



San Francisco
Water Power Sewer

Services of the San Francisco Public Utilities Commission

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October 23, 2018

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. 180451 and Board of Supervisors Ordinance No. 0143-18.

Should you have any questions, please do not hesitate to contact me.

Best regards,

Richard Morales
Debt Manager
Tel: 415-551-2973

London N. Breed
Mayor

Vince Courtney
President

Ann Moller Caen
Vice President

Francesca Vietor
Commissioner

Anson Moran
Commissioner

Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.





SAN FRANCISCO 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 \$478,440,136 for Capital Projects budgeted in Fiscal Years 2018-19 and 2019-20

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

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

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

1. 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 \$478,440,136, including \$376,251,393 to finance certain improvements to the Water Enterprise of the City and County of San Francisco (the "City") and \$102,188,743 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 described in the Ordinance, (a) are not considered to be projects under CEQA, (b) are projects under CEQA and a CEQA determination has already been issued, or (c) are projects under CEQA and will undergo CEQA review prior to approval. Pursuant to the provisions of Chapter 31 of the San Francisco Administrative Code, any additional Project to be financed will comply with applicable requirements of CEQA 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 26 day of June, 2018.

Lisa M. Gibson
Environmental Review Officer

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|----------------|-----------------------|------------------------------------|---|
| Regional Water | 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, Case No. 2007.0427E. |
| Regional Water | CUW27300 | Water Transmission Program | The individual cathodic protection projects are projects under CEQA and will undergo CEQA review prior to approval. SAPL2 Lockbar Replacement - An Addendum to the EIR for the Peninsula Pipelines Seismic Upgrade Project, Case No. 2011.0123E, certified on October 17, 2013, was approved by SF Planning on April 12, 2017 for the SAPL2 Lockbar Replacement project. |
| Regional Water | CUW27700 | Buildings & Grounds Regional | Sunol Long Term Improvements - A Final Mitigated Negative Declaration (MND) was adopted by the San Francisco Planning Department December 2, 2015 for the Sunol Long Term Improvements Project under Planning Department Case Number 2015-00064ENV. |
| WSIP | 10015241 | Regional Groundwater (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department August 7, 2014 (Case Number 2008.1396E). |
| WSIP | CUW352/ 10015281 | Alameda Creek Recapture (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department June 22, 2017 (Case Number 2015-004827ENV); Appeal process currently underway. |
| WSIP | CUW374/ 10015317 | Alameda Creek Diversion Dam (WSIP) | Work activities included in the project were included in the Final Environmental Impact Report (EIR) for the Calaveras Dam Replacement Project, which was certified by the San Francisco Planning Department January 27, 2011 (Case Number 2005.161E). |
| WSIP | CUW374/ 10015317 | Calaveras Dam (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department January 27, 2011 (Case Number 2005.161E). |

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| Program | Project Number | Project Title | CEQA Compliance |
|----------------|-----------------------|----------------------------------|--|
| WSIP | 10015484 | WSIP Closeout - Bay Division | <p>Bay Division Pipeline Nos. 3 & 4 Site Drainage and Pipe Coating Repairs – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Hydro-seeding at Bay Tunnel Project – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Newark Valve Lot Additional Gravel Placement – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Corrosion Protection for Valve E5OU – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Bay Division Pipeline Nos. 3 & 4 Ventilation and Sump Pump Systems Installation - Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC Seismic Upgrade of Bay Division Pipeline Nos. 3 and 4 at the Hayward Fault Final Environmental Impact Report certified June 2011, Case Number 2006.1388E.</p> |
| WSIP | 10015486 | WSIP Closeout - Peninsula (WSIP) | <p>Lower Crystal Springs Dam Stilling Basin Modifications & Dissipation Structure Riprap – Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC Lower Crystal Springs Dam Improvements Project Final Environmental Impact Report, Case Number 2006.0536E.</p> <p>Lower Crystal Springs Dam Valve H53 / Pipeline Investigation & Fisheries Release Valve – Activities proposed under this project are covered by a Minor Project Modification to the SFPUC Lower Crystal Springs Dam Improvements Project Final Environmental Impact Report, Case Number 2006.0536E.</p> <p>New Crystal Springs Bypass Tunnel Electrical Modifications – Activities proposed under this project are covered by a Minor Project Modification to the SFPUC New Crystal Springs Bypass Tunnel Project Final Environmental</p> |

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| Program | Project Number | Project Title | CEQA Compliance |
|---------|-----------------------|------------------------------------|--|
| | | | <p>Impact Report, Case Number 2003.6550E. Closeout of Division of Safety of Dams Permit Applications for Lower Crystal Springs Dam Improvements and Crystal Springs/San Andreas (CSSA) Transmission Upgrade projects – The Final Environmental Impact Report (EIR) for Lower Crystal Springs Dam Improvements Project was certified October 7, 2010, Case Number 2006.0536E and the FEIR for the CSSA Transmission Upgrade Project was certified in April, 2010 (Case Number 2007.1255E). Coordination with San Mateo County Bridge Construction over Lower Crystal Springs Dam Improvement – Proposed work activities do not meet the definition of a “project” under CEQA Guidelines Section 15378 as the project has no potential to result in a physical change to the environment. Harry Tracy Water Treatment Plant (HTWTP) Improvements – Proposed work activities do not meet the definition of a “project” under CEQA Guidelines Section 15378 as the project has no potential to result in a physical change to the environment. Crystal Springs/San Andreas Pipeline (CSSA) Erosion Repairs – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |
| WSIP | CUWSJI01/ 10015487 | WSIP Closeout - San Joaquin Region | <p>Supplemental Solar Panel Installations (San Joaquin Pipeline System CUW37301) - The individual projects are projects under CEQA and will undergo CEQA review prior to approval. Tesla Portal Facility Interior Floor Slab (Tesla Treatment Facility CUW38401) – Activities proposed under this project are covered by the SFPUC San Joaquin Regional Water Quality Improvement Project Final Environmental Impact Report certified December 18, 2008, Case Number 2007.0427E.</p> |

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| Program | Project Number | Project Title | CEQA Compliance |
|----------------|-----------------------|-------------------------------------|--|
| WSIP | 10015492 | WSIP Closeout - Sunol Valley | <p>AS4 Carrier Water System Modifications (Alameda Siphon No. 4 Project CUW35902) – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Erosion Repair at Pond F3 East - Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC San Antonio Backup Pipeline Project Final Environmental Impact Report certified September 20, 2012, Case Number 2007.0039E.</p> <p>Sunol Valley Water Treatment Plant Polymer Feed Facility (previously known as Sunol Valley Water Treatment Plant Basin 5 Optimization) – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Alameda West Portal, Irvington Portal, and San Antonio Backup Pipeline Misc. – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>NIT Water Quality Equipment Relocation – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>San Antonio Backup Pipeline Carrier Water System Modifications – Activities proposed under this project are covered by the SFPUC San Antonio Backup Pipeline Project Final Environmental Impact Report certified September 20, 2012, Case Number 2007.0039E.</p> |
| Local Water | CUW28000 | Local Water Conveyance/Distribution | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUWAW2AW44 | Sunset Pipeline - Potable AWSS | The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW68600 | Automated Water Meter Program | On May 31, 2011 and July 20, 2012 categorical exemption determinations were issued for the Automated Water Meter Program. |

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| Program | Project Number | Project Title | CEQA Compliance |
|----------------|------------------------|---|--|
| Local Water | CUW28101 | 520 John Muir Drive - Site Rehab (Pacific Rod and Gun Club Upland Soil Remedial Action Project) | A Final Mitigated Negative Declaration (MND) was issued by the San Francisco Planning Department October 24, 2014, Case Number 2013.1220E. |
| Local Water | CUW68800 | Systems Monitoring and Control | Yard Improvements – The individual projects are projects under CEQA and will undergo CEQA review prior to approval. City Distribution Corporation Yard Fueling Station – A categorical exemption determination for the replacement fueling station was issued March 28, 2011, Case No. 2010.1020E. City Distribution Division Control Center – The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | 10015222 | Local Tanks/Reservoirs | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW28200/ 10015227 | Pump Station Upgrades | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW302010/ 10015242 | SF Westside Recycled Water Project | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department September 3, 2015 (Case Number 2008.0091E). |
| Local Water | CUW28400/ 10015427 | Buildings & Ground Improvements | Millbrae Interim Improvements Project – A categorical exemption determination was issued November 20, 2017 (Case Number 2017-014580ENV). 1990 Newcomb Yard – The project is a project under CEQA and will undergo CEQA review prior to approval. 1657 Rollins Road – The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | New | New Services Connection Program | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |

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| Program | Project Number | Project Title | CEQA Compliance |
|--|-----------------------|---|---|
| Local Water | CUW26308 | Town of Sunol Pipeline | A categorical exemption determination was issued September 12, 2014 (Case Number 2014.1405E). |
| Local Water | New | Lombard Geotechnical Improvements | The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10000 | Water Infrastructure | San Joaquin Pipeline Rehabilitation - SJPL system projects are covered by the EIR completed under Case Number 2007.0118E, unless otherwise shown. Rehabilitation of San Joaquin Pipelines - SJPL rehabilitation of existing San Joaquin Pipelines is covered by 2007.1129E. Lower Cherry Aqueduct Rehabilitation - Received concurrence on March 4, 2014, that the Lower Cherry Aqueduct Rehabilitation project was covered under a statutory exemption request (Case Number 2014.0333E) under CEQA Guidelines Section 15269. A Categorical Exemption for Phase 1 Supplemental work at the forebay was approved February 2, 2018 (Case Number 2018-001321ENV). Coast Range Tunnel - Project was completed in July 2016. The project was covered under MPM to the San Joaquin Regional Water Quality Improvement Project (Case Number 2007.0427E), issued August 5, 2014. Priest Outlet 24" Pipe Recoating - The project is a project under CEQA and will undergo CEQA review prior to approval. Moccasin Gate # 3 Shaft Replacement- A categorical exemption determination was issued August 4, 2017, (Case Number 2017-010002ENV). |
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | Microwave System - DB-124 was conducted under a Final Mitigated Negative Declaration. CEQA Cat Ex (Case Number 2013.0590E) issued May 10, 2013. Hetch Hetchy Facilities Upgrade - The individual projects are projects under CEQA and will undergo CEQA review prior to approval. Applicable case numbers are: Repair & Minor Rehab of Historic District Buildings (Case Number 2013.0615E), Moccasin Control and Server Building (Case Number 2012.1204E), and Entrance Gate and Vehicle Charging Stations (Case Number 2016-008905ENV). |

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| Program | Project Number | Project Title | CEQA Compliance |
|---------|----------------|---------------|---|
| | | | <p>Dam Condition Assessment & Repair - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Kirkwood Penstock - Categorical exemption approval received on May 13, 2016, Case No. 2016-006349ENV.</p> <p>O’Shaughnessy Dam Drum Gate Automation - BEM reviewed the project and on May 15, 2015 declared the proposed activities would not fall within the definition of a project under CEQA Guidelines Section 15378.</p> <p>O’Shaughnessy Dam Outlet Works Planning - Planning report only. The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>O’Shaughnessy Dam UPS Replacement - Work does not meeting the definition of a “project” under CEQA Guidelines Section 15378 because it has no potential to result in a physical change to the environment.</p> <p>O’Shaughnessy Dam Physical Security Upgrade - Work does not meeting the definition of a “project” under CEQA Guidelines Section 15378 because it has no potential to result in a physical change to the environment.</p> <p>Hetchy Facilities Outside Moccasin - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Remote Terminal Unit (RTU) - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Road Improvements – Moccasin to Mather Annual Road Paving – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>ISY Slope Repair - Emergency Project resulting from Rim Fire 2013, Case No. 2013.1795E. Therefore, this project is considered exempt from the requirements of CEQA.</p> |

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| Program | Project Number | Project Title | CEQA Compliance |
|--|-----------------------|---|--|
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Oakdale Irrigation District Bridge Replacement - Request for categorical exemption submitted on August 6, 2014.</p> <p>Moccasin to Mather Annual Road Repair - Paving Work Only, submitted Request for a categorical exemption.</p> <p>Road and Bridge Improvement Program - Received CAT-EX on May 24, 2017.</p> <p>Hetch Hetchy Roads Project 2016-2017 - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetch Hetchy Cherry Lake Road Paving Replacement - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetch Hetchy Hetch Hetchy Roads Project FY2017-2018 - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetchy Fiber Projects - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Facilities Security - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Communications Systems Upgrade - MND (Case Number 2005.0883E) issued on April 1, 2008.</p> <p>Hetch Hetchy Facilities New Construction – Moccasin - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Cherry Outlet Works - Categorical exemption approval received on September 16, 2015, (Case Number 2015-012316ENV).</p> <p>Moccasin Wastewater Treatment Plant - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> |
| Hetchy Capital Improvement Projects | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Early Intake Dam Rehabilitation - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |

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| Program | Project Number | Project Title | CEQA Compliance |
|-------------------------------------|----------------|-----------------|--|
| Hetchy Capital Improvement Projects | CUH10220 | Mountain Tunnel | <p>Mountain Tunnel Adits and Access Improvements and Emergency Restoration Plan – A categorical exemption determination was issued August 21, 2015 (Case Number 2015-010632ENV).</p> <p>Mountain Tunnel Inspection and Repairs – A categorical exemption determination was issued March 15, 2016 (Case Number 2016-003201ENV).</p> <p>Mountain Tunnel Improvements - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |

1 [San Francisco Public Utilities Commission Water Revenue Bond and Other Forms of
2 Indebtedness Issuance ----Not to Exceed \$478,440,136]

3 **Ordinance authorizing the issuance and sale of tax-exempt or taxable Water Revenue**
4 **Bonds and other forms of indebtedness (as described below) by the San Francisco**
5 **Public Utilities Commission (Commission) in an aggregate principal amount not to**
6 **exceed \$478,440,136 to finance the costs of various capital water projects benefitting**
7 **the Water Enterprise pursuant to amendments to the Charter of the City and County of**
8 **San Francisco enacted by the voters on November 5, 2002 as Proposition E;**
9 **authorizing the issuance of Water Revenue Refunding Bonds; declaring the Official**
10 **Intent of the Commission to reimburse itself with one or more issues of tax-exempt**
11 **bonds or other forms of indebtedness; and ratifying previous actions taken in**
12 **connection therewith.**

13 NOTE: **Unchanged Code text and uncodified text** are in plain Arial font.
14 **Additions to Codes** are in single-underline italics Times New Roman font.
15 **Deletions to Codes** are in ~~striketrough italics Times New Roman font~~.
16 **Board amendment additions** are in double-underlined Arial font.
17 **Board amendment deletions** are in ~~striketrough Arial font~~.
18 **Asterisks (* * * *)** indicate the omission of unchanged Code
19 subsections or parts of tables.

