10. Infrastructure + Streets

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10. INFRASTRUCTURE + STREETS

PW: San Francisco Public Works SFPUC: San Francisco Public Utilities Commission

The backbone of San Francisco is our horizontal infrastructure; the streets, water, power, and sewer systems that make living in a city possible. Many of these systems function invisibly to residents. They run underground, are walked over, and are turned on with the flick of a switch or the twist of a faucet. The City invests in these systems to provide basic services; and these investments also contribute to City-wide goals of environmental sustainability, pedestrian safety, and a more beautiful and livable city.

It is imperative that the City maintain these assets in a state of good repair given the essential nature of these systems. Proactive maintenance ensures the steady provision of services and is less costly than fixing problems that have degraded beyond repair. High quality service provision is key for advancing equity as utility disruptions or degraded street conditions have disproportionate impacts on lowincome people, communities of color, and people with disabilities.

Overview

Programs addressed in this chapter are delivered by San Francisco Public Works (PW) and the San Francisco Public Utilities Commission (SFPUC). Among the key programs implemented by PW are Street Resurfacing, Sidewalk Repair, and Street Tree Maintenance. SFPUC provides San Francisco with water, power, and wastewater systems, implementing multi-billion-dollar programs designed to prolong the life of these assets. Together, these two agencies deliver tangible results that affect the lives of each and every San Franciscan.

Public Works Streets and Rights-of-Way

The City has been able to make significant improvements in its street condition since the 2011 Road Repaving and Street Safety Bond Program. The third and final bond sale was completed in the spring of 2016, rounding out the \$248 million program dedicated to street resurfacing, streetscape, and traffic signal upgrade projects. Since then, General Fund, State dollars from SB1, and other sources have contributed to continued street condition improvements. San Francisco voters also approved another \$41.5 million for the public right-of-way when they approved the 2020 Health and Recovery G.O. Bond. An additional \$60 million of General Fund debt will be issued in FY2023 and FY2024 to offset the shortage of General Fund for this purpose in the short term due to the COVID-19 crisis. The City's Pavement Condition Index (PCI) score is currently at 74.

San Francisco also continues its commitment to Vision Zero SF and its goal of zero traffic fatalities and critical injuries in San Francisco by 2024. San Francisco's expenditures in streets and right-of-way infrastructure improve safety in myriad ways. Roadway repaving creates a smoother surface and renews street and crosswalk markings, which improve safety for drivers, bicyclists, and pedestrians. Additionally, the City reaffirms our commitment to safe and accessible paths of travel for people with disabilities by making capital improvements to curb ramps, sidewalks, street crossings, and roadways across the city.

Public Utilities Commission

The SFPUC provides and distributes water to 2.6 million customers, treats wastewater, and supplies electric power to operate Muni streetcars and electric buses, street and traffic lights, and municipal buildings. The SFPUC includes three utility enterprises: Water, Wastewater, and Power.

The Water Enterprise consists of over 389 miles of pipeline, over 74 miles of tunnels, 11 reservoirs, five pump stations, three water treatment plants, and nine groundwater wells and treatment facilities located outside of the city (the "Regional Water System"), and over 1,235 miles of pipeline, 11 reservoirs, eight storage tanks, 22 pump stations, seven hydropneumatic stations, and six groundwater wells and treatment facilities located within city limits (the "In-City Distribution System").

The Water Enterprise is responsible for the distribution of high-quality water to its customer in San Francisco and other Bay Area communities. Hetch Hetchy watershed, located in Yosemite National

Park, provides approximately 85% of San Francisco's total water supply, with the remaining 15% produced by the Alameda and Peninsula watersheds, regional and local groundwater supplies, and recycled water. The drinking water provided is among the purest in the world; the system for delivering that water is almost entirely gravity fed, requiring almost no fossil fuel consumption to move water from the mountains to the tap. Hetchy Water operates, maintains, and improves water and power facilities, smaller dams and reservoirs, water transmission systems, power generation facilities, and power transmission assets.

The Wastewater Enterprise operates and maintains the City's water pollution control plants, pumping stations, and collection system in order to protect public health and the environment. It also maintains the 900-mile long combined sewer system and 27 pump stations that collect sewage and storm water, moving wastewater to treatment plants for eventual discharge into the San Francisco Bay and the Pacific Ocean. The SFPUC is undertaking a Sewer System Improvement Program (SSIP) to modernize its systems and help meet its Levels of Service goals. The SSIP is expected to take place over the next 20 years.

The Power Enterprise is responsible for providing reliable, clean, high-quality electric energy to the city. The Power Enterprise's 100% GHG-free electric supply portfolio for Hetch Hetchy Power consists of hydroelectric power from three power plants in the Sierra Nevada mountains, solar power generated at SFPUC and other City facilities, and bio-methane power produced at SFPUC wastewater treatment facilities. CleanPowerSF serves more than 380,000 customer accounts and provides San Francisco with an electricity supply from its default "Green" product that is at least 50% CA state eligible renewable and the "SuperGreen" product that is sourced from 100% renewable energy. CleanPowerSF enters into short and long-term power purchase agreements for this energy with project developers and facility owners across the Bay Area and throughout the state.

Power Interconnection Costs

Under the new Wholesale Distribution Tariff (WDT) proposed by Pacific Gas & Electric Company (PG&E) in 2020, all new power interconnections will need to be at primary voltage. This imposes an additional \$500,000 for the majority of new interconnections. Any capital project that requires a new, upgraded, or relocated electrical service will be impacted by this requirement. The City continues to litigate the terms and conditions of new WDT (WDT3) at the Federal Energy Regulatory Commission (FERC). These more onerous requirements took effect in April 15, 2021 with the exception of the termination of unmetered load service. The City was able to negotiate an interim agreement to allow some limited service to the City's existing unmetered loads while the WDT3 is litigated at FERC.

In addition, the WDT rates have transitioned from a fixed rate methodology to formula rates which allows PG&E to impose new costs or adjust rates annually. The result is that the distribution rates have doubled. The City now pays over \$20 million per year for distribution level service in addition to approximately \$30 million per year for transmission level service through the California Independent System Operator (CAISO). The City must also pay substantial additional costs for the installation of oversized equipment (primary voltage) on secondary loads and costs for upgrades to PG&E's system. The City has reached a settlement on the new rate structure but is still litigating other costs, including, but not limited to, the requirements for more costly equipment and requirements to pay for upgrades to the PG&E system used for retail customers.



