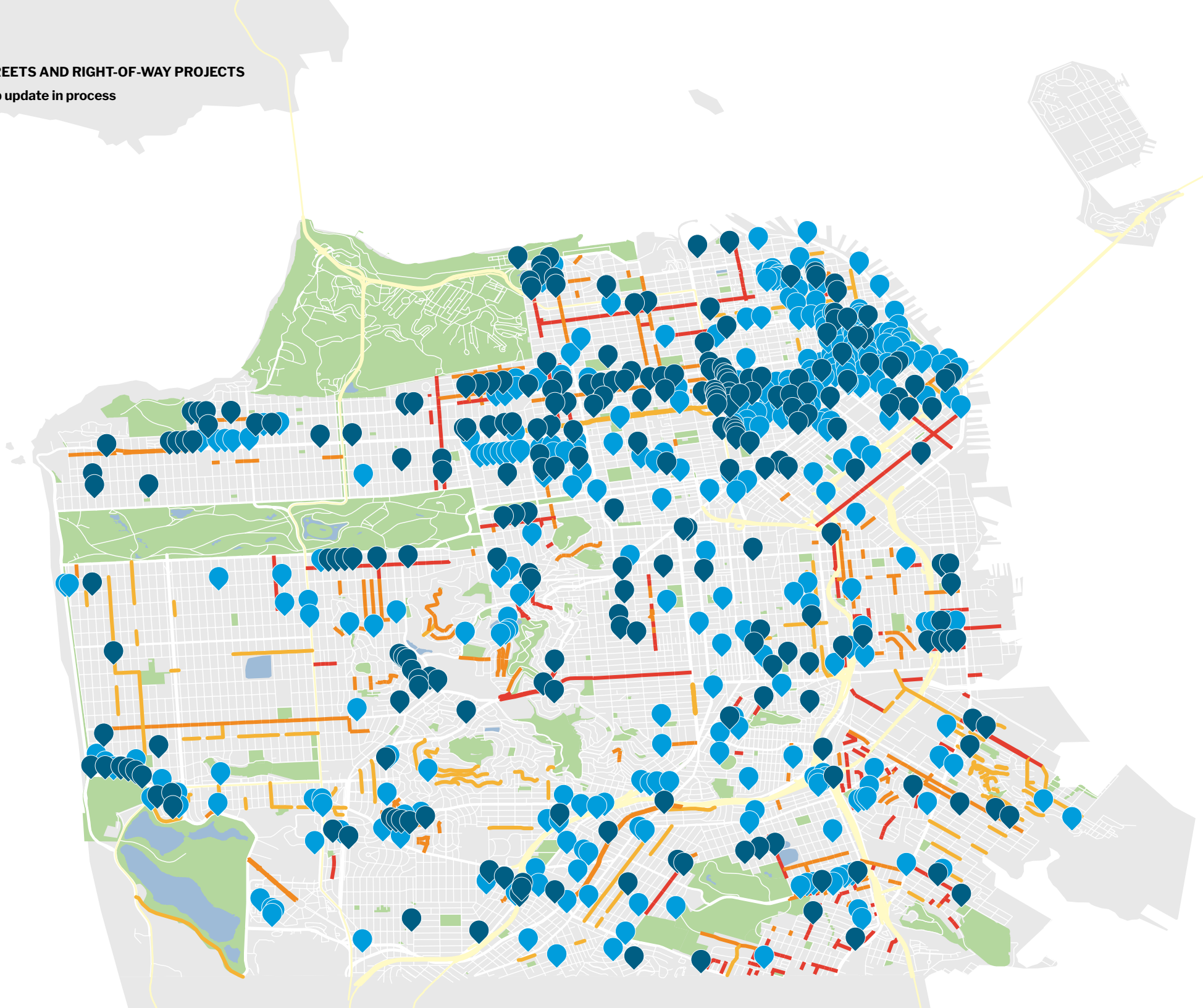


10. Infrastructure + Streets

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STREETS AND RIGHT-OF-WAY PROJECTS

Map update in process



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 turn of a faucet. The infrastructure systems that the City invests in provide basic services and 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 low-income people, communities of color, and people with disabilities.



Caption Text



Caption Text

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. The projects for this service area are estimated to create over 47,000 jobs over the next 10 years.

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. These funds as well as the use of General Fund Debt are necessary 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 now at 75, which is considered "good" condition.

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, and three water treatment plants located outside of the city (the “Regional Water System”), and over 1,235 miles of pipeline, 11 reservoirs, eight storage tanks, 22 pump stations, eight hydropneumatic stations, and 17 chlorination stations 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 needs, with

the remaining 15% produced by the Alameda and Peninsula watersheds. 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 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.

