

The City of San Carlos Wastewater System

Water Quality Requirements

Regulatory requirements applicable to the City's sanitary sewer collection system are contained in or imposed by regulation pursuant to the Federal Water Pollution Control Act, and the State of California Porter Cologne Water Quality Control Act of 1969. Both federal and State regulations are administered through the San Francisco Bay Regional Water Quality Control Board.

The City of San Carlos has managed its own wastewater collection system and initiated actions designed to reduce possible sewer overflows. The City initiated an effort to aggressively evaluate "best practice" methods and program enhancements necessary to reduce overflows throughout the system. The City implemented ways to operate and maintain the wastewater collection system more effectively, including computerized maintenance management, increased cleaning and inspection of the collection system, improved work planning, equipment replacement programs and other measures that have kept overflows to a minimum.

Baykeeper lawsuit

In 2010, the City was sued by the San Francisco Baykeeper over the number of sanitary sewer overflows (SSOs) from the City's wastewater collection system. The settlement agreement (called a Consent Decree) set forth a timeline for reducing SSOs in the system prior to 2017. The agreement required payments for an environmental mitigation project, litigation fees and costs, and compliance monitoring. The agreement also committed the City to certain actions regarding SSO investigation, response and reporting; sewer condition assessment rehabilitation and replacement; implementation of a fats, oil and grease program; regular sewer cleaning; hot spot maintenance; lateral repair programs; new regulations for private laterals; and a chemical root control program. The City files an annual report on progress, and is on schedule to meet the SSO reduction target in 2017.

Wastewater Collection system

The City owns and operates a sanitary sewer collection system consisting of approximately 104 miles of sewer pipelines and 6 sewer lift stations. The City's wastewater is conveyed to a sewer treatment plant at the edge of San Francisco Bay in Redwood Shores for treatment and disposal. The average flow from the city to the treatment plant is about 2 million gallons per day, enough to fill 4 Olympic sized swimming pools every day.

The major of the gravity system (almost 70 percent) consists of 6-inch pipe, and over 85 percent is less than 10 inches in diameter. The oldest portions of the system date to the 1920s, with a large portion of the system constructed in the 1940s and 1950s, with newer areas in the hills developed later. The primary sewer pipe material in the collection system is vitrified clay pipe, with plastic materials used for newer sewer construction and rehabilitation.

The collection system also includes approximately 11,000 private sewer laterals. The property owner is responsible for the sewer lateral, but if an approved property line clean out is installed, the City assumes responsibility for the maintenance and repair of the lower portion of the laterals located within the public right-of-way.

Condition of the system

Data on the condition of the existing pipes was collected using closed-circuit television (CCTV) camera inspection. The images were analyzed to identify critical defects and viable rehabilitation methods. Inspections were completed in January 2013, and a recommended program of sewer rehabilitation and replacement was created with the intent of restoring the

condition of existing sewers to a reasonably good condition and maximizing their remaining useful service lives. However, it was recognized at the time that the program would require significant increases in sewer rates in order to provide the necessary funding.

Virtually all of the inspected pipe segments identified for some type of renewal, have Grade 4 or 5 defects. For many of these pipes, the recommended sewer renewal method is pipe replacement rather than repair. Replacing or even lining the entire pipe segment would not only address the most severe defects but would also eliminate smaller defects and help address other issues such as infiltration, and ultimately would extend the service life of the pipe for a much longer period than if only the minimum required defects were repaired. See the table below for an assessment of the collection system condition:

Sewer Renewal Reason and Decision	Length of Pipe Segments (ft.)	Percentage of Total Pipe Length	Number of Localized Repairs
Major Structural Defects	206,804	37.8%	606
<i>Replace</i>	124,031	22.7%	0
<i>Line</i>	4,095	0.7%	24
<i>Localized Repair</i>	78,678	14.4%	582
Large Offset Joints	11,092	2.0%	62
<i>Replace</i>	2,394	0.4%	0
<i>Localized Repair</i>	8,699	1.6%	62
Significant Root Intrusion	23,590	4.3%	0
<i>Replace</i>	19,219	3.5%	0
<i>Line</i>	4,371	0.8%	0
Renewal Subtotal	241,487	44.2%	668
Maintain (Reinspect in Future)	305,195	55.8%	0
TOTAL	546,681	100.0%	668

Environmental risks, tradeoffs, consequences

If rates are not adjusted to fund the needed maintenance and rehabilitation of the system, the City would be accepting a higher level of risk for continued sewer overflows, both in the streets and into resident's homes. In years past, the City regularly paid hundreds of thousands of dollars per year in claims for sewer backups. The improvements outlined in the Sewer Master Plan and Capacity Assurance Plan go a long way in reducing those risks, but must be accompanied by rate increases to provide funding.