The Plan proposes \$1.6 billion in funding for Public Works renewal needs over the next 10 years, with \$835 million coming from the General Fund, as shown in Chart 9.1. SFPUC renewal projects are not represented in this curve.

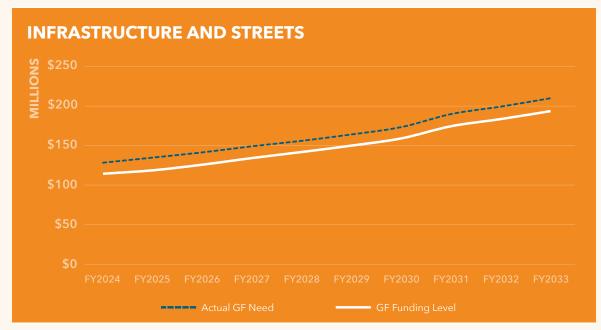


CHART 10.1

The General Fund streets and right-ofway renewal program includes street resurfacing, curb ramp inspection and repair, median maintenance, plaza inspection and repair, sidewalk inspection and repair, street structure repair, bridge inspection and repair, and street tree planting, establishment, and maintenance. The street resurfacing program is by far the largest of these, with a planned investment of \$1 billion over the next 10 years.

The SFPUC's renewal program includes sewer replacements, pump system rehabilitations, water storage upgrades, technology infrastructure improvements, and many other projects necessary to provide for San Francisco's water, wastewater, and power needs. As noted above, SFPUC renewal projects are not included in the Service Area renewal curve as the General Fund does not fund the Enterprise Department's projects. For more information on SFPUC renewals, please see the narrative descriptions in the following pages.

Project Name	Description
PW – Curb Ramp Inspection and Repair	This project complements the Curb Ramp Program (see Enhancement section below) with funding to inspect and repair detectable tiles on existing ramps.
	The estimated cost for curb ramp inspection and replacement is \$15.3 million over the next 10 years. The Plan recommends \$8.8 million from the General Fund towards this need.
PW – Landscape Median Maintenance and Irrigation Repair	As San Francisco replaces more cement and concrete with green spaces, investment in maintaining these areas keeps them free of trash and promotes the health of plants. With more than 175 landscaped medians and open spaces across the city, irrigation systems require routine maintenance and repairs to prolong their useful lives and keep the landscaping in good condition. Healthy plants can also help reduce maintenance needs by out competing weeds.
	The estimated cost for median maintenance is \$176.7 million over the next 10 years. The Plan recommends \$79.2 million from the General Fund towards this need, in addition to \$38.5 million expected from the State. PW has also identified an additional \$38.2 million in median enhancement needs.
PW – Plaza Inspection and Repair Program	Public Works is responsible for maintaining plazas throughout the City, including Blanken Bayshore, Embarcadero, Hallidie, Harvey Milk, Justin Herman, Mechanics, Mendell, Organ Pavilion, and United Nations Plazas. These plazas require annual inspection to determine the extent of any repairs that may be required.
	The estimated cost for plaza inspection and repair is \$5.8 million over the next 10 years. The Plan recommends \$3.3 million from the General Fund towards this need. PW has also identified an additional \$13.9 million in Plaza enhancement needs.
PW – Sidewalk Improvements and Repair Program	Public Works maintains sidewalks in three ways. First, the Bureau of Urban Forestry maintains sidewalks around city-maintained street trees. Second, the Bureau of Street Use and Mapping executes the Sidewalk Inspection and Repair Program; its goal is to inspect and repair every block on a 25-year cycle. Finally, the Bureau of Street Mapping has a reactive program called the Accelerated Sidewalk Abatement Program, which inspects locations based on complaints and issues notices of violation to property owners to compel them to repair their dangerous sidewalks.
	The estimated cost for sidewalk improvements and repair is \$63.1 million over the next 10 years. The Plan recommends \$16.3 million from the General Fund towards this need. An additional \$30.6 million is expected from other local sources.
PW – Street Resurfacing and Reconstruction	Public Works oversees the maintenance of 865 miles of streets. Without regular resurfacing treatments, a street could end up costing the City four times more over the course of its life cycle. San Francisco uses the industry standard rating scale called the Pavement Condition Index (PCI) to score its streets. Public Works' goal is to achieve and maintain a PCI of 75, which is considered "good" condition.
	The estimated cost to achieve and maintain a PCI of 75 is \$1 billion over the next 10 years. Funding towards this need includes \$30 million from FY2024 Certificates of Participation, \$454 million from the General Fund, and \$560 million from a combination of federal, state, and other local sources.
PW – Street Structure Repair	The Capital Plan provides a strategy for the maintenance and renewal of 275 street structures including retaining walls, stairs, viaducts, tunnels, underpasses, and overpasses, plus numerous guardrails throughout the City. Work performed under this program includes general maintenance and major repairs of city street structures to maintain safety and minimize long-term renewal costs.
	The estimated cost for other street structure maintenance is \$36.6 million over the next 10 years. Given anticipated funding constraints, the Plan allocates \$XX million from the General Fund towards this need. PW has also identified an additional \$41.6 million in Street Structure enhancement needs.