20 Be it ordained by the People of the City and County of San Francisco:

21 Section 1. Findings. The Board of Supervisors (the "Board") of the City hereby finds
22 and declares as follows:

23 A. On November 5, 2002, the voters of the City and County of San Francisco (the
24 "City") approved Proposition E ("Proposition E"), which among other things, authorized the
25 San Francisco Public Utilities Commission (the "Commission") to issue revenue bonds,
including notes, commercial paper or other forms of indebtedness, when authorized by

1 ordinance approved by a two-thirds vote of the Board of Supervisors, for the purpose of
2 reconstructing, replacing, expanding, repairing or improving water facilities or clean water
3 facilities or combinations of water and clean water facilities under the jurisdiction of the
4 Commission; and

5 B. The Commission adopted the Amended and Restated Water Indenture dated as
6 of January 1, 2002, as further amended and supplemented from time to time (the "Indenture"),
7 between the Commission and U. S. Bank National Association and in connection therewith,
8 has from time to time issued revenue bonds to finance projects benefitting the Water
9 Enterprise; and

10 C. By Resolution 18-0023, adopted by the Commission on February 13, 2018 (the
11 "Commission Resolution") the Commission has determined to issue Water Revenue Bonds
12 (the "Water Revenue Bonds") and other forms of indebtedness (including without limitation
13 State Revolving Fund (SRF) Loans as described below), as well as interim funding vehicles
14 such as commercial paper, revolving credit agreements, bond anticipation notes or other
15 forms of notes, which interim funding vehicles will be issued in advance of being paid off by
16 either Water Revenue Bonds and other forms of indebtedness (including without limitation
17 SRF Loans) to finance the costs of various capital projects benefitting the Water Enterprise
18 (the "Capital Improvement Projects" such projects being more fully described in the
19 Commission Resolution), pursuant to Proposition E, and has formally requested this Board to
20 authorize the issuance and sale of Water Revenue Bonds and other forms of indebtedness for
21 such purposes, such Commission Resolution being on file with the Clerk of the Board in File
22 No. _____; and

23 D. In order to finance the costs of the Capital Improvement Projects, the Board now
24 desires to authorize the issuance and sale of Water Revenue Bonds and other forms of
25

1 indebtedness, as described above, for such purposes, including obtaining SRF Loans and/or
2 grants from the State Water Resources Control Board; and

3 E. The Commission has paid, beginning no earlier than 60 days prior to the
4 adoption of this Ordinance and will pay, on and after the date hereof, certain expenditures (the
5 “Expenditures”) in connection with the acquisition, construction and/or equipping of the Capital
6 Improvement Projects; and

7 F. This Board is concurrently considering with this Ordinance, another Ordinance
8 approving a Capital Improvement Program and related supplemental appropriation totaling
9 \$499,095,424 for fiscal years ending 2019 and 2020, including expenditures of the proceeds
10 of the Water Revenue Bonds and other forms of indebtedness (including SRF Loans,
11 commercial paper, revolving credit agreements, and bond anticipation notes); and

12 G. This Board, on behalf of the Commission, adopts this Ordinance as official
13 action of the Commission in order to comply with Treasury Regulation §1.150-2 and any other
14 regulations of the Internal Revenue Service relating to the qualification for reimbursement of
15 Commission expenditures incurred prior to the date of issue of the Water Revenue Bonds and
16 other forms of indebtedness (including SRF Loans, commercial paper, revolving credit
17 agreements, and bond anticipation notes)

18 Section 2. Authorization to Issue Water Revenue Bonds and other forms of
19 indebtedness. The Board hereby authorizes the issuance and sale of Water Revenue Bonds
20 or other forms of indebtedness (including, SRF Loans, commercial paper, revolving credit
21 agreements, and bond anticipation notes) in one or more series from time to time by the
22 Commission pursuant to Proposition E and in accordance with the Commission Resolution, in
23 an aggregate principal amount not to exceed \$478,440,136 (inclusive of financing costs, but
24 exclusive of refunding indebtedness), bearing a maximum rate or rates of interest of not to
25 exceed twelve percent (12%) per annum, to finance a portion of the costs of the design,

1 acquisition and construction of the Capital Improvement Projects. Without limiting the
2 foregoing, the Commission shall be authorized to incur SRF Loans at such time, in such
3 amounts, and upon such other terms and conditions as the Commission may deem
4 advantageous, and to approve any financing documentation related thereto consistent with
5 this Ordinance. The Commission is hereby further authorized to determine the timing, amount
6 and manner of sale (i.e., competitive or negotiated) of each series of Water Revenue Bonds,
7 bond anticipation notes, revolving credit agreements, or commercial paper, pursuant to this
8 authorization; provided however, the Commission's authorization to issue Water Revenue
9 Bonds, bond anticipation notes, revolving credit agreements, or commercial paper is subject
10 to approval by the Commission of the form of substantially final offering document related to
11 such obligations (if any) and the approval of any related agreements, financing documents
12 and the filing with its Board and the Clerk of the Board any certifications required by
13 Proposition E prior to the issuance of any bonds or incurrence of any indebtedness herein
14 authorized. The Commission shall also file, within 30 days of closing any Water Revenue
15 Bond or other form of indebtedness (including SRF Loans and bond anticipation notes)
16 transactions) authorized hereby, with the Clerk of the Board of Supervisors a report showing
17 the results of the transaction, including (i) principal amount sold and method of sale, (ii) true
18 interest cost, (iii) final maturity, (iv) the facilities constructed and/or improved, and (v) a
19 statement about the remaining bonding authorization under this Ordinance (the "Report"),
20 provided that the failure to file such report shall not affect the validity of any debt authorized
21 hereunder.

22 Section 3. Authorization to Issue Water Revenue Refunding Bonds. The Board further
23 authorizes and approves the issuance by the Commission of Water Revenue Refunding
24 Bonds (the "Refunding Bonds") without limitation as to principal amount, in one or more series
25 on one or more dates, at a maximum interest rate or rates of interest not to exceed twelve

1 percent (12%) per annum, provided that each such Refunding Bond issue is permitted under
2 the applicable policies and procedures of the City and authorized by Section 9.109 of the
3 Charter (including related ordinances and resolutions of the Board). The Refunding Bonds
4 may be issued as tax-exempt or taxable obligations, or any combination thereof. Refunding
5 Bonds s authorized hereunder shall be subject to the further following conditions, that: (i)
6 three percent (3%) net present value debt service savings or greater is achieved to ensure
7 ratepayer savings (exclusive of any issuance to refund commercial paper, revolving credit
8 notes, or bond anticipation notes); (ii) that the maturity of the refunded bonds is not extended;
9 (iii) this authorization is subject to a 2-year term through June 30, 2020, at which time this
10 Board may consider an extension; principal payments and term may be adjusted, where
11 permitted under federal and state tax law, only if and when the underlying capital asset funded
12 through said refunded bonds has a useful life not in excess of any limit permitted under
13 federal and state tax law than the refunded term; and (iv) the Commission shall within 30 days
14 of any executed refunding transaction provide a savings report prepared by its financial
15 advisors (that reflects at least a three percent (3%) net present value debt service savings) to
16 the Board, together with a copy of the final Official Statement (if any) with respect to such
17 series of Refunding Bonds, provided that the failure to deliver such report shall in no way
18 affect the validity of any Refunding Bonds. Notwithstanding the foregoing, the Commission is
19 authorized to issue Refunding Bonds for non-economic factors, including by way of
20 illustration, eliminating onerous covenants and obsolete provisions contained in the
21 Commission's indenture or other security documents. The Commission shall request a waiver
22 of the savings requirement for any Refunding Bonds issued for non-economic reasons.

23 Section 4. Declaration of Official Intent. The Board, on behalf of the Commission,
24 hereby declares the official intent of the Commission to reimburse the Commission with
25 proceeds of the Water Revenue Bonds or other forms of indebtedness (including SRF Loans,

1 commercial paper, revolving credit notes, or bond anticipation notes) for the Expenditures with
2 respect to the Capital Improvement Projects made on and after a date that is no more than 60
3 days prior to the adoption of this Ordinance. The Commission reasonably expects on the date
4 hereof that it will reimburse the Expenditures with proceeds of the Water Revenue Bonds or
5 other forms of indebtedness (including SRF Loans, commercial paper, revolving credit notes
6 or bond anticipation notes). Each said Expenditure was and will be either (A) of a type
7 properly chargeable to a capital account under general federal income tax principles
8 (determined in each case as of the date of the Expenditure), (B) a cost of issuance with
9 respect to such obligations, (C) a nonrecurring item that is not customarily payable from
10 current revenues, or (D) a grant to pay a party that is not related to or an agent of the issuer
11 so long as such grant does not impose any obligation or condition (directly or indirectly) to
12 repay any amount to or for the benefit of the Commission. The Commission will make a
13 reimbursement allocation, which is a written allocation by the Issuer that evidences the
14 Commission's use of proceeds of the Water Revenue Bonds or other forms of indebtedness
15 to reimburse an Expenditure, no later than 18 months after the later of the date on which the
16 Expenditure is paid or the component of the Capital Improvement Projects is placed in service
17 or abandoned, but in no event more than three years after the date on which the Expenditure
18 is paid. The Commission recognizes that exceptions are available for certain "preliminary
19 expenditures," costs of issuance, certain de minimis amounts, expenditures by "small issuers"
20 (based on the year of issuance and not the year of expenditure) and expenditures for
21 construction projects of at least 5 years.

22 Section 5. General Authority. The Controller, Treasurer, the City Attorney and other
23 officers of the City, including the Director of the Office of Public Finance, and their duly
24 authorized deputies and agents are hereby authorized and directed, jointly and severally, to
25 take such actions and to execute and deliver such certificates, agreements, requests or other

1 documents, as they may deem necessary or desirable to facilitate the issuance, sale and
2 delivery of the Water Revenue Bonds or other forms of indebtedness, including Refunding
3 Bonds, and to obtain bond insurance or other credit or liquidity enhancements with respect to
4 any such obligations, , and otherwise to carry out the provisions of this Ordinance. The
5 Commission is hereby directed to provide the final form to the Clerk of the Board of any
6 disclosure document prepared in connection with the execution of any Water Revenue Bonds,
7 other forms of indebtedness, or Refunding Bonds, and the final executed Installment Sale
8 Agreement or other document reflecting the incurrence of an SRF Loan, within 30 days of the
9 closing of such transactions provided that the failure to deliver such report shall not affect the
10 validity of the obligations authorized hereunder.

11 Section 6. Ratification of Prior Actions. All actions authorized and directed by this
12 Ordinance in connection with the issuance of the Water Revenue Bonds, other forms of
13 indebtedness (including SRF Loans, commercial paper, revolving credit notes, or bond
14 anticipation notes) or Refunding Bonds and heretofore taken are hereby ratified, approved
15 and confirmed by this Board.

16 Section 7. File Documents. All documents referred to as on file with the Clerk of the
17 Board are in File Nos. _____.

18 Section 8. Effective Date. Pursuant to Charter Section 8B.124, this Ordinance shall
19 take effect thirty (30) days after its adoption.

20

21 APPROVED AS TO FORM:
22 DENNIS J. HERRERA, City Attorney

23

24

24 By: _____
25 Mark D. Blake
Deputy City Attorney

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**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)
authorizing the Sale of Water Revenue Bonds and / or Other Forms of Indebtedness, including
Commercial Paper**

This Certificate has been prepared by AECOM Technical Services, Inc., (AECOM), an independent consulting firm, at the request of the San Francisco Public Utilities Commission (SFPUC) in connection with the issuance by the SFPUC of its Water Revenue Bonds and/or other forms of Indebtedness, including Commercial Paper and State and Federal loans.

Proposition E requires certification by an independent consulting engineer that, among other things, “(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.”

Section A below includes projects in the Water Enterprise’s capital program, and certifies that (i) the anticipated projects to be financed by the proposed Revenue Bonds and/or Commercial Paper Notes (the “Notes”), or State and Federal loans including the prioritization, cost estimates and scheduling, appear to meet generally accepted utility standards.

The findings and conclusions in this Certificate are based on solely AECOM’s review of the pertinent portions of following Documents and information, references provided by the SFPUC:

- Water System Improvement Program, Quarterly Report, Regional Projects, Q4 FY 2017-2018
- Water System Improvement Program, Quarterly Report, Local Projects, Q4, 2017-2018
- Hetch Hetchy Water & Power Enterprise Budget, approved August 2, 2016 Capital Improvement Programs Quarterly Report (October 2015 to December 2015), dated February 12, 2016
- Water Enterprise CIP Quarterly Update, Q2, FY 2017-2018
- 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 \$478,440,136 for Capital Projects budgeted in Fiscal Years 2018-19 and 2019-20, San Francisco Planning Department, June 26, 2018.
- Discussions with SFPUC staff

1. Based upon its review of the Documents and in reliance on the information presented in the Documents, references and data, and in reliance upon conversations and representations of SFPUC staff, the undersigned certifies that the Projects, including prioritization, cost estimates, and scheduling, appear to meet generally accepted utility standards.

2. The Documents contain information about the current status of the Projects, including estimated completion dates and the cost of completion of such Projects.

While developing the Certificate, AECOM reviewed the pertinent portions of the Documents, references and data and consulted with SFPUC staff. This Certification of the CIP is based on the information provided by the SFPUC. The conclusions and observations contained herein constitute only the opinions of AECOM. The various background documents, statements, and other information supplied by the

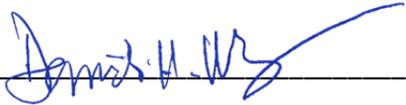
SFPUC, its employees, and other consultants have been relied upon as being accurate in the performance of these analyses; however, no assurances are given nor warranties implied by AECOM as to the accuracy of such information. AECOM makes no certification and gives no assurances except as explicitly set forth in this document.

SECTION A:

AECOM's review of the Documents, references and data for Section A included a "programmatic approach" such that AECOM certifies that the revenue bonds and/or commercial paper proceeds or state or federal loans are intended to be used by the SFPUC to fund the capital projects included in the Water Enterprise's CIP and other portions of the Water Enterprise's capital program. Projects may be moved on or off the CIP list, modified, delayed or accelerated as necessary due to scheduling, budgeting, or other constraints.

Dated this 11th day of October, 2018

AECOM Technical Services, Inc.