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 protest the new WDT at the Federal Energy Regulatory Commission (FERC). Without FERC intervention, this costly new requirement will be officially imposed after April 15, 2021.

Renewal Program

The Plan proposes \$1.1 billion in funding for Public Works renewal needs over the next 10 years, with \$552 million coming from the General Fund, as shown in Chart 10.1. SFPUC renewal projects are not represented in this curve.

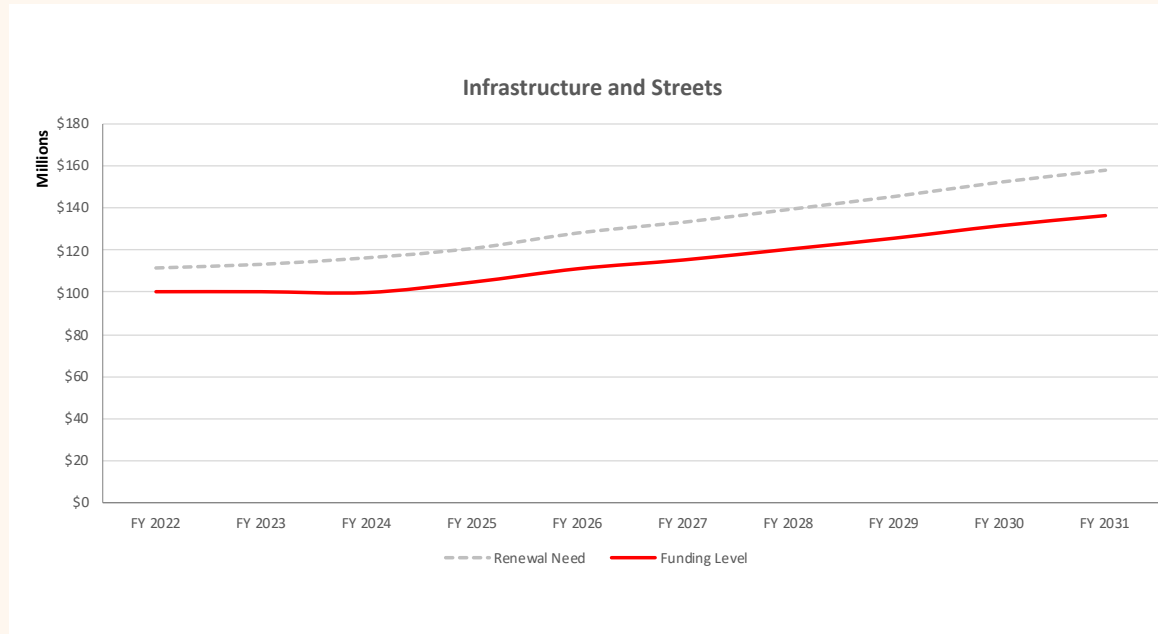


CHART 10.1

The General Fund streets and right-of-way renewal program includes street resurfacing, curb ramp inspection and repair, median maintenance, plaza inspection and repair, sidewalk inspection and repair, street structure repair, and street tree planting,

establishment, and maintenance. The street resurfacing program is by far the largest of these, with a planned investment of \$785 million 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	<p>This project complements the Curb Ramp Program (see Enhancement section below) with funding to inspect and repair detectable tiles on existing ramps.</p> <p>The estimated cost for curb ramp inspection and replacement is \$12 million over the next 10 years. The Plan recommends \$3.5 million from the General Fund towards this need, acknowledging that extraordinary circumstances due to COVID-19 may make this challenging.</p>
PW – Landscape Median Maintenance and Irrigation Repair	<p>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.</p> <p>The estimated cost for median maintenance is \$161.2 million over the next 10 years. The Plan recommends \$36.4 million from the General Fund towards this need, in addition to \$36.0 million expected from the State, acknowledging that extraordinary circumstances due to COVID-19 may make this challenging. PW has also identified an additional \$38.2 million in median enhancement needs.</p>
PW – Plaza Inspection and Repair Program	<p>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.</p> <p>The estimated cost for plaza inspection and repair is \$5.2 million over the next 10 years. The Plan recommends \$1.5 million from the General Fund towards this need, acknowledging that extraordinary circumstances due to COVID-19 may make this challenging. PW has also identified an additional \$12.6 million in Plaza enhancement needs.</p>
PW – Sidewalk Improvements and Repair Program	<p>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.</p> <p>The estimated cost for sidewalk improvements and repair is \$53.1 million over the next 10 years. The Plan recommends \$14.5 million from the General Fund towards this need, acknowledging that extraordinary circumstances due to COVID-19 may make this challenging. An additional \$24.2 million is expected from other local sources.</p>

Renewal Program

Project Name	Description
PW – Street Resurfacing and Reconstruction	<p>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, however the PCI is projected to drop to 74 during this 10-year cycle given the funding constraints posed by the COVID-19 emergency.</p> <p>The estimated cost to achieve and maintain a PCI of 75 is \$1 billion over the next 10 years. Funding towards this need includes \$31.5 million from the 2020 Health and Recovery G.O. Bond, \$60 million from FY2023 and FY2024 Certificates of Participation, \$256 million from the General Fund, and \$437 million from a combination of federal, state, and other local sources.</p>
PW – Street Structure Repair	<p>The Capital Plan provides a strategy for the maintenance and renewal of 371 street structures including retaining walls, stairs, bridges, 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, proper operations of moveable bridges, and minimize long-term renewal costs. For this Plan, two major projects in this category include the Islais Creek and 4th Street bridges. 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. Proposed work on the 4th Street Bridge may include alterations and repairs to the south approach, modifications to structural steel bridge members, realignment of light rail tracks, and adjustment of counterweights.</p> <p>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 the 4th Street Bridge project is \$24.6 million, with \$2.8 million being funded by the General Fund, and \$21.8 million from a Federal grant.</p> <p>The estimated cost for other street structure maintenance is \$33.2 million over the next 10 years. Given anticipated funding constraints, the Plan allocates \$8.2 million from the General Fund towards this need, acknowledging that extraordinary circumstances due to COVID-19 may make this challenging. PW has also identified an additional \$37.7 million in Street Structure enhancement needs.</p>
PW – Street Tree Maintenance and Sidewalk Repair	<p>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.</p> <p>The estimated cost for street tree maintenance and related sidewalk repair is \$267.8 million over the next 10 years, of which \$231.4 is funded by the General Fund through Proposition E.</p>

Renewal Program

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 Hetch Hetchy – Water Infrastructure	<p>The Water Infrastructure Renewal and Replacement program will include concept, development, design, and upgrades for operating, managing, and maintaining the Hetchy Water Infrastructure. In general, this includes water facilities from Hetch Hetchy Reservoir to Alameda East. The new and upgraded systems will have increased coverage, capacity or reliability, or improve employee safety and/or operating efficiency. The Hetchy water renewal program includes continued rehabilitation to the San Joaquin Pipeline (SJPL) including evaluation and assessment of structural integrity, structural upgrade of the pipeline and other projects including pipeline cathodic protection, coating and lining. New projects in the plan include the SJPL Valve and Safety Improvement Project to extend the useful life and safety of Hetchy Water assets.</p> <p>Mountain Tunnel Improvement Project includes funding the tunnel portion of the project for improvements to enhance SFPUC's ability to provide reliable, high-quality water to its customers. This portion of the project was reclassified from Joint to a Water only asset for this Capital Plan.</p> <p>The cost of SFPUC's Hetch Hetchy – Water Infrastructure renewal and replacement projects is approximately \$270.9 million through FY2031.</p>
SFPUC Hetch Hetchy – Power Infrastructure	<p>Many Hetchy Power systems, facilities, and equipment have reached the end of their useful life. Power generation will become less reliable if upgrades are not performed.</p> <p>This program includes improvements at the Hetchy Powerhouses, rehabilitation of transmission lines and distribution systems, regulatory projects, and Power Infrastructure Project Development. Projects include upgrades to the Moccasin and Kirkwood powerhouses including protection, control and monitoring systems and equipment replacement and upgrades; transmission improvements projects including replacement of insulators, switches, tower infrastructure, grounding and protection; and regulatory projects that achieve clearance mitigation, resolve clearance discrepancies, and meet regulatory requirements. These renewals increase operational efficiency and decrease unplanned outages.</p> <p>The cost of SFPUC's Hetch Hetchy – Power Infrastructure renewal and replacement projects is approximately \$168.6 million through FY2031.</p>
SFPUC Hetch Hetchy – Water and Power Joint Infrastructure	<p>There are assorted SFPUC projects that will support multiple enterprises. Communications projects provide upgrades of the communication systems elements to maintain pace with the changes in technology, and to maintain overall system reliability. Upgrades to dams and reservoirs will meet the Water Levels of Service and Power Operational Objectives; funding is included for O'Shaughnessy Dam to address deficiencies of the existing outlet works system, including the drum gates and release system through to Canyon Tunnel, the Tuolumne River, and Moccasin Dam. The Mountain Tunnel project will address deterioration in the concrete lining of the tunnel for continued reliability. Roads and bridges will make replacements and improvements as recommended in condition assessment reports and road improvements program to keep up access to Hetch Hetchy Water and Power facilities. Utilities projects will maintain the power distribution system in a state of good repair consistent with utility best practices to ensure 24/7 power.</p> <p>The cost of SFPUC's Hetch Hetchy Water and Power – Joint Infrastructure renewal and replacement projects is approximately \$639.7 million through FY2031. These assets are jointly funded by Water (45%) and Power (55%) sources.</p>

Renewal Program

Project Name	Description
SFPUC Wastewater – Collection System/Condition Assessment Project	<p>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 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.</p> <p>The cost of SFPUC’s Collection System/Condition Assessment Project is approximately \$115.1 million through FY2031.</p>
SFPUC Wastewater – Collection System/Sewer Improvement	<p>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.</p> <p>The cost of SFPUC’s Collection System/Sewer Improvement is approximately \$1.07 billion through FY2031.</p>
SFPUC Wastewater – Collection System/Large Diameter Sewers	<p>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.</p> <p>The cost of the SFPUC’s– Collection System/Large Diameter Sewer Program is approximately \$379.8 million through FY 2031.</p>
SFPUC Wastewater – Treatment Plants	<p>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.</p> <p>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.</p> <p>The cost of SFPUC’s Treatment Plants is approximately \$334.1 million through FY2031.</p>
SFPUC Water – Local Buildings and Grounds Improvements	<p>Capital improvements at City Distribution Division (CDD) facilities and structures are needed. Projects include a new fueling station, yard improvements to address health and safety issues and security, a comprehensive arc flash and electrical hazard study and construction of a seismically reliable building for CDD’s communications and control systems.</p> <p>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.</p> <p>The cost of SFPUC Water’s Local Buildings and Grounds Improvements is approximately \$346.9 million through FY2031.</p>
SFPUC Water – Local Water Conveyance/Distribution System	<p>This program installs, replaces, and renews distribution system pipelines and service connections for the 1,230 miles of drinking water mains in San Francisco in order to meet customer level of service goals for uninterrupted service. Increased investment is needed to improve the annual replacement rate to 15 miles per year in order to minimize main breaks. Improvements include replacement, rehabilitation, re-lining, and cathodic protection of all pipe categories to extend or renew pipeline useful life. Additional projects include the Renew Services Program, Water Loss Reduction Program, the Sunset Pipeline/Potable AWSS, Automated Water Meter Program, New Services Connection Program, and Town of Sunol Pipeline projects.</p> <p>The cost of SFPUC’s Local Water Conveyance/Distribution System is approximately \$610.2 million through FY2031.</p>

Renewal Program

Project Name	Description
SFPUC Water – Local Pump Stations	<p>The SFPUC's 12 major water pump stations and seven hydro-pneumatic tanks need ongoing renewal and rehabilitation. This program provides long term funding for renewal and rehabilitation of the water pump stations and hydro-pneumatic tanks including the automation of the five pump suction valves at Lake Merced Pump Station</p> <p>The cost of SFPUC Water's Local Pump Stations is approximately \$2.7 million through FY2031.</p>
SFPUC Water – Local Recycled Water Projects	<p>This program includes the San Francisco Westside Enhanced Recycled Water Project, funding new facilities to generate and deliver 2 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.</p> <p>The cost of SFPUC Water's Local Recycled Water Projects is approximately \$4.7 million through FY2031</p>
SFPUC Water – Local Tanks/Reservoir Improvements	<p>This program includes the renewal and rehabilitation of water storage reservoirs and tanks within the San Francisco Distribution System. Projects include improvements to the Sunset South and University Mound reservoirs and roof repairs at multiple locations to extend the useful service life of the reservoir.</p> <p>The cost of SFPUC Water's Local Tanks/Reservoir Improvements is approximately \$19.1 million through FY2031.</p>
SFPUC Water – Local Water Supply Projects	<p>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.</p> <p>The cost of SFPUC Water's Local Water Supply Projects is approximately \$7.7 million through FY2031.</p>
SFPUC Water – Automated Meter Reading System	<p>This program addresses Automated Water Meter Program (AWMP) renewals needed through the 20-year system life (ending in 2031), and a replacement plan for the AWMP System by 2031.</p> <p>The cost SFPUC's Automated Meter Reading System Program is approximately \$27.6 million through 2031.</p>
SFPUC Water – Regional Buildings and Grounds Programs	<p>This program includes 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, and demolition of six dilapidated structures. The project includes funding for the Alameda Creek Watershed Center that includes exhibits, classrooms, event space, outdoor picnic and play areas, trails, and gardens representing the watershed. Millbrae Yard improvements include a new maintenance shop, and equipment storage, demolition of a large unused abandoned building, a new parking lot, a new vehicle wash site, new laboratory, and office building to accommodate staff from the Rollins Road facility. The upgrades address occupational safety, reliability, and functional regulatory compliance.</p> <p>The cost of SFPUC Water's Regional Buildings and Grounds Programs is approximately \$161.6 million through FY2031.</p>
SFPUC Water – Regional Communications and Monitoring Program	<p>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).</p> <p>The cost of SFPUC Water's Regional Communications and Monitoring Program is approximately \$7.7 million through FY2031.</p>

Renewal Program

Project Name	Description
SFPUC Water – Regional Water Supply and Storage Program	<p>This program includes upgrades to structures to meet State Division of Safety of Dams requirements including geotechnical work, installation of monitoring systems, and a regional desalination project. The automated data acquisition system will provide timely, accurate data related to inspections at various dams. 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.</p> <p>The program also includes the Daly City Recycled Water Expansion Project to provide 3.4 MGD of recycled water to customers of the Regional Water System and help offset groundwater pumping in the Westside Basin.</p> <p>The cost of SFPUC Water’s Regional Water Supply and Storage Program is approximately \$341.3 million through FY2031.</p>
SFPUC Water – Regional Water Transmission Program	<p>This program will provide upgrades to the Transmission System including pipeline inspection and repairs, valve replacements, metering upgrades, corrosion protection, 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</p> <p>The cost of SFPUC Water’s Regional Water Transmission Program System is approximately \$147.2 million through FY2031.</p>
SFPUC Water – Regional Water Treatment Program	<p>This program includes major upgrades to the Sunol Valley and Harry Tracy Water Treatment Plants. Projects are identified through condition assessments, operations staff review, level of service and feasibility studies, and alternative analysis at each plant. Projects include upgrades of chemical dosage, flow monitoring, valve and pump replacement, and chemical handling upgrades. New projects include improvements to the polymer feed facility and Chloramination facility at the Sunol Valley Plant</p> <p>The cost of SFPUC Water’s Regional Water Treatment Program is approximately \$272.5 million through FY2031.</p>
SFPUC Water – Regional Watersheds and Land Management	<p>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.</p> <p>The cost of SFPUC Water’s Regional Watersheds and Land Management is approximately \$36.5 million through FY2031.</p>
SFPUC – Water Regional - Long Term Monitoring & Permit Program	<p>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.</p> <p>The cost of the SFPUC Water Regional Long-Term Monitoring & Permit Program is approximately \$22.5 million through FY 2031.</p>
SFPUC Water – Emergency Firefighting Water System	<p>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.</p> <p>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.</p>

Enhancement Projects

Project Name	Description
PW – Curb Ramp Program	<p>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.</p> <p>The estimated cost to continue the current curb ramp program is \$104.9 million over the next 10 years. The Plan recommends \$42 million from the General Fund towards this need, acknowledging that extraordinary circumstances due to COVID-19 may make this challenging. An additional \$5 million is expected from the 2020 Health and Recovery G.O. Bond, and \$15.8 million from State and Prop K funding.</p>
PW – Curb Ramp Sub-Sidewalk Basement Program	<p>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.</p> <p>The estimated cost for curb ramps with sub-sidewalk basements is \$97.1 million over the next 10 years, which will be addressed as funds allow from the General Fund Pay-Go Program.</p>
PW – Street Tree Planting and Establishment	<p>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.</p> <p>The estimated cost for street tree planting and establishment is \$366.7 million over the next 10 years. While \$16.7 million has been identified through Prop K and other local sources, an unfunded need of \$350 million remains.</p>
PW – Better Market Street	<p>This project will redesign Market Street as a more pedestrian, bicycle, and transit-oriented street. A comprehensive renovation is undergoing environmental review and requires inter-agency coordination for work that could 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.</p> <p>The project has an expected total cost of \$604 million of which \$197 million has been funded through a combination of local, state, and federal sources.</p>
SFPUC Hetch Hetchy Power – Transmission/Distribution - Distribution Services Retail Services Projects	<p>This program supports the design and construction of transmission and distribution facilities to serve new retail customers; the installation of the infrastructure and substructure required for the new 12-kV underground electrical distribution system at Hunters Point Shipyard, Candlestick Point, and the Alice Griffith Housing Complex; and improvements to the substation at San Francisco International Airport. This project is 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 for redevelopment and development projects.</p> <p>The cost of SFPUC’s Transmission/Distribution projects is approximately \$470.5 million through FY2031.</p>

Enhancement Projects

Project Name	Description
SFPUC Hetch Hetchy Power – Streetlights	<p>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.</p> <p>The cost of SFPUC Hetch Hetchy Power’s Streetlights Program is approximately \$34.3 million through FY2031.</p>
SFPUC Hetch Hetchy Power – Energy Efficiency	<p>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 eight to ten 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.</p> <p>The cost of SFPUC Hetch Hetchy Power’s Energy Efficiency Program is approximately \$10.0 million through FY2031.</p>
SFPUC Hetch Hetchy Power – Renewable/Generation Power	<p>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. A series is planned to include small municipal and energy development projects including solar photovoltaic, solar thermal, biogas fuel cells, wind projects, and other renewable energy projects. The power generated from the Renewable/Generation Power projects will offset on-site power need at each project location.</p> <p>The cost of SFPUC Hetch Hetchy Power’s Renewable/Generation Power Program is approximately \$10.0 million through FY2031.</p>
SFPUC – Treasure Island Power and Wastewater Improvements	<p>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.</p> <p>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.</p> <p>This project provides continued funding for a new tertiary three-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, anaerobic sludge digestion, sludge dewatering and truck load-out, disinfection, odor control, and tertiary treatment.</p> <p>The cost of SFPUC Hetch Hetchy Power’s Treasure Island Improvements Program is approximately \$17.5 million through FY2031. The cost of SFPUC Wastewater’s Treasure Island Improvements Program is approximately \$147.8 million through FY2031.</p>
SFPUC Wastewater – Ocean Beach Protection Process	<p>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.</p> <p>The cost of SFPUC Wastewater’s Ocean Beach Protection Process is approximately \$146.0 million through FY2031.</p>

Enhancement Projects

Project Name	Description
SFPUC Southwest Ocean Outfall (SWOO) Condition Assessment & Rehab	<p>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.</p> <p>The cost of the SFPUC SWOO Condition Assessment & Rehab is \$30.6 million through FY2031.</p>
SFPUC Wastewater Southeast Outfall Condition Assessment & Rehab	<p>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.</p> <p>The cost of the SFPUC Wastewater Southeast Outfall Condition Assessment is approximately \$31.6 million through FY2031.</p>
SFPUC Wastewater – Islais Creek Crossing	<p>This project includes improvements to the Islais Creek crossing of the effluent pipelines and modifications to the Booster Pump Station at Islais Creek. The project primarily addresses the compromised section of the effluent discharge outfall into the San Francisco Bay.</p> <p>The cost of SFPUC Wastewater’s Islais Creek Crossing Project is approximately \$16.7 million through FY2031.</p>
SFPUC Wastewater – Sewer System Improvement Program (SSIP) Program-Wide Efforts	<p>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).</p> <p>The cost of SFPUC Wastewater’s Sewer System Improvement Program-Wide Efforts is approximately \$99.1 million through FY2031.</p>
SFPUC Wastewater – SSIP Treatment Facilities	<p>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.</p> <p>The cost of SFPUC Wastewater’s SSIP Treatment Facilities is approximately \$1.6 billion through FY2031.</p>
SFPUC Wastewater – SSIP Sewer/Collection System	<p>This program includes the proposed Central Bayside System Improvement Project to provide system enhancements to the Channel Drainage Basin, as well as needed 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.</p> <p>The cost of SFPUC Wastewater’s SSIP Sewer/Collection System Program is approximately \$825.4 million through FY2031.</p>
SFPUC Wastewater - SSIP Storm Management/Flood Control	<p>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 Green Infrastructure Stormwater Management Grant Program will incentivize property owners to construct and maintain green infrastructure on 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.</p> <p>The cost of SFPUC Wastewater’s SSIP Storm Management/Flood Control projects is approximately \$635.2 million through FY2031.</p>

Enhancement Projects

Project Name	Description
<p>SFPUC CleanPowerSF – Local Renewable Energy Program</p>	<p>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.</p> <p>The cost of the SFPUC CleanPowerSF – Local Renewable Energy Program is approximately \$62.7 million through FY2031.</p>
<p>SFPUC CleanPowerSF Customer Programs</p>	<p>This program funds the development and implementation of programs that incentivize 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.</p> <p>The cost of the SFPUC CleanPowerSF Customer Programs is approximately \$13.1 million through FY2031.</p>



Caption Text



Caption Text



Caption Text





Deferred Projects

Project Name	Description
PW – Streetscape Improvement Program	<p>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.</p> <p>The 10-year estimated cost for the Streetscape Improvement Program is \$537.1 million.</p>
PW – Utility Undergrounding	<p>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.</p> <p>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 billion.</p>

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 elevator project. Private fundraising and grants are expected to provide the majority of funding for this project.
SFPUC - San Francisco Electric Distribution Grid Acquisition Project	The City has determined that acquisition of the electric distribution grid in San Francisco is the best way to ensure that the City can continue to provide clean energy at reasonable prices while promoting the City's goals. Achieving complete independence from PG&E is the best way to ensure that the City can deploy innovative technologies that improve resiliency, promote decarbonization of the building stock and transportation sector, and ensure that the City can continue to provide clean power.
SFPUC - Electric Vehicle Infrastructure	The California Electric Vehicle Infrastructure Project (CALeVIP) is a grant program from the California Energy Commission (CEC) that provides financial incentives to property owners to install public electric vehicle (EV) chargers. Electric vehicles are key to achieving the City's goal of 100% GHG-free transportation by 2040. As a public utility, supporting the installation of public EV chargers offers a way to both support the City's goal and grow revenue. The SFPUC applied to launch a CALeVIP project in San Francisco in 2021. The SFPUC was eligible for up to \$14.5 million in CEC funds and proposed contributing \$6 million as a match over four years (\$5.4 million from CleanPowerSF and \$600,000 from Hetch Hetchy Power). The CEC selected other projects in 2021. SFPUC will be submitting an updated proposal for 2022.
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 2021. 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. To meet this demand, SFPUC has initially identified two cluster areas for distribution investment, Northeastern Waterfront Development and Southbound BCTD Expansion. In the coming months, Power will engage in further analysis to refine and vet these investment opportunities.

EMERGENCY FIREFIGHTING WATER SYSTEM

-  Pump Station
-  Cistern
-  Storage Facility
-  Pipelines

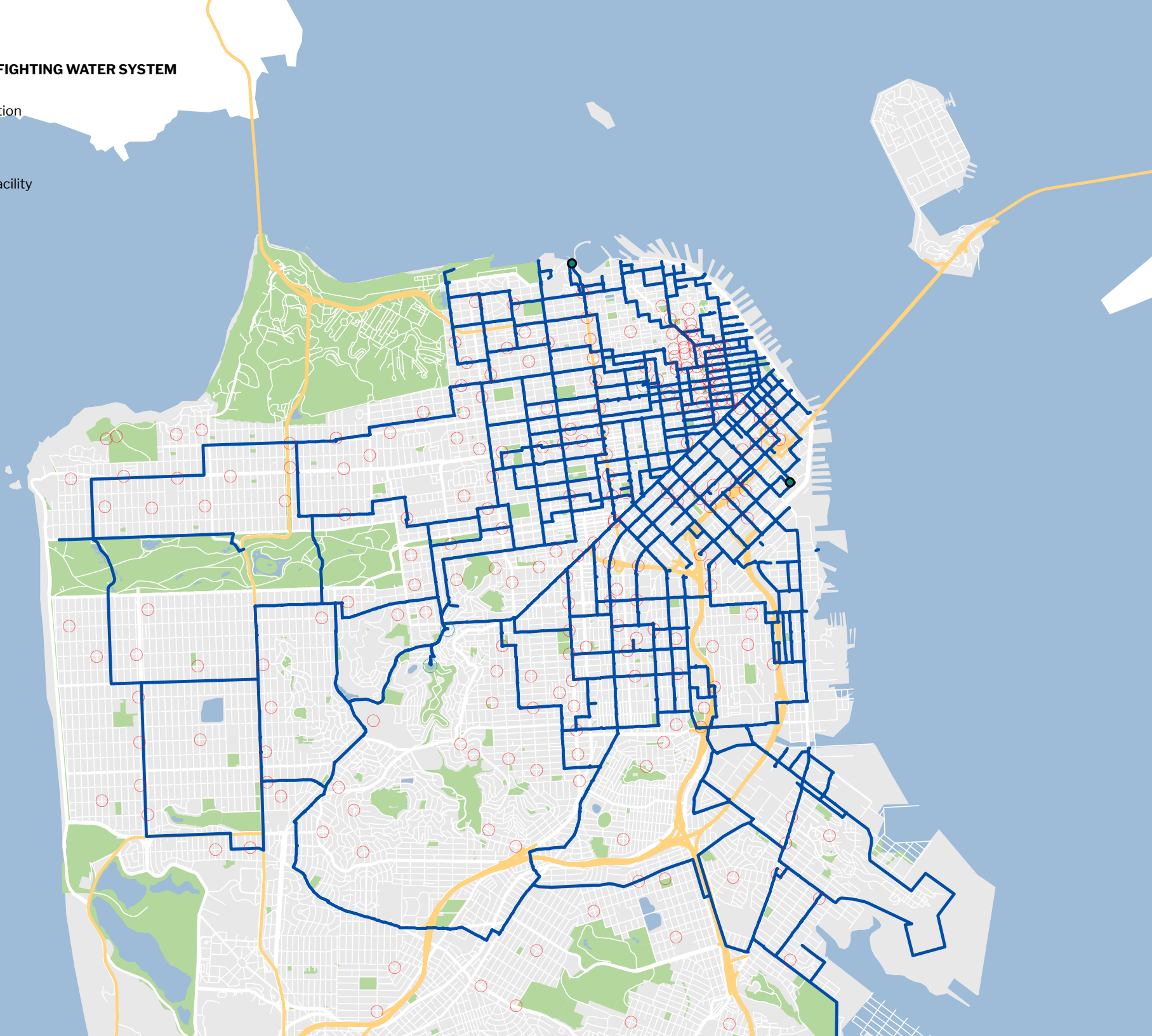


TABLE 10.1 - INFRASTRUCTURE AND STREETS FINANCIAL SUMMARY

PROGRAMS/PROJECTS (Dollars in Thousands)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 - 2031	Plan Total	
SPENDING PLAN								DEFERRED
Streets & ROW								
State of good repair renewal - Streets & ROW	97,227	97,072	96,513	101,253	107,420	607,319	1,106,804	756,458
Public Right-of-Way Transition Plan improvements	10,513	8,396	8,797	9,437	9,254	55,118	101,516	-
Enhancements - Streets & ROW	200,713	1,542	3,592	24,515	1,490	8,623	240,475	3,390,288
SUBTOTAL	308,453	107,010	108,903	135,205	118,164	671,060	1,448,795	4,146,746
SFPUC								
Water Enterprise	189,382	285,460	439,879	378,643	198,881	515,915	2,008,161	
Wastewater Enterprise	364,404	550,338	690,945	712,964	678,991	2,425,827	5,423,469	
Hetch Hetchy Water and Power Enterprise	141,779	244,541	197,171	196,947	189,974	651,189	1,621,600	
CleanPowerSF	2,433	1,473	1,423	1,638	1,673	67,121	75,761	
SUBTOTAL	697,998	1,081,812	1,329,418	1,290,192	1,069,520	3,660,052	9,128,991	
TOTAL	1,006,451	1,188,822	1,438,320	1,425,397	1,187,683	4,331,112	10,577,786	4,146,746

PROGRAMS/PROJECTS (Dollars in Thousands)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 - 2031	Plan Total	
REVENUES								
General Fund	2,570	5,424	6,201	40,021	43,333	265,065	362,615	
General Fund - Enhancement	2,120	-	229	2,592	-	-	4,942	
General Fund - Other	21,130	21,553	21,984	22,423	22,872	121,406	231,368	
Certificates of Participation	-	30,000	30,000	-	-	-	60,000	
Transportation Bond 2014	126,300	-	-	-	-	-	126,300	
Health and Recovery Bond 2020	39,141	2,359	-	-	-	-	41,500	
Federal	18,400	-	1,771	20,008	-	-	40,178	
Impact Fees	100	-	-	-	-	-	100	
Prop K Funding	16,521	2,806	2,892	3,688	2,052	14,906	42,865	
State	39,046	37,346	38,377	39,439	40,533	220,291	415,031	
Other Local Sources	43,125	7,522	7,450	7,034	9,374	49,392	123,897	
SFPUC Revenues	697,998	1,081,812	1,329,418	1,290,192	1,069,520	3,660,052	9,128,991	
TOTAL	1,006,451	1,188,822	1,438,320	1,425,397	1,187,683	4,331,112	10,577,786	
<i>Total San Francisco Jobs/Year</i>	4,508	5,325	6,442	6,384	5,320	19,399	47,378	

16,000

FIR

Square Feet for New
Two-Level Fire Boat Station



FIR
42
Neighborhood
Fire Houses

SHF
4
County Jails



HEADER
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POL
10
Operating
Police Stations