Project Name	Description
PW – Street Tree Maintenance and Sidewalk Repair	Public Works is responsible for maintaining approximately 125,000 street trees. Proposition E of the November 2016 ballot set aside annual funding towards this need and Public Works will have the resources to maintain street trees on an average three-to-five-year cycle, inspect all street trees annually, and make sidewalk repairs on a similar cycle.
	The estimated cost for street tree maintenance and related sidewalk repair is \$295.3 million over the next 10 years, of which \$249.2 million is funded by the General Fund through Proposition E.
PW – Bridge Inspection and Repair	Public Works is responsible for the inspection and maintenance of three moveable bridges and 93 vehicle/pedestrian bridges throughout the City. Work performed under this program includes general inspection and maintenance to moveable, vehicular, and pedestrian bridges to maintain safety and proper operations, and to minimize long-term renewal costs. The Islais Creek Bridge Rehabilitation project will include bridge machine equipment and system repair and upgrades, bridge deck and fender system replacement, bridge painting, and other damage and corrosion repairs.
	The estimated cost for the Islais Creek Bridge project is \$102.6 million, with \$11.8 million being funded by the General Fund, and \$90.8 million from a Federal grant. The estimated cost for ongoing bridge inspection and repair is \$5 million over the next 10 years. The Plan recommends \$2.9 million from the General Fund towards this need. PW has also identified an additional \$37.7 million in bridge rehabilitation needs.
SFPUC Hetch Hetchy – Water Infrastructure	The Water Infrastructure program provides capital funding for Renewal & Replacement (R&R) and Large Infrastructure projects on HHWP's assets that are classified by the Water Supply Agreement (WSA) as Water. The proposed FY23/24 10-year Capital Plan includes \$185.6M under the Water Infrastructure authority level which is used to fund capital improvements on the San Joaquin Pipelines, Mountain Tunnel, and other water assets.
	The cost of SFPUC's Hetch Hetchy – Water Infrastructure renewal and replacement projects is approximately \$185.6 million through FY2033.
SFPUC Hetch Hetchy – Power Infrastructure	The Power Infrastructure program provides capital funding for Renewal & Replacement (R&R) and Large Infrastructure projects on HHWP's assets that are classified by the Water Supply Agreement (WSA) as Power. The proposed FY23/2410-year Capital Plan includes \$223.3 under the Power Infrastructure authority level which is used to fund capital improvements on the power facilities such as Moccasin Switchyard, Kirkwood Powerhouse, Moccasin Powerhouse, Holm Powerhouse, 115kV and 230kV Transmission Lines, Warnerville Substation, Cherry-Eleanor Pumps, and other power assets.
	The cost of SFPUC's Hetch Hetchy – Power Infrastructure renewal and replacement projects is approximately \$223.3 million through FY2033.
SFPUC Hetch Hetchy – Water and Power Joint Infrastructure	The Joint Infrastructure program provides capital funding for Renewal & Replacement (R&R) and Large Infrastructure projects on HHWP's assets that are classified by the Water Supply Agreement (WSA) as Joint. The proposed FY23/24 10-year Capital Plan includes \$568.1M under the Joint Infrastructure authority level which is used to fund capital improvements on the joint facilities such as O'Shaughnessy Dam, Canyon Tunnel, Mountain Tunnel, Moccasin Wastewater Treatment Plant, Power Distribution Lines, Cherry Dam, Buildings & Grounds, and other joint assets.
	The cost of SFPUC's Hetch Hetchy Water and Power – Joint Infrastructure renewal and replacement projects is approximately \$568.1 million through FY2033. These assets are jointly funded by Water (45%) and Power (55%) sources.
SFPUC Wastewater – Collection System/Condition Assessment Project	There are more than 80 miles of major sewers that have been in service for 100 years or more and are at the end of their useful life. This project includes cleaning and inspection of small and large diameter sewers, transport/storage boxes and collection system discharge/ overflow structures. The results of the inspection program will inform the Renewal and Replacement Spot Repair and Collection System Sewer Improvements Programs (SSIP), as well as the SSIP sewer repairs. This project is a part of the on-going data gathering necessary for the Wastewater Enterprise Collection Systems Asset Management Program.
	The cost of SFPUC's Collection System/Condition Assessment Projects are approximately \$173.3 million through FY2033.

The Hetchy Water Renewal and Replacement Program

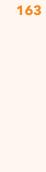
Many Hetch Hetchy Water and Power facilities and system components are aging. Many have reached or exceeded their useful life. The condition of these facilities and equipment must be or has been assessed. Proposed projects are evaluated and prioritized based on risk (financial/criticality, safety and regulatory), efficiency of operations, and to provide a safe working environment for employees working in remote areas.

Project Name	Description
SFPUC Wastewater – Collection System/Sewer Improvement	This program maintains the existing functionality of the sewage collection system and includes planned and emergency repairs and replacement of structurally inadequate sewers. Failure of the collection system will reduce the City's ability to handle and dispose of wastewater and stormwater which can lead to public health, safety, and environmental risks, and non-compliance with the State discharge permit. Projects are identified utilizing an asset management approach which factors in physical condition, age, location, risk, public safety, paving schedule, and other factors. This program allows for the renewal and replacement of approximately 15 miles of sewer per year.
	The cost of SFPUC's Collection System/Sewer Improvement is approximately \$498.6.0 million through FY2033.
SFPUC Wastewater – Collection System/Large Diameter Sewers	This is a collection of large sewer improvement projects that will rehabilitate and/or replace Large Sewers (sewers greater than 36-inches in diameter or equivalent diameter) that have the highest risk for failure. The collection of projects (or subprojects) were identified in SSIP Phase 1.
	The cost of the SFPUC's- Collection System/Large Diameter Sewer Improvement is approximately \$491.1 million through FY2033.
SFPUC Wastewater – Sewer Lateral Improvements	The R&R Program Collection System Sewer Lateral Improvement projects consist of localized replacement/rehabilitation of sewer assets (predominantly sewer laterals). The State implementation of the Combined Sewer Overflow Policy requires that sewer utilities must have an on-going inspection, cleaning and repair program for sewer system assets to minimize raw sewage overflows.
	The costs of the SFPUC's Lateral Sewer Improvement Program is approximately \$167.4 million through FY2033.
SFPUC Wastewater – Treatment Plants	The Treatment Plant Improvement program helps maintain the capacity and reliable performance of the Wastewater treatment facilities owned and operated by the Wastewater Enterprise. This is a continuing annual program to extend the useful life of Wastewater treatment assets including Transport Boxes, Discharge Structures, Pump Stations, Force Mains, Tunnels and Treatment Plants.
	The projects are prioritized based upon regulatory compliance, condition assessments, operation staff recommendations, and Level of Service goals which were formally adopted as part of the SSIP. The completion of projects under the Treatment Plant Improvement program will increase reliability and efficiency of Wastewater Enterprise facilities and ensure that the performance of the treatment facilities meets the established levels of service.
	The cost of SFPUC's Treatment Plants is approximately \$305.0 million through FY2033.
SFPUC Wastewater – Side Stream Treatment Removal Project	This project will provide near-term interim progress on nutrient removal over the next six to seven years at Southeast Treatment Plant. Following completion of the Biosolids Digester Facility Project, a separate capital project will provide long-term nutrient removal. The costs and timing of that permanent facility is not established yet. The interim side stream nutrient removal facility will treat highly concentrated flow from the current centrifuge dewatering facility. The treated flow/effluent from this planned facility will return upstream to existing liquid treatment train on northside of Southeast Plant prior to discharging to San Francisco Bay through current outfall system.
	The cost of SFPUC's Side Stream Treatment Removal Project is approximately \$15.0 million through FY2033.