By:  _____

Derrick Wong, PE (CA 54739)
Assoc. Vice President

SCHEDULE I

Reference the following:

- Attachment A for the list of projects and Planning Department Certificate

| Program | Project Number | Project Title | CEQA Compliance |
|----------------|------------------------|------------------------------------|--|
| Regional Water | 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, Case No. 2007.0427E. |
| Regional Water | CUW27300 | Water Transmission Program | The individual cathodic protection projects are projects under CEQA and will undergo CEQA review prior to approval. SAPL2 Lockbar Replacement - An Addendum to the EIR for the Peninsula Pipelines Seismic Upgrade Project, Case No. 2011.0123E, certified on October 17, 2013, was approved by SF Planning on April 12, 2017 for the SAPL2 Lockbar Replacement project. |
| Regional Water | CUW27700 | Buildings & Grounds Regional | Sunol Long Term Improvements - A Final Mitigated Negative Declaration (MND) was adopted by the San Francisco Planning Department December 2, 2015 for the Sunol Long Term Improvements Project under Planning Department Case Number 2015-00064ENV. |
| WSIP | 10015241 (CUW30103) | Regional Groundwater (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department August 7, 2014 (Case Number 2008.1396E). |
| WSIP | CUW352/ 10015281 | Alameda Creek Recapture (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department June 22, 2017 (Case Number 2015- 004827ENV); Appeal process currently underway. |
| WSIP | CUW374/ 10015317 | Alameda Creek Diversion Dam (WSIP) | Work activities included in the project were included in the Final Environmental Impact Report (EIR) for the Calaveras Dam Replacement Project, which was certified by the San Francisco Planning Department January 27, 2011 (Case Number 2005.161E). |
| WSIP | CUW374/ 10015317 | Calaveras Dam (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department January 27, 2011 (Case Number 2005.161E). |

| Program | Project Number | Project Title | CEQA Compliance |
|---------|----------------|----------------------------------|---|
| WSIP | 10015484 | WSIP Closeout - Bay Division | <p>Bay Division Pipeline Nos. 3 & 4 Site Drainage and Pipe Coating Repairs – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Hydro-seeding at Bay Tunnel Project – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Newark Valve Lot Additional Gravel Placement – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Corrosion Protection for Valve E5OU – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Bay Division Pipeline Nos. 3 & 4 Ventilation and Sump Pump Systems Installation - Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC Seismic Upgrade of Bay Division Pipeline Nos. 3 and 4 at the Hayward Fault Final Environmental Impact Report certified June 2011, Case Number 2006.1388E.</p> |
| WSIP | 10015486 | WSIP Closeout - Peninsula (WSIP) | <p>Lower Crystal Springs Dam Stilling Basin Modifications & Dissipation Structure Riprap – Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC Lower Crystal Springs Dam Improvements Project Final Environmental Impact Report, Case Number 2006.0536E.</p> <p>Lower Crystal Springs Dam Valve H53 / Pipeline Investigation & Fisheries Release Valve – Activities proposed under this project are covered by a Minor Project Modification to the SFPUC Lower Crystal Springs Dam Improvements Project Final Environmental Impact Report, Case Number 2006.0536E.</p> <p>New Crystal Springs Bypass Tunnel Electrical Modifications – Activities proposed under this project are covered by a Minor Project Modification to the SFPUC New Crystal Springs Bypass Tunnel Project Final Environmental Impact Report, Case Number 2003.6550E.</p> <p>Closeout of Division of Safety of Dams Permit Applications for Lower Crystal Springs Dam Improvements and Crystal Springs/San Andreas (CSSA) Transmission Upgrade projects – The Final Environmental Impact Report (EIR) for Lower Crystal Springs Dam Improvements Project was certified October 7, 2010, Case Number 2006.0536E and the FEIR for the CSSA Transmission Upgrade Project was certified in April, 2010 (Case Number 2007.1255E).</p> <p>Coordination with San Mateo County Bridge Construction over Lower Crystal Springs Dam Improvement – Proposed work activities do not meet the definition of a “project” under CEQA Guidelines Section 15378 as the project has no potential to result in a physical change to the environment.</p> <p>Harry Tracy Water Treatment Plant (HTWTP) Improvements – Proposed work activities do not meet the definition of a “project” under CEQA Guidelines Section 15378 as the project has no potential to result in a physical change to the environment.</p> <p>Crystal Springs/San Andreas Pipeline (CSSA) Erosion Repairs – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |

| Program | Project Number | Project Title | CEQA Compliance |
|-------------|-------------------------|---|---|
| WSIP | CUWSJI01/ 10015487 | WSIP Closeout - San Joaquin Region | Supplemental Solar Panel Installations (San Joaquin Pipeline System CUW37301) - The individual projects are projects under CEQA and will undergo CEQA review prior to approval. Tesla Portal Facility Interior Floor Slab (Tesla Treatment Facility CUW38401) – Activities proposed under this project are covered by the SFPUC San Joaquin Regional Water Quality Improvement Project Final Environmental Impact Report certified December 18, 2008, Case Number 2007.0427E. |
| WSIP | 10015492 | WSIP Closeout - Sunol Valley | AS4 Carrier Water System Modifications (Alameda Siphon No. 4 Project CUW35902) – The project is a project under CEQA and will undergo CEQA review prior to approval. Erosion Repair at Pond F3 East - Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC San Antonio Backup Pipeline Project Final Environmental Impact Report certified September 20, 2012, Case Number 2007.0039E. Sunol Valley Water Treatment Plant Polymer Feed Facility (previously known as Sunol Valley Water Treatment Plant Basin 5 Optimization) – The project is a project under CEQA and will undergo CEQA review prior to approval. Alameda West Portal, Irvington Portal, and San Antonio Backup Pipeline Misc. – The individual projects are projects under CEQA and will undergo CEQA review prior to approval. NIT Water Quality Equipment Relocation – The project is a project under CEQA and will undergo CEQA review prior to approval. San Antonio Backup Pipeline Carrier Water System Modifications – Activities proposed under this project are covered by the SFPUC San Antonio Backup Pipeline Project Final Environmental Impact Report certified September 20, 2012, Case Number 2007.0039E. |
| Local Water | CUW28000 | Local Water Conveyance/Distribution | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUWAW2A W44 | Sunset Pipeline - Potable AWSS | The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW68600 | Automated Water Meter Program | On May 31, 2011 and July 20, 2012 categorical exemption determinations were issued for the Automated Water Meter Program. |
| Local Water | CUW28101 | 520 John Muir Drive - Site Rehab (Pacific Rod and Gun Club Upland Soil Remedial Action Project) | A Final Mitigated Negative Declaration (MND) was issued by the San Francisco Planning Department October 24, 2014, Case Number 2013.1220E. |
| Local Water | CUW68800 | Buildings and Grounds Improvements | Yard Improvements – The individual projects are projects under CEQA and will undergo CEQA review prior to approval. City Distribution Corporation Yard Fueling Station – A categorical exemption determination for the replacement fueling station was issued March 28, 2011, Case No. 2010.1020E. City Distribution Division Control Center – The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | 10015222 | Local Tanks/Reservoirs | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW28400/ 10015227 | Pump Station Upgrades | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW302010 / 10015242 | SF Westside Recycled Water Project | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department September 3, 2015 (Case Number 2008.0091E). |

| Program | Project Number | Project Title | CEQA Compliance |
|--|-------------------|-----------------------------------|---|
| Local Water | CUW68800/10015427 | Buildings & Ground Improvements | Millbrae Interim Improvements Project – A categorical exemption determination was issued November 20, 2017 (Case Number 2017- 014580ENV). 1990 Newcomb Yard – The project is a project under CEQA and will undergo CEQA review prior to approval. 1657 Rollins Road – The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | New | New Services Connection Program | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW26308 | Town of Sunol Pipeline | A categorical exemption determination was issued September 12, 2014 (Case Number 2014.1405E). |
| Local Water | New | Lombard Geotechnical Improvements | The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10000 | Water Infrastructure | San Joaquin Pipeline Rehabilitation - SJPL system projects are covered by the EIR completed under Case Number 2007.0118E, unless otherwise shown. Rehabilitation of San Joaquin Pipelines - SJPL rehabilitation of existing San Joaquin Pipelines is covered by 2007.1129E. Lower Cherry Aqueduct Rehabilitation - Received concurrence on March 4, 2014, that the Lower Cherry Aqueduct Rehabilitation project was covered under a statutory exemption request (Case Number 2014.0333E) under CEQA Guidelines Section 15269. A Categorical Exemption for Phase 1 Supplemental work at the forebay was approved February 2, 2018 (Case Number 2018-001321ENV). Coast Range Tunnel - Project was completed in July 2016. The project was covered under MPM to the San Joaquin Regional Water Quality Improvement Project (Case Number 2007.0427E), issued August 5, 2014. Priest Outlet 24" Pipe Recoating - The project is a project under CEQA and will undergo CEQA review prior to approval. Moccasin Gate # 3 Shaft Replacement- A categorical exemption determination was issued August 4, 2017, (Case Number 2017-010002ENV). |

| Program | Project Number | Project Title | CEQA Compliance |
|--|----------------|---|---|
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Microwave System - DB-124 was conducted under a Final Mitigated Negative Declaration. CEQA Cat Ex (Case Number 2013.0590E) issued May 10, 2013.</p> <p>Hetch Hetchy Facilities Upgrade - The individual projects are projects under CEQA and will undergo CEQA review prior to approval. Applicable case numbers are: Repair & Minor Rehab of Historic District Buildings (Case Number 2013.0615E), Moccasin Control and Server Building (Case Number 2012.1204E), and Entrance Gate and Vehicle Charging Stations (Case Number 2016-008905ENV).</p> <p>Dam Condition Assessment & Repair - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Kirkwood Penstock - Categorical exemption approval received on May 13, 2016, Case No. 2016-006349ENV.</p> <p>O'Shaughnessy Dam Drum Gate Automation - BEM reviewed the project and on May 15, 2015 declared the proposed activities would not fall within the definition of a project under CEQA Guidelines Section 15378.</p> <p>O'Shaughnessy Dam Outlet Works Planning - Planning report only. The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>O'Shaughnessy Dam UPS Replacement - Work does not meeting the definition of a "project" under CEQA Guidelines Section 15378 because it has no potential to result in a physical change to the environment.</p> <p>O'Shaughnessy Dam Physical Security Upgrade - Work does not meeting the definition of a "project" under CEQA Guidelines Section 15378 because it has no potential to result in a physical change to the environment.</p> <p>Hetchy Facilities Outside Moccasin - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Remote Terminal Unit (RTU) - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Road Improvements – Moccasin to Mather Annual Road Paving – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>ISY Slope Repair - Emergency Project resulting from Rim Fire 2013, Case No. 2013.1795E. Therefore, this project is considered exempt from the requirements of CEQA.</p> |

| Program | Project Number | Project Title | CEQA Compliance |
|--|-----------------------|---|--|
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Oakdale Irrigation District Bridge Replacement - Request for categorical exemption submitted on August 6, 2014.</p> <p>Moccasin to Mather Annual Road Repair - Paving Work Only, submitted Request for a categorical exemption.</p> <p>Road and Bridge Improvement Program - Received CAT-EX on May 24, 2017.</p> <p>Hetch Hetchy Roads Project 2016-2017 - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetch Hetchy Cherry Lake Road Paving Replacement - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetch Hetchy Hetch Hetchy Roads Project FY2017-2018 - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetchy Fiber Projects - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Facilities Security - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Communications Systems Upgrade - MND (Case Number 2005.0883E) issued on April 1, 2008.</p> <p>Hetch Hetchy Facilities New Construction – Moccasin - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Cherry Outlet Works - Categorical exemption approval received on September 16, 2015, (Case Number 2015-012316ENV).</p> <p>Moccasin Wastewater Treatment Plant - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> |
| Hetchy Capital Improvement Projects | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Early Intake Dam Rehabilitation - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |
| Hetchy Capital Improvement Projects | CUH10220 | Mountain Tunnel | <p>Mountain Tunnel Adits and Access Improvements and Emergency Restoration Plan – A categorical exemption determination was issued August 21, 2015 (Case Number 2015-010632ENV).</p> <p>Mountain Tunnel Inspection and Repairs – A categorical exemption determination was issued March 15, 2016 (Case Number 2016-003201ENV). Mountain Tunnel Improvements - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |



SAN FRANCISCO 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
\$478,440,136 for Capital Projects budgeted in Fiscal Years 2018-19 and 2019-20

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

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

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

1. 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 \$478,440,136, including \$376,251,393 to finance certain improvements to the Water Enterprise of the City and County of San Francisco (the "City") and \$102,188,743 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 described in the Ordinance, (a) are not considered to be projects under CEQA, (b) are projects under CEQA and a CEQA determination has already been issued, or (c) are projects under CEQA and will undergo CEQA review prior to approval. Pursuant to the provisions of Chapter 31 of the San Francisco Administrative Code, any additional Project to be financed will comply with applicable requirements of CEQA 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 26 day of June, 2018.

Lisa M. Gibson
Environmental Review Officer

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|----------------|-----------------------|------------------------------------|---|
| Regional Water | 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, Case No. 2007.0427E. |
| Regional Water | CUW27300 | Water Transmission Program | The individual cathodic protection projects are projects under CEQA and will undergo CEQA review prior to approval. SAPL2 Lockbar Replacement - An Addendum to the EIR for the Peninsula Pipelines Seismic Upgrade Project, Case No. 2011.0123E, certified on October 17, 2013, was approved by SF Planning on April 12, 2017 for the SAPL2 Lockbar Replacement project. |
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| WSIP | CUW352/ 10015281 | Alameda Creek Recapture (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department June 22, 2017 (Case Number 2015-004827ENV); Appeal process currently underway. |
| WSIP | CUW374/ 10015317 | Alameda Creek Diversion Dam (WSIP) | Work activities included in the project were included in the Final Environmental Impact Report (EIR) for the Calaveras Dam Replacement Project, which was certified by the San Francisco Planning Department January 27, 2011 (Case Number 2005.161E). |
| WSIP | CUW374/ 10015317 | Calaveras Dam (WSIP) | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department January 27, 2011 (Case Number 2005.161E). |

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| Program | Project Number | Project Title | CEQA Compliance |
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| WSIP | 10015484 | WSIP Closeout - Bay Division | <p>Bay Division Pipeline Nos. 3 & 4 Site Drainage and Pipe Coating Repairs – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Bay Tunnel Warranty Inspection and BDPL 1 & 2 EIR Mitigation – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Hydro-seeding at Bay Tunnel Project – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Newark Valve Lot Additional Gravel Placement – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Corrosion Protection for Valve E5OU – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Bay Division Pipeline Nos. 3 & 4 Ventilation and Sump Pump Systems Installation - Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC Seismic Upgrade of Bay Division Pipeline Nos. 3 and 4 at the Hayward Fault Final Environmental Impact Report certified June 2011, Case Number 2006.1388E.</p> |
| WSIP | 10015486 | WSIP Closeout - Peninsula (WSIP) | <p>Lower Crystal Springs Dam Stilling Basin Modifications & Dissipation Structure Riprap – Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC Lower Crystal Springs Dam Improvements Project Final Environmental Impact Report, Case Number 2006.0536E.</p> <p>Lower Crystal Springs Dam Valve H53 / Pipeline Investigation & Fisheries Release Valve – Activities proposed under this project are covered by a Minor Project Modification to the SFPUC Lower Crystal Springs Dam Improvements Project Final Environmental Impact Report, Case Number 2006.0536E.</p> <p>New Crystal Springs Bypass Tunnel Electrical Modifications – Activities proposed under this project are covered by a Minor Project Modification to the SFPUC New Crystal Springs Bypass Tunnel Project Final Environmental</p> |

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|---------|-----------------------|------------------------------------|--|
| | | | <p>Impact Report, Case Number 2003.6550E. Closeout of Division of Safety of Dams Permit Applications for Lower Crystal Springs Dam Improvements and Crystal Springs/San Andreas (CSSA) Transmission Upgrade projects – The Final Environmental Impact Report (EIR) for Lower Crystal Springs Dam Improvements Project was certified October 7, 2010, Case Number 2006.0536E and the FEIR for the CSSA Transmission Upgrade Project was certified in April, 2010 (Case Number 2007.1255E). Coordination with San Mateo County Bridge Construction over Lower Crystal Springs Dam Improvement – Proposed work activities do not meet the definition of a “project” under CEQA Guidelines Section 15378 as the project has no potential to result in a physical change to the environment. Harry Tracy Water Treatment Plant (HTWTP) Improvements – Proposed work activities do not meet the definition of a “project” under CEQA Guidelines Section 15378 as the project has no potential to result in a physical change to the environment. Crystal Springs/San Andreas Pipeline (CSSA) Erosion Repairs – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |
| WSIP | CUWSJI01/ 10015487 | WSIP Closeout - San Joaquin Region | <p>Supplemental Solar Panel Installations (San Joaquin Pipeline System CUW37301) - The individual projects are projects under CEQA and will undergo CEQA review prior to approval. Tesla Portal Facility Interior Floor Slab (Tesla Treatment Facility CUW38401) – Activities proposed under this project are covered by the SFPUC San Joaquin Regional Water Quality Improvement Project Final Environmental Impact Report certified December 18, 2008, Case Number 2007.0427E.</p> |

