Report

Fiscal Year-to-Date  
As of June 30, 2016

Operating Revenues Detail

(\$ in millions)

Revenue Category	Budget	YTD Budget	YTD Actual	Variance		YTD % of Budget	Year End Projections	Variance Proj v. Bud	% of Budget
				Favorable / (Unfavorable)					
Residential, Commercial, and Multi-family	\$311.9	\$233.9	\$236.8	\$2.9	1.2%	75.9%	\$321.0	9.1	102.9%
Federal	63.0	47.2	47.2	0.0	0.0%	75.0%	63.0	0.0	100.0%
District Government	15.2	11.4	11.8	0.4	3.5%	77.7%	15.7	0.5	103.2%
DC Housing Authority	8.1	6.1	6.7	0.6	11.0%	83.3%	8.8	0.7	109.0%
Customer Metering Fee	10.8	8.1	8.6	0.5	6.2%	79.6%	11.4	0.6	105.7%
Water System Replacement Fee (WSRF)	40.0	30.0	21.6	(8.4)	-28.0%	54.0%	29.8	(10.2)	74.4%
Wholesale	79.5	59.6	59.7	0.1	0.2%	75.2%	79.5	0.0	100.0%
Right-of-Way Fee/PILOT	20.6	15.4	16.0	0.6	3.7%	77.8%	21.5	1.0	104.4%
<b>Subtotal (before Other Revenues)</b>	<b>\$549.0</b>	<b>\$411.7</b>	<b>\$408.4</b>	<b>(\$3.3)</b>	<b>-0.9%</b>	<b>74.4%</b>	<b>\$550.6</b>	<b>\$1.7</b>	<b>100.3%</b>
Other Revenue without RSF									
IMA Indirect Cost Reimb. For Capital Projects	8.0	6.0	0.0	(6.0)	-100.0%	0.0%	3.3	(4.7)	41.3%
DC Fire Protection Fee	10.8	8.1	8.1	(0.0)	0.0%	75.0%	10.8	0.0	100.0%
Stormwater (MS4)	1.0	0.8	0.7	(0.0)	0.0%	70.0%	0.9	(0.1)	90.0%
Interest	1.3	1.0	0.8	(0.2)	-20.0%	61.5%	1.3	0.0	100.0%
Developer Fees (Water & Sewer)	7.5	5.6	6.9	1.3	23.2%	92.0%	8.0	0.5	106.7%
Others	2.9	2.2	5.6	3.4	154.5%	193.1%	4.1	1.2	141.4%
<b>Subtotal</b>	<b>\$31.6</b>	<b>\$23.7</b>	<b>\$22.1</b>	<b>(\$1.6)</b>	<b>-6.8%</b>	<b>69.9%</b>	<b>\$28.4</b>	<b>(\$3.1)</b>	<b>90.0%</b>
Rate Stabilization Fund Transfer	\$0.0	\$0.0	\$0.0	\$0.0	0.0%	0.0%	\$0.0	\$0.0	0.0%
<b>Other Revenue Subtotal</b>	<b>\$31.6</b>	<b>\$23.7</b>	<b>\$22.1</b>	<b>(\$1.6)</b>	<b>-6.8%</b>	<b>69.9%</b>	<b>\$28.4</b>	<b>(\$3.1)</b>	<b>90.0%</b>
<b>Grand Total</b>	<b>\$580.5</b>	<b>\$435.4</b>	<b>\$430.5</b>	<b>(\$4.8)</b>	<b>-1.1%</b>	<b>74.2%</b>	<b>\$579.1</b>	<b>(\$1.4)</b>	<b>99.8%</b>

BREAKDOWN OF RETAIL RECEIPTS BY CUSTOMER CATEGORY  
(\$ in 000's)

Customer Category	Clean Rivers					Total
	Water	Sewer	IAC	Metering Fee	WSRF	
Residential	\$ 23,932	\$ 29,132	\$ 20,764	\$ 3,885	\$ 5,810	\$ 83,522
Commercial	39,181	40,383	26,091	2,609	10,076	118,339
Multi-family	22,214	26,501	8,607	1,066	4,061	62,450
Federal	17,025	16,162	14,054	595	0	47,836
District Govt	3,742	4,574	3,470	320	1,274	13,380
DC Housing Authority	2,629	3,174	927	104	378	7,212
<b>Total:</b>	<b>\$ 108,722</b>	<b>\$ 119,926</b>	<b>\$ 73,913</b>	<b>\$ 8,579</b>	<b>\$ 21,599</b>	<b>\$ 332,739</b>

Note: The breakdown of Collections into Residential, Commercial, & Multi-family and Water and sewer is approximate as it is based on percentages of historical data and does not take into account adjustments and timing differences

Clean Rivers IAC - Actual vs Budget  
(\$ in 000's)

Customer Category	FY2016 Budget	Year-To-Date Budget	Actual Received	Variance Favorable / <Unfavorable>	Variance % of YTD Budget	Actual % of Budget
Residential	\$ 26,086	\$ 19,565	\$ 20,764	\$ 1,199	6%	80%
Commercial	30,532	22,899	26,091	3,192	14%	85%
Multi-family	10,202	7,652	8,607	956	12%	84%
Federal	18,739	14,054	14,054	(0)	0%	75%
District Govt	8,357	6,268	3,470	(2,798)	-45%	42%
DC Housing Authority	1,221	916	927	11	1%	76%
<b>Total:</b>	<b>\$ 95,137</b>	<b>\$ 71,353</b>	<b>\$ 73,913</b>	<b>\$ 2,560</b>	<b>4%</b>	<b>78%</b>

## Monthly Financial Report

Fiscal Year-to-Date  
As of June 30, 2016

### Retail Accounts Receivable (Delinquent Accounts)

The following tables show retail accounts receivable over 90 days including a breakdown by customer class.

#### Greater Than 90 Days by Month

	\$ in millions	# of accounts
September 30, 2012	\$5.5	13,063
September 30, 2013	\$4.9	11,920
September 30, 2014	\$5.3	12,442
September 30, 2015	\$6.5	11,981
October 31, 2015	\$7.1	11,737
November 30, 2015	\$6.7	11,799
December 31, 2015	\$6.9	12,487
January 31, 2016	\$7.2	13,387
February 29, 2016	\$7.3	13,096
March 31, 2016	\$7.2	12,550
April 30, 2016	\$7.0	11,907
May 31, 2016	\$6.9	11,668
June 30, 2016	\$7.9	12,277

#### Greater Than 90 Days by Customer

	Number of Accounts			Month of June (All Categories)				Total Delinquent				
	W & S a/c	Impervious Only a/c	Total No. of a/c	Active		Inactive		No. of a/c May	Amount (\$)	No. of a/c June	Amount (\$)	%
				No. of a/c	Amount (\$)	No. of a/c	Amount (\$)					
Commercial	10,470	3,261	13,731	1,061	2,506,503	174	\$ 108,738	952	\$ 1,752,644	1,235	\$ 2,615,241	33%
Multi-family	8,272	449	8,721	701	1,516,743	172	\$ 69,205	832	1,641,731	873	\$ 1,585,948	21%
Single-Family Residential	106,053	3,370	109,423	7,729	3,065,604	2,440	\$ 639,270	9,884	3,536,965	10,169	\$ 3,704,874	47%
<b>Total</b>	<b>124,795</b>	<b>7,080</b>	<b>131,875</b>	<b>9,491</b>	<b>\$ 7,088,850</b>	<b>2,786</b>	<b>\$ 817,213</b>	<b>11,668</b>	<b>\$ 6,931,341</b>	<b>12,277</b>	<b>\$ 7,906,063</b>	<b>100%</b>

Notes: Included in the above \$7.09M (or 9,491 accounts) of the DC Water Over 90 days delinquent accounts, \$3,072,916.68 (or 2,128 accounts) represents Impervious only accounts over 90 days delinquent.

-Reportable delinquencies do not include balances associated with a long standing dispute between DC Water and a large commercial customer.

## Monthly Financial Report

Fiscal Year-to-Date  
As of June 30, 2016

### Overtime by Department

Department	FY 2016			
	Budget	YTD Actual	YTD Actual % of Budget	% of Regular Pay
Office of the Board Secretary	\$5,000	\$10,899	218.0%	6.0%
General Manager	7,500	8,352	111.4%	0.4%
General Counsel	2,000	68	3.4%	0.0%
External Affairs	27,000	209	0.8%	0.0%
Internal Audit	0	0	0.0%	0.0%
Information Technology	26,670	5,426	20.3%	0.2%
Procurement	30,000	14,581	48.6%	0.7%
Customer Service	260,000	238,892	91.9%	3.8%
Finance, Accounting & Budget	30,000	21,197	70.7%	0.5%
Assistant General Manager - Support Services	1,000	158	15.8%	0.1%
Human Capital Management	5,000	2,912	58.2%	0.1%
Occupational Safety and Health	2,000	419	21.0%	0.1%
Facilities Management	250,000	218,595	87.4%	7.4%
Department of Security	0	0	0.0%	0.0%
Distribution and Conveyance System	750,000	571,843	76.2%	11.6%
Engineering and Technical Services	1,063,000	589,833	55.5%	4.8%
Water Services	980,000	1,158,000	118.2%	12.5%
Clean Rivers	5,000	165	3.3%	0.0%
Sewer Services	900,000	778,757	86.5%	13.1%
Wastewater Treatment - Operations	1,450,780	1,151,935	79.4%	15.0%
Wastewater Treatment - Process Engineering	120,000	24,583	20.5%	1.3%
Maintenance Services	700,000	291,510	41.6%	4.7%
Permit Operations	15,000	3,390	22.6%	0.4%
Fleet Management	3,500	3,066	87.6%	0.6%
<b>Total DC WATER</b>	<b>\$6,633,450</b>	<b>\$5,094,790</b>	<b>76.8%</b>	<b>6.7%</b>

**Notes:**

- Engineering and Technical Services department and Clean Rivers department include overtime that will be charged/transferred to capital projects at the end of the fiscal year
- Includes accruals for 5 days thru June 31, 2016

Fiscal Year-to-Date  
As of June 30, 2016

Capital Disbursements Detail by Program (\$000's)

Service Areas	Budget		Actual			Variance			Year-End	
	Annual	YTD	Oct. 2015 - May. 2016	June. 2016	YTD	YTD % Budget	YTD \$ Fav/(Unfav)	YTD % Fav/(Unfav)	Projection	% of Budget
<b>NON PROCESS FACILITIES</b>										
Facility Land Use	\$9,309	\$3,681	\$3,469	\$739	\$4,207	45.2%	(\$527)	-14.3%	\$4,776	51.3%
<b>Subtotal</b>	<b>9,309</b>	<b>3,681</b>	<b>3,469</b>	<b>739</b>	<b>4,207</b>	<b>45.2%</b>	<b>(527)</b>	<b>-14.3%</b>	<b>4,776</b>	<b>51.3%</b>
<b>WASTEWATER TREATMENT</b>										
Liquid Processing	16,193	11,223	9,269	972	10,240	63.2%	982	8.8%	12,298	75.9%
Plantwide	15,798	12,602	9,275	536	9,811	62.1%	2,792	22.2%	13,985	88.5%
Solids Processing	28,652	26,036	18,507	1,159	19,666	68.6%	6,371	24.5%	23,009	80.3%
Enhanced Nitrogen Removal Facilities	107,994	83,410	78,438	8,807	87,244	80.8%	(3,834)	-4.6%	120,219	111.3%
<b>Subtotal</b>	<b>168,637</b>	<b>133,272</b>	<b>115,488</b>	<b>11,473</b>	<b>126,961</b>	<b>75.3%</b>	<b>6,311</b>	<b>4.7%</b>	<b>169,511</b>	<b>100.5%</b>
<b>COMBINED SEWER OVERFLOW</b>										
D.C. Clean Rivers	212,012	165,737	149,341	20,898	170,239	80.3%	(4,502)	-2.7%	212,438	100.2%
Program Management	1,832	1,406	1,940	172	2,112	115.3%	(706)	-50.2%	3,216	175.6%
Combined Sewer	9,261	7,623	7,407	25	7,431	80.2%	192	2.5%	8,443	91.2%
<b>Subtotal</b>	<b>223,105</b>	<b>174,766</b>	<b>158,688</b>	<b>21,095</b>	<b>179,783</b>	<b>80.6%</b>	<b>(5,016)</b>	<b>-2.9%</b>	<b>224,097</b>	<b>100.4%</b>
<b>STORMWATER</b>										
Local Drainage	223	186	204	10	214	96.3%	(28)	-15.1%	315	141.3%
On-Going	459	295	927	37	964	210.0%	(670)	-227.3%	1,160	252.6%
Pumping Facilities	0	0	0	0	0	0.0%	0	0.0%	0	0.0%
DDOT	18	13	0	0	0	0.0%	13	100.0%	0	0.0%
Research and Program Management	256	229	144	14	157	61.4%	71	31.2%	255	99.3%
Trunk/Force Sewers	307	171	212	50	262	85.1%	(91)	-53.2%	182	59.3%
<b>Subtotal</b>	<b>1,263</b>	<b>894</b>	<b>1,487</b>	<b>110</b>	<b>1,597</b>	<b>126.5%</b>	<b>(704)</b>	<b>-78.7%</b>	<b>1,911</b>	<b>151.3%</b>
<b>SANITARY SEWER</b>										
Collection Sewers	4,190	3,336	3,330	1,099	4,429	105.7%	(1,093)	-32.8%	7,726	184.4%
On-Going	7,463	5,339	10,550	1,741	12,292	164.7%	(6,953)	-130.2%	12,278	164.5%
Pumping Facilities	2,267	1,784	2,775	62	2,837	125.2%	(1,053)	-59.0%	3,608	159.2%
Program Management	6,742	4,898	5,420	748	6,168	91.5%	(1,270)	-25.9%	8,986	133.3%
Interceptor/Trunk Force Sewers	14,124	9,700	9,330	1,013	10,343	73.2%	(643)	-6.6%	12,826	90.8%
<b>Subtotal</b>	<b>34,786</b>	<b>25,057</b>	<b>31,407</b>	<b>4,662</b>	<b>36,069</b>	<b>103.7%</b>	<b>(11,012)</b>	<b>-43.9%</b>	<b>45,424</b>	<b>130.6%</b>
<b>WATER</b>										
Distribution Systems	35,667	28,175	31,869	4,242	36,112	101.2%	(7,937)	-28.2%	34,509	96.8%
Lead Program	1,575	1,285	2,061	141	2,202	139.8%	(917)	-71.4%	2,476	157.2%
On-Going	5,105	3,677	5,377	967	6,345	124.3%	(2,668)	-72.6%	8,132	159.3%
Pumping Facilities	3,833	2,843	3,334	613	3,947	103.0%	(1,104)	-38.8%	4,796	125.1%
DDOT	893	704	1,903	0	1,903	213.1%	(1,200)	-170.6%	1,792	200.7%
Storage Facilities	9,515	7,052	7,785	808	8,593	90.3%	(1,541)	-21.8%	8,728	91.7%
Program Management	5,288	3,828	5,021	566	5,587	105.7%	(1,760)	-46.0%	7,375	139.5%
<b>Subtotal</b>	<b>61,878</b>	<b>47,563</b>	<b>57,352</b>	<b>7,337</b>	<b>64,689</b>	<b>104.5%</b>	<b>(17,126)</b>	<b>-36.0%</b>	<b>67,808</b>	<b>109.6%</b>
<b>Capital Projects</b>	<b>\$498,977</b>	<b>\$385,232</b>	<b>\$367,891</b>	<b>\$45,416</b>	<b>\$413,307</b>	<b>82.8%</b>	<b>(\$28,074)</b>	<b>-7.3%</b>	<b>\$513,527</b>	<b>102.9%</b>
<b>CAPITAL EQUIPMENT</b>	<b>39,226</b>	<b>30,647</b>	<b>9,039</b>	<b>2,250</b>	<b>11,289</b>	<b>28.8%</b>	<b>19,359</b>	<b>63.2%</b>	<b>19,751</b>	<b>50.4%</b>
<b>WASHINGTON AQUEDUCT</b>	<b>10,838</b>	<b>8,128</b>	<b>1,663</b>	<b>0</b>	<b>1,663</b>	<b>15.3%</b>	<b>6,465</b>	<b>79.5%</b>	<b>7,340</b>	<b>67.7%</b>
<b>Additional Capital Programs</b>	<b>\$50,063</b>	<b>\$38,775</b>	<b>\$10,702</b>	<b>\$2,250</b>	<b>\$12,952</b>	<b>25.9%</b>	<b>\$25,824</b>	<b>66.6%</b>	<b>\$27,090</b>	<b>54.1%</b>
<b>Total</b>	<b>\$549,040</b>	<b>\$424,008</b>	<b>\$378,592</b>	<b>\$47,666</b>	<b>\$426,258</b>	<b>77.6%</b>	<b>(\$2,251)</b>	<b>-0.5%</b>	<b>\$540,617</b>	<b>98.5%</b>

**Monthly Financial Report**

Fiscal Year-to-Date  
As of June 30, 2016

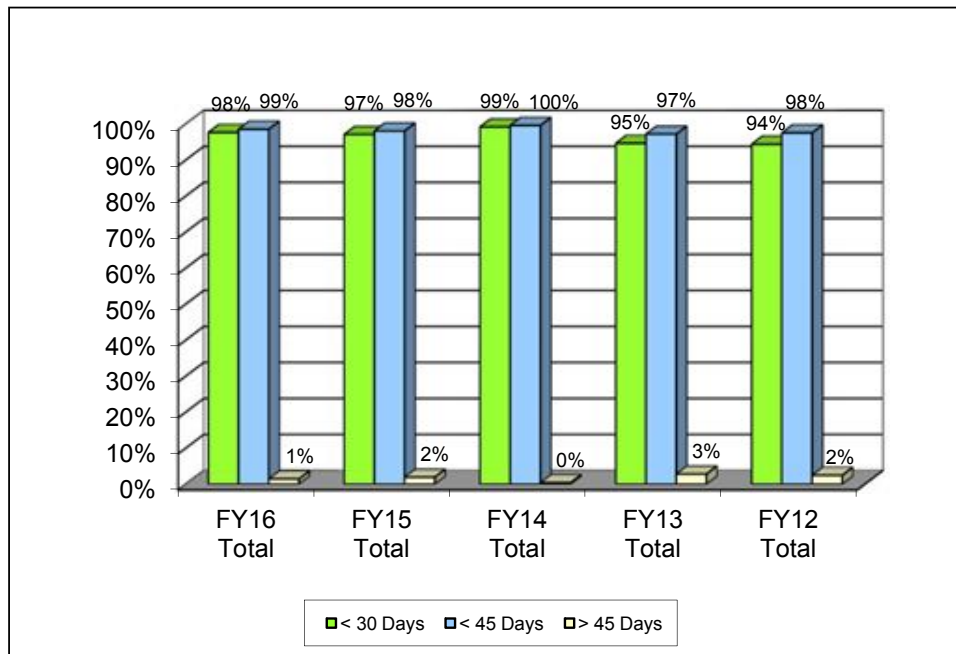
**Accounts Payable**

Cumulative performance for the nine month period ending June 2016, a total of 15,562 vendor payments were processed and paid compared to 14,162 in FY 2015 (as shown in the table below) and with a dollar value of \$609.0 million compared to \$598.9 million for FY 2015.

For FY 2016, approximately 97.7% of the invoices were paid within 30 days compared to 97.1% for FY 2015. The Authority’s goal is to pay 97% of all undisputed invoices within 30 days.

Accounts Payable Performance				
Days	FY 2016		FY 2015	
	Number	Percent	Number	Percent
Less than 30	14,918	97.7%	13,633	97.1%
Less than 45	15,054	98.5%	13,769	98.1%
Greater than 45	222	1.5%	271	1.9%
<b>Sub-Total</b>	<b>15,276</b>	<b>100%</b>	<b>14,040</b>	<b>100%</b>
Retainage/Dispute	286		122	
<b>Total</b>	<b>15,562</b>		<b>14,162</b>	

The chart below shows historical performance for fiscal year 2012 through fiscal year 2016.



**Monthly Financial Report**

Fiscal Year-to-Date  
As of June 30, 2016

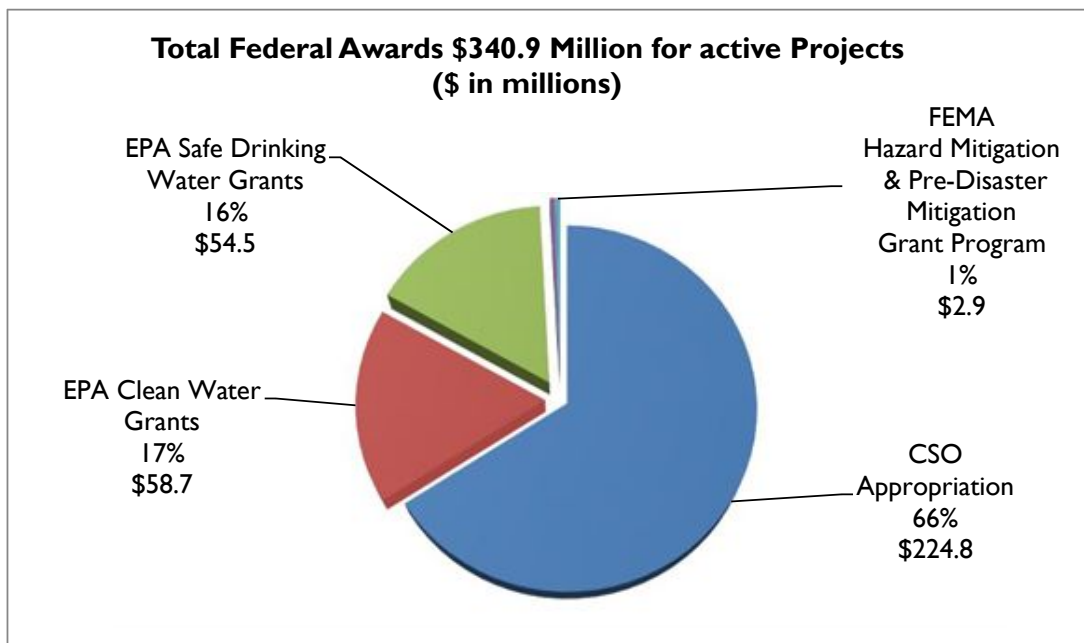
**Grants Report**

The Authority currently receives grants to fund portions of its capital project costs from the U.S. Environmental Protection Agency (EPA). Additionally, DC Water received several grants from the Federal Emergency Management Agency (FEMA) during FY 2015.

The EPA grants are issued under two acts, the Clean Water Act of 1972 and the Safe Drinking Water Act of 1974.

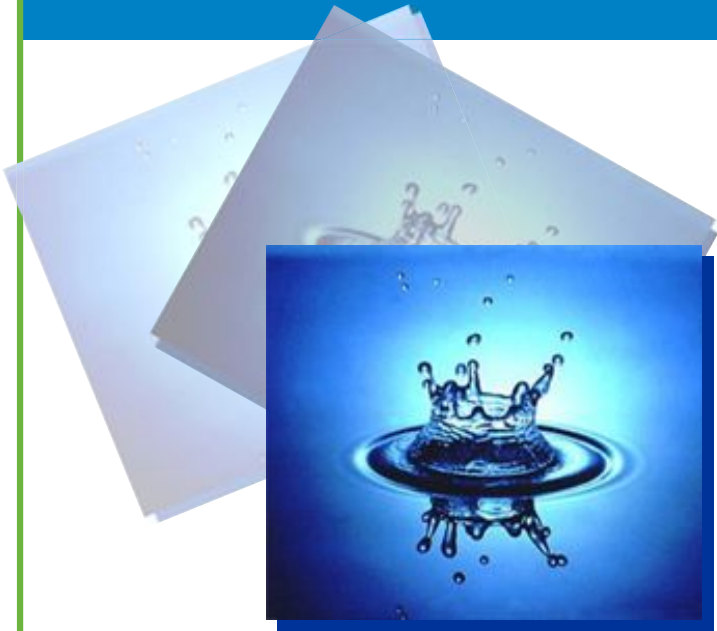
The FEMA mitigation grants are issued under the Robert T. Stafford Disaster Relief and Emergency Assistance Act through the Hazard Mitigation Grant Program (HMGP) act of 1993 and the Pre-Disaster Mitigation Grant Program (PDM) act of 2000.

As of June 30 2016, DC Water has \$340.9 million in total federal funds for active projects, as indicated below:



The remaining balance of the EPA funding as of June 30, 2016 is \$23.5 million. There has been no request for reimbursement as it relates to the FEMA grants. As such, the remaining balance for the FEMA grants remains at \$2.9 million as of June 30, 2016.

DC Water has received seventeen separate Congressional CSO appropriations totaling \$224.8 million plus accrued interest of \$12.3 million resulting in total CSO funding of \$237.1 million. The cumulative CSO appropriation life-to-date cash disbursement based on requested reimbursement is \$223.2 million through June 30, 2016. The remaining CSO balance as of June 30, 2016 appropriation and interest is \$14.0 million.



# DC Water

*Investment Performance Report – June 2016*





**DC Water  
Finance Division  
Economic Update**

## ECONOMIC COMMENTARY

- The U.S. economy created 287,000 jobs in June, well above the forecast 180,000. Job growth over the last 3-months averaged 147,000, down from almost 200,000 in the first quarter, a sign of moderation as the economy approaches full employment. The unemployment rate rose to 4.9% as more people entered the labor force.
- The Federal Open Market Committee (“FOMC”) left policy rates unchanged at their June meeting. The Committee once again lowered their expectation for rate hikes in 2016. The market priced in a 0% chance of a rate hike in July at the end of the quarter, compared to a 33% chance at the end of the 1st quarter.
- On June 23<sup>rd</sup>, the United Kingdom voted to leave the European Union after forty-three years of membership. This historic vote, the first of its kind, shocked markets, leading to a flight-to-quality. Sovereign bond yields sharply fell as a result, sending 10 and 30-year Treasury yields to all-time lows.

## PORTFOLIO RECAP

- The portfolio is diversified among Bank Deposits, U.S. Treasuries, Federal Agencies, Supranational Bonds, Commercial Paper, Negotiable CDs, Corporate Notes/Bonds, Municipal Bonds, FDIC Insured CDs, and SEC registered money market funds.
- The overall yield-to-maturity on cost of the portfolio is 0.80%.

### Operating Reserve

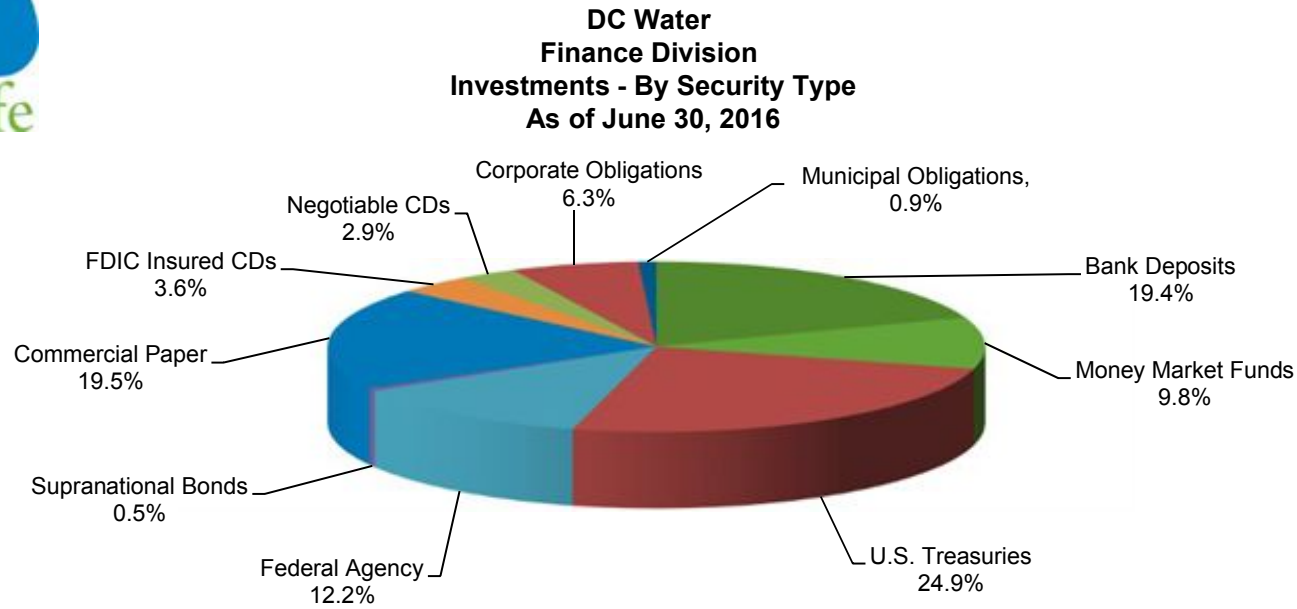
- During the month, PFM made several sector swaps.
  - We sold \$1.8 million of May 2019 U.S. Treasury Notes at a yield of 1.03% and used the proceeds to purchase June 2019 FHLB Global Notes at a yield of 1.14%.
  - We also sold \$1.8 million of 11-month Federal Agencies and used the proceeds to purchase BNP Paribas commercial paper. This trade picked up 0.39% of additional yield.
- In order to extend the duration of the portfolio, we purchased \$5.35 million of April 2019 U.S. Treasury Notes.

### 2015A Construction Fund

- PFM sold \$9.9 million of 10-month U.S. Treasuries at a yield of 0.53% and purchased 9-month Bank of Montreal commercial paper at a yield of 1.01%. This trade is projected to add approximately \$34,500 in incremental earnings.

### 2015B Construction Fund

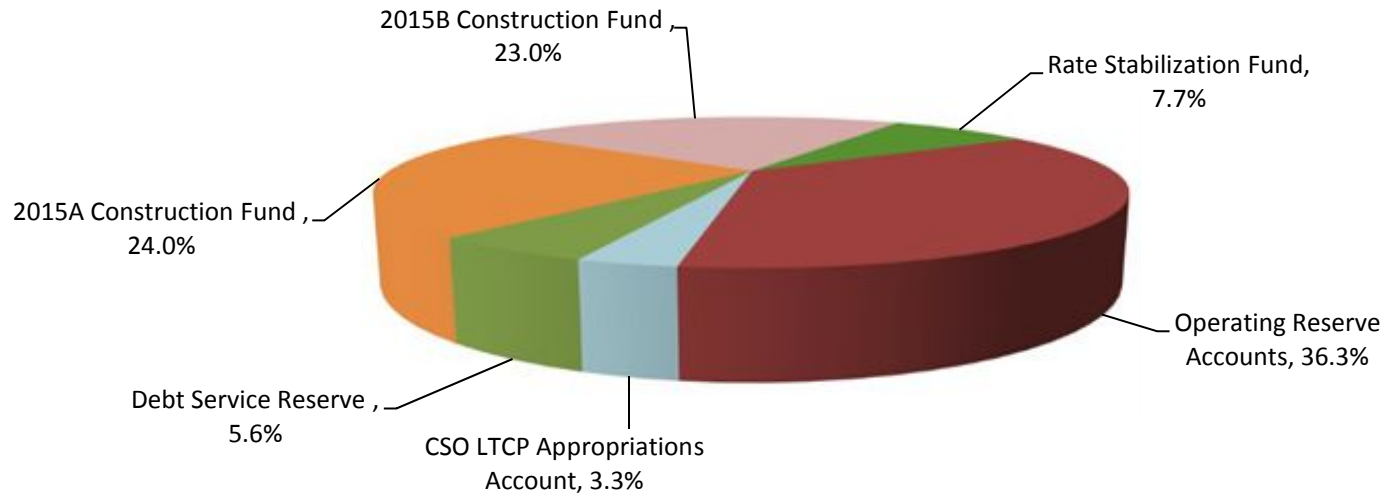
- PFM sold \$9.9 million of 9-month U.S. Treasuries at a yield of 0.49% and purchased 9-month JP Morgan Securities LLC commercial paper at a yield of 0.96%. This trade is projected to add approximately \$32,500 in incremental earnings.