Project Name	Description
SFPUC Local Water – Water Supply Projects	This program includes planning for local water diversification to explore alternative methods for expanding local water sources. Such sources include the Eastside Water Purification Project and Innovations for San Francisco ratepayers that highlight innovative water supplies and technologies.
	The cost of SFPUC Water's Local Water Supply Projects is approximately \$26.4 million through FY2033.
SFPUC Water – Local Water Conveyance/Distribution System	This program includes funding to install, replace and renew distribution system pipelines and service connections for the 1,230 miles of drinking water mains in San Francisco to meet customer level of service goals for uninterrupted service. Improvements include replacement, rehabilitation, re-lining, and cathodic protection of all pipe categories to extend or renew pipeline useful life. The program also includes partial funding for new Potable Emergency Firefighting Water System pipelines as well as funding for joint-department City street improvement projects.
	The Renew Services Program provides funding to renew assets between the water main and the customer's service connection. This program includes the Lead Component Services Program to replace any lead components for the customer's water service line and the Water Loss Reduction Program to implement of cost-effective and comprehensive strategies to reduce water loss. The GIS distribution system mapping program and the Water Quality Distribution Systems are also included.
	Additional projects include the New Services Connection Program, Asset Management Platform, and Town of Sunol Pipeline projects.
	The cost of SFPUC's Local Water Conveyance/Distribution System is approximately \$650.5 million through FY2033.
SFPUC Local Water – Systems Monitoring and Control	Projects include an upgrade to the Customer Service Center System that will modernize current existing technology to optimize business processes aligning with current and future Customer Service needs and increased operational effectiveness. Continued improvements to facilities for controlling and monitoring San Francisco's water distribution system include enhancements to the Supervisory Control and Data Acquisition (SCADA) system for remote monitoring of pressure, flow, and valve position status at key locations throughout the distribution system.
	The cost of SFPUC's Local Systems Monitoring and Control Program is approximately \$15.5 million through FY2033.
SFPUC Local Water – Local Reservoir and Tanks Improvements	This program provides long-term funding for renewal and rehabilitation of water storage reservoirs and tanks within the San Francisco Distribution System. Projects included improvements to the Sunset South and University Mound reservoirs and replacement of coatings for roofs and tanks at multiple locations to extend the useful service life of the facilities. Major seismic improvements for the College Hill Reservoir and outlet structure are included, as well as geotechnical improvements for Lombard Reservoir.
	The cost of SFPUC Water's Local Tanks/Reservoir Improvements is approximately \$29.8 million through FY2033.
SFPUC Local Water – Pump Station Improvements	The SFPUC's 12 major water pump stations and seven hydropneumatics tanks that boost pressure within the San Francisco distribution system need ongoing renewal and rehabilitation. This program provides long term funding for renewal and rehabilitation of the water pump stations and hydro-pneumatic tanks that boost water pressure within the distribution system including the automation of the five pump suction valves at Lake Merced Pump Station. The program also includes improvements at the Harding Park Recycled Water Pump Station and the Bay Bridge West Pump Station.
	The cost of SFPUC Water's Local Pump Stations is approximately \$7.1 million through FY2033.
SFPUC Water - Groundwater Project	Funding for the Lake Merced Water Level Restoration Project includes improvements to the Vista Grande Drainage Basin to address storm related flooding and diverting recycled water from the new Westside Recycled Water facility into Lake Merced to increase and stabilize lake levels.
	The cost of SFPUC Water's Local Groundwater Project is approximately \$10.0 million through FY2033.

Project Name	Description
SFPUC Water – Recycled Water Project	This program includes all facilities to produce and deliver about two millions gallons per day (mgd) of recycled water for irrigation use in the western end of San Francisco. The project includes a new recycled water treatment facility consisting of membrane filtration, reverse osmosis, and ultraviolet light disinfection; a 1.1 million-gallon storage reservoir; distribution pumping facilities; and five to six miles of new pipelines.
	The cost of SFPUC Water's Recycled Water Project is approximately \$2.4 million through FY2033.
SFPUC Local Water – Automated Meter Reading System	This program provides funding for the ongoing Automated Water Meter Program (AWMP) including meter renewal, replacement, automation, and replacement planning for the entire AWMP System by the end of its 20-year useful life (ending in 2031).
	The cost of SFPUC's Automated Meter Reading System Program is approximately \$40.2 million through FY2033.
SFPUC Water – Local Buildings and Grounds Improvements	This program provides funding for capital improvements at City Distribution Division facilities and structures. Projects include yard improvements to address health and safety issues and security, continuing renewal and replacement of aging assets at existing buildings and grounds including vehicle and pedestrian gates, fencing at reservoirs, and exterior lighting improvements at reservoirs and pump stations.
	Additional funding is included for a new CDD Headquarters at 2000 Marin to address life safety standards for seismic events, building code requirements and facilities that are past useful life. The 2017 Condition Assessment found all buildings aged, water-damaged, and deficient in meeting seismic, ADA, electrical and other building code standards. Existing facilities include administrative offices, warehouse, shops, materials and equipment storage and vehicle fleet.
	The cost of SFPUC Water's Local Buildings and Grounds Improvements is approximately \$346.9 million through FY2033.
SFPUC Local Water – Emergency Firefighting Water System	The Emergency Firefighting Water System (EFWS) delivers high-pressure water necessary to fight large fires. EFWS is jointly developed by the SFPUC and San Francisco Fire Department. SFPUC funds are planned to support the design and construction of earthquake resistant ductile pipeline to improve fire water and potable water supply reliability in the Sunset and Richmond neighborhoods.
	The SFPUC has planned \$43.0 million from Water Revenue Bonds over the next five years to support western EFWS water supply and pipeline projects. The ESER G.O. Bond is the primary source of funding for EFWS. For additional information on EFWS, including the ESER Bond Program and strategic direction about work on the west side, please see the Public Safety chapter of this Plan.
SFPUC Regional Water – Regional Water Treatment Program	This program provides funding for improvements to the major water treatment facilities located at Tesla Portal Ultra-Violet Light Disinfection Facility, Thomas Shaft Chlorination Facility, Sunol Valley Chloramination Facility, Sunol Valley Water Treatment Plant (SVWTP), Pulgas Dechloramination facility, Harry Tracy Water Treatment Plant (HTWTP), and other locations. Major projects include SVWTP Ozone project to install ozone treatment facilities as a long-term solution to control taste and odor events encountered in the raw water supply from both the San Antonio and Calaveras Reservoir sources. Other projects include a new polymer feed facility at the SVWTP, and other short-term and long-term improvements at SVWTP to improve regional delivery reliability by addressing various conditions and deficiencies of the SVWTP.
	The cost of SFPUC Water's Regional Water Treatment Program is approximately \$323.8 million through FY2033.





