

CAPITAL IMPROVEMENT PROGRAM

2025 UPDATE

FY24-25 to FY34-35



SVCW

Silicon Valley Clean Water

One Drop at a Time

February 2025

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The Capital Improvement Program (CIP)

Silicon Valley Clean Water (SVCW) has prepared this CIP 2025 Update as an ongoing update to the Program. The CIP was first developed in 2008, and has been updated every 1-2 years since that time, with the most recent update in February 2024 (2024 Update). The 2025 Update provides continued and current information on projects that allow for adequate planning and funding of the capital facilities. Public agencies develop and maintain a Capital Improvement Program (CIP) to ensure those capital facilities necessary for the operation, maintenance, and expansion of the wastewater conveyance, treatment and disposal systems are provided. A CIP allows an agency to make informed decisions about the rates it collects from its service area customers to ensure the rates are adequate to offset the expenditures. This CIP includes projects related to the Wastewater Treatment Plant (the Plant, WWTP), and the Conveyance System, which includes remote pump stations, transmission sewer pipelines (influent force main, gravity pipeline, tunnel, and gravity sewer) and effluent outfall. Future treatment for Nutrients, required by the Regional Water Quality Control Board, is included in the CIP. Recycled water treatment and distribution facilities owned by the City of Redwood City are not included in this CIP.

The wastewater treatment plant has been well operated since its startup in 1980. SVCW has enjoyed the benefits of a well-designed, Federal/State/Local funded facility with good reliability. As the plant ages, major electrical, mechanical, structural, and instrumentation components require replacement and rehabilitation to ensure a continued useful life into SVCW's future.

Reliable and efficient operation and maintenance of the Plant and Conveyance System infrastructure are required for ensuring the continued health and protection of the public and the environment and for meeting the effluent quality and discharge requirements set forth in SVCW's NPDES permit (NPDES Permit No. CA0038369). Other regulatory permit requirements are also placed upon SVCW, including air quality, odor control, safety, and record-keeping. The various regulatory permits under which SVCW operates require expenditure of capital to ensure that fines are not levied against SVCW for violations and to meet possible future, restrictive changes to the permits. It is also necessary to upgrade the facilities to improve operations in an effort to reduce costs as well as improving the facility's operational reliability. Finally, it is necessary to expend capital funds to match the capacity needs of the service area.

The operational integrity of the existing facilities as well as facility improvements needed to address future regulatory changes, wet weather treatment capacity increases, and safety were evaluated and integrated into the original 2008 CIP 10-Year plan. Each project was developed by defining the project scope, estimating the necessary budget required to complete the defined project, setting a year to implement the project and allocating expenditures to a specific funding source.

The timeframe of this CIP 2025 Update covers the fiscal years beginning in 2024-2025 and extends to fiscal year 2034-2035. Projects that have been completed in the time period previous to this update have been removed from the program. This 2024 Update includes a snapshot of expenditures over the next 10 years.

An agency's CIP requires ongoing refinement, with defined projects and their scopes and budgets reviewed at least once a year. In this respect, this document is a "living document"; it will continue to be reviewed, refined, and updated as needed.

SVCW Capital Facilities

Silicon Valley Clean Water (SVCW) is a Joint Powers Authority comprised of the City of Belmont, City of Redwood City, City of San Carlos, and West Bay Sanitary District (member agencies). SVCW owns and operates a wastewater treatment plant, including support facilities necessary for the operation and maintenance of the treatment plant, wastewater conveyance system force mains, five wastewater conveyance pump stations, and an effluent outfall into the San Francisco Bay. Land upon which the pump stations and connection structures are located are owned by the individual member agencies.

Wastewater Conveyance System: Force Mains, Gravity Pipelines, and Pump Stations

The conveyance system conveys flow from each of the member agencies via a combination of pump stations, force mains, and gravity pipelines. The original SVCW conveyance system was nearing the end of its useful life, and in 2013, SVCW began to plan for the construction program to rehabilitate it. The Regional Environmental Conveyance Sewer Upgrade (RESCU) program which is currently in the construction/acceptance phase, is replacing and/or rehabilitating almost every pump station and pipeline in the conveyance system.

As of February 2025, the RESCU program is almost complete and wastewater is being conveyed by a combination of old, new, and rehabilitated facilities, as described below.

Gravity pipeline:

The gravity pipeline is an approximately 3.3 mile long, 11 and 10 foot diameter pipeline that conveys wastewater from the Bair Island Drop Structure (BIDS) to the Receiving Lift Station (RLS) at the treatment plant site. The flow enters the tunnel in two locations: BIDS and the San Carlos Drop Structure (SCDS). The gravity pipeline construction was completed in 2022 and it is currently in operation.

Menlo Park Pump Station and Segment 1 and 2 Force Mains:

Flow from West Bay Sanitary District is pumped by the Menlo Park Pump Station through a 33" Reinforced Concrete Pipe (RCP) force main (Segment 1) and a 48" HDPE force main (Segment 2) that flows into BIDS. The Menlo Park Pump Station rehabilitation is complete and the rehabilitated facility is in operation. Segment 1 was not rehabilitated or replaced as part of RESCU. Segment 2 construction was completed in 2015.

Redwood City Pump Station

Redwood City flow is pumped by the Redwood City Pump Station into Segment 2. During wet weather, the new Redwood City Pump Station wet weather pumps also boost the West Bay Sanitary District flow

to convey the flow through Segment 2 to BIDS. The new Redwood City Pump Station is in the acceptance testing and commissioning phase and is currently in operation.

San Carlos Connection Structure

The San Carlos Connection Structure (formerly the San Carlos Pump Station) contains piping, flow metering and sampling equipment for connecting the San Carlos collection system and that Belmont Gravity Pipeline (BGP) flows to the SCDS. The connections to the San Carlos collection system and BGP were completed in 2024.

Belmont Gravity Pipeline

The original Belmont Pump Station was demolished with the completion of the Belmont Gravity Pipeline (BGP) Project, which connects the Belmont collection system to the Gravity Pipeline at the San Carlos Connection Structure. The work was completed in 2024.

Wastewater Treatment Plant

SVCW's Wastewater Treatment Plant is located in the Redwood Shores area of Redwood City. The Plant processes all wastewater delivered to the Plant from the member agencies' service areas via the conveyance system. The Plant is comprised of liquid and solids treatment processes.

Liquid Processing

The wastewater from the conveyance system is lifted out of the deep Gravity Pipeline by the Receiving Lift Station (RLS) and into the Headworks. In the Headworks, large screenings and grit are removed from the flow and conveyed to dumpsters for disposal. The flow then enters the Influent Pipeline (IPL) which conveys the flow by gravity to the Plant's primary sedimentation tanks (PSTs). The PSTs provide solids removal to the raw sewage. The PST process is followed by biological treatment that consists of roughing with fixed film reactors (FFR) and aeration polishing in the aeration basins (AB). The water in the aeration basins is then directed to the secondary sedimentation tanks (SST) for separation of solids from the liquid. The SST process generates relatively clear effluent that flows to the dual media filters (DMF). Filtration followed by disinfection with sodium hypochloride concludes the treatment of the liquid stream in the Plant. Disinfected and dechlorinated tertiary effluent is then pumped to the bay via a 66-inch diameter outfall. During summer months, the filtered water is sent to the City of Redwood City Recycled Water Storage and Distribution facilities at the northwest side of the treatment plant.

Solids Processing

The Plant processes a solids stream that is predominantly made up of a primary sludge and waste activated sludge. Primary sludge consists of settled solids and primary scum (a slurry with floated

oil/grease/scum) withdrawn from the primary clarifiers. The waste activated sludge (WAS) is derived from the aeration basins. In addition to the primary sludge, the primary scum and the WAS, the anaerobic digesters also receive grease and oily wastewater delivered to the grease receiving station at the Plant. With mixing and heating, the anaerobic digesters stabilize the sludge and produce sufficient digester gas to fire co-generation engines that generate electricity to power much of the electrical demand within the Plant.

The digested solids are withdrawn and transferred to Rotary Presses to reduce its volume. Dewatered biosolids are then transferred to either solar drying beds or to BioForceTech facilities for further drying readying for ultimate disposal. The sludge in the drying beds is dried to 50%-75% solids and is loaded onto trucks for disposal off-site. Offsite disposal is contracted with a biosolids handling company and is disposed in accordance with government regulations. Biosolids directed to BFT are further dried, undergo pyrolysis, and the “biochar” is then sold to end users as fertilizer. In summary, the primary function of the solids handling facilities is to stabilize the organic solids, reclaim the heat value of the organic solids for power generation and reduce the sludge volume to minimize the cost of disposal.

Plant Site Characteristics

The treatment processes selected for the Plant are typical for a tertiary treatment plant. However, the arrangement of the facilities in the Plant makes it unique. The treatment process tanks were built primarily on the same level; however, the lighter structures were built on top of the process concrete tanks making the facility a “double deck” plant.

The ground immediately beneath the Plant is predominantly young bay mud which is highly liquid and inadequate for supporting heavy loads. This required the installation of deep reinforced concrete piles to support the process tank structures. The administration building and laboratory were placed on top of the PST, while the FFR were placed on top of the chlorine contact tanks (CCT). Placing the lighter facilities on top of the heavier liquid bearing concrete tanks reduces the overall construction costs but creates unique maintenance issues. The PST and the CCT are completely covered; access to the tanks for maintenance and servicing the mechanisms installed inside the tanks is through hatches.

Outfall

Approximately 1.25 miles of 66-inch diameter pipe carries treated effluent from the Plant for discharge to the San Francisco Bay. The outfall is reinforced concrete pipe equipped with a multiport diffuser and extends approximately 6700 feet offshore in the main shipping channel of the San Francisco Bay for a deep-water discharge. An on-shore portion of the effluent pipeline was replaced in 2005 and the remainder of the on-shore pipeline was replaced in 2015/2016; the replacement pipe is 63-inch diameter HDPE pipe material.

Location and Process Codes

SVCW has undertaken implementation of a new Enterprise Resource Planning program which changes the financial, asset and work management, and human resources functions of the agency. To this end, a new system to track capital assets is currently being adopted. There are location and process codes established to enable tracking to occur. The location and process codes are shown in the list below.

Location Codes of SVCW

00	General
01	West Bay S.D.
02	Redwood City
04	San Carlos
05	Belmont
06	Booster Pump Station
10	33-inch FM
11	48-inch FM
12	54-inch FM
13	Belmont Force Main
15	Gravity Pipeline
20	Flow Equalization
30	Front of Plant
50	Wastewater Treatment Plant
51	Admin/Control Building
52	Laboratory Building
53	Maintenance Building
54	Warehouse
55	1404 Radio Road
56	1406 Radio Road
65	Fair Oaks
66	Harbor Sanitary Muni. District
67	Redwood Shores
68	Port of Redwood City
72	Outfall

Process Codes of SVCW

00	General
05	Pretreatment
06	Influent
10	Conveyance Pumping
15	Flow Equalization
20	Conveyance Pipelines
25	Drop Connection
27	Energy Management
35	Odor Control
42	Fine Screening
45	Lift Pumping
47	Storm Water
50	Primary Sedimentation
52	F.F.R.
54	Nutrient Removal
55	Aeration
56	Secondary Clarifiers
60	Filtration
62	Disinfection
64	Dechlorination
70	Recycled Water DSP
71	Sludge Thickening
72	Sludge Digestion
74	Sludge Dewatering
75	Sludge Drying
78	Sludge Disposal
81	FOG and Organic Waste
90	Effluent
92	Recycled Water (non-DSP)
95	Pollution Prevention

Master Capital Projects List

Organization of Master Capital Projects List

From the original 2008 CIP through the 2013 Update, projects contained within the CIP were categorized into sixteen Programs. Starting with the 2020 Update, as the focus of the Programs has moved from repair, replacement, and automation to a preventative and predictive maintenance approach, Program listings have been refined. There are now seven Programs in the CIP.

- Conveyance System
- Structural Rehabilitation
- Underslab and Above Grade Piping Rehabilitation
- Mechanical, Electrical, & Instrumentation Rehabilitation
- Site Civil Rehabilitation
- Process Efficiency and Regulatory Mandates
- CIP Support

Under the original CIP, four master plans were prepared (Conveyance System; force main and pump stations, Energy System, Biosolids, and Corrosion/Odor Control). The results of the master plans facilitated completion of the 2011 CIP Update. Completion of subsequent updates was facilitated by needs identified during the course of construction in the treatment plant and further work on the conveyance system program. As construction has progressed on many large and far-reaching projects, facilities either related to the specific construction or ancillary to the construction have been identified as needing replacement. Additionally, a Capacity Study was completed that identified four new projects that need to be completed for SVCW to reliably treat its projected wet weather flows. These changes were reflected in the 2013 Update.

Since the 2013 Update, the primary change to projects identified is reflected in the conveyance system programs; pipelines and pump stations. Beginning in 2013, as planning and community outreach began for the conveyance system program elements and as tunnel-construction methods in the bay area developed, the projects identified for the conveyance system changed. The 2015 Update reflected the latest information for the conveyance system programs. Additionally, the regulatory climate is shifting to require treatment plants to remove nutrients (nitrogen and phosphorous). Scientific studies are ongoing for the impact to the bay from treatment facility contributions but it is considered a given that nutrient removal will be required in future NPDES permits. A project to address nutrient removal requirements was also a factor contributing to the large allocated budget increase in the 2015 Update. Also in the 2015 Update, inflationary impacts were added to all relative projects; a task that had not been done since the original 2008 CIP which used 2007 dollar values.

The 2018 Update included updated budgets resulting from inflationary factors (escalated from 2017 dollars and brought to mid-point of construction). This Update also included a reduction in the Nutrient

Removal Program costs, as new information continues to be garnered from the Regional Water Quality Control Board and its efforts in concert with Bay Area Clean Water Agencies to more fully define issues with nutrients in the San Francisco Bay.

The 2020 Update represented a change in approach to capital project planning. Now that the majority of the processes and equipment have been upgraded over the last, almost twelve years, the focus of the CIP is on maintaining the assets. Some of the projects that were initiated in 2008 have already shown signs of age and failure. In particular, concrete coatings and instrumentation equipment have expected lives of approximately 10 years. This 2020 Update removed completed projects from the master list of projects, providing a view forward of the work that is envisioned to be completed over the next 10 years.

The 2022 Update further refined the program as the asset management program is developed and projects are identified to rehabilitate plant processes. Specifically, a new program was added to address the rehabilitation of underslab and above grade piping. Much of this process piping is original to the plant construction, and it is difficult to access for inspection and rehabilitation efforts.

The 2024 Update, published a month before the Regional Water Quality Control Board published its draft Nutrient watershed permit, included a placeholder budget and a facilities planning project to develop a plan for SVCW to meet nutrient limits, with an expected compliance deadline of 2034.

The following pages include the master list of 2025 CIP Update projects.

2025 Update	Launch	2025 Update	Project Name	Project Description	2024 Budget	Spent as of 11/30/24	2025 Budget	Budget Increase (Decrease)	2025 Budget Remaining
Project #	Date								
CIP Program Totals					\$ 976,204,710	\$ 620,245,383	\$ 716,679,776	\$ (259,524,934)	\$ 358,093,794
Conveyance System									
9500	2020	RESCU Administrative Activities		Holds programmatic management costs including Owners' Representative consulting fees (Kennedy Jenks) and Owner-Controlled Insurance Program (OCIP) costs.	17,319,759	16,241,085.00	16,900,000	(419,759)	658,915
9501	2017	Pump Stations Improvements		Rehabilitate Menlo Park Pump Station, Replace Redwood City Pump Station, convert Belmont Conveyance to a gravity sewer in order to convey 2040 flows to the new tunnel constructed under the Gravity Pipeline Project.	132,995,694	131,964,918.00	134,772,417	1,776,723	2,807,499
9502	2017	Front-of-the-Plant		Construct a Receiving Lift Station, Headworks and connecting piping as part of the RESCU Program.	174,186,959	173,559,497.00	174,186,959	-	627,462
	2022	Conveyance System Completion		Small construction projects that were not included in RESCU scope, needed to complete rehabilitation of the Conveyance System	500,000	176,379	1,500,000	1,000,000	1,323,621
6018	2033	33" Force Main Replacement		Replace Segment 1 pipeline. Cost estimate assumes open cut construction with bypass.	73,040,000	-	73,040,000	-	73,040,000
6019									
Subtotal					398,042,412	321,941,879	400,399,376	2,356,964	78,457,497
Structural Rehabilitation									
9071	2008	Plant Facilities Rehabilitation and Repair		Rehabilitation of plant architectural structures, sidewalks, and paving, including crack sealing, painting, and repair.	500,000	209,419	1,109,970	609,970	900,551
9096	2008	Plant Architectural Painting		Combined with 9071	1,038,692	428,722	428,722	(609,970)	-
9244	2020	Digester 3 Cleaning and Rehab		Clean, inspect and rehabilitate Digester 3. Previous rehab completed August 2011. Additional scope includes replacement of digester gas piping.	4,680,000	360,397	5,280,000	600,000	4,919,603
9245	2020	Digester 2 Cleaning and Rehab		Clean, inspect and rehabilitate Digester 2. Previous rehab completed April 2013	8,200,000	101,142	8,200,000	-	8,098,858
9259	2022	Primary Effluent Structural Rehabilitation		Repair coatings and mechanisms in Primary Effluent channel and effluent ends of PSTs.	4,260,000	29,335	200,000	(4,060,000)	170,665
								-	-
Subtotal					18,678,692	1,129,015	15,218,692	(3,460,000)	14,089,676
Underslab and Above Grade Piping Rehabilitation									
9600	2022	Buried and Exposed Process Pipe Repair		Identify process piping that needs rehabilitation/replacement. New projects will be developed that utilize budget from this project.	17,600,000	1,387,802	18,800,000	1,200,000	17,412,198
9602	2024	Phase 2 Buried and Exposed Process Pipe Repair		Rehabilitate/replace second tier priority piping	12,800,000	-	11,600,000	(1,200,000)	11,600,000
9120	2008	RAS Pump Suction Pipe Replacement		Slip-line the in-slab pipe. The high content of solids in sludge piping wears the pipe out over time; the RAS piping is thin due to the continued abrasion of the sludge transported through it.	3,892,000	7,946,894	8,246,894	4,354,894	300,000
Subtotal					34,292,000	9,334,696	38,646,894	4,354,894	29,312,198
Mechanical, Electrical, and Instrumentation Rehabilitation									
9017	2008	Plant #1 Water System Pipe Repair and Supply Upgrade		Rehabilitate potable water system: replace air gap tank, hydropneumatic tank, and pumps.	1,238,745	700,247	1,400,000	161,255	699,753
9223	2013	Final Effluent Pump Replacement		Replace pumps, valves and vfds, electrical gear and plc equipment.	16,000,000	2,285,252	19,400,000	3,400,000	17,114,748
9242	2020	Fixed Film Reactor Rehabilitation		Remove and replace media, perform structural improvements, improve inlet piping.	48,190,000	9,969,897	48,190,000	-	38,220,103
9260	2024	Dewatered Biosolids Conveyor Replacement		Replace thickened solids conveyors with shaftless screw type conveyors.	2,300,000		2,300,000	-	2,300,000
9261	2024	Elevators 1 - 4 Rehabilitation		Rehabilitate elevators and upgrade electronics.	4,000,000		4,000,000	-	4,000,000
9247	2020	SHB Electrical Rehabilitation		Evaluate Electrical and Standby Power systems in SHB. Replace and Rehabilitate as needed.	4,374,381	173,180	1,043,530	(3,330,851)	870,350
9263	2024	Hypo System Upgrade		Sodium hypochloride system piping and pumping system upgrades	2,000,000	3,127	2,000,000	-	1,996,873
Subtotal					78,103,126	13,131,703	78,333,530	230,404	65,201,827
Site Civil Rehabilitation									
9131	2008	Plant Service Road Resurfacing-Phase 2		Plant site grading and paving.	4,000,000	918,652	4,000,000	-	3,081,348
9237	2017	Radio Road Habitat Grading Project		Change grading and provide piping to the area behind the dog park to make a suitable habitat for birds	3,823,448	46,691	150,000	(3,673,448)	103,309
9265	2024	Levee Repair		Short term repair of levee system protecting the plant. Long term repair will be provided by Redwood City project.	20,000,000	13,952	15,000,000	(5,000,000)	14,986,048
Subtotal					27,823,448	979,294	19,150,000	(8,673,448)	18,170,706
Process Efficiency and Regulatory Mandates									
9257	2022	Food Waste Improvements		Capital improvements to increase reliability and efficiency of Food Waste Acceptance Facility.	3,320,000	444,243	7,730,000	4,410,000	7,285,757
9231	2015	BioforceTech Dryer System		Work with BioforceTech for biosolids drying Facility. SVCW to provide suitable site and utilities; Bioforce Tech to construct and operate. Budget added for agreement with BFT for purchasing the equipment.	3,950,621	4,396,709	4,684,709	734,088	288,000
9232	2015	Long Term Strategic Recycled Water Planning		SVCW is in collaboration with outside stakeholders for long-term planning of recycled water expansion as a drought proof water supply, explore IPR/DPR treatment requirements etc. Budget is for staff time to attend meetings and continue long-term planning, plus work with consultants on conceptual studies. No construction dollars are included.	300,000	375,712	600,000	300,000	224,288

2025 Update Project #	Launch Date	2025 Update Project Name	Project Description	2024 Budget	Spent as of 11/30/24	2025 Budget	Budget Increase (Decrease)	2025 Budget Remaining
9236	2018	CEC SAF-MBR	Build a pilot facility using CEC grant monies and in-kind services using a new treatment process developed at Stanford University. The process is called Staged Anaerobic Fluidized-Bed Membrane Bioreactor (SAF-MBR). This process could facilitate nutrient removal, recycled water production and, possibly, replace SVCW's secondary treatment processes.	717,295	819,185	869,185	151,890	50,000
9254	2020	Waste Gas Burner Replacement	Replace "candlestick" type waste gas burner with new technology if required by BAAQMD	2,000,000	-	3,000,000	1,000,000	3,000,000
9258	2022	Capital Support for Process Engineering	Minor capital projects to support research intended to improve efficiency or reliability of plant processes. Costs include additional instruments, analyzers, piping, valving and pumps to support pilot projects.	2,000,000	44,985	1,000,000	(1,000,000)	955,015
9266	2024	Hot Water Loop Expansion	Expand Hot Water Loop to reduce energy use.	500,000		500,000	-	500,000
9267	2024	BioforceTech Integration	Integrate BioforceTech controls into plant control system	500,000		500,000	-	500,000
9269	2024	Biogas Utilization Project	Install Linear Generator and gas treatment process to efficiently convert biogas to electricity for plant use.	8,000,000	3,823,420	12,000,000	4,000,000	8,176,580
9402	2024	Strategic Treatment Advancement Roadmap (STAR)	Facilities plan	2,500,000	81,654	2,000,000	(500,000)	1,918,346
9403	2027	STAR - Main Stream Nutrient Removal	Comply with anticipated 2034 NPDES permit requirements for removing nitrogen from effluent.	50,000,000	-	50,000,000	-	50,000,000
9401	2023	STAR - Side Stream Treatment	Treatment of Rotary Prese Filtrate sidestream for nutrient removal.	17,160,000	519,001	17,160,000	-	16,640,999
9243	2020	STAR - Primary Process Tanks and Equipment	Rehabilitate and reconfigure primary sedimentation tanks to support nitrogen, BOD, and soldis removal. Final scope of work will be determined by STAR project.	15,370,000	206,170	15,370,000	-	15,163,830
9250	2020	STAR - Wet Side Power Upgrade	Upgrade wet side electrical system to support nitrogen, BOD, and soldis removal. Final scope of work will be determined by STAR project.	2,200,000	8,639	5,530,851	3,330,851	5,522,212
9246	2020	STAR - Secondary Process Tanks and Equipment	Rehabilitate and reconfigure secondary aeration basins to support nitrogen, BOD, and soldis removal. Final scope of work will be determined by STAR project.	1,900,000	-	1,900,000	-	1,900,000
9262	2024	STAR Secondary Clarifier Rehabilitation	Rehabilitate and reconfigure secondary clarifiers to support nitrogen, BOD, and soldis removal. Final scope of work will be determined by STAR project.	30,000,000		30,000,000	-	30,000,000
9264	2024	STAR - Filtration Process Tanks and Equipment	Rehabilitate and reconfigure dual media filters to support nitrogen, BOD, and soldis removal. Final scope of work will be determined by STAR project.	9,700,000		9,700,000	-	9,700,000
Subtotal				150,117,916	10,719,719	162,544,745	12,426,829	151,825,026
CIP Support								
9130	2008	Capital Improvement Engineering	Funds staff required to coordinate and implement the Capital Improvement Program.	40,000	266,386	266,386	226,386	-
9158	2011	CIP Financial Assistance	State Water Resources Control Board SRF construction loan assistance. Funding received for Admin Building and WWTP Improvements and planning loan for Conveyance System. Future applications will be submitted for Conveyance System and Future Treatment Plant projects. Budget includes ongoing compliance with loan requirements.	1,170,153	1,083,290	1,170,153	-	86,863
9270		Electronic Information Management System Work Order Solution	Develop PowerApp based software solution for developing and assigning work orders, integrated with existing Electronic Information Management System.			200,000	200,000	200,000
9271		Financial System Upgrade	Upgrade SVCW's financial system to effeciently and accurately track and report financials.			750,000	750,000	750,000
Subtotal				1,210,153	1,349,676	2,386,539	1,176,386	1,036,863
Retired Projects								
6008	2011	Tunnel and Gravity Pipeline	Installation of gravity pipeline, using tunneling construction methods for conveying wastewater to the plant.	258,056,964	256,642,777.00		(258,056,964)	
9097	2008	Plant Deck Re-coating	Add painted walkway under the Plant Control building.	50,000	2,685		(50,000)	
9215	2013	Digester #1 Rehabilitation	Repair of coatings and structural elements in Digester #1. Project includes replacement of the two mix nozzles, two wall penetrations and the upper and lower vertical mix pipe manifold as previously included in CIP #9170. Also include interior coating of 24-inch horizontal mix piping as previously included in CIP #9171.	4,400,000	4,698,058		(4,400,000)	
9601	2022	WAS Suction Pipe Rehab	Rehabilitate or replace waste activated sludge suction piping. Condition is anticipated to be similar to RAS suction pipe.	2,130,000	-		(2,130,000)	
9248	2020	Cogeneration Engine System Rehabilitation	Evaluate cogeneration system, including engines, generators, gas conditioning system, instrumentation. Replace and Rehabilitate as needed.	1,900,000			(1,900,000)	
9249	2020	Fine Screening Process Rehabilitation	Evaluate instrumentation and mechanical and electrical equipment associated with the Fine Screening Process. Replace and Rehabilitate as needed.	900,000			(900,000)	
9103	2008	Landscape Impoundment Improvements	Project is slated to provide improvements to the impoundment. Work in addition to what was originally intended may be done for future Plant process needs.	200,000	208,441		(200,000)	
9268	2024	Decommission Underground Storage Tank	Comply with State requirement to decommission single-walled UST by July 2025.	300,000	107,441		(300,000)	
Totals				976,204,710	620,245,383	716,679,776	(259,524,934)	358,093,794

Appendix A

Developing the CIP

Appendix A

Developing the CIP and CIP Updates

The original effort of preparing a comprehensive CIP 10-Year Plan resulted in a significant list of capital projects requiring implementation to ensure that SVCW's facility assets are managed and maintained in good working condition. A capital project is defined as an improvement or replacement of an existing asset with a value equal to or higher than \$20,000 and a life expectancy beyond five years. Expansion projects (Stage 2) are not included in this CIP. Each project is identified by Location Code, is assigned a CIP Project number and placed into a Program.

Sources of CIP Update Projects

The original list of 131 projects in the 2008 CIP resulted from combining several outstanding lists of identified improvements that had been compiled over years of operation and maintenance of the facilities. The majority of projects were derived from lists kept by the Operations, Maintenance, Technical Services departments, and the Manager.

For preparing the Updates, Program Managers were requested to prepare revised lists of projects that they could identify after having been involved in the CIP for multiple years. Some of the revisions resulted from master planning efforts from which new facility needs were identified while some of the revisions resulted from projects being combined or merged to take advantage of potential efficiencies. The majority of projects arose from needs being identified during construction projects. Finally, some projects were deleted entirely if they were found unnecessary for accomplishing the overall goal of ensuring longevity for the SVCW facilities.

Criteria Used for Identifying Projects

The following criteria were established early in the CIP development process to assist in identifying needed improvements. The same criteria are maintained for the CIP Updates.

Regulatory Compliance/Process Reliability. This is a mandatory requirement based upon SVCW's various permits, federal, state and local regulations, laws, and codes. It includes providing and maintaining process reliability to ensure that regulatory compliance is achieved.

End of Useful Life/Catastrophic Failure Avoidance. This represents those pieces of equipment, structures, and other facilities that have reached the end of their useful life and, if not replaced or rehabilitated, will experience an unavoidable failure. This category also includes equipment that has become obsolete and is no longer supported by the original manufacturers. In the 2020 update, this criteria has changed, as SVCW has taken on a philosophy of preventative maintenance to avoid the expense and unpredictable nature of running equipment to the end of its useful life. The criteria is now called **Preventative Maintenance**

Safety. The identified project includes a repair, replacement, modification or expansion aspect that relates to public or worker safety.

Efficiency and Functional Improvement. Efficiency refers to specific equipment, facilities and work methods that represents a means to reduce operating cost. A functional improvement will increase the efficiency and effectiveness of how a particular facility or work method is maintained and/or operated.

Plant Appearance. Projects that will enhance, improve, and modify the appearance of the treatment plant; onsite buildings and facilities are included in this category. The importance of Plant appearance rests on public perception of the plant and SVCW as a whole. “Public” includes recipients of tours (children and adults), Commission members and other elected officials, regulatory personnel on site visits, and others.

CIP Cost Estimating Methodology

A key element to the CIP planning process is determining costs for each of the identified projects and allocating the costs to specific funding sources. Information on funding sources is included in Appendix B.

For the CIP Updates, Program Managers prepared updated cost estimates for each of the projects within a particular Program. The cost estimates include construction costs and soft costs as described below.

CIP budgets for individual projects are comprised of five elements or “phases” of the capital project. The five phases are: Planning, Design, Construction, Construction Management, and Project Management. Some projects may include all phases; others, such as studies, may include only one phase.

For the most part, the cost element that is independently estimated is the Construction phase budget. The other cost elements are percentages of the Construction phase (except in special cases such as study-only projects). These phases are termed “soft costs”. In addition to the soft costs and in recognition that the cost estimating for this level of project planning is inherently rough, a “Confidence Level” factor may be applied to the final Construction + Soft Costs estimates.

The methodology for estimating the Construction phase cost is described below. The percentages used to derive the other phases of the capital project and the confidence level factor follow.

Construction Phase Budget

The construction cost estimating procedure utilized the following guidelines:

- Estimate construction costs, escalated to the middle of construction.
- Projects to be implemented in future years have costs represented as base costs values; i.e., future costs are not escalated except in the case of the conveyance system program.
- Construction cost estimates and the contingency factor used are based on the level of confidence that the program manager has in its estimate.
- Construction cost estimates includes costs for bonds, insurance, mobilization/demobilization, overhead, and profit. The program managers will use their best judgment as to what these amounts should be, based on the type and size of project and industry standard.
- The program manager will take into account if any testing, start-up, training, etc. will be required by the construction contractor and add in costs for these items.

Soft Costs Derivation

Soft costs derivation is based upon industry standards for typical design-bid-build projects. For other project delivery methods, the individual project soft costs were adjusted according to today's knowledge about a project. In addition, for projects involving instrumentation (SCADA or other types of software and hardware programming), soft cost percentages will be higher than for typical construction projects.

There are instances where SVCW program managers and/or the consultant preparing the cost estimates are aware that the percentages shown will not be sufficient to cover the necessary tasks or are an over-estimate of individual task costs. An example where the typical percentages would not be sufficient is: a project that involves permitting tasks or CEQA review will have higher percentages; alternatively, a project that can be implemented with in-house forces may have lower percentages assigned. Percentages indicated below are for "typical" projects.

Soft Costs for Design-Bid-Build Project Delivery Methods

Planning – 5% of Construction Cost

Design – 10% of Construction Cost

Construction Management – 18% of Construction Cost
where: Construction Management/Inspection = 10%
Design Services During Construction = 3%
Testing/Surveying/etc = 5%

Project Management – 5% of Construction Cost

Construction Change Orders – 5%

Total Soft Cost Percentage = 43%

Soft Costs for Instrumentation Projects

For Instrumentation projects, the percentage allocation should be:

Planning – 20%

Design – 25%; includes Programming

Construction Management – 40%

where: Construction Management/Inspection = 10%
Design Services During Construction = 20%
Testing, etc = 10%

Project Management – 5%

Construction Change Orders – 5%

Total Soft Cost Percentage = 95%

Staff Time and Confidence Level Factor

In the original 2008 CIP preparation, a percentage of 5% and 10% for staff time related to typical projects and instrumentation projects, respectively, was added to each project. During the course of preparation and ultimate adoption by the Commission, staff time was deleted from each project and, instead, a project listed as “Capital Improvement Engineering” was added. This project remained in the CIP Updates until the 2017 Update. Instead, staff time dedicated to CIP development is allocated to the individual projects which project managers are working. While the budgets for each project were not increased to account for staff time, staff is working diligently to keep their work hours as efficient as possible. There may come a need to reinstate this Capital Improvement Engineering project back into future CIP Updates.

Also in the original CIP preparation, each project had a 30% confidence factor applied to the sum of the Construction phase costs + Soft Costs. Again, during the course of preparation and Commission review

and adoption, these confidence factors were removed for the majority of projects. This remains true for the CIP Updates; i.e., projects do not include a 30% confidence level factor.

Appendix B

Funding Requirements

Appendix B

Funding Requirements

Financial Structure and Management

SVCW has no taxing power and therefore receives nearly all of its funding, other than interest earnings and other miscellaneous revenues, according to rules established through a Joint Powers Agreement between Member Agencies. Combined, Member Agencies pay all expenditures associated with operations, capital repairs, capital reserves, debt service, and debt reserves. Capital and Reserve allocation factors, according to the JPA, are as follows:

City of Belmont	9.45%
City of Redwood City	48.57%
City of San Carlos	15.145
West Bay Sanitary District	26.84%

Each year, the SVCW Commission adopts a budget for the following year. The budget establishes the funding requirements for each of the Members. Funding occurs in twelve monthly installments. After the close of the fiscal year, the annual payments made by each Member are reconciled against the actual expenditures allocated to each Member according to the JPA. Any difference is applied toward fund reserves held by the Authority on behalf of each Member.

Financial Planning

Member Agency sewer rates provide the underlying repayment security for all SVCW financing. SVCW prepares a Long-Range Financial Plan annually and presents it to the Commission in January, to incorporate revised CIP figures and/or funding strategies. The plan describes how each agency should consider SVCW operating and capital funding expenditures when setting sewer rates. The 2025 Long Range Financial Plan was received at the February 2025 Commission Meeting in conjunction with this CIP Update.

Appendix C

CEQA Documentation

Appendix C

CEQA Documentation

California Environmental Quality Act Compliance

SVCW will act as Lead Agency for the projects in the 2020 CIP Update. The California Environmental Quality Act (CEQA) requires that SVCW adequately assess the environmental impacts of its capital projects. Some projects in the CIP will require an Initial Study to comply with CEQA, some will require further project definition to analyze for necessary CEQA action, while some projects will fall under statutory or categorical exemption from further CEQA analysis. The Commission will consider approval of CIP projects after preparation and certification of the appropriate CEQA documentation.

For certain projects, SVCW may act as a Responsible Agency and would rely on other agencies to prepare the primary environmental documentation. These projects require Environmental Impact Reports (EIRs) or Negative Declarations, which were previously approved by other agencies.

CEQA Exemptions

The CIP itself is exempt from CEQA as a planning study (CEQA Guideline Section 15262). Some projects included in this CIP are likewise exempt under CEQA. The CEQA certifications for these projects are considered approved when the Commission adopts the 2020 Update.

The following summary lists the applicable exemptions for SVCW's CIP projects:

Statutory Exemption: CEQA Guideline 15262 – Feasibility and Planning Studies
CEQA Guideline 15269 – Emergency Project

Categorical Exemption: CEQA Guideline 15301 – Existing Facilities (repair, operation, maintenance; negligible or no expansion of an existing use)
CEQA Guideline 15302 – Replacement or Reconstruction of Existing Facilities
CEQA Guideline 15303 – New Construction or Conversion of Small Structures
CEQA Guideline 15306 – Information Collection
CEQA Guideline 15322 – Educational or Training Programs Involving No Physical Changes
CEQA Guideline 15329 – Cogeneration Projects at Existing Facilities
CEQA Guideline 15330 – Minor Actions to Prevent, Minimize, Stabilize, Mitigate, or Eliminate the Release or Threat of Release of Hazardous Waste or Hazardous Substances
CEQA Guideline 15378 – Activity is not defined as a project per guidelines.

CEQA Compliance Status

The CEQA compliance status was reviewed for all projects listed in the CIP. Each project was reviewed for the type of CEQA documentation that is required. Types of CEQA compliance are indicated in the table below.

Types of CEQA Compliance

Further Project Definition Required	In some cases, the project is not yet sufficiently defined to allow a determination to be made on the appropriate level of environmental documentation. A preliminary review of these projects will be made when the project is more clearly defined.
Exemption	A preliminary review of the project has concluded that the project designated in the table as exempt has been granted an exemption by statute or by categories established in the State CEQA Guidelines. Adoption of the CIP Budget constitutes Commission approval of the projects that are listed in the table as exempt under CEQA. Certain CIP projects noted as “Not a Project Under CEQA” are also exempt from further CEQA review.
Initial Study/ EIR/Negative Declaration	Initial Study of the project will be undertaken to determine if the project may have a significant effect on the environment. Depending on the results of the study, either a Negative Declaration or EIR will be prepared. Commission approval of the project will follow approval of the Negative Declaration or EIR.
Previous CEQA Document Approved	For these projects, CEQA compliance has already been achieved through documents previously prepared and approved. If CEQA documents were prepared by other agencies, SVCW may need to make specific findings and, subsequently, file additional documentation at the time the project receives Commission approval.

The CEQA compliance status of the various projects in the CIP is indicated in the following tables. For each project listed in the table, the type of CEQA documentation that has been completed or is anticipated to be required is indicated. The table is organized by CIP Project number. In some cases, Notices of Exemptions (NOE) are filed with the State Clearinghouse. SVCW is not required to file NOEs with the State but in some cases does so to be in compliance with State and/or Federal funding requirements or other reasons such as requests from sureties or contractors.

This analysis and approval complies with CEQA Guidelines issued by the State of California.

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
6008	Tunnel and Gravity Pipeline	2015				IS Required; CEQA Required	Included in EIR for Conveyance System	EIR approved April 13, 2017
6018	Conveyance System Completion	2022				IS Required; CEQA Required	Included in EIR for Conveyance System	EIR approved April 13, 2017
6019	33" Force Main Replacement	2033				IS Required; CEQA Required		

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9017	Plant #1 Water System Pipe Repair and Supply Upgrade	2008	CE	Repair of Existing Facilities	15301			
9071	Plant Facilities Rehabilitation and Repair	2008	CE	Repair of Existing Facilities	15301			
9103	Landscape Impoundment Improvements	2015				May be included w/Conveyance System CEQA	Included in EIR for Conveyance System	EIR was approved April 13, 2017

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9120	RAS Pump Suction Pipe Replacement	2008	CE	Replacement or Reconstruction of Existing Facilities	15302			NOE Filed 03/30/2021
9130	Capital Improvement Engineering	2008	CE	Not a project under CEQA	15378			
9131	Plant Service Road Resurfacing- Phase 2	2008	CE	Replacement or Reconstruction of Existing Facilities	15302			
9158	CIP Financial Assistance	2009	CE	Not a project under CEQA	15378			

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9196	EIMS (Electronic O&M Manuals)	2022	CE	Not a project under CEQA	15378			
9215	Digester #1 Rehabilitation	2015	CE	Repair of Existing Facilities	15301			NOE Filed 03/30/2021
9223	Final Effluent Pump Replacement	2014	CE	Replacement or Reconstruction of Existing Facilities	15302			NOE Filed 03/30/2021
9231	BioforceTech Dryer System	2015	CE	Cogeneration Projects at Existing Facility	15329			NOE filed 10/01/2015 Notice of non-responsibility 11/06/2015
9232	Long Term Strategic Recycled Water Planning	2015	SE	Feasibility and Planning Study	15262			

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9236	CEC SAF-MBR	2018	CE	Existing Facility	15329			NOE filed 06/03/2017
9237	Radio Road Habitat Grading Project	2017				IS Required		
9242	Fixed Film Reactor Rehabilitation	2020	CE	Repair of Existing Facilities	15301			NOE Filed 03/30/2021
9243	STAR – Primary Process Tanks and Equipment	2027	CE	Replacement or Reconstruction of Existing Facilities	15302			
9244	Digester 3 Cleaning and Rehab	2020	CE	Repair of Existing Facilities	15301			NOE Filed 03/30/2021
9245	Digester 2 Cleaning and Rehab	2020	CE	Repair of Existing Facilities	15301			NOE Filed 03/30/2021

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9246	STAR - Secondary Process Tanks and Equipment	2030	CE	Repair of Existing Facilities	15301			
9247	SHB Electrical Rehabilitation	2020	CE	Repair of Existing Facilities	15301			
9250	STAR - Wet Side Power Upgrade	2020	CE	Repair of Existing Facilities	15301			
9254	Waste Gas Burner Replacement	2020	CE	Replacement or Reconstruction of Existing Facilities	15302			
9257	Food Waste Improvements	2022	CE	Replacement or Reconstruction of Existing Facilities	15302			

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9258	Capital Support for Process Engineering	2022	CE	Replacement or Reconstruction of Existing Facilities	15302			
9259	Primary Effluent Structural Rehabilitation	2022	CE	Replacement or Reconstruction of Existing Facilities	15302			NOE Filed 03/30/2021
9260	Dewatered Biosolids Conveyor Replacement	2025	CE	Replacement or Reconstruction of Existing Facilities	15302			
9261	Elevators 1 - 4 Rehabilitation	2024	CE	Replacement or Reconstruction of Existing Facilities	15302			
9262	STAR - Secondary Clarifier Rehabilitation	2029	CE	Replacement or Reconstruction of Existing Facilities	15302			

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9263	Hypo System Upgrade	2025	CE	Repair of Existing Facilities	15301			
9264	STAR - Filtration Process Tanks and Equipment	2025	CE	Replacement or Reconstruction of Existing Facilities	15302			
9265	Levee Repair	2026				IS Likely Required	Further Project Definition Required	
9266	Hot Water Loop Expansion	2029	CE	Replacement or Reconstruction of Existing Facilities	15302			
9267	BioforceTech Integration	2025	CE	Repair of Existing Facilities	15301			
9268	Decommission Underground Storage Tank	2024	CE	Repair of Existing Facilities	15301			

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9269	Biogas Utilization Project	2024	CE	New Construction of Small Structures	15303			
9270	Electronic Information Management System Work Order Solution	2025	CE	Not a project under CEQA	15378			
9271	Financial System Upgrade	2026	CE	Not a project under CEQA	15378			
9401	STAR - Side Stream Treatment	2018	CE	Replacement or Reconstruction of Existing Facilities	15302			NOE Filed 03/30/2021
9402	Strategic Treatment Advancement Roadmap (STAR)	2024	SE	Feasibility and Planning Study	15262			

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9403	STAR - Main Stream Nutrient Removal	2031				Further Project Definition Required		
9500	RESCU Administrative Activities	2020	CE	Not a project under CEQA	15378			
9501	Pump Station Rehabilitation	2015				IS Required; CEQA Required	Included in EIR for Conveyance System	EIR approved April 13, 2017
9502	Front-of-the-Plant	2015				IS Required; CEQA Required	Included in EIR for Conveyance System	EIR approved April 13, 2017
9600	Buried and Exposed Process Pipe Repair	2022	CE	Repair of Existing Facilities	15301			NOE Filed 03/30/2021

Project No.	Project Name	Start Date	Exempt Projects			CEQA Documentation		
			SE=Statutory CE=Categorical Exemption	Reason for Exemption	CEQA Guideline Reference	Initial Study Required?	Action Taken	Date
9602	Phase 2 Buried and Exposed Process Pipe Repair	2025	CE	Replacement or Reconstruction of Existing Facilities	15302			

Appendix D

References

Appendix D

References

Information contained in the SVCW 2020 Capital Improvement Program Update was derived from multiple sources, including written documents and staff and consultant knowledge. The following list comprises the reference basis for the project information.

SVCW 10-Year Capital Improvement Program – April 2008

- Adopted CIP inclusive of 131 Projects

SVCW 10-Year Capital Improvement Program – 2022 Update

- Adopted CIP Update

SVCW Engineering Division Staff

- Program Managers from each CIP Program

SVCW Operations & Maintenance Division Staff

- Needs assessment; discussions with O&M Department Manager

Outside Resources

- Construction Management Team
- Operations, Maintenance & Engineering Consultants
- Owners' Advisors teams for RESCU

Capital Improvement Program Project Master Plans

- Energy System Master Plan, CDM, dated June 2009
- Biosolids Master Plan, Brown and Caldwell, dated September 2010
- Corrosion and Odor Control Master Plan, Whitley Burchett & Associates, dated June 2010
- Conveyance System Master Plan, Winzler & Kelly, draft dated December 2011

SVCW Capacity Analysis Report

- Prepared by Brown and Caldwell, October 2013
- Verification Technical Memorandum prepared by Kennedy/Jenks, April 2017

BACWA Nutrient Removal Studies

- Participation in Contracts Management Group and Permit Group