Capacity Improvements

The City prepared a Sewer Master Plan in January 2013. The Master Plan concluded that the City needed to build over \$8 million in high priority capacity improvement projects to get in compliance with the consent decree. These projects were determined to be high priority based on the relative severity of existing capacity deficiencies and the location of historical wet weather overflows. During wet weather events, the City's collection system is subject to significant amounts of rainwater infiltration, resulting in high peak flows, and resulting capacity deficiencies. The projects that were determined to have the maximum benefit on the existing collection system capacity were funded by a rate increase in 2012. The first 7 projects have been completed, and the next is approximately 50% complete in construction.

Master Plan improvements

The Sewer Master Plan also created a priority plan for addressing the system deficiencies as outlined below. In addition, the Master Plan presented a recommended 20-year collection system capital improvement program. As indicated in the table, it is estimated that over 40 percent of the system requires repair, rehabilitation, or replacement due to structural defects in the pipes.

Reason for Renewal	Estimated Construction Cost ¹	Estimated Capital Cost ²
Major Structural Defects	\$41,725,000	\$52,157,000
Large Offset Joints	\$1,247,000	\$1,558,000
Significant Root Intrusion	\$6,610,000	\$8,262,000
Total	\$49,582,000	\$61,977,000

Maintenance of the system

The City's sewer maintenance cost on an annual basis totals about \$6.2 Million. The Sewer fund program supports a maintenance crew that responds to sewer calls during the day and on a 24/7 on-call basis. The crew uses mechanical devices such as rodders and cutters to help unclog sewer laterals and mainlines, has larger power rodding equipment and can jet and flush lines with bigger clogs. The maintenance crew also performs closed circuit TV inspection of sewer lines using a camera mounted on a remote controlled robot car. When a resident calls with a problem with their sewer line, the maintenance crew responds to assess the situation and offers assistance to stop the overflow and unclog the lines.

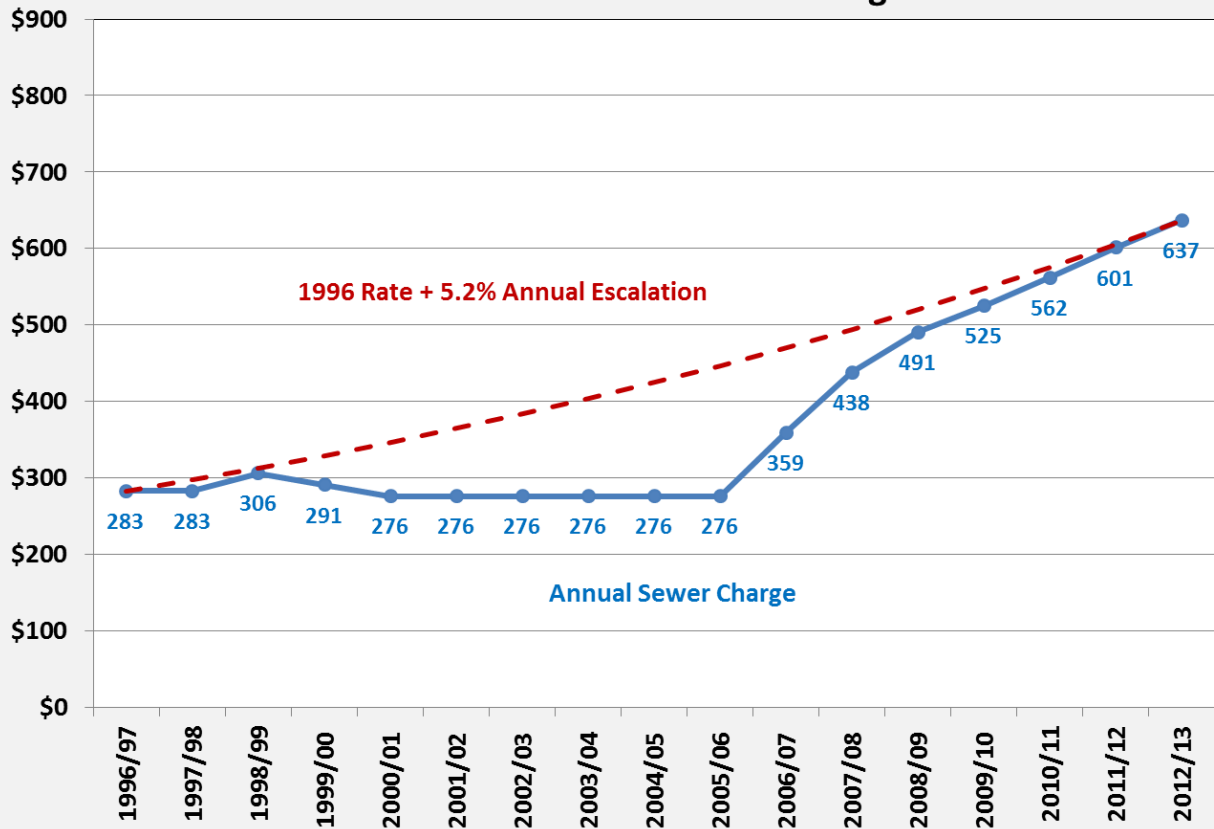
Rates to support the Capital and maintenance needs

