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October 28, 2016

Angela Calvillo Clerk of the Board 1 Dr. Carlton B. Goodlett Place City Hall, Room 244 San Francisco, CA. 94102-4689

Dear Ms. Calvillo:

Please see the enclosed Certificates as required under 2002 Proposition E related to the following bond authorizing legislation:

 Water Enterprise: File No. 160472 and Board of Supervisors Ordinance No. 0112-16

Should you have any questions, please feel free to contact me.

Best regards,

Richard Morales Debt Manager Tel: 415-551-2973

> Edwin M. Lee Mayor

Ann Moller Caen President

Francèsca Vietor Vice President

Vince Courtney

Anson Moran Commissioner

Harlan L. Kelly, Jr. General Manager



### **Certificate of the Consulting Engineers**

in connection with Section 8B.124 of the Charter of the City and County of San Francisco, and the Indenture of the San Francisco Public Utilities Commission (SFPUC), and Board of Supervisors Ordinances authorizing the Sale of Water Revenue Bonds and/or Other Forms of Indebtedness, including Commercial Paper

#### Introduction

This Certificate has been prepared by AECOM Technical Services, Inc. (AECOM) at the request of the San Francisco Public Utilities Commission (SFPUC) in support of the SFPUC Water Revenue Bonds and/or Commercial Paper Issuance, as required under Section 8B.124 (a) (i) and (ii) of the San Francisco Charter and Section 3.06 (c)(1)(B) of that certain Amended and Restated Indenture of Trust, dated August 1, 2002, as amended and restated, by and between the SFPUC and U.S. Bank National Association, as trustee thereunder (the "Indenture"). AECOM is an independent engineering firm retained by the SFPUC to provide the certification. This Certificate is being delivered in anticipation of the issuance of Commercial Paper Notes (the "Notes") or Water Revenue Bonds (the "Bonds") by the SFPUC.

Proposition E requires certification by an independent consulting engineer that (i) the Projects to be financed with proceeds of bonds under Proposition E, including the prioritization, scheduling and cost estimates thereof, meet generally accepted utility standards and (ii) that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements, including debt service on the bonds to be issued, and estimated repair and replacement costs.

[Section 3.06(c)(1)(B) of the Indenture requires a Certificate of a Consulting Engineer (as defined under the Indenture) setting forth (i) the estimated completion date for the portion of the Project for which the series of Bonds is being issued and for any other uncompleted portion of the Project, and (ii) an estimate of the cost construction of such Project and any other uncompleted portion of the Project.]

#### Background

The SFPUC owns and operates a municipal water supply, storage and distribution system (the "Water Enterprise") that provides drinking water to retail customers in the City and certain retail customers outside of the City and to wholesale customers in three other San Francisco Bay Area counties (i.e. Alameda, San Mateo and Santa Clara). Approximately 2.5 million customers rely on the SFPUC to meet their daily water needs. The Water Enterprise consists of water treatment and distribution facilities located outside of the City and water treatment and distribution facilities located inside the City.

The responsibilities of the SFPUC's Water Enterprise are to manage, operate, and maintain San Francisco's water collection and distribution system.

### Certification

The findings and conclusions in this Certificate are based on AECOM's review of the following references and data (herein referred to as the "Documents"):

Water System Improvement Program, Quarterly Report, Regional Projects, Q2 FY 2015-2016

- Water System Improvement Program, Quarterly Report, Local Projects, Q2, 2015-2016
- Hetch Hetchy Capital Improvement Programs Quarterly Report (October 2015 to December 2015), dated February 12, 2016
- Hetchy Water Ten-Year Capital and Programmatic Plans (FY 2016-17 through 2025-26, as presented January 22, 2016
- EXHIBIT A Water Enterprise Revenue Bonds And Other Forms Of Indebtedness FY 2016-2017
   And FY 2017-2018 Capital Improvement Projects
- Updated list of bond funded projects, dated May 11, 2016
- Water Financial Projections, Qualified Independent Consultant Report, dated October 5, 2016
- 1. Based upon its review of the Documents and in reliance on the information presented in the Documents and in reliance upon conversations and representations of SFPUC staff, the undersigned certifies that the Projects, including prioritization, cost estimates, and scheduling, meet generally accepted utility standards.
- 2. Based upon its review of the Documents and in reliance on the information presented in the Documents and in reliance upon conversations and representations of SFPUC staff, the undersigned certifies that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements, including debt service on the bonds to be issued, and estimated repair and replacement costs.
- 3. The Documents contain information about the current status of the Projects, including estimated completion dates and the cost of completion of such Projects. Such estimated completion dates and costs of construction referenced in 3.06(c)(1)(B). All Projects being funded by Notes or Bonds are scheduled for completion by approximately 2026.
- 4. The cost estimates contained in the Documents, including budgeted costs of each Project, appear reasonable.
- 5. The Engineer has reviewed the methodology used by the Commission to develop the information presented in the Documents, and based upon such review, certifies that the methodology is reasonable, provided the methodology is consistently applied to all Projects.

While developing the Certificate, AECOM reviewed the references and data and consulted with SFPUC staff. This Certification of the CIP is based on the information provided by the SFPUC. The Engineer has made such examinations and inspections as it has deemed necessary to enable them to certify that the information presented in the Documents is reasonable. The conclusions, observations, and recommendations contained herein constitute only the opinions of AECOM. The various background documents, statements, and other information supplied by the SFPUC, its employees, and other consultants have been relied upon as being accurate in the performance of these analyses; however, no assurances are given nor warranties implied by AECOM as to the accuracy of such information. AECOM makes no certification and gives no assurances except as explicitly set forth in this document.

#### **SECTION A. CERTIFICATION OF PROJECTS**

AECOM's review of the references and data for the above included a "programmatic approach" such that AECOM certifies that the Water Revenue Bonds and/or Notes are intended to be used by the SFPUC

to fund the Projects. The Projects may be moved on or off the CIP list, delayed or accelerated as necessary due to scheduling, budgeting, or other constraints.

Based upon our analysis and review of the data and analysis provided by the SFPUC, AECOM certifies that the projects to be financed by the Water Revenue Bonds and/or Notes, as the case may be, including the prioritization, cost estimates and scheduling, meet generally accepted utility standards.

### **SECTION B: CERTIFICATION OF BOND REQUIREMENTS**

Bartle Wells Associates conducted a financial analysis evaluating the adequacy of revenues generated by the SFPUC Water Enterprise to meet annual operating and debt service coverage requirements. The financial analysis was developed based on updated financial data provided by SFPUC, other relevant information, independent calculations of debt service corresponding with the SFPUC's projected water financing needs, and consultations with Financial Services staff.

A 10-year financial projection for the SFPUC Water Enterprise has been developed through FY 2025-26 and is presented in Table 1 of the Water Financial Projections (WFP). As shown in Table 1, water service charges are projected to be the major source of revenues to cover debt service. Cash Flow Assumptions underlying the financial projections are detailed on page 3 of the WFP. \_\_\_\_

Based upon our analysis and review of the data and analysis provided by the SFPUC, Bartle Wells Associates certifies that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements (including, specifically, Sections 3.06 and 6.13 of the Indenture), including debt service on the bonds to be issued, and estimated repair and replacement costs.

In the opinion of Bartle Wells Associates, the projected water service charges provide revenue sufficient to:

- Meet projected costs of operations, maintenance, and routine replacement of water system facilities.
- Meet debt service obligations on existing and projected debt, including proposed Revenue Bonds and/or other financings.
- Provide sufficient revenue to finance the costs of projected water system capital improvements through FY 2025-26.
- Meet debt service coverage, additional debt test, and reserve requirements on outstanding and projected debt under the Indenture.
- Meet all other obligations of the SFPUC including charges, liens, or encumbrances on or payable from revenues of the sewer enterprise.

Schedule I hereto sets forth (i) the estimated completion date for the portion of the Project for which the series of Bonds is being issued and for any other uncompleted portion of the Project, and (ii) an estimate of the cost construction of such Project and any other uncompleted portion of the Project.

Schedule II hereto sets forth, for each of the next three fiscal years, or if any portion of the proceeds of the Bonds is to be used to finance construction, the three fiscal years following the fiscal year in which we estimate the Project to be completed, estimates of (i) Revenues, (ii) Operation and Maintenance Costs of the Enterprise and (iii) Net Revenues.

The complete financial analysis and list of assumptions is included in the aforementioned WFP.

Dated this 24<sup>th</sup> day of October, 2016

AECOM Technical Services, Inc.

Derrick Wong, P. E.

Assoc. Vice President



SCHEDULE I

Estimated Completion Date and Cost of Construction of Project

			Completion
	Project	Amount	Date
		(FY 16-17 & 17-18)	
CUW27200	Regional Water Treatment Program	10,013,000	2026+
CUW27300	Water Transmission Program	13,979,000	2026+
CUW27700	Buildings & Grounds Regional	14,743,000	2025
CUW28000	Local Water Conveyance/Distribution	105,300,000	2026+
CUW68600	Automated Water Meter Program	2,000,000	2018
CUW68800	Buildings & Ground Improvements	1,750,000	2026+
CUW28200	Systems Monitoring & Control	600,000	2026+
CUW27800	Local Water Supply - Other Recycled Water Projects/	3,500,000	2016
CUW28300	Local Tanks/Reservoir Improvements		2026+
CUW28400	Pump Station Upgrades	4,000,000	2026+
CUW30102	San Francisco Groundwater Supply	4,995,000	2017
CUW30201	SF Westside Recycled Water Project	27,806,000	2020
CUH10000	Water Infrastructure	15,100,000	2018
CUH10200	Joint Water Projects - Hetch Hetchy Facilities Upgrades	3,150,000	2026+
CUH10220	Mountain Tunnel	21,245,400	2019

### **SCHEDULE II**

### **Estimates of Revenues, Operation and Maintenance Costs and Net Revenues**

(This information is contained in the Water Financial Projections)

[Note: the estimates/projections need to specify whether and to what extent Revenues include available fund balances, as well as if the underlying rate increases are adopted or just assumed]











## **Water Financial Projections**

### **Qualified Independent Consultant Report**

October 5, 2016



## **SFPUC Water Financial Projections List of Tables**

- Table 1 SFPUC Water Cash Flow Projections
- Table 2 10-Year Water Capital Improvement Program
- Table 3 Estimated Bond Debt Service
- Table 4 Projected Bond Issues
- Table 5 Projected Debt Service on Future Financings
- Table 6 Oustanding Debt