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| Program | Project Number | Project Title | CEQA Compliance |
|----------------|-----------------------|-------------------------------------|--|
| WSIP | 10015492 | WSIP Closeout - Sunol Valley | <p>AS4 Carrier Water System Modifications (Alameda Siphon No. 4 Project CUW35902) – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Erosion Repair at Pond F3 East - Activities proposed under this project were reviewed and approved by the Planning Department under a Minor Project Modification to the SFPUC San Antonio Backup Pipeline Project Final Environmental Impact Report certified September 20, 2012, Case Number 2007.0039E.</p> <p>Sunol Valley Water Treatment Plant Polymer Feed Facility (previously known as Sunol Valley Water Treatment Plant Basin 5 Optimization) – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Alameda West Portal, Irvington Portal, and San Antonio Backup Pipeline Misc. – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>NIT Water Quality Equipment Relocation – The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>San Antonio Backup Pipeline Carrier Water System Modifications – Activities proposed under this project are covered by the SFPUC San Antonio Backup Pipeline Project Final Environmental Impact Report certified September 20, 2012, Case Number 2007.0039E.</p> |
| Local Water | CUW28000 | Local Water Conveyance/Distribution | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUWAW2AW44 | Sunset Pipeline - Potable AWSS | The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW68600 | Automated Water Meter Program | On May 31, 2011 and July 20, 2012 categorical exemption determinations were issued for the Automated Water Meter Program. |

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|----------------|------------------------|---|--|
| Local Water | CUW28101 | 520 John Muir Drive - Site Rehab (Pacific Rod and Gun Club Upland Soil Remedial Action Project) | A Final Mitigated Negative Declaration (MND) was issued by the San Francisco Planning Department October 24, 2014, Case Number 2013.1220E. |
| Local Water | CUW68800 | Systems Monitoring and Control | Yard Improvements – The individual projects are projects under CEQA and will undergo CEQA review prior to approval. City Distribution Corporation Yard Fueling Station – A categorical exemption determination for the replacement fueling station was issued March 28, 2011, Case No. 2010.1020E. City Distribution Division Control Center – The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | 10015222 | Local Tanks/Reservoirs | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW28200/ 10015227 | Pump Station Upgrades | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |
| Local Water | CUW302010/ 10015242 | SF Westside Recycled Water Project | A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Department September 3, 2015 (Case Number 2008.0091E). |
| Local Water | CUW28400/ 10015427 | Buildings & Ground Improvements | Millbrae Interim Improvements Project – A categorical exemption determination was issued November 20, 2017 (Case Number 2017-014580ENV). 1990 Newcomb Yard – The project is a project under CEQA and will undergo CEQA review prior to approval. 1657 Rollins Road – The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Local Water | New | New Services Connection Program | The individual projects are projects under CEQA and will undergo CEQA review prior to approval. |

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|--|-----------------------|---|---|
| Local Water | CUW26308 | Town of Sunol Pipeline | A categorical exemption determination was issued September 12, 2014 (Case Number 2014.1405E). |
| Local Water | New | Lombard Geotechnical Improvements | The project is a project under CEQA and will undergo CEQA review prior to approval. |
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10000 | Water Infrastructure | San Joaquin Pipeline Rehabilitation - SJPL system projects are covered by the EIR completed under Case Number 2007.0118E, unless otherwise shown. Rehabilitation of San Joaquin Pipelines - SJPL rehabilitation of existing San Joaquin Pipelines is covered by 2007.1129E. Lower Cherry Aqueduct Rehabilitation - Received concurrence on March 4, 2014, that the Lower Cherry Aqueduct Rehabilitation project was covered under a statutory exemption request (Case Number 2014.0333E) under CEQA Guidelines Section 15269. A Categorical Exemption for Phase 1 Supplemental work at the forebay was approved February 2, 2018 (Case Number 2018-001321ENV). Coast Range Tunnel - Project was completed in July 2016. The project was covered under MPM to the San Joaquin Regional Water Quality Improvement Project (Case Number 2007.0427E), issued August 5, 2014. Priest Outlet 24" Pipe Recoating - The project is a project under CEQA and will undergo CEQA review prior to approval. Moccasin Gate # 3 Shaft Replacement- A categorical exemption determination was issued August 4, 2017, (Case Number 2017-010002ENV). |
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | Microwave System - DB-124 was conducted under a Final Mitigated Negative Declaration. CEQA Cat Ex (Case Number 2013.0590E) issued May 10, 2013. Hetch Hetchy Facilities Upgrade - The individual projects are projects under CEQA and will undergo CEQA review prior to approval. Applicable case numbers are: Repair & Minor Rehab of Historic District Buildings (Case Number 2013.0615E), Moccasin Control and Server Building (Case Number 2012.1204E), and Entrance Gate and Vehicle Charging Stations (Case Number 2016-008905ENV). |

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|---------|----------------|---------------|---|
| | | | <p>Dam Condition Assessment & Repair - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Kirkwood Penstock - Categorical exemption approval received on May 13, 2016, Case No. 2016-006349ENV.</p> <p>O’Shaughnessy Dam Drum Gate Automation - BEM reviewed the project and on May 15, 2015 declared the proposed activities would not fall within the definition of a project under CEQA Guidelines Section 15378.</p> <p>O’Shaughnessy Dam Outlet Works Planning - Planning report only. The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>O’Shaughnessy Dam UPS Replacement - Work does not meeting the definition of a “project” under CEQA Guidelines Section 15378 because it has no potential to result in a physical change to the environment.</p> <p>O’Shaughnessy Dam Physical Security Upgrade - Work does not meeting the definition of a “project” under CEQA Guidelines Section 15378 because it has no potential to result in a physical change to the environment.</p> <p>Hetchy Facilities Outside Moccasin - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Remote Terminal Unit (RTU) - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Road Improvements – Moccasin to Mather Annual Road Paving – The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>ISY Slope Repair - Emergency Project resulting from Rim Fire 2013, Case No. 2013.1795E. Therefore, this project is considered exempt from the requirements of CEQA.</p> |

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|--|-----------------------|---|--|
| Hetchy Capital Improvement Projects & Hetch Hetchy R&R | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Oakdale Irrigation District Bridge Replacement - Request for categorical exemption submitted on August 6, 2014.</p> <p>Moccasin to Mather Annual Road Repair - Paving Work Only, submitted Request for a categorical exemption.</p> <p>Road and Bridge Improvement Program - Received CAT-EX on May 24, 2017.</p> <p>Hetch Hetchy Roads Project 2016-2017 - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetch Hetchy Cherry Lake Road Paving Replacement - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetch Hetchy Hetch Hetchy Roads Project FY2017-2018 - Paving Work Only, submitted Request for categorical exemption.</p> <p>Hetchy Fiber Projects - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> <p>Facilities Security - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Communications Systems Upgrade - MND (Case Number 2005.0883E) issued on April 1, 2008.</p> <p>Hetch Hetchy Facilities New Construction – Moccasin - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> <p>Cherry Outlet Works - Categorical exemption approval received on September 16, 2015, (Case Number 2015-012316ENV).</p> <p>Moccasin Wastewater Treatment Plant - The individual projects are projects under CEQA and will undergo CEQA review prior to approval.</p> |
| Hetchy Capital Improvement Projects | CUH10200 | Joint Water Projects – Hetch Hetchy Facilities Upgrades | <p>Early Intake Dam Rehabilitation - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |

EXHIBIT A
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS
FY 2018-2019 AND FY 2019-2020 CAPITAL IMPROVEMENT PROJECTS

| Program | Project Number | Project Title | CEQA Compliance |
|-------------------------------------|----------------|-----------------|--|
| Hetchy Capital Improvement Projects | CUH10220 | Mountain Tunnel | <p>Mountain Tunnel Adits and Access Improvements and Emergency Restoration Plan – A categorical exemption determination was issued August 21, 2015 (Case Number 2015-010632ENV).</p> <p>Mountain Tunnel Inspection and Repairs – A categorical exemption determination was issued March 15, 2016 (Case Number 2016-003201ENV).</p> <p>Mountain Tunnel Improvements - The project is a project under CEQA and will undergo CEQA review prior to approval.</p> |

1 [San Francisco Public Utilities Commission Water Revenue Bond and Other Forms of
2 Indebtedness Issuance ----Not to Exceed \$478,440,136]

3 **Ordinance authorizing the issuance and sale of tax-exempt or taxable Water Revenue**
4 **Bonds and other forms of indebtedness (as described below) by the San Francisco**
5 **Public Utilities Commission (Commission) in an aggregate principal amount not to**
6 **exceed \$478,440,136 to finance the costs of various capital water projects benefitting**
7 **the Water Enterprise pursuant to amendments to the Charter of the City and County of**
8 **San Francisco enacted by the voters on November 5, 2002 as Proposition E;**
9 **authorizing the issuance of Water Revenue Refunding Bonds; declaring the Official**
10 **Intent of the Commission to reimburse itself with one or more issues of tax-exempt**
11 **bonds or other forms of indebtedness; and ratifying previous actions taken in**
12 **connection therewith.**

13 NOTE: **Unchanged Code text and uncodified text** are in plain Arial font.
14 **Additions to Codes** are in single-underline italics Times New Roman font.
15 **Deletions to Codes** are in ~~striketrough italics Times New Roman font~~.
16 **Board amendment additions** are in double-underlined Arial font.
17 **Board amendment deletions** are in ~~striketrough Arial font~~.
18 **Asterisks (* * * *)** indicate the omission of unchanged Code
19 subsections or parts of tables.

20 Be it ordained by the People of the City and County of San Francisco:

21 Section 1. Findings. The Board of Supervisors (the "Board") of the City hereby finds
22 and declares as follows:

23 A. On November 5, 2002, the voters of the City and County of San Francisco (the
24 "City") approved Proposition E ("Proposition E"), which among other things, authorized the
25 San Francisco Public Utilities Commission (the "Commission") to issue revenue bonds,
including notes, commercial paper or other forms of indebtedness, when authorized by

1 ordinance approved by a two-thirds vote of the Board of Supervisors, for the purpose of
2 reconstructing, replacing, expanding, repairing or improving water facilities or clean water
3 facilities or combinations of water and clean water facilities under the jurisdiction of the
4 Commission; and

5 B. The Commission adopted the Amended and Restated Water Indenture dated as
6 of January 1, 2002, as further amended and supplemented from time to time (the "Indenture"),
7 between the Commission and U. S. Bank National Association and in connection therewith,
8 has from time to time issued revenue bonds to finance projects benefitting the Water
9 Enterprise; and

10 C. By Resolution 18-0023, adopted by the Commission on February 13, 2018 (the
11 "Commission Resolution") the Commission has determined to issue Water Revenue Bonds
12 (the "Water Revenue Bonds") and other forms of indebtedness (including without limitation
13 State Revolving Fund (SRF) Loans as described below), as well as interim funding vehicles
14 such as commercial paper, revolving credit agreements, bond anticipation notes or other
15 forms of notes, which interim funding vehicles will be issued in advance of being paid off by
16 either Water Revenue Bonds and other forms of indebtedness (including without limitation
17 SRF Loans) to finance the costs of various capital projects benefitting the Water Enterprise
18 (the "Capital Improvement Projects" such projects being more fully described in the
19 Commission Resolution), pursuant to Proposition E, and has formally requested this Board to
20 authorize the issuance and sale of Water Revenue Bonds and other forms of indebtedness for
21 such purposes, such Commission Resolution being on file with the Clerk of the Board in File
22 No. _____; and

23 D. In order to finance the costs of the Capital Improvement Projects, the Board now
24 desires to authorize the issuance and sale of Water Revenue Bonds and other forms of
25

1 indebtedness, as described above, for such purposes, including obtaining SRF Loans and/or
2 grants from the State Water Resources Control Board; and

3 E. The Commission has paid, beginning no earlier than 60 days prior to the
4 adoption of this Ordinance and will pay, on and after the date hereof, certain expenditures (the
5 “Expenditures”) in connection with the acquisition, construction and/or equipping of the Capital
6 Improvement Projects; and

7 F. This Board is concurrently considering with this Ordinance, another Ordinance
8 approving a Capital Improvement Program and related supplemental appropriation totaling
9 \$499,095,424 for fiscal years ending 2019 and 2020, including expenditures of the proceeds
10 of the Water Revenue Bonds and other forms of indebtedness (including SRF Loans,
11 commercial paper, revolving credit agreements, and bond anticipation notes); and

12 G. This Board, on behalf of the Commission, adopts this Ordinance as official
13 action of the Commission in order to comply with Treasury Regulation §1.150-2 and any other
14 regulations of the Internal Revenue Service relating to the qualification for reimbursement of
15 Commission expenditures incurred prior to the date of issue of the Water Revenue Bonds and
16 other forms of indebtedness (including SRF Loans, commercial paper, revolving credit
17 agreements, and bond anticipation notes)

18 Section 2. Authorization to Issue Water Revenue Bonds and other forms of
19 indebtedness. The Board hereby authorizes the issuance and sale of Water Revenue Bonds
20 or other forms of indebtedness (including, SRF Loans, commercial paper, revolving credit
21 agreements, and bond anticipation notes) in one or more series from time to time by the
22 Commission pursuant to Proposition E and in accordance with the Commission Resolution, in
23 an aggregate principal amount not to exceed \$478,440,136 (inclusive of financing costs, but
24 exclusive of refunding indebtedness), bearing a maximum rate or rates of interest of not to
25 exceed twelve percent (12%) per annum, to finance a portion of the costs of the design,

1 acquisition and construction of the Capital Improvement Projects. Without limiting the
2 foregoing, the Commission shall be authorized to incur SRF Loans at such time, in such
3 amounts, and upon such other terms and conditions as the Commission may deem
4 advantageous, and to approve any financing documentation related thereto consistent with
5 this Ordinance. The Commission is hereby further authorized to determine the timing, amount
6 and manner of sale (i.e., competitive or negotiated) of each series of Water Revenue Bonds,
7 bond anticipation notes, revolving credit agreements, or commercial paper, pursuant to this
8 authorization; provided however, the Commission's authorization to issue Water Revenue
9 Bonds, bond anticipation notes, revolving credit agreements, or commercial paper is subject
10 to approval by the Commission of the form of substantially final offering document related to
11 such obligations (if any) and the approval of any related agreements, financing documents
12 and the filing with its Board and the Clerk of the Board any certifications required by
13 Proposition E prior to the issuance of any bonds or incurrence of any indebtedness herein
14 authorized. The Commission shall also file, within 30 days of closing any Water Revenue
15 Bond or other form of indebtedness (including SRF Loans and bond anticipation notes)
16 transactions) authorized hereby, with the Clerk of the Board of Supervisors a report showing
17 the results of the transaction, including (i) principal amount sold and method of sale, (ii) true
18 interest cost, (iii) final maturity, (iv) the facilities constructed and/or improved, and (v) a
19 statement about the remaining bonding authorization under this Ordinance (the "Report"),
20 provided that the failure to file such report shall not affect the validity of any debt authorized
21 hereunder.