Project Name	Description
SFPUC Regional Water – Regional Water Transmission Program	This program provides upgrades to the Transmission System including pipeline inspection and repairs, pipeline and valve replacements, metering upgrades, corrosion protection, and pump station and vault upgrades. As part of the pipeline improvement program, funding is included to monitor, strengthen, and replace older pipeline to achieve higher level performance and reliability. Funding included for the Crystal Springs Pipeline 2 & 3 Rehabilitation will relocate and replace approximately 1.5 miles of 60-inch diameter pipe into Crystal Springs Road, reline sections of the pipe with cement mortar lining, and upgrade appurtenances to meet current standards.
	The cost of SFPUC Water's Regional Water Transmission Program System is approximately \$327.5 million through FY2033.
SFPUC Regional Water – Regional Water Supply and Storage Program	This program includes upgrades to reservoir dams and structures to meet State Division of Safety of Dams requirements including geotechnical work, installation of monitoring systems, and major improvements to dam spillways and structures as needed.
	The program also includes funding for projects that increase regional water supply diversification and explore alternative methods for expanding water sources including purified water, recycled water and desalination projects. The Daly City Recycled Water Expansion Project will provide recycled water to customers of the Regional Water System and help offset groundwater pumping in the Westside Basin. The Los Vaqueros Reservoir Expansion Project will enlarge the existing reservoir located in northeastern Contra Costa County in order to increase water supply reliability for municipal, industrial, and agricultural customers as well as provide ecosystem benefits to south-of-Delta wildlife refuges and Delta fisheries.
	The cost of SFPUC Water's Regional Water Supply and Storage Program is approximately \$162.9 million through FY2033.
SFPUC Regional Water – Regional Watersheds and Land Management	This program supports projects that improve and/or protect the water quality and/or ecological resources impacted by the siting and operation of SFPUC facilities. Projects include the repair, replacement, maintenance, or construction of roads, fences, or trails, the acquisition of easements and/or fee title of properties, and other ecosystem restoration or public access, recreation, and education projects.
	The cost of SFPUC Water's Regional Watersheds and Land Management is approximately \$17.9 million through FY2033.
SFPUC Regional Water – Regional Communications and Monitoring Program	This project will provide much needed redundant emergency communications capability and increased bandwidth for secure data transfer. Specifically, it will build a microwave backbone to link the entire SFPUC regional water system from the O'Shaughnessy Dam site in Yosemite to the rest of the SFPUC sites (San Francisco, San Mateo, Santa Clara, and Alameda counties).
	The cost of SFPUC Water's Regional Communications and Monitoring Program is approximately \$22.2 million through FY2033.
SFPUC Regional Water – Regional Buildings and Grounds Programs	This program provides funding for major improvements to the Sunol and Millbrae Yards. Sunol Yard improvements include LEED replacement facilities for maintenance shops and equipment storage, a new fueling center and administration building, re-surfacing of the yard, demolition of six dilapidated structures, and on-going renewal and replacement of worn or aging equipment. Millbrae Yard improvements include a new laboratory and office building to update the lab facilities and consolidate staff from the Rollins Road facility, maintenance shop, and equipment storage, demolition of a large unused abandoned building, a new parking lot, and a new vehicle wash site. The upgrades address occupational safety, reliability, and functional regulatory compliance.
	The cost of SFPUC Water's Regional Buildings and Grounds Programs is approximately \$249.5 million through FY2033.
SFPUC Regional Water – Long-Term Monitoring & Permit Program	The purpose of this program is to meet the long-term monitoring and permit requirements associated with capital projects and the operation and maintenance of the SFPUC water supply system and watershed/right-of-way lands within the Bay Area. Projects with long-term monitoring required by environmental permits include Water System Improvement Program (WSIP) related environmental mitigation and permit requirements (i.e., Bioregional Habitat Mitigation Program) and non-WSIP capital projects.

Enhancement Projects

Project Name	Description
PW – Curb Ramp Program	San Francisco is committed to improving curb ramps and providing accessible paths of travel for people with disabilities. Each fiscal year, Public Works and the Mayor's Office on Disability (MOD) develop a prioritized list of locations for each of San Francisco's supervisorial districts. Resident requests have one of the most significant impacts on prioritization of curb ramp locations citywide.
	The estimated cost to continue the current curb ramp program is \$115.6 million over the next 10 years. The Plan recommends \$48.9 million from the General Fund towards this need. An additional \$17.9 million is expected from State and Prop K funding.
PW – Curb Ramp Sub-Sidewalk Basement Program	As Public Works develops an overarching strategy to tackle the most structurally complex curb ramp locations, some planning and design work has begun for curb ramps with sub-sidewalk basements (over 100 confirmed locations citywide, with hundreds more under investigation), which are significantly more challenging and expensive to address than those in the standard curb ramp program.
	The estimated cost for curb ramps with sub-sidewalk basements is \$107 million over the next 10 years, which will be addressed as funds allow from the General Fund Pay-Go Program.
PW – Street Tree Planting and Establishment	The Urban Forest Master Plan, Phase I: Street Trees, adopted unanimously by the Board of Supervisors, recommends growing the street tree population by planting 2,500 trees annually, in addition to trees that need to be replaced. This requires Public Works to plant approximately 6,000 trees a year.
	The estimated cost for street tree planting and establishment is \$189.7 million over the next 10 years. While \$18.2 million has been identified through Prop K and other local sources, an unfunded need of \$171.5 million remains.
PW – Better Market Street	This project will redesign Market Street as a more pedestrian, bicycle, and transit-oriented street. An ongoing, inter-agency coordination to build a complete street include: repaving of the roadway, sidewalk and crosswalk reconstruction, curb ramps, new street trees and landscape elements, replacement of MUNI overhead wires and upgrades to the traffic signal infrastructure, street lighting upgrades, sewer repair and/or replacement, water main work, and replacement of Emergency Firefighting Water System facilities and infrastructure. The project will extend from Steuart Street in the Financial District through Octavia Boulevard.
	The cost of Phase 1 (on Market Street from Fifth to Eighth Streets, excluding the segment between McAllister and Charles J. Brenham) is \$103.8 million and is fully funded through a combination of local, state, and federal sources. An additional \$9.1 million has been identified for future phases.