Security Type	Book Value + Accrued Interest	Asset Allocation	Permitted By Policy
Bank Deposits	81,882,438	19.4%	100.0%
Money Market Funds	40,943,769	9.8%	100.0%
U.S. Treasuries	104,233,746	24.9%	100.0%
Federal Agency	51,245,880	12.2%	80.0%
Supranational Bonds	2,159,372	0.5%	30.0%
Commercial Paper	81,548,820	19.4%	35.0%
FDIC Insured CDs	15,202,872	3.6%	30.0%
Negotiable CDs	12,036,028	2.9%	30.0%
Corporate Obligations	26,398,855	6.3%	30.0%
Municipal Obligations	3,729,851	0.9%	20.0%
<b>Total</b>	<b>\$ 419,381,630</b>	<b>100.0%</b>	



**DC Water  
Finance Division  
Investment Analysis – By Fund  
As of June 30, 2016**

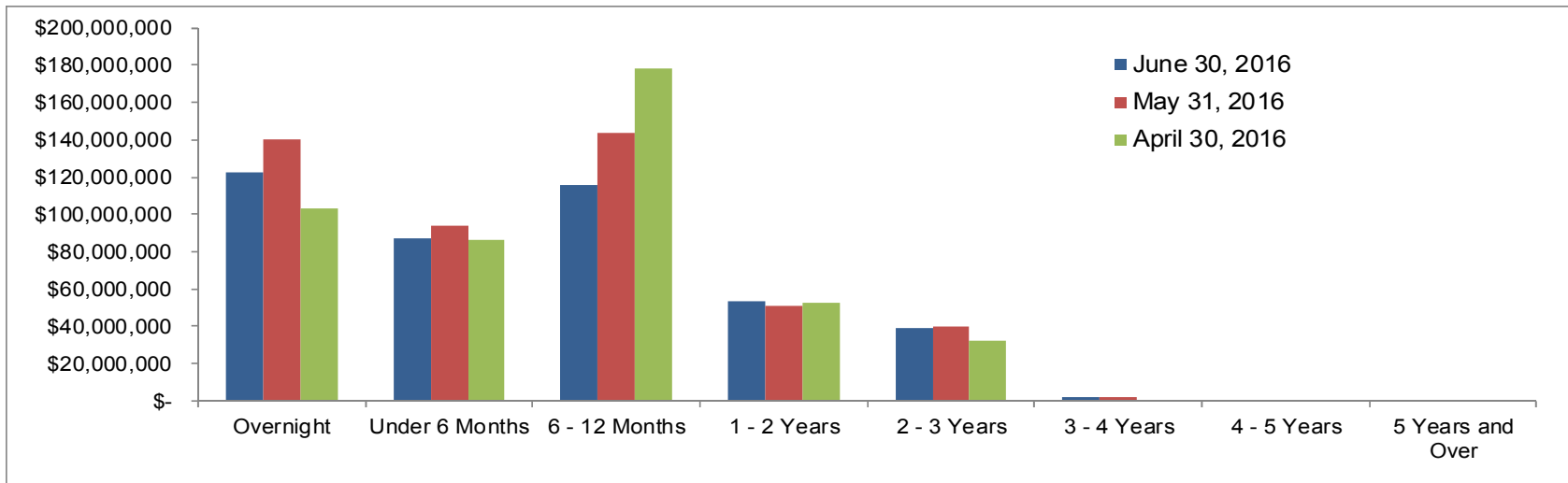


<b>Fund Name</b>	<b>Book Value + Accrued Interest</b>	<b>Yield-to- Maturity at Cost</b>	<b>Effective Duration (years)</b>	<b>Weighted Average Maturity (days)</b>
Rate Stabilization Fund	\$ 32,450,000	0.70%	0.00	1.0
Operating Reserve Accounts	\$ 152,187,339	0.99%	1.16	441.2
CSO LTCP Appropriations Account	\$ 14,017,365	0.90%	0.00	1.0
Debt Service Reserve	\$ 23,542,779	0.66%	0.99	365.6
2015A Construction Fund	\$ 100,715,717	0.66%	0.48	178.3
2015B Construction Fund	\$ 96,468,431	0.70%	0.41	148.9
<b>Total</b>	<b>\$ 419,381,630</b>	<b>0.80%</b>	<b>0.69</b>	<b>257.8</b>



**DC Water  
Finance Division  
Investment Analysis – By Maturity**

Maturity Distribution	June 30, 2016	May 31, 2016	April 30, 2016
Overnight \$	122,826,206.75 \$	139,982,861.64 \$	103,251,569.13
Under 6 Months	87,228,919.14	94,009,241.76	86,560,523.83
6 - 12 Months	115,638,687.99	143,306,048.14	178,662,542.37
1 - 2 Years	53,255,293.48	50,684,311.19	52,371,384.32
2 - 3 Years	38,620,301.72	39,327,803.75	31,719,800.74
3 - 4 Years	1,812,220.95	1,808,976.45	5,515,341.87
4 - 5 Years	-	-	-
5 Years and Over	-	-	-
<b>Totals \$</b>	<b>419,381,630.03 \$</b>	<b>469,119,242.93 \$</b>	<b>458,081,162.26</b>





**DC Water  
Finance Division  
Investments – Issuer Allocation**

	Credit Ratings S&P / Moody's	Book Value		Investment Policy Limit	Compliance with Investment Policy
<b>Bank Deposits</b>					
TD Bank		76,784,949.24	18.3%	100.0%	Yes
Capital One Bank		5,097,488.79	1.2%	100.0%	Yes
<b>Sub-Total Bank Deposits</b>		<b>81,882,438.03</b>	<b>19.5%</b>	100.0%	Yes
<b>Money Market Mutual Funds</b>					
Wells Fargo Treasury Plus MMF	AAAm	30,874,387.34	7.4%	50.0%	Yes
Wells Fargo Government MMF	AAAm	10,069,381.38	2.4%	50.0%	Yes
<b>Sub-Total Money Market Mutual Funds</b>		<b>40,943,768.72</b>	<b>9.8%</b>	100.0%	Yes
<b>U.S. Treasuries</b>					
Treasury Note	AA+ / Aaa	104,233,746.32	24.9%	100.0%	Yes
<b>Sub-Total Treasuries</b>		<b>104,233,746.32</b>	<b>24.9%</b>	100.0%	Yes
<b>Federal Agencies</b>					
Fannie Mae	AA+ / Aaa	4,504,407.19	1.1%	40.0%	Yes
Federal Home Loan Bank	AA+ / Aaa	4,663,437.40	1.1%	40.0%	Yes
Freddie Mac	AA+ / Aaa	42,078,035.06	10.0%	40.0%	Yes
<b>Sub-Total Federal Agencies</b>		<b>51,245,879.65</b>	<b>12.2%</b>	80.0%	Yes
<b>Supranational Bonds</b>					
Inter-American Development Bank	AAA / Aaa	1,259,251.18	0.3%	5.0%	Yes
International Bank for Reconstruction and Development	AAA / Aaa	900,120.62	0.2%	5.0%	Yes
<b>Sub-Total Supranational Bonds</b>		<b>2,159,371.80</b>	<b>0.5%</b>	30.0%	Yes
<b>Commercial Paper</b>					
Canadian Imperial Holding	A-1 / P-1	11,076,545.06	2.6%	5.0%	Yes
Bank of Montreal Chicago	A-1 / P-1	9,932,488.90	2.4%	5.0%	Yes
Bank Of Tokyo Mitsubishi UFJ	A-1 / P-1	8,982,867.51	2.1%	5.0%	Yes
BNP Paribas NY Branch	A-1 / P-1	16,718,907.40	4.0%	5.0%	Yes
JP Morgan Securities LLC	A-1 / P-1	9,936,811.10	2.4%	5.0%	Yes
Rabobank Nederland NV NY	A-1 / P-1	9,963,266.70	2.4%	5.0%	Yes
Toyota Motor Credit Corp	A-1+ / P-1	14,937,933.30	3.6%	5.0%	Yes
<b>Sub-Total Commercial Paper</b>		<b>81,548,819.97</b>	<b>19.4%</b>	35.0%	Yes
<b>FDIC Insured Certificates of Deposit</b>					
CDARS - Placed by Industrial Bank	NR / NR	15,202,872.32	3.6%	5.0%	Yes
<b>Sub-Total FDIC-Insured Certificates of Deposit</b>		<b>15,202,872.32</b>	<b>3.6%</b>	30.0%	Yes



**DC Water  
Finance Division  
Investments – Issuer Allocation**

	Credit Ratings S&P / Moody's	Book Value		Investment Policy Limit	Compliance with Investment Policy
<b>Negotiable Certificates of Deposit</b>					
Canadian Imperial Bank NY	A-1 / P-1	1,804,292.50	0.4%	5.0%	Yes
HSBC Bank USA NA	A-1+ / P-1	1,802,739.60	0.4%	5.0%	Yes
Nordea Bank Finland NY	AA- / Aa3	1,802,070.00	0.4%	5.0%	Yes
Rabobank Nederland NV	A-1 / P-1	1,803,745.00	0.4%	5.0%	Yes
Skandinaviska Enskilda Banken NY	A-1 / P-1	1,816,798.00	0.4%	5.0%	Yes
Svenska Handelsbanken NY	A-1+ / P-1	1,802,111.47	0.4%	5.0%	Yes
US Bank NA Cincinatti	AA- / Aa1	1,204,271.34	0.3%	5.0%	Yes
<b>Sub-Total Negotiable Certificates of Deposit</b>		<b>12,036,027.91</b>	<b>2.9%</b>	30.0%	Yes
<b>Corporate Obligations</b>					
ANZ Banking Group Ltd.	AA- / Aa2	1,752,245.29	0.4%	5.0%	Yes
Apple Inc.	AA+ / Aa1	548,212.34	0.1%	5.0%	Yes
Bank of Montreal	A+ / Aa3	1,761,200.93	0.4%	5.0%	Yes
Bank of New York Mellon	A / A1	1,803,014.95	0.4%	5.0%	Yes
Bank of Nova Scotia	A+ / Aa3	1,801,146.79	0.4%	5.0%	Yes
Berkshire Hathaway Inc	AA / Aa2	130,561.41	0.0%	5.0%	Yes
Cisco Systems Inc.	AA- / A1	1,550,962.76	0.4%	5.0%	Yes
Chevron	AA- / Aa2	1,800,444.86	0.4%	5.0%	Yes
Exxon Mobil	AA+ / Aaa	1,807,503.75	0.4%	5.0%	Yes
General Electric Capital Corporation	AA+ / A1	1,809,792.35	0.4%	5.0%	Yes
IBM	AA- / Aa3	2,256,510.82	0.5%	5.0%	Yes
Merck & Co.	AA / A1	731,934.08	0.2%	5.0%	Yes
Royal Bank of Canada	AA- / Aa3	1,755,320.30	0.4%	5.0%	Yes
Toronto Dominion Bank NY	AA- / Aa1	1,992,975.05	0.5%	5.0%	Yes
Toyota Motor Credit Corp	AA- / Aa3	1,534,819.69	0.4%	5.0%	Yes
Walmart Stores Inc.	AA / Aa2	820,397.44	0.2%	5.0%	Yes
Wells Fargo & Company Notes	A / A2	1,124,271.63	0.3%	5.0%	Yes
Westpac Banking	AA- / Aa2	1,417,540.37	0.3%	5.0%	Yes
<b>Sub-Total Corporate Obligations</b>		<b>26,398,854.81</b>	<b>6.3%</b>	30.0%	Yes
<b>Municipal Obligations</b>					
Florida State	AA / Aa3	1,812,220.95	0.4%	5.0%	Yes
Mississippi State	AA / Aa2	120,327.00	0.0%	5.0%	Yes
Regional Transportation Authority, IL	AA / Aa3	1,797,302.55	0.4%	5.0%	Yes
<b>Sub-Total Municipal Obligations</b>		<b>3,729,850.50</b>	<b>0.9%</b>	20.0%	Yes
<b>Grand Total</b>		<b>\$ 419,381,630.03</b>	<b>100.0%</b>		



**DC Water  
Finance Division  
Book Value Performance  
As of June 30, 2016**

*The portfolio is in compliance with the Authority's Investment Policy*

	Trailing 1 Months		Trailing 3 Months		Trailing 6 Months		Trailing 12 Months	Trailing 24 Months
	Periodic	Annualized	Periodic	Annualized	Periodic	Annualized		
Total Rate Stabilization Fund	0.06%	0.68%	0.17%	0.68%	0.33%	0.67%	0.63%	0.62%
Operating Reserve Accounts	0.10%	1.18%	0.30%	1.22%	0.56%	1.13%	0.99%	0.86%
Total Debt Service Reserve	0.05%	0.66%	0.15%	0.61%	0.28%	0.56%	0.56%	0.61%
2015A Construction Fund	0.06%	0.71%	0.15%	0.62%	0.24%	0.49%	n/a	n/a
2015B Construction Fund	0.06%	0.72%	0.16%	0.63%	0.24%	0.49%	n/a	n/a
<b>Short-Term</b>	<b>0.06%</b>	<b>0.71%</b>	<b>0.17%</b>	<b>0.66%</b>	<b>0.29%</b>	<b>0.59%</b>	<b>0.47%</b>	<b>0.42%</b>
Merrill Lynch 3-Month Treasury Index (Book Value) <sup>1</sup>	0.02%	0.23%	0.05%	0.21%	0.11%	0.22%	0.13%	0.08%
<b>Core (1+ Years)</b>	<b>0.09%</b>	<b>1.11%</b>	<b>0.28%</b>	<b>1.12%</b>	<b>0.52%</b>	<b>1.05%</b>	<b>0.96%</b>	<b>0.86%</b>
Merrill Lynch 1-3 Year Treasury Index (Book Value) <sup>2</sup>	0.05%	0.60%	0.18%	0.74%	0.38%	0.76%	0.77%	0.68%

- (1) The Merrill Lynch 3-Month Treasury Bill is an unmanaged index tracking the on-the-run Treasury Bill. The Index is produced and maintained by Merrill Lynch & Co. Performance for this index is shown on a book value basis.
- (2) The Merrill Lynch 3-Month Treasury Bill is an unmanaged index tracking a basket of U.S. Treasuries with 1 to 3 year maturities. The Index is produced and maintained by Merrill Lynch & Co. Performance for this index is shown on a book value basis.



**DC Water  
Finance Division  
Portfolio Holdings by Fund**

DESCRIPTION	CUSIP	PAR AMOUNT	COUPON RATE	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	MARKET VALUE + ACCRUED INTEREST	AMORTIZED COST + ACCRUED INTEREST	TOTAL VALUE
<b>Rate Stabilization Fund</b>										
TD BANK BANK DEPOSIT		\$ 22,450,000		7/1/2016		0.90%	\$ 22,450,000	\$ 22,450,000	\$ 22,450,000	
WELLS FARGO GOVERNMENT MMF		10,000,000		7/1/2016		0.24%	10,000,000	10,000,000	10,000,000	
										\$ 32,450,000.00
<b>Operating Reserve Accounts</b>										
TD BANK BANK DEPOSIT		\$ 40,317,585		7/1/2016		0.90%	\$ 40,317,585	\$ 40,317,585	\$ 40,317,585	
CAPITAL ONE BANK		5,097,489		7/1/2016		0.25%	5,097,489	5,097,489	5,097,489	
WELLS FARGO GOVERNMENT MMF		69,381		7/1/2016		0.24%	69,381	69,381	69,381	
INDUSTRIAL BANK CDARS		5,017,482	0.350	10/13/2016	10/15/2015	0.35%	5,017,482	5,030,053	5,030,053	
INDUSTRIAL BANK CDARS		5,045,079	0.400	11/10/2016	11/12/2015	0.40%	5,045,079	5,058,021	5,058,021	
GENERAL ELEC CAP CORP GLOBAL NOTES	36962G5N0	1,200,000	2.900	1/9/2017	7/15/2014	1.03%	1,254,912	1,229,835	1,229,835	
INDUSTRIAL BANK CDARS		2,539,450	0.450	1/19/2017	1/21/2016	0.45%	2,539,450	2,544,593	2,544,593	
BNP PARIBAS NY BRANCH COMM PAPER	09659BQH6	1,800,000	-	3/17/2017	6/20/2016	1.04%	1,786,095	1,787,038	1,786,662	
CANADIAN IMPERIAL BANK NY YCD	13606JYY9	1,800,000	1.010	4/6/2017	4/10/2015	1.01%	1,800,000	1,804,707	1,804,293	
RABOBANK NEDERLAND NV CERT DEPOS	21684BXH2	1,800,000	1.070	4/21/2017	4/27/2015	1.07%	1,800,000	1,803,529	1,803,745	
TORONTO DOMINION BANK NY CORP NT	89114QAQ1	1,200,000	1.125	5/2/2017	7/15/2014	1.14%	1,199,628	1,203,221	1,202,102	
TORONTO DOMINION BANK NY CORP NT	89114QAQ1	790,000	1.125	5/2/2017	11/26/2014	1.21%	788,317	792,120	790,874	
NORDEA BANK FINLAND NY CD	65558LFA5	1,800,000	1.150	5/26/2017	5/29/2015	1.15%	1,800,000	1,802,970	1,802,070	
ANZ BANKING GROUP LTD CORP NOTES	05253JAF8	1,200,000	1.250	6/13/2017	10/30/2014	1.15%	1,203,084	1,201,637	1,201,880	
ANZ BANKING GROUP LTD CORP NOTES	05253JAF8	550,000	1.250	6/13/2017	11/26/2014	1.25%	550,055	550,750	550,365	
BANK OF MONTREAL CORP NOTES (CALLABLE)	06366RVD4	1,200,000	1.300	7/14/2017	7/15/2014	1.27%	1,201,116	1,210,430	1,207,608	
BANK OF MONTREAL CORP NOTES (CALLABLE)	06366RVD4	550,000	1.300	7/14/2017	11/26/2014	1.25%	550,726	554,780	553,593	
FREDDIE MAC GLOBAL NOTES	3137EADJ5	1,015,000	1.000	7/28/2017	8/14/2014	1.00%	1,014,932	1,023,657	1,019,289	
US TREASURY NOTES	912828NR7	150,000	2.375	7/31/2017	7/18/2014	0.97%	156,311	154,453	153,759	
US TREASURY NOTES	912828TG5	1,560,000	0.500	7/31/2017	2/4/2015	0.63%	1,555,064	1,562,770	1,561,101	
SVENSKA HANDELSBANKEN NY FLT CERT DEPOS	86958DH54	1,800,000	1.111	8/24/2017	11/24/2015	0.84%	1,800,000	1,803,011	1,802,111	
US BANK NA CINCINNATI (CALLABLE) CD	90333VPF1	1,200,000	1.375	9/11/2017	9/11/2014	1.41%	1,198,068	1,209,059	1,204,271	
MS ST TXBL GO BONDS	605581FX0	120,000	1.090	10/1/2017	2/18/2015	1.09%	120,000	120,872	120,327	
ROYAL BANK OF CANADA CORP NOTES	78010U4A2	1,200,000	1.400	10/13/2017	10/15/2014	1.41%	1,199,820	1,207,266	1,203,562	
ROYAL BANK OF CANADA CORP NOTES	78010U4A2	550,000	1.400	10/13/2017	11/26/2014	1.39%	550,198	553,330	551,758	
SKANDINAVISKA ENSKILDA BANKEN NY CD	83050FBG5	1,800,000	1.480	11/16/2017	11/17/2015	1.48%	1,800,000	1,818,706	1,816,798	
HSBC BANK USA NA FLOATING CERT DEPOS	40428AR41	1,800,000	1.218	11/17/2017	11/18/2015	0.97%	1,800,000	1,806,097	1,802,740	
CHEVRON CORP (CALLABLE) GLOBAL NOTES	166764AA8	900,000	1.104	12/5/2017	11/26/2014	1.26%	895,743	902,204	898,689	
GENERAL ELECTRIC CO NOTES	369604BC6	550,000	5.250	12/6/2017	11/26/2014	1.45%	611,727	584,698	581,503	
US TREASURY NOTES	912828UE8	2,700,000	0.750	12/31/2017	5/6/2016	0.71%	2,701,793	2,707,121	2,701,685	
TOYOTA MOTOR CREDIT CORP NOTE	89236TCA1	590,000	1.450	1/12/2018	1/12/2015	1.50%	589,192	598,318	593,599	
WESTPAC BANKING CORP NOTES	961214BZ5	1,400,000	1.600	1/12/2018	4/29/2015	1.27%	1,412,306	1,418,260	1,417,540	
INDUSTRIAL BANK CDARS		2,563,284	0.600	1/18/2018	1/21/2016	0.60%	2,563,284	2,570,205	2,570,205	
IBM CORP NOTES	459200HZ7	2,250,000	1.125	2/6/2018	2/6/2015	1.23%	2,243,138	2,269,879	2,256,511	
WAL MART STORES INC. CORP NOTES	931142CJ0	750,000	5.800	2/15/2018	6/12/2015	1.30%	838,382	825,477	820,397	
EXXON MOBIL CORP NOTES	30231GAL6	1,800,000	1.305	3/6/2018	3/6/2015	1.31%	1,800,000	1,821,551	1,807,504	
FNMA NOTE	3135G0J61	2,250,000	0.875	3/28/2018	3/4/2016	0.97%	2,245,500	2,262,830	2,251,286	
REGIONAL TRANS AUTH, IL TXBL REV BONDS	7599112M1	1,800,000	1.250	5/4/2018	5/20/2016	1.44%	1,793,358	1,807,685	1,797,303	
MERCK & CO GLOBAL NOTES	58933YAG0	731,000	1.300	5/18/2018	3/27/2015	1.31%	739,664	739,074	731,934	
BANK OF NEW YORK MELLON CORP (CALLABLE)	06406HDB2	1,800,000	1.600	5/22/2018	5/29/2015	1.60%	1,799,838	1,821,030	1,803,015	
US TREASURY NOTES	912828VE7	2,070,000	1.000	5/31/2018	12/30/2015	1.21%	2,059,731	2,087,763	2,063,599	
BANK OF NOVA SCOTIA CORP NOTE (CALLABLE)	064159GM2	1,800,000	1.700	6/11/2018	6/11/2015	1.72%	1,799,154	1,818,278	1,801,147	
CISCO SYSTEMS INC CORP NOTE	17275RAU6	1,550,000	1.650	6/15/2018	6/17/2015	1.66%	1,549,737	1,571,290	1,550,963	
FEDERAL HOME LOAN BANKS AGCY	3130A8BD4	2,830,000	0.875	6/29/2018	5/27/2016	0.99%	2,823,180	2,841,466	2,823,618	





**DC Water  
Finance Division  
Portfolio Holdings by Fund**

DESCRIPTION	CUSIP	PAR AMOUNT	COUPON RATE	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	MARKET VALUE + ACCRUED INTEREST	AMORTIZED COST + ACCRUED INTEREST	TOTAL VALUE
<b>Operating Reserve Accounts</b>										
TOYOTA MOTOR CREDIT CORP	89236TCP8	935,000	1.550	7/13/2018	7/13/2015	1.58%	934,205	950,750	941,220	
INTL BANK OF RECON AND DEV SN NOTES	459058FE8	900,000	0.875	7/19/2018	4/19/2016	0.95%	898,407	903,918	900,121	
US TREASURY NOTES	912828VQ0	1,095,000	1.375	7/31/2018	7/6/2015	1.11%	1,103,811	1,118,482	1,107,300	
US TREASURY NOTES	912828RH5	2,700,000	1.375	9/30/2018	10/9/2015	0.94%	2,734,594	2,753,944	2,735,563	
US TREASURY NOTES	912828WD8	2,350,000	1.250	10/31/2018	12/30/2015	1.30%	2,346,879	2,387,537	2,352,383	
US TREASURY NOTES	912828A34	4,600,000	1.250	11/30/2018	11/9/2015	1.18%	4,609,344	4,670,457	4,612,286	
US TREASURY NOTES	912828A34	3,000,000	1.250	11/30/2018	5/6/2016	0.83%	3,031,641	3,045,950	3,032,953	
US TREASURY NOTES	912828A75	5,150,000	1.500	12/31/2018	12/4/2015	1.22%	5,193,654	5,256,429	5,185,817	
WELLS FARGO & COMPANY NOTES	94974BFQ8	1,103,000	2.150	1/15/2019	10/7/2015	1.77%	1,116,225	1,137,006	1,124,272	
APPLE INC CORP NOTES	037833BQ2	545,000	1.700	2/22/2019	2/23/2016	1.71%	544,907	557,521	548,212	
FNMA BENCHMARK NOTE	3135G0J53	2,250,000	1.000	2/26/2019	2/23/2016	1.08%	2,244,690	2,268,883	2,253,121	
US TREASURY NOTES	912828SH4	800,000	1.375	2/28/2019	2/3/2016	1.02%	808,563	818,208	811,124	
BERKSHIRE HATHAWAY INC NOTES	084664CG4	130,000	1.700	3/15/2019	3/15/2016	1.73%	129,901	132,775	130,561	
US TREASURY NOTES	912828C65	715,000	1.625	3/31/2019	3/4/2016	1.05%	727,401	735,851	729,029	
FREDDIE MAC NOTES	3137EADZ9	2,050,000	1.125	4/15/2019	5/31/2016	1.10%	2,051,579	2,073,825	2,057,941	
US TREASURY NOTES	912828D23	5,350,000	1.625	4/30/2019	6/29/2016	0.70%	5,488,766	5,501,324	5,503,149	
INTER-AMERICAN DEVELOPMENT BANK	458182DX7	1,260,000	1.000	5/13/2019	4/12/2016	1.10%	1,256,220	1,267,081	1,259,251	
CHEVRON CORP NOTES	166764BH2	900,000	1.561	5/16/2019	5/16/2016	1.56%	900,000	911,833	901,756	
US TREASURY NOTES	912828WL0	585,000	1.500	5/31/2019	3/31/2016	0.98%	594,415	598,951	594,423	
FHLB GLOBAL NOTE	3130A8DB6	1,840,000	1.125	6/21/2019	6/3/2016	1.14%	1,839,227	1,857,645	1,839,819	
FL ST BOARD ADMIN FIN CORP TXBL REV BD	341271AA2	1,800,000	2.163	7/1/2019	3/8/2016	2.16%	1,800,000	1,859,705	1,812,221	
										\$ 152,187,339.08
<b>Debt Service Reserve</b>										
WELLS FARGO TREASURY PLUS MMF		\$ 4,288		7/1/2016		0.24%	\$ 4,288	\$ 4,288	\$ 4,288	
US TREASURY NOTES	912828MV9	6,538,000	3.250	3/31/2017	6/29/2015	0.56%	6,844,213	6,724,663	6,722,455	
US TREASURY NOTES	912828SM3	5,000,000	1.000	3/31/2017	4/26/2016	0.58%	5,019,336	5,031,128	5,028,157	
US TREASURY NOTES	912828PA2	6,257,000	1.875	9/30/2017	6/29/2015	0.76%	6,412,692	6,388,898	6,373,061	
US TREASURY NOTES	912828TS9	5,415,000	0.625	9/30/2017	4/26/2016	0.75%	5,405,058	5,428,586	5,414,817	
										\$ 23,542,778.79
<b>CSO LTCP Appropriations Account</b>										
TD BANK BANK DEPOSIT		14,017,365		7/1/2016		0.90%	14,017,365	14,017,365	14,017,365	
										\$ 14,017,364.73
<b>2015A Construction Fund</b>										
WELLS FARGO TREASURY PLUS MMF		\$ 14,141,709		7/1/2016		0.24%	\$ 14,141,709	\$ 14,141,709	\$ 14,141,709	
US TREASURY NOTES	912828RF9	6,450,000	1.000	8/31/2016	10/30/2015	0.39%	6,482,754	6,479,028	6,478,065	
BNP PARIBAS NY BRANCH COMM PAPER	09659BM98	15,000,000	-	12/9/2016	3/16/2016	1.02%	14,887,217	14,944,380	14,932,246	
CANADIAN IMPERIAL HOLDING COMM PAPER	13607EMW6	11,130,000	-	12/30/2016	4/8/2016	0.96%	11,051,874	11,083,555	11,076,545	
FHLMC NOTES	3137EADT3	38,800,000	0.875	2/22/2017	10/30/2015	0.56%	38,961,408	39,014,347	39,000,805	
BANK OF MONTREAL CHICAGO COMM PAPER	06366GQ36	10,000,000	-	3/3/2017	6/16/2016	1.00%	9,928,356	9,933,170	9,932,489	
US TREASURY NOTES	912828SM3	5,125,000	1.000	3/31/2017	11/2/2015	0.58%	5,155,029	5,156,907	5,153,858	
										\$ 100,715,716.57
<b>2015B Construction Fund</b>										
WELLS FARGO TREASURY PLUS MMF		\$ 16,728,390		7/1/2016		0.24%	\$ 16,728,390	\$ 16,728,390	\$ 16,728,390	
BANK OF TOKYO MITSUBISHI COMM PAPER	06538BJG9	9,000,000	-	9/16/2016	3/16/2016	0.89%	8,959,060	8,988,453	8,982,868	
US TREASURY NOTES	912828RJ1	5,450,000	1.000	9/30/2016	10/30/2015	0.41%	5,479,379	5,472,490	5,471,664	
COOPERATIVE RABOBANK U.A. COMM PAPER	21687ALW1	10,000,000	-	11/30/2016	4/8/2016	0.87%	9,942,967	9,967,870	9,963,267	
TOYOTA MOTOR CREDIT CORP COMM PAPER	89233GLW4	15,000,000	-	11/30/2016	3/16/2016	0.99%	14,894,242	14,951,040	14,937,933	
US TREASURY NOTES	912828RU6	5,285,000	0.875	11/30/2016	10/30/2015	0.45%	5,309,361	5,299,751	5,298,257	

Investment Performance Report – June 2016



DC Water  
Finance Division  
Portfolio Holdings by Fund

DESCRIPTION	CUSIP	PAR AMOUNT	COUPON RATE	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	MARKET VALUE + ACCRUED INTEREST	AMORTIZED COST + ACCRUED INTEREST	TOTAL VALUE
<b>2015B Construction Fund</b>										
JP MORGAN SECURITIES LLC COMM PAPER	46640PPU1	10,000,000	-	2/28/2017	6/16/2016	0.95%	9,932,894	9,934,730	9,936,811	
US TREASURY NOTES	912828J35	25,140,000	0.500	2/28/2017	3/8/2016	0.70%	25,091,880	25,188,877	25,149,241	\$ 96,468,430.86
							<b>\$ 419,125,416.67</b>	<b>\$ 420,102,188.32</b>	<b>\$ 419,381,630.03</b>	<b>\$ 419,381,630.03</b>

## Investment Performance Report – June 2016



**DC Water  
Finance Division  
Security Purchases  
Last 6 Months**

CUSIP	DESCRIPTION	PAR	COUPON	MATURITY DATE	SETTLE DATE	YTM	TRANSACTION AMOUNT
<b>Operating Reserve Accounts</b>							
RE0959511	INDUSTRIAL BANK CDARS	2,539,450.42	0.45	1/19/2017	1/21/2016	0.46	2,539,450.42
RE0959529	INDUSTRIAL BANK CDARS	2,563,284.34	0.60	1/18/2018	1/21/2016	0.61	2,563,284.34
912828SH4	US TREASURY NOTES	3,000,000.00	1.38	2/28/2019	2/3/2016	1.02	3,049,787.95
3135G0J53	FNMA BENCHMARK NOTE	2,250,000.00	1.00	2/26/2019	2/23/2016	1.08	2,244,690.00
037833BQ2	APPLE INC CORP NOTES	545,000.00	1.70	2/22/2019	2/23/2016	1.71	544,907.35
3135G0J61	FNMA NOTE	2,250,000.00	0.88	3/28/2018	3/4/2016	0.97	2,245,500.00
912828C65	US TREASURY NOTES	2,050,000.00	1.63	3/31/2019	3/4/2016	1.05	2,099,753.46
341271AA2	FL ST BOARD ADMIN FIN CORP TXBL REV BD	1,800,000.00	2.16	7/1/2019	3/8/2016	2.16	1,800,000.00
084664CG4	BERKSHIRE HATHAWAY INC NOTES	130,000.00	1.70	3/15/2019	3/15/2016	1.73	129,901.20
912828WL0	US TREASURY NOTES	2,400,000.00	1.50	5/31/2019	3/31/2016	0.98	2,450,625.00
458182DX7	INTER-AMERICAN DEVELOPMENT BANK	1,260,000.00	1.00	5/13/2019	4/12/2016	1.10	1,256,220.00
459058FE8	INTL BANK OF RECON AND DEV SN NOTES	900,000.00	0.88	7/19/2018	4/19/2016	0.95	898,407.00
912828A34	US TREASURY NOTES	3,000,000.00	1.25	11/30/2018	5/6/2016	0.83	3,047,829.15
912828UE8	US TREASURY NOTES	2,700,000.00	0.75	12/31/2017	5/6/2016	0.71	2,708,858.22
166764BH2	CHEVRON CORP NOTES	900,000.00	1.56	5/16/2019	5/16/2016	1.56	900,000.00
7599112M1	REGIONAL TRANS AUTH, IL TXBL REV BONDS	1,800,000.00	1.25	5/4/2018	5/20/2016	1.44	1,794,358.00
3130A8BD4	FEDERAL HOME LOAN BANKS AGCY	2,830,000.00	0.88	6/29/2018	5/27/2016	0.99	2,823,179.70
3137EADZ9	FREDDIE MAC NOTES	2,050,000.00	1.13	4/15/2019	5/31/2016	1.10	2,056,062.88
<b>3130A8DB6</b>	<b>FHLB GLOBAL NOTE</b>	<b>1,840,000.00</b>	<b>1.13</b>	<b>6/21/2019</b>	<b>6/3/2016</b>	<b>1.14</b>	<b>1,839,227.20</b>
<b>09659BQH6</b>	<b>BNP PARIBAS NY BRANCH COMM PAPER</b>	<b>1,800,000.00</b>	<b>-</b>	<b>3/17/2017</b>	<b>6/20/2016</b>	<b>1.05</b>	<b>1,786,095.00</b>
<b>912828D23</b>	<b>US TREASURY NOTES</b>	<b>5,350,000.00</b>	<b>1.63</b>	<b>4/30/2019</b>	<b>6/29/2016</b>	<b>0.70</b>	<b>5,502,940.22</b>
<b>Total Debt Service Reserve</b>							
912828SM3	US TREASURY NOTES	5,000,000.00	1.00	3/31/2017	4/26/2016	0.58	5,022,887.85
912828TS9	US TREASURY NOTES	5,415,000.00	0.63	9/30/2017	4/26/2016	0.75	5,407,462.60
<b>2015A Construction Fund</b>							
09659BM98	BNP PARIBAS NY BRANCH COMM PAPER	15,000,000.00	-	12/9/2016	3/16/2016	1.03	14,887,216.67
13607EMW6	CANADIAN IMPERIAL HOLDING COMM PAPER	11,130,000.00	-	12/30/2016	4/8/2016	0.97	11,051,873.58
<b>06366GQ36</b>	<b>BANK OF MONTREAL CHICAGO COMM PAPER</b>	<b>10,000,000.00</b>	<b>-</b>	<b>3/3/2017</b>	<b>6/16/2016</b>	<b>1.01</b>	<b>9,928,355.56</b>
<b>2015B Construction Fund</b>							
912828J35	US TREASURY NOTES	35,065,000.00	0.50	2/28/2017	3/8/2016	0.70	35,001,694.81
06538BJG9	BANK OF TOKYO MITSUBISHI COMM PAPER	9,000,000.00	-	9/16/2016	3/16/2016	0.91	8,959,060.00
89233GLW4	TOYOTA MOTOR CREDIT CORP COMM PAPER	15,000,000.00	-	11/30/2016	3/16/2016	1.00	14,894,241.67
21687ALW1	COOPERATIVE RABOBANK U.A. COMM PAPER	10,000,000.00	-	11/30/2016	4/8/2016	0.89	9,942,966.70
<b>46640PPU1</b>	<b>JP MORGAN SECURITIES LLC COMM PAPER</b>	<b>10,000,000.00</b>	<b>-</b>	<b>2/28/2017</b>	<b>6/16/2016</b>	<b>0.96</b>	<b>9,932,894.40</b>

Securities highlighted in **blue font** denote trades executed during the current month.

Investment Performance Report – June 2016



DC Water  
Finance Division  
Security Sales  
Last 6 Months

CUSIP	DESCRIPTION	PAR	COUPON	MATURITY DATE	SETTLE DATE	YTM	TRANSACTION AMOUNT
<b>Operating Reserve Accounts</b>							
912828RX0	US TREASURY NOTES	3,000,000.00	0.88	12/31/2016	2/3/2016	0.64	3,008,780.05
912828A75	US TREASURY NOTES	400,000.00	1.50	12/31/2018	2/23/2016	0.91	407,561.99
912828SH4	US TREASURY NOTES	2,200,000.00	1.38	2/28/2019	2/23/2016	0.94	2,242,985.75
912828RX0	US TREASURY NOTES	2,000,000.00	0.88	12/31/2016	3/4/2016	0.69	2,006,045.68
912828RX0	US TREASURY NOTES	75,000.00	0.88	12/31/2016	3/4/2016	0.69	75,226.71
912828UU2	US TREASURY NOTES	2,200,000.00	0.75	3/31/2018	3/4/2016	0.88	2,201,189.03
912828UU2	US TREASURY NOTES	50,000.00	0.75	3/31/2018	3/4/2016	0.88	50,027.03
46640PDV2	JP MORGAN SECURITIES LLC COMM PAPER	1,800,000.00	-	4/29/2016	3/8/2016	0.51	1,798,700.00
912828C65	US TREASURY NOTES	100,000.00	1.63	3/31/2019	3/15/2016	1.08	102,354.74
912828RX0	US TREASURY NOTES	2,400,000.00	0.88	12/31/2016	3/31/2016	0.59	2,410,406.25
912828C65	US TREASURY NOTES	1,235,000.00	1.63	3/31/2019	4/12/2016	0.88	1,262,625.37
912828VQ0	US TREASURY NOTES	880,000.00	1.38	7/31/2018	4/19/2016	0.80	894,107.35
90331HMC4	US BANK CORP NOTE (CALLABLE)	550,000.00	1.10	1/30/2017	5/6/2016	0.84	552,641.83
912828RX0	US TREASURY NOTES	600,000.00	0.88	12/31/2016	5/6/2016	0.50	603,308.29
912828SC5	US TREASURY NOTES	2,500,000.00	0.88	1/31/2017	5/6/2016	0.51	2,512,507.51
912828SM3	US TREASURY NOTES	100,000.00	1.00	3/31/2017	5/6/2016	0.56	100,492.89
166764AL4	CHEVRON CORP NOTE	885,000.00	1.35	11/15/2017	5/16/2016	1.13	887,847.36
912828UU2	US TREASURY NOTES	1,800,000.00	0.75	3/31/2018	5/20/2016	0.89	1,797,063.01
912828UU2	US TREASURY NOTES	2,550,000.00	0.75	3/31/2018	5/27/2016	0.87	2,547,201.14
912828VE7	US TREASURY NOTES	280,000.00	1.00	5/31/2018	5/27/2016	0.89	281,992.84
3135G0JA2	FNMA NOTES	1,000,000.00	1.13	4/27/2017	5/31/2016	0.73	1,004,582.50
912828SC5	US TREASURY NOTES	1,000,000.00	0.88	1/31/2017	5/31/2016	0.60	1,004,744.59
<b>912828WL0</b>	<b>US TREASURY NOTES</b>	<b>1,815,000.00</b>	<b>1.50</b>	<b>5/31/2019</b>	<b>6/3/2016</b>	<b>1.03</b>	<b>1,840,392.11</b>
<b>3130A5EP0</b>	<b>FHLB GLOBAL NOTES</b>	<b>1,775,000.00</b>	<b>0.63</b>	<b>5/30/2017</b>	<b>6/20/2016</b>	<b>0.66</b>	<b>1,775,083.82</b>
<b>3135G0JA2</b>	<b>FNMA NOTES</b>	<b>3,500,000.00</b>	<b>1.13</b>	<b>4/27/2017</b>	<b>6/29/2016</b>	<b>0.59</b>	<b>3,522,286.25</b>
<b>912828TB6</b>	<b>US TREASURY NOTES</b>	<b>1,850,000.00</b>	<b>0.75</b>	<b>6/30/2017</b>	<b>6/29/2016</b>	<b>0.51</b>	<b>1,861,379.85</b>
<b>2015A Construction Fund</b>							
912828H29	US TREASURY NOTES	14,875,000.00	0.63	12/31/2016	3/16/2016	0.67	14,888,600.51
912828H29	US TREASURY NOTES	11,025,000.00	0.63	12/31/2016	4/8/2016	0.52	11,052,354.27
<b>912828SM3</b>	<b>US TREASURY NOTES</b>	<b>9,875,000.00</b>	<b>1.00</b>	<b>3/31/2017</b>	<b>6/16/2016</b>	<b>0.53</b>	<b>9,932,420.78</b>
<b>2015B Construction Fund</b>							
912828RJ1	US TREASURY NOTES	8,900,000.00	1.00	9/30/2016	3/16/2016	0.56	8,962,059.49
912828RU6	US TREASURY NOTES	14,830,000.00	0.88	11/30/2016	3/16/2016	0.64	14,892,266.50
912828RU6	US TREASURY NOTES	9,885,000.00	0.88	11/30/2016	4/8/2016	0.47	9,941,592.72
<b>912828J35</b>	<b>US TREASURY NOTES</b>	<b>9,925,000.00</b>	<b>0.50</b>	<b>2/28/2017</b>	<b>6/16/2016</b>	<b>0.49</b>	<b>9,939,951.56</b>

Securities highlighted in **blue font** denote trades executed during the current month.