22 Section 3. Authorization to Issue Water Revenue Refunding Bonds. The Board further
23 authorizes and approves the issuance by the Commission of Water Revenue Refunding
24 Bonds (the "Refunding Bonds") without limitation as to principal amount, in one or more series
25 on one or more dates, at a maximum interest rate or rates of interest not to exceed twelve

1 percent (12%) per annum, provided that each such Refunding Bond issue is permitted under
2 the applicable policies and procedures of the City and authorized by Section 9.109 of the
3 Charter (including related ordinances and resolutions of the Board). The Refunding Bonds
4 may be issued as tax-exempt or taxable obligations, or any combination thereof. Refunding
5 Bonds s authorized hereunder shall be subject to the further following conditions, that: (i)
6 three percent (3%) net present value debt service savings or greater is achieved to ensure
7 ratepayer savings (exclusive of any issuance to refund commercial paper, revolving credit
8 notes, or bond anticipation notes); (ii) that the maturity of the refunded bonds is not extended;
9 (iii) this authorization is subject to a 2-year term through June 30, 2020, at which time this
10 Board may consider an extension; principal payments and term may be adjusted, where
11 permitted under federal and state tax law, only if and when the underlying capital asset funded
12 through said refunded bonds has a useful life not in excess of any limit permitted under
13 federal and state tax law than the refunded term; and (iv) the Commission shall within 30 days
14 of any executed refunding transaction provide a savings report prepared by its financial
15 advisors (that reflects at least a three percent (3%) net present value debt service savings) to
16 the Board, together with a copy of the final Official Statement (if any) with respect to such
17 series of Refunding Bonds, provided that the failure to deliver such report shall in no way
18 affect the validity of any Refunding Bonds. Notwithstanding the foregoing, the Commission is
19 authorized to issue Refunding Bonds for non-economic factors, including by way of
20 illustration, eliminating onerous covenants and obsolete provisions contained in the
21 Commission's indenture or other security documents. The Commission shall request a waiver
22 of the savings requirement for any Refunding Bonds issued for non-economic reasons.

23 Section 4. Declaration of Official Intent. The Board, on behalf of the Commission,
24 hereby declares the official intent of the Commission to reimburse the Commission with
25 proceeds of the Water Revenue Bonds or other forms of indebtedness (including SRF Loans,

1 commercial paper, revolving credit notes, or bond anticipation notes) for the Expenditures with
2 respect to the Capital Improvement Projects made on and after a date that is no more than 60
3 days prior to the adoption of this Ordinance. The Commission reasonably expects on the date
4 hereof that it will reimburse the Expenditures with proceeds of the Water Revenue Bonds or
5 other forms of indebtedness (including SRF Loans, commercial paper, revolving credit notes
6 or bond anticipation notes). Each said Expenditure was and will be either (A) of a type
7 properly chargeable to a capital account under general federal income tax principles
8 (determined in each case as of the date of the Expenditure), (B) a cost of issuance with
9 respect to such obligations, (C) a nonrecurring item that is not customarily payable from
10 current revenues, or (D) a grant to pay a party that is not related to or an agent of the issuer
11 so long as such grant does not impose any obligation or condition (directly or indirectly) to
12 repay any amount to or for the benefit of the Commission. The Commission will make a
13 reimbursement allocation, which is a written allocation by the Issuer that evidences the
14 Commission's use of proceeds of the Water Revenue Bonds or other forms of indebtedness
15 to reimburse an Expenditure, no later than 18 months after the later of the date on which the
16 Expenditure is paid or the component of the Capital Improvement Projects is placed in service
17 or abandoned, but in no event more than three years after the date on which the Expenditure
18 is paid. The Commission recognizes that exceptions are available for certain "preliminary
19 expenditures," costs of issuance, certain de minimis amounts, expenditures by "small issuers"
20 (based on the year of issuance and not the year of expenditure) and expenditures for
21 construction projects of at least 5 years.

22 Section 5. General Authority. The Controller, Treasurer, the City Attorney and other
23 officers of the City, including the Director of the Office of Public Finance, and their duly
24 authorized deputies and agents are hereby authorized and directed, jointly and severally, to
25 take such actions and to execute and deliver such certificates, agreements, requests or other

1 documents, as they may deem necessary or desirable to facilitate the issuance, sale and
2 delivery of the Water Revenue Bonds or other forms of indebtedness, including Refunding
3 Bonds, and to obtain bond insurance or other credit or liquidity enhancements with respect to
4 any such obligations, , and otherwise to carry out the provisions of this Ordinance. The
5 Commission is hereby directed to provide the final form to the Clerk of the Board of any
6 disclosure document prepared in connection with the execution of any Water Revenue Bonds,
7 other forms of indebtedness, or Refunding Bonds, and the final executed Installment Sale
8 Agreement or other document reflecting the incurrence of an SRF Loan, within 30 days of the
9 closing of such transactions provided that the failure to deliver such report shall not affect the
10 validity of the obligations authorized hereunder.

11 Section 6. Ratification of Prior Actions. All actions authorized and directed by this
12 Ordinance in connection with the issuance of the Water Revenue Bonds, other forms of
13 indebtedness (including SRF Loans, commercial paper, revolving credit notes, or bond
14 anticipation notes) or Refunding Bonds and heretofore taken are hereby ratified, approved
15 and confirmed by this Board.

16 Section 7. File Documents. All documents referred to as on file with the Clerk of the
17 Board are in File Nos. _____.

18 Section 8. Effective Date. Pursuant to Charter Section 8B.124, this Ordinance shall
19 take effect thirty (30) days after its adoption.

20

21 APPROVED AS TO FORM:
22 DENNIS J. HERRERA, City Attorney

23

24

25 By: _____
Mark D. Blake
Deputy City Attorney

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DRAFT



Water Financial Projections

Qualified Independent Consultant Report

August 30, 2018



BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS



TO: San Francisco Public Utilities Commission

DATE: August 30, 2018

ATTN: Mike Brown – SFPUC Financial Services

FROM: Alex Handlers, CIPMA & Douglas Dove, CIPMA, P.E.

RE: SFPUC Qualified Independent Consultant Report – Water

Background

Bartle Wells Associates (BWA) was retained by the San Francisco Public Utilities Commission (SFPUC) to serve as a Qualified Independent Consultant and prepare a written report in support of the SFPUC's issuance of debt to fund or refinance (in the case of projects funded with commercial paper) water system capital improvement projects. As a condition for issuing parity debt, Section 3.06(c)(1)(C) of the Indenture securing the SFPUC's water revenue bonds requires an independent consultant to estimate a) revenues, b) operating and maintenance expenses, and c) net revenues of the water enterprise for a period lasting through three years following the fiscal year in which the consulting engineers estimate the debt-funded projects will be completed.

Financial Projections

BWA developed financial projections through Fiscal Year 2027-28. The financial projections are based on data provided by the SFPUC as well as a number of independent calculations and assumptions which constitute such examination or investigation as is necessary to enable BWA to express an informed opinion as to whether the requirements of Proposition E and the Indenture have been satisfied. Based on the projections, the Water Enterprise will generate net revenues (as defined per the Indenture) that are at least 1.25 times Annual Debt Service in each fiscal year. In accordance with the requirements of Proposition E, approved by the voters of the City and County of San Francisco on November 5, 2002, BWA certifies that estimated net revenues 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 projected bonds and estimated repair and replacement costs.

Attached Tables

The attached tables include:

- **Water Enterprise Financial Projections** – This table was developed by Bartle Wells Associates based on information provided by the SFPUC and a number of independent assumptions, and includes projections of future fund balances, revenues, operating and maintenance expenses, debt service, other non-operating expenses, net revenues, and debt service coverage.
- **Cash Flow Assumptions** – This table describes key assumptions used in developing the financial projections.
- **10-Year Water Capital Improvement Program** – This table shows projected SFPUC water system capital improvements and anticipated sources of funding.
- **Estimated Bond Debt Service** – This table estimates annual debt service on future bonds per each \$100 million of project funding.
- **Projected Debt Service** – This table shows projected debt issued by fiscal year and calculates annual debt service for each issue.
- **Projected Debt Service on Future Financings** – This table projects debt service by fiscal year for each debt issue.
- **Outstanding Debt** – This table shows debt service due on outstanding debt issues.

The tables are based on information provided by the SFPUC as well as a number of independent calculations and assumptions. BWA takes no responsibility for the accuracy of information provided by the SFPUC, nor for any errors or omissions in information provided.

Submitted by: BARTLE WELLS ASSOCIATES



Alex Handlers, CIPMA
Principal/Vice President

Douglas R. Dove, CIPMA, P.E.
President

SFPUC Water Financial Projections

List of Tables

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 - Table 3 - Estimated Bond Debt Service
 - Table 4A - Projected Bond Issues: Water
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 - Table 4B - Projected Bond Issues: Hetchy
 - Table 5B - Projected Debt Service on Future Financings: Hetchy
 - Table 6 - Outstanding Debt
-

Table 1 - SFPUC Water Cash Flow Projections

Years 1-5

| | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| Retail Water Rate Adjustments | 9.0% | 8.0% | 7.0% | 7.0% | 7.0% |
| Change in Retail Demand | - | 0.0% | 0.0% | 0.0% | 0.0% |
| Change in Wholesale Demand | - | 0.0% | 0.0% | 0.0% | 0.0% |
| Wholesale Water Sales (ccf) | 63,400,000 | 63,400,000 | 63,400,000 | 63,400,000 | 63,400,000 |
| Wholesale Water Rate (\$/ccf) | \$4.10 | \$4.10 | \$4.10 | \$4.10 | \$4.41 |
| Wholesale Blended Water Rate (\$/ccf) | \$4.10 | \$4.10 | \$4.10 | \$4.10 | \$4.38 |
| Interest Earnings Rate | - | 1.7% | 2.0% | 2.0% | 2.0% |
| O&M Cost Escalation | - | - | 3.0% | 3.0% | 3.0% |
| Beginning Fund Reserves | | | | | |
| Unappropriated Fund Reserves | \$196,977,000 | \$180,353,000 | \$156,945,000 | \$136,022,000 | \$121,007,000 |
| Wholesale Coverage Reserves | 26,938,000 | 34,804,000 | 36,030,000 | 39,805,000 | 40,935,000 |
| Total | 223,915,000 | 215,157,000 | 192,975,000 | 175,827,000 | 161,942,000 |
| Revenues | | | | | |
| Retail Water Charges | 277,673,000 | 299,887,000 | 320,879,000 | 343,341,000 | 367,375,000 |
| Wholesale Volumetric Charges | 259,940,000 | 259,940,000 | 259,940,000 | 259,940,000 | 277,692,000 |
| Wholesale Fixed Service Charges | 4,292,000 | 4,300,000 | 4,300,000 | 4,300,000 | 4,300,000 |
| Interest Income | 3,157,000 | 3,658,000 | 3,860,000 | 3,517,000 | 3,239,000 |
| Capacity Chgs & Other Capital Revs | 5,005,000 | 4,846,000 | 4,989,000 | 5,058,000 | 5,164,000 |
| Rental Income | 12,671,000 | 13,040,000 | 13,419,000 | 13,809,000 | 14,211,000 |
| Other Miscellaneous Income | 10,211,000 | 10,511,000 | 10,819,000 | 11,136,000 | 11,462,000 |
| Programmatic Revenues | 7,948,000 | 7,755,000 | 7,904,000 | 8,089,000 | 8,286,000 |
| BABs Interest Subsidies (Net of Sequest.) | 22,069,000 | 21,897,000 | 21,712,000 | 21,506,000 | 21,177,000 |
| Subtotal | 602,966,000 | 625,834,000 | 647,822,000 | 670,696,000 | 712,906,000 |
| Debt Proceeds: Water | 0 | 245,372,000 | 347,511,000 | 169,203,000 | 178,485,000 |
| Debt Proceeds: Hetchy | 0 | 13,881,000 | 28,375,000 | 44,708,000 | 55,104,000 |
| Operation & Maintenance Expenses | | | | | |
| Personnel | 100,082,000 | 103,775,000 | 106,888,000 | 110,095,000 | 113,398,000 |
| Utilities | 9,812,000 | 10,160,000 | 10,465,000 | 10,779,000 | 11,102,000 |
| Non-Personal Services | 15,200,000 | 15,977,000 | 16,456,000 | 16,950,000 | 17,459,000 |
| Materials/Supplies/Equipment | 19,033,000 | 22,285,000 | 22,954,000 | 23,643,000 | 24,352,000 |
| Services of SFPUC Bureaus | 48,080,000 | 49,763,000 | 51,256,000 | 52,794,000 | 54,378,000 |
| Services of Other Departments | 11,459,000 | 11,513,000 | 11,858,000 | 12,214,000 | 12,580,000 |
| Hetch Hetchy Assessment | 33,578,000 | 34,585,000 | 35,623,000 | 36,692,000 | 37,793,000 |
| Other Operating Expenses | 4,691,000 | 4,904,000 | 5,051,000 | 5,203,000 | 5,359,000 |
| Programmatic Projects (Excl 525 GG Lease) | 20,155,000 | 22,985,000 | 22,676,000 | 22,611,000 | 20,475,000 |
| Subtotal | 262,090,000 | 275,947,000 | 283,227,000 | 290,981,000 | 296,896,000 |
| Debt Service, Net of Capitalized Interest | | | | | |
| Outstanding Parity Debt | 294,177,000 | 306,250,000 | 320,532,000 | 330,758,000 | 333,363,000 |
| BAWSCA Prepayment Defeasance | (10,520,000) | 0 | 0 | 0 | 0 |
| Projected Future Debt | 0 | 0 | 0 | 1,021,000 | 22,190,000 |
| Subtotal | 283,657,000 | 306,250,000 | 320,532,000 | 331,779,000 | 355,553,000 |
| Non-Operating Expenses | | | | | |
| Local Projects | 16,809,000 | 16,650,000 | 82,044,000 | 72,652,000 | 48,073,000 |
| Less Projected GO Bond Funding | 0 | 0 | (50,000,000) | (40,000,000) | 0 |
| Regional Projects | 40,000,000 | 40,000,000 | 20,000,000 | 20,000,000 | 23,000,000 |
| Hetchy Water Projects | 0 | 0 | 0 | 0 | 0 |
| 525 Golden Gate Lease | 9,168,000 | 9,169,000 | 9,167,000 | 9,169,000 | 9,170,000 |
| Subtotal | 65,977,000 | 65,819,000 | 61,211,000 | 61,821,000 | 80,243,000 |
| Total Expenses | 611,724,000 | 648,016,000 | 664,970,000 | 684,581,000 | 732,692,000 |
| Revenues Less Expenses | (8,758,000) | (22,182,000) | (17,148,000) | (13,885,000) | (19,786,000) |
| Transfer to Wholesale Coverage Reserve | (7,866,000) | (1,226,000) | (3,775,000) | (1,130,000) | (1,857,000) |
| Ending Fund Reserves | | | | | |
| Unappropriated Fund Reserves | 180,353,000 | 156,945,000 | 136,022,000 | 121,007,000 | 99,364,000 |
| Wholesale Coverage Reserves | 34,804,000 | 36,030,000 | 39,805,000 | 40,935,000 | 42,792,000 |
| Total | 215,157,000 | 192,975,000 | 175,827,000 | 161,942,000 | 142,156,000 |
| Annual Revenues | 602,966,000 | 625,834,000 | 647,822,000 | 670,696,000 | 712,906,000 |
| Less Revs Excluded from Coverage Calc | (6,471,000) | (6,621,000) | (6,762,000) | (6,913,000) | (7,075,000) |
| Operating & Maintenance Expenses | (262,090,000) | (275,947,000) | (283,227,000) | (290,981,000) | (296,896,000) |
| Net Revenues (Current Basis) | 334,405,000 | 343,266,000 | 357,833,000 | 372,802,000 | 408,935,000 |
| Plus Beginning Fund Reserves | 223,915,000 | 215,157,000 | 192,975,000 | 175,827,000 | 161,942,000 |
| Net Revenues (Indenture Basis with Reserves) | 558,320,000 | 558,423,000 | 550,808,000 | 548,629,000 | 570,877,000 |
| Annual Debt Service | 283,657,000 | 306,250,000 | 320,532,000 | 331,779,000 | 355,553,000 |
| Debt Service Coverage, Current Basis | 1.18 | 1.12 | 1.12 | 1.12 | 1.15 |
| Debt Service Coverage, Indenture Basis | 1.97 | 1.82 | 1.72 | 1.65 | 1.61 |

