San Francisco Public Utilities Commission
Wastewater Enterprise | FY 2021-22

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

GREEN BOND REPORT 2021-22

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Southeast Plant Biosolids Digester Facilities Project

Introduction

The San Francisco Public Utilities Commission (SFPUC) is a department of the City and County of San Francisco. Since the release of its first Climate Action Plan in 2004, San Francisco has been leading the way on local climate action, environmental justice, and developing and implementing innovative programs and outreach campaigns to engage with all San Franciscans.

These Climate Action plans impact all San Francisco departments, including the SFPUC, and influence operating and capital investment activities. The SFPUC operates within the City of San Francisco and operates in seven counties. Located in the State of California, the SFPUC is governed by State and local laws and regulations, as well as policies and programs within the SFPUC, created to achieve additional climate and social inclusion goals. Our agency was the first utility in the nation to pass Environmental Justice and Community Benefits policies that ensure we proactively provide diverse communities with opportunities in workforce and economic development, the arts, urban agriculture and education.

The SFPUC views green bonds as an important tool to help meet these goals and finance low-carbon, climate-resilient infrastructure. Since issuing its first green bond in 2015 through Fiscal Year 2022, the SFPUC has sold more than $3.1 billion in certified green bonds from its Water and Wastewater enterprises and more than $100 million in self-certified green bonds from its Power enterprise. Impacts from the bonds to date increased water storage, upgrades to renewable energy generation facilities, and the use of green infrastructure to divert stormwater from treatment plants.

In addition to providing project impact information, this report seeks to highlight associated co-benefits as well as describe the context in which climate and social inclusion informs the SFPUC's capital planning decisions. This report reflects activities through June 30, 2022.

Southeast Plant Headworks Facility Project

The publication of this report does not constitute and should not be interpreted to imply any representation (i) that the information in the report is material to investors or potential investors in revenue bonds or notes issued by the SFPUC (Bonds), (ii) regarding any other financial, operating or other information about the SFPUC or the Bonds or (iii) that no other circumstances or events have occurred or that no other information exists concerning the SFPUC, the Bonds, or other information, or any bearing on an investor's decision to buy, sell or hold Bonds.

This notice does not constitute an offer to sell or the solicitation of an offer to buy any Bonds. Any such offer or solicitation will only be made pursuant to an official statement that prospective investors should review in its entirety before making any investment decision.
By publishing this report, the SFPUC does not undertake to make any filings not otherwise required by its undertakings in connection with Securities and Exchange Commission Rule 15c2-12. The SFPUC disclaims any obligation to update this report.

GREEN BOND DESIGNATION AND CERTIFICATION

The SFPUC designates its Revenue Bonds as "Green Bonds" where proceeds are used to finance or refinance environmentally beneficial projects. Such designations are based upon criteria applied by the SFPUC. Investors' criteria for determining whether Bonds are financing or refinancing environmentally beneficial projects and/or are appropriately designated as "Green Bonds" may differ from the criteria applied by the SFPUC.

The following Bonds issued through Fiscal Year 2022 have been certified under the Climate Bonds Standard established by the Climate Bonds Initiative (the CBI):

Wastewater Revenue Bonds Series 2016A (Green Bonds)
Wastewater Revenue Bonds Series 2018A (Green Bonds)
Wastewater Revenue Bonds Series 2018C (Green Bonds)
Wastewater Revenue Bonds Series 2021A (Green Bonds)
Wastewater Revenue Bonds Series 2021A (Green Notes)
Wastewater Revenue Bonds Series 2021B (Green Notes)

The explanation of the significance of such certification may be obtained from the CBI. Such Bonds have been certified upon a verification by Sustainalytics U.S., Inc., a subsidiary of Sustainalytics Holding, B.V., Netherlands (Sustainalytics), that the projects financed and refinanced by such Bonds meet the Climate Bonds Standard under the Climate Bonds Standard Water Sector Criteria. The report by Sustainalytics and the certification of such Bonds by CBI based upon the approval of such report by the Climate Bond Standards Board reflect only the views of Sustainalytics and CBI.

Wastewater Enterprise Green Bond Impact Report

Wastewater Enterprise green bonds issued to date have been used to fund the Sewer System Improvement Program (SSIP). The SFPUC has embarked on a comprehensive SSIP to be implemented as part of the Wastewater Enterprises rolling 10-year capital improvement program. The SSIP is a citywide investment to upgrade the SFPUC's aging infrastructure to ensure a reliable, sustainable, and seismically safe sewer system. The SSIP is a series of major capital improvement projects that are necessary to bring San Francisco's wastewater and stormwater system into a state of good repair, and to meet the Commission-endorsed goals and levels of service, which include the following:

- Provide a compliant, reliable, resilient, and flexible system responsive to catastrophic events;
- Integrate grey and green infrastructure to manage stormwater and minimize flooding;
- Provide benefits to impacted communities;
- Modify the system to adapt to climate change;
- Achieve economic and environmental sustainability; and
- Maintain ratepayer affordability.

Program Scope

The SSIP is broken into three major subprograms: Treatment Plants, Collection System, and Land Reuse. Projects are continuously prioritized and advanced into to the program based on criticality of need and risk. The SSIP project development will also consider environmental benefits, sustainability, and community benefits in addressing the long-term wastewater needs. These projects include but are not limited to:

Wastewater Treatment Projects

- Replacing existing, aged, and failing solids handling facilities with new state-of-the art Biosolids Digester Facilities
- Improving the level of screening and grit removal in existing facilities
- Replacing the antiquated oxygen generation plants
- Condition assessment and rehabilitation of building structures
- Replacing mechanical and electrical equipment
- Seismic retrofitting

Sewer Collection System Improvement Projects

- Enhancing conveyance in the Channel and Islais Creek watershed to provide reliability and redundancy, and increase capacity to manage storm events
- Rehabilitating and replacing interceptors, tunnels, pump stations, force mains and Transport/Storage (T/S) boxes
- Rehabilitating Combined Sewer Discharge (CSD) structures and preventing backflow of bay water through CSDs due to sea level rise

Stormwater Management/Flood Control Improvement Projects

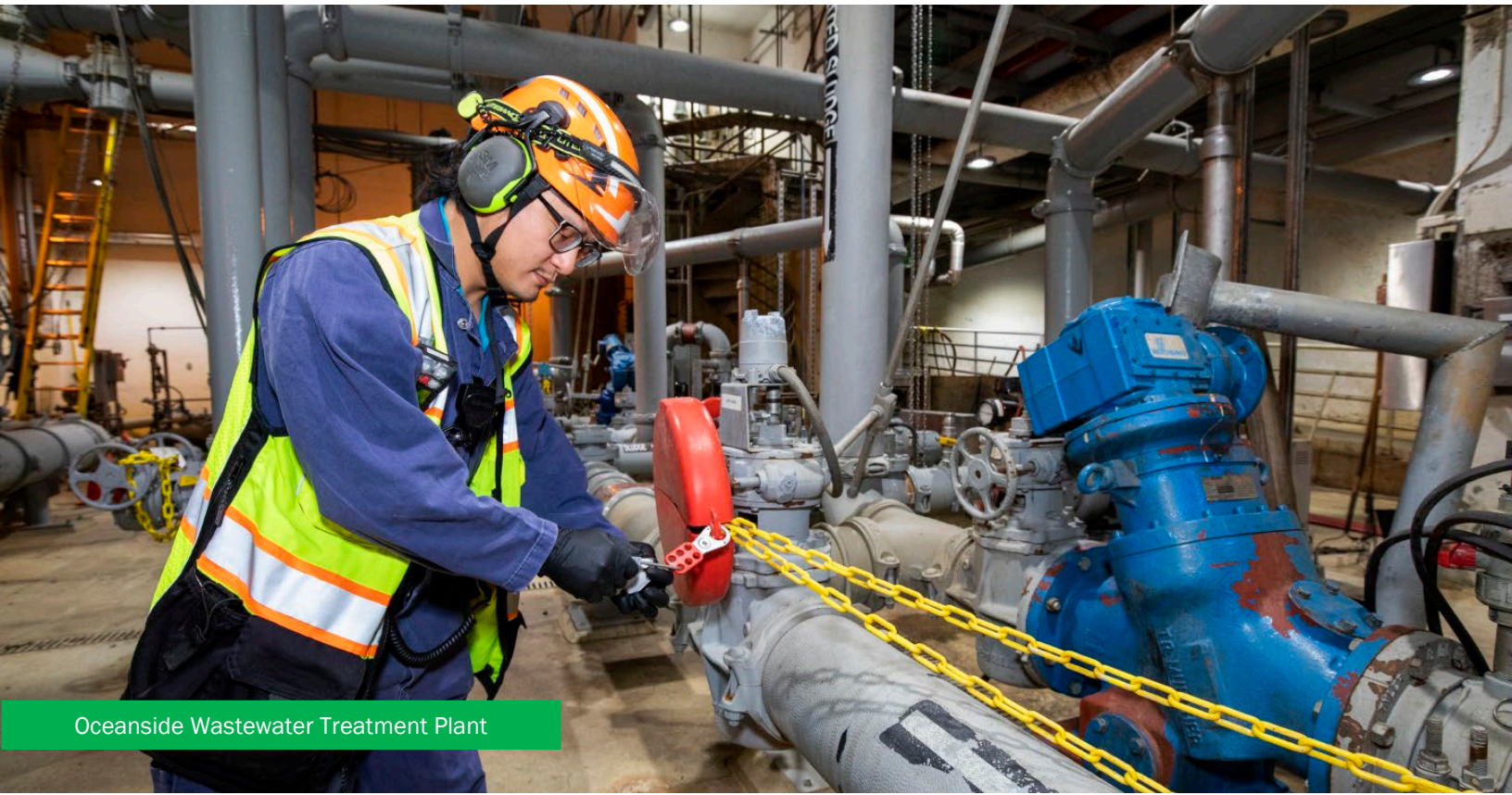
- Green infrastructure (bioretention planters for stormwater runoff, permeable paving)
- Flood resilience (analysis of flooding risks, stormwater detention and conveyance concepts, flood barriers)
- Hydraulic and drainage sewer improvements in flood prone neighborhoods
- Advanced rainfall and operational decision systems (automated real time forecasts with increased accuracy)

Green Bond Spending Details

The proceeds from the green bond issuance are separately tracked and allocated to designated eligible projects. Spending by bond and eligible project is detailed below.