## Investment Performance Report – June 2016



**DC Water  
Finance Division  
Security Maturities  
Last 6 Months**

CUSIP	DESCRIPTION	PAR	COUPON	MATURITY DATE	SETTLE DATE	YTM	TRANSACTION AMOUNT
<b><u>Operating Reserve Accounts</u></b>							
RE0907999	INDUSTRIAL BANK CDARS	2,545,282.08	0.75	1/21/2016	1/21/2016	0.00	2,583,461.31
RE0908229	INDUSTRIAL BANK CDARS	2,539,450.42	0.45	1/21/2016	1/21/2016	0.00	2,550,877.95
RE0908013	CITY FIRST BK OF WASHINGTON, DC (CDARS)	2,530,096.57	0.40	3/17/2016	3/17/2016	0.00	2,550,337.34
RE0908278	CITY FIRST BK OF WASHINGTON, DC (CDARS)	2,530,096.63	0.30	3/17/2016	3/17/2016	0.00	2,537,686.92
22549VX73	CREDIT SUISSE NEW YORK CERT DEPOS	1,800,000.00	0.67	5/6/2016	5/6/2016	0.00	1,809,011.50
<b><u>Debt Service Reserve Fund</u></b>							
313375RN9	FHLB NOTES	10,000,000.00	1.00	3/11/2016	3/11/2016	0.00	10,000,000.00
<b><u>2014A Construction Fund</u></b>							
06538BA45	BANK OF TOKYO MITSUBISHI UFJ COMM PAPER	1,100,000.00	-	1/4/2016	1/4/2016	0.00	1,100,000.00
22533TA48	CREDIT AGRICOLE CIB NY COMM PAPER	19,000,000.00	-	1/4/2016	1/4/2016	0.00	19,000,000.00
06538BD18	BANK OF TOKYO MITS UFJ LTD COMM PAPER	6,000,000.00	-	4/1/2016	4/1/2016	0.00	6,000,000.00
21687AD18	RABOBANK NEDERLAND NV NY COMM PAPER	19,000,000.00	-	4/1/2016	4/1/2016	0.00	19,000,000.00
<b><u>2015 A Construction Fund</u></b>							
<b>912828QR4</b>	<b>US TREASURY NOTES</b>	<b>13,725,000.00</b>	<b>1.50</b>	<b>6/30/2016</b>	<b>6/30/2016</b>	<b>0.00</b>	<b>13,725,000.00</b>
<b><u>2015 BConstruction Fund</u></b>							
06538BC19	BANK OF TOKYO MITSUBISHI COMM PAPER	7,000,000.00	-	3/1/2016	3/1/2016	0.00	7,000,000.00
09659BC16	BNP PARIBAS NY BRANCH COMM PAPER	19,000,000.00	-	3/1/2016	3/1/2016	0.00	19,000,000.00
89233GC20	TOYOTA MOTOR CREDIT CORP COMM PAPER	19,000,000.00	-	3/2/2016	3/2/2016	0.00	19,000,000.00
912828WM8	US TREASURY NOTES	7,000,000.00	0.38	5/31/2016	5/31/2016	0.00	7,000,000.00
90262CEX1	UBS FINANCE DELAWARE LLC COMM PAPER	19,000,000.00	-	5/31/2016	5/31/2016	0.00	19,000,000.00
<b>46640PF16</b>	<b>JP MORGAN SECURITIES LLC COMM PAPER</b>	<b>19,000,000.00</b>	<b>-</b>	<b>6/1/2016</b>	<b>6/1/2016</b>	<b>0.00</b>	<b>19,000,000.00</b>

Securities highlighted in **blue font** denote trades executed during the current month.



**DC Water  
Finance Division  
Upcoming Transaction Cash Flows  
Next 30 Days**

DATE	TRANSACTION	CUSIP	DESCRIPTION	COUPON	MATURITY DATE	PAR VALUE/SHARES	PRINCIPAL	INTEREST	TOTAL
07/01/16	INTEREST	341271AA2	FL ST BOARD ADMIN FIN CORP TXBL REV BD	2.163	07/01/19	1,800,000.00	0.00	12,220.95	12,220.95
07/09/16	INTEREST	36962G5N0	GENERAL ELEC CAP CORP GLOBAL NOTES	2.900	01/09/17	1,200,000.00	0.00	17,400.00	17,400.00
07/12/16	INTEREST	89236TCA1	TOYOTA MOTOR CREDIT CORP NOTE	1.450	01/12/18	590,000.00	0.00	4,277.50	4,277.50
07/12/16	INTEREST	961214BZ5	WESTPAC BANKING CORP NOTES	1.600	01/12/18	1,400,000.00	0.00	11,200.00	11,200.00
07/13/16	INTEREST	89236TCP8	TOYOTA MOTOR CREDIT CORP	1.550	07/13/18	935,000.00	0.00	7,246.25	7,246.25
07/14/16	INTEREST	06366RVD4	BANK OF MONTREAL CORP NOTES (CALLABLE)	1.300	07/14/17	550,000.00	0.00	3,575.00	3,575.00
07/14/16	INTEREST	06366RVD4	BANK OF MONTREAL CORP NOTES (CALLABLE)	1.300	07/14/17	1,200,000.00	0.00	7,800.00	7,800.00
07/15/16	INTEREST	94974BFQ8	WELLS FARGO & COMPANY NOTES	2.150	01/15/19	1,103,000.00	0.00	11,857.25	11,857.25
07/19/16	INTEREST	459058FE8	INTL BANK OF RECON AND DEV SN NOTES	0.875	07/19/18	900,000.00	0.00	1,968.75	1,968.75
07/28/16	INTEREST	3137EADJ5	FREDDIE MAC GLOBAL NOTES	1.000	07/28/17	1,015,000.00	0.00	5,075.00	5,075.00
07/31/16	INTEREST	912828NR7	US TREASURY NOTES	2.375	07/31/17	150,000.00	0.00	1,781.25	1,781.25
07/31/16	INTEREST	912828TG5	US TREASURY NOTES	0.500	07/31/17	1,560,000.00	0.00	3,900.00	3,900.00
07/31/16	INTEREST	912828VQ0	US TREASURY NOTES	1.375	07/31/18	1,095,000.00	0.00	7,528.13	7,528.13



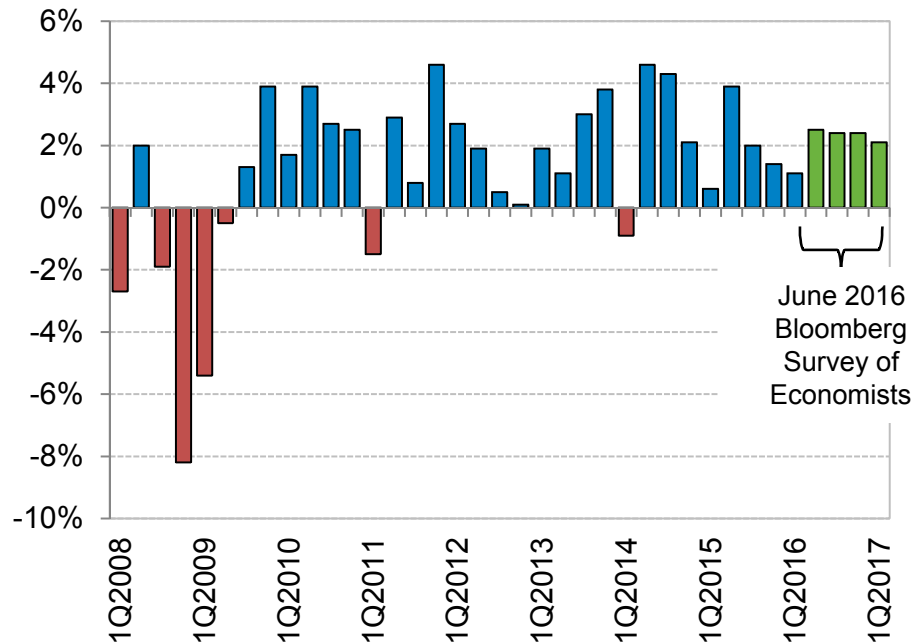
# Appendix: Economic Update



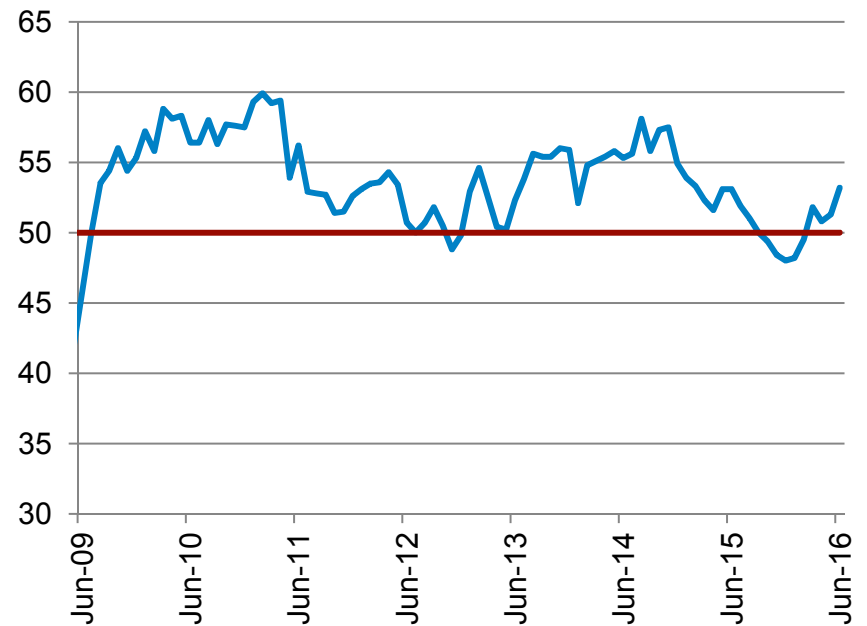
# Gross Domestic Product

- U.S. Gross Domestic Product (GDP) during the first quarter was revised upwards to 1.1%
- The ISM manufacturing index rose from 51.3% in May to 53.2% in June.

**Gross Domestic Product  
January 2008 – March 2017 (Projected)**



**ISM Manufacturing Index  
April 2009 – April 2016**



Source: Bloomberg

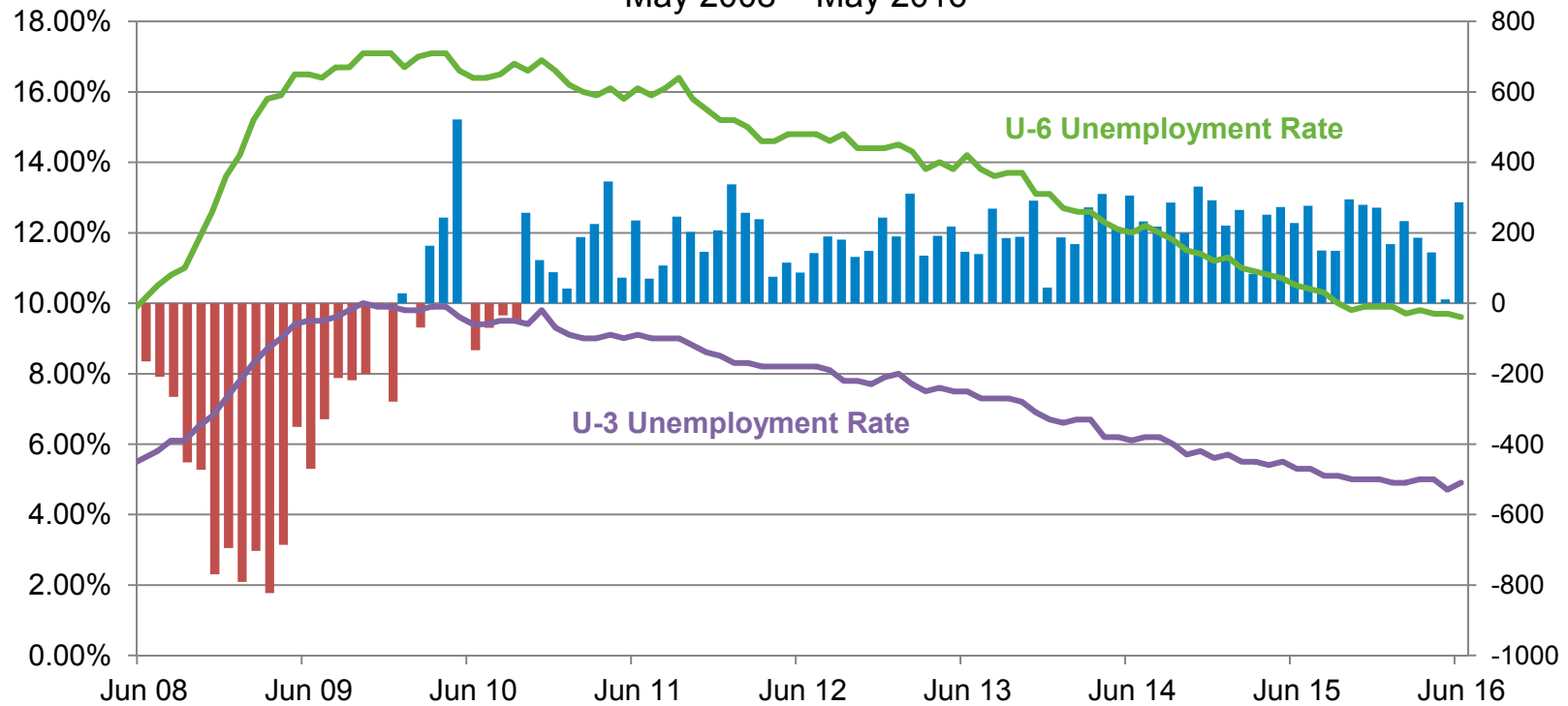




## U.S. Labor Market

- In June, the U.S. economy added 287,000 jobs, well above the estimate of 180,000 and the highest number of new jobs created in 8 months.
- The unemployment rate rose to 4.9% as more people entered the labor force.

**Unemployment vs. Non-Farm Payrolls**  
May 2008 – May 2016



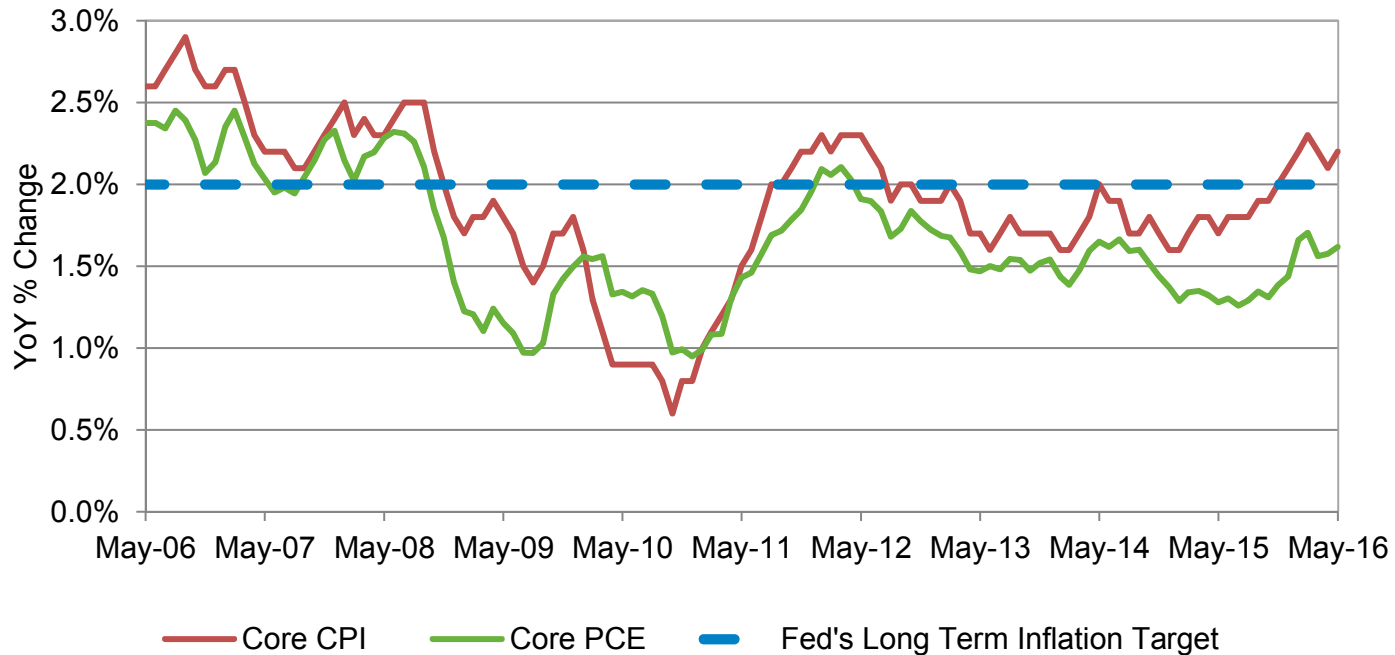
Source: Bloomberg



## Inflation Picking Up

- The core personal consumption expenditures (PCE) price index, the Fed’s preferred gauge of core inflation, increased 1.6% year-over-year through May 2016.
- Wage growth continues to show modest improvement, while higher prices from housing and health care remain strong drivers of inflation.

**Inflation Measures**  
**Consumer Price Index vs Personal Consumption Expenditures**  
 May 2006 – May 2016



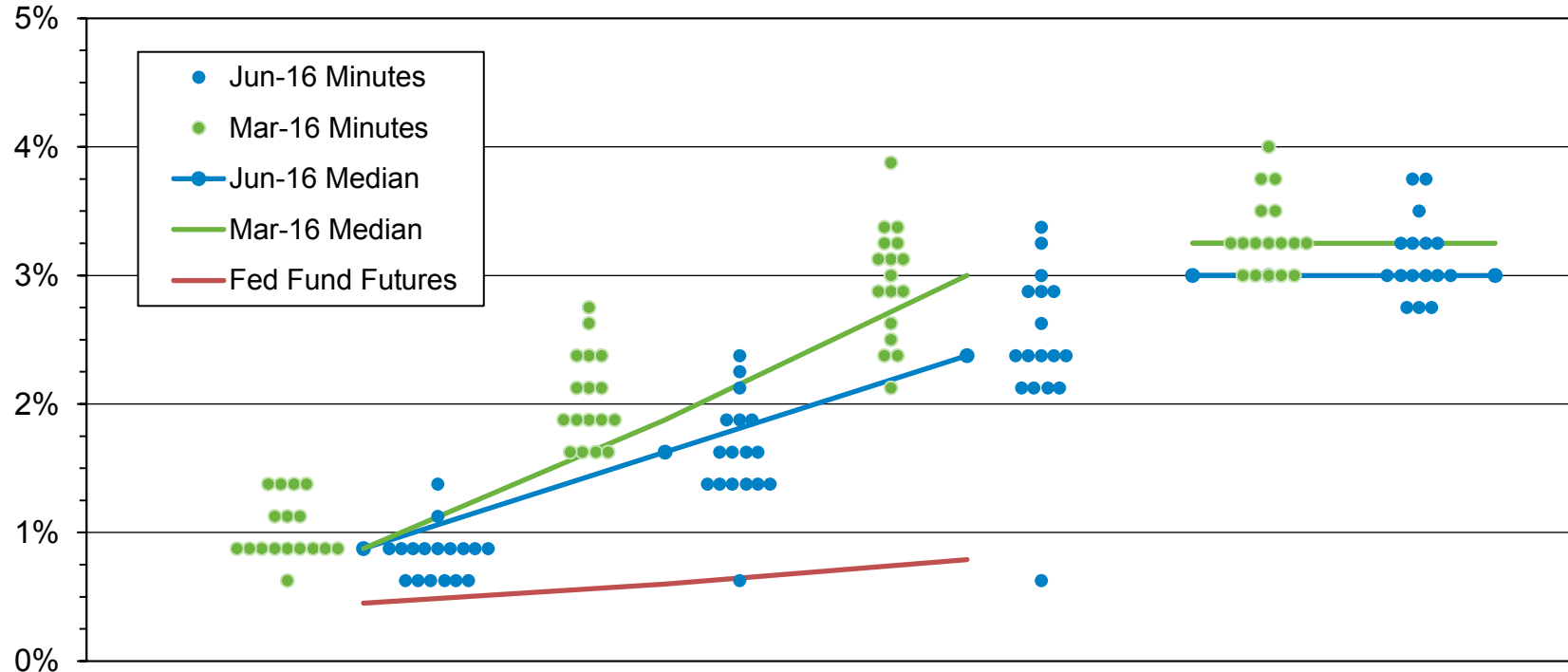
Source: Bloomberg



## FOMC “Dot Plot” From June Meeting

- At their June 2016 meeting, the FOMC decided it will keep the Fed Funds target rate between ¼% to ½%.
- The markets and the Federal Reserve continue to differ in expectations.

**Fed Dot Plot versus Previous Plots and Fed Funds Futures**



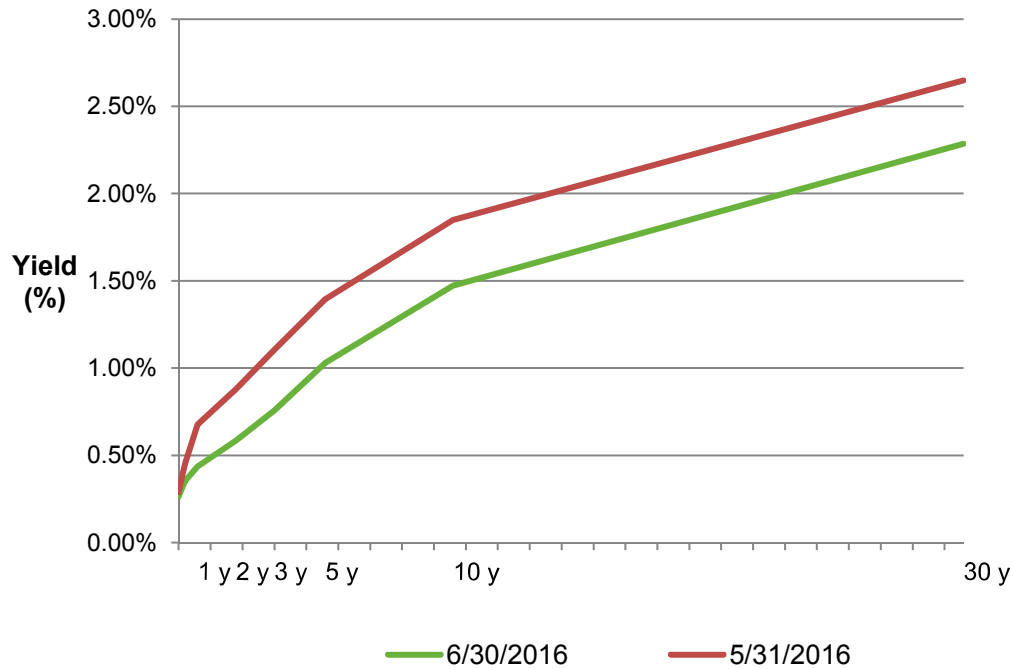
Source: Bloomberg FOMC; Fed Funds Futures as of 06/16/2016. Individual dots represent each of the 17 FOMC members' judgment of the midpoint of the appropriate target range for the federal funds rate.



# U.S Treasury Yields

- Interest rates declined sharply following the United Kingdom’s vote to leave the European Union (Brexit).

**U.S. Treasury Yield Curve**  
June 30, 2016 vs. May 31, 2016



	<b>6/30/2016</b>	<b>5/31/2016</b>	<b>Change</b>
3 month	0.26%	0.29%	-0.03%
6 month	0.35%	0.45%	-0.10%
1 year	0.44%	0.68%	-0.24%
2 year	0.58%	0.88%	-0.30%
3 year	0.76%	1.10%	-0.35%
5 year	1.03%	1.39%	-0.36%
10 year	1.47%	1.85%	-0.38%
30 year	2.29%	2.65%	-0.36%

Source: Bloomberg



## Disclosure

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*CDARS holdings and Bank Deposits are not managed by PFMAM, and therefore we cannot guarantee the accuracy of holdings.*



# RATE STABILIZATION FUND OVERVIEW

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## Rate Stabilization Fund – Overview

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- The Rate Stabilization Fund (RSF) was established by DC Water Board on December 4, 1997 – Board Resolution (#97-124)
  - “As cash reserves and / or revenues permit, WASA (The Authority) will establish a Rate Stabilization Fund or other innovative approaches to assist in mitigating annual rate increases.
  
- The RSF is subject to and governed by the Authority’s Master Indenture
  - Section 604: Disposition of Revenues

(G) To the System Fund, any moneys remaining in the Revenue Fund after all deposits and transfers required by subsections (A) through (F) of this Section 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:

    - (4) At any time to the Rate Stabilization fund; the amount that the General Manager may determine, in his discretion.



## Rate Stabilization Fund – Board Amendments

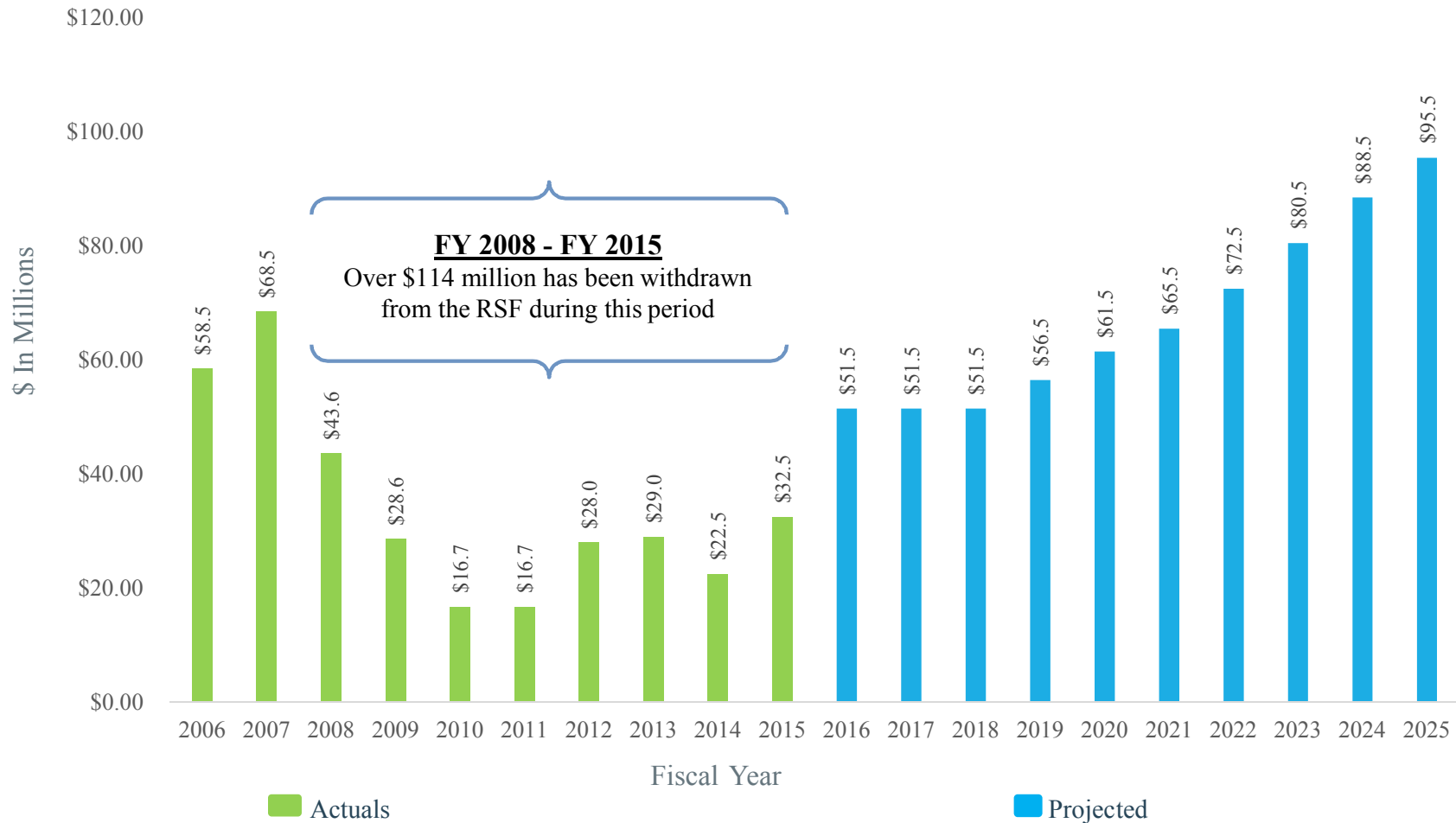
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- Board Resolution (#07-87) adopted November 1, 2007
  - (7a) During the fourth quarter of each fiscal year, the General Manager [or designee] will conduct an analysis of the Authority financial performance, including operating revenues, operating expenditures, capital disbursement and reserves.
  - (7b) The General Manager will report the results of this analysis and his recommendations to the Finance & Budget Committee no later than its regularly scheduled meeting in September, for recommendation of Board action at its October meeting.
  
- Board Resolution (#10-76) adopted July 1, 2010
  - (7c) Transfers into the RSF will be made no later than September 30<sup>th</sup> of each year.
  - (7d) In October, the General Manager will report to the Board of Directors the amount of the final transfer into the RSF.



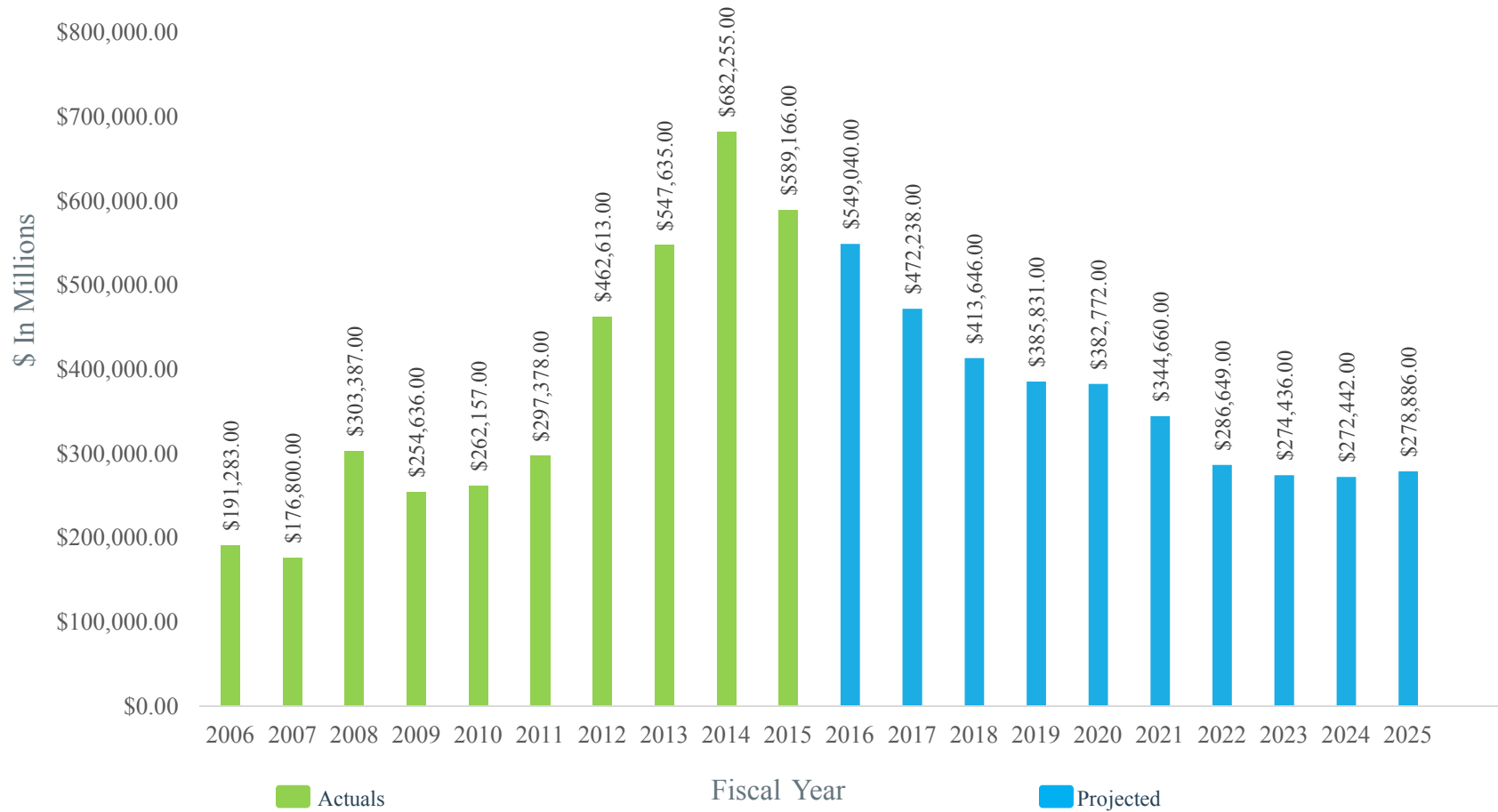


## Historical and Projected RSF Balances



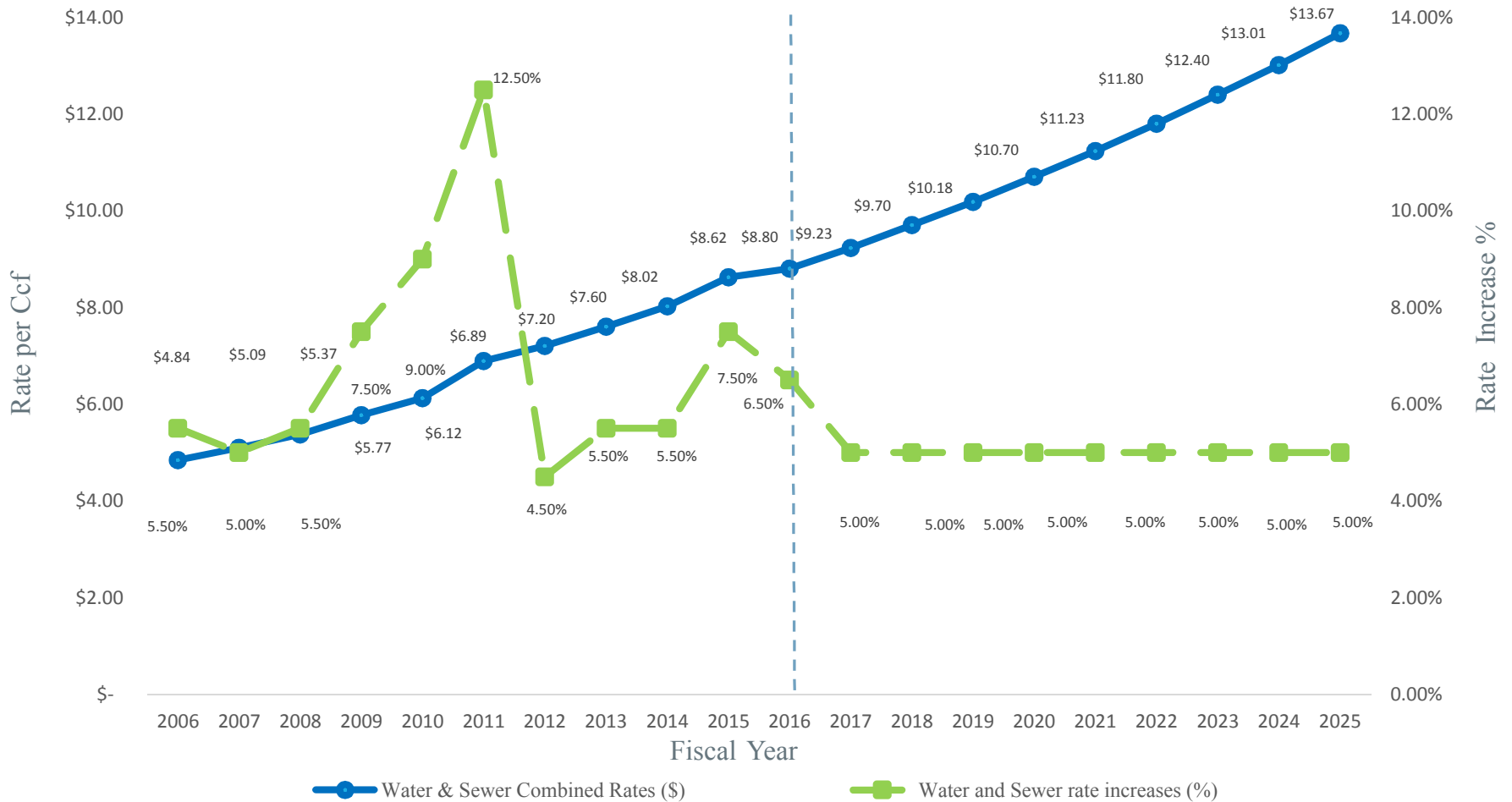


## Historical and Projected CIP Tread





## Historical and Projected Water & Sewer Combined Rates





## Next Steps

<p><b>July 2016</b></p>	<p><b>Finance and Budget Committee Meeting</b></p>	<ul style="list-style-type: none"> <li>- <b>Review the policy governing use of funds in the Rate Stabilization Fund (RSF)</b></li> <li>- <b>Discuss the use of the RSF to mitigate the impact of Clean River Impervious Area Charges (CRIAC)</b></li> <li>- <b>Discuss appropriate target RSF balance</b></li> </ul>
<p>September 2016</p>	<p>Joint Meeting of Retail Rates and Finance and Budget Committee</p>	<ul style="list-style-type: none"> <li>- Consider management recommendation regarding the RSF policy</li> </ul>

Presented and Adopted: December 4, 1997  
SUBJECT: Proposed Rate Setting Policies

#97-124  
RESOLUTION  
OF THE  
BOARD OF DIRECTORS  
OF THE  
D.C. WATER AND SEWER AUTHORITY

The District members of the Board of Directors ("Board") of the D.C. Water and Sewer Authority ("the Authority") at the Board meeting held on December 4, 1997, decided by a vote six (6) in favor and none (0) opposed to approve the following action with respect to the proposed rate setting policies, (a matter not affecting the general management of joint-use sewerage facilities)

**WHEREAS**, The WASA Board of Directors have been delegated all of the District of Columbia, Chief financial Officer's duties, powers, and responsibilities with regard to the financial operations of the District of Columbia Water and Sewer Authority.