Table 1 - SFPUC Water Cash Flow Projections

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Retail Water Rate Adjustments	12.0%	10.0%	7.0%	11.0%	11.0%	11.0%	7.0%	6.0%	6.0%	6.0%	6.0%
Change in Retail Demand	-4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Retail Water Sales (ccf)	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000	28,720,000
Retail Water Sales (mgd)	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9
Growth in Wholesale Demand	-13.5%	-4.35%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wholesale Water Sales (ccf)	54,065,000	53,675,000	53,675,000	53,675,000	53,675,000	53,675,000	53,675,000	53,675,000	53,675,000	53,675,000	53,675,000
Wholesale Water Sales (mgd)	110.8	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
Wholesale Water Rate (\$/ccf)	\$3.75	\$4.10	\$4.31	\$4.65	\$4.98	\$5.53	\$5.75	\$5.98	\$6.22	\$6.47	\$6.73
Wholesale Water Rate Adjustments	28.0%	9.3%	5.0%	8.0%	7.0%	11.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Wholesale Fixed Meter Charges (est.)	\$4,500,000	\$4,590,000	\$4,682,000	\$4,776,000	\$4,872,000	\$4,969,000	\$5,068,000	\$5,169,000	\$5,272,000	\$5,377,000	\$5,485,000
Interest Earnings Rate	_	-	-	2.5%	2.5%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%
O&M Cost Escalation	-	-	-	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Beginning Fund Reserves	\$166,700,000	\$143,500,000	\$119,069,000	\$113,835,000	\$100,870,000	\$90,205,000	\$104,420,000	\$124,439,000	\$138,100,000	\$144,845,000	\$154,881,000
Annual Revenues											
Retail Water Charges	209,331,000	230,520,000	246,656,000	273,788,000	303,905,000	337,335,000	360,948,000	382,605,000	405,561,000	429,895,000	455,689,000
Wholesale Water Charges	203,260,000	213,912,000	225,718,000	243,292,000	260,953,000	289,394,000	302,579,000	314,779,000	327,513,000	340,782,000	354,585,000
Wholesale Meter Charges	4,500,000	4,590,000	4,682,000	4,776,000	4,872,000	4,969,000	5,068,000	5,169,000	5,272,000	5,377,000	5,485,000
Interest Income	1,607,000	1,794,000	1,841,000	2,846,000	2,522,000	2,255,000	2,088,000	2,489,000	2,762,000	2,897,000	3,098,000
Capacity Charges	2,083,000	1,787,000	1,948,000	1,987,000	1,907,000	1,900,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Rental/Other Miscellaneous Income	25,566,000	24,243,000	24,832,000	25,657,000	26,506,000	27,380,000	31,069,000	32,001,000	32,961,000	33,949,000	34,968,000
BABs Interest Subsidies (Net of Sequestration)	22,270,000	22,201,000	22,059,000	21,905,000	21,734,000	21,550,000	21,346,000	21,019,000	20,576,000	20,110,000	19,623,000
Total Annual Revenues	468,617,000	499,047,000	527,736,000	574,251,000	622,399,000	684,783,000	724,598,000	759,562,000	796,145,000	834,510,000	874,948,000
Debt Proceeds/Project Funding	0	250,000,000	658,784,000	129,693,000	377,315,000	409,756,000	85,103,000	193,194,000	65,362,000	42,803,000	34,558,000
Operation & Maintenance Expenses											
Personnel	87,091,000	89,673,000	91,702,000	96,197,000	99,083,000	102,055,000	105,117,000	108,271,000	111,519,000	114,865,000	118,311,000
Non-Personal Services	16,399,000	16,427,000	16,501,000	17,397,000	17,919,000	18,457,000	19,011,000	19,581,000	20,168,000	20,773,000	21,396,000
Materials/Supplies/Equipment	16,415,000	16,937,000	16,640,000	17,288,000	17,807,000	18,341,000	18,891,000	19,458,000	20,042,000	20,643,000	21,262,000
Light, Heat, and Power	10,184,000	9,045,000	9,444,000	9,728,000	10,020,000	10,321,000	10,631,000	10,950,000	11,279,000	11,617,000	11,966,000
Overhead (SFPUC Bureaus & City)	43,205,000	44,809,000	46,076,000	46,602,000	48,000,000	49,440,000	50,923,000	52,451,000	54,025,000	55,646,000	57,315,000
Services of Other Departments	11,332,000	11,881,000	11,577,000	11,335,000	11,675,000	12,025,000	12,386,000	12,758,000	13,141,000	13,535,000	13,941,000
Hetch Hetchy Assessment	36,600,000	34,600,000	32,600,000	33,578,000	34,585,000	35,623,000	36,692,000	37,793,000	38,927,000	40,095,000	41,298,000
Programmatic Projects (Excluding 525 GG Lease)	17,495,000	21,741,000	17,092,000	17,537,000	15,493,000	13,271,000	12,664,000	12,849,000	12,679,000	10,904,000	11,039,000
Total O&M Expenses	238,721,000	245,113,000	241,632,000	249,662,000	254,582,000	259,533,000	266,315,000	274,111,000	281,780,000	288,078,000	296,528,000
Annual Debt Service, Net of Capitalized Interest											
Outstanding Debt Service	241,489,000	250,857,000	254,339,000	276,582,000	297,418,000	300,156,000	299,910,000	299,426,000	298,436,000	297,911,000	297,380,000
Projected Future Bonds	0	0	0	0	20,092,000	62,739,000	80,710,000	109,718,000	141,220,000	154,852,000	169,705,000
Total Debt Service	241,489,000	250,857,000	254,339,000	276,582,000	317,510,000	362,895,000	380,620,000	409,144,000	439,656,000	452,763,000	467,085,000
Non-Operating Expenses	,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,	-,,	,,,,,,,,	,,	, ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,	,,	,,
, , ,	21 712 000	10 241 000	27 020 000	F1 004 000	F1 004 000	11 271 000	11 277 000	11 277 000	11 722 000	22 402 000	24 825 000
Regional Repairs & Replacements	21,713,000	18,341,000 0	27,830,000 0	51,804,000 0	51,804,000	11,371,000	11,377,000	11,377,000	11,733,000	22,402,000	31,835,000
Local Repairs & Replacements	15,771,000				0	27,600,000	37,100,000	42,100,000	47,100,000	52,100,000	57,100,000
525 Golden Gate Lease  Total Other Non-Op Expenses	9,166,000 46,650,000	9,167,000 27,508,000	9,169,000 36,999,000	9,168,000	9,168,000	9,169,000 48,140,000	9,167,000 57,644,000	9,169,000 62,646,000	9,131,000 67,964,000	9,131,000 83,633,000	9,131,000
Total Expenses	526,860,000	523,478,000	532,970,000	587,216,000	633,064,000	670,568,000	704,579,000	745,901,000	789,400,000	824,474,000	861,679,000
Debt Financed Capital Projects	0	250,000,000	658,784,000	129,693,000	377,315,000	409,756,000	85,103,000	193,194,000	65,362,000	42,803,000	34,558,000
Balance Adjustments/Transfers In	22,781,000										
Revenues Less Expenses	(35,462,000)	(24,431,000)	(5,234,000)	(12,965,000)	(10,665,000)	14,215,000	20,019,000	13,661,000	6,745,000	10,036,000	13,269,000
Ending Fund Reserves	131,238,000	119,069,000	113,835,000	100,870,000	90,205,000	104,420,000	124,439,000	138,100,000	144,845,000	154,881,000	168,150,000
	229,896,000	253,934,000	286,104,000	324,589,000	367,817,000	425,250,000	458,283,000	485,451,000	514,365,000	546,432,000	578,420,000
Net Revenues							1.20	1.19			
Net Revenues Debt Service Coverage (Without Reserves)	0.95	1.01	1.12	1.17	1.16	1.17	1.20	1.19	1.17	1.21	1.24
				1.17	1.16	1.17	1.20	1.19	1.17	1.21	1.24
Debt Service Coverage (Without Reserves)	24,000,000	10,800,000	1,600,000	-	-	-		-		749,973,000	795,992,000
Debt Service Coverage (Without Reserves) Fund Reserve Appropriated for O&M					487,450,000 1.54	564,319,000 1.56	-		-	-	-

## SFPUC Water Financial Projections Cash Flow Assumptions

SFPUC Model Basis	Financial projections are based on SFPUC's a) latest capital improvement program
SI FOC Model Basis	estimates and plan to issue \$250 million of taxable debt this year, while rolling over
	approximately \$338.5 million until the next bond issue, b) Adopted Budgets for fiscal years
	2016/17 and 2017/18, c) other estimates and projections as summarized below.
Retail Water Rate Adjustments	Retail water rate adjustments are based on the SFPUC's adopted rate increases through FY
netan Water nate najastments	2021/22 and include projected rate increases as shown thereafter.
Retail Water Sales	Retail water sales are based actual sales for FY 2015/16 and assume water sales remain
Tretain Water Sales	constant at this level in future years.
Wholesale Water Sales	Wholesale water sales projections based on FY 2015/16 results and assume water sales
	remain constant at this level in future years.
Wholesale Water Rates	Based on SFPUC wholesale water rate projections.
Wholesale Meter Charges	Estimated at \$4.5 million in FY 2015/16 escalating at the annual rate of 2%.
BABs Subsidies	BABs subsidies are accounted for as a revenue and are calculated based on a 35% federal
b/ (b) Substates	reimbursement on interest coming due each fiscal year, adjusted to account for a 6.9%
	reduction in the federal reimbursement due to sequestration.
Beginning Fund Reserves	Beginning undesignated fund reserves on June 30, 2016 based on SFPUC estimates.
Retail Water Charges	Based on SFPUC revenue estimates for FY 2015/16 and FY 2016/17, and subsequently
inetali Water Charges	escalate to account for projected rate increases and changes in projected demand, if any.
Wholesale Water Charges	Based on the projected volume of wholesale water sales multiplied by the projected
Wholesale Water Charges	wholesale rate, plus projected wholesale customer meter charges.
Interest Income	Interest earnings starting FY 2016/17 are estimated based on the projected interest rate
interest income	multiplied by beginning fund reserves for each year.
Rental/Other Miscellaneous Income	Based on SFPUC projections through 2020/21 with subsequent 3% annual cost inflation.
Operation & Maintenance Expenses	Based on SFPUC projections through FY 2017/18 and subsequently escalate at the annual
operation a manifestance expenses	rate of 3.0% thereafter.
Capital Projects	Based on SFPUC projections.
Debt Service Assumptions	Debt assumptions are shown on Table 3, which calculates debt service per \$100 million of
	project funding. Basic assumptions for most future issues include: a) 30-year terms, b) 5%
	average annual interest rate, c) debt issuance on Jan-1 with May-1 and Nov-1 payment
	dates, d) capitalized interest for 2.33 years, e) principal payments amortized over 28 years
	starting year 3, f) level annual debt service, g) no debt service reserve fund, h) assumes
	bonds are issued each fiscal year corresponding with annual funding needs.
Outstanding Debt Service	Outstanding debt service is based on debt service scheduled of each issue, as provided by
	SFPUC, and includes debt service due each fiscal year.
Projected Future Bonds	Future debt service is based on BWA projections. Note that pursuant to the Indenture, as
	a procedural requirement the SFPUC is required to make monthly prepayments to the
	trustee of 1/12th principal and 1/6th semi-annual debt service toward each upcoming
	bond payment. The amounts shown reflect the amount coming due each fiscal year; not
	the amounts procedurally required to be prepaid each fiscal year.
Other Non-Operating Expenses	Based on SFPUC projections.
Net Revenues	Pursuant to the Indenture, Net Revenues are defined as Annual Revenues (excluding
	interest earnings on any bond funds including the reserve fund, capitalized interest fund,
	and improvement fund; but including fund reserves available to pay debt service assuming
	the Commission determined such reserves should be "Revenues" under the Indenture) less
	Operation and Maintenance Expenses.
Debt Service Coverage	Coverage based on annual Net Revenues (excluding available fund reserves) divided by
(w/o Reserves)	annual debt service (including reduction due to BABs subsidies, but excluding interest
***	earnings on debt reserve funds and BAWCA bond defeasance)
Debt Service Coverage	Based on the same calculation described above, with Net Revenues increased to account
(with Fund Reserves)	for fund reserves not budgeted to be spent and available to pay debt service, including
	wholesale debt reserve funds held by SFPUC, and determined to be Revenues by the
	Commission.
Debt Service Coverage	Based on the debt service coverage (without reserves) adjusted to account for additional
(with Appropriated Fund Reserves)	net revenues due to appropriated reserves.
(with Appropriated Fully Reserves)	net revenues due to appropriated reserves.