Table 1 - SFPUC Water Cash Flow Projections

Years 6-10

| | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| Retail Water Rate Adjustments | 7.0% | 7.0% | 5.0% | 4.0% | 4.0% |
| Change in Retail Demand | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Growth in Wholesale Demand | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Wholesale Water Sales (ccf) | 63,400,000 | 63,400,000 | 63,400,000 | 63,400,000 | 63,400,000 |
| Wholesale Water Rate (\$/ccf) | \$4.96 | \$5.17 | \$5.45 | \$5.62 | \$5.94 |
| Wholesale Blended Water Rate (\$/ccf) | \$4.91 | \$5.15 | \$5.43 | \$5.61 | \$5.91 |
| Interest Earnings Rate | 2.0% | 2.0% | 2.0% | 2.0% | 2.0% |
| O&M Cost Escalation | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% |
| Beginning Fund Reserves | | | | | |
| Unappropriated Fund Reserves | \$99,364,000 | \$96,115,000 | \$90,516,000 | \$85,872,000 | \$83,462,000 |
| Wholesale Coverage Reserves | 42,792,000 | 44,669,000 | 47,466,000 | 49,581,000 | 51,894,000 |
| Total | 142,156,000 | 140,784,000 | 137,982,000 | 135,453,000 | 135,356,000 |
| Revenues | | | | | |
| Retail Water Charges | 393,091,000 | 420,607,000 | 441,637,000 | 459,302,000 | 477,674,000 |
| Wholesale Volumetric Charges | 311,294,000 | 326,510,000 | 344,262,000 | 355,674,000 | 374,694,000 |
| Wholesale Fixed Service Charges | 4,300,000 | 4,300,000 | 4,300,000 | 4,300,000 | 4,300,000 |
| Interest Income | 2,843,000 | 2,816,000 | 2,760,000 | 2,709,000 | 2,707,000 |
| Capacity Chgs & Other Capital Revs | 5,273,000 | 5,386,000 | 5,502,000 | 5,681,000 | 5,868,000 |
| Rental Income | 14,625,000 | 15,051,000 | 15,489,000 | 15,940,000 | 16,404,000 |
| Other Miscellaneous Income | 11,797,000 | 12,142,000 | 12,498,000 | 12,864,000 | 13,240,000 |
| Programmatic Revenues | 8,462,000 | 8,525,000 | 8,591,000 | 8,670,000 | 8,752,000 |
| BABs Interest Subsidies (Net of Sequest.) | 20,730,000 | 20,262,000 | 19,771,000 | 19,242,000 | 18,673,000 |
| Subtotal | 772,415,000 | 815,599,000 | 854,810,000 | 884,382,000 | 922,312,000 |
| Debt Proceeds: Water | 161,524,000 | 96,502,000 | 75,451,000 | 44,751,000 | 26,880,000 |
| Debt Proceeds: Hetchy | 77,371,000 | 87,051,000 | 59,801,000 | 44,283,000 | 45,225,000 |
| Operation & Maintenance Expenses | | | | | |
| Personnel | 116,800,000 | 120,304,000 | 123,913,000 | 127,630,000 | 131,459,000 |
| Utilities | 11,435,000 | 11,778,000 | 12,131,000 | 12,495,000 | 12,870,000 |
| Non-Personal Services | 17,983,000 | 18,522,000 | 19,078,000 | 19,650,000 | 20,240,000 |
| Materials/Supplies/Equipment | 25,083,000 | 25,835,000 | 26,610,000 | 27,408,000 | 28,230,000 |
| Services of SFPUC Bureaus | 56,009,000 | 57,689,000 | 59,420,000 | 61,203,000 | 63,039,000 |
| Services of Other Departments | 12,957,000 | 13,346,000 | 13,746,000 | 14,158,000 | 14,583,000 |
| Hetch Hetchy Assessment | 38,927,000 | 40,095,000 | 41,298,000 | 42,537,000 | 43,813,000 |
| Other Operating Expenses | 5,520,000 | 5,686,000 | 5,857,000 | 6,033,000 | 6,214,000 |
| Programmatic Projects (Excl 525 GG Lease) | 21,262,000 | 23,546,000 | 24,086,000 | 24,580,000 | 24,965,000 |
| Subtotal | 305,976,000 | 316,801,000 | 326,139,000 | 335,694,000 | 345,413,000 |
| Debt Service, Net of Capitalized Interest | | | | | |
| Outstanding Parity Debt | 333,237,000 | 332,706,000 | 336,686,000 | 335,257,000 | 333,198,000 |
| BAWSCA Prepayment Defeasance | 0 | 0 | 0 | 0 | 0 |
| Projected Future Debt | 52,503,000 | 69,714,000 | 89,284,000 | 108,247,000 | 120,149,000 |
| Subtotal | 385,740,000 | 402,420,000 | 425,970,000 | 443,504,000 | 453,347,000 |
| Non-Operating Expenses | | | | | |
| Local Projects | 48,940,000 | 65,126,000 | 66,254,000 | 68,385,000 | 71,821,000 |
| Less Projected GO Bond Funding | 0 | 0 | 0 | 0 | 0 |
| Regional Projects | 24,000,000 | 25,000,000 | 30,000,000 | 28,000,000 | 40,000,000 |
| Hetchy Water Projects | 0 | 0 | 0 | 0 | 0 |
| 525 Golden Gate Lease | 9,131,000 | 9,054,000 | 8,976,000 | 8,896,000 | 8,813,000 |
| Subtotal | 82,071,000 | 99,180,000 | 105,230,000 | 105,281,000 | 120,634,000 |
| Total Expenses | 773,787,000 | 818,401,000 | 857,339,000 | 884,479,000 | 919,394,000 |
| Revenues Less Expenses | (1,372,000) | (2,802,000) | (2,529,000) | (97,000) | 2,918,000 |
| Transfer to Wholesale Coverage Reserve | (1,877,000) | (2,797,000) | (2,115,000) | (2,313,000) | (1,247,000) |
| Ending Fund Reserves | | | | | |
| Unappropriated Fund Reserves | 96,115,000 | 90,516,000 | 85,872,000 | 83,462,000 | 85,133,000 |
| Wholesale Coverage Reserves | 44,669,000 | 47,466,000 | 49,581,000 | 51,894,000 | 53,141,000 |
| Total | 140,784,000 | 137,982,000 | 135,453,000 | 135,356,000 | 138,274,000 |
| Annual Revenues | 772,415,000 | 815,599,000 | 854,810,000 | 884,382,000 | 922,312,000 |
| Less Revs Excluded from Coverage Calc | (7,277,000) | (7,343,000) | (7,385,000) | (7,428,000) | (7,409,000) |
| Operating & Maintenance Expenses | (305,976,000) | (316,801,000) | (326,139,000) | (335,694,000) | (345,413,000) |
| Net Revenues (Current Basis) | 459,162,000 | 491,455,000 | 521,286,000 | 541,260,000 | 569,490,000 |
| Plus Beginning Fund Reserves | 142,156,000 | 140,784,000 | 137,982,000 | 135,453,000 | 135,356,000 |
| Net Revenues (Indenture Basis with Reserves) | 601,318,000 | 632,239,000 | 659,268,000 | 676,713,000 | 704,846,000 |
| Annual Debt Service | 385,740,000 | 402,420,000 | 425,970,000 | 443,504,000 | 453,347,000 |
| Debt Service Coverage, Current Basis | 1.19 | 1.22 | 1.22 | 1.22 | 1.26 |
| Debt Service Coverage, Indenture Basis | 1.56 | 1.57 | 1.55 | 1.53 | 1.55 |

SFPUC Water Financial Projections

Cash Flow Assumptions

| | |
|--|---|
| SFPUC Model Basis | Financial projections are based on SFPUC's <i>FY19 Water 10 Year Plan - Commission Approved Mar 2018</i> |
| Retail Water Rate Adjustments | Retail water rate adjustments are based on the SFPUC's adopted and projected rate increases with the exception that the rate increase for FY2024/25 was revised from 5% to 7%. |
| Retail Water Sales | Retail water sales are based on projected sales for FY 2018/19 and assume water sales remain constant at this level in future years. |
| Wholesale Water Sales | Wholesale water sales projections based on projected sales for FY 2018/19 and assume water sales remain constant at this level in future years. |
| Wholesale Water Rates | Based on SFPUC's latest wholesale water rate projections. |
| BABs Subsidies | BABs subsidies are accounted for as a revenue and are calculated based on a 35% federal reimbursement on interest coming due each fiscal year, adjusted to account for a 6.2% reduction in the federal reimbursement due to sequestration. |
| Beginning Fund Reserves | Beginning fund reserves based on SFPUC estimates. |
| Retail Water Charges | Based on SFPUC revenue estimates for FY 2018/19, and subsequently 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 rate, plus projected wholesale customer meter charges of \$4.3 million. |
| Interest Income | Interest income is based on SFPUC projections for FY 2018/19 and subsequently based on the projected interest rate multiplied by beginning fund reserves for each year. |
| Other Revenues | Other revenues are based on SFPUC projections. |
| Operation & Maintenance Expenses | Most Operation & Maintenance Expenses are based on SFPUC projections for the first two years and subsequently escalate at the annual rate of 3.0% thereafter. Services of Other Departments, Other Operating Expenses, and Programmatic Expenses are based on SFPUC 10-year projections. Programmatic Expenses exclude the 525 Golden Gate Lease Payment. |
| Capital Projects | Capital Project expenses and sources of funding are 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) roughly 30-year terms, b) 5% average annual interest rate, c) debt issuance on Oct-1 with May-1 and Nov-1 payment dates, d) capitalized interest for 2.58 years, e) principal payments amortized over 28 years starting year 3, f) level annual debt service, g) no debt service reserve fund. Future debt service projections are based on SFPUC estimates of annual debt financing requirements and BWA debt service projections. |
| Outstanding Debt Service | Outstanding debt service is based on debt service schedules for each issue, as provided by SFPUC, and is shown on a fiscal year basis. |
| Debt Service Payments | 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. Debt service payments in the cash flow projections reflect the amount coming due each fiscal year; not the amounts procedurally required to be prepaid each fiscal year. |
| Non-Operating Expenses | Non-Operating Expenses are based on SFPUC projections and include pay-go capital funding and 525 Golden Gate Lease Payments. |
| 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, Current Basis | Coverage based on annual Net Revenues (excluding available fund reserves) divided by Annual Debt Service. |
| Debt Service Coverage, Indenture Basis | Coverage based on annual Net Revenues plus Beginning Fund Reserves (as allowed per Indenture) divided by Annual Debt Service. |

SFPUC Water Projected Revenues & Expenses (\$ Millions)

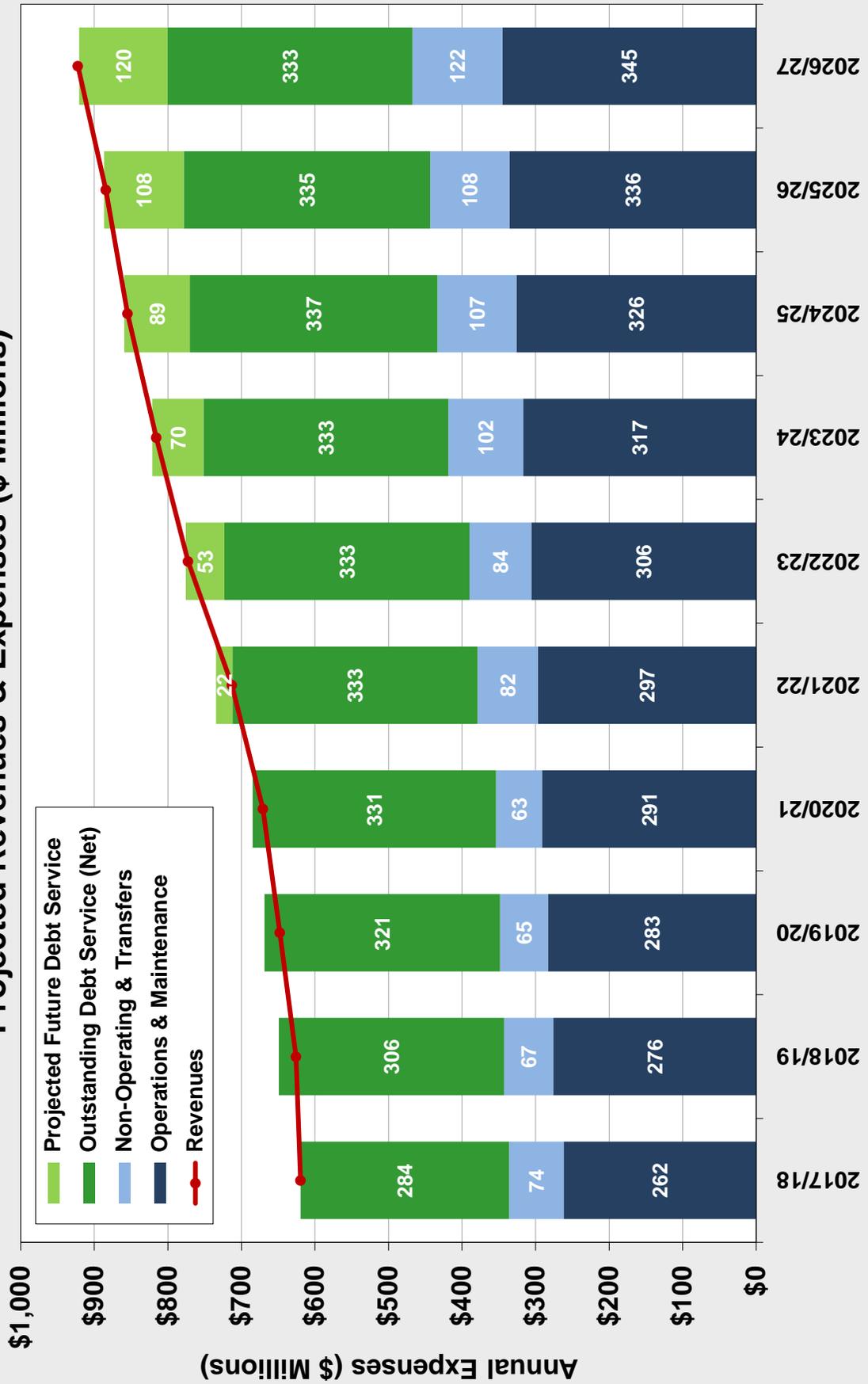


Table 2
San Francisco Public Utilities Commission
10-Year Water Capital Improvement Program & Funding Sources (New Projects)

| | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| REGIONAL WATER IMPROVEMENTS | | | | | | | | | | |
| Water Treatment Program | 15,314,000 | 14,533,000 | 105,538,000 | 2,014,000 | 1,914,000 | 1,928,000 | 1,980,000 | 2,022,000 | 2,029,000 | 2,077,000 |
| Water Transmission Program | 39,965,000 | 45,055,000 | 42,345,000 | 11,640,000 | 12,440,000 | 32,256,000 | 18,291,000 | 19,438,000 | 37,474,000 | 52,699,000 |
| Water Supply & Storage Program | 15,382,000 | 7,050,000 | 20,032,000 | 44,580,000 | 41,530,000 | 25,255,000 | 30,616,000 | 25,633,000 | 5,633,000 | 590,000 |
| Watersheds & Land Management | 11,076,000 | 12,521,000 | 5,119,000 | 4,924,000 | 4,457,000 | 4,374,000 | 2,782,000 | 2,538,000 | 2,596,000 | 2,621,000 |
| Communication & Monitoring Program | 950,000 | 500,000 | 500,000 | 500,000 | 500,000 | 515,000 | 515,000 | 515,000 | 515,000 | 1,520,000 |
| Buildings and Grounds Programs | 35,586,000 | 33,545,000 | 8,104,000 | 2,713,000 | 2,737,000 | 2,713,000 | 2,215,000 | 2,215,000 | 2,215,000 | 2,215,000 |
| Base Funded by WSIP | 62,000,000 | - | - | - | - | - | - | - | - | - |
| Subtotal | 180,273,000 | 113,204,000 | 181,638,000 | 66,371,000 | 63,578,000 | 67,041,000 | 56,399,000 | 52,361,000 | 50,462,000 | 61,722,000 |
| OTHER CAPITAL IMPROVEMENTS | | | | | | | | | | |
| Local Water | 84,076,000 | 74,511,000 | 89,813,400 | 82,948,500 | 96,650,200 | 60,249,200 | 61,260,400 | 62,272,100 | 64,284,300 | 67,597,200 |
| Auxiliary Water Supply System | - | - | 50,000,000 | 40,000,000 | - | - | - | - | - | - |
| Subtotal | 84,076,000 | 74,511,000 | 139,813,400 | 122,948,500 | 96,650,200 | 60,249,200 | 61,260,400 | 62,272,100 | 64,284,300 | 67,597,200 |
| HETCH HETCHY WATER PROJECTS | | | | | | | | | | |
| | 28,989,000 | 60,427,000 | 49,781,000 | 104,962,000 | 69,141,000 | 50,462,000 | 38,104,000 | 52,346,000 | 15,580,000 | 14,205,000 |
| TOTAL | 293,338,000 | 248,142,000 | 371,232,400 | 294,281,500 | 229,369,200 | 177,752,200 | 155,763,400 | 166,979,100 | 130,326,300 | 143,524,200 |
| FUNDING SOURCES² | | | | | | | | | | |
| Water Revenue Bonds (Regional) | 140,273,000 | 73,204,000 | 161,638,000 | 46,371,000 | 40,578,000 | 43,041,000 | 31,399,000 | 22,361,000 | 22,462,000 | 21,722,000 |
| Water Revenue Bonds (Regional Wholesale C | - | - | - | - | 3,000,000 | 4,000,000 | 5,000,000 | 10,000,000 | 8,000,000 | 20,000,000 |
| Water Revenue Bonds (Local) | 70,505,000 | 61,196,000 | 61,204,200 | 53,834,400 | 52,221,325 | 15,062,300 | - | - | - | - |
| Water Revenue Bonds (Hetchy) | 28,989,000 | 60,427,000 | 49,781,000 | 104,962,000 | 69,141,000 | 50,462,000 | 38,104,000 | 52,346,000 | 15,580,000 | 14,205,000 |
| Subtotal | 239,767,000 | 194,827,000 | 272,623,200 | 205,167,400 | 164,940,325 | 112,565,300 | 74,503,000 | 84,707,000 | 46,042,000 | 55,927,000 |
| Pay-Go Revenue Funding | 51,804,000 | 51,804,000 | 47,055,200 | 47,594,100 | 62,908,875 | 63,666,900 | 79,740,400 | 80,752,100 | 82,704,300 | 85,953,200 |
| GO Bonds | - | - | 50,000,000 | 40,000,000 | - | - | - | - | - | - |
| Capacity Charges | 1,767,000 | 1,511,000 | 1,554,000 | 1,520,000 | 1,520,000 | 1,520,000 | 1,520,000 | 1,520,000 | 1,580,000 | 1,644,000 |
| TOTAL | 293,338,000 | 248,142,000 | 371,232,400 | 294,281,500 | 229,369,200 | 177,752,200 | 155,763,400 | 166,979,100 | 130,326,300 | 143,524,200 |
| Funding Shortfall | - | - | - | - | - | - | - | - | - | - |

Note: Amounts shown reflect capital improvements projected to be budgeted, but not necessarily funded or financed, each year.

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

| | | Water Bonds | Hetchy Bonds |
|---|-------|---------------------------|---------------------------|
| Repayment Term | | 30 Years | 30 Years |
| Cap I Term | | 2.58 Years | 1.58 Years |
| Funding Target | | Per each \$100,000,000 | Per each \$100,000,000 |
| Assumed Issuance & Payment Dates | | | |
| Bond Issuance Date | | Oct-1 | Oct-1 |
| First Interest Payment | | May-1 | May-1 |
| Principal & Second Interest Payment | | Nov-1 | Nov-1 |
| Total Debt Issue | | \$115,860,000 | \$109,540,000 |
| Project Funding | | \$100,000,000 | \$100,000,000 |
| Issuance Costs & Reserve Requirement | | | |
| Underwriter Discount | 0.50% | \$579,000 | \$548,000 |
| Issuance Costs | Est. | 300,000 | 300,000 |
| Reserve Requirement | | 0 | 0 |
| Capitalized Interest | 2.58 | 14,965,000 | 8,672,000 |
| Rounding/Contingency | | <u>16,000</u> | <u>20,000</u> |
| Total | | 15,860,000 | 9,540,000 |
| Financing Terms | | | |
| Term (Years) | | 30 | 30 |
| Interest Only (Years) | | 2.58 | 1.58 |
| Principal Amortization (Years) | | 28 | 28 |
| Est. Average Interest Rate | | 5.00% | 5.00% |
| Annual Debt Service | | | |
| Interest Only Period | | 5,793,000 | 5,477,000 |
| Principal Amortization Period | | 7,777,000 | 7,353,000 |

Financing costs and interest rates estimated for financial planning purposes.

Table 4A
SFPU Water Enterprise
Projected Bond Issues: Water

| Debt Issuance by FY | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Debt Financing Requirements | | | | | | | | | |
| Revenue Bond Project Funding | 245,372,000 | 347,511,000 | 169,203,000 | 178,485,000 | 161,524,000 | 96,502,000 | 75,451,000 | 44,751,000 | 26,880,000 |
| Carryover Bond Funding Needs | - | - | - | - | - | - | - | - | - |
| Subtotal | 245,372,000 | 347,511,000 | 169,203,000 | 178,485,000 | 161,524,000 | 96,502,000 | 75,451,000 | 44,751,000 | 26,880,000 |
| Financing Terms | | | | | | | | | |
| CIP Project Funding | 245,372,000 | 347,511,000 | 169,203,000 | 178,485,000 | 161,524,000 | 96,502,000 | 75,451,000 | 44,751,000 | 26,880,000 |
| Total Issue Size | 284,290,000 | 402,630,000 | 196,040,000 | 206,790,000 | 187,140,000 | 111,810,000 | 87,420,000 | 51,850,000 | 31,140,000 |
| Issuance Date | Oct-1 2019 | Oct-1 2020 | Oct-1 2021 | Oct-1 2022 | Oct-1 2023 | Oct-1 2024 | Oct-1 2025 | Oct-1 2026 | Oct-1 2027 |
| Issuance Year | May-1 & Nov-1 2019 | May-1 & Nov-1 2020 | May-1 & Nov-1 2021 | May-1 & Nov-1 2022 | May-1 & Nov-1 2023 | May-1 & Nov-1 2024 | May-1 & Nov-1 2025 | May-1 & Nov-1 2026 | May-1 & Nov-1 2027 |
| Interest Payments | Nov-1 |
| Principal Payments (Year 3+) | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% |
| Average Interest Rate | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 |
| Repayment Term (Years) | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 |
| Capitalized Interest (Years) | | | | | | | | | |
| Debt Service per \$100M | | | | | | | | | |
| Interest Only Period (2.83 Yrs) | 5,793,000 | 5,793,000 | 5,793,000 | 5,793,000 | 5,793,000 | 5,793,000 | 5,793,000 | 5,793,000 | 5,793,000 |
| Principal Amort Period (27 Yrs) | 7,777,000 | 7,777,000 | 7,777,000 | 7,777,000 | 7,777,000 | 7,777,000 | 7,777,000 | 7,777,000 | 7,777,000 |
| Annual Debt Service | | | | | | | | | |
| Interest Only Period | 14,214,000 | 20,131,000 | 9,802,000 | 10,340,000 | 9,357,000 | 5,590,000 | 4,371,000 | 2,592,000 | 1,557,000 |
| Principal Amort Period | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 |
| Cumulative MADS | 19,083,000 | 46,109,000 | 59,268,000 | 73,149,000 | 85,711,000 | 93,216,000 | 99,084,000 | 102,564,000 | 104,654,000 |

Table 5A
 SFPUC Water Enterprise
 Projected Debt Service on Future Financings: Water

| Fiscal Year Ending June 30 | 2019/20 Bonds | 2020/21 Bonds | 2021/22 Bonds | 2022/23 Bonds | 2023/24 Bonds | 2024/25 Bonds | 2025/26 Bonds | 2026/27 Bonds | 2027/28 Bonds | Total Net of Cap I |
|-------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------------|
| 2019 | | | | | | | | | | 0 |
| 2020 | Cap I | | | | | | | | | 0 |
| 2021 | Cap I | 0 |
| 2022 | Cap I | 0 |
| 2023 | 19,083,000 | 19,083,000 | 13,159,000 | 13,881,000 | 13,881,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 19,083,000 |
| 2024 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 46,109,000 |
| 2025 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 59,268,000 |
| 2026 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 73,149,000 |
| 2027 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 85,711,000 |
| 2028 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 93,216,000 |
| 2029 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 99,084,000 |
| 2030 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 102,564,000 |
| 2031 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2032 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2033 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2034 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2035 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2036 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2037 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2038 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2039 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2040 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2041 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2042 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2043 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2044 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2045 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2046 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2047 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2048 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2049 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2050 | 19,083,000 | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 104,654,000 |
| 2051 | | 27,026,000 | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 85,571,000 |
| 2052 | | | 13,159,000 | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 58,545,000 |
| 2053 | | | | 13,881,000 | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 45,386,000 |
| 2054 | | | | | 12,562,000 | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 31,505,000 |
| 2055 | | | | | | 7,505,000 | 5,868,000 | 3,480,000 | 2,090,000 | 18,943,000 |
| 2056 | | | | | | | 5,868,000 | 3,480,000 | 2,090,000 | 11,438,000 |
| 2057 | | | | | | | | 3,480,000 | 2,090,000 | 5,570,000 |
| 2058 | | | | | | | | | 2,090,000 | 2,090,000 |

Table 4B
SFPUC Water Enterprise
Projected Bond Issues: Hetchy

| Debt Issuance by FY | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Debt Financing Requirements | | | | | | | | | |
| Revenue Bond Project Funding | 13,881,000 | 28,375,000 | 44,708,000 | 55,104,000 | 77,371,000 | 87,051,000 | 59,801,000 | 44,283,000 | 45,225,000 |
| Carryover Bond Funding Needs | - | - | - | - | - | - | - | - | - |
| Subtotal | 13,881,000 | 28,375,000 | 44,708,000 | 55,104,000 | 77,371,000 | 87,051,000 | 59,801,000 | 44,283,000 | 45,225,000 |
| Financing Terms | | | | | | | | | |
| CIP Project Funding | 13,881,000 | 28,375,000 | 44,708,000 | 55,104,000 | 77,371,000 | 87,051,000 | 59,801,000 | 44,283,000 | 45,225,000 |
| Total Issue Size | 16,080,000 | 32,880,000 | 51,800,000 | 63,840,000 | 89,640,000 | 100,860,000 | 69,290,000 | 51,310,000 | 52,400,000 |
| Issuance Date | Oct-1 |
| Issuance Year | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| Interest Payments | May-1 & Nov-1 |
| Principal Payments (Year 3+) | Nov-1 |
| Average Interest Rate | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% |
| Repayment Term (Years) | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 | 30.58 |
| Capitalized Interest (Years) | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 |
| Debt Service per \$100M | | | | | | | | | |
| Interest Only Period (2.83 Yrs) | 5,477,000 | 5,477,000 | 5,477,000 | 5,477,000 | 5,477,000 | 5,477,000 | 5,477,000 | 5,477,000 | 5,477,000 |
| Principal Amort Period (27 Yrs) | 7,353,000 | 7,353,000 | 7,353,000 | 7,353,000 | 7,353,000 | 7,353,000 | 7,353,000 | 7,353,000 | 7,353,000 |
| Annual Debt Service | | | | | | | | | |
| Interest Only Period | 760,000 | 1,554,000 | 2,449,000 | 3,018,000 | 4,238,000 | 4,768,000 | 3,275,000 | 2,425,000 | 2,477,000 |
| Principal Amort Period | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 |
| Cumulative MADS | | | | | | | | | |
| | 1,021,000 | 3,107,000 | 6,394,000 | 10,446,000 | 16,135,000 | 22,536,000 | 26,933,000 | 30,189,000 | 33,514,000 |

Table 5B
 SFJUC Water Enterprise
 Projected Debt Service on Future Financings: Hetchy

| Fiscal Year Ending June 30 | 2019/20 Bonds | 2020/21 Bonds | 2021/22 Bonds | 2022/23 Bonds | 2023/24 Bonds | 2024/25 Bonds | 2025/26 Bonds | 2026/27 Bonds | 2027/28 Bonds | Total Net of Cap I |
|-------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------------|
| 2019 | | | | | | | | | | 0 |
| 2020 | Cap I | | | | | | | | | 0 |
| 2021 | Cap I | Cap I | Cap I | | | | | | | 0 |
| 2022 | 1,021,000 | Cap I | Cap I | | | | | | | 1,021,000 |
| 2023 | 1,021,000 | 2,086,000 | Cap I | Cap I | | | | | | 3,107,000 |
| 2024 | 1,021,000 | 2,086,000 | 3,287,000 | Cap I | Cap I | | | | | 6,394,000 |
| 2025 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | Cap I | Cap I | | | | 10,446,000 |
| 2026 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | Cap I | Cap I | | | 16,135,000 |
| 2027 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | Cap I | | | 22,536,000 |
| 2028 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | Cap I | | 26,933,000 |
| 2029 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | Cap I | 30,189,000 |
| 2030 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2031 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2032 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2033 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2034 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2035 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2036 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2037 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2038 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2039 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2040 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2041 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2042 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2043 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2044 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2045 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2046 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2047 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2048 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2049 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2050 | 1,021,000 | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 33,514,000 |
| 2051 | | 2,086,000 | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 32,493,000 |
| 2052 | | | 3,287,000 | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 30,407,000 |
| 2053 | | | | 4,052,000 | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 27,120,000 |
| 2054 | | | | | 5,689,000 | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 23,068,000 |
| 2055 | | | | | | 6,401,000 | 4,397,000 | 3,256,000 | 3,325,000 | 17,379,000 |
| 2056 | | | | | | | 4,397,000 | 3,256,000 | 3,325,000 | 10,978,000 |
| 2057 | | | | | | | | 3,256,000 | 3,325,000 | 6,581,000 |
| 2058 | | | | | | | | | 3,325,000 | 3,325,000 |