Be it resolved that:

1. WASA will strive to set rates and fees based on the actual cost to deliver each service. WASA will periodically review the components that make up the rates through a cost-of-business study for every service WASA provides.
2. The Authority will achieve a positive net income and cash flow each year.
3. WASA will set rates to cover all current costs and to allow the utility to meet all bond covenant requirements.
4. WASA will set rates that are based on annually updated 10-year forecasts of operating and capital budgets.
5. Based on the 10-year forecasts, WASA will attempt to implement any required rate increase in a gradual and predictable manner and avoid larger, one-time rate increases.

6. As cash reserves and/or revenues permit, WASA will establish a rate stabilization fund or other innovative approaches to assist in mitigating annual rate increases.

This resolution is effective immediately.

  
Secretary to the Board of Directors

**Presented and Adopted: November 1, 2007**  
**SUBJECT: Approval of Rate Stabilization Fund Policy**

**#07-87**  
**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 its meeting on November 1, 2007, upon consideration of a non-joint use matter decided by a vote of six (6) in favor and none (0) opposed to take the following action with respect to the approval of the Rate Stabilization Fund Policy.

**WHEREAS**, on December 4, 1997 the Board of Directors, in Resolution, 97-124, approved Rate Setting Policies ("Policies") (a matter not affecting the general management of joint-use sewerage facilities) for the District of Columbia Water and Sewer Authority which state that as cash reserves and/or revenues permit, WASA will establish a rate stabilization fund or other innovative approaches to assist in mitigating annual rate increases; and

**WHEREAS**, on March 26, 1998 the Board of Directors approved the Authority's Master Indenture of Trust; and

**WHEREAS**, Section 603 and Section 604 of the Master Indenture of Trust formalized certain requirements of the Rate Stabilization Fund; and

**WHEREAS**, on October 23, 2007, the General Manager recommended the attached "Rate Stabilization Fund Policy" to the Retail Rates Committee; and

**WHEREAS**, upon consideration the Retail Rates Committee finds the revised "Rate Stabilization Fund Policy" to be consistent with the principles expressed in Resolution 97-124, and therefore recommends adoption; and

**NOW THEREFORE BE IT RESOLVED THAT:**

The Board hereby approves the attached "Rate Stabilization Fund Policy" and authorizes the General Manager to implement the policy.

This resolution is effective immediately.

  
Secretary to the Board of Directors

## RATE STABILIZATION FUND POLICY

The District of Columbia Water & Sewer Authority (the "Authority") has established a Rate Stabilization Fund (RSF), consistent with Board of Directors' Resolution #97-124 and the Authority's Master Indenture of Trust (the "Indenture"). The purpose of the RSF is to help mitigate rate spikes and allow smoothing of annual rate increases.

The following policies will govern the management of the RSF:

1. The RSF will be held as a separate account of the Authority and segregated from other Authority funds.
2. The RSF will be invested in a manner consistent with the Authority's cash management and investment policies.
3. The RSF will be managed in a manner consistent with the Authority's Indenture and in a manner consistent with maintaining the highest bond ratings possible.
4. The General Manager [or designee] will prepare a ten-year financial plan as part of the annual operating budget process which will be delivered to the Board of Directors each fall. The ten year financial plan will include the planned utilization of the RSF over the ten years
5. The planned utilization (transfers out) of the RSF will be formally approved by the WASA Board of Directors' as part of its annual approval of the operating and capital budgets.
6. At any time during the fiscal year, the General Manager may transfer the approved amounts from the RSF to the Authority General Fund.
7. Transfers into the RSF would be determined annually based on financial performance, and at other times at the direction of the Board and must be approved by the WASA Board of Directors.
  - a. During the fourth quarter of each fiscal year, the General Manager [or designee] will conduct an analysis of the Authority's financial performance, including operating revenues, operating expenditures, capital disbursements and reserves.
  - b. The General Manager will report the results of this analysis and his recommendations to the Finance & Budget Committee no later than its regularly scheduled meeting in September, for recommendation of Board action at its October meeting.
8. Interest earned in the RSF account will be accounted for as general revenues and may be transferred out of the RSF anytime to the Authority Revenue Fund.



**Presented and Adopted: July 1, 2010**  
**Subject: Approval of Revised Rate Stabilization Fund Policy**

**#10-76  
RESOLUTION  
OF THE  
BOARD OF DIRECTORS  
OF THE  
DISTRICT OF COLUMBIA WATER AND SEWER  
AUTHORITY**

The Board of Directors ("Board") of the District of Columbia Water and Sewer Authority, ("Authority"), at its meeting on July 1, 2010, upon consideration of a joint use matter, decided by a vote of ten (10) in favor and none (0) opposed to take the following action with respect to the approval of the Revised Rate Stabilization Fund Policy.

**WHEREAS**, on December 4, 1997 the Board of Directors, in Resolution, 97-124, approved Rate Setting Policies ("Policies") (a matter not affecting the general management of joint-use sewerage facilities) for the District of Columbia Water and Sewer Authority which state that as cash reserves and/or revenues permit, WASA will establish a rate stabilization fund or other innovative approaches to assist in mitigating annual rate increases; and

**WHEREAS**, on November 1, 2007, the Board of Directors approved a Rate Stabilization Fund Policy and authorized the General Manager to implement the policy; and

**WHEREAS**, on June 24, 2010, upon consideration, the Finance and Budget Committee recommended revisions to the "Rate Stabilization Fund Policy" which are consistent with the principles expressed in Resolution 97-124, and therefore recommends adoption; and

**NOW THEREFORE BE IT RESOLVED THAT:**

1. The Board hereby approves the attached "Rate Stabilization Fund Policy" and authorizes the General Manager to implement the policy.

This resolution is effective immediately.

  
Secretary to the Board of Directors

## RATE STABILIZATION FUND POLICY

The District of Columbia Water & Sewer Authority (the "Authority") has established a Rate Stabilization Fund (RSF), consistent with Board of Directors' Resolution #97-124 and the Authority's Master Indenture of Trust (the "Indenture"). The purpose of the RSF is to help mitigate rate spikes and allow smoothing of annual rate increases.

The following policies will govern the management of the RSF:

1. The RSF will be held as a separate account of the Authority and segregated from other Authority funds.
2. The RSF will be invested in a manner consistent with the Authority's cash management and investment policies.
3. The RSF will be managed in a manner consistent with the Authority's Indenture and in a manner consistent with maintaining the highest bond ratings possible.
4. The General Manager [or designee] will prepare a ten-year financial plan as part of the annual operating budget process which will be delivered to the Board of Directors each fall. The ten year financial plan will include the planned utilization of the RSF over the ten years
5. The planned utilization (transfers out) of the RSF will be formally approved by the WASA Board of Directors' as part of its annual approval of the ten year financial plan, operating and capital budgets.
6. At any time during the fiscal year, the General Manager may transfer the approved amounts from the RSF to the Authority General Fund.
7. Transfers into the RSF would be determined annually based on the Authority's financial performance and at other times at the direction of the Board and must be approved by the WASA Board of Directors.
  - a. During the fourth quarter of each fiscal year, the General Manager [or designee] will conduct an analysis of the Authority's financial performance, including operating revenues, operating expenditures, capital disbursements and reserves.
  - b. The General Manager will report the results of this analysis and his recommendations to the Finance and Budget Committee no later than it's regularly scheduled meeting in July, for recommendation and Board action at its September meeting.
  - c. Transfers into the RSF will be made no later than September 30 of each year.
  - d. In October, the General Manager will report to the Board of Directors the amount of the final transfer into the RSF.
8. Interest earned on the RSF account will be accounted for as general revenues and may be transferred out of the RSF anytime to the Authority Revenue fund.

**FY2016 Projected Net Cash Surplus**

	<b>Board Approved FY2016 Financial Plan</b>	<b>FY2016 Projection*</b>	<b>Variance Positive/(Negative)</b>
Total Revenue	580,514,226	579,082,477	(1,431,749)
Total Expense	481,842,248	454,910,976	26,931,272
CFCI	23,475,181	23,475,181	-
<b>Operating Income</b>	<b>75,196,797</b>	<b>100,696,320</b>	<b>25,499,523</b>
Other Debits/Credits	(17,179,027)	(29,232,584)	(12,053,557)
<b>Net Income</b>	<b>58,017,770</b>	<b>71,463,736</b>	<b>13,445,966</b>
Beginning Cash Balance over Target	20,054,757	20,054,757	-
Transfer to CIP	(59,072,527)	(59,072,527)	-
Transfer to RSF	(19,000,000)	(19,000,000)	-
<b>Projected Net Cash Surplus</b>	<b>-</b>	<b>13,445,966</b>	<b>13,445,966</b>

**Recommendation:**

Additional Transfer to RSF	-
Additional Transfer to Paygo	(10,000,000)
Additional Cash Balance over Target	(3,445,966)
Lessen impact of CRIAC	-
	-

\* Preliminary unaudited year-end projections, subject to change



**DC Water Finance & Budget Committee**  
*Environmental Impact Bond Financing Follow-up*

July 28, 2016

## Executive Summary

- **DC Water is structuring an Environmental Impact Bond (EIB) to finance the first project (Rock Creek Project A or “RC-A”) in the DC Clean Rivers Project’s Green Infrastructure (GI) Program**
  - Investors will be repaid based upon the effectiveness of GI in managing the volume of stormwater runoff in RC-A
  - The intended and express purpose of the environmental impact bond (EIB) is to mitigate the financial risk of loss associated with a failure of green infrastructure to manage stormwater runoff as expected
- **The expected costs of issuance (COI) are significantly lower for the EIB than for a comparable traditional, tax-exempt financing**
- **The expected all-in true interest cost (TIC) for the EIB is comparable to a traditional, tax-exempt financing**
- **Accordingly, the EIB represents a cost-effective financing solution to manage a portion of the risk associated with implementing GI as a stormwater management practice**

# Estimated Upfront Costs of Issuance

- Estimated costs of issuance of the EIB are lower than the estimated costs of a traditional issuance of fixed-rate, tax-exempt bonds

	Traditional Tax-Exempt Bonds	Environmental Impact Bonds
<b>Costs of Issuance</b>		
Bond Counsel	\$ 162,500	\$ 162,500
Disclosure Counsel	50,000	-
Financial Advisor	95,000	95,000
Trustee/Escrow Agent	5,000	5,000
Feasibility Consultant	38,000	-
Financial Printer	2,000	-
Investor Roadshow	3,750	-
Disclosure Dissemination Agent	2,500	2,500
Rating Agencies	125,000	-
Technical Advisor <sup>1</sup>	-	-
Transaction Coordinator	-	120,000
	<b>\$ 483,750</b>	<b>\$ 385,000</b>
<b>Underwriter's Discount</b>		
Takedown <sup>3</sup>	\$ 100,000	\$ -
Underwriter/Purchaser Expenses	85,000	50,000
	<b>\$ 185,000</b>	<b>\$ 50,000</b>
<b>Total Upfront COI</b>	<b>\$ 668,750</b>	<b>\$ 435,000</b>

1. Technical Advisor funded via Harvard Kennedy School Government Performance Lab.
2. All estimated expenses assume transaction size of \$25-\$30 million.
3. Estimated, varies based on size of transaction.

# Projected Total Debt Service / True Interest Cost (EIB)

- Over a 30-year financing period, the TIC (true interest cost) of the EIB is comparable to that of a traditional, tax-exempt bond issuance

	Environmental Impact Bond			Environmental Impact Bond			Environmental Impact Bond		
	Option 1a			Option 2a			Option 3a		
Initial Term	2.50% at Par (5 years)			3.50% at Par (5 years)			4.50% at Par (5 years)		
Remainder of Term	Refinance to 25-yr Par Bond at 2.75% (Rates as of 7/5/2016)			Refinance to 25-yr Par Bond at 2.75% (Rates as of 7/5/2016)			Refinance to 25-yr Par Bond at 2.75% (Rates as of 7/5/2016)		
Dated Date	10/1/2016			10/1/2016			10/1/2016		
Tax Status (Interest Income)	Tax-Exempt			Tax-Exempt			Tax-Exempt		
True Interest Cost (TIC)	2.70%			2.94%			3.18%		
Average Life (years)	25.7			25.7			25.7		
Par Amount	26,435,000			26,435,000			26,435,000		
Project Fund	26,000,000			26,000,000			26,000,000		
Upfront Costs of Issuance <sup>1</sup>	435,000			435,000			435,000		
Remarketing Costs of Issuance <sup>1</sup>	668,750			668,750			668,750		
	<u>No Additional</u>	<u>Success</u>	<u>Risk-Share</u>	<u>No Additional</u>	<u>Success</u>	<u>Risk-Share</u>	<u>No Additional</u>	<u>Success</u>	<u>Risk-Share</u>
	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>	<u>Payment</u>
Total Debt Service	44,837,194	47,811,131	41,863,256	46,026,769	50,190,281	41,863,256	47,216,344	52,569,431	41,863,256
PV of Debt Service @ 3.50%	22,725,921	25,226,195	20,225,646	23,807,317	27,307,701	20,306,933	24,888,713	29,389,207	20,388,219

1. Includes Underwriter's Discount/Purchaser's Expenses.

# Projected Total Debt Service / True Interest Cost (Traditional Issue)

- Over a 30-year financing period, the TIC (true interest cost) of the EIB is comparable to that of a traditional, tax-exempt bond issuance

Traditional Tax-Exempt Bond			
	Option 1b	Option 2b	Option 3b
Initial Term	2.85% at Par to Maturity (Rates as of 7/5/2016) (30 years)	5% Coupon to Yield 2.25% (Rates as of 7/5/2016) (30 years)	2% Coupon to Yield 1.40% (Rates as of 7/5/2016) (5 years hard put)
Remainder of Term	No Refinancing	No Refinancing	Refinance to 25-yr Par Bond at 2.75% (Rates as of 7/5/2016)
Dated Date	10/1/2016	10/1/2016	10/1/2016
Tax Status (Interest Income)	Tax-Exempt	Tax-Exempt	Tax-Exempt
True Interest Cost (TIC)	2.89%	3.58%	2.48%
Average Life (years)	25.7	25.9	25.7
Par Amount	26,665,000	21,405,000	25,985,000
Project Fund	26,000,000	26,000,000	26,000,000
Upfront Costs of Issuance <sup>1</sup>	662,078	643,668	659,698
Remarketing Costs of Issuance <sup>1</sup>	0	0	668,750
	<u>Net DS</u>	<u>Net DS</u>	<u>Net DS</u>
Total Debt Service	46,219,563	49,125,500	43,489,831
PV of Debt Service @ 3.50%	23,640,074	26,668,812	21,807,502

1. Includes Underwriter's Discount/Purchaser's Expenses.



# Preliminary EIB Term Sheet

	<b>Environmental Impact Bond</b>
<b>Par Amount</b>	■ \$20,000,000 - \$30,000,000
<b>Use of Funds</b>	■ Fund first Rock Creek GI project (RC-A) in DCCR’s GI Program Plan
<b>Tax Status</b>	■ Tax-exempt to the fullest extent permitted by federal tax law
<b>Bond Structure</b>	<ul style="list-style-type: none"> <li>■ Multi-modal variable rate bonds, initially issued in a term mode at a fixed rate through the mandatory tender date</li> <li>■ Bonds will be refinanced at mandatory tender date</li> <li>■ Additional outcome payment or risk share payment may become due at mandatory tender date</li> </ul>
<b>Security</b>	■ Subordinate lien pledge of net revenues
<b>Final Maturity</b>	■ 2046 (30-year nominal)
<b>Mandatory Tender</b>	■ April 1, 2021
<b>Initial Term Rate</b>	■ TBD
<b>Investor(s)</b>	■ TBD
<b>Bond Counsel</b>	■ Squire Patton Boggs
<b>Financial Advisor</b>	■ PFM
<b>Technical Advisor</b>	■ Harvard Kennedy School - Government Performance Lab
<b>Transaction Coordinator</b>	■ Quantified Ventures

# Appendix

# Executed Social Impact Bonds (SIBs) in the United States

Project	Location	Launch Date	Issue	Service Provider	Payor	Intermediary	Total	Funders	Term
NYC project for Incarcerated Youth	New York City	August 2012	Recidivism	Osborn Association, Friends of Island Community	City of New York	MDRC	\$9.6M	Goldman Sachs Urban Investment Group	3 years
Utah High Quality Preschool Program	Salt Lake City, Utah	June, 2013	Early Childhood Education	Griate School District, Park City School District	Salt Lake County, State of Utah	United Way of Salt Lake, Voices for Utah Children	\$7.2M	Goldman Sachs Urban Investment Group, J.B. & M.K. Pritzker Family Foundation	4
New York State Recidivism and Workforce Development Project	New York State	December, 2013	Recidivism, workforce redeployment	Center for Employment Opportunities	State of New York	Social Finance US	\$13.5M	40+ investors, including BAML, Robin Hood Foundation, and Laura and John Arnold Foundation	5.5 years
Massachusetts Juvenile Justice Pay for Success Initiative	Boston, Chelsea, Springfield, MA	January, 2014	Recidivism, workforce redeployment	Roca, Inc	Commonwealth of Mass.	Third Sector Capital Partners	\$19M	Several, including Goldman Sachs, Kresge Foundation, and Living Cities	7 Years

Note: As of June 2016.

## Executed SIBs in the United States (cont'd)

Project	Location	Launch Date	Issue	Service Provider	Payor	Intermediary	Total	Funders	Term
Child-Parent Center Pay for Success Initiative	Chicago, IL	October, 2014	Early Childhood Education	Chicago Public Schools Child Parent Center	City of Chicago	Metropolitan Family Services	\$17M	Goldman Sachs Social Impact Fund, Northern Trust Company, Pritzker Foundation, Finnegan Family Foundation	4 years
Massachusetts Chronic Homelessness Pay for Success Initiative	Massachusetts	December, 2014	Homelessness	Massachusetts Housing and Shelter Alliance	Commonwealth of Massachusetts	None	\$3.5M	Corporation for Supportive Housing, United Way of Massachusetts Bay, Santander Bank	6 Years
Cuyahoga Partnering for Family Success Program	Cuyahoga County, OH, USA	December, 2014	Homelessness, Child Welfare	Frontline Service	County of Cuyahoga, Ohio	Cuyahoga PFS, LLC	\$5M	The Reinvestment Fund, The George Gund Foundation, The Cleveland Foundation, Sisters of Charity Foundation of Cleveland, Nonprofit Finance Fund	5 years
Project Welcome Home	County of Santa Clara, CA, USA	August, 2015	Homelessness	Adobe Services	County of Santa Clara	None	\$19M	Several, including Goldman Sachs, Kresge Foundation, and Living Cities	6 Years

## Executed SIBs in the United States (cont'd)

<b>Project</b>	<b>Location</b>	<b>Launch Date</b>	<b>Issue</b>	<b>Service Provider</b>	<b>Payor</b>	<b>Intermediary</b>	<b>Total</b>	<b>Funders</b>	<b>Term</b>
Denver permanent supportive housing	Denver, CO	February, 2016	Homelessness	Colorado Coalition for the Homeless and Mental Health Center of Denver	City and County of Denver	Social Impact Solutions	\$8.6M	Northern Trust, The Denver Foundation, The Piton Foundation, Laura and John Arnold Foundation, The Colorado Health Foundation	5 years
South Carolina Nurse Family Partnership	South Carolina	February, 2016	Support for first-time mothers	Nurse Family Partnership	State of South Carolina	Social Finance	\$30M	Medicaid, BlueCross BlueShield Foundation, The Duke Endowment, The Boeing Company, Laura and John Arnold Foundation	5 years

**FINANCE & BUDGET COMMITTEE  
PROPOSED USE OF FY 2016  
PROJECTED NET CASH SURPLUS**

**ACTION ITEM A: Approval of Resolution Authorizing the Use of the Projected FY 2016 Net Cash Surplus.**

The Board will be asked to approve a resolution to authorize the use of the projected FY 2016 net cash surplus as follows:

Projected FY 2016 Net Cash Surplus            \$13,445,966

Use of Surplus Funds:

Additional Transfer to Pay-go            \$10,000,000

Additional Cash Balance over Target    \$3,445,966

**ATTACHMENT 6**

**FINANCE & BUDGET COMMITTEE  
APPROVAL OF  
ENVIRONMENTAL IMPACT BOND  
FINANCING DOCUMENTS**

**ACTION ITEM B: Approval of documents authorizing the issuance of an Environmental Impact Bond.**

Presented and Adopted: [\_\_\_\_\_] , 2016  
Subject: Approving the Substantially Final Form of Certain Documents,  
Authorizing the Sale and Setting Terms and Details  
of the Series 2016 Environmental Impact Bonds

**DRAFT**  
**07/21/16**

#16-\_\_\_\_\_  
RESOLUTION  
OF THE  
BOARD OF DIRECTORS  
OF THE  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

The Board of Directors (“Board”) of the District of Columbia Water and Sewer Authority (“Authority”), at its meeting on [\_\_\_\_\_] , 2016, by a vote of \_\_\_\_\_ ( ) in favor and \_\_\_\_\_ ( ) opposed, decided to approve the following:

**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 (20) 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 Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds) (the “Series 2016\_ Bonds”) to (a) finance a portion of the costs of the Authority’s DC Clean Rivers Project; (b) fund a Series 2016\_ Debt Service Reserve Requirement (as defined herein), if determined necessary; and (c) pay certain costs of issuance; (ii) to designate the Series 2016\_ Bonds as Subordinate Debt and as Variable Rate Indebtedness and as Tender Indebtedness for purposes of the Indenture; (iii) to secure the payment of principal of and interest on the Series 2016\_ 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) to



designate the Series 2016\_ Bonds as Environmental Impact Bonds and, as such, to make provision for the possibility of an Outcome Payment by the Authority to the Original Purchaser of the Series 2016\_ Bonds and for the possibility of a Risk Share Payment by the Original Purchaser of the Series 2016\_ Bonds to the Authority depending upon the results achieved by the project financed with the proceeds of the Series 2016\_ Bonds, with the potential obligation of the Authority to make an Outcome Payment being all as defined and provided for in a Private Placement Agreement authorized by this Resolution; and

**WHEREAS**, the General Manager, the Chief Financial Officer, the Chief Engineer and the General Counsel 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, financial advisors and other consultants and advisors, with a view to ensuring the accuracy of disclosure; and

**WHEREAS**, the Finance and Budget Committee met on [\_\_\_\_\_], 2016, to review the issuance of the Series 2016\_ 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-First 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 General Manager, Chief Financial Officer, Controller, Budget Director, and Finance Director of the Authority, 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.

“Certificate of Award” means the certificate of an Authorized Official awarding the Series 2016\_ Bonds to the Original Purchaser and specifying terms of the Series 2016\_ Bonds, as provided for in Section 4 of this Resolution.

“Financial Advisor” means Public Financial Management, Inc.

“Interest Payment Dates” means for the Series 2016\_ Bonds, the “Interest Payment Dates” as defined for the Series 2016\_ Bonds in the Twenty-First Supplemental Indenture.

“Original Purchaser” for the Series 2016\_ Bonds means the one or more purchasers identified as such in the Private Placement Agreement as the “Purchaser” for the Series 2016\_ Bonds.

“Private Placement Agreement” means the Private Placement Agreement between the Authority and the Original Purchaser, dated as of the same date as the Certificate of Award.

“Remarketing Agent” means any Remarketing Agent designated for the Series 2016\_ Bonds under the Twenty-First Supplemental Indenture.

“Remarketing Agreement” means any Remarketing Agreement entered into for Series 2016\_ Bonds under the Twenty-First Supplemental Indenture.

“Series 2016\_ Debt Service Reserve Requirement” means, if determined to be necessary, a required fund balance in the Series 2016\_ Debt Service Reserve Account or Accounts established under the Twenty-First Supplemental Indenture , the amount of which shall be specified in the Certificate of Award, but which, if the Series 2016\_ Bonds are Tax-Exempt Obligations, 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 required balance in the Series 2016\_ 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 2016\_ Debt Service Reserve Account in the amount of the required fund balance will not cause the interest on any Series 2016\_ Bonds that had been excluded from gross income for federal income tax purposes to cease to be so.

“Taxable Obligations” means any Series 2016\_ Bonds not designated as Tax-Exempt Obligations in the Certificate of Award.

“Tax-Exempt Obligations” means any Series 2016\_ Bonds designated as Tax-Exempt Obligations in the Certificate of Award.

“Term Sheet” means the Indicative Term Sheet for Environmental Impact Bonds, in the draft form dated [\_\_\_\_\_, 2016] presented to this Authority.

“Twenty-First Supplemental Indenture” means the Twenty-First Supplemental Indenture of Trust by and between the Authority and the Trustee, dated as of the same date as and relating to the Series 2016\_ 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 2016\_ 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) [Thirty] Million Dollars [(\$30,000,000)] principal amount of bonds of the Authority, which shall be designated “Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds)” and constituting Subordinate Debt, Variable Rate Indebtedness and Tender Indebtedness 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 2016\_ Debt Service Reserve

Requirement, if determined necessary; and (c) paying issuance costs of the Series 2016\_ Bonds. For those purposes the proceeds from the sale of the Series 2016\_ Bonds shall be allocated and deposited, as provided in the Twenty-First Supplemental Indenture. If and to the extent that any Series 2016\_ Bonds are issued for the purpose of funding a Series 2016\_ Debt Service Reserve Requirement, then the aggregate principal amount of Series 2016\_ Bonds hereby authorized may exceed [\$30,000,000] by the aggregate principal amount of the Series 2016\_ 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 2016\_ Bonds. All capitalized words and terms used in this Section 3 not elsewhere defined herein are used with the definitions assigned to them in Section [102(b)] of the Twenty-First Supplemental Indenture.

(a) Form, Transfer and Exchange. The Series 2016\_ Bonds: (i) shall initially be issued only in fully registered form and substantially in the form attached as an Exhibit to the Twenty-First Supplemental Indenture; (ii) if requested by the Original Purchaser, 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 herein and in the Twenty-First Supplemental Indenture.

(b) Denominations and Dates. The Series 2016\_ Bonds shall be dated as of the date of issuance and delivery, but in no event later than December 31, 2017, and there shall be a single Series 2016\_ Bond representing each interest rate for each maturity of the Series 2016\_ Bonds bearing the same series or subseries designation.

(c) Interest Rates and Interest Rate Periods for the Series 2016\_ Bonds.

The Series 2016\_ Bonds shall initially be issued as Long-Term Rate Bonds and, as such, shall bear interest during the Initial Period at a rate determined in the Certificate of Award. After the Initial Period, the Series 2016\_ Bonds may bear interest at Index Rates, Daily Rates, Weekly Rates, Short-Term Rates, Long-Term Rates, or a Fixed Rate, or may continue to bear interest at a Long-Term Rate, all determined in accordance with the Twenty-First 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 Twenty-First Supplemental Indenture.

(d) Tender, Purchase, Remarketing and Optional Redemption of Series 2016\_ Subordinate Bonds. During the Initial Period, the Series 2016\_ Bonds shall be subject to mandatory tender (either as Hard Tender Index Rate Bonds or Soft Tender Index Rate Bonds, as defined in the Twenty-First Supplemental Indenture and as designated in the Certificate of Award) by the Holders for purchase on the Initial Long-Term Rate Bonds Purchase Date applicable to Series 2016\_ Bonds. During any Subsequent Interest Rate Period, the Series 2016\_ Bonds may be subject to optional and mandatory tender by the Holders for purchase and remarketing, all on the terms, in the manner, and subject to the conditions set forth in the Twenty-First Supplemental Indenture. For the purpose of effecting the provisions of the Twenty-First Supplemental Indenture relating to the tender, purchase and remarketing of the Series 2016\_ 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-First Supplemental Indenture. During any Long-Term Rate Period, the Series 2016\_ Bonds shall be subject to redemption at the option of the Authority in accordance with the Twenty-First Supplemental Indenture in whole or in part (in whole multiples of their Authorized Denominations) on such date or dates specified in the applicable Certificate of Award or Notice of Conversion, as the case may be, at a redemption price equal to the principal amount of the Series 2016\_ Bonds to be redeemed plus interest accrued to the redemption date, provided that the Earliest Optional Redemption Date for the Series 2016\_ Bonds shall be no later than [\_\_\_\_ 1, 202\_]).

(e) Redemption Provisions. Redemption of Series 2016\_ Bonds shall be effected in accordance with Article IV of the Master Indenture; provided, however, that notices of redemption of Series 2016\_ 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.

(f) Places and Manner of Payment. The principal of and the interest and any redemption premium on the Series 2016\_ Bonds shall be payable at the places and in the manner specified in the Twenty-First Supplemental Indenture.

(g) Execution. The Authorized Officials are, and each of them is, authorized and directed to execute the Series 2016\_ Bonds, and the Secretary of the Board is authorized and directed to affix the seal of the Authority to the Series 2016\_ Bonds and to deliver them to the Trustee for authentication in accordance with the Indenture.

(h) "Green Bonds" Designation. The Authorized Officials are, and each of them is, authorized to specify in the Certificate of Award whether the Series 2016\_ Bonds shall bear the designation of "Green Bonds." In the event that the Certificate of Award does not state that the Series 2016\_ Bonds shall bear that designation, the Authorized Officials may determine to apply that designation to the Series 2016\_ Bonds at the end of the Initial Period and in connection with any tender and remarketing of the Series 2016\_ Bonds at that time.

#### Section 4. Sale of Series 2016\_ Bonds.

(a) General. The Series 2016\_ Bonds shall be awarded and sold to the Original Purchaser in accordance with the Private Placement Agreement and the Certificate of Award, at a purchase price of not less than ninety-eight percent (98%) of the aggregate principal amount thereof. The Private Placement Agreement shall reflect and be consistent with the Term Sheet.

(b) Outcome Payment and Risk Share Payment. Without limiting the generality of 4(a): (i) the Private Placement Agreement shall make provision for the contingent payment by the Authority to the Original Purchaser of the "Outcome Payment" and by the Original Purchaser to the Authority of the "Risk Share Payment," both as defined in the Term Sheet, subject to the conditions and limitations, at the times, in the amounts, and otherwise on the terms set forth in the Term Sheet or in the Private Placement Agreement. The Outcome Payment, if payable, shall be payable from the sources and secured in the manner described in the Term Sheet or in the Private Placement Agreement. The payment of the Risk Share Payment, if payable, shall be effected in the manner described in the Term Sheet or in the Private Placement Agreement.

Any Outcome Payment or Risk Share Payment, whether contingent or actual, shall not constitute or be treated as principal of or interest on the Series 2016\_ Bonds for any purpose of the Indenture, including, without limitation, the Rate Covenant or any conditions for the issuance of Bonds or Subordinate Debt.

(c) Private Placement Agreement. The Authorized Officials are, and each of them is, authorized and directed to execute and deliver the Private Placement Agreement between the Authority and the Original Purchaser, 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 (including, without limitation, any additional provisions relating to the payment or reimbursement of reasonable expenses incurred by the Authority or other parties related to and necessary for the issuance of the Series 2016\_ Bonds) 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 Private Placement Agreement by such Authorized Official. Without limiting the generality of the foregoing, the Authorized Officials are authorized to determine that the Private Placement Agreement may take the form of more than one agreement, each of which may bear a different designation, but all of which shall collectively constitute the Private Placement Agreement for purposes of this Resolution. The price for and terms of the Series 2016\_ Bonds and the sale thereof, all as provided in this Resolution, the Term Sheet, the Private Placement Agreement, the Certificate of Award, and the Twenty-First Supplemental Indenture, are hereby approved and determined to be in the best interests of the Authority.

(d) 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 2016\_ Bonds approved in the Certificate of Award shall be incorporated into the Twenty-First 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 2016\_ 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 with respect to each series or subseries of the Series 2016\_ Bonds, whether they shall be Taxable Obligations or Tax-Exempt Obligations; (iii) specify the amount, if any, of the Series 2016\_ 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); (iv) determine whether the Series 2016\_ Bonds shall bear the “Green Bonds” designation during the Initial Period; and (v) include any additional information that may be required or permitted to be stated therein by the terms of this Resolution and the Private Placement Agreement.

(e) Certificates. The Authorized Officials are, and each of them is, authorized and directed, in their official capacities, to execute and deliver to the Original Purchaser the certificates required by the Private Placement 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 Original Purchaser to establish the date, location, procedure and conditions for the delivery of the Series 2016\_ Bonds to the Original Purchaser. The Authorized Officials are, and each of them is, further authorized and directed to make the necessary arrangements for the printing of the Series 2016\_ Bonds, and the execution, authentication and delivery of the Series 2016\_ Bonds to DTC or otherwise for the accounts of the Original Purchaser 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 2016\_ Bonds; Tax Covenants.

(a) Allocation of Proceeds of the Series 2016\_ Bonds. The proceeds from the sale of the Series 2016\_ Bonds shall be allocated, deposited and credited for the purposes approved in this Resolution and as specified in the Twenty-First 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 any Series 2016\_ Bonds that are designated in the Certificate to be Tax-Exempt Obligations.

Section 6. Twenty-First Supplemental Indenture and Other Documents. The Authorized Officials are, and each of them is, authorized in connection with the issuance of the Series 2016\_ Bonds, to execute, acknowledge and deliver in the name of and on behalf of the Authority, the Twenty-First 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 are, and each of them is, authorized at the time required under the Twenty-First Supplemental Indenture to designate the Remarketing Agent and to execute, acknowledge and deliver, in the name of and on behalf of the Authority, the Remarketing Agreement in a form 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.

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 2016\_ 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-First Supplemental Indenture, the Private Placement 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 2016\_ 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. Provision of Information. The Authorized Officials are, and each of them is, authorized to compile, prepare and deliver to the Original Purchaser any documents and information that the Original Purchaser may reasonably request in lieu of receiving an official statement or other offering memorandum and that an Authorized Official determines is appropriate to provide to the Original Purchaser.

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 Original Purchaser as may be reasonably requested to qualify the Series 2016\_ 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 Original Purchaser; 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.

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 Original Purchaser of the Series 2016\_ Bonds a true and certified transcript of all proceedings relating to the authorization and issuance of the Series 2016\_ Bonds along with other information as is necessary or proper with respect to the Series 2016\_ Bonds.