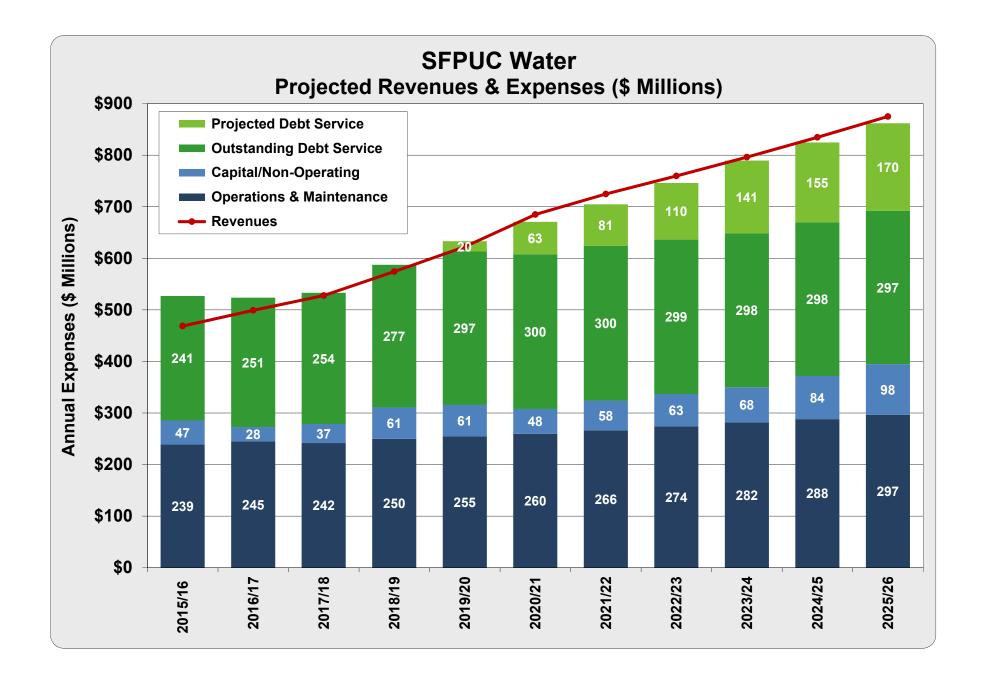


Table 2
San Francisco Public Utilities Commission
10-Year Water Capital Improvement Program

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
REGIONAL WATER IMPROVEMENTS											
Water Treatment Program	3,647,000	6,122,000	3,891,000	2,992,000	1,901,000	1,908,000	1,914,000	1,914,000	1,941,000	2,010,000	2,052,000
Water Transmission Program	11,631,000	18,131,000	21,635,000	48,785,000	58,647,000	23,147,000	28,085,000	22,878,000	6,589,000	6,624,000	6,878,000
Water Supply & Storage Program	1,464,000	7,563,000	6,908,000	39,749,000	52,479,000	24,130,000	8,380,000	20,380,000	20,381,000	20,381,000	20,383,000
Watersheds & Land Management	2,804,000	1,990,000	1,990,000	1,990,000	1,990,000	1,990,000	1,990,000	1,990,000	2,007,000	2,007,000	2,007,000
Communication & Monitoring Program	2,000,000	939,000	994,000	950,000	500,000	500,000	500,000	500,000	515,000	515,000	515,000
<b>Buildings and Grounds Programs</b>	27,365,000	8,522,000	6,221,000	1,786,000	5,795,000	804,000	813,000	837,000	863,000	865,000	
Subtotal	48,911,000	43,267,000	41,639,000	96,252,000	121,312,000	52,479,000	41,682,000	48,499,000	32,296,000	32,402,000	31,835,000
OTHER CAPITAL IMPROVEMENTS											
Local Water	68,383,000	61,850,000	60,600,000	82,625,000	65,100,000	58,600,000	58,100,000	58,100,000	58,100,000	58,100,000	58,100,000
Auxiliary Water Supply System	-	-	-	-	-	-	48,000,000	62,000,000	-	-	-
Candidates: Base Funded by WSIP	41,074,000	71,049,000	33,500,000	26,500,000	272,000	-	-	-	-	-	-
Subtotal	109,457,000	132,899,000	94,100,000	109,125,000	65,372,000	58,600,000	106,100,000	120,100,000	58,100,000	58,100,000	58,100,000
HETCH HETCHY WATER PROJECTS	17,957,000	16,712,000	22,783,000	24,742,000	275,876,000	13,995,000	12,940,000	13,240,000	12,240,000	19,558,000	31,815,000
TOTAL	176,325,000	192,878,000	158,522,000	230,119,000	462,560,000	125,074,000	160,722,000	181,839,000	102,636,000	110,060,000	121,750,000
FUNDING SOURCES											
Pay-Go Revenue Funding	37,484,000	18,341,000	27,829,000	51,804,000	51,804,000	38,971,000	48,477,000	53,477,000	58,833,000	74,502,000	88,935,000
Revenue Bonds	135,841,000	170,237,000	129,693,000	177,315,000	409,756,000	85,103,000	63,245,000	65,362,000	42,803,000	34,558,000	31,815,000
GO Bonds	0	0	0	0	0	0	48,000,000	62,000,000	0	0	0
Capacity Charges	3,000,000	4,300,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
TOTAL	176,325,000	192,878,000	158,522,000	230,119,000	462,560,000	125,074,000	160,722,000	181,839,000	102,636,000	110,060,000	121,750,000
Funding Shortfall	0	0	0	0	0	0	0	0	0	0	0

Table 3
SFPUC Water Enterprise
Estimated Bond Debt Service
Per \$100 Million of Project Funding

Funding Source		2016 Bonds	Future Bonds
Repayment Term		30 Years	30 Years
Cap I Term		2.83 Years	2.33 Years
		Taxable	Per each
Funding Target		\$250,000,000	\$100,000,000
Assumed Issuance & Payment Dates			
Bond Issuance Date		Jan-1	Jan-1
First Interest Payment		May-1	May-1
Principal & Second Interest Payment		Nov-1	Nov-1
Total Debt Issue		\$309,100,000	\$114,540,000
Project Funding		\$250,000,000	\$100,172,000
Issuance Costs & Reserve Requiremen	t		
Underwriter Discount	0.60%	\$1,855,000	\$687,000
Issuance Costs	Est.	300,000	300,000
Reserve Requirement		0	0
Capitalized Interest*		56,927,000	13,363,000
Rounding/Contingency		<u>18,000</u>	<u>18,000</u>
Total		59,100,000	14,368,000
Financing Terms			
Term (Years)		30	30
Interest Only (Years)		2.83	2.33
Principal Amortization (Years)		28	28
Est. Average Interest Rate		6.50%	5.00%
		Taxable	
Annual Debt Service			
Interest Only Period		20,092,000	5,727,000
Principal Amortization Period		24,250,000	7,688,000

Financing costs and interest rates estimated for financial planning purposes.

Table 4 SFPUC Water Enterprise Projected Bond Issues

Debt Issuance by FY	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Dalet Florencies Danisles was to										
Debt Financing Requirements CIP Project Funding	\$135,841,000	\$170,237,000	\$129,693,000	\$177,315,000	\$409,756,000	\$85,103,000	\$63,245,000	\$65,362,000	\$42,803,000	\$34,558,000
Prior WSIP Appropriation	325,000,000	150,000,000	\$129,093,000	200,000,000	5409,730,000	363,103,000	129,949,000	303,302,000	342,803,000	334,336,000
Prior Carry Forward Debt	127,706,000	130,000,000	_	200,000,000		_	129,949,000	_	_	_
•	<del></del>	220 227 000	130,603,000	277 245 000	400.756.000	05.402.000	102 104 000	CF 262 000	42.002.000	24 550 000
Subtotal	588,547,000	320,237,000	129,693,000	377,315,000	409,756,000	85,103,000	193,194,000	65,362,000	42,803,000	34,558,000
Carryover to 2017/18	(338,547,000)	338,547,000								
Revised Issuance	250,000,000	658,784,000								
Financing Terms										
CIP Project Funding	250,000,000	658,784,000	129,693,000	377,315,000	409,756,000	85,103,000	193,194,000	65,362,000	42,803,000	34,558,000
Total Issue Size	285,860,000	753,280,000	148,300,000	431,430,000	468,530,000	97,310,000	220,900,000	74,740,000	48,940,000	39,510,000
Issuance Date	Jan-1									
Issuance Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Interest Payments	May-1 & Nov-1									
Principal Payments (Year 3+)	Nov-1									
Average Interest Rate	6.50%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Repayment Term (Years)	30	30	30	30	30	30	30	30	30	30
Capitalized Interest (Years)	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Debt Service per \$100M										
Interest Only Period (2.33 Yrs)	8,036,800	5,727,000	5,727,000	5,727,000	5,727,000	5,727,000	5,727,000	5,727,000	5,727,000	5,727,000
Principal Amort Period (28 Yrs)	9,700,000	7,688,000	7,688,000	7,688,000	7,688,000	7,688,000	7,688,000	7,688,000	7,688,000	7,688,000
Annual Debt Service										
Interest Only Period	20,092,000	37,729,000	7,428,000	21,609,000	23,467,000	4,874,000	11,064,000	3,743,000	2,451,000	1,979,000
Principal Amort Period	24,250,000	50,647,000	9,971,000	29,008,000	31,502,000	6,543,000	14,853,000	5,025,000	3,291,000	2,657,000
Cumulative MADS	24,250,000	74,897,000	84,868,000	113,876,000	145,378,000	151,921,000	166,774,000	171,799,000	175,090,000	177,747,000

Table 5
SFPUC Wastewater Enterprise
Projected Debt Service on Future Financings

Ending June 30   Bonds   Bon	Fiscal Year	2016/17	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
2018	Ending June 30	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Net of Cap I
2018	2017	Canlu										
Cap		· · · · · · · · · · · · · · · · · · ·	Can I (4 mas)									
2009   2009			• • • • • • • • • • • • • • • • • • • •	Can I (4 mas)								
2011   20,092,000   42,647,000   6p   Cap   Ca					Can I (4)							
2022   20,992.00   50,647.00   9,971.000   Cap				·		Can I (4)						
20,032   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   Cap					•		Can I (4 mos)					
2024   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   Cap							· ·	Can I (4 mas)				
2025   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,91,000   174,730,000   174,73									Canlus			
2026   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   29,078,000   29,008,000   31,502,000							· ·		-	Can I (4)		
2027   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2031   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2032   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2033   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2035   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2035   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2035   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2036   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,008,000   31,502,000   31,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,008,000   31,502,000   31,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,008,000   31,502,000   31,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,008,000   31,502,000   31,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   20,008,000   31,502,000   31,502,000   3								· · · · · · · · · · · · · · · · · · ·			Can L (4)	
2028   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000											•	
2029   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000												
2030   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000												
2031 2,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2033 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2035 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2035 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2036 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2036 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2038 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2039 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2039 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2041 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2041 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2042 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2042 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2044 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2044 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2044 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,000 5,025,000 3,291,000 2,657,000 180,678,000 2044 20,092,000 50,647,000 9,971,000 29,008,000 31,502,000 13,632,000 14,853,00												
2032   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2034   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2035   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2036   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2037   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2039   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2039   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2040   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2041   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2042   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2043   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2044   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2045   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2046   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000												
2033   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2035   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2036   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2037   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2038   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2039   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2040   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2041   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2042   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2042   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2044   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2044   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2044   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2047   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000												
2034         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2036         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2037         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2038         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2040         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2041         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2035   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2037   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2038   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2039   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2040   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2041   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2042   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2043   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2044   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2045   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2046   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2048   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2048   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000   2048   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000												
2036   20,092,000   50,647,000   9,971,000   29,008,000   31,502,000   13,632,000   14,853,000   5,025,000   3,291,000   2,657,000   180,678,000												
2037         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2038         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2040         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2041         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2042         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2043         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2038         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         26,57,000         180,678,000           2039         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2041         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2042         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2043         20,992,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2045         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2039         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2040         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2042         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2043         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2044         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2045         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2040         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2041         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2042         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2043         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2044         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2046         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2041         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2042         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2043         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2044         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2045         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2047         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2042         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2043         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2044         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2045         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2046         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2047         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000												
2043         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2044         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2046         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2047         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2048         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2049         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000 </td <td></td>												
2044         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2046         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2047         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2048         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2049         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2050         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         160,586,000           205			, ,									
2045         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2046         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2048         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2049         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2050         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2051         2052         2052         2052         2052         2052         3,291,000         2,657,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
2046         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2047         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2049         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2050         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2051         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         109,939,000           2052         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         99,968,000           2052         180,620,000         180,620,000         13,632,000         14,853,000         5,025,												
2047         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2048         20,092,000         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         180,678,000           2049         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         160,586,000           2050         2051         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         160,586,000           2051         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         109,939,000           2052         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         99,968,000           2053         2054         2054         2054         2054         2054         2054         2054         2054         2054<												
2048       20,092,000       50,647,000       9,971,000       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       180,678,000         2049       50,647,000       9,971,000       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       160,586,000         2050       2051       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       109,939,000         2052       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       109,939,000         2053       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       99,968,000         2054       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       70,960,000         2054       29,008,000       20,008,000       20,008,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       39,458,000         2054       20,008,000       20,008,000       20,008,000       20,008,000       13,63												
2049         50,647,000         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         160,586,000           2050         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         109,939,000           2051         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         99,968,000           2052         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         70,960,000           2053         10,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         39,458,000           2054         10,502,000         10,502,000         14,853,000         5,025,000         3,291,000         2,657,000         25,826,000           2055         10,502,000         10,502,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,000         10,973,00												
2050         9,971,000         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         109,939,000           2051         2052         29,008,000         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         99,968,000           2052         31,502,000         13,632,000         14,853,000         5,025,000         3,291,000         2,657,000         70,960,000           2053         14,853,000         5,025,000         3,291,000         2,657,000         39,458,000           2054         14,853,000         5,025,000         3,291,000         2,657,000         25,826,000           2055         14,853,000         5,025,000         3,291,000         2,657,000         25,826,000           2056         15,025,000         14,853,000         5,025,000         3,291,000         2,657,000         25,826,000           2056         15,025,000         14,853,000         14,853,000         5,025,000         3,291,000         2,657,000         2,587,000         25,826,000           2056         15,025,000         15,025,000         3,291,000         2,657,000         3,948,000         10,973,000         10,973,000 <td< td=""><td></td><td>20,092,000</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		20,092,000										
2051       29,008,000       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       99,968,000         2052       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       70,960,000         2053       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       39,458,000         2054       14,853,000       5,025,000       3,291,000       2,657,000       25,826,000         2056       15,025,000       3,291,000       2,657,000       2,657,000       2,657,000       25,826,000         2056       15,025,000       3,291,000       2,657,000       2,657,000       2,657,000       2,657,000       2,657,000       2,657,000       2,657,000       3,291,000       2,657,000       2,657,000       2,657,000       2,657,000       3,291,000       2,657,000       2,657,000       3,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000       2,657,000       3,291,000 <td></td> <td> </td> <td>50,647,000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			50,647,000									
2052       31,502,000       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       70,960,000         2053       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       39,458,000         2054       14,853,000       5,025,000       3,291,000       2,657,000       25,826,000         2055       5,025,000       3,291,000       2,657,000       10,973,000         2056       10,973,000       2,657,000       3,291,000       2,657,000       5,948,000				9,971,000								
2053       13,632,000       14,853,000       5,025,000       3,291,000       2,657,000       39,458,000         2054       14,853,000       5,025,000       3,291,000       2,657,000       25,826,000         2056       5,025,000       3,291,000       2,657,000       10,973,000         2056       5,025,000       3,291,000       2,657,000       5,948,000					29,008,000							
2054     14,853,000     5,025,000     3,291,000     2,657,000     25,826,000       2055     5,025,000     3,291,000     2,657,000     10,973,000       2056     3,291,000     2,657,000     5,948,000						31,502,000						
2055     5,025,000     3,291,000     2,657,000     10,973,000       2056     5,025,000     3,291,000     2,657,000     5,948,000							13,632,000					
2056         3,291,000         2,657,000         5,948,000								14,853,000				
									5,025,000			
2057 2,657,000 2,657,000										3,291,000		
	2057										2,657,000	2,657,000

BARTLE WELLS ASSOCIATES
SFPUC Water Financial Projections

Table 6
SFPUC Wastewater Enterprise
Oustanding Debt

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Fiscal Year	1991 A	2006 B	2006 C	2009 A	2009 B	2010 A	2010 B	2010 C	2010 D	2010 E	2010 F	2010 G
Ending June 30	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds (BABs)	Bonds	Bonds	Bonds (BABs)	Bonds	Bonds (BABs)
2016		7,667,438	4,231,131	19,425,638	22,632,400	2,511,388	23,856,630	4,294,750	10,183,125	20,060,998	8,896,775	24,427,165
2017		11,639,438	4,225,956	19,426,263	22,629,650	2,509,138	34,269,130	0	14,670,625	20,060,998	8,896,775	24,427,165
2018		11,643,813	4,224,422	19,440,638	22,634,900	2,510,763	34,113,078	0	14,671,375	20,060,998	12,083,250	24,427,165
2019	5,000,000	8,975,013	2,172,469	23,154,138	22,632,525	2,511,138	33,949,991	0	18,485,625	20,060,998	11,862,225	24,427,165
2020	2,100,000	10,472,200	3,311,375	25,201,438	26,619,775	4,460,263	33,766,026	0	18,482,000	20,060,998	13,746,225	24,427,165
2021		11,644,919	4,203,500	25,221,238	26,620,650	4,455,638	33,567,535	0	18,481,500	20,060,998	13,764,625	24,427,165
2022	ļ	8,792,188	2,002,288	25,218,363	26,621,150	4,459,388	33,349,400	0	13,550,250	20,060,998	23,749,150	24,427,165
2023		8,814,881	1,995,400	25,223,863	26,620,025	4,456,138	33,108,875	0	0	32,493,745	18,649,775	24,427,165
2024		8,823,125	2,000,250	13,779,738	26,620,900	4,460,513	32,858,188	0	0	32,269,076	18,631,525	24,427,165
2025		8,841,438	1,996,613	13,779,738	26,684,150	4,457,138	32,596,513	0	0	32,027,800	18,570,150	24,427,165
2026		2,477,256	1,994,488	13,779,738	26,811,450	4,460,638	32,327,888	0	0	31,770,820	18,422,525	24,427,165
2027	ļ	2,471,425	1,988,763	25,123,863	26,874,375	4,460,513	32,033,750	0	0	31,501,613	18,347,650	24,427,165
2028	ļ	0	0	27,169,738	26,873,125	4,456,513	31,720,150	0	0	31,209,463	22,791,400	24,427,165
2029		0	0	27,174,738	26,875,875	4,458,138	31,390,550	0	0	30,896,950	22,755,275	24,427,165
2030		0	0	27,171,988	26,880,625	4,459,763	31,048,600	0	0	30,560,300	22,737,038	24,427,165
2031		0	0	27,173,269	26,875,625	4,457,756	30,692,800	0	0	30,210,400	22,718,025	24,427,165
2032		0	0	27,174,206	26,874,000	0	30,321,650	0	0	29,845,750	0	35,102,830
2033		0	0	27,161,975	26,873,500	0	29,938,500	0	0	29,464,850	0	34,831,264
2034		0	0	27,139,606	26,891,375	0	29,541,550	0	0	29,071,050	0	34,543,210
2035		0	0	27,145,250	26,909,750	0	29,124,150	0	0	28,662,550	0	34,237,279
2036		0	0	27,167,625	26,935,875	0	28,694,500	0	0	28,237,550	0	33,926,559
2037		0	0	27,175,675	26,932,625	0	28,240,800	0	0	27,799,100	0	33,594,139
2038		0	0	27,175,653	26,932,875	0	27,776,100	0	0	27,335,400	0	33,248,281
2039		0	0	27,172,850	26,933,625	0	27,288,300	0	0	26,859,500	0	32,886,901
2040		0	0	27,173,934	26,931,875	0	26,785,300	0	0	26,359,300	0	32,512,740
2041		0	0	0	0	0	26,259,850	0	0	25,842,700	0	32,113,713
2042		0	0	0	0	0	0	0	0	0	0	31,702,560
2043		0	0	0	0	0	0	0	0	0	0	31,266,850
2044		0	0	0	0	0	0	0	0	0	0	30,818,976
2045		0	0	0	0	0	0	0	0	0	0	30,341,333
2046		0	0	0	0	0	0	0	0	0	0	29,846,313
2047		0	0	0	0	0	0	0	0	0	0	29,330,789
2048		0	0	0	0	0	0	0	0	0	0	28,786,808
2049		0	0	0	0	0	0	0	0	0	0	28,221,241
2050		0	0	0	0	0	0	0	0	0	0	27,625,789
2051		0	0	0	0	0	0	0	0	0	0	27,006,975
2052		0	0	0	0	0	0	0	0	0	0	0
												L