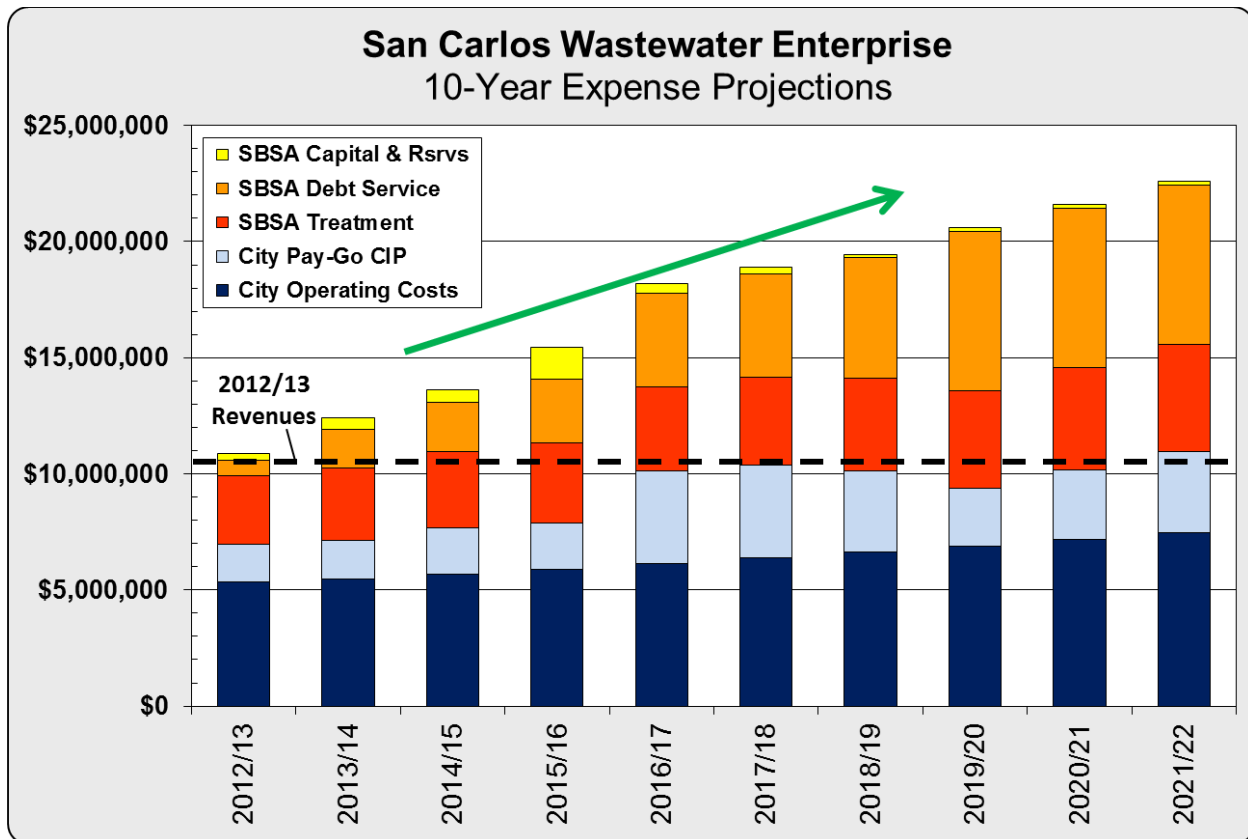
The City's wastewater rates are independently established by the City Council. Residential customers pay a flat rate for their wastewater charges and are billed annually on their property tax statements. Commercial, Industrial and Institutional customers pay a volumetric charge based on flow loading and metered water use amounts from April 1 to March 31 from the preceding year. All sewer accounts are subject to a minimum monthly charge. A certain portion (around 85%) of the sewer charge covers the "fixed costs" of operating the system, like regular maintenance and known capital improvements. This is the reason for a minimum charge, as there is a cost to convey even the smallest wastewater flow through the system to the treatment plant.

In 2013, the City adopted a series of three annual rate increases effective for fiscal years 2013-14 through 2015-16. These rate increases were adopted to support the City's operating and capital programs and the City's share of debt service for SVCW's CIP as well as SCVW operations.

The City levies a sewer connection fee on applicants for new (or expanded) wastewater service as a condition of obtaining a permit to connect to the sewer system. This fee is used to help fund the cost of sewer facilities that provide benefit to the new or expanded connection. The City's sewer capacity fees are established by the City Council.

City of San Carlos Historical Residential Sewer Charges





Prop 218

Sewer rates are subject to the requirements of Article 13D, Section 6 of the California Constitution, established by Proposition 218. Section 6 applies to property-related fees and includes both procedural requirements for adopting charges as well as substantive provisions for property-related fees. These substantive provisions state that a fee or charge shall not be extended, imposed, or increased by any agency unless it meets the following requirements:

- Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question.

Agencies were historically considered to be in compliance with the requirements established by Proposition 218 if the revenues derived from charges did not exceed the overall cost of service, and there was reasonable equity between rates charged to different classes of users. However, a recent Appellate Court decision (*Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano*) further clarified that tiered rates are legally allowable, but only to the extent that tiered rates can be justified on a cost of service basis. Although the case involved tiered water rates, the City believes the underlying principles also apply to sewer rates. Hence, the City's

sewer rates must be reasonably aligned with the cost of providing the service with adequate cost justification needed to support different rates for different customer classes.

Treatment of the City's wastewater

Before 1980, the City owned and operated its own wastewater treatment plant at a location near the San Carlos Airport. A new wastewater treatment plant was constructed in 1980, using one-time only Federal Clean Water grants, and is located in the Redwood Shores area of Redwood City bordering the San Francisco Bay. Silicon Valley Clean Water (SVCW) is a joint powers authority that provides wastewater transmission, treatment, and effluent disposal services to the cities of Belmont, Redwood City, and San Carlos, and the West Bay Sanitary District, all of which are located in the northern part of Silicon Valley, between the cities of San Francisco and San Jose. SVCW serves more than 200,000 people and businesses located predominantly in San Mateo County.

SVCW operates the wastewater treatment plant (that processes an average dry weather flow of 29 million gallons per day), a nine-mile force main pipeline that conveys wastewater from the member cities to the treatment plant (with five wastewater pump stations), and a disposal pipeline that discharges treated wastewater 1.25 miles out into San Francisco Bay. A portion of the wastewater undergoes a higher level of treatment and disinfection and is used to supply recycled water to residents and businesses in Redwood City.

Treatment Plant facility being replaced as components are wearing out

Because of the age of the treatment facility and the caustic effects of treating raw sewage, SVCW is in the process of rebuilding, rehabilitating, and upgrading its wastewater transmission and treatment facilities, which are approaching the end of their useful operating lives. SVCW Authority has already funded or has received funding commitments for over \$113 million of capital improvements, including funds from Bonds issued in 2008, 2009 and 2014; cash contributions from the City of Belmont, State Revolving Fund Loans, and interest earned on project funds. SVCW projects it will need to fund an additional \$634 million of capital improvements over the next seven years. The recently issued 2015 Bonds are projected to finance approximately \$40 million of these outstanding capital improvement funding needs. The updated CIP identified 127 projects targeted to begin construction over approximately the next seven years. These projects address all known issues with the SVCW wastewater system.

City's share of SVCW costs

The City is responsible for funding 15% of the costs for the SVCW CIP, or \$96 million over the next 7 years, based on the amount of its wastewater treated by SVCW. The City funds its share of the costs for operations and capital improvement at SVCW through sewer rates paid by residents and businesses of San Carlos.

Costs for Capital Improvement and Operations of both the City and SVCW

The City's Wastewater expenses cover costs for both the City wastewater collections system, as well as the SVCW treatment plant. In the next fiscal year, Wastewater Fund expenses are expected to be around \$17 million, with the following breakdown:

Expense	Amount
City Operations and Maintenance	\$6,200,000
City Capital Improvements	\$2,000,000
City Capacity Assurance Improvements	\$2,000,000
SVCW Operations	\$3,800,000

SVCW CIP Debt Service	\$3,000,000
Total	\$17,000,000