Section 9. Multiple Series. Notwithstanding anything herein to the contrary, each of the Series 2016\_ Bonds may be issued in one or more separate series or subseries, each bearing a distinctive designation, provided that the Series 2016\_ 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 2016\_ Bonds may be issued at the same or different times and so may have different dates of issuance. The Series 2016\_ 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-First Supplemental Indenture shall refer to each and all such Supplemental Trust Indentures, but any Supplemental Trust Indenture subsequent to the Twenty-First Supplemental Indenture shall bear a different designation. A separate Private Placement Agreement and Continuing Disclosure Agreement may be entered into for each series or subseries, and each reference in this Resolution to the Private Placement Agreement or to the Continuing Disclosure Agreement shall refer to each and all such Private Placement Agreement s

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.

Section 10. Effective Date. This Resolution shall take effect immediately.

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Secretary to the Board of Directors



**DRAFT**  
**7/21/16**

**PRIVATE PLACEMENT AGREEMENT**

\$[\_\_\_\_\_]  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_**  
**(Environmental Impact Bonds)**

This Private Placement Agreement, dated [\_\_\_\_\_] 2016 (as amended, modified or restated from time to time, this “Agreement”), is entered into by and between the District of Columbia Water and Sewer Authority (the “Authority”), and [\_\_\_\_\_] a [\_\_\_\_\_] (the “Purchaser”). Terms used but not defined herein are used as defined in the Indenture identified below.

1. **Definitions.** In addition to the terms defined in the recitals and elsewhere in this Agreement and the Indenture, the following terms shall have the following meanings unless the context or use indicates a different meaning:

a. “Purchaser Letter” means a letter substantially in the form attached as Exhibit [C] hereto.

b. “Term Sheet” means the Indicative Term Sheet for Environmental Impact Bonds attached as Exhibit [B] hereto.

2. **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 Purchaser hereby agrees to purchase from the Authority, and the Authority hereby agrees to sell and deliver to the Purchaser, all (but not less than all) of \$[\_\_\_\_\_] aggregate principal amount of the District of Columbia Water and Sewer Authority Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds) (the “Bonds”). The proceeds of the Bonds will be used to (i) pay a portion of the costs of certain capital improvements to the System, and (ii) pay costs of issuing the Bonds. The purchase price of the Bonds will be \$[\_\_\_\_\_] representing the aggregate principal amount of the Bonds [premium discount]. 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.

3. **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 a resolution adopted by the Board of Directors of the Authority, dated [\_\_\_\_\_] 2016 (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-First Supplemental Indenture of Trust, dated as of the Closing Date (as defined below) (the “Twenty-First 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.

4. **Closing.** At 10:00 a.m. New York City Time on [\_\_\_\_], 201[ ], or at such other time and date as may be agreed upon by the Authority and the Purchaser (the “Closing Date”), the Authority will, subject to the terms and conditions hereof, deliver the Bonds to the Purchaser in definitive form, duly executed and authenticated, together with the other documents hereinafter required, and, subject to the terms and conditions hereof, the Purchaser 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”). One fully registered Bond, in the aggregate principal amount equal to the Purchase Price, shall be issued to and registered in the name of the Purchaser, or as otherwise directed by the Purchaser. The Bonds shall be so issued and registered to and held by the Purchaser, or as otherwise directed by the Purchaser. The Closing will occur at the offices of Squire Patton Boggs (US) LLP, Washington, D.C., or such other place as may be agreed on by the Authority and the Purchaser.

5. **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, and 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, 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 Purchaser as provided herein, and (v) carry out and consummate the transactions contemplated by the Resolution, the Bond Documents and the System Agreements; and the Authority has complied, and at the Closing Date will be in compliance, in all 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 and Bond Documents.

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, (iv) is authorized to appoint, and has appointed, Wells Fargo Bank, N.A., as 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, sale, issuance and delivery of the Bonds to the extent required by Section [ ] and (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 to the Purchaser, (b) approval, execution and delivery of and the performance by the Authority of its obligations contained in the Bonds and the Bond Documents, and (c) the consummation by it of all other transactions contemplated by the Bond Documents and any and all such other agreements and documents as may be required to be executed, delivered or received by the Authority in order to carry out, give effect to, and consummate those transactions.

c. The adoption of the Resolution, the execution and delivery of the Bond Documents, the execution, issuance, sale and delivery of the Bonds 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 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 current rates and charges for services of the System 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, 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 Purchaser 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.

h. 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.

i. 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 and the 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.

j. 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 sale of the Bonds.

k. 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 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 and 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,] (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, or (v) except as described in writing delivered to the Purchaser by the Authority, which may result in any material adverse change in the business or the financial condition or the financial prospects of the Authority.

l. The audited financial statements of the Authority for the years ended September 30, 201[ ] and September 30, 201[ ], including the statements of net position; revenues, expenses and changes in net position; and cash flows for the fiscal year ended on such date, as previously delivered by the Authority to the Purchaser, 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 years. There has been no material adverse change in the financial condition of the Authority since September 30, 201[ ], except as described by the Authority in writing delivered to the Purchaser.

m. 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.

n. 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 Purchaser as to the statements made therein.

o. 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.

p. 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 Purchaser.

6. **Representations of the Purchaser.** [RESERVED]

7. **Conditions to Obligations of Purchaser at Closing.** The Purchaser 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 Purchaser'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 Purchaser, 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 Purchaser, are not adverse to the interest of the Purchaser;

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;

d. At the time of the Closing, all official action of the Authority relating to the Bonds, the Bond Documents and the System Agreements 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 Purchaser;

e. At the time of the Closing the Authority will perform or will have performed all of its obligations required under, specified in or contemplated by this Agreement, the Resolution and the Indenture, to be performed prior to the Closing; and

f. At or before the Closing, the Purchaser will have received true and correct copies of each of the following documents:

i. A certified copy of the Resolution;

ii. Counterparts of each of the fully executed Bond Documents and the System Agreements;

iii. The approving opinion of Bond Counsel, dated the Closing Date, in form and substance satisfactory to the Purchaser, and a reliance letter with respect to such opinion addressed to Wells Fargo Bank, N.A., as Trustee;

iv. An opinion, dated the Closing Date, of the General Counsel to the Authority, substantially in the form of Exhibit [ ] hereto;

v. 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 Purchaser; (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;

vi. [Representation regarding current ratings]; and

vii. Such additional legal opinions, certificates, instruments and other documents as the Purchaser 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 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 Purchaser.

8. **Obligations Upon Cancellation.** If the Authority is unable to satisfy the conditions to the obligations of the Purchaser to purchase, to accept the delivery of and to pay for the Bonds contained in this Agreement, or if the obligations of the Purchaser 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 Purchaser nor the Authority will be under any further obligation hereunder, except that the Authority and the Purchaser shall pay their respective expenses as set forth in Section [ ].

9. **Outcome Payment and Risk Share Payment.** The Purchaser shall be entitled to receive the "Outcome Payment" from the Authority, and the Authority shall be entitled to receive the "Risk Share Payment" from the Purchaser, both as defined in the Term Sheet and subject to the conditions and limitations, at the times, in the amounts, and otherwise on the terms set forth in the Term Sheet or this Agreement. The Outcome Payment, if payable, shall be payable from the sources and secured in the manner described in the Term Sheet or this Agreement. The payment of the Risk Share Payment, if payable, shall be effected in the manner described in the Term Sheet or this Agreement. Any Outcome Payment or Risk Share Payment, whether contingent or actual, shall not constitute or be treated as principal of or interest on the Series 2016\_ Bonds for any purpose of the Indenture, including, without limitation, the Rate Covenant or any conditions for the issuance of Bonds or Subordinate Debt.

10. **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 Purchaser in which the Purchaser is acting solely as a principal and is not acting as an agent, a municipal advisor, financial advisor or fiduciary to the Authority; (ii) the Purchaser 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 Purchaser or its affiliates have provided other services or are currently providing other services to the Authority on other matters); (iii) the only obligations the Purchaser 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.

11. **Expenses.** The Authority will pay all costs of issuance of the Bonds including, but not limited to (a) any cost of preparation of the Bonds; (b) the fees and disbursements of Bond Counsel; (c) the fees and disbursements of any accountants, consultants, financial advisors or additional legal counsel retained by the Authority in connection with the issuance of the Bonds; (d) the expenses of travel, lodging and meals for Authority representatives in connection with the negotiation, issuance and delivery of the Bonds; and (e) all out-of-pocket and incidental costs associated with the issuance of the Bonds.

12. **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 Purchaser under this Agreement may be given by delivering the same in writing to [\_\_\_\_\_], Attention: [\_\_\_\_\_]

13. **Successors and Assigns.** During the Initial Period, (i) the Purchaser shall not sell, assign or transfer the Series 2016\_ Bonds or any interest therein without the written consent of the Authority, (ii) the Purchaser shall not sell, assign or transfer its right to receive any Outcome Payment or its obligation to make any Risk Share Payment, or any interest in either, without the written consent of the Authority, and (iii) the Authority shall not sell, assign or transfer its right to receive any Risk Share Payment or its obligation to make any Outcome Payment, or any interest in either, without the written consent of the Purchaser. During any subsequent Interest Period, the Holder of any Series 2016\_ Bond may sell, assign or transfer any Series 2016\_ Bond at the times, in the manner and subject to the conditions and requirements of the Indenture.

14. **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 Purchaser and is made solely for the benefit of the Authority and the Purchaser (including the successors or assigns of the Authority or the Purchaser) and no other person will acquire or have any right hereunder or by virtue hereof. All of the Authority's and Purchaser'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 Purchaser; or (b) delivery of and payment for the Bonds pursuant to this Agreement.

15. **Effective Date.** This Agreement will become effective on and as of the date stated in the preamble of this Agreement.

16. **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.



17. **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.

18. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the District of Columbia.

**DISTRICT OF COLUMBIA WATER  
AND SEWER AUTHORITY**

By: \_\_\_\_\_

Name: Mark Kim

Title: Chief Financial Officer

**[PURCHASER]**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

**EXHIBIT A**

\$[\_\_\_\_\_]

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_  
(Environmental Impact Bonds)  
(Initial Long-Term Rate Period)**

**Term Bonds**

**\$[\_\_\_\_\_] [\_\_\_\_\_] % Term Bonds due [\_\_\_\_\_] , 211[ ] Priced to Yield 100.00% (the  
Bonds shall initially bear interest at a Long-Term Rate of [\_\_\_\_\_] %)**

**TERMS OF REDEMPTION**

**[OPTIONAL REDEMPTION AND] MANDATORY TENDER**

[TBA]

**MANDATORY SINKING FUND REDEMPTION**

[TBA]

**EXHIBIT [B]**

**Term Sheet**

B-1

**EXHIBIT [C]**

**Form of Purchaser Acknowledgement Letter**

[\_\_\_\_\_, 2016]

District of Columbia Water and Sewer Authority  
5000 Overlook Avenue, S.W.  
Washington, D.C. 20032

Re: \$[\_\_\_\_\_] District of Columbia Water and Sewer Authority Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds)

The undersigned is the purchaser (the “Purchaser”) of the bonds described above (the “Bonds”) issued by the District of Columbia Water and Sewer Authority (the “Issuer”). This letter is delivered pursuant to the requirements of the Master Indenture of Trust, dated as of April 1, 1998 (the “Master Indenture”), between the Issuer and Wells Fargo Bank, N.A., as trustee (the “Trustee”), as amended and supplemented, including by the Twenty-First Supplemental Indenture of Trust, dated as of the Closing Date (the “Twenty-First Supplemental Indenture,” and together with the Master Indenture as previously amended and supplemented, the “Indenture”), between the Issuer and the Trustee, substantially in the forms previously delivered to the Purchaser. Capitalized terms used but not defined herein have the meanings set forth in the Private Placement Agreement, dated [\_\_\_\_\_] , 2016 (the “Private Placement Agreement”), between the Issuer and the Purchaser.

The Purchaser hereby makes the following representations and warranties to the Issuer in connection with the Purchaser's purchase of the Bonds:

1. The Purchaser has sufficient knowledge and experience in financial and business matters, including purchase and ownership of municipal tax-exempt and taxable obligations to be able to evaluate the risks and merits represented by the purchase of the Bonds.
2. The Purchaser has authority to purchase the Bonds and to execute this letter and any other instruments and documents required to be executed by the Purchaser in connection with the purchase of the Bonds.
3. The Purchaser is a [\_\_\_\_\_] organized under the laws of [\_\_\_\_\_] and is able to bear the economic risks of purchasing the Bonds.
4. The Purchaser understands that the Bonds are secured in the manner set forth in the Indenture and has received and reviewed to its satisfaction a copy of the Indenture.

5. The Purchaser understands (a) the circumstances under which, time at which and amount in which the Issuer may be obligated to pay the Purchaser an Outcome Payment and the unsecured nature of any such payment obligation, and (b) the circumstances under which, time at which and amount in which the Purchaser may be obligated to pay the Issuer a Risk Share Payment, and the means by which such payment would be effected.

6. The Purchaser understands that an official statement, prospectus, offering circular, offering memorandum or other comprehensive offering statement has not been provided with respect to the Bonds and that, as of the date hereof, there is no existing or future obligation on the part of the Issuer to provide information of the sort included in the documents described in this sentence. The Purchaser has made its own independent investigation of the facts and circumstances surrounding the Issuer, the System and the Bonds and is not relying on the Issuer, its agents or its employees with respect to the sufficiency and scope of such investigation. The Purchaser is relying upon the accuracy of the representations and warranties of the Issuer made in the Private Placement Agreement.

7. The Purchaser acknowledges that it has reviewed information, including financial statements and other financial information, regarding the Issuer and the System, and has had the opportunity to ask questions and receive answers from knowledgeable individuals concerning the Issuer, the System, the Bonds and the security therefor, so that it has been able to make an informed decision to purchase the Bonds; provided, however, that this letter shall not constitute a waiver of any rights or remedies the Purchaser may have with respect to (a) any untrue information it may have received or (b) any misconduct or fraud on the part of representatives of the Issuer resulting in a failure to provide requested information for review by the Purchaser.

8. The Bonds are being acquired by the Purchaser for its own account and not with a present view toward resale, transfer or distribution; provided, however, that the Purchaser reserves the right to sell, transfer or distribute the Bonds, but agrees that any such sale, transfer or distribution by the Purchaser shall be subject to the restrictions set forth in the Indenture or the Private Placement Agreement.

9. The provisions of the Private Placement Agreement, the Indenture and this letter are not, and should not be deemed to be, dispositive of the character of the debt for any legal, accounting or regulatory purposes.

[ \_\_\_\_\_ ]

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**DRAFT**  
**7/21/16**

**TWENTY-FIRST SUPPLEMENTAL INDENTURE OF TRUST**

**between**

**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**and**

**WELLS FARGO BANK, N.A.  
AS TRUSTEE**

**Dated [\_\_\_\_\_], 2016**



**THIS TWENTY-FIRST SUPPLEMENTAL INDENTURE OF TRUST** dated the [ ] day of [ ], 2016 (as defined in more detail below, the “**Twenty-First 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 Columbia, Maryland, 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, 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, and the Twelfth 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 the Series 2003 Subordinated Bonds and 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 the Series 2003 Subordinated Bonds, Series 2004 Subordinated Bonds and 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 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 the Series 2003 Subordinated Bonds, Series 2004 Subordinated Bonds and 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 (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, (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 the Series 2003 Subordinated Bonds, the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, and 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 (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, (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 the Series 2003 Subordinated Bonds, the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, and 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 (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, (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 the Series 2003 Subordinated Bonds, the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, and 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 the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds and 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 the Series 1998 Senior Lien Bonds, the Series 2009A Senior Lien Bonds, and 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 the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds, the Series 2013A Subordinate Bonds, and 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 a portion of the Authority’s outstanding Series 2007A Subordinated Bonds, Series 2008A Subordinated Bonds, and 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 the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds, the Series 2013A Subordinate Bonds, Series 2014B Subordinate Bonds, and 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) secure 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 the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds, the Series 2013A Subordinate Bonds, Series 2014B Subordinate Bonds, Series 2015B Subordinate Bonds, and 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 the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds, the Series 2013A Subordinate Bonds, Series 2014B Subordinate Bonds, Series 2015A Subordinate Bonds, and 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

the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds, the Series 2013A Subordinate Bonds, Series 2014B Subordinate Bonds, Series 2015A Subordinate Bonds, the Series 2015B Bonds, and 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 (together, the “**Refunded 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 the Series 2004 Subordinated Bonds, the Series 2007A Subordinated Bonds, the Series 2008A Subordinated Bonds, the Series 2010 Notes, the Series 2010A Subordinated Bonds, the Series 2012A Subordinate Bonds, the Series 2012B Subordinate Bonds, the Series 2012C Subordinate Bonds, the Series 2013A Subordinate Bonds, Series 2014B Subordinate Bonds, Series 2015A Subordinate Bonds, the Series 2015B Subordinate Bonds and 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 its Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds) (the “**Series 2016\_ 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) [fund a Series 2016\_ Debt Service Reserve Requirement (as defined herein); and (c)] pay certain costs of issuance; (ii) to designate the Series 2016\_ Subordinate Bonds as Subordinate Debt, as Variable Rate Indebtedness and as Tender Indebtedness for purposes of the Indenture; (iii) to secure the payment of principal of and interest on the Series 2016\_ 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) to designate the Series 2016\_ Subordinate Bonds as Environmental Impact Bonds and, as such, to make provision for the possibility of an Additional Outcome Payment by the Authority to the Purchaser of the Series 2016\_ Subordinate Bonds and for the possibility of a Risk Share Payment by the Purchaser of the Series 2016\_ Subordinate Bonds to the Authority depending upon the results achieved by the project financed with the proceeds of the Series 2016\_ Subordinate Bonds, with the potential obligation of the Authority to make an Additional Outcome Payment being all as defined and provided for in the [Private Placement Agreement] authorized by the [Series 2016\_ Resolution], as hereinafter defined;

**NOW THEREFORE**, in consideration of the premises and the mutual covenants and agreements hereinafter contained, the parties hereto agree, as follows:

## **ARTICLE I**

### **TWENTY-FIRST SUPPLEMENTAL INDENTURE**

#### **Section 101. Authorization of Twenty-First Supplemental Indenture.**

This Twenty-First 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 2016\_ Subordinate Bonds as Subordinate Debt and to the Holders thereof as Holders of Subordinate Debt, except as otherwise provided in this Twenty-First Supplemental Indenture.

#### **Section 102. Definitions.**

Except as otherwise defined in this Twenty-First 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, and the Twentieth Supplemental Indenture and in the Series 2016\_ Resolution, are used in this Twenty-First Supplemental Indenture with the meanings assigned to them therein. In addition, the following words and terms as used in this Twenty-First 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 2016\_ Subordinate Bond certificates in fully registered form are issued only to a Depository or its nominee as Holder, with the certificated Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds, and to effect transfers of



book-entry interests in Series 2016\_ Subordinate Bonds, and includes and means initially The Depository Trust Company (a limited purpose trust company), New York, New York.

“Interest Payment Dates” means, for the Variable Rate Series 2016\_ Subordinate Bonds, the “Interest Payment Dates” as defined under Section 102(b) below.

“Series 2016\_ Construction Account” means the Series 2016\_ Construction Account established by this Twenty-First Supplemental Indenture in the Construction Fund.

“Series 2016\_ Costs of Issuance Subaccount” means the Series 2016\_ Costs of Issuance Subaccount established by this Twenty-First Supplemental Indenture in the Series 2016\_ Construction Account of the Construction Fund.

[“Series 2016\_ Rebate Fund” means the Series 2016\_ Rebate Fund established by this Twenty-First Supplemental Indenture.]

“Series 2016\_ Resolution” means Resolution No. 16-[\_\_], adopted by the Authority’s Board on [\_\_\_\_\_], 2016, authorizing the Series 2016\_ Subordinate Bonds.

“Series 2016\_ Subordinate Bond Event of Default” means any of the events defined as such in Section 903 of this Twenty-First Supplemental Indenture.

“Series 2016\_ Subordinate Bondholder” or “holder of Series 2016\_ Subordinate Bonds” means the registered owner of a Series 2016\_ Subordinate Bond.

“Series 2016\_ Subordinate Bonds Interest Subaccount” means the Series 2016\_ Subordinate Bonds Interest Subaccount established by this Twenty-First Supplemental Indenture in the Subordinate Interest Account in the Subordinate Bond Fund.

“Series 2016\_ Subordinate Bonds Principal Subaccount” means the Series 2016\_ Subordinate Bonds Principal Subaccount established by this Twenty-First Supplemental Indenture in the Subordinate Principal Account in the Subordinate Bond Fund.

“Series 2016\_ Subordinate Debt Service Reserve Requirement” means [zero].

“Twenty-First Supplemental Indenture” means this Twenty-First Supplemental Indenture of Trust, dated [\_\_\_\_\_], 2016, 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, and the Twentieth Supplemental Indenture.

“Variable Rate Series 2016\_ Subordinate Bonds” means, collectively, each series or subseries of the Series 2016\_ Subordinate Bonds designated as such in the applicable Certificate of Award pursuant to the Series 2016\_ Resolution and constituting Variable Rate Indebtedness under the Indenture unless and until converted to Fixed Rate Bonds.

(b) Definitions Applicable to Variable Rate Series 2016 Subordinate Bonds

“Applicable Spread” means, with respect to any other Index Rate Period, 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 2016\_ 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, as may be specified in the Certificate of Award or otherwise in writing by an Authorized Official.

“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, during an Index Rate Period, means the Trustee or any other Person appointed by the Authority to serve as calculation agent for the Series 2016\_ Subordinate Bonds.

“Closing Date” means [\_\_\_\_\_, 201[6], being the date of delivery of and payment for all of the Series 2016\_ Subordinate Bonds.

“Computation Date” means, during each Index Rate Period, each Wednesday immediately preceding an Index Interest Period.

“Conversion Date” means a day on which the Variable Rate Series 2016\_ Subordinate Bonds are converted from one Rate Period to another Rate Period, in accordance with this Twenty-First 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 2016\_ Subordinate Bonds, or to provide liquidity for the purchase of tendered Variable Rate

Series 2016\_ Subordinate Bonds. The term “Credit Facility” includes any Substitute Credit Facility.

“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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds.

“Daily Interest Period” means each Interest Period described in Section 403(c) during which the Variable Rate Series 2016\_ Subordinate Bonds bear interest at a particular Daily Rate.

“Daily Rate” means the per annum interest rate for the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 Columbia, Maryland corporate trust

office located at 9062 Old Annapolis Road, Columbia, Maryland 21045. [The office initially designated by the Trustee for the purpose of presentation and surrender of Variable Rate Series 2016\_ Subordinate Bonds is its Columbia, Maryland corporate trust office located at 9062 Old Annapolis Road, Columbia, Maryland 21045]. 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 2016\_ Subordinate Bonds is authorized or permitted by this Twenty-First Supplemental Indenture [and will not adversely affect the exclusion of interest on the Variable Rate Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds bear interest at a Fixed Rate.

“Hard Tender Index Rate Bonds” means Index Rate Bonds that are specified as such in the applicable Notice of Conversion for any Index Rate Period.

“Index Interest Period” means, during any Index Rate Period, each Interest Period during which the Variable Rate Series 2016\_ Subordinate Bonds bear interest at a particular Index Rate under Section 403(j).

“Index Rate” means the SIFMA Index Rate or the LIBOR Index Rate, as the case may be.

“Index Rate Bonds” means any Variable Rate Series 2016\_ Subordinate Bonds bearing interest at an Index Rate.

“Index Rate Bonds Purchase Date” means, during any Index Rate Period, the date on which the Index Rate Bonds shall be required to be tendered for purchase in accordance with Section 408(a)(vi).

“Index Rate Period” means any Rate Period during which the Variable Rate Series 2016\_ 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 Long-Term Rate Bonds Purchase Date” means [\_\_\_\_ \_], 202[\_\_\_\_].

“Initial Period” means the initial Long-Term Rate Period commencing on the Issue Date and ending on the first to occur of (i) the Initial Long-Term Rate Bonds Purchase Date, (ii) the Conversion Date next succeeding the Issue Date, and (iii) the Maturity Date.

“Interest Payment Date” means (i) when the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds bear interest at a Fixed Rate or Long-Term Rate, each April 1 and October 1 commencing, during the Initial Period, on [\_\_\_\_\_,] 201[\_\_\_\_], or such other date or dates as are specified in the applicable notice of conversion; (iii) when the Variable Rate Series 2016\_ 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, (vi) a SIFMA Index Interest Period, (vii) a LIBOR Index Interest Period or (viii) a Fixed Interest Period.

“Issue Date” means [\_\_\_\_], 201[\_\_\_\_].

“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-sixteenth 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 2016\_ 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 2016\_ 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 the Initial Period and each subsequent Interest Period described in Section 403(f) during which Variable Rate Series 2016\_ Subordinate Bonds accrue interest at a particular Long-Term Rate.

“Long-Term Rate” means (i) during the Initial Period, [\_\_\_\_\_] percent ([\_] % per annum, and (ii) during each subsequent Long-Term Rate Period, the per annum interest rate to be determined on the Variable Rate Series 2016\_ Subordinate Bonds for a term of at least 12 months pursuant to Section 403(f).

“Long-Term Rate Bonds” means any Variable Rate Series 2016\_ Subordinate Bonds bearing interest at a Long-Term Rate.

“Long-Term Rate Period” means the Initial Period and each subsequent Rate Period during which Long-Term Rates are in effect for the Variable Rate Series 2016\_ Subordinate Bonds.

“Mandatory Sinking Fund Redemption Requirements” means the mandatory redemption requirements set forth in Section 501(b).

“Maturity Date” means [\_\_\_\_\_] , 20[\_\_\_], 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) solely with respect to Variable Rate Series 2016\_ Subordinate Bonds that are not Credit Facility Provider Bonds, the maximum rate utilized to determine the amount available under any Credit Facility then in effect.

“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 Series 2016\_ Subordinate Bonds when due.

“Penalty Rate” means, for purposes of Section 407(e) with respect to Soft Tender Index Rate Bonds after they are tendered for purchase but not purchased, twelve percent (12%) per annum .

“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 2016\_ 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 Series 2016\_ Subordinate Bond is due and payable, whether at maturity or upon redemption.

“Purchase Date” means each date on which Variable Rate Series 2016\_ 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 2016\_ 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, or (vi) an Index Rate Period (comprised of separate 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 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-First Supplemental Indenture.

“Reimbursement Obligations” means the Authority’s payment obligations pursuant to a Reimbursement Agreement.

“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 2016\_ Subordinate Bonds bear interest at a particular Short-Term Rate.

“Short-Term Rate” means the per annum interest rate for the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Bonds.



“SIFMA Index Reset Date” means Thursday of each week.

“Soft Tender Index Rate Bonds” means Index Rate Bonds that are specified in the Certificate of Award as such for purposes of Section 407 (e) for the Initial Period or in the applicable Notice of Conversion for any subsequent Index Rate Period.

“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 2016\_ 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-First Supplemental Indenture.

“Undelivered Bond” means any Variable Rate Series 2016\_ 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 2016\_ Subordinate Bond.

“Undelivered Bond Payment Account” means the account by that name in the Purchase Fund established pursuant to Section 407.

“Weekly Interest Period” means each period described in Section 403(d) during which the Variable Rate Series 2016\_ Subordinate Bonds bear interest at a particular Weekly Rate.

“Weekly Rate” means the per annum interest rate for the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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-First Supplemental Indenture.

**ARTICLE II**

**AUTHORIZATION OF SERIES 2016\_ SUBORDINATE BONDS**

**Section 201. Authorization of Series 2016\_ Subordinate Bonds.**

Pursuant to Article III of the Master Indenture and, specifically, Section 305 thereof, and the Series 2016\_ Resolution, the Authority is authorized to issue Series 2016\_ Subordinate Bonds in an aggregate principal amount of \$[\_\_\_\_\_], designated “Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds),” for the purpose of: (i) financing certain Costs of the System, including[, without limitation, capitalized interest on a portion of the Series 2016\_ Subordinate Bonds], and (ii) paying issuance costs of the Series 2016\_ Subordinate Bonds. The Series 2016\_ Subordinate Bonds are issued as Subordinate Debt pursuant to the Indenture. Under the Series 2016\_ Resolution, the Series 2016\_A Subordinate Bonds are initially designated as Variable Rate Indebtedness and Tender Indebtedness for purposes of the Indenture.

**ARTICLE III**

[RESERVED]

**ARTICLE IV**

**DETAILS AND FORM OF  
SERIES 2016\_ SUBORDINATE BONDS**

**Section 401. Issuance and Delivery of Series 2016\_ Subordinate Bonds, Principal Maturity and Initial Interest Rate.**

The Series 2016\_ Subordinate Bonds shall be designated “Public Utility Subordinate Lien Multimodal Revenue Bonds, Series 2016\_ (Environmental Impact Bonds).” The Series 2016\_ 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 Series 2016\_ Subordinate Bonds of the same maturity may bear interest at different interest rates.

The Series 2016\_ Subordinate Bonds shall mature on their Maturity Date, subject to prior redemption as set forth herein.

The Trustee shall authenticate and deliver the Series 2016\_ Subordinate Bonds when there have been filed with or delivered to it the following items:

(a) An original executed counterpart of this Twenty-First 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-First Supplemental Indenture, and (ii) authorizing the issuance, sale, award, execution and delivery of the Series 2016\_ 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 2016\_ 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 2016\_ 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-First 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 2016\_ Subordinate Bonds has been duly authorized, and that the Series 2016\_ 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 2016\_ 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.

The interest on the Series 2016\_ Subordinate Bonds shall be payable on the Interest Payment Dates applicable to the Rate Period then in effect. Interest on the Series 2016\_ 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 2016\_ 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 2016\_ 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. Principal, premium, if any, and interest shall be payable in lawful money of the United States of America.

The Variable Rate Series 2016\_ Subordinate Bonds shall be issued in Authorized Denominations.

During the Initial Period, the Series 2016\_ Subordinate Bonds shall bear interest at the lesser of (i) the Long-Term Rate, and (ii) the Maximum Rate. In the event the Variable Rate Series 2016\_ Subordinate Bonds are designated Soft Tender Index Rate Bonds and are mandatorily tendered pursuant to Section 408(a)(v) or (vi) and the Authority fails to pay the Purchase Price, the Series 2016\_ Subordinate Bonds shall bear interest at the Penalty Rate unless and until the Purchase Price is paid or the Series 2016\_ Subordinate Bonds otherwise cease to be Outstanding; provided, however, that the interest rate on the Variable Rate Series 2016\_ Subordinate Bonds shall at no time exceed the Maximum Rate.

The Series 2016\_ 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.

Not less than 90 days prior to the Initial Long-Term Rate Bonds Purchase Date, the Authority will use its best efforts to appoint a Remarketing Agent.

#### **Section 402. Depository Provisions.**

[[Unless otherwise requested by the Original Purchasers, the] [The] Series 2016\_ Subordinate Bonds shall initially be issued to a Depository for holding in a book-entry system. The Series 2016\_ 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 the Series 2016\_ Subordinate Bonds are initially issued to a Depository and if any Depository determines not to continue to act as a Depository for the Series 2016\_ Subordinate Bonds for holding in a book-entry system or the Authority determines to exit the Series 2016\_ 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 2016\_ Subordinate Bonds from the Depository, and shall execute and direct the Trustee to authenticate and deliver Series 2012 Subordinate Bond certificates, in fully registered form, to the assigns of the Depository or its nominee (if such Series 2016\_ Subordinate Bonds were held by a nominee), all at the cost and expense (including costs of printing or otherwise preparing and delivering replacement Series 2016\_ Subordinate Bonds), if the event is not the result of Authority action or inaction, of those persons requesting that authentication and delivery. Series 2016\_ Subordinate

Bond certificates authenticated and delivered pursuant to this paragraph shall be in authorized denominations. In the event that Series 2016\_ 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 2016\_ 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 the Series 2016\_ Subordinate Bonds ceasing to be excluded from gross income for federal income tax purposes,] the Authority, without the consent of or notice to any of the Holders of the Series 2016\_ Subordinate Bonds, may authorize the exchange of Series 2012 Subordinate Bond certificates in fully registered form or Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds will be registrable, transferable and exchangeable as set forth in Section 204 of the Master Indenture and as though the Series 2016\_ Subordinate Bonds constituted “Bonds” for purposes of that Section.

So long as a Depository holds the Series 2016\_ Subordinate Bonds in a book-entry system: (A) it or its nominee shall be the registered owner of the Series 2016\_ Subordinate Bonds, (B) notwithstanding anything to the contrary in this Twenty-First 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, (C) 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 (D) references in this Twenty-First Supplemental Indenture to registered owners of the Series 2016\_ Subordinate Bonds shall mean such Depository or its nominee, and shall not mean the beneficial owners of the Series 2016\_ Subordinate Bonds.

In addition, notwithstanding any other provision of this Twenty-First Supplemental Indenture or the Series 2016\_ Subordinate Bonds, so long as the Series 2016\_ Subordinate Bonds are in a Book Entry System and the Depository or its nominee is the Holder of the Series 2016\_ Subordinate Bonds:

(i) Presentation of Series 2016\_ Subordinate Bonds to the Trustee at redemption or at maturity, or delivery of Series 2016\_ Subordinate Bonds to the Tender Agent in connection with a purchase of tendered Series 2016\_ Subordinate Bonds, shall be deemed made to the Trustee when the right to exercise ownership rights in the Series 2016\_ 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 Series 2016\_ 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-First Supplemental Indenture on a fractionalized basis on behalf of some or all of those persons entitled to exercise ownership rights in the Series 2016\_ Subordinate Bonds through the Depository or its participants.

(iv) Series 2016\_ 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) Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bond as provided in this Twenty-First Supplemental Indenture.

**Section 403. Determination of Interest Rates.**

(a) General.

(i) The Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds and Rate Periods pursuant to this Twenty-First 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 2016\_ 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 2016\_ Subordinate Bonds to be sold at a price as of the date of determination equal to the principal amount thereof, taking into account Prevailing Market Conditions, provided that in no event will the interest rate on any Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds are bearing interest at a Daily Rate, Weekly Rate or Short-Term Rate, the applicable Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds are bearing interest at a Long-Term Rate (1) the Rate Period shall be converted to a Weekly Rate Period and shall bear interest at a rate equal to 105% of the SIFMA Index, but only if the Authority furnishes to the Trustee a Favorable Opinion of Bond Counsel or (2) if the opinion described in clause (1) is not furnished, the Rate Period will remain in the Long-Term Rate Period and the

applicable Variable Rate Series 2016\_ Subordinate Bonds shall bear interest at a rate equal to the “Revenue Bond Index” as published in The Bond Buyer as of a recent date or, if such index is no longer published, then a comparable index selected by the Authority and acceptable to the Trustee.

(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 2016\_ 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 2016\_ 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 initial Weekly Interest Period for the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds that is higher than would be borne by the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds, or any fact or circumstance relating to the Variable Rate Series 2016\_ Subordinate Bonds or affecting the market for the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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. During the Initial Period, the Long-Term Rate shall be the Long-Term Rate for the Initial Period. A Long-Term Rate for Long-Term Rate Bonds shall be determined for any subsequent Long-Term Interest Period as follows:

(i) 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.

(ii) 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.

(iii) Long-Term Interest Periods shall not extend to a date beyond the fifth day next preceding the Expiration Date of the Credit Facility.

(iv) 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 at least 20 days before its commencement.

(g) Fixed Rate. The Fixed Rate shall be determined as set forth in this subsection (g). Series 2016\_ 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)(iv). Such determination shall be conclusive and binding on the Authority, the Trustee, any Credit Facility Provider and the Holders of the Series 2016\_ 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 Series 2016\_ Subordinate Bonds then being converted, as applicable, shall use the following guidelines:

(i) The interest rate on each Series 2016\_ Subordinate Bond then being converted shall be the lowest interest rate that will enable such Series 2016\_ Subordinate Bond, upon conversion, to be remarketed at par (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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds being converted, in accordance with Section 404(b)(iv), and delivered to the Trustee. If a Favorable Opinion of Bond Counsel is not received, all Series 2016\_ 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 Series 2016\_ Subordinate Bonds.