Table 6
SFPUC Wastewater Enterprise
Oustanding Debt

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Ending Nume 30	Fiscal Year	2011 A	2011 B	2011 C	2011 D	2012 A	2012 B	2012 C	2012 D	2015 A	Total	BABs Subsidies
2016   29.588,425   1.360,050   1.449,175   6.644,425   27.415,100   683,450   4.403,500   780,225   20.143,394   20.285,505   22.200,908   29.588,425   1.787,438   1.449,175   2.283,050   27.415,100   683,450   4.403,500   7.80,225   20.143,394   25.985,505   22.200,908   29.588,425   1.787,438   1.449,175   2.283,050   27.415,100   683,450   4.403,500   12.435,564   23.315,094   25.583,770   20.200,908   20.200,90	Ending June 30	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Net of Cap I	35% with 6.9% Seq.
2017   29,583,425   1,36,0650   1,449,175   2,283,050   77,415,100   683,450   4,403,500   780,225   20,143,394   250,885,055   (22,200,908)												32.585%
2018   29,583,425   1,787,438   1,449,175   2,283,050   27,415,100   683,450   4,403,500   780,225   20,143,394   276,581,770   (21,904,665)	2016	29,583,425	1,360,050	1,449,175	6,644,425	27,415,100	683,450	4,403,500	780,225	20,982,702	241,489,488	(22,270,151)
2019   29,583,425   1,782,038   1,491,75   2,283,050   27,415,100   683,450   4,403,500   12,435,654   23,315,094   276,581,770   (21,904,665)   29,583,425   2,015,650   2,197,875   2,283,050   27,415,100   683,450   4,403,500   0   33,759,094   300,155,910   (21,550,317)   2022   44,913,1675   2,011,150   2,195,475   2,283,050   27,415,100   683,450   4,403,500   0   33,759,094   300,155,910   (21,550,317)   2022   44,913,455   2,011,150   2,195,775   2,283,050   27,415,100   683,450   4,403,500   0   33,753,349   299,908,85   (21,345,639)   44,932,000   44,913,455   2,913,553   3,260,425   27,415,100   683,450   4,403,500   0   44,710,549   299,426,410   (21,1018,844)   2024   44,867,425   2,007,950   2,186,730   3,259,925   27,415,100   683,450   4,403,500   0   44,710,549   299,435,848   (20,575,612)   2025   44,867,425   2,003,950   2,188,700   7,566,300   27,415,100   683,450   11,496,250   0   44,705,559   297,911,231   (20,110,314)   2027   44,819,300   2,002,825   2,188,200   7,566,300   27,415,100   683,450   11,496,250   0   33,914,694   297,438,400   (19,022,971)   2029   44,760,550   2,003,255   2,188,200   7,603,925   27,415,100   683,450   11,496,250   0   31,914,694   296,742,711   (18,533,298)   2029   44,760,550   2,000,525   2,188,200   7,603,925   27,415,100   683,450   11,496,250   0   31,914,694   296,742,711   (18,533,298)   2029   44,760,550   2,000,525   2,182,800   2,7415,100   683,450   11,496,250   0   31,910,319   295,63,711   (18,533,298)   2029   44,760,550   2,000,525   2,182,800   2,7415,100   683,450   11,496,250   0   31,910,319   295,63,711   (18,533,298)   2029   44,760,550   2,000,525   2,182,800   2,7415,100   683,450   11,496,250   0   31,910,319   295,63,711   (18,533,298)   2029   44,760,550   2,000,525   2,182,800   2,282,100   2,2	2017	29,583,425	1,360,050	1,449,175	2,283,050	27,415,100	683,450	4,403,500	780,225	20,143,394	250,856,505	(22,200,908)
2020   29,583,425   2,015,250   2,193,975   2,283,050   27,415,100   683,450   4,03,500   0   33,759,94   297,417,549   (21,733,931)   2021   44,994,945   2,016,560   2,197,875   2,283,050   27,415,100   683,450   4,03,500   0   33,755,319   299,909,856   (21,345,639)   2023   44,931,675   2,001,950   2,187,325   8,260,425   27,415,100   683,450   4,03,500   0   44,712,944   299,426,410   (2,1018,861)   2024   44,892,675   2,003,950   2,187,325   8,260,425   27,415,100   683,450   4,03,500   0   44,712,944   299,426,410   (2,1018,861)   2025   44,867,425   2,007,950   2,187,320   7,556,500   27,415,100   683,450   4,03,500   0   44,706,569   299,911,321   (20110,314)   2024   44,892,675   2,007,950   2,188,700   7,556,300   27,415,100   683,450   4,03,500   0   44,706,569   299,911,321   (20110,314)   2027   44,819,300   2,002,825   2,188,700   7,568,600   27,415,100   683,450   4,085,500   0   33,66,569   296,789,109   (19.99,882)   2028   44,791,675   2,004,355   2,182,700   7,670,400   27,415,100   683,450   14,496,500   0   31,911,944   297,380,404   (19.02,2711)   2027   44,819,300   2,005,555   2,102,755   7,670,400   27,415,100   683,450   14,490,00   0   31,911,944   297,380,401   296,112,459   (19.99,882)   2028   44,703,500   2,005,555   2,182,800   0   27,415,100   683,450   14,490,00   0   31,911,944   296,112,459   (19.99,882)   2024   44,703,500   2,005,555   2,182,800   0   27,415,100   683,450   14,490,00   0   31,913,660   295,124,459   (19.98,892)   2034   44,673,755   2,004,355   2,182,800   0   2,7415,100   683,450   14,490,00   0   31,913,640   295,112,459   (19.98,892)   2034   44,673,755   2,004,350   2,182,100   0   2,7415,100   683,450   14,490,00   0   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,660   31,913,760   32,913,914,760   32,913,914,760   32,913,914,760   32,913,914,760   32,913,914,760   32,913,914,760   32,913,914,760   32,913,914,760   32,913,914,760   32	2018	29,583,425	1,787,438	1,449,175	2,283,050	27,415,100	683,450	4,403,500	780,225	20,143,394	254,339,155	(22,058,820)
Deciding	2019	29,583,425	1,782,038	1,449,175	2,283,050	27,415,100	683,450	4,403,500	12,435,654	23,315,094	276,581,770	(21,904,665)
2022         44,931,675         2,011,550         2,195,475         2,283,050         27,415,100         683,450         4,403,500         0         33,753,344         299,99,9865         (21,345,639)           2023         44,913,425         2,011,150         2,196,775         8,259,800         27,415,100         683,450         4,403,500         0         33,753,344         299,426,410         (20,575,612)           2025         44,867,425         2,007,950         2,188,700         7,565,300         27,415,100         683,450         4,403,500         0         44,705,569         297,911,321         (20,110,314)           2026         44,867,425         2,003,950         2,188,700         7,565,300         27,415,100         683,450         11,496,625         0         44,709,944         297,930,466         (16,22,971)           2027         44,819,300         2,002,825         2,188,200         7,568,050         27,415,100         683,450         11,496,025         0         31,916,494         296,782,109         (19,998,892)           2028         44,760,650         2,002,855         2,190,275         7,670,400         27,415,100         683,450         11,494,000         0         31,911,494         296,122,473         (18,533,289)           2033<	2020	29,583,425	2,015,250	2,193,975	2,283,050	27,415,100	683,450	4,403,500	12,435,542	33,756,794	297,417,549	(21,733,931)
2023         44,913,425         2,011,150         2,196,775         8,259,800         27,415,100         683,450         4,403,500         0         33,733,344         299,426,410         (21,018,884)           2024         44,897,675         2,009,950         2,186,700         8,259,925         27,415,100         683,450         4,405,500         0         44,706,569         297,911,321         (20,110,314)           2026         44,867,425         2,007,950         2,188,700         7,565,300         27,415,100         683,450         11,496,625         0         44,709,944         297,380,460         (19,502,2971)           2027         44,816,300         2,002,825         2,188,200         7,565,300         27,415,100         683,450         11,496,625         0         44,709,444         298,385,804         (19,502,2971)         (19,082,892)           2028         44,791,675         2,004,325         2,185,200         7,603,925         27,415,100         683,450         11,496,250         0         31,914,694         296,742,171         (18,533,298)           2029         44,760,050         2,008,550         2,182,250         0         27,415,100         683,450         11,494,000         0         31,913,914         296,142,171         (18,533,298)	2021	44,949,425	2,016,650	2,197,875	2,283,050	27,415,100	683,450	4,403,500	0	33,759,094	300,155,910	(21,550,317)
2024         44,892,675         2,009,950         2,187,325         8,260,425         27,415,100         683,450         4,403,500         0         44,712,944         298,435,848         (20,575,612)           2025         44,867,425         2,007,950         2,188,700         7,586,500         27,415,100         683,450         11,496,625         0         44,709,549         297,313,212         (20,110,314)           2026         44,819,300         2,002,825         2,188,700         7,586,500         27,415,100         683,450         11,496,625         0         44,709,549         296,789,190         (19,602,879)           2028         44,791,675         2,004,325         2,188,700         7,586,500         27,415,100         683,450         11,496,525         0         31,914,694         296,742,171         18,853,298         229         44,760,050         2,008,550         2,190,775         7,670,400         27,415,100         683,450         11,494,000         0         31,914,694         296,742,171         18,853,298         22,242,203         44,773,555         2,001,500         2,7415,100         683,450         11,494,000         0         31,913,191         395,165,771         1(7,301,353)         2031         44,773,552         2,001,400         2,172,175         1,638,45	2022	44,931,675	2,011,950	2,195,475	2,283,050	27,415,100	683,450	4,403,500	0	33,755,319	299,909,856	(21,345,639)
2025         44,867,425         2,007,950         2,186,700         8,259,925         27,415,100         683,450         4,403,500         0         44,706,569         297,913,21         (20,110,314)           2026         44,845,425         2,003,950         2,188,200         7,565,300         27,415,100         683,450         11,498,500         0         33,365,569         296,788,109         (19,622,971)           2028         44,791,675         2,004,325         2,188,200         7,603,925         27,415,100         683,450         11,498,520         0         31,914,694         296,782,171         (18,533,298)           2029         44,760,505         2,000,525         2,185,000         7,670,400         27,415,100         683,450         11,498,500         0         31,910,419         296,742,171         (18,533,298)           2030         44,703,500         2,000,525         2,182,850         0         27,415,100         683,450         11,498,500         0         31,910,319         295,163,771         (17,301,353)           2031         44,703,300         1,198,163         2,178,50         0         42,777,475         1,688,960         19,006,300         0         31,913,569         293,558,00         (16,644,537)           2033         <	2023	44,913,425	2,011,150	2,196,775	8,259,800	27,415,100	683,450	4,403,500	0	33,753,344	299,426,410	(21,018,884)
2026         44,845,425         2,003,950         2,188,700         7,565,300         27,415,100         683,450         11,496,625         0         44,709,944         297,380,460         [19,622,971]           2027         44,819,300         2,002,825         2,188,200         7,586,050         27,415,100         683,450         11,498,500         0         33,346,599         296,789,109         (19,098,892)           2028         44,791,675         2,004,325         2,185,000         7,603,925         7,7415,100         683,450         11,494,000         0         31,914,944         296,742,171         (18,533,298)           2030         44,736,550         2,000,525         2,182,550         0         7,7415,100         683,450         11,494,000         0         31,911,944         296,112,459         (17,933,046)         (17,933,046)         293,158,005         (17,933,046)         (17,933,046)         293,158,005         (17,933,046)         293,158,005         (17,933,046)         0         31,910,139         293,158,005         (15,836,385)         293,158,005         0         31,910,139         293,158,005         (15,836,385)         293,158,005         0         31,914,749         293,578,005         (15,836,385)         293,425,200         0         31,914,749         293,578,005 </td <td>2024</td> <td>44,892,675</td> <td>2,009,950</td> <td>2,187,325</td> <td>8,260,425</td> <td>27,415,100</td> <td>683,450</td> <td>4,403,500</td> <td>0</td> <td>44,712,944</td> <td>298,435,848</td> <td>(20,575,612)</td>	2024	44,892,675	2,009,950	2,187,325	8,260,425	27,415,100	683,450	4,403,500	0	44,712,944	298,435,848	(20,575,612)
2027         44,819,300         2,002,825         2,188,200         7,586,050         27,415,100         683,450         11,498,500         0         33,366,569         296,789,109         (19,098,892)           2028         44,791,675         2,004,325         2,185,200         7,603,925         27,415,100         683,450         11,496,250         0         31,914,694         296,742,171         (18,532,298)           2030         44,736,550         2,000,525         2,182,850         0         27,415,100         683,450         18,949,500         0         31,913,619         295,163,771         (17,931,043)           2031         44,703,300         1,999,900         2,182,850         0         27,415,100         683,450         18,976,125         0         31,913,569         293,558,067         (16,644,537)           2032         44,773,525         2,001,400         2,178,350         0         42,727,475         1,638,950         19,006,300         0         31,913,569         293,558,066         (16,644,537)           2033         44,678,75         1,998,163         2,179,900         0         51,506,975         1,639,150         0         31,913,569         292,522,020         (14,870,039)         294,522,003         (14,870,779)         0 <td< td=""><td>2025</td><td>44,867,425</td><td>2,007,950</td><td>2,186,700</td><td>8,259,925</td><td>27,415,100</td><td>683,450</td><td>4,403,500</td><td>0</td><td>44,706,569</td><td>297,911,321</td><td>(20,110,314)</td></td<>	2025	44,867,425	2,007,950	2,186,700	8,259,925	27,415,100	683,450	4,403,500	0	44,706,569	297,911,321	(20,110,314)
2028         44,791,675         2,004,325         2,185,200         7,603,925         27,415,100         683,450         11,496,250         0         31,914,694         296,742,171         (18,533,298)           2029         44,760,050         2,008,550         2,190,275         7,670,400         27,415,100         683,450         11,494,000         0         31,911,944         296,112,459         (17,931,333)           2031         44,703,300         1,999,900         2,182,100         0         27,415,100         683,450         18,976,125         0         31,908,381         294,223,396         (16,644,537)           2032         44,773,525         2,001,400         2,178,350         0         42,727,475         1,688,50         19,06,300         0         31,913,569         293,558,005         (16,84,537)           2033         44,647,875         1,998,163         2,179,900         0         51,506,975         1,639,150         10,368,300         0         31,914,769         291,358,005         (15,863,855)           2034         44,607,375         2,993,378         2,172,125         0         61,938,475         1,637,750         0         0         31,914,769         291,358,600         (13,863,552)           2035         44,570,000	2026	44,845,425	2,003,950	2,188,700	7,565,300	27,415,100	683,450	11,496,625	0	44,709,944	297,380,460	(19,622,971)
2029         44,760,050         2,000,550         2,190,275         7,670,400         27,415,100         683,450         11,494,000         0         31,911,944         296,112,459         (17,933,046)           2030         44,736,550         2,000,525         2,182,850         0         27,415,100         683,450         18,949,500         0         31,910,319         295,163,771         (17,301,553)           2031         44,773,525         2,001,400         2,178,350         0         42,727,475         1,638,950         19,006,300         0         31,913,569         293,558,005         (15,836,385)           2033         44,678,7875         1,998,163         2,179,900         0         51,506,975         1,638,950         19,006,300         0         31,911,569         292,522,020         (14,870,039)           2034         44,607,375         2,0033         2,181,788         0         61,908,850         1,637,750         0         0         31,914,769         291,435,660         (13,863,552)           2035         44,570,000         1,996,375         2,172,125         0         61,938,475         1,639,002         0         0         31,913,579         290,377,48         (12,815,348)           2036         44,618,225         1,99	2027	44,819,300	2,002,825	2,188,200	7,586,050	27,415,100	683,450	11,498,500	0	33,366,569	296,789,109	(19,098,892)
2030         44,736,550         2,000,525         2,182,850         0         27,415,100         683,450         18,945,500         0         31,916,319         295,163,771         (17,301,353)           2031         44,703,500         1,999,900         2,182,100         0         27,415,100         683,450         18,976,125         0         31,918,581         294,423,396         (16,644,537)           2032         44,773,525         2,001,400         2,178,350         0         42,727,475         1,638,950         19,006,300         0         31,913,569         293,558,005         (18,86,385)           2033         44,677,875         1,998,163         2,179,900         0         51,506,975         1,639,150         10,368,300         0         31,913,669         292,522,020         (14,870,039)           2034         44,673,75         2,000,338         2,181,788         0         61,906,850         1,637,750         0         0         31,913,769         291,435,660         (13,863,552)           2036         44,618,225         1,991,000         2,170,500         0         61,847,975         1,637,400         0         0         31,918,695         289,135,868         (11,723,630)           2037         44,496,075         1,998,500 </td <td>2028</td> <td>44,791,675</td> <td>2,004,325</td> <td>2,185,200</td> <td>7,603,925</td> <td>27,415,100</td> <td>683,450</td> <td>11,496,250</td> <td>0</td> <td>31,914,694</td> <td>296,742,171</td> <td>(18,533,298)</td>	2028	44,791,675	2,004,325	2,185,200	7,603,925	27,415,100	683,450	11,496,250	0	31,914,694	296,742,171	(18,533,298)
2031         44,703,300         1,999,900         2,182,100         0         27,415,100         683,450         18,976,125         0         31,908,381         294,423,396         (16,644,537)           2032         44,773,525         2,001,400         2,178,350         0         42,727,475         1,638,950         19,006,300         0         31,913,569         293,558,005         (15,836,385)           2034         44,607,375         2,000,338         2,181,788         0         61,906,850         1,637,750         0         0         31,914,769         291,435,660         (13,863,552)           2035         44,570,000         1,996,375         2,172,125         0         61,938,475         1,639,025         0         0         31,914,769         291,435,660         (13,863,552)           2036         44,618,225         1,991,000         2,170,500         0         61,847,975         1,639,400         0         0         31,918,559         289,135,868         (11,723,630)           2037         44,496,075         1,989,500         2,170,375         0         64,735,475         1,634,600         0         0         31,913,375         287,346,595         (9,402,330)           2038         44,502,913         1,988,500 <td< td=""><td>2029</td><td>44,760,050</td><td>2,008,550</td><td>2,190,275</td><td>7,670,400</td><td>27,415,100</td><td>683,450</td><td>11,494,000</td><td>0</td><td>31,911,944</td><td>296,112,459</td><td>(17,933,046)</td></td<>	2029	44,760,050	2,008,550	2,190,275	7,670,400	27,415,100	683,450	11,494,000	0	31,911,944	296,112,459	(17,933,046)
2032         44,773,525         2,001,400         2,178,350         0         42,727,475         1,638,950         19,006,300         0         31,913,569         293,558,005         (15,836,385)           2033         44,647,875         1,998,163         2,179,900         0         51,506,975         1,639,150         10,368,300         0         31,911,569         292,522,020         (14,870,039)           2034         44,607,375         2,000,338         2,181,788         0         61,908,875         1,639,150         0         0         31,912,769         291,435,660         (13,863,552)           2036         44,570,000         1,996,375         2,172,125         0         61,938,475         1,637,400         0         0         31,912,769         290,307,748         (12,815,366)         (13,863,552)           2036         44,618,225         1,991,000         2,170,500         0         61,963,225         1,637,400         0         0         31,913,375         289,135,868         (11,723,630)           2037         44,496,075         1,992,125         2,170,000         0         64,734,500         0         0         0         31,913,375         287,916,239         (10,586,553)           2038         44,502,913         1	2030	44,736,550	2,000,525	2,182,850	0	27,415,100	683,450	18,949,500	0	31,910,319	295,163,771	(17,301,353)
2033         44,647,875         1,998,163         2,179,900         0         51,506,975         1,639,150         10,368,300         0         31,911,569         292,522,020         (14,870,039)           2034         44,607,375         2,000,338         2,181,788         0         61,906,850         1,637,750         0         0         31,914,769         291,435,660         (13,863,552)           2035         44,570,000         1,996,375         2,172,125         0         61,938,475         1,637,400         0         0         31,912,769         290,307,748         (12,815,348)           2036         44,618,225         1,991,000         2,170,500         0         61,847,975         1,637,400         0         0         31,918,569         289,315,668         (12,815,348)           2037         44,496,075         1,992,125         2,170,000         0         61,963,225         1,639,100         0         0         0         257,446,959         (9,402,330)           2038         44,448,700         1,988,000         2,165,500         0         64,735,475         1,638,100         0         0         0         257,446,959         (9,402,330)           2040         44,365,250         1,987,375         2,163,250 <t< td=""><td>2031</td><td>44,703,300</td><td>1,999,900</td><td>2,182,100</td><td>0</td><td>27,415,100</td><td>683,450</td><td>18,976,125</td><td>0</td><td>31,908,381</td><td>294,423,396</td><td>(16,644,537)</td></t<>	2031	44,703,300	1,999,900	2,182,100	0	27,415,100	683,450	18,976,125	0	31,908,381	294,423,396	(16,644,537)
2034         44,607,375         2,000,338         2,181,788         0         61,906,850         1,637,750         0         0         31,914,769         291,435,660         (13,863,552)           2035         44,570,000         1,996,375         2,172,125         0         61,938,475         1,639,025         0         0         31,912,769         290,307,748         (12,815,348)           2036         44,618,225         1,991,000         2,170,000         0         61,963,225         1,639,100         0         0         31,918,575         287,916,239         (10,586,553)         2037         44,496,075         1,992,125         2,170,000         0         61,963,225         1,639,100         0         0         31,913,375         287,916,239         (10,586,553)         2038         44,448,700         1,989,500         2,170,375         0         64,735,475         1,634,600         0         0         0         0         257,446,959         (9,402,330)         2039         44,502,913         1,988,000         2,166,500         0         64,735,700         1,638,100         0         0         0         0         254,654,124         (6,884,344)           2041         44,317,50         1,982,500         2,160,375         0         64,735,7	2032	44,773,525	2,001,400	2,178,350	0	42,727,475	1,638,950	19,006,300	0	31,913,569	293,558,005	(15,836,385)
2035         44,570,000         1,996,375         2,172,125         0         61,938,475         1,639,025         0         0         31,912,769         290,307,748         (12,815,348)           2036         44,618,225         1,991,000         2,170,500         0         61,847,975         1,637,400         0         0         31,908,659         289,135,868         (11,723,630)           2037         44,96,075         1,992,125         2,170,000         0         61,963,225         1,639,100         0         0         31,913,375         287,916,239         (10,586,553)           2038         44,448,700         1,989,500         2,170,375         0         64,734,500         1,638,100         0         0         0         0         257,446,959         (9,402,330)           2039         44,502,913         1,988,000         2,166,500         0         64,734,500         1,638,100         0         0         0         254,654,124         (6,884,344)           2041         44,317,750         1,982,500         2,160,375         0         64,737,000         1,638,500         0         0         0         0         199,052,388         (5,546,378)           2042         44,269,750         1,978,250         2,157,6	2033	44,647,875	1,998,163	2,179,900	0	51,506,975	1,639,150	10,368,300	0	31,911,569	292,522,020	(14,870,039)