Enhancement Projects

Project Name	Description
SFPUC Hetch Hetchy Power Transmission & Distribution Program	These projects are consistent with San Francisco Administrative Code Section 99.3 establishing the SFPUC's role as the exclusive electric service provider for existing and new City facilities, and redevelopment and development projects.
	SFO Substation Improvements – This project provides for the SFPUC to serve SFO's anticipated load increase. The project will plan, design, and construct needed upgrades at the substations to provide reliable and redundant service to the airport.
	Distribution Interface Redevelopment Projects – This project provides for the design and construction of new electric distribution systems and facilities for the SFPUC to provide electric services to various new developments within San Francisco. The project will consider the use and implementation of proven emerging technologies. Beneficial technologies will be identified, researched, and analyzed, prior to making a proposal for any implementation on the project, where ratepayer benefit is demonstrated.
	Customer Programs – The SFPUC provides a variety of energy programs to Hetch Hetchy Power customers that incentive energy efficiency, distributed energy resources, and building and transportation electrification. These programs benefit our customers through providing technical and financial support to install new energy technologies designed to accelerate the transition towards a net zero carbon future, in alignment with the City's climate action goals. This budget funds staff time and consulting resources for developing and implementing programs, as well as the incentives paid out to the customers.
	Alice Griffith/Candlestick Point – This project provides for the second phase of development at Hunters Point Shipyard, Candlestick Point, and the Alice Griffith Housing Complex. The Development Team comprised of the Office of Community Investment and Infrastructure and Developer will pay for the installation of the infrastructure and substructure required for the new 12-kV underground electrical distribution system. The SFPUC as the electric utility provider will install the conductors in the conduits, transformers, switches, and metering equipment required for the electric distribution system.
	Grid Connections – Project to connect customers to SFPUC owned and operated distribution and transmission infrastructure. Hetchy Power has identified a number of customers along the Bay Corridor and current SFPUC grid customers to be connected to our systems including, The Shipyard, 2000 Marin, 1990 Newcomb, UCSF block 34, Wastewater Facilities; in addition to providing for the interconnections and other customers throughout the City.
	The costs of the SFPUCs Transmission & Distribution Program is \$495.7 through FY2033.
SFPUC Hetch Hetchy Power – Streetlights	Hetchy provides power to all of San Francisco's 44,528 streetlights, maintains the 25,509 streetlights owned by the City, and funds the maintenance of the 19,019 streetlights owned by Pacific Gas & Electric Company (PG&E). Street lighting area improvements, the conversion of high voltage series loop circuits into multiple standard voltage service and Lighting Emitting Diode (LED) lighting, holiday and festivity pole use, assessments to determine the severity of pole deterioration, streetlight pole rehabilitation, and replacement of poles are all funded through this program.
	The cost of SFPUC Hetch Hetchy Power's Streetlights Program is approximately \$37.2 million through FY2033.
SFPUC Hetch Hetchy Power – Energy Efficiency	Energy efficiency improvements reduce facility operating costs and electric bills for customers, improve system functionality, and reduce the environmental impact of energy use. This program funds energy efficiency investments in City facilities covering the planning, design, and construction of "direct install" projects, as well as technical assistance and project assistance for departments utilizing their own capital funds. Energy retrofits include lighting, heating and ventilation, retro-commissioning, and energy management systems projects. The SFPUC performs three to five energy efficiency projects each year. The budget funds efficiency projects in municipal facilities for departments such as Police, Real Estate, Recreation and Parks, SFMTA, Yerba Buena Center, and Fine Arts. Planned funding for lighting and mechanical system efficiency upgrades are consistent with state policies that place emphasis on energy efficiency and that support greenhouse gas reduction.
	The cost of SFPUC Hetch Hetchy Power's Energy Efficiency Program is approximately \$10.0 million through FY2033.