(iii) The foregoing subparagraphs (i) and (ii) notwithstanding, upon provision of a Favorable Opinion of Bond Counsel, Series 2016\_ Subordinate Bonds may be scheduled to mature serially on January 1 in the years and respective principal amounts agreed to by the Authority and the Firm and delivered to the Trustee, and the Remarketing Agent may establish more than one Fixed Rate to apply to the Series 2016\_ 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 Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds that those Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 an Index Rate Period. 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 2016\_ Subordinate Bonds on the first day of such Index 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds. If for any reason the Index Rate shall not be established, the Variable Rate Series 2016\_ 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-First 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 2016\_ Subordinate Bonds before and after the conversion, elect to convert all or some of the Variable Rate Series 2016\_ 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 2016\_ 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(2)(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 2016\_ 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 2016\_ Subordinate Bonds will be subject to mandatory tender for purchase on the Conversion Date and, if less 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 2016\_ Subordinate Bonds are in certificated form, information with respect to required delivery of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds, the number of days during which the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds while in the Short-Term Rate Period; and (D) the Authority shall enter into any amendment of this Twenty-First 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 2016\_ 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)(i) shall not occur and (iii) the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds as provided in this Section at all times that any Variable Rate Series 2016\_ 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-First 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-First Supplemental Indenture, but only upon the terms and conditions set forth herein, including the following:

(a) hold all Variable Rate Series 2016\_ Subordinate Bonds delivered to it hereunder in trust for the benefit of the respective Holders which shall have so delivered such Variable Rate Series 2016\_ Subordinate Bonds until moneys representing the Purchase Price of such Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds in trust solely for the benefit of the Person which shall have so delivered such moneys until the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds as agent of, and in escrow for the exclusive benefit of, the Holders who shall deliver Variable Rate Series 2016\_ Subordinate Bonds to it for purchase until the Variable Rate Series 2016\_ 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-First Supplemental Indenture to be delivered by the Tender Agent; and

(h) perform all other duties of the Tender Agent under this Twenty-First 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-First 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 2016\_ 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-First 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-First 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 2016\_ Subordinate Bonds in Certain Rate Periods.**

(a) Holders of Daily Rate Bonds or Weekly Rate Bonds may elect to have their Variable Rate Series 2016\_ Subordinate Bonds (other than Credit Facility Provider Bonds or Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds shall apply with respect to notice of tenders, delivery of Variable Rate Series 2016\_ Subordinate Bonds, payment of Purchase Price and related matters. If less than all of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bond or a specified portion thereof in an Authorized Denomination, (C) the Purchase Date on which that Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bond to be purchased in whole or in part for other Variable Rate Series 2016\_ Subordinate Bonds in an equal aggregate principal amount so as to facilitate the sale of that Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bond tendered to the Tender Agent or deemed tendered pursuant to this Section, the former Holder of such Variable Rate Series 2016\_ Subordinate Bond shall be entitled solely to the payment of the applicable Purchase Price of the Variable Rate

Series 2016\_ 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 2016\_ 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 and Variable Rate Series 2016\_ Subordinate Bonds upon surrender of the receipt, if any, issued therefor.

(e) Notwithstanding the foregoing, if the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds subject to purchase on Purchase Dates (and the Credit Facility Provider to the extent provided in subsection (e)); and the Authority and the Holders of Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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).

(b) Upon receipt of notice, in writing or by any Electronic Means, of tender relating to Daily Rate Bonds, the Tender Agent shall immediately notify the Remarketing Agent, the Authority, the Trustee and any Credit Facility Provider by telephonic notice of the amount of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds and the portion, if any, thereof representing accrued and unpaid interest on the Variable Rate Series 2016\_ Subordinate Bonds to the Purchase Date. Simultaneously with giving notice pursuant to Section 408(d) of any mandatory tender of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds to be sold by the Remarketing Agent and (ii) the Purchase Price of the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds to be purchased on such Purchase Date exceeds the amount of the proceeds of the remarketing of such Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2:30 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.

(d) Not later than 3:00 p.m., New York City time, on each Purchase Date, the Tender Agent shall disburse the Purchase Price of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds). If a Credit Facility is in effect for the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds that are not remarketed.

At all times while Variable Rate Series 2016\_ Subordinate Bonds are outstanding, the Authority shall:

1. throughout the three months preceding any Purchase Date, maintain sufficient liquidity (either in cash or cash equivalents or through a credit facility) to cover the full amount of the Purchase Price payable on that Purchase Date; and
2. establish and maintain written policies and procedures that specify the other actions the Authority will take by specified dates in advance of any Purchase Date to assure that moneys will be on deposit either in the Remarketing Proceeds Account or in the Authority Purchase Account (including, without limitation, arrangements for the issuance of other debt obligations or for accessing other financial resources of the Authority), in ample time to fund the Purchase Price in full and when due.

(e) If the funds available from the sources specified in the preceding clause (d) for the purchase of the Variable Rate Series 2016\_ Subordinate Bonds subject to purchase on a Purchase Date are insufficient to purchase all of the Variable Rate Series 2016\_ Subordinate Bonds subject to purchase on such Purchase Date (including Undelivered Bonds), then, no purchase of any of those Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds that were tendered, (ii) return all moneys received by the Tender Agent for the purchase of such Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds, and if the Credit Facility Provider is not in default thereunder, then the failure to purchase the Variable Rate Series 2016\_ Subordinate Bonds shall constitute an Event of Default under Section 903 (e). Otherwise, (i) if such Variable Rate Series 2016\_ Subordinate Bonds shall have been designated Hard Tender Index Rate Bonds, then the failure to purchase the Variable Rate Series 2016\_ Subordinate Bonds shall constitute an Event of Default under Section 903(e), but (ii) if such Variable Rate Series 2016\_ Subordinate Bonds shall have been designated Soft Tender Index Rate Bonds, then the failure to purchase the Variable Rate Series 2016\_ Subordinate Bonds shall not constitute an Event of Default under Section 903(e), and the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds to the Tender Agent for such purpose.

(h) Notwithstanding the foregoing, in the event that the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds.**

(a) All the Variable Rate Series 2016\_ 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.

(ii) Conversion of Modes. Each subseries of the Variable Rate Series 2016\_ 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 or Replacement of a Credit Facility With a Substitute Credit Facility. Variable Rate Series 2016\_ 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; and (2) 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 2016\_ 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 Periods and Index Rate Bonds Purchase Dates. Variable Rate Series 2016\_ Subordinate Bonds that are 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds, shall be deemed to have been delivered to the Tender Agent for purchase, and the Holders of such Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds, and such Variable Rate Series 2016\_ 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-First 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 2016\_ 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 2016\_ Subordinate Bonds subject to mandatory tender;

(iv) state that all of the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds subject to mandatory tender fails to deliver such Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds shall nevertheless be deemed purchased on the Purchase Date and ownership of such Variable Rate Series 2016\_ Subordinate Bonds shall be transferred to the purchaser thereof;

(vi) state that any Holder that fails to deliver such Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds to the Tender Agent and that the Trustee will place a stop transfer against the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds shall be given by the Trustee via Electronic Means or by first-class mail, to the Holders of the Variable Rate Series 2016\_ 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), (iii) or (v) 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) or clause (v) 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 2016\_ Subordinate Bonds, an event occurs which, in accordance with the terms of this Twenty-First Supplemental Indenture, causes such mandatory tender not to occur, then (i) the Trustee shall so notify the Holders of the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds tendered to the Tender Agent in connection with such mandatory tender of the Variable Rate Series 2016\_ 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-First 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-First 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 2016\_ 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 2016\_ Subordinate Bonds.

(b) Each Remarketing Agent appointed in accordance with this Twenty-First 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 2016\_ 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 2016\_ 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 Index Rate Period, the Applicable Spread that will be used in determining the Index Rate for each 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds tendered for purchase, any such sale to be made in accordance with the terms of this Twenty-First Supplemental Indenture;

(vi) to deliver to the Tender Agent all of the Variable Rate Series 2016\_ Subordinate Bonds held by it in accordance with the terms of this Twenty-First 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-First 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-First 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 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds, authenticate other Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds.**

(a) Upon application of the moneys described in Section 407(d)(ii) to the purchase of Variable Rate Series 2016\_ 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)), the Tender Agent shall cause the Trustee to register the transfer of Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds canceled by the Trustee pursuant to this Section and any Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 draw upon a Credit Facility only when that Credit Facility is in a stated amount not less than (i) the aggregate principal amount of the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds.

(c) The Authority shall maintain a Credit Facility for the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds (as stated in such notice), there is no mandatory tender of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds tendered to the Tender Agent in connection with such mandatory tender of the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds are Daily Rate Bonds or Weekly Rate Bonds, the Authority shall maintain a Credit Facility for the Variable Rate Series 2016\_ Subordinate Bonds under which the Credit Facility Provider is required to purchase or provide funds for the purchase of the Variable Rate Series 2016\_ Subordinate Bonds tendered for purchase in accordance with this Twenty-First 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 2016\_ Subordinate Bonds, plus (ii) an amount equal to at least 34 days' interest on all Outstanding Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds, the number of days during which the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds are Daily Rate Bonds or Weekly Rate Bonds without at least 60 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 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 2016\_ 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.

(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 2016\_ Subordinate Bonds if the Authority has agreed to pay the Purchase Price of any tendered Variable Rate Series 2016\_ Subordinate Bonds itself. As a result, any references herein to the Credit Facility Provider of the Variable Rate Series 2016\_ Subordinate Bonds or to the Credit Facility of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds. If the Authority provides its own Credit Facility, then the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds shall mean the Credit Facility Provider, (b) any Debt Service Charges on the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds. The subrogation rights granted to such Credit Facility Provider in this Twenty-First 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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-First 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 2016\_ Subordinate Bonds.**

Notwithstanding any provision to the contrary in this Twenty-First 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 2016\_ Subordinate Bonds and may act in the place of the Holders of the Variable Rate Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds under Section 408, and (iv) exercising its obligations in connection with the redemption of Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds, the Trustee shall act as Tender Agent for the Variable Rate Series 2016\_ Subordinate Bonds.

**Section 417. Modification of Dates and Times.**

Notwithstanding any other provision of this Twenty-First 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 2016\_ Subordinate Bonds that such changes will not affect the rating(s) on the Variable Rate Series 2016\_ Subordinate Bonds.

**Section 418. Particular Defeasance Provisions.**

(a) If the Variable Rate Series 2016\_ Subordinate Bonds are to be deemed paid or discharged pursuant to Article XII of the Master Indenture, and the Rate Period for the Variable Rate Series 2016\_ Subordinate Bonds ends prior to the maturity or redemption date to which provision for payment of Debt Services Charges is to be made, then for purposes of calculating those Debt Service Charges, interest on the Variable Rate Series 2016\_ 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.

(b) If and to the extent that payment of Debt Service Charges on Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds to enforce the payment of the Variable Rate Series 2016\_ Subordinate Bonds from the Net Revenues and all other rights of the Holders under the Variable Rate Series 2016\_ 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 2016\_ Subordinate Bonds to exercise all rights of enforcement and remedies set forth in Article IX of this Twenty-First 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-First Supplemental Indenture in accordance with the intent of this Section.

## ARTICLE V

### REDEMPTION OF SERIES 2016\_ SUBORDINATE BONDS

#### Section 501. Redemption of the Series 2016\_ Subordinate Bonds.

The Series 2016\_ 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 Series 2016\_ Subordinate Bonds.

(a) Optional Redemption. The Series 2016\_ 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 the day after the end of each Long-Term Interest Period 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, during any Index Rate Period, 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds, the Trustee shall call the Series 2016\_ 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 Series 2016\_ Subordinate Bonds called for redemption, plus accrued and unpaid interest.

(b) Mandatory Sinking Fund Redemption Requirements of Series 2016\_ Subordinate Bonds. The Series 2016\_ Subordinate Bonds shall be redeemed by the Authority on October 1 (or, if the Series 2016\_ 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-First Supplemental Indenture).

**Mandatory Sinking Fund Redemption Requirements  
for Series 2016\_ Subordinate Bonds**

<u>Year</u>	<u>Amount</u>
[TBA]	[TBA]

The remaining principal amount of the Series 2016\_ Subordinate Bonds (\$[\_\_\_\_\_]) is payable on their Maturity Date.

(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 Series 2016\_ Subordinate Bonds subject to scheduled mandatory redemption on that date or portions thereof in Authorized Denominations or (2) specify a principal amount of Series 2016\_ 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 Series 2016\_ Subordinate Bonds. Each Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds to be (i) mailed to the Holders of all Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds. No defect affecting any Series 2016\_ 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 Series 2016\_ Subordinate Bonds.

If at the time of mailing of notice of an optional redemption of Series 2016\_ Subordinate Bonds there has not been deposited with the Trustee moneys sufficient to redeem all Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds that are stated to mature on different dates are called for redemption at one time, those Series 2016\_ 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 Series 2016\_ Subordinate Bonds of a single maturity are to be redeemed, the selection of the Series 2016\_ Subordinate Bonds to be redeemed, or portions thereof in amounts of \$5,000 or any integral multiple thereof, so long as the Series 2016\_ 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 Series 2016\_ Subordinate Bonds by lot when the Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bond are to be called for redemption, then upon notice of redemption of a \$5,000 unit or units the Holder of that Series 2016\_ Subordinate Bond may, but is not required to surrender the Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bond surrendered.

**Section 504. Payment of Redeemed Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds.

**Section 505. Purchase in Lieu of Redemption.**

By their acceptance of the Series 2016\_ Subordinate Bonds, the Holders irrevocably grant to the Authority the option to purchase any Series 2016\_ Subordinate Bond which is redeemable by optional redemption on any date on which the Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ 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 Series 2016\_ Subordinate Bonds then being purchased to the Trustee in immediately available funds, and the Trustee shall pay the same to the Holders of such Series 2016\_ Subordinate Bonds against delivery. Following such purchase, the Trustee shall cause such Series 2016\_ 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 Series 2016\_ Subordinate Bonds, the particular Series 2016\_ 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 Series 2016\_ Subordinate Bonds pursuant to this paragraph shall operate to extinguish the indebtedness evidenced by the purchased Series 2016\_ 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 2016\_ SUBORDINATE BONDS

#### Section 601. Application of Proceeds of Series 2016\_ Subordinate Bonds.

The net proceeds of the Series 2016\_A Subordinate Bonds in the amount of \$[\_\_\_\_\_], which represents the par amount of the Series 2016\_ Subordinate Bonds (\$[\_\_\_\_\_]), at the request and direction of the Authority shall be applied as follows:

(a) \$[\_\_\_\_\_] shall be deposited in the Series 2016\_ Construction Account of the Construction Fund and used to pay Costs of the System.

(b) \$[\_\_\_\_\_] shall be deposited in the Series 2016\_ Costs of Issuance Subaccount of the Series 2016\_ Construction Account of the Construction Fund and used to pay costs of issuance.

## ARTICLE VII

### FUNDS AND ACCOUNTS

#### Section 701. Series 2016\_ Construction Account and Series 2016\_ Escrow Account.

In the Construction Fund, there shall be established a Series 2016\_ Construction Account and, within that Account, a Series 2016\_ Costs of Issuance Subaccount. The respective portions of the proceeds of the Series 2016\_ Subordinate Bonds specified in Section 601 shall be (a) be deposited in the Series 2016\_ Construction Account of the Construction Fund and used to pay

Costs of the System, or (b) shall be deposited in the Series 2016\_ Costs of Issuance Subaccount and used to pay costs of issuance related to the Series 2016\_ Subordinate Bonds.

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 2016\_ Subordinate Bonds Interest Subaccount or the 2012 Subordinate Bonds Principal Subaccount.

**Section 702. Series 2016\_ Subordinate Bonds Subaccounts in the Subordinate Interest Account and Subordinate Principal Account.**

(a) Within the Subordinate Interest Account there shall be established a "Series 2016\_ Subordinate Bonds Interest Subaccount." Within the Subordinate Principal Account there shall be established a "Series 2016\_ Subordinate Bonds Principal Subaccount."

(b) In accordance with Section 604(e) of the Master Indenture, Net Revenues shall be deposited in the Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bond that bears interest more frequently than semi-annually, in an amount equal to the interest due and payable on such Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ SUBORDINATE BONDS**

**Section 801. Security for Series 2016\_ Subordinate Bonds.**

The Series 2016\_ 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 2016\_ Subordinate Bond over any other Series 2016\_ 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 2016\_ Subordinate Bond over any other Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds or to the Series 2016\_ Subordinate Bondholders. Pursuant to Section 305 of the Master Indenture, the Series 2016\_ Subordinate Bonds, as Subordinate Debt, may not be accelerated if any Senior Debt is outstanding.

#### **Section 902. Rights of Series 2016\_ Subordinate Bondholders Upon Occurrence of Events of Default.**

In addition to and in furtherance and implementation of the rights that Series 2016\_ Subordinate Bondholders have under the penultimate paragraph of Section 906 of the Master Indenture, Sections 903 through 911, inclusive, of this Twenty-First Supplemental Indenture shall apply to the Series 2016\_ Subordinate Bonds.

#### **Section 903. Events of Default.**

Each of the following events shall be a Series 2016\_ Subordinate Bond Event of Default:

- (a) Default in the due and punctual payment of the principal of or premium, if any, on any Series 2016\_ Subordinate Bond (whether at maturity or call for redemption);
- (b) Default in the due and punctual payment of the interest on any Series 2016\_ 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) Default in the due and punctual payment of the Purchase Price of any Series 2016\_ Subordinate Bond, unless there is a Credit Facility in place which has not defaulted.

**Section 904. Remedies of Series 2016\_ Subordinate Bondholders.**

Upon the occurrence and continuation of a Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bond Event of Default hereunder by the Trustee or Series 2016\_ Subordinate Bondholders shall extend to or shall affect any subsequent Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bondholders enhanced by such Credit Facility (excluding Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bondholders.

**Section 905. Right of Series 2016\_ Subordinate Bondholders to Direct Proceedings.**

The holders of a majority in aggregate principal amount of Series 2016\_ 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-First 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-First Supplemental Indenture, be deposited in the Series 2016\_ Subordinate Bonds Interest Subaccount or the Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds which shall have become due (other than Series 2016\_ 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 2016\_ 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-First Supplemental Indenture or under any of the Series 2016\_ Subordinate Bonds may be enforced by the Trustee without the possession of any of the Series 2016\_ 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 2016\_ Subordinate Bondholders, and any recovery of judgment shall be for the equal benefit of the Series 2016\_ Subordinate Bondholders.

**Section 908. Limitation on Suits.**

Except to enforce the rights given under Sections 904 and 905 of this Twenty-First Supplemental Indenture, no Series 2016\_ 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 2016\_ Subordinate Bond Event of Default has occurred and is continuing and the Holders of 25% in aggregate principal amount of Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ 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-First Supplemental Indenture and to any action or cause of action for the enforcement of this Twenty-First 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-First 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 2016\_ Subordinate Bond Event of Default hereunder or any action taken pursuant to any Series 2016\_ 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 2016\_ 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 2016\_ Subordinate Bonds then outstanding in the case of any other Series 2016\_ Subordinate Bond Event of Default; provided, however, that there shall not be waived without the written consent of all then Outstanding Series 2016\_ Subordinate Bondholders (A) any Series 2016\_ Subordinate Bond Event of Default in the payment of the principal of any Outstanding Series 2016\_ 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 2016\_ 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 2016\_ 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 2016\_ Subordinate Bondholders shall be restored to their former positions and rights hereunder respectively.

No such waiver or rescission relating to the Series 2016\_ 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-First 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 2016\_ 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**

**MISCELLANEOUS**

**Section 1001. Limitation of Rights.**

With the exception of rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Twenty-First Supplemental Indenture or the Series 2016\_ Subordinate Bonds is intended or shall be construed to give to any person other than the parties hereto, the Series 2016\_ Subordinate Bondholders any legal or equitable right, remedy or claim under or in respect to this Twenty-First Supplemental Indenture or any covenants, conditions and agreements herein contained since this Twenty-First 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 2016\_ Subordinate Bondholders as herein provided.

**Section 1002. Severability.**

If any provision of this Twenty-First Supplemental Indenture shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof, and this Twenty-First Supplemental Indenture shall be construed and enforced as if such illegal provision had not been contained herein.

**Section 1003. Successors and Assigns.**

This Twenty-First Supplemental Indenture shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

**Section 1004. 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 2016\_ Subordinate Bonds shall be liable personally on the Series 2016\_ 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-First 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 1005. Applicable Law.**

This Twenty-First Supplemental Indenture shall be governed by the applicable laws of the District of Columbia.

**Section 1006. Counterparts.**

This Twenty-First 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.

[Balance of page intentionally left blank]

**IN WITNESS WHEREOF**, the Authority and the Trustee have caused this Twenty-First 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

**WELLS FARGO BANK, N.A.,  
AS TRUSTEE**

By \_\_\_\_\_

Its \_\_\_\_\_

**EXHIBIT A**

**[to be added]**

A-1



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**District of Columbia Water and Sewer Authority**  
**Indicative Term Sheet for Environmental Impact Bonds**  
**PRELIMINARY — FOR DISCUSSION PURPOSES ONLY**

<b>Parties to the Transaction</b>	
<i>Issuer</i>	District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”).
<i>Purchaser</i>	[TBD] (“TBD” or the “Purchaser”).
<b>Project and Use of Proceeds</b>	
<i>Purpose</i>	<p>In 2005, DC Water entered into a consent decree to control combined sewer overflows (“CSOs”) in the District of Columbia (“District”). On January 14, 2016, an amendment to the 2005 consent decree was entered in U.S. District Court to modify the Authority’s DC Clean Rivers Project (“DCCR”) to incorporate Green Infrastructure (“GI”) practices to manage stormwater runoff.</p> <p>The Environmental Impact Bonds (“EIB” or the “Bonds”) will finance the construction of DC Water’s initial GI project in the Rock Creek sewershed (“Rock Creek Project A” or “RC-A”) as part of DCCR’s overall strategy for controlling CSOs into the Anacostia River, Potomac River and Rock Creek. The evaluation plan for RC-A will contribute to the goal of measuring and establishing the efficacy of GI in managing stormwater runoff.</p> <p>In addition to controlling CSOs and thereby improving water quality, GI practices may also provide certain environmental, social and economic co-benefits for the residents of the District. In particular, through its investment in the EIB, the Purchaser is interested in supporting DC Water’s “Green Jobs” local workforce development initiative that includes job training and certification opportunities for District residents interested in GI construction, inspection and maintenance.</p>
<i>Pay for Success</i>	Through the EIB, the Issuer and Purchaser intend to develop a pay-for-success model to finance certain environmental outcomes associated with GI. In doing so, the EIB is structured to pay a variable total rate of return dependent upon the effectiveness of GI in managing stormwater runoff in RC-A: expected efficacy would result in an expected rate of return on the EIB, greater efficacy may result in an Outcome Payment to the Purchaser that increases the total rate of return on the EIB, and lesser efficacy may result in a Risk Share Payment to DC Water that reduces the total rate of return on the EIB.
<i>Project Description</i>	The EIB will finance the design, construction and up to two years of maintenance of RC-A, which is required to manage the volume of runoff produced by 1.2” of rain falling on 20 impervious acres in the Rock Creek sewershed. RC-A has been selected as the initial GI project based on geography and ease of measurement.
<i>Service Providers</i>	DC Water will be responsible for selecting qualified service provider(s) to construct the GI practices in RC-A through a competitive design-build procurement process. The consent decree mandates that construction of RC-A must begin no later than March 2017 and the facilities must be placed in operation by March 2019. DC Water will be responsible for managing the service provider(s) and ensuring compliance with the consent decree requirements.
<b>General Terms</b>	
<i>Description</i>	The Bonds will be multi-modal variable rate bonds, initially issued in a term mode of up to [5] years at a fixed rate. The Bonds will be subject to conversion to other interest rate modes following a mandatory tender for purchase of the Bonds on the Mandatory Tender Date.
<i>Closing Date</i>	[September 15, 2016].
<i>Par</i>	[\$25,000,000].
<i>Maturity</i>	Final maturity of [October 1, 2046], subject to mandatory tender on [April 1, 2021].
<i>Amortization</i>	Principal amortization will be structured [October 1, 2037 – October 1, 2046], resulting in approximately level payments of principal and interest over a ten-year period. The Bonds will be interest only until [October 1, 2037].
<i>Conversion of Interest Rate Mode</i>	Upon conclusion of the Initial Rate Period (defined below), the Issuer is permitted to change the interest rate mode for all or any portion of the Bonds to a different interest rate mode. The Bonds, following the Initial Rate Period, are subject to mandatory tender without right of

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**District of Columbia Water and Sewer Authority**  
**Indicative Term Sheet for Environmental Impact Bonds**  
**PRELIMINARY — FOR DISCUSSION PURPOSES ONLY**

	retention as described herein.
<i>Mandatory Sinking Fund Redemption</i>	The Bonds will be subject to mandatory sinking fund redemption prior to maturity on October 1 in each year from 2037 to 2046 at a redemption price equal to the principal amount of the Bonds called for redemption plus interest accrued to the redemption date and in a manner which will result in approximately level payments of principal and interest over the ten-year amortization period.
<i>Bank Qualified</i>	No.
<i>Tax Status</i>	Tax-exempt to the fullest extent permitted by Federal tax law.
<b>Initial Rate Period</b>	
<i>Interest Rate Provisions</i>	The Bonds will bear interest initially in a Term Rate Mode. During the Term Rate Mode, the Bonds will bear interest from the date of delivery at the Term Rate.
<i>Day Count</i>	Interest will be calculated on the basis of twelve, 30-day months and a 360-day year.
<i>Interest Payments</i>	Semi-annual on April 1 and October 1.
<i>Coupon</i>	Issued at Par, subject to Purchaser preferences.
<i>Book Entry Only System</i>	Issued in fully registered form and, when issued, will be held by DTC or its nominee, as securities depository.
<i>Denomination</i>	\$100,000 or any \$5,000 integral multiple in excess of \$100,000.
<i>CUSIP</i>	CUSIP number will be assigned.
<i>Term Rate (Yield)</i>	5-year MMD plus [__ bps]. The spread to the applicable index will be a market rate, based on comparable transactions in the market and reflecting the current long-term, subordinate lien credit ratings of DC Water (AA+/Aa2/AA-).
<i>Mandatory Tender</i>	<b>[April 1, 2021].</b> The Bonds will be subject to mandatory tender for purchase by a tender agent at the Purchase Price on <b>[April 1, 2021]</b> ("Mandatory Tender Date"). Purchase Price equals the principal amount of the Bonds plus accrued and unpaid interest thereon to the purchase date.
<i>Obligation to Repay the Bonds at Mandatory Tender Date</i>	Upon conclusion of the Initial Rate Period and the related mandatory tender, the Authority is legally obligated to affect the purchase of the Bonds regardless of whether it is able to remarket the Bonds. While the Authority expects to remarket the Bonds, it may at its option elect to use available cash or credit facilities to purchase the Bonds at the Mandatory Tender Date.
<i>Optional Redemption</i>	The Bonds will not be subject to optional redemption during the Initial Rate Period.
<i>No Sale or Transfer Without Consent</i>	During the Initial Rate Period, Purchaser agrees that the reoffering and sale of all or any portion of the Bonds or any Outcome Payment or Risk Share Payment in a secondary market transaction shall be subject to written consent by DC Water.
<b>Project Evaluation and Outcome/Risk Share Payment</b>	
<i>Project Evaluation; Performance Tiers</i>	DC Water will measure the effectiveness of GI in managing stormwater runoff in accordance with the Program Evaluation requirements contained in the Program Plan, required under the consent decree, to be submitted to the EPA by January 15, 2017 (see Appendix A). As part of its Program Evaluation, DC Water will perform approximately 12 months of pre- and post-construction monitoring of stormwater runoff in the RC-A area before and after the GI facilities are constructed. The data collected will be used to determine the reduction in stormwater runoff that occurs in an average year of rainfall due to the construction of GI. Prior to the start of construction in RC-A, DC Water will establish a range of predicted GI performance outcomes using hydraulic models of the District's stormwater drainage networks and sewer collection systems, and will construct a statistical 95% Confidence Interval (CI) representing two Standard Deviations (SD) from the expected performance outcome in an average year of rainfall. The modeling methodology and range of predicted outcomes will be

**District of Columbia Water and Sewer Authority  
 Indicative Term Sheet for Environmental Impact Bonds  
 PRELIMINARY — FOR DISCUSSION PURPOSES ONLY**

	<p>detailed in a Technical Memorandum to be provided to the Purchaser by DC Water (see Appendix B).</p> <p>Based upon the results of the Program Evaluation, the effectiveness of GI will be rated in one of three (3) Performance Tiers.</p> <ul style="list-style-type: none"> <li>• Tier 1 performance will represent the range of outcomes that exceed expectations (i.e., an outcome that is more than two SD above the expected performance outcome).</li> <li>• Tier 2 performance will represent the range of outcomes that meet expectations (i.e., an outcome that falls within the 95% CI).</li> <li>• Tier 3 performance will represent the range of outcomes that fall below expectations (i.e., an outcome that is more than two SD below the expected performance outcome).</li> </ul> <p>The Performance Tier structure, as well as the specific ranges of outcomes for GI effectiveness, will be negotiated and mutually agreeable to the Purchaser and the Authority.</p>
<p><i>Outcome Payment; Risk Share Payment</i></p>	<p>Depending upon the Performance Tier, an Outcome Payment may become due at the Mandatory Tender Date.</p> <ul style="list-style-type: none"> <li>• Tier 1: DC Water will make an Outcome Payment to the Purchaser.</li> <li>• Tier 2: No Outcome Payment or Risk Share Payment is due.</li> <li>• Tier 3: Purchaser will make a Risk Share Payment to DC Water.</li> </ul> <p>The magnitude of the Outcome Payment or Risk Share Payment will be negotiated and mutually agreeable to the Purchaser and the Authority.</p>
<p><i>Independent Validator</i></p>	<p>At the conclusion of the RC-A project, DC Water will prepare a Final Report assessing the performance of the GI in reducing stormwater runoff in the RC-A area in an average year of rainfall. This report will be delivered by September 23, 2020. The Final Report will determine the associated Performance Tier.</p> <p>The Purchaser and the Authority will select a mutually agreeable, third-party firm to validate the results contained in the Final Report (“Independent Validator”). The Independent Validator will be required to issue an opinion validating the Performance Tier of GI prior to the Mandatory Tender Date. The Independent Validator’s determination of the Performance Tier of GI will govern the applicability of an Outcome Payment or Risk Share Payment.</p>
<p><i>Payment at Mandatory Tender Date</i></p>	<p>On the Mandatory Tender Date, DC Water will make a single net payment to the Purchaser on the Bonds in accordance with the established Performance Tier of GI.</p> <ul style="list-style-type: none"> <li>• Tier 1: DC Water will make a payment of any and all amounts due to the Purchaser, including Principal, Accrued Interest and Outcome Payment.</li> <li>• Tier 2: DC Water will make a payment of any and all amounts due to the Purchaser, including Principal and Accrued Interest.</li> <li>• Tier 3: DC Water will make a single <b>net</b> payment of any and all amounts due to the Purchaser, including Principal and Accrued Interest <b>less</b> Risk Share Payment due to DC Water. The Risk Share Payment may result in the Purchaser receiving a single net payment of less than the original principal amount (Par) of the EIB. The single net payment will constitute full payment of principal and interest due on the Bonds, and shall in no event constitute an Event of Default.</li> </ul>
<p><i>Project Delays</i></p>	<p>In the event of a failure by DC Water to deliver the Final Report by September 23, 2020, DC Water shall have an additional period of time extending to 90 days prior to the Mandatory Tender Date to submit a Final Report. The Independent Validator shall then have 45 days from the date of submission of the Final Report to issue an opinion validating the results contained in the Final Report regarding the associated Performance Tier.</p> <p>If DC Water fails to deliver a Final Report 90 days prior to the Mandatory Tender Date, then the parties mutually agree that the performance of GI will be established as Tier 1 and an Outcome Payment will be due at the Mandatory Tender Date.</p>



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<b>Costs of Issuance</b>	
<i>Commitment Fee</i>	None.
<i>Transaction Expenses</i>	Each Party shall pay its own expenses including, but not limited to, legal and other professional advisory fees, travel, closing costs, and out of pocket expenses, unless otherwise approved by DC Water. DC Water shall pay the costs of the Independent Validator.
<b>Source of Payment and Security</b>	
<i>Security</i>	<p>Under the Master Indenture, the Authority may issue "Senior Debt" and "Subordinate Debt" from time to time. The Bonds will constitute Subordinate Debt under the Indenture. The principal of and interest on the Bonds will be secured by a pledge of Net Revenues that is subordinate to the pledge of Net Revenues that secures any Outstanding Senior Debt and 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 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.</p> <p><b>An Outcome Payment will NOT constitute Senior Debt or Subordinate Debt under the Master Indenture.</b> An Outcome Payment will be secured by a promise to pay from Net Revenues that is subordinate to the pledge of Net Revenues that secures any Outstanding Senior debt and other Senior Debt the Authority may issue from time to time in the future, and subordinate to the pledge of Net Revenues that secures the Outstanding Subordinate Debt and other Subordinate Debt the Authority may issue from time to time in the future.</p>
<i>Lien Priority</i>	The principal of and interest on the Bonds will be payable and secured as Subordinate Debt under the Master Indenture. <b>An Outcome Payment will be payable on an equivalent third-lien level, below Senior Debt and Subordinate Debt in the flow of funds, from available Net Revenues.</b>
<i>Debt Service Reserve Fund</i>	None.
<b>Legal Authority and Documentation</b>	
<i>Legal Authority</i>	Subject to authorization by the Board of Directors (the "Board") of the Authority, the Bonds will 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, including by a Supplemental Indenture of Trust, to be dated the date of issuance and delivery of the Bonds, each by and between the Authority and Wells Fargo Bank, N.A., as trustee.
<i>Form of Agreement with Purchaser</i>	<p>It is expected that DC Water and the Purchaser will enter into a Private Placement Agreement outlining the specific parameters of the Outcome Payment and Risk Share Payment, as well as any additional covenants or representations made by the Authority or the Purchaser.</p> <p>It is expected that the Private Placement Agreement would continue to be in effect up to and including the Mandatory Tender Date, even if all or any portion of the Bonds are subsequently sold by the Purchaser during the Initial Rate Period. Any sale of all or any portion of the Bonds during the Initial Rate Period would be subject to the written approval of DC Water, as specified herein.</p>
<i>Disclosure</i>	Initial disclosures and documentation, including any Offering Memorandum or Continuing Disclosure Agreement, to be agreed upon with Purchaser and to comply with all applicable legal requirements.
<i>DC Water's Representations and Warranties</i>	Usual and customary for issuer/borrower, including, without limitation, the following: (i) legal existence, qualification, and power; (ii) due authorization and no contravention of law, contracts, or organizational documents; (iii) governmental and third party approvals and consents; (iv) enforceability; (v) accuracy and completeness of specified financial statements and no event or circumstance, either individually or in the aggregate, that has had or could reasonably be expected to have a Material Adverse Effect; (vi) no material litigation; (vii) no default; (viii) tax matters; (ix) use of proceeds; (x) accuracy of disclosure; (xi) compliance with laws; and (xii) bankruptcy and insolvency.
<i>Rate Covenant</i>	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. The Authority has never failed to satisfy the Rate Covenant, which 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:

- 
- A. Revenues collected by the Authority in such Fiscal Year will be sufficient to pay at least: (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 PILOT payments in such Fiscal Year; and
- B. Net Revenues shall be sufficient in each Fiscal Year to be at least equal to the sum of (i) an amount equal to one hundred and twenty percent (120%) of the Annual Debt Service on Senior Debt; and (ii) 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 Master 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.

**An Outcome Payment is NOT part of the Rate Covenant in the Master Indenture. However, DC Water will covenant in the Private Placement Agreement to set rates and/or have sufficient unrestricted cash reserves or credit facilities to make any Outcome Payment on the Mandatory Tender Date that may be required on the Bonds.**

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*Additional Bonds*

The Master 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:

- (A) 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
- (B) either: (i) 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 (a) the maximum Annual Debt Service on the proposed additional Series of Bonds, and (b) the rates, fees and other charges which are in effect at the time of the delivery of the proposed additional Series of Bonds; or (ii) a written statement of a Qualified Independent Consultant, which projects Operating Expenses, Revenues and Net Revenues for five (5) 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.

Under the Master 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.