The proceeds have been allocated to finance or refinance projects within the SSIP and Sustainalytics (Appendix D) determined that all SSIP projects satisfy the Climate Bonds Standard Water Sector Criteria.

In the indentures pursuant to which Bonds have been issued, the SFPUC has reserved the right to reallocate the use of the proceeds of Bonds among various projects. A reduction in the allocation Green Bond proceeds to a particular project does not necessarily mean that such project will not proceed or that the scope of such project has been reduced. Further, the amount of Green Bond proceeds allocated to a particular project does not necessarily reflect the total cost of such project.



Oceanside Wastewater Treatment Plant

Green Bond Proceeds

Wastewater Series 2016 A
As of June 30, 2022

Authority Description	Estimated Use	Prior Years Spending	FY 21-22 Spending
WW Collection System Improvement	$62,076,000	$26,075,449	$ -
WW Central Bayside System Improvement	19,800,000	6,580,706	-
WW SSIP Biosolids-digester Pro	-	24,665,499	-
WW Stormwater Management	49,417,066	18,601,984	-
WW Flood Resilience-hydraulic	-	-	-
WW Northshore To Channel Force	20,270,000	4,440,692	-
WW SSIP Program-wide Management	94,000,000	51,567,089	-
WW Treatment Plant Improvement	-	113,878,176	-
WW Urban Watershed Assessment	13,000,000	12,904,338	-
Total	**$ 258,563,066**	**$ 258,713,931**	

Wastewater Series 2018 A
As of June 30, 2022

Authority Description	Estimated Use	Prior Year Spending	FY 21-22 Spending
WW Collection System Improvement	$61,266,279	$37,584,362	$ -
WW Central Bayside System Improvement	16,057,426	9,029,124	-
WW SSIP Biosolids-digester Pro	-	55,959,809	-
WW Stormwater Management	16,965,926	7,283,077	-
WW Flood Resilience-hydraulic	34,937,916	267,630	-
WW Northshore To Channel Force	-	3,276,949	-
WW SSIP Program-wide Management	19,225,481	43,382,242	-
WW Treatment Plant Improvement	92,560,028	83,182,373	-
WW Urban Watershed Assessment	-	1,052,289	-
Total	$ 241,013,056	$ 241,017,855	-

Wastewater Series 2018 C
As of June 30, 2022

Authority Description	Estimated Use	Prior Year Spending	FY 21-22 Spending
WW Collection System Improvement	$43,397,563	$28,560,056	$ -
WW Central Bayside System Improvement	11,374,171	838,453	-
WW SSIP Biosolids-digester Pro	-	79,103,494	-
WW Stormwater Management	12,017,701	3,565,452	-
WW Flood Resilience-hydraulic	24,748,041	-	-
WW Northshore To Channel Force	-	973,503	-
WW SSIP Program-wide Management	-	4,042,310	-
WW Treatment Plant Improvement	13,618,242	53,636,733	-
WW Urban Watershed Assessment	65,564,282	-	-
Total	$ 170,720,000	$ 170,720,000	$ -

Wastewater Series 2021 A
As of June 30, 2022

Authority Description	Estimated Use	Prior Year Spending	FY 21-22 Spending
WW Collection System Improvement	$44,159,979	$-	$43,423,258
WW Central Bayside System Improvement	459,664	-	418,717
WW SSIP Biosolids-digester Pro	152,955,885	-	57,533,323
WW Stormwater Management	16,835,896	-	16,570,511
WW Flood Resilience-hydraulic	4,485,285	-	4,188,142
WW SSIP Program-wide Management	31,908,229	-	31,048,309
WW Treatment Plant Improvement	73,692,895	-	142,817,739
WW Urban Watershed Assessment	77,580	-	-
Total	**$ 324,575,413**	**$ -**	**$ 295,999,999**

Wastewater Series 2021 A Green Notes
As of June 30, 2022

Authority Description	Estimated Use	Prior Year Spending	FY 21-22 Spending
WW SSIP Biosolids-digester Pro	$220,000,000	$-	$220,000,000
Total	$ 220,000,000	$ -	$ 220,000,000

Wastewater Series 2021 B Green Notes
As of June 30, 2022

Authority Description	Estimated Use	Prior Year Spending	FY 21-22 Spending
WW Treatment Plant Improvement	$130,000,000	$-	$130,000,000
Total	130,000,000	$ -	$ 130,000,000

Project Impacts Aligned with the United Nations Sustainable Development Goals (SDGs)[1]

Project Name	Project Number	UN SDGs[2]	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Biosolids-Digester Project				
SEP Biosolids Digester Facilities Project	CWWSIPDP01		Plan, design, and construct new digestion and solids handling processes to replace existing aged failing systems at the Southeast Treatment Plant, which treats 80% of waste flows for a population of 890,000. The new facilities include state-of-the art treatment processes producing biogas and Class A biosolids that can be reused for beneficial purposes. Additional improvements include satisfying seismic requirements and minimizing odor and visual impacts on the surrounding community.	Draft Environmental Impact Report
Central Bayside System Improvements				
Central Bayside System Improvement Project - Phase 1	CWWSIPCT01		Enhance collection system for two of eight watersheds including a new gravity Channel Tunnel. Other collection system enhancements, including infrastructure improvements to sewers and pump stations near the Southeast Treatment Plant, which has rainstorm capacity of 250MGD.	N/A
Urban Watershed Assessment				
Urban Watershed Assessment and Planning Initiation	CWWSIPUW00		Evaluate and recommend alternatives that balance the use of grey versus green infrastructure for improvements to watershed surface drainage and collection system management at each of San Francisco's eight drainage basins.	N/A

Determinations made by the SFPUC that the impacts of a project are aligned with particular United Nations Sustainable Development Goals (SDG's) have been based upon criteria deemed by the SFPUC to be appropriate. Investors' criteria for determining whether the impacts of a project are aligned with particular SDG's may differ from the criteria applied by the SFPUC and investors' application of particular criteria may differ from the application applied by the SFPUC.

[1] For more project information, including environmental impacts, budget, and schedule, please see Sewer System Improvement Program.
[2] Developed in consultation with SFPUC senior management and ICMA Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals; SDG impacts have not been verified by a third-party.

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Urban Watershed Assessment and Planning	CWWSIPUW01		Evaluate and recommend alternatives that balance the use of grey versus green infrastructure for improvements to watershed surface drainage and collection system management at each of San Francisco's eight drainage basins. Evaluation utilizes a comprehensive "Triple Bottom Line" tool that employs societal and environmental benefits and costs with the goal of delivering more holistic investment decisions.	N/A
Flood Resilience-hydraulic				
17th and Folsom Permanent Barriers	CWWSIPFCDB15		Install durable custom aluminum or steel barriers to mitigate flooding until a permanent solution, Folsom Area Stormwater Improvement Project, can be implemented.	Categorical Exemption
Hydraulic and Drainage Sewer Improvements	CWWSIPFCDB16		Implement small stormwater capture and conveyance improvements at critical flood-prone neighborhoods. This includes improvement of drainage features, expansion of sewer pipes and surface grading modifications.	Categorical Exemption
17th and Folsom Wet Weather Storage	CWWSIPFCDB07		Provide interim flood mitigation to a neighborhood experiencing over a foot of water on streets, sidewalks, and homes.	N/A

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Wawona Area Stormwater Improvement and Vicente Street Water Main Replacement Project	CWWSIPFCDB12		Convert a natural area to a flood water detention basin to divert significant volumes of overland flow causing flooding and property damage during large storms.	Categorical Exemption
Lower Alemany Area Stormwater Improvement Project	CWWSIPFCDB13		Improve stormwater detention to a neighborhood that has been susceptible to recurring flooding associated with moderate to heavy storms.	In Progress
Flood Resilience Analysis (Planning Phase Only)	CWWSIPFCDB10		Develop a framework for identifying multiple storm scenarios; quantifying risks and cost implications associated with mitigating flooding across storm scenarios and defining the extent of City responsibility based on consequences of extreme storms. This will also develop program and policies beyond collection systems to make recommendations on minimizing flood risks citywide.	N/A
Flood Resilience - Early Projects (Planning Phase Only)	CWWSIPFCDB11		Plan and develop stormwater detention and conveyance concepts to three critical areas have faced flooding over the past decade as a result of multiple significant storms.	N/A

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
SSIP Program-Wide Management				
SSIP Program Management	CWWSIPPL01, RPL01		Program management for the Sewer System Improvement Program, responsible for three treatment plants, more than a thousand miles of pipes, with 70 MGD on non-rainy days and 575 MGD for rainy days for a population of 890,000. This effort identifies and prioritizes the capital improvement needs of the wastewater system.	N/A
SSIP Sewer Improvements Projects	CWWSIPCSSR_N02		This project implements the recommendations from the Collection System Condition Assessment project. Rehabilitate and/or replace the most critical major sewers, impacting the entire wastewater enterprise and a population of 890,000.	N/A
Biofuel Alternative Energy	CWWBAE01		Determine if it is feasible and cost-effective for the SFPUC to generate bioenergy (e.g. biofuel or cogenerated power) as a byproduct of processing fats, oil, grease, and/or food waste collected throughout the City of San Francisco with a population of 890,000.	N/A
Stormwater Management				
Operational Decision System Phase 1	CWWSIPFCRP02		Integrate available data in the collection system with rainfall prediction data. The rainfall prediction data will help project the likely impact of approaching storms and generate specific operational recommendations for managing flows.	N/A