2036         44,618,225         1,991,000         2,170,500         0         61,847,975         1,637,400         0         0         31,908,659         289,135,868         (11,723,630)           2037         44,96,075         1,992,125         2,170,000         0         61,963,225         1,639,100         0         0         31,913,375         287,916,239         (10,586,553)           2038         44,448,700         1,989,500         2,170,375         0         64,735,475         1,634,600         0         0         0         0         257,446,959         (9,402,330)           2039         44,502,913         1,988,000         2,166,500         0         64,734,500         1,638,100         0         0         0         257,446,959         (9,402,330)           2040         44,365,250         1,987,375         2,163,250         0         64,735,000         1,638,500         0         0         0         0         254,654,124         (6,884,344)           2041         44,317,750         1,982,500         2,157,625         0         64,735,000         1,638,500         0         0         0         0         146,478,585         (4,667,006)           2043         0         0         0	2034	44,607,375	2,000,338	2,181,788	0	61,906,850	1,637,750	0	0	31,914,769	291,435,660	(13,863,552)
2037         44,496,075         1,992,125         2,170,000         0         61,963,225         1,639,100         0         0         31,913,375         287,916,239         (10,586,553)           2038         44,448,700         1,989,500         2,170,375         0         64,735,475         1,634,600         0         0         0         257,446,959         (9,402,330)           2039         44,502,913         1,988,000         2,166,500         0         64,735,700         1,638,100         0         0         0         256,171,189         (8,168,962)           2040         44,365,250         1,987,375         2,163,250         0         64,735,700         1,638,500         0         0         0         0         254,654,124         (6,884,344)           2041         44,317,750         1,982,500         2,160,375         0         64,735,000         1,638,500         0         0         0         199,052,388         (5,546,378)           2042         44,269,750         1,978,250         2,157,625         0         64,734,625         1,635,000         0         0         0         0         0         97,636,475         (4,264,350)           2043         0         0         0         0	2035	44,570,000	1,996,375	2,172,125	0	61,938,475	1,639,025	0	0	31,912,769	290,307,748	(12,815,348)
2038         44,448,700         1,989,500         2,170,375         0         64,735,475         1,634,600         0         0         0         257,446,959         (9,402,330)           2039         44,502,913         1,988,000         2,166,500         0         64,734,500         1,638,100         0         0         0         256,171,189         (8,168,962)           2040         44,365,250         1,987,375         2,163,250         0         64,735,700         1,639,400         0         0         0         254,654,124         (6,884,344)           2041         44,317,750         1,982,500         2,160,375         0         64,735,000         1,638,500         0         0         0         199,052,388         (5,546,378)           2042         44,269,750         1,978,250         2,157,625         0         64,735,000         1,635,400         0         0         0         199,052,388         (5,546,378)           2043         0         0         0         0         64,734,625         1,635,400         0         0         0         97,189,951         (4,264,350)           2044         0         0         0         0         0         0         0         0         97,	2036	44,618,225	1,991,000	2,170,500	0	61,847,975	1,637,400	0	0	31,908,659	289,135,868	(11,723,630)
2039         44,502,913         1,988,000         2,166,500         0         64,734,500         1,638,100         0         0         0         256,171,189         (8,168,962)           2040         44,365,250         1,987,375         2,163,250         0         64,735,700         1,639,400         0         0         0         254,654,124         (6,884,344)           2041         44,317,750         1,982,500         2,160,375         0         64,737,000         1,638,500         0         0         0         199,052,388         (5,546,378)           2042         44,269,750         1,978,250         2,157,625         0         64,735,000         1,635,400         0         0         0         146,478,585         (4,667,006)           2043         0         0         0         0         0         0         97,636,475         (4,264,350)           2044         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2047         0         0         0         0 </td <td></td> <td>44,496,075</td> <td>1,992,125</td> <td></td> <td>0</td> <td>, , ,</td> <td>1,639,100</td> <td>-</td> <td>_</td> <td>31,913,375</td> <td></td> <td></td>		44,496,075	1,992,125		0	, , ,	1,639,100	-	_	31,913,375		
2040         44,365,250         1,987,375         2,163,250         0         64,735,700         1,639,400         0         0         254,654,124         (6,884,344)           2041         44,317,750         1,982,500         2,160,375         0         64,737,000         1,638,500         0         0         0         199,052,388         (5,546,378)           2042         44,269,750         1,978,250         2,157,625         0         64,735,000         1,635,400         0         0         0         146,478,585         (4,667,006)           2043         0         0         0         0         0         0         0         97,636,475         (4,264,350)           2044         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2046         0         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         28,786,8	2038	44,448,700	1,989,500	2,170,375	0	64,735,475	1,634,600	0	0	0	257,446,959	(9,402,330)
2041         44,317,750         1,982,500         2,160,375         0         64,737,000         1,638,500         0         0         0         199,052,388         (5,546,378)           2042         44,269,750         1,978,250         2,157,625         0         64,735,000         1,635,400         0         0         0         146,478,585         (4,667,006)           2043         0         0         0         0         0         0         0         97,636,475         (4,264,350)           2044         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2046         0         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         0         29,330,789 <td>2039</td> <td>44,502,913</td> <td>1,988,000</td> <td>2,166,500</td> <td>0</td> <td>64,734,500</td> <td>1,638,100</td> <td>0</td> <td>0</td> <td>0</td> <td>256,171,189</td> <td>(8,168,962)</td>	2039	44,502,913	1,988,000	2,166,500	0	64,734,500	1,638,100	0	0	0	256,171,189	(8,168,962)
2042         44,269,750         1,978,250         2,157,625         0         64,735,000         1,635,400         0         0         0         146,478,585         (4,667,006)           2043         0         0         0         0         64,734,625         1,635,000         0         0         0         97,189,951         (4,264,350)           2044         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         0         3,341,333         (3,402,308)           2046         0         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         0<	2040	44,365,250	1,987,375	2,163,250	0	64,735,700	1,639,400	0	0	0	254,654,124	(6,884,344)
2043         0         0         0         64,734,625         1,635,000         0         0         0         97,636,475         (4,264,350)           2044         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         0         30,341,333         (3,402,308)           2046         0         0         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         0         0         29,330,789         (2,458,795)           2048         0         0         0         0         0         0         0         0         28,786,808         (1,954,060)           2049         0         0         0         0         0         0         0         0         27,625,789         (873,535)	2041	44,317,750	1,982,500	2,160,375	0	64,737,000	1,638,500	0	0	0	199,052,388	(5,546,378)
2044         0         0         0         64,733,875         1,637,100         0         0         97,189,951         (3,843,067)           2045         0         0         0         0         0         0         0         0         30,341,333         (3,402,308)           2046         0         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         0         29,330,789         (2,458,795)           2048         0         0         0         0         0         0         0         0         28,786,808         (1,954,060)           2049         0         0         0         0         0         0         0         0         28,221,241         (1,425,998)           2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)	2042	44,269,750	1,978,250	2,157,625	0	, , ,		-		0		• • • • • • • •
2045         0         0         0         0         0         0         0         0         30,341,333         (3,402,308)           2046         0         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         0         0         29,330,789         (2,458,795)           2048         0         0         0         0         0         0         0         0         0         28,786,808         (1,954,060)           2049         0         0         0         0         0         0         0         0         28,221,241         (1,425,998)           2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)			_	-	-	, , ,		_	_	_	• •	
2046         0         0         0         0         0         0         0         29,846,313         (2,941,224)           2047         0         0         0         0         0         0         0         0         29,330,789         (2,458,795)           2048         0         0         0         0         0         0         0         0         0         28,786,808         (1,954,060)           2049         0         0         0         0         0         0         0         0         28,221,241         (1,425,998)           2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)	2044	0	0	0	0	64,733,875	1,637,100	0	0	0	97,189,951	(3,843,067)
2047         0         0         0         0         0         0         0         2,458,795)           2048         0         0         0         0         0         0         0         0         28,786,808         (1,954,060)           2049         0         0         0         0         0         0         0         0         28,221,241         (1,425,998)           2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)	2045											
2048         0         0         0         0         0         0         0         0         28,786,808         (1,954,060)           2049         0         0         0         0         0         0         0         0         0         28,221,241         (1,425,998)           2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)				-	_	_	-		_			
2049         0         0         0         0         0         0         0         0         28,221,241         (1,425,998)           2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)				_	-	0	_	_	_	_		
2050         0         0         0         0         0         0         0         0         27,625,789         (873,535)           2051         0         0         0         0         0         0         0         0         27,006,975         (295,538)	2048	0	_	-	0	0	0	_	_	0		
2051 0 0 0 0 0 0 0 0 0 <b>27,006,975</b> (295,538)	2049	0	0	0	0	0	ŭ	_	_	0	28,221,241	
2052   0   0   0   0   0   0   0   0   0							_					
	2052	0	0	0	0	0	0	0	0	0	0	0