**An Outcome Payment will NOT be considered debt for purposes of the Additional Bonds Test.**

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*Reporting Requirements*

Pursuant to the Master Indenture and consistent with Continuing Disclosure Agreements on currently outstanding debt, DC Water will provide to the MSRB an annual financial report and give timely notice of the occurrence of significant events, including:

1. Principal and interest payment delinquencies;
  2. Unscheduled draws on debt service reserves reflecting financial difficulties;
-

	<ol style="list-style-type: none"> <li>3. Unscheduled draws on credit enhancements reflecting financial difficulties;</li> <li>4. Substitution of credit or liquidity providers, or their failure to perform;</li> <li>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);</li> <li>6. Tender offers;</li> <li>7. Defeasances;</li> <li>8. Rating changes; or</li> <li>9. Bankruptcy, insolvency, receivership or similar event of the obligated person.</li> <li>10. 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 Bonds or other material events affecting the tax status of the Bonds;</li> <li>11. Modifications to rights of Bond holders;</li> <li>12. Optional, unscheduled or contingent Bond calls;</li> <li>13. Release, substitution, or sale of property securing repayment of the Bonds;</li> <li>14. Non-payment related defaults;</li> <li>15. 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; or</li> <li>16. Appointment of a successor or additional trustee or the change of name of a trustee.</li> </ol>
<i>Events of Default</i>	<p>Standard events of default pursuant to the Master Indenture, including standard cure periods for non-payment and non-bankruptcy defaults. Risk Share Payment and consequent reduction in total rate of return to Purchaser resulting from a GI performance rating of Tier 3 will <b>NOT</b> constitute an Event of Default.</p>
<i>Remedies</i>	<p>Pursuant to the Master Indenture. The Master Indenture prohibits the acceleration of Subordinate Debt if any Senior Debt (including Bonds) is outstanding. The Master 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 Master Indenture does not confer those rights upon any specified percentage of the holders of Subordinate Debt.</p>
<i>Publicity</i>	<p>Except as otherwise required by law or regulation, DC Water and Purchaser agree that any press releases or other similar public announcements regarding the Environmental Impact Bonds shall not be issued without the prior written consent of the other party, such consent not to be unreasonably withheld. It is the mutual intent of DC Water and the Purchaser to disseminate publicly any knowledge or best practices gained as a result of the EIB with the common goal of advancing the development of pay for success models and expanding the portfolio of impact investing to include the financing of environmental outcomes.</p>



**D.C. WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS  
JOINT DC RETAIL WATER & SEWER RATES AND  
FINANCE & BUDGET COMMITTEE MEETINGS  
Tuesday, September 27, 2016  
Blue Plains Wastewater Treatment Plant  
5000 Overlook Avenue, SW, DC**

**JOINT DC RETAIL WATER & SEWER RATES AND  
FINANCE & BUDGET COMMITTEE  
10:00 a.m.**

**FINANCE & BUDGET COMMITTEE  
11:00 a.m.**

**AGENDA**

Call to Order	Chairman
August 2016 Financial Report	Chief Financial Officer
Agenda for October Committee Meeting	Chairman
Adjournment	Chairman

\*Detailed agenda can be found on DC Water's website at [www.dewater.com/about/board\\_agendas.cfm](http://www.dewater.com/about/board_agendas.cfm)



# **Finance & Budget Committee Briefing on: ROCIP Savings Analysis Results**

**July 28, 2016**

Tanya DeLeon, Risk Manager



# Background

- At the June 25, 2015, meeting of the Finance & Budget Committee, Tanya DeLeon, Risk Manager, provided an overview with savings results related to the Rolling Owner Controlled Insurance Program (ROCIP) in addition to a Procurement recommendation for the ROCIP 4 Broker/Administrator.
- Chairman Firestine inquired if an independent ROCIP audit of AON's (DC Water's Broker/Administrator) reported savings was ever conducted. Robert Hunt, Finance Director, responded that an audit had not been performed with respect to ROCIP savings. Mr. Firestine recommended an audit specific to cited savings.
- RSM, DC Water's internal audit firm, was assigned and the process began October, 2015.
- Multiple administration and financial documents were provided. In addition, RSM conducted onsite records reviews.
- Draft Audit report completed July 2016.



# Audit Results

- Since inception, ROCIP covered 140 projects with approximate construction value of \$3 billion.
- In October 2015, original AON projected savings was \$22.9 million. Adjusted RSM project savings was \$22 million.
- As of February 2016, estimated project savings are \$23 million.
- There are four observations addressing Liability Trend and Adjustment, General Ledger Reconciliation, Data Entry Errors and Missing Supporting Documentation in the SRS Database for Safety Inspections.



# ROCIP Benefits

- Strengthened construction risk management and insurance program. The ROCIP team consists of multiple DC Water representatives for coordination of efforts, expertise and knowledge.
- Multiple interests coverage using master insurance policies, which allows for multiple insureds to be bundled (or wrapped up) into one combined and controlled program.
- Mutual identified insurance coverage including higher limits.
- Uniform insurance claims handling, loss prevention and safety.
- Joint defense, limited cross-liability and coordinated post-loss management.
- Barriers removed for Disadvantaged Business Enterprises (MBE/LSDBE) firms.





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# ROCIP Savings Analysis

June 2016



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## TRANSMITTAL LETTER

June 2016

The Audit Committee of DC Water  
5000 Overlook Avenue, SW  
Washington, DC 20032

Pursuant to the approved 2016 internal audit plan for the District of Columbia Water and Sewer Authority (“DC Water” or the “Authority”, we hereby present our Savings Analysis of the Rolling Owner Controlled Insurance Program (“ROCIP”). We will be presenting this report to the Finance & Budget Committee and the Audit Committee of DC Water at the next scheduled meetings, on July 28, 2016. Our report is organized in the following sections:

<b>Executive Summary</b>	This provides a summary of the observations and opportunities related to our analysis of the ROCIP savings as reported by the contracted Third-Party Administrator, Aon Group (“Aon”).
<b>Background</b>	This provides an overview of the ROCIP program and process.
<b>Objectives and Approach</b>	The internal audit objectives and focus are expanded upon in this section, as well as a review of the various phases of our approach.
<b>Savings Analysis</b>	This provides an analysis of DC Water’s ROCIP program, and the accumulated savings estimated by Aon between 2004 and 2015.
<b>Detailed Observations</b>	This section gives a description of the process and control observations noted during our work and recommended actions as well as management’s response, responsible party, and estimated completion date.
<b>Appendices</b>	This sections provides additional information regarding ROCIP, including detailed savings summaries, as prepared by Aon, for October 2015, February 2016, and June 2016.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with this review, including DC Water staff and personnel from Aon.

Respectfully Submitted,

*Internal Auditors*

## EXECUTIVE SUMMARY

### Overview

The Finance and Budget Committee requested a review of the current reporting and savings calculations associated with the ROCIP program, as prepared by the Aon Group (“Aon”), a contracted third party administrator for the program. The ROCIP program has grown substantially over time and is now set to enter the fourth version of the program. The premise of the ROCIP program is that approved contractors agree to reduce their accepted bid amounts by the insurance costs they would otherwise bear individually if coverage were issued in accordance with the DC Water requirements. All participating contractors are subject to DC Water monitoring and adherence to safety inspection and related safety practices as established by DC Water. DC Water then uses its expanded insurance buying capacity to provide workers compensation and general liability protection to participating contractors at levels of coverage not always available to the contractors on a stand-alone basis.

The success of the ROCIP program is recognized nationally in the insurance community and the resulting long term partnership with its insurance carrier points to its effectiveness. Claim management is also a key component of the ROCIP program. Internal ROCIP committee meetings are held monthly with all representatives of the program, engineering, safety, insurance broker and consultants. An annual program review is also held with these participants.

The support provided by the outgoing third party administrator, Aon, was a key source of information for this assessment. Internal Audit also extends its appreciation to DC Water’s Finance and Risk Management teams for input to specific questions on information and documentation spanning from the program’s inception in 2004. It is hoped that the successor administrator, Wells Fargo, will build from the results and observations noted within this analysis and continue to enhance the program into the future.

### Objective and Scope

Our procedures were developed and based upon the program and savings summaries provided by Aon and also incorporated a review of respective general ledger accounts used to transact the expenditures of the program. In addition to specific project and contractor supporting records, we obtained actuarial reports issued by Aon to support our understanding of the program, as well as general ledger support and other documentation.

Our scope included the following:

- Evaluate consistency in ROCIP procedures and controls;
- Determine how ROCIP results are reported to stakeholders;
- Evaluate how ROCIP is managed at the department-level;
- Evaluate how funding estimates are planned and recorded;
- Evaluate how Aon is utilized to manage ROCIP reporting;
- Test Aon’s AonWrap application input on a sample basis; and
- Test the safety inspection process on a sample basis.

Fieldwork was performed November 2015 through February 2016.

### Overall Summary

In addition to the analysis provided, the process and control observations identified during our assessment are summarized on the next page. We have assigned relative risk or value factors to each observation. Ratings are not assigned to opportunities as these items represent best practices and/or recommended initiatives. Risk ratings are defined in the Appendix.

#### Overall Summary (See Appendix A for definitions)

	Number of Observations by Risk Rating		
	High	Moderate	Low
ROCIP	1	3	0

***We would like to thank all DC Water team members who assisted us throughout this review.***

## EXECUTIVE SUMMARY (CONTINUED)

### Overall Summary

The following is a summary of the observations noted. Detailed observations, with recommended actions and management’s response are included, beginning on page 13.

Observations and Improvement Opportunities	
Observations	Rating
1. <b>Liability Trend and Adjustment.</b> During our fieldwork and testing of claims expenses, we noted that the estimated liability for ROCIP expenses was not adjusted over the life of the program as the Contract Values changed, or other new information was presented, such as when the actuarial claims reserve was prepared.	High
2. <b>General Ledger Reconciliation.</b> During our fieldwork, we noted that a reconciliation between Aon’s premium, claim and transaction records and the DC Water general ledger (G/L or Lawson) does not occur.	Moderate
3. <b>Data Entry Errors and Missing Supporting Documentation.</b> During our testing of Aon’s records, we noted data entry errors as well as older contracts where supporting documentation was not readily available.	Moderate
4. <b>SRS Database for Safety Inspections.</b> The SRS database, DC Water’s in-house tracking module, was not complete for inspections performed, containing instances where sign offs did not occur or there was incomplete documentation. We further noted that there was a period of time where the Aon supervisor was unable to access the system to perform these sign offs and document any remediation or follow up efforts performed.	Moderate

Process Improvement Opportunities have also been provided to management for consideration.

## BACKGROUND, OBJECTIVES AND APPROACH

### Background

The Rolling Owner Controlled Insurance Program (“ROCIP”) is an insurance program that is paid for and provided by DC Water, covering its prime contractors and their subcontractors for construction work on Blue Plains and off the plant. The program was inceptioned in 2004 and has had three phases to-date, covering approximately 140 projects totaling approximately \$3 billion in contracts. ROCIP 1 (“R1”) covers 10/2004 – 4/2012; ROCIP 2 (“R2”) covers 10/2009 – 4/2015; ROCIP 3 (“R3”) covers 10/2012 – 10/2017; the phases allow 3 years to enroll and 5 years to complete, so there is overlap in the coverage periods. Phase 4 is currently in the initial enrollment stage. The primary goal of any Owner Controlled Insurance Plan is to gain economies of scale on insurance costs, due to increased limits and coverage specific to project sites. Such a plan also provides access to contractors who may not be able to obtain the required coverage limits on their own.

The history of the ROCIP program has expanded from a group of 400 contractors in R1 to a level of 800 in R2 to 500 in R3. The insurance carrier for all three phases is ACE/ESIS. The administration of the program transitioned from a paper intensive reporting process to web portal data entry during this period.

#### ***ROCIP Administration***

Since the inception of ROCIP in 2004, the program administrator has been Aon Group. During routine rebid of the contract, DC Water recently awarded the ROCIP administrator role to Wells Fargo. ACE/ESIS will continue as the insurance carrier. All previous ROCIP programs will continue to be reported by Aon until all projects are final and closed out. The observations we provide are intended to be applied equally to future and runoff obligations in an effort to support greater monitoring and reporting to the various committees.

#### ***Savings Estimates***

The current ROCIP reporting emphasizes the pro-forma savings that is assumed to be present if contractors were to obtain separately quoted insurance coverage outside of an owner-controlled plan. At the bid stage of each project, the contractors provide an estimate of what the insurance costs would be were they to obtain coverage on their own. Then, Aon’s AonWrap system reviews those estimates for reasonableness by using estimated payrolls and applying the pricing structure of the separately quoted individual contractor insurance coverage. Once determined reasonable, that estimate is used as the basis of the Original Projected Savings amount. These are not hard dollar savings, but ‘soft’ savings, and as such are not recorded in the general ledger. The actual program premiums and administrator fees are recorded as paid, and routinely compared to the savings estimate for evaluation. Additionally, the savings estimate includes a loss element for any insurance claims incurred. Aon uses a loss estimate at the feasibility stage of each ROCIP which are based upon insurance company loss picks. Loss picks are used as an underwriting element of what premium rate to charge the insured. For Aon’s monthly reporting, the loss amounts shift from the loss pick amount to reported losses, the sum of paid amounts plus adjustor case reserve estimates. An actuarial estimate for future claims as well as those incurred but not reported (“IBNR”) is not included in Aon’s reporting, but is provided annually to DC Water. Fees estimated at each monthly reporting period by the third-party should be supported by a detailed schedule for what vendors and amounts are included in this value. This detail can then be reconciled to the general ledger to ensure all amounts are being reported and/or evaluated for reasonableness against estimates.

## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Background (continued)

#### **Savings Estimates as of October 2015**

Below is a summary of the original and adjusted project savings as presented by Aon, as of October 2015, for each phase of the program. These are the estimates that our analysis sought to validate. Additional details of the amounts included in these estimates can be found in the Appendix.

	ROCIP 1	ROCIP 2	ROCIP 3	Total
<b>Expected Contractor Insurance Costs</b>	\$ 15,574,237	\$ 23,077,683	\$ 30,969,113	\$ 69,621,033
<b>Expected Losses</b>	\$ (3,893,545)	\$ (7,258,571)	\$ (5,801,390)	\$ (16,953,506)
<b>Expected Fixed Costs</b>	\$ (7,521,034)	\$ (10,790,422)	\$ (11,498,553)	\$ (29,810,009)
<b>Total Estimated Program Costs</b>	\$ (11,414,579)	\$ (18,048,993)	\$ (17,299,943)	\$ (46,763,515)
<b>Formula errors (*)</b>	\$ -	\$ -	\$ (1,507,678)	\$ (1,507,678)
<b>Original Project Savings</b>	<b>\$ 4,159,658</b>	<b>\$ 5,028,690</b>	<b>\$ 12,161,492</b>	<b>\$ 21,349,840</b>
<b>Earned Contractor Insurance Costs</b>	\$ 18,574,457	\$ 30,419,227	\$ 19,656,222	\$ 68,649,906
<b>Actual Losses</b>	\$ (5,080,887)	\$ (4,899,029)	\$ (676,841)	\$ (10,656,757)
<b>Actual Fixed Costs</b>	\$ (8,083,879)	\$ (10,824,976)	\$ (13,006,231)	\$ (31,915,086)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ -	\$ (3,811,187)	\$ (287,346)	\$ (4,098,533)
<b>Total Actual Program Costs</b>	\$ (13,164,766)	\$ (19,535,192)	\$ (13,970,418)	\$ (46,670,376)
<b>Formula errors (*)</b>	\$ -	\$ 1,276,506	\$ (240,305)	\$ 1,036,201
<b>Adjusted Project Savings</b>	<b>\$ 5,409,691</b>	<b>\$ 12,160,541</b>	<b>\$ 5,445,499</b>	<b>\$ 23,015,731</b>

Source: Aon ROCIP Summary, presented 10/21/2015

(Note \* Formula errors have been corrected/noted in the table above in order to match the Original and Adjusted Project Savings amounts presented by Aon.)

#### **Safety Oversight**

DC Water has enlisted the support of its insurance company and an outside subcontractor to routinely visit, inspect, and review the site operations for the many ongoing projects associated with each ROCIP. This component instills a safety culture and serves as a deterrent to escalating claim costs now borne solely by DC Water. Reports issued for each site visit are shared at a monthly ROCIP committee meeting and the Finance & Budget committee. Contractors are enlisted in the program's design and are evaluated for compliance to safety standards and identified observations.

## BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

### Objective and Approach

#### **Objective**

The objective of the ROCIP Savings Analysis project was to validate the reported ROCIP program savings, as presented to the Finance and Budget Committee by the third-party administrator, Aon. We used the October 21, 2015, reporting date and program summaries as our base period for the analysis. Any control deficiencies or process improvement opportunities noted during the course of the project are also provided.

#### **Approach**

Our audit approach consisted of the following phases:

##### Understanding of the Process

During the first phase of our approach, we conducted interviews with key personnel within the Risk Management and Finance departments, as well as met with the Aon account manager to gain an understanding of the program and how the savings estimates were derived. We also met with the Safety Manager to understand the process for project site inspections. High-level flowcharts of these processes are included in the appendix.

##### Savings Analysis and Limited Control Testing

We obtained and reviewed support for the various inputs of the ROCIP original and adjusted project savings calculations for reasonableness and completeness of data. The specific procedures performed included, but were not limited to the following:

- Evaluate consistency in ROCIP procedures and controls;
- Determine how ROCIP results are reported to stakeholders;
- Evaluate how ROCIP is managed at the department-level;
- Evaluate how funding estimates are planned and recorded;
- Evaluate how Aon is utilized to manage ROCIP reporting;
- Test Aon's AonWrap application input on a sample basis, including:
  - Compare initial payroll to input amounts from Form 3;
  - Compare insurance cost offset amount to reported amounts;
  - Compare Oct 2015 ending payroll to input amounts;
  - Compare claims data to DC Water G/L;
  - Compare contractor insurance estimates to Form 1A provided upon enrollment; and
  - Recalculate spreadsheets for accuracy.
- Test the safety inspection process on a sample basis; and
- Identify control or process improvements.

##### Reporting

At the conclusion of our fieldwork, we summarized the results of our analysis and any detailed observations into a report, and discussed the results with management. Those results, along with management's action plans, are presented in this report, and will be provided to the Audit Committee and Finance and Budget Committee at a regularly scheduled meeting.



## SAVINGS ANALYSIS

We selected a sample of contracts from each ROCIP phase and requested the Form 1 enrollment forms as well as Form 3 payroll reports for each period. For R1, these items were hard copy. For R2 and R3, these items were located online, as entered directly by the contractors. This data is subject to audits by the insurance carrier, and was used in our validation of the initial expected contractor insurance costs, as well as the actual payroll amounts that were used to calculate actual insurance premiums. We also obtained a detailed schedule of initial and revised premiums, fees, and claim loss reports from Aon, as well as detailed expense logs from DC Water in order to perform a high-level reconciliation. The results of various procedures and analysis are presented below and on the following pages.

**Table 1: Spreadsheet Accuracy.** As previously noted in the background section, there were formula errors in the Savings Summary for R2 and R3 as presented on October 21, 2015, by Aon. The original and corrected summaries are presented below for comparison. As a result of these corrections, the adjusted project savings (as presented and before any validation procedures) decreased by \$1,036,201 (\$23,015,731 - \$21,979,530), or approximately 4.5%.

ROCIP 2, as of October 2015:	As presented	Adjusted
<b>Expected Contractor Insurance Costs</b>	\$ 23,077,683	\$ 23,077,683
<b>Expected Losses</b>	\$ (7,258,571)	\$ (7,258,571)
<b>Expected Fixed Costs</b>	\$ (10,790,422)	\$ (10,790,422)
<b>Total Estimated Program Costs</b>	\$ (18,048,993)	\$ (18,048,993)
<b>Formula errors (*)</b>	\$ -	
<b>Original Project Savings</b>	<b>\$ 5,028,690</b>	<b>\$ 5,028,690</b>

<b>Earned Contractor Insurance Costs</b>	\$ 30,419,227	\$ 30,419,227
<b>Actual Losses</b>	\$ (4,899,029)	\$ (4,899,029)
<b>Actual Fixed Costs</b>	\$ (10,824,976)	\$ (10,824,976)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ (3,811,187)	\$ (3,811,187)
<b>Total Actual Program Costs</b>	\$ (19,535,192)	\$ (19,535,192)
<b>Formula errors (*)</b>	\$ 1,276,506	
<b>Adjusted Project Savings</b>	<b>\$ 12,160,541</b>	<b>\$ 10,884,035</b>

ROCIP 3, as of October 2015:	As presented	Adjusted
<b>Expected Contractor Insurance Costs</b>	\$ 30,969,113	\$ 30,969,113
<b>Expected Losses</b>	\$ (5,801,390)	\$ (5,801,390)
<b>Expected Fixed Costs</b>	\$ (11,498,553)	\$ (11,498,553)
<b>Total Estimated Program Costs</b>	\$ (17,299,943)	\$ (17,299,943)
<b>Formula errors (*)</b>	\$ (1,507,678)	
<b>Original Project Savings</b>	<b>\$ 12,161,492</b>	<b>\$ 13,669,170</b>

<b>Earned Contractor Insurance Costs</b>	\$ 19,656,222	\$ 19,656,222
<b>Actual Losses</b>	\$ (676,841)	\$ (676,841)
<b>Actual Fixed Costs</b>	\$ (13,006,231)	\$ (13,006,231)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ (287,346)	\$ (287,346)
<b>Total Actual Program Costs</b>	\$ (13,970,418)	\$ (13,970,418)
<b>Formula errors (*)</b>	\$ (240,305)	
<b>Adjusted Project Savings</b>	<b>\$ 5,445,499</b>	<b>\$ 5,685,804</b>

## SAVINGS ANALYSIS (CONTINUED)

**Table 2: Data Entry Errors.** As a result of our fieldwork and validation testing on a sample basis, we noted data entry errors that were corrected by Aon and resulted in updated summaries, presented in February 2016 to the ROCIP Committee. In addition to these input errors, actual program costs incurred to-date as of February 2016 were updated due to the normal passage of time and project progression. The primary changes that resulted from formula and input errors as of February were as follows:

- Expected Fixed Costs for R1 were reduced, and Actual Programs costs were increased, due to Contract Value and actual payroll input errors, resulting in additional fees but reduced premiums, respectively.
- A duplicate claim for R2 that has been removed, resulting in lower actual losses than originally reported.
- Additional fees for R2 triggered as a result of Contract Values potentially exceeding \$770M.

Due to the timing differences between reports, both the original projected savings and the adjusted savings are presented in order to gain a fuller picture of where the final project savings may fall. R2 and R3 projects are less than 50% complete as of February; thus, the adjusted project savings could fluctuate significantly as the remaining projects progress. A reconciliation of the general ledger and spot checking the contract values and payrolls reported against independent contractor compliance reports could provide more support for the numbers presented by the third-party administrator.

ROCIP Savings, as of October 2015:	R1	R2	R3	ROCIP Savings, as of February 2016:	R1	R2	R3
<b>Expected Contractor Insurance Costs</b>	\$ 15,574,237	\$ 23,077,683	\$ 30,969,113	<b>Expected Contractor Insurance Costs</b>	\$ 15,574,237	\$ 23,077,683	\$ 30,969,113
<b>Expected Losses</b>	\$ (3,893,545)	\$ (7,258,571)	\$ (5,801,390)	<b>Expected Losses</b>	\$ (4,666,043)	\$ (7,258,571)	\$ (5,801,390)
<b>Expected Fixed Costs</b>	\$ (7,521,034)	\$ (10,790,422)	\$ (11,498,553)	<b>Expected Fixed Costs</b>	\$ (7,234,586)	\$ (10,790,422)	\$ (11,498,553)
<b>Total Estimated Program Costs</b>	\$ (11,414,579)	\$ (18,048,993)	\$ (17,299,943)	<b>Total Estimated Program Costs</b>	\$ (11,900,629)	\$ (18,048,993)	\$ (17,299,943)
<b>Formula errors (*)</b>				<b>Formula errors (*)</b>			
<b>Original Project Savings</b>	<b>\$ 4,159,658</b>	<b>\$ 5,028,690</b>	<b>\$ 13,669,170</b>	<b>Original Project Savings</b>	<b>\$ 3,673,608</b>	<b>\$ 5,028,690</b>	<b>\$ 13,669,170</b>
<b>Earned Contractor Insurance Costs</b>	\$ 18,574,457	\$ 30,419,227	\$ 19,656,222	<b>Earned Contractor Insurance Costs</b>	\$ 18,574,457	\$ 31,026,642	\$ 20,821,844
<b>Actual Losses</b>	\$ (5,080,887)	\$ (4,899,029)	\$ (676,841)	<b>Actual Losses</b>	\$ (5,080,887)	\$ (4,674,114)	\$ (1,025,134)
<b>Actual Fixed Costs</b>	\$ (8,083,879)	\$ (10,824,976)	\$ (13,006,231)	<b>Actual Fixed Costs</b>	\$ (8,084,879)	\$ (10,824,976)	\$ (13,006,231)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ -	\$ (3,811,187)	\$ (287,346)	<b>Estimated Additional Fee &amp; Premiums</b>	\$ -	\$ (3,954,202)	\$ (545,826)
<b>Total Actual Program Costs</b>	\$ (13,164,766)	\$ (19,535,192)	\$ (13,970,418)	<b>Total Actual Program Costs</b>	\$ (13,165,766)	\$ (19,453,292)	\$ (14,577,191)
<b>Formula errors (*)</b>				<b>Formula errors (*)</b>			
<b>Adjusted Project Savings</b>	<b>\$ 5,409,691</b>	<b>\$ 10,884,035</b>	<b>\$ 5,685,804</b>	<b>Adjusted Project Savings</b>	<b>\$ 5,408,691</b>	<b>\$ 11,573,350</b>	<b>\$ 6,244,653</b>

Note: \* The previous formula errors remain corrected, and additional errors noted in February summaries have also been corrected above. The original uncorrected summaries provided to the ROCIP Committee are located in the appendix, along with the most recent summaries presented as of June 2016.

## SAVINGS ANALYSIS (CONTINUED)

**Table 3: Reconciliation to General Ledger.** As more fully described in Observation #1, DC Water does not currently reconcile general ledger activity to the Aon supporting schedules or carrier loss reports. As the Aon data and general ledger data or supporting schedules were not presented in a consistent format, we were unable to fully reconcile the third-party information to DC Water's general ledger. Below is a high-level summary of the transactions we were able to work with management to identify/classify as of September 2015 in the general ledger, compared to the Aon summaries as of October 2015. Based on the amounts below, the ledger's liability funding entries (\$46.4M) is slightly less total estimated program costs from the Aon October report (\$46.8M). Total Actual Program Costs (\$46.7M) are higher than the funding entries (\$46.4M) as of October, even though R2 and R3 were not yet closed, indicating there may be additional funding entries needed in the ledger. Reconciling the ledger with Aon's records in more detail would identify these trends and potential funding issues, as well as explain timing issues between the line items – for example, Aon's report shows Actual Losses of \$10.66M, but the ledger shows \$8.52M in paid losses. These variances would be identified for resolution upon reconciliation. Recommendations have been made to improve this process in the Detailed Observations section of this report.

General Ledger Recap	ROCIP 1	ROCIP 2	ROCIP 3	Total
Funding / Budget Entries	\$ (15,902,293)	\$ (15,015,024)	\$ (15,516,756)	\$ (46,434,073)
Aon Estimated Premium / Fees	\$ 8,084,879	\$ 14,753,744	\$ 12,260,942	\$ 35,099,565
Paid Losses - 10/31/2015	\$ 4,849,476	\$ 3,264,188	\$ 406,136	\$ 8,519,800
Transfers from R2 to R1	\$ (2,244,529)	\$ 2,244,529	\$ -	\$ -
Other program activity	\$ 5,212,468	\$ (6,276,644)	\$ (1,822,088)	\$ (2,886,264)
Ending Balance 09/30/2015	\$ -	\$ (1,029,207)	\$ (4,671,765)	\$ (5,700,972)

Source: Lawson G/L, provided by Finance

Aon Summary - October 2015	ROCIP 1	ROCIP 2	ROCIP 3	Total
<b>Expected Contractor Insurance Costs</b>	\$ 15,574,237	\$ 23,077,683	\$ 30,969,113	\$ 69,621,033
<b>Expected Losses</b>	\$ (3,893,545)	\$ (7,258,571)	\$ (5,801,390)	\$ (16,953,506)
<b>Expected Fixed Costs</b>	\$ (7,521,034)	\$ (10,790,422)	\$ (11,498,553)	\$ (29,810,009)
<b>Total Estimated Program Costs</b>	\$ (11,414,579)	\$ (18,048,993)	\$ (17,299,943)	\$ (46,763,515)
<b>Original Project Savings</b>	\$ 4,159,658	\$ 5,028,690	\$ 13,669,170	\$ 22,857,518
<b>Earned Contractor Insurance Costs</b>	\$ 18,574,457	\$ 30,419,227	\$ 19,656,222	\$ 68,649,906
<b>Actual Losses</b>	\$ (5,080,887)	\$ (4,899,029)	\$ (676,841)	\$ (10,656,757)
<b>Actual Fixed Costs</b>	\$ (8,083,879)	\$ (10,824,976)	\$ (13,006,231)	\$ (31,915,086)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ -	\$ (3,811,187)	\$ (287,346)	\$ (4,098,533)
<b>Total Actual Program Costs</b>	\$ (13,164,766)	\$ (19,535,192)	\$ (13,970,418)	\$ (46,670,376)
<b>Adjusted Project Savings</b>	\$ 5,409,691	\$ 10,884,035	\$ 5,685,804	\$ 21,979,530

## SAVINGS ANALYSIS (CONTINUED)

**Table 4: Estimated Liabilities.** Insurance premiums are calculated primarily based upon payroll and administrative fees are based upon contract values. As such, these numbers are used to estimate savings, but are also used to calculate the estimated program liabilities and record them in the general ledger. The tables below illustrate the Estimated and Actual Contract Values and Payroll as of October 2015 and February 2016.

ROCIP Savings, as of October 2015:	R1	R2	R3	ROCIP Savings, as of February 2016:	R1	R2	R3
<b>Original Contract Value (CV) Estimate</b>	\$ 480,768,408	\$ 688,356,540	\$ 942,770,000	<b>Original Contract Value (CV) Estimate</b>	\$ 480,768,408	\$ 688,356,540	\$ 942,770,000
<b>Awarded CV Amount</b>	\$ 598,974,427	\$ 1,211,697,495	\$ 1,091,560,847	<b>Awarded CV Amount</b>	\$ 598,974,427	\$ 1,211,326,675	\$ 1,183,307,159
<b>% of CV projects closed</b>	100.0%	39.3%	n/a	<b>% of CV projects closed</b>	100.0%	39.3%	n/a
<b>Original Payroll Estimate</b>	\$ 105,759,436	\$ 151,741,316	\$ 161,227,376	<b>Original Payroll Estimate</b>	\$ 105,759,436	\$ 151,741,316	\$ 161,227,376
<b>Reported Payroll - Actual to-Date</b>	\$ 102,013,149	\$ 220,406,567	\$ 70,020,584	<b>Reported Payroll - Actual to-Date</b>	\$ 102,013,149	\$ 224,009,636	\$ 91,351,037

We noted, upon discussion with management and review of the general ledger that the anticipated program liabilities were recorded in the general ledger as a percentage of the original Contract Values. As the CV changed due to change orders or other factors, the liability was not updated to reflect these changes. As a result, during fiscal year 2015 the budgeted expenses for R2 were understated by approximately \$1M because 1) the estimates were not evaluated on a periodic basis against actual contract values for reasonableness, and 2) there was no periodic reconciliation between Aon and the general ledger. The table below illustrates the cost trends for the ROCIP program, as a % of awarded contract value and actual reported payroll.

ROCIP Savings, as of October 2015:	R1	R2	R3	ROCIP Savings, as of February 2016:	R1	R2	R3
<b>Total Actual Program Costs</b>	\$13,164,766	\$19,535,192	\$13,970,418	<b>Total Actual Program Costs</b>	\$13,165,766	\$19,453,292	\$14,577,191
<b>Program Costs as a % of CV</b>	2.2%	1.6%	1.3%	<b>Program Costs as a % of CV</b>	2.2%	1.6%	1.2%
<b>Program Costs as a % of Payroll</b>	12.9%	8.9%	20.0%	<b>Program Costs as a % of Payroll</b>	12.9%	8.7%	16.0%

For comparison, a 2007 report by the Finishing Contractors Association (Vienna, VA) stated that OCIP coverage can reduce project costs by approximately 1-2% compared to the traditional insurance process. A more recent (Sept 2014) article in ExpertLaw stated that the Risk and Insurance Management Society performed a study that OCIP-provided insurance cost would be less than \$20 per \$1,000 or 2% of revenue. Based on the trends above and the available research, recording an initial liability at 1.5-2% of the estimated contract value appears to be reasonable. However, as the contract value changes, and the actual costs are incurred, any estimates, as well as the %, should be re-evaluated and adjusted accordingly. It should be noted that R2 and R3 are in their early stages and less than 50% complete, so the liability should be more conservative toward the R1 trend, since that phase is closed. It is our understanding that management intends to record R4 at 2.2%, as a result of the R1 actual costs as a % of CV, illustrated above.

## SAVINGS ANALYSIS (CONTINUED)

**Table 5: Estimated Losses.** During our analysis, we noted that the savings calculation by Aon uses a loss estimate at the feasibility stage of each ROCIP which are based upon insurance company loss picks. Loss picks are used as an underwriting element of what premium rate to charge the insured. For Aon's monthly reporting, the loss amounts shift from the loss pick amount to reported losses, the sum of paid amounts plus adjustor case reserve estimates. An actuarial estimate for claims incurred but not reported ("IBNR") is not included in Aon's reporting, but is provided annually (as of October) to DC Water, as a part of Ultimate Losses. If the actuary's ultimate loss estimates were used instead on Aon's loss pick estimates, the amount of the adjusted savings would vary. As with any estimate, there are several factors to consider with either estimation method and the estimates change throughout the program periods. Below is the calculation of savings using the actuarial ultimate losses as compared to the Aon loss pick estimates as of February 2016. Note that the estimated actuarial ultimate losses are lower than the Aon estimated expected losses by \$1.1M, but \$5.8M higher as compared to actual losses incurred to-date.

ROCIP Savings, as of February 2016:	R1	R2	R3	Total
<b>Expected Contractor Insurance Costs</b>	\$ 15,574,237	\$ 23,077,683	\$ 30,969,113	\$ 69,621,033
<b>Expected Losses</b>	\$ (4,666,043)	\$ (7,258,571)	\$ (5,801,390)	\$ (17,726,004)
<b>Expected Fixed Costs</b>	\$ (7,234,586)	\$ (10,790,422)	\$ (11,498,553)	\$ (29,523,561)
<b>Total Estimated Program Costs</b>	<u>\$ (11,900,629)</u>	<u>\$ (18,048,993)</u>	<u>\$ (17,299,943)</u>	<u>\$ (47,249,565)</u>
<b>Original Project Savings</b>	<u>\$ 3,673,608</u>	<u>\$ 5,028,690</u>	<u>\$ 13,669,170</u>	<u>\$ 22,371,468</u>
<b>Add: Expected Losses reported</b>				\$ 17,726,004
<b>Deduct: Actuarial Estimate of Ultimate Losses*</b>				<u>\$ (16,600,873)</u>
<b>Adjusted Estimated Project Savings after Ultimate Losses</b>				<u><u>\$ 23,496,599</u></u>
* Estimated Ultimate Losses are reported in the aggregate rather than by ROCIP Phase.				
<b>Earned Contractor Insurance Costs</b>	\$ 18,574,457	\$ 31,026,642	\$ 20,821,844	\$ 70,422,943
<b>Actual Losses</b>	\$ (5,080,887)	\$ (4,674,114)	\$ (1,025,134)	\$ (10,780,135)
<b>Actual Fixed Costs</b>	\$ (8,084,879)	\$ (10,824,976)	\$ (13,006,231)	\$ (31,916,086)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ -	\$ (3,954,202)	\$ (545,826)	\$ (4,500,028)
<b>Total Actual Program Costs</b>	<u>\$ (13,165,766)</u>	<u>\$ (19,453,292)</u>	<u>\$ (14,577,191)</u>	<u>\$ (47,196,249)</u>
<b>Adjusted Project Savings</b>	<u>\$ 5,408,691</u>	<u>\$ 11,573,350</u>	<u>\$ 6,244,653</u>	<u>\$ 23,226,694</u>
<b>Add: Actual Losses Reported</b>				\$ 10,780,135
<b>Deduct: Actuarial Estimate of Ultimate Losses*</b>				<u>\$ (16,600,873)</u>
<b>Adjusted Estimated Project Savings after Ultimate Losses</b>				<u><u>\$ 17,405,956</u></u>
* Estimated Ultimate Losses are reported in the aggregate rather than by ROCIP Phase.				

## SAVINGS ANALYSIS (CONTINUED)

### Savings Analysis Summary.

In general, we were able to validate that the estimated project savings reported are reasonably stated. Below is a comparison of the February 2016 Aon-reported amounts to RSM's validated / recalculated amounts. Our validation procedures were based on a sample of contracts, and there may be additional errors within the supporting data that could further impact the project savings. A key consideration going forward will be to monitor the actual amounts against the estimates as the projects progress, as well as reconcile the amounts reported to supporting schedules or other data, including the Authority's general ledger, as well as checking formulas for accuracy. Aon's total losses as of February 2016 were expected at \$17.7 million, but actual incurred to-date were only \$10.8 million. If the losses were to reach the estimated amounts, with all other variables remaining the same (Earned insurance costs, fees, premiums, etc.), the actual project savings would be much lower than originally anticipated. In addition, the actual premiums and fees are trending higher than the current estimates given the projects for R2 and R3 are not yet complete. These amounts should be reconciled to actual payments and monitored as the projects close to determine if the program is adequately funded for future costs. On the following pages, we have added observations to this report to assist management with developing procedures to further enhance controls and provide for these monitoring activities.

February 2016	AON Total	RSM Total
<b>Expected Contractor Insurance Costs</b>	\$ 69,621,033	\$ 69,621,033
<b>Expected Losses</b>	\$ (17,726,004)	\$ (17,726,004)
<b>Expected Fixed Costs</b>	\$ (29,523,561)	\$ (29,523,561)
<b>Total Estimated Program Costs</b>	\$ (47,249,565)	\$ (47,249,565)
<b>Formula errors (*)</b>	\$ (1,507,678)	\$ -
<b>Original Project Savings</b>	<b>\$ 20,863,790</b>	<b>\$ 22,371,468</b>
<b>Earned Contractor Insurance Costs</b>	\$ 70,422,943	\$ 70,422,943
<b>Actual Losses</b>	\$ (10,780,135)	\$ (10,780,135)
<b>Actual Fixed Costs</b>	\$ (31,916,086)	\$ (31,916,086)
<b>Estimated Additional Fee &amp; Premiums</b>	\$ (4,500,028)	\$ (4,500,028)
<b>Total Actual Program Costs</b>	\$ (47,196,249)	\$ (47,196,249)
<b>Formula errors (*)</b>	\$ (545,825)	\$ -
<b>Adjusted Project Savings</b>	<b>\$ 22,680,869</b>	<b>\$ 23,226,694</b>

## DETAILED OBSERVATIONS

ROCIP Savings Analysis			
1.	<u>Liability Trend and Adjustment</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: High</b>		
	<p>During our fieldwork and testing of claims expenses, we noted that DC Water has historically recorded a percentage of Contract Value to estimate the overall ROCIP claims liability. The estimated liability was not adjusted over the life of the program as the Contract Values changed through approved change orders, or the actuarial reserve was prepared.</p> <p>This can result in, and did result in an underestimated liability of the program. R2 expenses were underestimated by approximately \$1M as a result of change orders that were approved and contractor added to the program after the initial enrollments. The increase occurred primarily as a result of the additional fees that are triggered after the contract values reach a higher tier.</p> <p>Further, we noted that the liability has historically been recorded at 1.5% of CV; the actual R1 trend (as closed) was 2.2%. R2 is currently (Feb 2016) at 1.6%, and R3 is at 1.2%. These variances, over time, could be significant given the contract values. As such, the actual trends should be monitored to ensure that an adjustment to the liability isn't needed. See the analysis section of this report for details on these trends.</p>	<p>The claims liability and reserve need to be adjusted as the Contract Values are changed, and when the actuarial reports are issued. This will help to plan for budgetary needs as well as provide a better estimate of the anticipated program savings.</p> <p>Trend analysis for the actual expenses compared to contract values should be performed on a periodic basis (at least quarterly) to ensure that the liability estimate continues to be reasonable.</p>	<p><b>Response:</b> Management agrees with this recommendation. ROCIP funding includes anticipated claims costs. Tracking adjusted contract expenses early will better assist us with assessing how it impacts budgets. Management will review DETS construction change orders with contract value increases at a minimum quarterly, to ensure proper adjustment to the liability of the program.</p> <p><b>Responsible Party:</b> OCFO</p> <p><b>Target Date:</b> December 31, 2016</p>

## DETAILED OBSERVATIONS (CONTINUED)

ROCIP Savings Analysis			
2.	<u>General Ledger Reconciliation</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>During our fieldwork, we noted that a reconciliation between Aon's premium, claim and transaction records, as well as the carrier loss records, and the DC Water general ledger (G/L or Lawson) does not occur. Risk Management does use an internal tracking sheet to monitor the transactions for accuracy, but that isn't reconciled to the ledger, either. The G/L contains reconciling items that Aon does not include. Aon's records will contain estimates that may not be recorded in the G/L. Identifying and understanding these reconciling items is critical to ensuring the liability and expense budgets are adequately forecasted and comparisons to actual data will be meaningful and relevant. Anything that DC Water records in the G/L that Aon does not consider should be included that in an adjusted savings calculation.</p> <p>We further noted that the G/L does not capture specific contractor data or include a breakdown of expense types. This makes it challenging to reconcile claims expenses to specific contractors/projects or reconcile Aon expense line items to the G/L. Per discussion with Finance, it would be time consuming to breakdown the ledger by contractor using sub-codes, and there aren't enough resources to manage that type of data entry / tracking. Since ESIS's system tracks claims and activities by contractor, and Aon's system tracks premiums by contractor, as long as DC Water is reconciling expense line items in some manner, they may not need to get that granular. However, it may prove to be difficult to reconcile in 'batches'.</p> <p>Management may decide to develop a reasonable threshold that as long as they come within x% on a monthly / quarterly basis, it can be considered reconciled. At a minimum, the G/L should contain different accounts for actual expense types – premiums, additional premiums, fees, overhead, losses – so that those can be reconciled individually within a reasonable expected threshold.</p>	<p>Reconciliation between third party records and the general ledger should occur on a periodic basis, at a minimum of quarterly. More frequently may need to be considered if the volume of transactions is too great.</p> <p>Further, the general ledger sub-coding should be broken down by contractor, or at least in a manner that the records can be reconciled by category of expense (premiums, additional premiums, fees, overhead, losses, etc.) so that a reasonableness threshold can be established and monitored for trends, expectations, and the like.</p> <p>Management should also consider the use of purchase orders for the different expense vendors in order to track budgeted expense versus % of PO used, i.e., budget vs. actual using the Lawson system.</p>	<p><b>Response:</b> Management agrees with this recommendation. Management will develop appropriate expense types in order for the General ledger accounts to be created to record all relevant expense types and facilitate periodic reconciliation on a quarterly basis. In addition, PO's will be established to improve the payment tracking processes.</p> <p><b>Responsible Party:</b> OCFO</p> <p><b>Target Date:</b> December 31, 2016</p>



## DETAILED OBSERVATIONS (CONTINUED)

ROCIP Savings Analysis			
3.	<u>Data Entry Errors and Missing Supporting Documentation</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>During our testing of Aon's records, we noted formula and data entry errors, as well as older contracts where supporting documentation was not readily available. Examples include formula errors in the summary tables (see Savings Analysis Table 2), certified payrolls entered for the wrong amounts and a duplicate claim that impacted premiums and actuarial estimates. Aon corrected these errors as we identified them.</p> <p>Carrier audits on performed on contracts and claims, and would identify any transactional errors.</p>	<p>We recommend that spot checking of third-party records occur against supporting documentation for contract values, certified payrolls, claims expenses and other data that impact the expenditures of the program and could result in budgetary changes.</p> <p>The source documents for this spot checking could be pulled from contract records in DETS.</p> <p>Summary schedules should be checked for mathematical accuracy before being presented to the ROCIP Committee.</p>	<p><b>Response:</b></p> <p>Management agrees with this recommendation. Annually (approximately 6 months post policy year-end), Risk Management will request formal Contractor payroll audits from the Insurance Carrier. The Authority's ROCIP 4 Broker / Administrator has committed to carrying out this task going forward. We will also develop appropriate methods for verifying &amp; spot checking data.</p> <p><b>Responsible Party:</b> OCFO</p> <p><b>Target Date:</b></p> <p>December 31, 2016</p>

## DETAILED OBSERVATIONS (CONTINUED)

ROCIP Savings Analysis			
4.	<u>SRS Database for Safety Inspections</u>	<u>Recommendation</u>	<u>Management's Action Plan</u>
	<b>Observation Rating: Moderate</b>		
	<p>One way of limited DC Water's exposure to ROCIP claims is by implementing and monitoring a safety program. Each contractor and DC Water co-develop a Safety Manual that is monitored through a routine inspection process. Inspections are performed by a third-party, and then Aon has a designated supervisor and reviews all inspection reports.</p> <p>DC Water's system of record for monitoring safety compliance of contractors and subcontractors onsite is the SRS database, which is an ancillary module of the Risk Management software. We selected 30 inspections, checking for inspector and supervisor sign offs, communication of the results to the contractors and follow up actions. In multiple instances, the database was not updated for these control points. We further noted that there was a period of time where the Aon supervisor was unable to access the system to perform these sign offs and document any remediation or follow up efforts performed. There is also no documented record of the contractor or project manager receiving the results.</p>	<p>The SRS database needs to be kept updated to document when inspections are performed and by whom, as well as the review and escalation process for issues that require immediate attention. Further, if the SRS database is not providing DC Water with the level of transparency desired into this process, a different database or alternative procedures should be considered.</p>	<p><b>Response:</b>                      Management agrees with this recommendation and the approval issue was immediately corrected once the same came back on line. The current database provider contract will expire in 2017 and there is a Steering Committee currently furthering our goal of exploring alternative systems. When the SRS system is inaccessible or off line for any reason the following manual process is as follows:</p> <p>The safety consultants send their safety inspection reports in an email attachment after completing the SRS Audit to the Aon Senior Risk Consultant. Aon Senior Risk Consultant reviews safety inspection reports prior to the consultants sending out to the contractors. If Aon Senior Risk Consultant make any edits or if any revisions are required, the safety inspection report will be sent back to the safety consultant. The safety consultant will make the revision as required and resubmit the safety inspection report to Aon Senior Risk Consultant. If no additional changes are required Aon Senior Risk Consultant approves the safety inspection reports for distribution.</p> <p>Safety inspection reports that require no changes are approved for distribution to the perspective construction manager, project manager and contractor. The consultant then uploads the approved report into SRS journal for record.</p> <p>The documented record of the construction manager, project manager and contractor receiving the results of a safety inspection and responding to such has been capture in the email only. SRS does support documentation of the contractors' and project managers receiving or responding to the results of a safety inspection.</p> <p><b>Responsible Party:</b> OS&amp;H  <b>Target Date:</b>                      Complete</p>

## PROCESS IMPROVEMENT OPPORTUNITIES

### ROCIP Savings Analysis

1. Contractors are providing certified payroll and contract value data to DETS for contract compliance monitoring purposes. This data is also being provided to the ROCIP administrator separately. There is currently no reconciliation between the two. Management should consider spot checking the ROCIP data against the compliance support for consistency.
2. Given the growth of the ROCIP program, and DC Water's ongoing Capital Improvement Plan, management may want to consider identifying a ROCIP program manager within staff in order to review contractor support against third party records, reconcile third party records to general ledger, work with Accounting to ensure proper recording and classification of expenditures, etc.

## APPENDIX A – RATING DEFINITIONS

Observation Risk Rating Definitions	
Rating	Definition
<b>Low</b>	Observation presents a low risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of low importance to business success/achievement of goals. Action should be taken within 12 months (if related to external financial reporting, must mitigate financial risk within two months unless otherwise agreed upon).
<b>Moderate</b>	Observation presents a moderate risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of moderate importance to business success/achievement of goals. Action should be taken within nine months (if related to external financial reporting, must mitigate financial risk within two months).
<b>High</b>	Observation presents a high risk (i.e., impact on financial statements, internal control environment or business operations) to the organization for the topic reviewed and/or is of high importance to business success/achievement of goals. Action should be taken immediately, but in no case should implementation exceed six months (if related to external financial reporting, must mitigate financial risk within two months).

## APPENDIX B – ROCIP SUMMARIES PRESENTED BY AON (OCT 2015- R2 MANAGEMENT REPORT)

<b>OCT 2015- R2 MANAGEMENT REPORT</b>		
<b>DC Water ROCIP 2</b>	<b>Sep-15</b>	<b>Oct-15</b>
Program Start/End Dates*	10/15/14 to 4/15/15	10/15/14 to 4/15/15
Base Program Term (Months)	Exception Period**	Exception Period**
Months into project	5	6
Percent Completed	50.00%	60.00%
Original CV Estimate	\$688,356,540	\$688,356,540
Awarded CV Amount	\$1,211,697,495	\$1,211,697,495
Closed Project CV Amount	\$476,479,892	\$476,479,892
Active Project CV Amount	\$735,217,603	\$735,217,603
Percentage of Closed CV to Awarded CV	39.32%	39.32%
CV Audit***	\$1,276,506	\$1,276,506
Original Payroll Estimate	\$151,741,316	\$151,741,316
Estimated Payroll from Form 3's	188,934,493	188,934,493
Reported Payroll - Actual to Date	219,256,139	220,406,567
Estimated AP due from Reported PR - ACE - WC	\$972,213	\$988,780
Estimated AP due from Reported PR - ACE - GL	\$702,154	\$714,119
Estimated AP due from Reported PR - Chartis	\$492,183	\$500,570
Estimated AP due from Reported PR - Zurich	\$266,684	\$271,228
Estimated AP due from Reported PR - West/GAIC	\$55,442	\$59,986
Total Estimated AP (all carriers)	\$2,468,676	\$2,534,681
Percentage of Actual Reported to Form 3 Estimates	116.05%	116.66%
Estimated Manhours from Form 3's	6,020,459	6,020,459
Reported Manhours - Actual to Date	7,256,082	7,286,897
Percentage of Reported to Form 3's	120.52%	121.04%
Original Contractor Insurance Costs	\$23,077,683	\$23,077,683
Earned Contractor Insurance Costs*****	\$29,841,338.00	\$30,419,227.00
Percentage of Reported to Original	129.31%	131.81%
<b>Program Costs</b>	<b>Sep-15</b>	<b>Oct-15</b>
Original Premium + Fees	\$10,790,422	\$10,790,422
Original Incurred Claims	\$7,258,571	\$7,258,571
Total Original Program Costs	\$18,048,993	\$18,048,993
Reported Premium + Fees*****	\$10,824,976	\$10,824,976
Incurred Claims to Date	\$4,691,272	\$4,899,029
Total Program Costs to Date	\$15,516,248	\$15,724,005
Percentage of Current Costs to Original Costs	85.97%	87.12%
Original Projected Savings	\$5,028,690	\$5,028,690
Reported Project Savings*****	\$11,836,414	\$12,160,541
Current Program Rate on Payroll	13.61	13.80
<b>PROJECT METRICS</b>		
Total Number of R2 Projects In Aonwrap	47	47
Awarded Open Projects	4	4
Closed Projects	43	43
Contracts awarded to MBE/LSDBE Primes	24	24
Percent MBE/LSDBE	51.05%	51.05%
Closed Contractors	617	625
Active Contractors	72	65
Excluded	82	81
Total Participants	771	771
<b>FOOTNOTES</b>		
Program Term - Months *	All projects must be enrolled prior to 10/15/2012 and completed by 10/15/2014, except as provided below. A six month extension in completion date until 4/15/15 will be granted for projects having delays resulting from normal construction schedule changes.	
Exception Period**	Completion of the following projects must occur no later than 10/15/16: Enhanced Nitrogen Removal Facilities, Div A - Blue Plains Tunnel BioSolids Mgmt CHP +MPT. All projects expected to be completed by Jan 2016.	
CV Audit***	Additional Fee to be charged once closed CV surpasses \$770M.	
Reported Premium + Fees ****	Total Amount of Premium, Fixed Costs, Fees + Additional Safety Personnel (Includes 5 Year anticipated safety costs)	
Reported Contractor Insurance Costs*****	Contractors' Insurance Cost Calculation as payroll is expended	
Reported Project Savings (Avoided Costs) to Date *****	Project Savings or "Avoided Costs" to date = Earned Contractor Insurance Costs MINUS Total Premium+Fixed Costs+Fees + Additional Safety Personnel + Incurred Claims to date, + Expected AP Charges	
DEFINITION: Estimated AP due to Reported Payroll	R2 WC+ GL Rate(s) & Excess layer rates * Payroll Overage/100 will be charged to DC Water. Does not include all factors that will be included in final calculation, i.e. non-subject premium charges and claim-related fees. Final audit to be performed in Q2-2016. (est)	

## APPENDIX B – ROCIP SUMMARIES PRESENTED BY AON (OCT 2015- R3 MANAGEMENT REPORT)

OCT 2015 - ROCIP 3 MONTHLY SUMMARY		
DC Water ROCIP 3	Sep-15	Oct-15
Program Start/End Dates*	10/15/12 to 10/15/17	10/15/12 to 10/15/17
Base Program Term (Months)	60	60
Months into project	35	38
Percent Complete	58.33%	60.00%
Original CV Estimate	\$942,770,000	\$942,770,000
Awarded CV Amount	\$1,121,067,360	\$1,091,560,847
Percentage of Awarded to Estimate	118.91%	115.78%
Closed Project CV	\$9,051,431	\$12,472,262
Original Payroll Estimate	\$161,227,376	\$161,227,376
Estimated Payroll from Form 3's	\$167,064,819	\$168,227,622
Reported Payroll - Actual to Date	\$63,886,499	\$70,020,584
Percentage of Reported to Form 3's	38.24	41.62
Anticipated AP from Estimated PR (ACE)	135,241.88	162,181.70
Anticipated AP from AIG (1st Layer XS)	65,145.86	78,122.75
Anticipated AP from XL Ins. (2nd Layer XS)	20,664.55	24,780.87
Anticipated AP from CV Staff (3rd Layer XS)	11,324.64	13,580.48
Anticipated AP from GAIC (4th Layer XS)	7,238.43	8,680.31
Total Anticipated AP based on Estimated PR	239,615.36	287,346.10
Estimated Manhours From Form 3's	4,239,479	4,239,479
Reported Manhours - Actual to Date	2,133,008	2,293,205
Percentage of Reported to Form 3's	50.31	50.31
Expected Contractor Insurance Costs	\$30,969,113	\$30,969,113
Earned Contractor Insurance Costs**	\$30,659,099	\$19,656,222
Percentage of Taken to Expected	99.00%	63.47%
Program Costs & Savings	Sep-15	Oct-15
Original Premium + Fees***	\$11,498,553	\$11,498,553
Expected Incurred Claims	\$5,801,390	\$5,801,390
Total Original Program Costs	\$17,299,943	\$17,299,943
Reported Premium + Fees***	\$13,006,231	\$13,006,231
Incurred Claims to Date	\$644,754	\$676,841
Total Program Costs To Date	\$13,851,373	\$13,923,376
Percentage of Current Costs to Original	80.07%	80.48%
Original Project Savings****	\$12,161,492	\$12,161,492
Reported Project Savings	\$16,568,111	\$5,445,499
Program Rate	47.99	28.07
Enrollment	Sep-15	Oct-15
Awarded Open Projects	38	38
In Bid Stage/Pending	5	1
Closed Projects	5	6
Contracts awarded to MBE/LSDBE Primes	12	12
Percent MBE/LSDBE	32%	32%
Closed Contractors	150	160
Active Contractors	314	366
Excluded	91	95
Total Participants	555	621
Footnotes		
Program Term - Months*	All projects must be enrolled prior to 10/15/2015 and completed by 10/15/2017, except as provided below. A six month extension in completion date until 4/15/2018 will be granted for projects having met the enrollment criteria of the program (i.e. enrolled by 10/15/15). Completion of the following two projects must occur no later than 10/15/2018: A401 - Future Sewer System Upgrades/EI01 - Plantwide Painting of Steel Pipes	
Enrolled Contractor Insurance Costs**	Includes expected enrolled contractors' insurance cost (program is bid net of insurance) from Aon Form 1A	
Premium + Fees***	Includes all premiums and broker fee over 5 years. Includes first 3 years of safety costs and last 2 years of estimated safety costs.	
Expected Project Savings****	Contractor Insurance Costs - Costs of Program (including any AP + Incurred Claims = Savings)	

## APPENDIX B – ROCIP SUMMARIES PRESENTED BY AON (FEB 2016- R2 MANAGEMENT REPORT)

FEB 2016- R2 MANAGEMENT REPORT		
DC Water ROCIP 2	Jan-15	Feb-16
Program Start/End Dates*	10/15/14 to 4/15/15	10/15/14 to 4/15/15
Base Program Term (Months)	Exception Period**	Exception Period**
Months into project	9	10
Percent Completed	90.00%	99.00%
Original CV Estimate	\$688,356,540	\$688,356,540
Awarded CV Amount	\$1,211,326,675	\$1,211,326,675
Closed Project CV Amount	\$476,470,411	\$476,470,411
Active Project CV Amount	\$734,856,264	\$734,856,264
Percentage of Closed CV to Awarded CV	39.33%	39.33%
CV Audit***	\$1,275,434	\$1,275,434
Original Payroll Estimate	\$151,741,316	\$151,741,316
Estimated Payroll from Form 3's	188,934,493	188,934,493
Reported Payroll - Actual to Date	\$223,204,491	\$224,009,636
Estimated AP due from Reported PR- ACE - WC	\$1,029,070	\$1,040,664
Estimated AP due from Reported PR - ACE - GL	\$743,217	\$751,591
Estimated AP due from Reported PR - Chartis	\$520,967	\$526,836
Estimated AP due from Reported PR - Zurich	\$282,280	\$285,460
Estimated AP due from Reported PR - West/GAIC	\$71,038	\$74,218
Total Estimated AP (all carriers)	\$2,646,570	\$2,678,768
Percentage of Actual Reported to Form 3 Estimate	118.14%	118.56%
Estimated Manhours from Form 3's	6,020,459	6,020,459
Reported Manhours - Actual to Date	7,358,526	7,373,199
Percentage of Reported to Form 3's	122.23%	122.47%
Original Contractor Insurance Costs	\$23,077,683	\$23,077,683
Earned Contractor Insurance Costs*****	\$30,898,094	\$31,026,642
Percentage of Reported to Original	133.89%	134.44%
Program Costs	Jan-16	Feb-16
Original Premium + Fees	\$10,790,422	\$10,790,422
Original Incurred Claims	\$7,258,571	\$7,258,571
Total Original Program Costs	\$18,048,993	\$18,048,993
Reported Premium + Fees*****	\$10,824,976	\$10,824,976
Incurred Claims to Date	\$4,650,756	\$4,674,114
Total Program Costs to Date	\$15,475,732	\$15,499,090
Percentage of Current Costs to Original Costs	85.74%	85.87%
Original Projected Savings	\$5,028,690	\$5,028,690
Reported Project Savings*****	\$11,500,357	\$11,573,350
Current Program Rate on Payroll	13.84	13.85
PROJECT METRICS - Feb 16		
Total Number of R2 Projects in Aonwrap	47	47
Awarded Open Projects	4	4
Closed Projects	43	43
Contracts awarded to MBE/LSDBE Primes	24	24
Percent MBE/LSDBE	51.06%	51.06%
Closed Contractors	625	667
Active Contractors	65	23
Excluded	81	82
Total Participants	771	772
FOOTNOTES		
Program Term - Months *	All projects must be enrolled prior to 10/15/2012 and completed by 10/15/2014, except as provided below. A six month extension in completion date until 4/15/15 will be granted for projects having delays resulting from normal construction schedule changes.	
Exception Period**	Completion of the following projects must occur no later than 10/15/16: ENRF, Div A - Blue Plains Tunnel BioSolids Mgmt CHP +MPT. All projects expected to be completed by Jan 2016.	
CV Audit***	Additional Fee to be Charged once CV Surpasses \$770 M	
Reported Premium + Fees ****	Total Amount of Premium, Fixed Costs, Fees + Additional Safety Personnel (includes 5 Year anticipated safety costs)	
Reported Contractor Insurance Costs*****	Contractors' insurance Cost Calculation as payroll is expended	
Reported Project Savings (Avoided Costs) to Date *****	Project Savings or "Avoided Costs" to date = Earned Contractor Insurance Costs MINUS Total Premium+Fixed Costs+Fees + Additional Safety Personnel + Incurred Claims to date, + Expected AP Charges + CV Audit Charge	
DEFINITION: Estimated AP due to Reported Payroll	R2 WC+ GL Rate(s) & Excess layer rates * Payroll Overage/100 will be charged to DC Water. Does not include all factors that will be included in final calculation, i.e. non-subject premium charges and claim-related fees. Final audit to be performed in Q4-2016. (est)	

## APPENDIX B – ROCIP SUMMARIES PRESENTED BY AON (FEB 2016-R3 MANAGEMENT REPORT)

FEB 2016 - ROCIP 3 MONTHLY SUMMARY		
DC Water ROCIP 3	Jan-16	Feb-16
Program Start/End Dates*	10/15/12 to 10/15/17	10/15/12 to 10/15/17
Base Program Term (Months)	60	60
Months into project	38	39
Percent Complete	<b>63.33%</b>	<b>65.00%</b>
Original CV Estimate	\$942,770,000	\$942,770,000
Awarded CV Amount	\$1,183,307,159	\$1,183,307,159
Percentage of Awarded to Estimate	<b>125.51%</b>	<b>125.51%</b>
Closed Project CV	\$25,866,507	\$60,074,771
Original Payroll Estimate	\$161,227,376	\$161,227,376
Estimated Payroll from Form 3's	\$175,068,169	\$174,524,630
Reported Payroll - Actual to Date	\$86,347,991	\$91,351,037
Percentage of Reported to Form 3's	<b>49.32</b>	<b>52.34</b>
Anticipated AP from Estimated PR (ACE)	\$320,663	\$308,071
Anticipated AP from AIG (1st Layer XS)	\$154,463	\$148,397
Anticipated AP from XL Ins. (2nd Layer XS)	\$48,996	\$47,072
Anticipated AP from CV Starr (3rd Layer XS)	\$26,851	\$25,797
Anticipated AP from GAIC (4th Layer XS)	\$17,163	\$16,489
<b>Total Anticipated AP based on Estimated PR</b>	<b>\$568,137</b>	<b>\$545,826</b>
Estimated Manhours From Form 3's	4,453,600	4,535,623
Reported Manhours - Actual to Date	2,882,359	3,043,519
Percentage of Reported to Form 3's	<b>64.72</b>	<b>67.10</b>
Expected Contractor Insurance Costs	\$30,969,113	\$30,969,113
Earned Contractor Insurance Costs**	\$20,562,646	\$20,821,844
Percentage of Taken to Expected	66.40%	67.23%
Program Costs & Savings	Jan-16	Feb-16
Original Premium + Fees***	\$11,498,553	\$11,498,553
Expected Incurred Claims	\$5,801,390	\$5,801,390
Total Original Program Costs	\$17,299,943	\$17,299,943
Reported Premium + Fees***	\$13,006,231	\$13,006,231
Incurred Claims to Date	\$933,219	\$1,025,134
Total Program Costs To Date	\$14,507,587	\$14,577,191
Percentage of Current Costs to Original	<b>83.86%</b>	<b>84.26%</b>
Original Project Savings****	\$12,161,492	\$12,161,492
Reported Project Savings	\$5,486,922	\$5,698,828
Program Rate	23.81	22.79
Enrollment	Jan-16	Feb-16
Awarded Open Projects	39	39
Closed Projects	7	7
Contracts awarded to MBE/LSDBE Primes	20	20
Percent MBE/LSDBE	43%	43%
Closed Contractors	199	210
Active Contractors	356	360
Excluded	105	111
Total Participants	660	681
Footnotes		
Program Term - Months*	All projects must be enrolled prior to 10/15/2015 and completed by 10/15/2017, except as provided below. A six month extension in completion date until 4/15/2018 will be granted for projects having met the enrollment criteria of the program (i.e. enrolled by 10/15/15). Completion of the following two projects must occur no later than 10/15/2018: A401 – Future Sewer System Upgrades/EI01 – Plantwide Painting of Steel Pipes	
Enrolled Contractor Insurance Costs**	Includes expected enrolled contractors' insurance cost (program is bid net of insurance) from Aon Form 1A	
Premium + Fees***	Includes all premiums and broker fee over 5 years. Includes first 3 years of safety costs and last 2 years of estimated safety costs.	
Expected Project Savings****	Contractor Insurance Costs - Costs of Program (claims, fixed + any AP = Savings	




## APPENDIX B – ROCIP SUMMARIES PRESENTED BY AON (JUN 2016 – R2 MANAGEMENT REPORT)

<b>JUN 2016 - R2 MANAGEMENT REPORT</b>		
<b>DC Water ROCIP 2</b>	<b>May-16</b>	<b>Jun-16</b>
Original Program Start/End Dates	10/15/09 to 10/15/14	10/15/09 to 10/15/14
Extension Dates	10/15/14 to 4/15/15	10/15/14 to 4/15/15
Current Coverage - Exception Period*	Through 10/15/16	Through 10/15/16
Percent Completed	<b>99.00%</b>	<b>99.00%</b>
Original CV Estimate	\$688,356,540	\$688,356,540
Awarded CV Amount	\$1,211,326,675	\$1,211,763,526
Closed Project CV Amount	\$476,470,411	\$582,627,372
Active Project CV Amount	\$734,856,264	\$629,136,154
CV Audit***	\$1,275,434	\$1,276,697
Original Payroll Estimate	\$151,741,316	\$151,741,316
Estimated Payroll from Form 3's	187,743,864	187,743,864
Reported Payroll - Actual to Date	\$224,539,440	\$224,695,741
Estimated AP due from Reported PR - ACE - WC	\$1,048,293	\$1,050,544
Estimated AP due from Reported PR - ACE - GL	\$757,100	\$758,726
Estimated AP due from Reported PR - Chartis	\$530,698	\$531,838
Estimated AP due from Reported PR - Zurich	\$287,553	\$288,170
Estimated AP due from Reported PR - West/GAIC	\$76,311	\$76,928
Total Estimated AP (all carriers)	<b>\$2,699,955</b>	<b>\$2,706,205</b>
Percentage of Actual Reported to Form 3 Estimates	<b>119.60%</b>	<b>119.68%</b>
Estimated Manhours from Form 3's	5,887,904	5,887,904
Reported Manhours - Actual to Date	7,387,913	7,392,220
Percentage of Reported to Form 3's	<b>125.48%</b>	<b>125.55%</b>
Original Contractor Insurance Costs	\$23,077,683	\$23,077,683
Earned Contractor Insurance Costs*****	\$31,048,622	\$31,054,533
Percentage of Reported to Original	<b>134.54%</b>	<b>134.57%</b>
<b>Program Costs</b>	<b>May-16</b>	<b>Jun-16</b>
Original Premium + Fees	\$8,964,850	\$8,964,850
Original Incurred Claims	\$7,258,571	\$7,258,571
Total Original Program Costs	\$16,223,421	\$16,223,421
Reported Premium + Fees*****	\$10,824,976	\$10,824,976
Incurred Claims to Date	\$4,996,879	\$4,999,704
Total Program Costs to Date	\$15,821,855	\$15,824,680
Percentage of Current Costs to Original Costs	<b>97.52%</b>	<b>97.54%</b>
Original Projected Savings	\$6,854,262	\$6,854,262
Reported Project Savings*****	\$11,251,378	\$11,246,951
Current Program Rate on Payroll	<b>13.83</b>	<b>13.82</b>
<b>PROJECT METRICS - JUN 16</b>		
Total Number of R2 Projects in Aonwrap	47	47
Awarded Open Projects	4	3
Closed Projects	43	44
Contracts awarded to MBE/LSDBE Primes	24	24
Percent MBE/LSDBE	51.06%	51.06%
Closed Contractors	666	669
Active Contractors	21	19
Excluded	82	82
Total Participants	769	770
<b>FOOTNOTES</b>		
Exception Period**	Completion of the following projects must occur no later than 10/15/16: ENRF, Div A - Blue Plains Tunnel BioSolids Mgmt CHP +MPT. All projects expected to be completed 10/15/16	
CV Audit***	Additional Fee to be Charged once CV Surpasses \$770 M	
Reported Premium + Fees ****	Total Amount of Premium, Fixed Costs, Fees + Additional Safety Personnel	
Reported Contractor Insurance Costs*****	Contractors' insurance Cost Calculation as payroll is expended	
Reported Project Savings (Avoided Costs) to Date *****	Project Savings or "Avoided Costs" to date = Earned Contractor Insurance Costs MINUS Total Premium+Fixed Costs+Fees + Additional Safety Personnel + Incurred Claims to date, + Expected AP Charges + CV Audit Charge	
DEFINITION: Estimated AP due to Reported Payroll	R2 WC+ GL Rate(s) & Excess layer rates * Payroll Overage/100 will be charged to DC Water. Does not include all factors that will be included in final calculation, i.e. non-subject premium charges and claim-related fees. Final audit to be performed in Q4-2016. (est)	

## APPENDIX B – ROCIP SUMMARIES PRESENTED BY AON (JUN 2016 – R3 MANAGEMENT REPORT)

<b>JUN 2016- ROCIP 3 MONTHLY SUMMARY</b>		
<b>DC Water ROCIP 3</b>	<b>May-16</b>	<b>Jun-16</b>
Program Start/End Dates*	10/15/12 to 10/15/17	10/15/12 to 10/15/17
Base Program Term (Months)	60	60
Months into project	42	43
Percent Complete	<b>70.00%</b>	<b>71.67%</b>
Original CV Estimate	\$942,770,000	\$942,770,000
Awarded CV Amount	\$1,186,847,000	\$1,187,553,739
Open Project CV	\$1,122,812,122	\$1,123,518,861
Closed Project CV	\$64,034,878	\$64,034,878
Percentage of Awarded to Estimate	<b>125.89%</b>	<b>125.96%</b>
Original Payroll Estimate	\$161,227,376	\$161,227,376
Estimated Payroll from Form 3's	\$175,736,927	\$179,157,371
Reported Payroll - Actual to Date	\$110,618,942	\$121,273,119
Percentage of Reported to Form 3's	<b>62.95</b>	<b>67.69</b>
Anticipated AP from Estimated PR (ACE)	\$336,157	\$415,402
Anticipated AP from AIG (1st Layer XS)	\$161,927	\$200,099
Anticipated AP from XL Ins. (2nd Layer XS)	\$51,364	\$63,472
Anticipated AP from CV Starr (3rd Layer XS)	\$28,149	\$34,784
Anticipated AP from GAIC (4th Layer XS)	\$17,992	\$22,233
Total Anticipated AP based on Estimated PR	<b>\$595,588</b>	<b>\$735,990</b>
Estimated Manhours From Form 3's	4,552,061	5,636,923
Reported Manhours - Actual to Date	3,667,822	3,909,256
Percentage of Reported to Form 3's	<b>80.57</b>	<b>69.35</b>
Expected Contractor Insurance Costs	\$30,969,113	\$30,969,113
Earned Contractor Insurance Costs**	\$22,271,678	\$25,355,389
Percentage of Taken to Expected	71.92%	81.87%
<b>Program Costs &amp; Savings</b>	<b>May-16</b>	<b>Jun-16</b>
Original Premium + Fees***	\$12,111,231	\$12,111,231
Expected Incurred Claims	\$5,801,390	\$5,801,390
Total Original Program Costs	\$17,912,621	\$17,912,621
Reported Premium + Fees***	\$11,715,116	\$11,715,116
Incurred Claims to Date	\$1,388,331	\$1,527,498
Total Program Costs To Date	\$13,103,447	\$13,242,614
Percentage of Current Costs to Original	<b>73.15%</b>	<b>73.93%</b>
Original Project Savings****	\$12,161,492	\$12,161,492
Reported Project Savings	\$8,572,643	\$11,376,785
Program Rate	20.13	20.91
<b>Enrollment</b>	<b>May-16</b>	<b>Jun-16</b>
Awarded Open Projects	38	38
Closed Projects	8	8
Contracts awarded to MBE/LSDBE Primes	20	20
Percent MBE/LSDBE	43%	43%
Closed Contractors	228	232
Active Contractors	320	324
Excluded	115	115
Total Participants	663	671
<b>Footnotes</b>		
<b>Program Term - Months*</b>	All projects must be enrolled prior to 10/15/2015 and completed by 10/15/2017, except as provided below. A six month extension in completion date until 4/15/2018 will be granted for projects having met the enrollment criteria of the program (i.e. enrolled by 10/15/15). Completion of the following two projects must occur no later than 10/15/2018: A401 – Future Sewer System Upgrades; E101 – Plantwide Painting of Steel Pipes	
<b>Enrolled Contractor Insurance Costs**</b>	Includes expected enrolled contractors' insurance cost (program is bid net of insurance) from Aon Form 1A	
<b>Premium + Fees***</b>	Includes all premiums and broker fee over 5 years. Includes first 3 years of safety costs and last 2 years of estimated safety costs.	
<b>Expected Project Savings****</b>	Contractor Insurance Costs - Costs of Program (claims, fixed + any AP = Savings	



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