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Operational Decision System Phase 2	CWWSIPFCRP03		Integrate available data in the collection system with rainfall prediction data. The rainfall prediction data will help project the likely impact of approaching storms and generate specific operational recommendations for managing flows.	N/A
Advanced Rainfall Prediction - Part 1	CWWSIPFCRP01		Provide rainfall forecast information to SFPUC wastewater staff automatically in real-time.	Mitigated Negative Declaration
Watershed Stormwater Management (Planning Only)	CWWSIPFCGI01		Address long term Green Infrastructure development.	N/A
Folsom Area Stormwater Improvement Project	CWWSIPFCDB14		Plan and design improvement to stormwater conveyance to minimize flooding in the event of moderate to heavy storms.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Richmond Green Infrastructure	CWWSIPFCDB05		Completion of a new pedestrian crosswalk, sixteen terraced rain gardens subsurface infiltration galleries, soil stabilization techniques in selected locations, sewer main upsizing and upgrading existing crosswalks to support individuals with disabilities. Additional improvements include adding permeable pavement, rain garden bulb outs at the end of the pavement, a flow-through rain garden, traditional (infiltrative) rain garden bulb-outs, improved catch basins, and a traditional rain garden.	Categorical Exemption
Channel Green Infrastructure	CWWSIPFCDB08		Implement low impact stormwater management along a popular bike route. The project is designed to manage runoff from 4 acres, removing 1.1 million gallons of stormwater in a typical year.	Categorical Exemption
North Shore Green Infrastructure	CWWSIPFCDB02		Route stormwater to flow-through bioretention planters. In addition, new street surfacing and furnishing will provide improved community space for local residents and visitors.	Categorical Exemption
Yosemite Green Infrastructure	CWWSIPFCDB06		Daylight creek and divert flows from the sewer using swales, vegetated channels, rain gardens, piped sections and a constructed wetland, detention basin and bio-swale system. This will provide plant establishment and/or monitoring of other Green Infrastructure projects.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Sunnydale Green Infrastructure	CWWSIPFCDB04		Create a large terraced bioretention facility that will capture, store, and infiltrate runoff from the impervious roadway and adjacent vegetated slope area which will also provide community benefits by enhancing an adjacent community vegetable garden and a pedestrian connection to a park. Additional work includes creation of large bioretention planters to create a small urban plaza and pleasant community space designed to manage runoff from 1.8 acres, removing 0.8 million gallons of stormwater in a typical year.	Categorical Exemption
Lake Merced Green Infrastructure	CWWSIPFCDB03		Install several bioretention planters to manage runoff from 2.1 acres, removing 1 million gallons of stormwater in a typical year.	Categorical Exemption
Cesar Chavez Green Infrastructure	CWWLID01		Improve safety, aesthetics, infrastructure, and transit efficiency onto heavily trafficked street. This project turned the street into a sustainable “green street” by increasing the number of street trees, implementing Low Impact Development practices, upgrade the street lighting to LED, and installing stormwater planters to add green landscaping pockets and provide for stormwater management. Permeable paving and bioretention were also integrated into the street design.	Mitigated Negative Declaration

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Islais Creek Green Infrastructure	CWWLID02/ FCDB09		Incorporate green stormwater management into an urban design to meet stormwater performance goals, specifically manage the first .75 inch of rainfall for a 5-year, 3-hour storm event within the 2.2 acre drainage management area. This project also creates new plazas that can serve as neighborhood gathering spaces, greening of the neighborhood and curb bulb-outs to enhance pedestrian and bicyclist safety.	Mitigated Negative Declaration
Sunset Green Infrastructure	CWWSIPFCDB01		Construct a series of tiered bioretention rain gardens in the western stretch of landscaped parcels along 12 blocks. The rain gardens will manage stormwater runoff and will incorporate a “Learning Lab” to supplement elementary school curriculum.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Treatment Plant Improvement				
Land Reuse of 1800 Jerrold Avenue	CWWSIPPRPL91		Purchase of properties, with jurisdictional transfer, of a 6 acre site located adjacent to the Southeast Plant. The site is currently being considered for construction of the new Southeast Plant biosolids facilities, which treat 80% of flows for a population of 890,000.	Categorical Exemption
Land Reuse of 1801 Jerrold Avenue	CWWSIPPRPL92		Negotiate a transfer, demolish old facilities, and remediate the site based on geotechnical and environmental hazardous materials investigations. The site is currently being considered for construction of the new Southeast Plant biosolids facilities, which treat 80% of flows for a population of 890,000.	Categorical Exemption
SEP New Headworks (Grit) Replacement	CWWSIPSE02		New all-weather 250 MGD facility consisting of state-of-the-art screening, grit removal, and odor control technologies in addition to other upgrades that, among other things, improve visual aesthetics of the Southeast Treatment Plant which supports treatment of 80% of waste flows for a population of 890,000.	Mitigated Negative Declaration
SEP Oxygen Generation Plant	CWWSIPSE01		Replace antiquated oxygen plants with two technologically advanced 45 tons per day oxygen generation plants at the Southeast Plant.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
SEP Primary and Secondary Clarifier Upgrades	CWWSIPSE04		Upgrade the mechanical, structural, and electrical components to address operational reliability and compliance with regulatory requirements for liquid treatment at the Southeast Plant, which is responsible for treatment of 80% of flows for a population of 890,000.	Categorical Exemption
SEP 521/522 and Disinfection Upgrades (SEP Building 521 Replacement)	CWWSIPSE05		Upgrades to current wastewater disinfection facility and construction of new, seismically reliable, effluent disinfection facility at the Southeast Treatment Plant, which treats 80% of waste flows for a population of 890,000.	Categorical Exemption
SEP Seismic Reliability and Condition Assessment Improvements	CWWSIPSE08		Immediate seismic, conditional, and operational improvements to the Southeast Treatment Plant, treating 80% of wastewater for population of 890,000 people.	Categorical Exemption
SEP Existing Digester Gas Handling Improvements	CWWSIPSE09		Upgrades to critical digester gas processing equipment at the Southeast Plant, which serves 80% of waste flows for a population of 890,000. Improvements include equipment upgrades to odor control, ventilation, and gas monitoring.	Categorical Exemption
SEP Power Feed and Primary Switchgear Upgrades	CWWSIPSE10		Address deficiencies in current power system, obtain redundant power and plan for the need for emergency power for critical processes at the Southeast Treatment Plant to ensure continued operation in the event of seismic or extreme weather-related event.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
SEP Power Feed and Primary Switchgear Upgrades	CWWSIPSE10		Address deficiencies in current power system, obtain redundant power and plan for the need for emergency power for critical processes at the Southeast Treatment Plant to ensure continued operation in the event of seismic or extreme weather-related event.	Categorical Exemption
SEP Oxygen Generation Plant 01	CWWSIPSE11		Replacement of facility within to Southeast Plant to improve safety and redundancy of critical equipment, impacting treatment and processing for 80% of waste flows for population of 890,000.	Categorical Exemption
Northpoint Outfall Refurbishment	CWWSIPTPNP01		Rehabilitation of the discharge point of waste stream including removal of debris, repairs to existing systems and improvements to protect against extreme corrosive marine environment and strengthen the ability to withstand operating and hydrodynamic loads at the facility responsible for processing 150 MGD of wastewater during wet weather events.	Categorical Exemption
North Shore Pump Station Wet Weather Improvements	CWWSIPTPNP02		Provide redundant pumping capacity during wet weather so that 3 of 4 pumps are capable of pumping 75 MGD during wet weather. This project will improve operational reliability and regulatory compliance.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Westside Pump Station Reliability Improvements	CWWSIPTPOP02		Improve reliability and redundancy to pump station serving the Oceanside Treatment Plant, which provides all-weather wastewater collection to 20% of flows for population of 890,000.	Categorical Exemption
OSP Digester Gas Utilization Upgrade	WWSIPTPOP03		Replace and improve equipment to comply with regulatory air board requirements as well as upgrades to maximize process efficiency within the energy recovery building at the Oceanside Treatment Plant, which treats 20% of flows for population of 890,000.	Categorical Exemption
OSP Odor Control Optimization	CWWSIPTPOP06		Upgrades to inefficiencies identified in odor control including the completion of an odor control study that may identify opportunities for reducing energy consumption while maintaining effective performance and meeting offsite odor limits.	Categorical Exemption
OSP Condition Assessment Repairs	CWWSIPTPOP05		Address reliability of existing assets and extending the service life of buildings that must remain in operation for 30 years or more to support treatment of up to 65 MGD in wet weather.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
SEP Existing Digester Roof Repairs	CWWSIPSE03		Maintain existing facilities to produce Class B biosolids until new facilities are available for service, allowing Southeast Plant to continue to operate and treat 80% of flows for a population of 890,000.	Notice of Exemption
SEP Facility-wide Distributed Control System Upgrade	CWWSIPSE07		Upgrades within the Southeast Treatment Plant to improve wastewater treatment performance and reliability as well as planning and design of upgrades to other wastewater treatment facilities to ensure system-wide consistency, impacting flows for entire population of 890,000.	N/A
Collection System Improvements				
Hudson Ave Pump Station and Outfall Improvements	CWWSIPCSPS01		Elimination of the pump station near the Southeast Treatment Plant, resulting in more reliable flow conveyance and energy savings.	N/A

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
North Shore to Channel F M Drainage Improvement	CWWSIPNC01		Upgrades to the force main responsible for providing critical conveyance of combined sewage and stormwater flows from the northeastern quadrant of San Francisco to the Southeast Treatment Plant.	Mitigated Negative Declaration
CSD Backflow Prevention and Monitoring	CWWSIPCSCD04		Develop and implement a Combined Sewer Discharge and conveyance monitoring plan to gather data on saltwater intrusion in the entire collection network. This also includes installation of backflow preventers at select locations to prevent Bay water from entering the system during extreme tides and sea level rise.	Categorical Exemption
5th, North 6th and Division Street CSD Rehabilitation	CWWSIPCSCD05		Rehabilitate Combined Sewer Discharge for three structures, which were selected based on their age, structural conditions, and amount of discharge and sensitivity of the receiving water body in addition to other operational deficiencies. This project also includes the installation of backflow preventers to keep Baywater from entering the system due to extreme tides and sea level rise.	Categorical Exemption
Mariposa Dry-Weather Pump Station & Force Main Improvements	CWWSIPCSPS03		Increase the current dry weather capacity of a dry-weather pump station and dry-weather force main to accommodate the peak design flow rate of 5.0 MGD. This project will construct a new pump station to serve an area of growth in the City. It will be seismically resilient and adaptive to sea level rise.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Marin Street Sewer Replacement	CWWSIPCSPS05		Upsize existing sewers, from 24-inch diameter to 30-inch diameter, to handle additional dry-weather flows projected from a tributary area.	Categorical Exemption
Griffith Pump Station Improvements	CWWSIPCSPS06		Refurbish and extend service life of pump station in addition to upgrading most instrumentation and control systems, which would reduce energy use and future maintenance requirements.	Categorical Exemption
Geary BRT Sewer Improvements - Phase 2	CWWSIPCSSR_N03		Plan and design for sewer relocation, rehabilitation, or replacement to allow for a Bus Rapid Transit lane to operate above existing sewer lines.	Categorical Exemption
Geary BRT Sewer Improvements Phase 1	CWWSIPCSSR06		Replace approximately 1.5 miles of aging sewers and other changes to support a Bus Rapid Transit lane to improve bus service, accessibility, and pedestrian safety.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Collection System Condition Assessment	CWWSIPCSSR02		There are over 80 miles of sewers that are over 100 years old. This project will assess the condition of up to 13 miles of the most critical major sewers in the system and determine whether rehabilitation or replacement is necessary.	N/A
Beach and Sansome Street CSD Rehabilitation	CWWSIPCSCD03		Clean and conduct a specific condition assessment of Combined Sewer Discharge structures. Install backflow prevention devices to protect against Bay water entering the system due to extreme high tides and sea level rise.	Categorical Exemption
Rutland Sewer Improvements	CWWSIPCSSR12		Increase the hydraulic capacity of part of sewer system including replacing the existing sewer with a larger reinforced pipe, constructing a wet weather diversion structure, and improving pipe performance during a large storm event, resulting in increased system reliability.	Minor Project Modification
Drumm and Jackson Streets Sewer System Improvement	CWWSIPCSSR09		Rehabilitate 800 linear-feet of a box sewer and 200 linear feet of another box sewer which will increase the reliability of these major assets and to maximize flows to the wastewater treatment plant.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Richmond Transport Modeling	CWWSIPCSSR01		Review of two models to identify recommendations for improving the system and addressing issues of hydraulics and odor control.	N/A
Masonic Avenue Sewer Improvements	CWWSIPCSSR10		Rehabilitate and realign approximately 4,700 linear feet of sewers as well as construct new sewer mains, manholes, side sewers and catch basins to support the improvement of the street above including bicycle lane additions, construction of a small park and incorporation of public art elements along the corridor.	Categorical Exemption
Cargo Way Sewer Box Odor Reduction	CWWSIPCSSR11		Identify odor control opportunities in collection system including identification of flow sources, potential infiltration, and inflow issues. This project will install a flushing system to alleviate odor issues in the collection system.	Categorical Exemption
Taraval Sewer Improvements	CWWSIPCSSR13		Relocate approximately 19,000 linear feet of existing sewer facilities to allow for ease of maintenance and repair/replacement without impacting municipal transit operations.	Categorical Exemption

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Kansas and Marin Streets Sewer Improvements	CWWSIPCSSR03		Increase wet-weather flow conveyance for a minor drainage basin to manage stormwater in one of San Francisco's 8 watersheds, including construction of 900 linear feet of 8-foot diameter tunnel.	Categorical Exemption
Van Ness BRT Sewer Improvements	CWWSIPCSSR04		Replace and relocate existing sewer utilities to allow for future sewer service maintenance and repair/replacement without impacting Bus Rapid Transit operations.	Environmental Impact Report
Richmond Transport/Storage Tunnel Rehabilitation	CWWSIPCSCD01		Evaluate rehabilitation methods for storage tunnel to resolve historical surge issues such as geysering through vent holes and dislodged manhole covers in addition to odor solutions.	N/A

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Force Main Rehab at Streets	CWWSIPCSPS02		Rehabilitate or replace 240 linear feet of the North Shore Force Main that is most susceptible to failure. This project will provide redundancy and reliability for conveyance of flows to the Southeast Treatment Plant.	Minor Project Modification
Better Market Street Sewer Improvements - Phase 1	CWWSIPCSSR05		Replace aging sewer infrastructure beneath a central San Francisco street, especially brick sewers that are over 100 years old. This phase will help advance several key City policies: Transit First, Complete Streets, the SF Pedestrian Strategy/Walk First and the SF Bicycle Plan.	Various
Central Subway Sewer Improvements	CWWSIPCSSR07		Sewer improvements to system underneath a planned project to extend public rail service. Improvements will help avoid conflicts with rail service construction and minimize future repair and replacement impacts.	Various
Mission Bay Loop Sewer Improvement	CWWSIPCSSR08		Relocate or replace existing gravity sewers and force mains to avoid future conflicts with light rail operations.	Various

Project Name	Project Number	UN SDGs	Environmental Impact Description	California Environmental Quality ACT (CEQA)
Green Infrastructure Grant Program	N/A		The SFPUC's Green Infrastructure Grant Program is designed to encourage San Francisco property owners to design, build and maintain performance-based green infrastructure, including but not limited to: permeable pavement, rainwater harvesting, rain gardens, and vegetated roofs. The goal of this program is to reduce the amount of stormwater runoff entering SFPUC's sewer system and improve system performance while also providing co-benefits such as non-potable reuse, groundwater recharge and educational opportunities, and environmental justice.	N/A

Case Study: New Headworks Facility

Overview

As part of the Sewer System Improvement Program (SSIP), the SFPUC is investing over $3 billion to upgrade and modernize the aging Southeast Treatment Plant to reduce odors, be better prepared for earthquakes and sea level rise, and ensure operational redundancy and efficiency. When complete, the city's largest wastewater pollution treatment plant will be transformed into a resource recovery facility that smells better, looks better and works better. The construction started in spring 2018 and is expected to be completed in 2024.

What is Headworks?

The first step in the wastewater treatment process occurs at the Headworks facility where debris (such as baby wipes) and grit (like sand) are removed from the wastewater stream. This process is critical to protect downstream equipment, help control odors, and ensure that the SEP can operate efficiently. The existing 35-year old Headworks facility is at the end of its useful life and is unable to adequately perform these functions.

The Headworks Facility Project will construct a new Headworks facility, upgrade the Bruce Flynn Pump Station, and construct a new odor control structure.

Project Benefits

This project will provide significant operational and functional improvements to this critical facility:

- Increase efficiency of treatment processes and protect downstream equipment
- Improve the ability for these critical facilities to withstand a 7.8 earthquake on the San Andres Fault
- Ensure these critical facilities can prepare for the possibility of expected sea level rise of 36 inches by 2100
- Continue to protect public health and the environment
- Minimize odors using advanced odor control equipment
- Improve operational reliability and flexibility

Southeast Plant Headworks Facility Project

Appendix A: State, City and SFPUC Legal, Regulatory, Policiesand Programs

State of California

The State of California has enacted legislation, regulations and executive orders that put the State on course to achieve significant greenhouse gas reductions while also addressing the impacts of climate change. The California Climate Policy Dashboard is a project from the Center for Law, Energy & the Environment at the University of California at Berkeley. It seeks to provide a concise, easy-to-use overview of some of the major California climate laws and programs and introduce readers to some of the state regulators responsible for implementing them. Described below are selected policies and programs related to the SFPUC's capital planning:

- Assembly Bill 32 (Nunez, 2006) and Senate Bill 32 (Pavley, 2016)
    - Landmark legislation requiring California to reduce its overall greenhouse gas emissions to 1990 levels by 2020 and 40% below 1990 levels by 2030, and appointing the California Air Resources Board to develop policies to achieve this goal.
- Assembly Bill 1482 (Gordon, 2015), Senate Bill 246 (Wiechowski, 2015), Senate Bill 379 (Jackson, 2015), Assembly Bill 2800 (Quirk, 2016), Senate Bill 1035 (Jackson, 2018); Senate Bill 30 (Lara, 2018)
    - State laws calling for preparation of state climate adaptation strategy, establishing the Office of Planning and Research's Integrated Climate Adaptation and Resiliency Program, requiring local governments to include adaptation and resiliency strategies in general plans, requiring state agencies to account for climate change when planning new infrastructure, and establishing a risk transfer/insurance working group.
- Climate Change Scoping Plan
    - California's comprehensive plan outlining the state's approach to achieving its greenhouse gas emission reduction targets, including SB 32's goal of reducing emissions 40% below 1990 levels by 2030

In August of 2018, California State Treasurer John Chiang signed the Green Bond Pledge, making California the first state to pledge to use 'green' financing to combat climate change.

City and County of San Francisco

San Francisco has long been a leader in the fight against climate change. Between 1990 and 2019, San Francisco's carbon footprint was reduced by 41% while population increased 22% and the GDP increased 199%.

The 2021 San Francisco Climate Action Plan is the result of a multi-year process developed by the San Francisco Department of the Environment with support and collaboration from many individuals and institutions, including the SFPUC. The Plan charts a pathway to achieve net-zero greenhouse gas emissions and works toward addressing racial and social equity, public health, economic recovery, resilience and providing safe and affordable housing to all. The Plan aligns to San Francisco's Climate Action Framework:


SAN FRANCISCO'S
CLIMATE ACTION FRAMEWORK
Net-Zero Emissions Citywide By 2040
Racial, Social & Economic Equity
SECTORS
RESPONSIBLE PRODUCTION & CONSUMPTION
GOALS:
By 2030:
1) Reduce solid waste generation 15% below 2015 levels
2) Reduce disposal to landfill 50% below 2015 levels
KEY AREAS:
Embodied carbon in materials
Consumption of goods & services
Diet & food waste
Air travel
TRANSPORTATION & LAND USE
GOALS:
1) By 2030, 80% of trips taken by low-carbon modes
2) By 2030, at least 25% of all vehicles registered in SF are electric, reaching 100% by 2040
KEY AREAS:
Shift to low-carbon modes; align land use with climate and equity goals
Advance electric vehicles
ENERGY SUPPLY
GOALS:
1) 100% renewable electricity by 2025.
2) 100% renewable energy by 2040 (no fossil fuels)
KEY AREAS:
Renewable electricity via Hetch Hetchy and CleanPowerSF
Grid readiness and resilience
Local clean energy jobs
BUILDING OPERATIONS
GOALS:
1) Zero emisisons new construction by 2021
2) All large commerical buildings are zero emissions by 2035
3) All buildings zero emissions by 2040
KEY AREAS:
New construction
Existing commercial
Existing municipal
Existing residential
HEALTHY ECOSYSTEMS
GOALS:
Sequester residual emissions through nature based solutions
KEY AREAS:
Soil health & sequestration
Urban forest
Ecosystem management & restoration
HOUSING
GOALS:
Build at least 5,000 new units per year, with no less than 30 percent affordable, focus on rehab of existing housing
KEY AREAS:
Equity and affordability
Production
Preservation and rehab
0
80
100
ROOTS
ALL

San Francisco's leadership further strengthened the City's commitment to climate action in 2019 when the Board of Supervisors unanimously approved the Climate Emergency Resolution 160-19, aligning the San Francisco's climate goals with the Paris Agreement by limiting global warming to 1.5 °C above pre-industrial levels.

In addition to the activities described above, the Mayor and Board of Supervisors have led the initiatives described below that require SFPUC capital planning to include climate and social inclusion:

- Local Hire Ordinance was adopted in December of 2010 by the San Francisco Board of Supervisors. The ordinance requires that local residents perform a minimum 30 of trade hours and 50% for apprenticeship hours and is one of the strongest pieces of legislation in the country to promote the employment of local residents on locally sponsored projects.
- Guidance for Incorporating Sea Level Rise into Capital Planning also now takes place as part of the City's Capital Planning Review process. City projects now undergo a sea-level vulnerability assessment and must respond to anticipated consequences through redesign or relocation. SFPUC staff actively participated in the Mayor's Sea Level Rise Coordinating Committee and Working Group to develop the Sea Level Rise Guidance. The objective is to work with other City agencies towards a more holistic, integrated and coordinated response to climate change.

San Francisco Public Utilities Commission

Overview

The SFPUC provides retail drinking water and wastewater services to the City of San Francisco, wholesale water to three Bay Area counties (Alameda, San Mateo, and Santa Clara), and green hydroelectric and solar power to municipal departments and retail electric customers. Headquartered in San Francisco, the SFPUC has approximately 2,300 employees working in seven counties and has a combined annual operating and capital budget of over $2 billion. The SFPUC is comprised of three utility enterprises:

- **The Water Enterprise** serves more than 2.7 million people and is responsible for managing the transmission, treatment, storage, and distribution of potable water to the City of San Francisco and 27 water agencies in three Bay Area counties - San Mateo, Santa Clara and Alameda.
- **The Wastewater Enterprise** serves San Francisco residents and operates three treatment plants that treat sewage and stormwater as well as maintaining nearly 1,000 miles of combined sewer and stormwater pipelines.
- **The Power Enterprise** provides green hydroelectric power to municipal customers in San Francisco. The Power Enterprise also operates CleanPowerSF, a program that enables the City to purchase cleaner power on behalf of local residents and support local jobs, stable energy prices and clean energy infrastructure.

Financial Policies

The San Francisco City Charter requires the SFPUC to exercise prudent financial stewardship of SFPUC assets by establishing "rates, fees and charges at levels sufficient to improve or maintain financial condition and bond ratings at or above levels equivalent to highly rated utilities of each enterprise under its jurisdiction, meet requirements and covenants under all bond resolutions and indentures , and provide sufficient resources for the continued financial health (including appropriate reserves), operation, maintenance and repair of each enterprise, consistent with good utility practice."

To serve the financial objectives and parameters established by the Commission, the SFPUC has established a 10-Year Financial Plan as well as Debt Management Policies and Procedures for debt financing associated with the Water, Wastewater and Power Enterprises. In addition, the SFPUC maintains a Fund Balance Reserve Policy, a Debt Service Coverage Policy, and a Capital Financing Policy. Last, the Debt Policy of The City and County of San Francisco, established by the Controller's Office of Public Finance, summarizes the City's existing debt policies and formally establishes them for all future debt.[3]

Environmental, Social, and Governance Policies and Programs

With the useful life of capital assets typically extending 30 years or more, climate mitigation and adaptation criteria are included in the SFPUC's capital planning and project selection process. Described below are SFPUC-level policies and programs that contribute to capital planning decisions informed by climate adaptation and/or mitigation and social inclusion.

[3] For information about SFPUC's Investor Relations and Financial Reports, see:https://sfpuc.org/about-us/reports/debt-management-and-disclosure-reports

The activities below have been organized into three categories: environmental, social, and governance (ESG):

Environmental

- CleanPowerSF: CleanPowerSF is San Francisco's Community Choice Aggregation program. Operated by the SFPUC Power Enterprise, CleanPowerSF is a not-for-profit retail electric service program that began serving customers in 2016 with a mission to provide San Francisco electricity customers with the choice of having their electricity supplied from clean, renewable sources at a competitive price. CleanPowerSF is now serving over 383,000 San Francisco customers with 93% renewable energy and through the Hetch Hetchy Power and CleanPowerSF programs, the SFPUC provides more than 70% of the electricity consumed in San Francisco with renewable energy.
- GoSolarSF: GoSolarSF is operated by the SFPUC Power Enterprise and provides rebates to help CleanPowerSF and Hetch Hetchy residential and business electric customers install solar panel systems. Together, these systems produce 23.5 megawatts of renewable solar electric power. Today, GoSolarSF continues to serve low-income customers through the Disadvantaged Communities – Single-family Solar Homes (DAC-SASH) program
- Water Enterprise Stewardship Policy: The purpose of the Water Enterprise Environmental Stewardship Policy is to establish a long-term management policy for natural resources associated with the operation of the water system within the Tuolumne River, Alameda Creek, and Peninsula watersheds.
- Green Infrastructure: Green infrastructure projects divert stormwater from the sewer system while beautifying San Francisco's neighborhoods, providing ecological function and urban habitat, and contributing to bike and pedestrian friendly design. Green infrastructure technologies include rain gardens, permeable pavement, and rainwater harvesting systems. The SFPUC has completed 272 Green Infrastructure projects which diverts 63 million gallons of stormwater from the sewer system annually.
- OneWaterSF: The objective of OneWaterSF is to optimize the use of finite water and energy resources with community and ecosystem needs, creating a more resilient and reliable future for the SPFUC.

Social

- Community Benefits: The SFPUC's Community Benefits Program focuses on Workforce Development, Education, Art, Environmental Justice/Land Use, Neighborhood Partnerships, and Small Business Opportunities. The SFPUC is the first utility in the nation to adopt a Community Benefits Policy.
- Environmental Justice Policy: The SFPUC affirms and commits to the goals of environmental justice to prevent, mitigate, and lessen disproportionate environmental impacts of its activities on communities in all SFPUC service areas and to ensure that public benefits are shared across all communities. The SFPUC defines environmental justice as the fair treatment of people of all races, cultures, and incomes and believes that no group of people should bear a disproportionate share of negative environmental consequences resulting from the operations, programs, and/or policies of the SFPUC.

- Social Impact Partnership Program: The SFPUC is the first public utility in the country to implement a social impact program that advances corporate social responsibility as a part of its competitive bidding process. If awarded a contract, pre-identified "Community Benefit Commitments" become a binding contract term that must be delivered at no cost to the City. To date, these commitments have supported scholarships for college students, mentorship for middle-school students, internships for youth and young adults, childcare for working parents, mentorship for small businesses, urban greening, and access to healthy food.

Governance

- SFPUC Commission: The SFPUC Commission consists of five members, nominated by the Mayor and approved by the Board of Supervisors. Their responsibility is to provide operational oversight in areas such as rates and charges for services, approval of contracts, and organizational policy. Seat 1 of the commission is reserved for a member with experience in environmental justice policy and an understanding of environmental justice issues.
- Citizens' Advisory Committee: The Citizens' Advisory Committee (CAC) provides recommendations to the General Manager of the SFPUC, the Commission itself and the San Francisco Board of Supervisors regarding the agency's long-term strategic, financial and capital improvement plans. Comprised of 17 appointees, the CAC includes a member appointed by the mayor who represents a regional or statewide environmental organization and a member appointed by the President of the Board of Supervisors who represents an environmental justice organization.
- 2020 Strategic Plan: In August 2016, the SFPUC Strategic Planning Steering Committee identified Environmental Stewardship as one of six goals to guide its work through the year 2020. Within Environmental Stewardship, the 2020 Strategic Plan specifies the goal to sustainably manage the resources entrusted to its care to ensure environmental and community health. This includes the following objectives:
    - Sustainably manage natural resources and physical systems to protect impacted people, water, land, and ecosystems.
    - Develop, coordinate, and communicate a comprehensive and consistent approach to mitigate and adapt to climate change.
    - Be resource efficient in all business operations.
    - Investigate the feasibility of implementing an environmental management system.

United Nations Sustainable Development Goals

With increased interest in the United Nations Sustainable Development Goals (SDGs) among investors and other stakeholders, impacts from SFPUC projects financed by Green Bonds are also aligned with several (SDGs). To determine project impact, the SFPUC relied on the International Capital Market Association (ICMA) "Green, Social and Sustainability Bonds: A High-Level Mapping to the Sustainable Development Goals" (June 2020).

Appendix B: SFPUC Green Bonds Program

Since 2015, the SFPUC has issued more than $3 billion in green bonds to finance Water, Wastewater, and Power capital projects that advance climate change mitigation or adaptation, making the SFPUC one of the largest municipal issuers of green bondsin the United States. In 2017, the SFPUC was recognized by the Climate Bonds Initiative at its annual conference for being the first issuer worldwide to sell bonds under its water criteria. In 2018, the SFPUC became among the first signatories of the Green Bond Pledge. In 2019, the combined green bond programs of the City of San Francisco and the SFPUC were recognized as a global leader in the C40 report Cities100. Finally, the SFPUC was awarded the 2021 US Municipal Green Bond of the Year by Environmental Finance.

The SFPUC adheres to the International Capital Market Association's Green Bond Principles that consist of four core components:

- Use of Proceeds: The SFPUC issues Green Bonds to finance projects with clear environmental benefits. Project categories include sustainable water and wastewatermanagement, climate change adaptation and renewable energy.
- Process for Project Evaluation and Selection: San Francisco's numerous policies and programs described herein ensure sustainable capital planning and project selection. Further, the SFPUC engages third-party verifiers to validate selected projects meet the required criteria. As part of the certification process, the SFPUC engaged Sustainalytics to provide third-party verification that the bonds are aligned with the Climate Bonds Initiative.
- Management of Proceeds: The SFPUC records Green Bond proceeds in separate capital project funds available only to eligible projects. Non-eligible projects cannot access proceeds generated from green bonds.
- Reporting: The SFPUC publishes annually a project spending and management of proceeds report for each green bond issued throughout project construction. Beginning with the FY 2018-19 reports, in addition to project spending, the reports will also include project impacts as well as additional information in connection with the climate and sustainability activities of the SFPUC.

Appendix C: SFPUC Climate and Social Inclusion Impacts Alignedto the United Nations Sustainable Development Goals (UN SDGs)

United Nations Sustainable Development Goal	SFPUC Program Impact
	Education: The SFPUC is committed to preparing the next generation of environmental stewards and continuing to engage with existing generations to prevent pollution and sustain our natural resources. The SFPUC believes that everyone has a role to play in maintaining the environment and is proud to empower its service area communities with the resources needed to do it.
	Small Business Opportunities: The SFPUC is dedicated to increasing women in the construction trades. The SFPUC partners with the National Association of Women in Construction and the Women's Business National Council to host the Annual Women in Construction Exposition. The SFPUC is also proud to be a member of the Tuolumne Community Collaborative, group of more than 25 entities including education institutions, local contractors, professional services firms, and government agencies that support a pipeline of local workers in the construction industry. The Collaborative features a Pre-Apprenticeship Construction Training Program, and it recently celebrated an inaugural all-female class. Through the program, participants study construction industry best practices, experience hands-on training, learn construction safety, and receive project-specific worker certifications.
 	The Water System Improvement Program: The Water System Improvement Program (WSIP) is a $4.8 billion dollar, multi-year capital program to upgrade the SFPUC's regional and local water systems. The program will deliver capital improvements that enhance the SFPUC's ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects - 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The Sewer System Improvement Program: The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable, and seismically safe sewer systemnow and for generations to come.
	Power: For 100 years, the San Francisco Public Utilities Commission (SFPUC) has been generating greenhouse gas-free hydropower as our City's full-service, publicly owned electric utility. This clean Hetch Hetchy Power energizes our schools, MUNI, streetlights, City Hall, SFO Airport, the Zoo, and other civic institutions and private facilities. In 2016, Our City launched CleanPowerSF, a community choice aggregation program, to introduce even more renewable energy from sources like wind and solar to the electric grid. Today, CleanPowerSF powers more than 385,000 San Francisco residents and businesses.

United Nations Sustainable Development Goals	SFPUC Program Impact
	Workforce Development: As one of the City's largest employers, the SFPUC is fostering a skilled and diverse local workforce that manages water, power and sewer operations and is connected to the communities we all call home. SFPUC's workforce development programs connect local youth and adults with learning, apprenticeship, job training, employment, and business opportunities. These programs support a strong, inclusive, local economy and a skilled, diverse, local workforce for today and tomorrow. Social Impact Partnership Program: The SFPUC views its capital projects as investments — in the future of its facilities, services and its communities. As the SFPUC upgrades its systems and operations, private sector partners join the SFPUC in being a good neighbor to the communities affected by the operation and improvement of water, wastewater, and power services. By including community benefits criteria in our Requests for Proposals (RFP) with anticipated contracts of $5 million or more, SFPUC provides its contracting community with an opportunity to earn extra points during the bidding process for their demonstrated commitment to community benefits and environmental justice. Social Impact Partners— professional services and construction firms in fields such as engineering, architecture, resource management and technology— provide resources and opportunities in the communities where SFPUC operates and provides services. These commitments include direct financial contributions, volunteer, and in-kind donations to local schools and nonprofits.
	The Water System Improvement Program: The Water System Improvement Program (WSIP) is a $4.8 billion dollar, multi-year capital program to upgrade the SFPUC s regional and local water systems. The program will deliver capital improvements that enhance the SFPUC s ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects - 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The Sewer System Improvement Program: The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable and seismically safe sewer system now and for generations to come.
	Environmental Justice and Land Use: The SFPUC works hard every day to provide fundamental environmental benefits through water, power and sewer services. TheSFPUC recognizes there are challenges to providing these services as some parts of our community face a greater burden than others due to the location of facilitiesin their neighborhoods. SFPUC works with these communities to understand their needs and lessen the effects caused by operations. The SFPUC is proud to be the first public utility in the nation to develop an Environmental Justice Policy which guides efforts to support environmentally healthy and safe communities where we live, work, learn and play. As part of its mission, the SFPUC also maintains and preserves more than 590,000 acres of land to protect our natural resources and critical infrastructure. The SFPUC often has the opportunity to use land for more than one purpose and when possible, the SFPUC partners with local leaders to support innovative uses which benefit the environment and enhance the quality oflife for the SFPUC's service area residents.

United Nations Sustainable Development Goals	SFPUC Program Impact
	Grants: From Tuolumne County, to San Francisco, to the Peninsula, the SFPUC is especially committed to providing opportunities in the neighborhoods most impacted by its water, power and sewer operations. As SFPUC upgrades its facilities and executes the Agency's capital projects, it ensures these efforts support public health, jobs, learning and education opportunities in these communities. SFPUC is proud of leveraging the work done every day to create spaces and programs that help to make these neighborhoods a better place to live,work and play.
	Power: For 100 years, the San Francisco Public Utilities Commission (SFPUC) has been generating greenhouse gas-free hydropower as Our City's full-service, publicly owned electric utility. This clean Hetch Hetchy Power energizes our schools, MUNI, street lights, City Hall, SFO Airport, the Zoo, and other civic institutions and private facilities. In 2016, Our City launched CleanPowerSF, a community choice aggregation program, to introduce even more renewable energy from sources like wind and solar to the electric grid. Today, CleanPowerSF powers more than 385,000 San Francisco residents and businesses. The Water System Improvement Program: The Water System Improvement Program (WSIP) is a $4.8 billion dollar, multi-year capital program to upgrade the SFPUC's regional and local water systems. The program will deliver capital improvements that enhance the SFPUC's ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects - 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The Sewer System Improvement Program: The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable and seismically safe sewer system now and for generations to come.

SAN FRANCISCO PUBLIC UTILITIES COMMISSION GREEN BOND

FRAMEWORK OVERVIEW AND SECOND OPINION BY SUSTAINALYTICS

May 2016

www.sustainalytics.com

TABLE OF CONTENTS

1. PREFACE

Sustainalytics has been retained by San Francisco Public Utilities Commission (SFPUC) to support, review, and provide an opinion on its green bond framework and its alignment with the Green Bond Principles 2015 and compatibility with the draft Water Climate Bonds Standard requirements. As part of this engagement, Sustainalytics reviewed relevant public and internal documents, and held conversations with SFPUC's legal, finance, operational and sustainability teams to understand the planned use of proceeds, project selection process, and management and reporting for its green bond.

This document contains two sections:
1) Framework Overview, which includes a summary of SFPUC's green bond framework; and
2) Sustainalytics' Opinion, which is a second party opinion on the framework.

2. INTRODUCTION

The SFPUC, a public utility, is a department of the City of San Francisco, and provides drinking water to the City of San Francisco and wholesale water agencies located in three Bay Area counties, wastewater services to the City of San Francisco, and green hydroelectric and solar power to retail customers and the City's municipal departments. The SFPUC's Wastewater Enterprise maintains a combined sewage and stormwater collection, treatment and disposal system, and operates and maintains 993 miles of combined sewers for homes, businesses, and street runoff. Three treatment plants treat sewage and stormwater, reducing pollution in the bay and ocean.[1]

SFPUC has decided to issue a green bond to finance sustainable stormwater management and wastewater projects in San Francisco. The following framework outlines the alignment of the bond to the water climate bonds standard, outlines the eligibility criteria for the use of proceeds, describes the project selection process and management of proceeds, and finally describes how the impact of the bond will be reported by SFPUC.

3. FRAMEWORK OVERVIEW

For this green bond issued by SFPUC a framework has been created that follows the four key pillars of the Green Bond Principles ("GBP"):

- Use of Proceeds
- Project Selection Process
- Management of Proceeds
- Reporting

3.1 Use of Proceeds

To be eligible for the green bond proceeds, the projects funded must meet one or more of the following business activity criteria:

[1] SFPUC About Us http://www.sfwater.org/index.aspx?page=6

3.1.1 Eligibility Criteria

To be eligible for the green bond proceeds, the projects funded must meet one or more of the following business activity criteria:

1. Wastewater treatment upgrades
2. Sewer collection system improvements
3. Stormwater management/flood control improvements

The context: The San Francisco sewer system was not constructed to withstand major earthquakes or the impacts of climate change, such as sea level rise and intense rainstorms that could overwhelm the sewer system, as it treats both sewage and stormwater runoff. Currently, more than 300 miles of sewers are more than 100 years old. SFPUC recognizes the significant challenge of operating an aging sewer system, and states that it is crucial that the system be updated before it becomes a threat to public health. The SFPUC has therefore identified wastewater treatment, sewer collection system improvements, and stormwater management as vital to climate change adaptation and to ensure the effectiveness and sustainability of the sewer system.

Use of proceeds: SFPUC has identified numerous projects under the Sewer System Improvement Program (SSIP) aimed at improving and strengthening wastewater treatment and sewer collection systems. These projects include, but are not limited to:

Wastewater treatment projects

- Replacing existing and aged and failing facilities with new Biosolids Digester Facilities
- Improving the level of screening and grit removal in existing facilities
- Replacing the antiquated oxygen generation plants
- Condition assessment and rehabilitation of building structures
- Replacing mechanical and electrical equipment
- Seismic retrofitting

Sewer collection system improvements projects

- Enhancing conveyance in the Channel and Islais Creek watershed to provide redundancy and increase capacity to manage storm events
- Rehabilitating and replacing interceptors, tunnels, pump stations, force mains and Transport/Storage (T/S) boxes
- Rehabilitating Combined Sewer Discharge (CSD) structures and preventing backflow of bay water through CSDs due to sea level rise

Stormwater management/flood control improvements projects

- Green infrastructure (bioretention planters for stormwater runoff, permeable paving)
- Flood resilience (analysis of flooding risks, stormwater detention and conveyance concepts, flood barriers)
- Hydraulic and drainage sewer improvements in flood prone neighborhoods

- Advanced rainfall and operational decision systems (automated real time forecasts with increased accuracy)

Any project that meets the business activity criteria listed above, including the new and ongoing developments of such projects, are eligible to be funded in whole or in part by an allocation of the green bond proceeds. SFPUC has selected the projects listed in Appendix A for the allocation of green bond proceeds.

3.2 Project Evaluation and Selection Process

The projects included in the bond sale are part of the Sewer System Improvement Program (SSIP) Phase 1. The SSIP is a multi-billion and multi-year capital program to upgrade the City of San Francisco's aging sewer system. The program will not only modernize the system but also takes into account changes related to storm intensity and sea level rise. The projects in this bond sale are part of the $2.9B SSIP Phase 1 and has been approved by the Commission.

Beginning in 2003, the SFPUC staff assessed the need for wastewater collection and treatment system improvements to help the SFPUC continue to meet its core mission and Wastewater Enterprise specific goals for climate change adaptation, regulatory permit compliance, system reliability and functionality, and sustainable operations. From 2009-2010 seven intensive workshops were held with the Commission that culminated in the endorsement of the Goals and Levels of Service provided in the Sewer System Improvement Program Report. In 2011 there was a presentation and discussion of the SSIP, 10-year Capital Request, and Associated Rate Impacts where the Commission authorized staff to move forward with the procurement of a Program Management Consultant (PMC) to validate the proposed program scope, schedule, and budget. The PMC started work in 2011 and conducted a detailed validation effort of the proposed SSIP projects. Three Commission validation workshops were conducted in 2012 to update both the Commission and the public on the proposed treatment and collection system projects' scope, schedule, and budget; as well as, revisions to the SSIP Goals and Levels of Service. The Program Validation workshops resulted in endorsement of the 2012 SSIP Goals and Levels of Service, validation of the staff's project scope and phased implementation process, and authorization for staff to proceed with planning and developing the proposed Phase 1 projects of the SSIP.

Over the past three years since the Commission has endorsed Phase 1 of the program, significant progress in program planning and project development of both the treatment and collection systems have occurred. The baselining efforts included a thorough review of the Goals and Levels of Service; prioritization of project scopes and costs to determine if deferral or elimination of scope was acceptable; refinement of projects, namely as a result of the receiving water model results; and, Central Bayside System Improvement Project tunnel sizing.

This effort has resulted in updated 2016 Goals, Levels of Service, Program and Phase 1 Strategies that will inform and guide project teams and a revised Program Baseline that contains better definition of project scopes, refinement of costs, and updated project schedules. In addition, other collection system needs (for example, climate change adaption to sea level rise and intense storms) and opportunities have arisen that have triggered the inclusion of Interdepartmental and Flooding projects to the SSIP. To best capture

and reflect all of these changes, SSIP staff has revised the overall Program Baseline Cost Summary and Phase 1 Project Schedules.

3.3 Management of Proceeds

The amount raised through the issuance of the green bond will be equal to or less than amounts budgeted for the eligible projects listed in Appendix A.

The proceeds of the bond will be held in a dedicated bond sub-fund set up to manage and track the disbursements of the bond proceeds for eligible green projects. All the funding and disbursement for each project is recorded in an accounting system – FAMIS (Financial Accounting Management Information System), managed by the City of San Francisco.

3.4 Reporting

Funds: SFPUC plans to report on an annual basis the amount funds allocated to eligible project and the balance remaining.

Climate Mitigation: SFPUC plans to report on the following KPIs at an aggregate level by facility:

- Energy generated (kW) through the new Biosolids Digester Facilities Project at the Southeast Plant and upgrades to the digester gas improvements at Oceanside Treatment Plant
- Energy saved (kW) per unit of biosolids treated to measure efficacy of energy-reducing equipment and system upgrades
- Energy saved (kW) per gallon of liquids treated to measure efficacy of energy-reducing equipment and system upgrades
- Volume of wastewater treated
- Volume of recycled water used from the new recycled water pump station at Southeast Plant

Climate Change Adaptation Plans: As one of the projects listed in Appendix A, SFPUC is undertaking a comprehensive climate change vulnerability and risk assessment related to the wastewater and stormwater assets, culminating in an SSIP Climate Change Adaptation Plan. Part of this plan has been applied to Phase 1 SSIP projects by providing insight to inform design and operation strategies and manage climate change risks. SFPUC may provide descriptions and details of climate change adaption plans and strategies, and which projects will be implemented to achieve them.
Examples include:

- Reduce climate change impacts by constructing and modifying facilities to meet sea level rise projections, as well as modifying combined sewer discharges to prevent backflow due to sea level rise.
- Address water diversion/navigation, flood management, and stormwater runoff by upgrading the system to meet the Level of Service storm. These systems include conveyance (tunnels, sewers, pump stations, force mains), green infrastructure, stormwater detainment, and rainfall prediction. Combined sewer reductions and flooding reduction impacts are computer-modeled as part of project planning.

For a detailed list of reporting commitments, please refer to Appendix B

4 SUSTAINALYTICS' OPINION

Impact of climate change on wastewater management: According to the Intergovernmental Panel on Climate Change (IPCC), wastewater management is "an important sustainable development goal because it can lead directly to improved health, productivity of human resources, and better living conditions."[2] In its 2007 Annual Report, the IPCC stated that improving wastewater treatment and storm water management can provide multiple benefits for climate change mitigation and adaptation, including GHG emissions reduction through the use of energy-efficient facilities, conservation of water resources and water and soil pollution reduction.[3]

Wastewater treatment and storm water management are projected to become even more difficult due to climate change and the associated changes in temperatures, precipitation patterns, sea level rise and storm-related damages. Climate conditions in the San Francisco Bay Area will change over the next century, posing a unique challenge. Changes in precipitation patterns may result in severe rainfall events, which, together with sea level rise, may overwhelm stormwater run-off systems and impact water qualities or result in localized flooding. Inadequate storm-proofing will likely cause significant risk to life, damage to property, infrastructure and environment.

To address these challenges, the sewer improvement projects financed under the San Francisco Public Utilities Commission green bond are expected to provide multiple opportunities for climate mitigation and adaptation. New "green" facilities will help reduce GHG emissions, contributing climate mitigation. Treatment and reuse of wastewater and storm water, as well as storm-proofing will serve as effective climate adaptation measures in the coastal environment, which is also prone to severe droughts and water scarcity.

Water Climate Bond Certified: In issuing the green bond aligned with the Water Climate Bonds Standard, the SFPUC is demonstrating its commitment to addressing the climate change risks on water infrastructure and a strong commitment to transparency. The bond has been verified against criteria that examined SFPUC's vulnerability assessment and climate change adaptation plan, and is the first bond to receive certification under this new water standard.

Alignment with Green Bond Principles:

Principle	In line with GBP 2015?	Comments
Use of Proceeds	Yes	The Use of Proceeds of this bond are clearly described in the public offering statement. Furthermore, sustainable water management is one of the broad categories recognized by the GBP as offering clear environmental benefits. Based on Sustainalytics' review, these projects help in mitigating climate change impacts by GHG emissions reduction through the use of energy-

[2] https://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4_wg3_full_report.pdf
[3] https://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4_wg3_full_report.pdf

		efficient facilities and conservation of water resources. In addition, all these project have been evaluated against climate change risks with emphasis on climate change adaptation and projects adjusted or modified to deal with long-term impacts of climate changes such as sea level rise.
Project selection process	Yes	The projects selected for the bond are part of SSIP Phase1. The current SSIP program was a result of a multi-year assessment that included, among other things, climate change mitigation and adaptation considerations.
Management of Proceeds	Yes	A sub-account specific to the bond will be set up and the disbursement to corresponding project will be tracked in the FAMIS system.
Reporting	Yes	SFPUC will report the KPIs mentioned in the reporting section above on an aggregate level and where possible at a project level. In addition, SFPUC will share details about climate change adaptation plans for the eligible projects. Providing such detailed reporting on climate change mitigation and adaptation is a best practice within water green bond issuances.

Conclusion

By financing projects in wastewater treatment and stormwater management, SFPUC aims to reduce GHG emissions in its facilities, improve water conservation, and manage climate change risks by addressing system vulnerabilities, actions recognized by the Intergovernmental Panel on Climate Change as effective climate mitigation and adaptation measures.

SFPUC's approach to selecting projects and managing green bond proceeds is robust, and its reporting on the use of proceeds, with KPIs that capture energy and water impacts, is transparent. SFPUC's green bond follows the guidance provided by the Green Bond Principles 2015 and is in alignment with its four pillars – the use of proceeds, process of project evaluation and selection, management of proceeds and reporting. Furthermore, the SFPUC's Green Bond has been certified according to the Water Climate Bond Standard, the first green bond to achieve this certification. Based on the above considerations, Sustainalytics is of the view that SFPUC's green bond is robust and credible.

APPENDICES

Appendix A: Eligible projects examples

Wastewater Bonds Series 2016 - Project List			
PROJECT		**TITLE**	**2016 Bonds**
Sewer System Improvement Program (SSIP)			
	CWWSIPCS	COLLECTION SYSTEM IMPROVEMENTS	62,076,000
	CWWSIPCT	CENTRAL BAYSIDE SYSTEM IMPROVEMENTS	19,800,000
	CWWSIPDP	SSIP BIOSOLIDS/DIGESTER PROJECT	65,600,000
	CWWSIPFC	STORMWATER MANAGEMENT	61,770,000
	CWWSIPNC	NORTHSHORE TO CHANNEL FORCE MAIN	20,270,000
	CWWSIPPR	SSIP PROGRAM-WIDE MANAGEMENT	94,000,000
	CWWSIPSE	TREATMENT PLANT IMPROVEMENTS-SOUTHEAST	104,920,000
	CWWSIPTP	TREATMENT PLANT IMPROVEMENTS	55,200,000
	CWWSIPUW	URBAN WATERSHED ASSESSMENT PROJECT	11,900,000
	CWWBAE00	BIOFUEL ALTERNATIVE ENERGY PROJECT	5,000,000
	TOTAL		**500,536,000**

Appendix B: Reporting Details

	CLIMATE MITIGATION				CLIMATE ADAPTATION					
Phase 1 only	**Energy generation**	**Energy efficiency**	**Wastewater storage / treatment**	**Water supply/ treatment**	**Water diversion/ navigation**	**Reduce climate change impacts**	**Flood management**	**Rainwater harvesting**	**Watershed protection**	**Stormwater/ runoff management**
Sewer System Improvement Program										
Program Wide Efforts						*Sea level rise adaptation plan*				
Land Reuse										
Treatment Facilities										
Southeast Plant	*kW of biogas created*	*kW of energy saved per unit of biosolids treated (before vs. after)* *kW of energy saved per gallon of liquids treated (before vs. after)*	*Volume of wastewater treated*	*Volume of recycled water used at new W3 Pump Station*		*GHG offset from production and use of biogas*				
North Point Facility		*kW of energy saved per gallon of influent wastewater pumped (before vs. after)*	*Volume of wastewater treated*							

	CLIMATE MITIGATION				CLIMATE ADAPTATION					
Phase 1 only	**Energy generation**	**Energy efficiency**	**Wastewater storage / treatment**	**Water supply/ treatment**	**Water diversion/ navigation**	**Reduce climate change impacts**	**Flood management**	**Rainwater harvesting**	**Watershed protection**	**Stormwater/ runoff management**
Westside Pump Station and Force Main		*kW of energy saved per gallon of influent wastewater pumped (before vs. after)*	*Volume of wastewater treated*							
Oceanside Plant	*kW of biogas created*	*kW of energy saved for odor control and per cubic feet of biogas produced*	*Volume of wastewater treated*							
Sewer/Collection System										
Central Bayside System Improvements					✓		✓			✓
Collection System - Interceptors/Tunnels/Odor Control					✓					✓
Transport/Storage & Combined Sewer Discharge Structures					✓	✓				✓
Pump Stations / Force Main Improvements					✓					✓

	CLIMATE MITIGATION				CLIMATE ADAPTATION					
Phase 1 only	**Energy generation**	**Energy efficiency**	**Wastewater storage / treatment**	**Water supply/ treatment**	**Water diversion/ navigation**	**Reduce climate change impacts**	**Flood management**	**Rainwater harvesting**	**Watershed protection**	**Stormwater/ runoff management**
Stormwater Management/Flood Control										
Drainage Basin / Early Implementation Projects		*kW of energy saved from new street light fixtures (before vs. after)*					✓	✓	✓	✓
Flood Resilience							✓		✓	✓
Collection System - Hydraulic Improvements							✓		✓	✓
Low Impact Design Program		*kW of energy saved from new street light fixtures (before vs. after)*					✓	✓	✓	✓
Green Infrastructure Projects							✓		✓	✓
Advance Rainfall Predictions & Operational Decision System							✓		✓	✓

DOCUMENTS REVIEWED

Sustainalytics reviewed the following documents for the purposes of writing this report.

No.	Document Name
1	2016 Revised SSIP Goals and Phase 1 Strategies
2	2016 SSIP Summary Project Descriptions
3	Climate Water Bond SSIP (Excel file)
4	Wastewater Enterprise Capital Improvement Program Quarterly Report Q2 2015-2016
5	2016 SSIP Phase 1 Summary of Proposed Cost
6	2016 SSIP Phase 1 Proposed Project-Level Schedules
7	Wastewater Enterprise FY 2017-2026 Ten Year CIP (Excel file)
8	2014- SFPUC Incorporating Sea Level Rise into Capital Planning
9	2014- City of San Francisco Sea Level Rise Report

SUSTAINALYTICS CONTACTS

Vikram Puppala
Associate Director, Advisory Services
Toronto
vikram.puppala@sustainalytics.com
(+1) 647 317 3694

Marion Oliver
Manager, Advisory Services
Toronto
marion.oliver@sustainalytics.com
(+1) 647 317 3644

Charlotte Peyraud
Senior Advisor, Institutional Relations
New York
charlotte.peyraud@sustainalytics.com
(+1) 646 518 0184

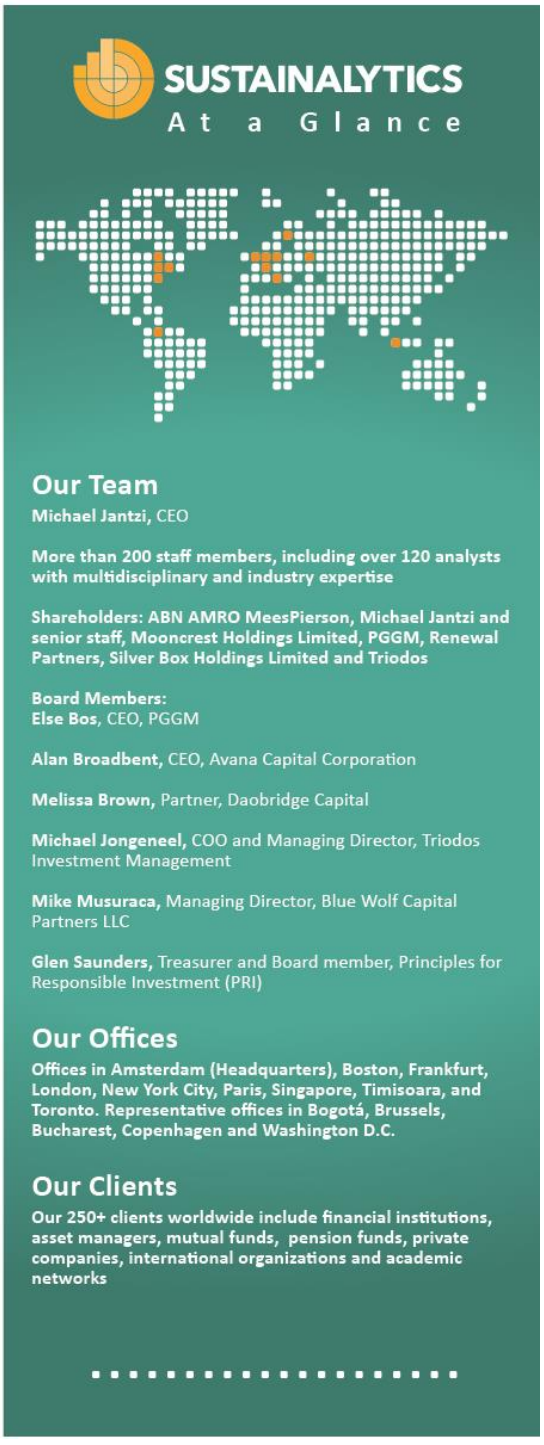
SUSTAINALYTICS

Sustainalytics is the largest independent provider of sustainability research, analysis, and services to investors. We serve over 250 institutional investors which include some of the world's largest asset owners and asset managers. Through over 20 years of experience serving the responsible investment (RI) market, we have gained a reputation for providing high-quality ESG research solutions and excellent client service.

Sustainalytics is headed by seasoned professionals in the field of business, finance, and sustainability, with a wealth of experience in the Responsible Investment area. After more than 20 years of local experience and expertise in the Responsible Investment (RI) market Sustainalytics has developed a comprehensive understanding of trends and best practices and a solid process to assist organisations in integrating ESG considerations into their policies and strategies. We have worked with some of the world's financial institutions including pension plans, investment managers and banks providing customised support to help them achieve their RI objectives. Clients include ABN AMRO, APG, BBVA, BNP Paribas, Deutsche Bank, ING Bank, Lombard Odier, Lloyds Bank, Triodos Bank, UBS and over 250 other financial institutions and organisations.

Sustainalytics now has a staff of 250 employees globally, including over 120 analysts, with operations in Amsterdam, Boston, Bucharest, Frankfurt, New York, Paris, London, Singapore, Sydney, Timisoara, and Toronto, and representation in Brussels and Washington DC.

In 2015, Sustainalytics was named the Best SRI or Green Bond Research Firm by GlobalCapital. In December 2014, for the third year in a row, Sustainalytics was named best sustainable and responsible investment research firm in the Independent Research in Responsible Investment (IRRI) Survey, conducted by Thomson Reuters and SRI-CONNECT.



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