Enhancement Projects

Project Name	Description
SFPUC Hetch Hetchy Power – Renewable/Generation Power	In accordance with City policies and directives to increase renewable energy and reduce greenhouse gases, Hetchy Power is continuously developing and implementing new renewable generation resources. Projects focus on small to mid-sized municipal facilities including solar photovoltaic, energy storage, biogas fuel cells, EV charging, microgrid, and other renewable energy projects. The power generated from the Renewable/Generation Power projects will offset on-site power need at each project location.
	The cost of SFPUC Hetch Hetchy Power's Renewable/Generation Power Program is approximately \$10.0 million through FY2033.
SFPUC Hetch Hetchy Alternative Transmission Project	The Public Power Expansion Project funds financial, technical, regulatory, and legal analysis and City staff time toward assessment of acquiring PG&E's electrical assets, preparing to execute the possible transaction, and readying the SFPUC for operation of the acquired system. This work is ongoing. Staff have completed a number of analyses and are working through the Valuation proceeding at the California Public Utilities Commission and the California Environmental Quality Act (CEQA) Environmental Impact Review (EIR) process.
	The costs of the SFPUCs Alternative Transmission Project is \$42.6 million through FY2033.
SFPUC – Treasure Island Wastewater Improvements	On October 1, 1997, concurrent with the operational closure of the Treasure Island Naval Station, the City entered into a Cooperative Agreement with the U.S. Navy in which the City agreed to take responsibility for caretaker services on Treasure Island and Yerba Buena Island. Through this agreement, the SFPUC provides utility operations and maintenance for the electrical, natural gas, wastewater, and stormwater systems on the islands.
	The SFPUC has developed a work plan for creating a public power utility serving both of the islands. The capital projects identified are required to support the future developments' electric load. Current planning shows that the existing electrical overhead poles, lines, and substation are adequate to serve the first phase of development. When the load approaches the design limit of the lines at approximately 10 megawatts, the lines will have to be upgraded and installed underground.
	This project provides continued funding for a new tertiary four-million gallon per day wastewater treatment facility for the Treasure Island/ Yerba Buena Island service area to replace the existing, aged facility. The new treatment facility will include influent screening, a combined primary/secondary treatment process, sludge thickening and truck load-out, disinfection, odor control, and tertiary treatment.
	The cost of SFPUC Wastewater's Treasure Island Improvements Program is approximately \$152.6 million through FY2033.
SFPUC Wastewater – Ocean Beach Protection Process	This project will develop a comprehensive shoreline management and protection plan in partnership with relevant stakeholders and regulatory agencies and establish a long-term solution to the erosion issues along Ocean Beach. This long-term solution is necessary to protect the integrity of critical wastewater assets that were constructed to protect public health and the environment. These assets include the Lake Merced Transport/Storage facility, the Westside Pump Station, and the Oceanside Treatment Plant, which are threatened by sea level rise and erosion at Ocean Beach.
	The cost of SFPUC Wastewater's Ocean Beach Protection Process is approximately \$130.9 million through FY2033.
SFPUC Southwest Ocean Outfall (SWOO) Condition Assessment & Rehab	This project includes the condition assessment of the outfall and needed repairs. The facilities provide all-weather collection and treatment of flows from the westside of the City. The facilities must be monitored and maintained to ensure reliable and safe operation during all weather conditions.
	The cost of the SFPUC SWOO Condition Assessment & Rehab is approximately \$0.47 million through FY2033.
SFPUC Wastewater Southeast Outfall Condition Assessment & Rehab	The Southeast Outfall pipeline conveys treated effluent from the Southeast Plant to the San Francisco Bay. The condition assessment will determine if the pipeline from the onshore force main to offshore outfall can provide reliable service until the offshore outfall is replaced. Funding for rehabilitation is included in the project if determined necessary by the assessment.
	The cost of the SFPUC Wastewater Southeast Outfall Condition Assessment is approximately \$25.6 million through FY2033. Work includes rehabilitation of the Islais Creek Crossing.



Enhancement Projects

Project Name	Description
SFPUC Wastewater – Customer Service System	Upgrades to the Customer Service Center Systems will modernize existing technology to optimize business processes aligning with current and future customer service needs and increased operational effectiveness.
	The cost of the SFPUC Customer Service System Project is approximately \$5.7 million through FY2033.
SFPUC Wastewater – Sewer System Improvement Program (SSIP) Program-Wide Efforts	The SSIP is a series of capital improvement projects focused on improving the wastewater system to meet the present and future needs of the city. The Program-Wide Management Project will support the SSIP implementation, providing condition assessments (facility inspections), project definition and prioritization, public outreach and education, analysis of the impacts of climate change, sustainability evaluation, and general program management (program controls, change control, constructability).
	The cost of SFPUC Wastewater's Sewer System Improvement Program-Wide Efforts is approximately \$162.5 million through FY2033.
SFPUC Wastewater – SSIP Treatment Facilities	SSIP treatment facilities projects include the Bayside Biosolids (Digester) Project in southeast San Francisco; improvements to the combined sewer transport storage and near shore combined sewer discharge structures; and improvements to the liquid treatment at the Southeast Water Pollution Control Plant, the North Point Wet Weather Facility, the North Shore Pump Station and associated outfalls; and improvements to the Oceanside Water Pollution Control Plant, Westside Pump Station, and Westside Force Main.
	The cost of SFPUC Wastewater's SSIP Treatment Facilities is approximately \$1.7 billion through FY2033 for all capital projects (SSIP and non-SSIP).
SFPUC Wastewater – SSIP Sewer/ Collection System	This program includes an alternative for redundancy for the existing 66-inch Channel Force Main, hydraulic improvements to sewers and pump stations, and improvements to grey and green stormwater management infrastructure. This program also replaces existing sewers to increase hydraulic capacity, transportation/storage and combined sewer discharge structures, pump stations, and force mains.
	The cost of SFPUC Wastewater's SSIP Sewer/Collection System Program is approximately \$279.6 billion through FY2033.
SFPUC Wastewater - SSIP Storm Management/Flood Control	This program includes work on drainage basins, green infrastructure, flood resilience, and the Green Infrastructure Stormwater Management Grant Program. For drainage basins, the SFPUC will build, monitor, and evaluate the effectiveness of eight green infrastructure projects to minimize stormwater impacts throughout San Francisco's eight urban watersheds. Flood resilience projects will address combined sewer flooding caused by heavy rain through capital improvements, financial incentives, Building Code amendments, options for affordable flood insurance, and enhanced coordinated storm response. Green infrastructure construction of permeable surfaces and engineers' subsurface systems will sustainably augment the collection system for the management of stormwater flows. Finally, the Greer Infrastructure Stormwater Management Grant Program will incentivize property owners to construct and maintain green infrastructure or large parcels. These projects will support the levels of service goals to minimize flooding, provide benefits to impacted communities, and achieve economic and environmental sustainability. Ancillary benefits may include reduced energy use (reduced pumping and treatment) potable water conservation, groundwater recharge, and improved community aesthetics.
	The cost of SFPUC Wastewater's SSIP Storm Management/Flood Control projects is approximately \$729.7 million through FY2033
SFPUC CleanPowerSF – Local Renewable Energy Program	This program will fund the development of new renewable energy (solar photovoltaic) and battery storage projects on select SFPUC sites The project is structured around six major phases, including: Planning, Request for Proposals, Construction and Commissioning, Power Purchase Agreement, Asset Management, and Project Buyout. The initial renewable energy facilities developed under this program would be structured as power purchase agreements (PPA) with third parties that would develop and operate the projects for an initial period of time. The PPAs would include a buy-out option for the City.
	The cost of the SFPUC CleanPowerSF – Local Renewable Energy Program is approximately \$48.8 million through FY2033.

Enhancement Projects

Project Name	Description
SFPUC CleanPowerSF Customer Programs	This program funds the development and implementation of programs that incentivize CleanPowerSF customers to invest in new clean energy technologies that can reduce their energy costs and further San Francisco's decarbonization goals. Incentives will be available for residents and businesses investing in new clean and efficient equipment like solar power generating equipment, battery storage, electrical vehicle chargers and electric heat pump water heating.
	The cost of the SFPUC CleanPowerSF Customer Programs is approximately \$12.1 million through FY2033.
SFPUC Disadvantaged Community and Green Tariff Solar Programs	The CPUC created the DAC Green Tariff and Community Solar Green Tariff programs to increase renewable energy produced and consumed within Disadvantaged Communities. By offering these programs, CleanPowerSF will be able to provide participating customers 100% renewable energy at a 20% discount. These programs will be funded by revenues from PG&E's sale of carbon dioxide allowances under the State's Cap and Trade program and the Public Purpose Program Charge, which is collected from all PG&E retail customers including those that receive generation service from CleanPowerSF.
	The cost of the SFPUC CleanPowerSF Disadvantaged Community and Green Tariff Solar Programs is approximately \$12.2 million through FY2033.

Deferred Projects

Project Name	Description
PW – Streetscape Improvement Program	The Streetscape Program enhances neighborhood streets, alleys, and plazas across the City through best practices for multi-modal safety, economic, and beautification improvements. Typical improvements include Vision Zero bulbout improvements, transit improvements, street tree planting, site furnishings, lighting upgrades, as well as pedestrian and bicycle safety features such as pedestrian islands, bike lanes, crosswalk enhancements, and other traffic calming measures.
	The estimated cost for the Streetscape Improvement Program is \$600.5 million over the next 10 years.
PW – Utility Undergrounding	Overhead utility wires and related infrastructures are potential public safety hazards and a visual blemish on San Francisco's vistas. This project would involve relocating overhead utility wires underground. Undergrounding utilities reduce the frequency of needed maintenance but require a substantial up-front investment.
	Generally, undergrounding costs roughly \$8 million per mile. The estimated cost to underground utilities across the City over the next 10 years is over \$1.1 billion.



Emerging Projects

Project Name	Description					
PW – Bayview Transportation Improvements	This project will rehabilitate and reconfigure the right-of-way in the in the Bayview and Hunters Point Shipyard development areas to increase roadway capacities and increase safety and accessibility. It will reduce truck traffic on Third Street and residential streets and develop a more direct truck route between US 101 and existing and planned development in the Bayview and Hunters Point Shipyard.					
PW – Harvey Milk Plaza	This project would regrade, repave, and re-landscape the current Harvey Milk Plaza in coordination with the SFMTA Castro Station e project. Private fundraising and grants are expected to provide the majority of funding for this project.					
SFPUC - Strategic Distribution Investment	A key priority in Power's Business Plan is build out of SFPUC-owned distribution systems in order to reduce costs and ensure customer stability. SFPUC's first such effort was the Bay Corridor Transmission and Distribution (BCTD) project which will be complete in 2022. However, significantly more investment is needed to meet anticipated demand over the next 10 – 15 years. In fact, Hetchy Power load growth is anticipated to more than double over this period. City departments are projecting substantial growth (over 200 MW) from fleet electrification (SFMTA and Port), redevelopment projects (OCII and Port), and EV charging which will serve municipal, housing, and commercial loads. SFPUC has initiated a process to plan for strategic investments to meet this demand. Over the next year, Power will complete the analysis to refine and vet these investment opportunities.					

TABLE 10.1 - INFRASTRUCTURE AND STREETS FINANCIAL SUMMARY

PROGRAMS/PROJECTS (Dollars in Thousands)	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029 - 2033	Plan Total	
SPENDING PLAN								DEFERRED
Streets & ROW								
State of good repair renewal - Streets & ROW	110,912	115,009	121,866	129,932	137,265	831,819	1,446,803	945,967
Public Right-of-Way Transition Plan improvements	9,448	10,058	10,142	10,321	10,829	62,884	113,681	83,923
Enhancements - Streets & ROW	117,112	2,215	1,590	1,643	1,603	9,574	133,737	2,788,027
SUBTOTAL	237,473	127,281	133,598	141,895	149,697	904,277	1,694,221	3,817,917
SFPUC								
Water Enterprise	289,993	437,316	443,664	337,366	245,430	510,136	2,263,906	
Wastewater Enterprise	985,504	894,516	818,418	521,103	353,593	1,306,244	4,879,379	
Hetch Hetchy Water and Power Enterprise	107,413	233,282	245,227	230,716	176,079	579,703	1,572,420	
CleanPowerSF	1,607	2,932	3,030	2,971	3,057	59,438	73,035	
SUBTOTAL	1,384,517	1,568,046	1,510,339	1,092,156	778,159	2,455,521	8,788,739	
TOTAL	1,621,990	1,695,328	1,643,937	1,234,051	927,857	3,359,799	10,482,960	3,817,917

PROGRAMS/PROJECTS (Dollars in Thousands)	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029 - 2033	Plan Total
REVENUES							
General Fund	11,840	44,654	47,969	54,918	60,053	415,026	634,461
General Fund - Enhancement	2,120	-	-	-	-	-	2,120
General Fund - Other	22,756	23,211	23,676	24,149	24,632	130,750	249,174
Certificates of Participation	30,000	-	-	-	-	-	30,000
Federal	4,000	-	-	-	-	-	4,000
Impact Fees	-	300	100	100	-	-	500
Prop K Funding	17,417	4,321	3,182	2,668	2,773	16,560	46,921
State	45,976	47,434	48,952	50,535	52,185	288,228	533,310
Other Local Sources	103,362	7,362	9,718	9,525	10,054	53,713	193,734
SFPUC Revenues	1,384,517	1,568,046	1,510,339	1,092,156	778,159	2,455,521	8,788,739
TOTAL	1,621,990	1,695,328	1,643,937	1,234,051	927,857	3,359,799	10,482,960
Total San Francisco Jobs/Year	6,817	7,125	6,909	5,187	3,900	14,121	44,060