### PLANNING DEPARTMENT

Certificate of City and County of San Francisco Planning Department Regarding Proposed Sale of Water Revenue Bonds and Other Forms of Indebtedness in an amount not to exceed \$264,997,468

I, Lisa M. Gibson, Acting Environmental Review Officer of the Planning Department of the City and County of San Francisco (the Planning Department), hereby certify as follows:

- As the Environmental Review Officer (ERO) of the Planning Department, I am authorized to certify as to the compliance of the San Francisco Public Utilities Commission (SFPUC) with applicable requirements of the California Environmental Quality Act. (CEQA).
- 2. After consultation with the SFPUC, I understand that the SFPUC proposes to sell Water Revenue Bonds and Other Forms of Indebtedness in an amount not to exceed \$264,997,468, including \$220,762,620 to finance certain improvements to the Water Enterprise of the City and County of San Francisco (the "City") and \$44,234,848 to finance certain improvements to the Water Enterprise-related infrastructure of the SFPUC's Hetch Hetchy Water and Power System (the "Bonds").
- 3. The improvements proposed for financing include those projects described in the following document, attached to this Certificate as Exhibit A.
- 4. I understand that Section 8B.124 of the City Charter grants authority to the City's Board of Supervisors to approve the issuance of indebtedness, including revenue bonds, by ordinance upon two-thirds vote of its members and under certain conditions. A draft of an ordinance relating to the Bonds is attached hereto as Exhibit B (the Ordinance.)
- 5. I understand that one of the conditions to the Board of Supervisor's authorization of such indebtedness is the delivery of a certificate of the Planning Department regarding the additional projects to be financed.
- 6. The San Francisco Planning Commission certifies Environmental Impact Reports as they are completed pursuant to CEQA. In addition, the Planning Department approves Initial Study/Mitigated Negative Declarations, and the ERO approves Categorical Exemptions.
- 7. Based on a preliminary review of the additional Projects and discussions with the SFPUC regarding the requirements for undertaking such additional Projects, I certify that the Projects under the jurisdiction of the SFPUC to be funded with proceeds of the Bonds, as such Bonds is described in the Ordinance, (a) comply with applicable requirements of CEQA, or (b) are not considered to be projects under CEQA at this time and will undergo CEQA if and when they are defined. Pursuant to the provisions of Chapter 31 of the San Francisco Administrative Code, any additional Project to be financed will comply with such applicable requirements prior to any draw on the Revenue Bonds funds to finance the acquisition or construction of such facilities.

In witness whereof, the undersigned has executed this certification as of this \_\_\_\_\_\_day of September, 2016.

Lisa M. Gibson

Acting Environmental Review Officer

isa M. Libar

1650 Mission St. Suite 400 San Francisco, CA 94103-2479

Reception: **415.558.6378** 

Fax: 415.558.6409

Planning Information: 415.558.6377

# EXHIBIT A WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS FY 2016-2017 AND FY 2017-2018 CAPITAL IMPROVEMENT PROJECTS

Program	Project Number	Project Title	CEQA Compliance
Renewal & Replacement (R&R)	CUW27200	Regional Water Treatment Program	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on December 18, 2008 for the San Joaquin Regional Water Quality Improvement Project.
Capital/R&R	CUW27300	Water Transmission Program	As the individual cathodic protection projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or MNDs.
R&R	CUW27700	Buildings & Grounds Regional	A Final Mitigated Negative Declaration (MND) was adopted by the San Francisco Planning Department December 2, 2015 for the Sunol Long Term Improvements Project.
R&R	CUW28000	Local Water Conveyance/Distribution	As the individual water main replacement and rehabilitation projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations.
Capital	CUW68600	Automated Water Meter Program	On May 31, 2011 and July 20, 2012 categorical exemption determinations were issued for the Automated Water Meter Program.
Capital	CUW68800	Buildings & Ground Improvements	Yard Improvements – As the individual projects are defined, the appropriate CEQA compliance document will be prepared. Fueling Station – A categorical exemption determination for the replacement fueling station was issued March 28, 2011. CDD Control Center – Planning and Design Phases only, not a "project" under CEQA §15378; As the project is defined, the appropriate CEQA compliance document will be prepared.
Capital	CUW28200	Systems Monitoring & Control	Planning and Design Phases only, not a "project" under CEQA §15378; As the individual projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or "not a project" determinations will be issued.

# EXHIBIT A WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS FY 2016-2017 AND FY 2017-2018 CAPITAL IMPROVEMENT PROJECTS

Program	Project Number	Project Title	CEQA Compliance
Capital	CUW27800/ CUW28300	Local Water Supply – Other Recycled Water Projects/ Local Tanks/Reservoir Improvements	South San Francisco (SSF) Recycled Water Project – Planning and Design Phases only, not a "project" under CEQA §15378, The San Francisco Planning Department will not be the CEQA Lead Agency for the project. The SFPUC will review and confirm the adequacy of the document prepared by the CEQA Lead Agency (City of South San Francisco) and prepare responsible agency findings under CEQA § 15096.  Menlo Country Club (MCC) Recycled Water Project - Planning and Design Phases only, not a "project" under CEQA §15378, The San Francisco Planning Department will not be the CEQA Lead Agency for the project. The SFPUC will review and confirm the adequacy of the document prepared by the CEQA Lead Agency (City of Woodside or City of Redwood City) and prepare responsible agency findings under CEQA § 15096.  Daly City Recycled Water Expansion Project - Planning and Design Phases only, not a "project" under CEQA §15378, The San Francisco Planning Department will not be the CEQA Lead Agency for the project. The SFPUC will review and confirm the adequacy of the document (an MND is currently being prepared) prepared by the CEQA Lead Agency (City of Daly City) and prepare responsible agency findings under CEQA § 15096.  Presidio-Marina Recycled Water Pipeline Project - Planning and Design Phases only, not a "project" under CEQA §15378.
			College Hill Reservoir Outlet Structure Upgrade - As the project design is completed, the appropriate CEQA compliance document will be prepared; It is anticipated the project will qualify for an exemption determination.  Merced Manor Reservoir Improvements - Planning and Design Phases only, not a "project" under CEQA §15378; As the project design is completed, the appropriate CEQA compliance document will be prepared; It is anticipated the project will qualify for an exemption determination.  Forest Hill Tanks Water Quality Improvements - Planning and Design Phases only, not a "project" under CEQA §15378; As the project design is completed, the appropriate CEQA compliance document will be prepared; It is anticipated the project will qualify for an exemption determination.

# EXHIBIT A WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS FY 2016-2017 AND FY 2017-2018 CAPITAL IMPROVEMENT PROJECTS

Program	Project Number	Project Title	CEQA Compliance
Capital	CUW28400	Pump Station Upgrades	As the individual projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or MNDs.  McLaren Park Pump Station – Environmental review has not been initiated.  Bay Bridge Pump Station – Environmental review has not been initiated.
Capital	CUW30102	San Francisco Groundwater Supply	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on December 19, 2013 for the San Francisco Groundwater Supply Project.
Capital	CUW30201	SF Westside Recycled Water Project	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on September 3, 2015 for the San Francisco Westside Recycled Water Project.
Capital	CUH10000	Water Infrastructure	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on December 18, 2008 for the San Joaquin Regional Water Quality Improvement Project. As the individual renewal and replacement projects are defined, the appropriate CEQA compliance document will be prepared.
Capital	CUH10200	Joint Water Projects – Hetch Hetchy Facilities Upgrades	As the individual projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or MNDs.
Capital	CUH10220	Mountain Tunnel	Mountain Tunnel Adits and Access Improvements and Emergency Restoration Plan – A categorical exemption determination was issued August 21, 2015. Mountain Tunnel Inspection and Repairs – A categorical exemption determination was issued March 15, 2016. Mountain Tunnel Bypass - Planning and Design Phases only, not a "project" under CEQA §15378; Environmental review has not been initiated.