Table 6
SFPUC Water Enterprise
Outstanding Debt

| Fiscal Year Ending June 30 | 1991 A Bonds | 2009 A Bonds | 2009 B Bonds | 2010 A Bonds | 2010 B Bonds (BABs) | 2010 D Bonds | 2010 E Bonds (BABs) | 2010 F Bonds | 2010 G Bonds (BABs) | 2011 A Bonds | 2011 B Bonds |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|------------------------|-----------------|------------------------|-----------------|------------------------|-----------------|-----------------|
| 2019 | 5,000,000 | 9,728,600 | 9,875,875 | 2,591,625 | 33,949,991 | 18,485,625 | 20,060,998 | 5,932,850 | 24,427,165 | 15,571,675 | 1,545,613 |
| 2020 | 2,100,000 | 9,827,700 | 9,875,875 | 2,593,250 | 33,766,026 | 18,482,000 | 20,060,998 | 6,164,450 | 24,427,165 | 15,571,675 | 1,544,800 |
| 2021 | 0 | 0 | 0 | 0 | 33,567,555 | 18,481,500 | 20,060,998 | 6,182,850 | 24,427,165 | 30,937,675 | 1,546,200 |
| 2022 | 0 | 0 | 0 | 0 | 33,349,400 | 13,550,250 | 20,060,998 | 13,729,875 | 24,427,165 | 30,919,925 | 1,541,500 |
| 2023 | 0 | 0 | 0 | 0 | 33,108,875 | 0 | 32,493,745 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2024 | 0 | 0 | 0 | 0 | 32,858,188 | 0 | 32,269,076 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2025 | 0 | 0 | 0 | 0 | 32,596,513 | 0 | 32,027,800 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2026 | 0 | 0 | 0 | 0 | 32,327,888 | 0 | 31,770,820 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2027 | 0 | 0 | 0 | 0 | 32,033,750 | 0 | 31,501,613 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2028 | 0 | 0 | 0 | 0 | 31,720,150 | 0 | 31,209,463 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2029 | 0 | 0 | 0 | 0 | 31,390,550 | 0 | 30,896,950 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2030 | 0 | 0 | 0 | 0 | 31,048,600 | 0 | 30,560,300 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2031 | 0 | 0 | 0 | 0 | 30,692,800 | 0 | 30,210,400 | 0 | 24,427,165 | 13,956,175 | 771,400 |
| 2032 | 0 | 0 | 0 | 0 | 30,321,650 | 0 | 29,845,750 | 0 | 35,102,830 | 40,343,275 | 771,400 |
| 2033 | 0 | 0 | 0 | 0 | 29,938,500 | 0 | 29,464,850 | 0 | 34,831,264 | 12,810,375 | 1,998,163 |
| 2034 | 0 | 0 | 0 | 0 | 29,541,550 | 0 | 29,071,050 | 0 | 34,543,210 | 12,810,375 | 2,000,338 |
| 2035 | 0 | 0 | 0 | 0 | 29,124,150 | 0 | 28,662,550 | 0 | 34,237,279 | 12,810,375 | 1,996,375 |
| 2036 | 0 | 0 | 0 | 0 | 28,694,500 | 0 | 28,237,550 | 0 | 33,926,559 | 44,618,225 | 1,991,000 |
| 2037 | 0 | 0 | 0 | 0 | 28,240,800 | 0 | 27,799,100 | 0 | 33,594,139 | 44,496,075 | 1,992,125 |
| 2038 | 0 | 0 | 0 | 0 | 27,776,100 | 0 | 27,335,400 | 0 | 33,248,281 | 44,448,700 | 1,989,500 |
| 2039 | 0 | 0 | 0 | 0 | 27,288,300 | 0 | 26,859,500 | 0 | 32,886,901 | 44,502,913 | 1,988,000 |
| 2040 | 0 | 0 | 0 | 0 | 26,785,300 | 0 | 26,359,300 | 0 | 32,512,740 | 44,365,250 | 1,987,375 |
| 2041 | 0 | 0 | 0 | 0 | 26,259,850 | 0 | 25,842,700 | 0 | 32,113,713 | 44,317,750 | 1,982,500 |
| 2042 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,702,560 | 44,269,750 | 1,978,250 |
| 2043 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,266,850 | 0 | 0 |
| 2044 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,818,976 | 0 | 0 |
| 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,341,333 | 0 | 0 |
| 2046 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,846,313 | 0 | 0 |
| 2047 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,330,789 | 0 | 0 |
| 2048 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,786,808 | 0 | 0 |
| 2049 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,221,241 | 0 | 0 |
| 2050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,625,789 | 0 | 0 |
| 2051 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,006,975 | 0 | 0 |
| 2052 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 6
 SFPUC Water Enterprise
 Outstanding Debt

| Fiscal Year Ending June 30 | 2011 C Bonds | 2011 D Bonds | 2012 A Bonds | 2012 B Bonds | 2012 C Bonds | 2012 D Bonds | 2015 A Bonds | 2016 A Bonds | 2016 B Bonds | 2016 C Bonds |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 2019 | 1,683,788 | 956,750 | 20,807,350 | 683,450 | 3,617,750 | 12,435,654 | 23,315,094 | 35,759,000 | 10,743,250 | 14,572,569 |
| 2020 | 1,680,725 | 956,750 | 20,807,350 | 683,450 | 3,617,750 | 12,435,542 | 33,756,794 | 35,759,000 | 13,374,325 | 14,571,816 |
| 2021 | 1,684,625 | 956,750 | 20,807,350 | 683,450 | 3,617,750 | 0 | 33,759,094 | 55,215,125 | 18,334,725 | 14,571,352 |
| 2022 | 1,682,225 | 956,750 | 20,807,350 | 683,450 | 3,617,750 | 0 | 33,755,319 | 57,493,375 | 13,288,975 | 14,568,164 |
| 2023 | 840,725 | 6,865,250 | 20,807,350 | 683,450 | 3,617,750 | 0 | 33,753,344 | 65,565,750 | 15,252,950 | 14,569,139 |
| 2024 | 840,725 | 6,869,375 | 20,807,350 | 683,450 | 3,617,750 | 0 | 44,712,944 | 54,956,250 | 15,273,625 | 14,568,314 |
| 2025 | 840,725 | 6,867,500 | 20,807,350 | 683,450 | 3,617,750 | 0 | 44,706,569 | 54,956,500 | 15,289,150 | 14,572,667 |
| 2026 | 840,725 | 0 | 20,807,350 | 683,450 | 10,710,875 | 0 | 44,709,944 | 54,935,250 | 8,924,050 | 14,572,789 |
| 2027 | 840,725 | 0 | 20,807,350 | 683,450 | 10,712,750 | 0 | 33,366,569 | 65,430,250 | 8,909,450 | 14,569,516 |
| 2028 | 840,725 | 0 | 20,807,350 | 683,450 | 10,710,500 | 0 | 31,914,694 | 71,473,875 | 4,453,775 | 14,568,666 |
| 2029 | 840,725 | 0 | 20,807,350 | 683,450 | 10,708,250 | 0 | 31,911,944 | 71,449,875 | 4,453,600 | 14,572,522 |
| 2030 | 840,725 | 0 | 20,807,350 | 683,450 | 10,705,000 | 0 | 31,910,319 | 71,435,125 | 4,459,300 | 14,570,111 |
| 2031 | 840,725 | 0 | 20,807,350 | 683,450 | 10,709,500 | 0 | 31,908,381 | 71,412,550 | 4,457,400 | 14,572,172 |
| 2032 | 840,725 | 0 | 20,807,350 | 1,638,950 | 19,006,300 | 0 | 31,913,568 | 50,164,975 | 0 | 14,572,605 |
| 2033 | 2,179,900 | 0 | 20,807,350 | 1,639,150 | 10,368,300 | 0 | 31,911,568 | 50,154,725 | 0 | 14,568,314 |
| 2034 | 2,181,788 | 0 | 20,807,350 | 1,637,750 | 0 | 0 | 31,914,768 | 50,150,100 | 0 | 14,572,829 |
| 2035 | 2,172,125 | 0 | 20,807,350 | 1,639,025 | 0 | 0 | 31,912,768 | 50,175,600 | 0 | 14,568,934 |
| 2036 | 2,170,500 | 0 | 47,497,975 | 1,637,400 | 0 | 0 | 31,908,659 | 50,215,225 | 0 | 14,572,659 |
| 2037 | 2,170,000 | 0 | 61,963,225 | 1,639,100 | 0 | 0 | 31,913,375 | 50,223,200 | 0 | 14,572,882 |
| 2038 | 2,170,375 | 0 | 64,735,475 | 1,634,600 | 0 | 0 | 0 | 50,225,700 | 0 | 14,571,826 |
| 2039 | 2,166,500 | 0 | 64,734,500 | 1,638,100 | 0 | 0 | 0 | 50,220,500 | 0 | 14,570,804 |
| 2040 | 2,163,250 | 0 | 64,735,700 | 1,639,400 | 0 | 0 | 0 | 50,219,700 | 0 | 14,568,137 |
| 2041 | 2,160,375 | 0 | 64,737,000 | 1,638,500 | 0 | 0 | 0 | 0 | 0 | 14,568,121 |
| 2042 | 2,157,625 | 0 | 64,735,000 | 1,635,400 | 0 | 0 | 0 | 0 | 0 | 14,569,946 |
| 2043 | 0 | 0 | 64,734,625 | 1,635,000 | 0 | 0 | 0 | 0 | 0 | 14,568,654 |
| 2044 | 0 | 0 | 64,733,875 | 1,637,100 | 0 | 0 | 0 | 0 | 0 | 14,572,644 |
| 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,569,557 |
| 2046 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,568,558 |
| 2047 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,568,600 |
| 2048 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2049 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2051 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2052 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 6
SFPUC Water Enterprise
Outstanding Debt

| Fiscal Year Ending June 30 | 2017 A Bonds | 2017 B Bonds | 2017 C Bonds | 2017 D Bonds | 2017 E Bonds | 2017 F Bonds | 2017 G Bonds | SRF Loans | Total Net of Cap I | BABs Subsidies 35% with 6.2% Seq. 32.830% |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|-----------------------|---|
| 2019 | 0 | 0 | 0 | 18,176,800 | 2,395,250 | 435,250 | 1,425,058 | 0 | 294,177,028 | (22,069,361) |
| 2020 | 0 | 0 | 1,766,875 | 18,180,550 | 2,395,250 | 435,250 | 1,414,648 | 0 | 306,250,013 | (21,897,344) |
| 2021 | 6,057,000 | 3,693,125 | 3,533,750 | 18,179,850 | 2,395,250 | 435,250 | 1,403,573 | 0 | 320,531,941 | (21,712,349) |
| 2022 | 6,057,000 | 7,386,250 | 3,533,750 | 18,178,550 | 2,395,250 | 435,250 | 1,707,705 | 6,632,026 | 330,758,250 | (21,506,133) |
| 2023 | 8,323,875 | 10,150,375 | 4,854,875 | 18,653,675 | 3,141,125 | 1,117,750 | 13,776,430 | 6,632,026 | 333,363,198 | (21,176,921) |
| 2024 | 8,324,625 | 10,154,875 | 4,855,375 | 18,400,550 | 3,132,125 | 1,116,875 | 14,008,558 | 6,632,026 | 333,236,796 | (20,730,316) |
| 2025 | 8,324,250 | 10,151,875 | 4,857,250 | 27,073,050 | 3,131,375 | 1,114,250 | 5,300,919 | 6,632,026 | 332,705,709 | (20,261,520) |
| 2026 | 8,327,375 | 10,151,125 | 4,855,375 | 36,589,425 | 9,514,875 | 1,178,125 | 0 | 6,632,026 | 336,686,206 | (19,770,512) |
| 2027 | 8,323,750 | 10,152,125 | 4,859,500 | 36,563,050 | 9,538,500 | 1,178,250 | 0 | 6,632,026 | 335,257,363 | (19,242,493) |
| 2028 | 8,328,000 | 10,154,375 | 4,859,375 | 36,534,175 | 7,977,000 | 1,176,125 | 0 | 6,632,026 | 333,198,463 | (18,672,646) |
| 2029 | 8,324,750 | 10,152,500 | 4,855,000 | 36,500,300 | 8,084,250 | 1,181,500 | 0 | 6,632,026 | 332,600,282 | (18,067,881) |
| 2030 | 8,323,750 | 10,151,125 | 4,856,125 | 36,478,425 | 9,168,375 | 969,625 | 0 | 6,632,026 | 332,754,471 | (17,431,438) |
| 2031 | 8,324,500 | 10,149,750 | 4,857,375 | 36,446,750 | 8,180,050 | 975,625 | 0 | 6,632,026 | 331,015,544 | (16,769,684) |
| 2032 | 8,326,500 | 10,152,750 | 4,858,500 | 24,311,100 | 1,035,300 | 984,000 | 0 | 6,632,026 | 331,629,554 | (15,955,456) |
| 2033 | 8,324,375 | 10,154,500 | 4,859,250 | 54,652,375 | 0 | 0 | 0 | 6,632,026 | 325,294,984 | (14,981,844) |
| 2034 | 8,327,625 | 10,154,500 | 4,859,375 | 65,004,125 | 0 | 0 | 0 | 6,632,026 | 324,208,757 | (13,967,789) |
| 2035 | 8,325,750 | 10,152,250 | 4,858,625 | 63,633,750 | 0 | 0 | 0 | 6,632,026 | 321,708,931 | (12,911,704) |
| 2036 | 8,323,375 | 10,152,125 | 4,856,750 | 11,382,625 | 0 | 0 | 0 | 6,632,026 | 326,817,152 | (11,811,777) |
| 2037 | 8,324,875 | 10,153,375 | 4,858,375 | 0 | 0 | 0 | 0 | 6,632,026 | 328,572,672 | (10,666,151) |
| 2038 | 8,324,625 | 10,150,375 | 4,858,125 | 0 | 0 | 0 | 0 | 6,632,026 | 298,101,108 | (9,473,025) |
| 2039 | 8,327,000 | 10,152,375 | 4,855,750 | 0 | 0 | 0 | 0 | 6,632,026 | 296,823,168 | (8,230,383) |
| 2040 | 8,326,375 | 10,153,500 | 4,855,875 | 0 | 0 | 0 | 0 | 6,632,026 | 295,303,928 | (6,936,106) |
| 2041 | 8,327,125 | 10,153,000 | 4,858,000 | 0 | 0 | 0 | 0 | 6,632,026 | 243,590,659 | (5,588,080) |
| 2042 | 8,323,625 | 10,150,125 | 4,856,750 | 0 | 0 | 0 | 0 | 6,632,026 | 191,011,057 | (4,702,096) |
| 2043 | 8,325,125 | 10,153,875 | 4,856,750 | 0 | 0 | 0 | 0 | 6,632,026 | 142,172,905 | (4,296,413) |
| 2044 | 8,325,750 | 10,153,250 | 4,857,500 | 0 | 0 | 0 | 0 | 6,632,026 | 141,731,121 | (3,871,962) |
| 2045 | 8,324,750 | 10,152,375 | 4,858,500 | 0 | 0 | 0 | 0 | 6,632,026 | 74,878,541 | (3,427,889) |
| 2046 | 8,326,250 | 10,150,250 | 4,854,375 | 0 | 0 | 0 | 0 | 6,632,026 | 74,377,771 | (2,963,338) |
| 2047 | 8,324,375 | 10,150,750 | 4,854,625 | 0 | 0 | 0 | 0 | 6,632,026 | 73,861,164 | (2,477,282) |
| 2048 | 8,328,125 | 10,152,625 | 4,858,500 | 0 | 0 | 0 | 0 | 6,632,026 | 58,758,083 | (1,968,752) |
| 2049 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,632,026 | 34,853,267 | (1,436,720) |
| 2050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,632,026 | 34,257,815 | (880,103) |
| 2051 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,632,026 | 33,639,001 | (297,760) |
| 2052 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |