



Sunnyvale

# WATER POLLUTION CONTROL PLANT

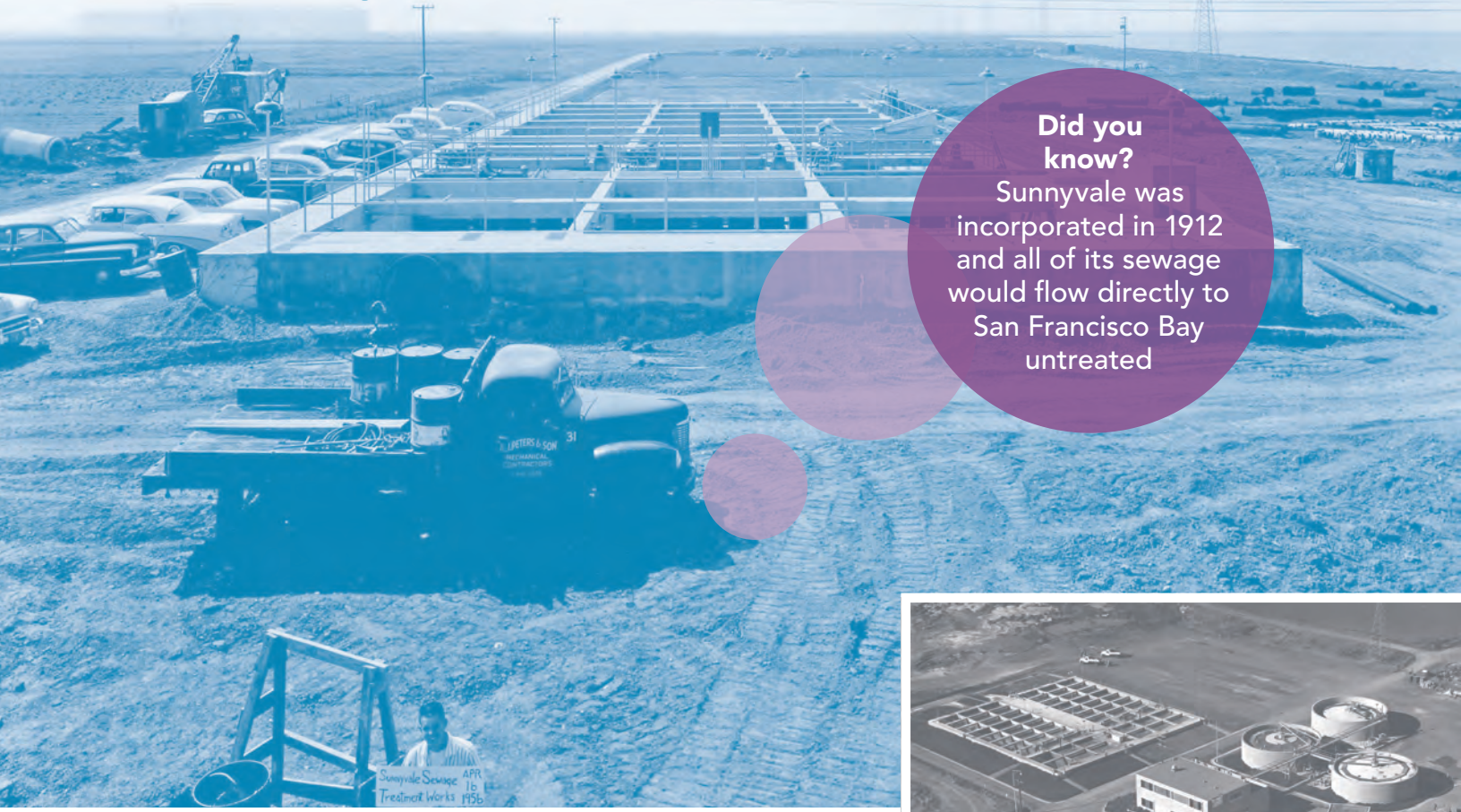
## Welcome to the Sunnyvale Water Pollution Control Plant

For 60 years, Sunnyvale's Water Pollution Control Plant has worked tirelessly 24 hours a day and 7 days a week. Rain or shine, the Plant continually serves Sunnyvale residents, even though the majority of what happens here goes unseen. We are that committed to providing excellent service. We are equally committed to being strong environmental stewards by ensuring that the treated wastewater discharged into the San Francisco Bay is of the highest quality and consistently meets rigorous and evolving regulatory standards. Thank you for taking an interest in what we love doing. We are convinced that the pride we take in a job well done is reflected by our continued and unwavering service.

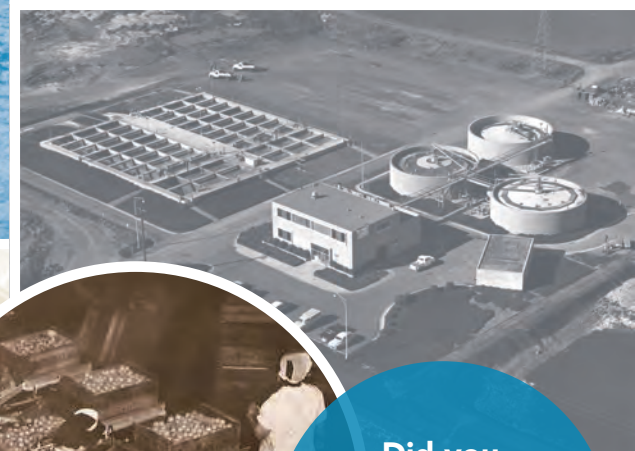
Serving  
Sunnyvale  
for 60 years with  
reliable and effective  
wastewater  
treatment



## How it all began...



**Did you know?**  
Sunnyvale was incorporated in 1912 and all of its sewage would flow directly to San Francisco Bay untreated



Originally constructed in 1956, the **Donald M. Sommers Water Pollution Control Plant** (Plant) has come a long way from its humble beginnings of simple primary treatment of municipal and cannery waste. Over the years, the Plant has undergone periodic upgrades, incorporating new technologies in wastewater treatment to improve the quality of its discharge as the City of Sunnyvale's population has grown to over 149,000 (2017).

In its present form, the Plant is designed to treat 29.5 million gallons of wastewater per day (MGD) to tertiary standards, but can handle much higher flows during storm events. Currently, the Plant is undergoing a major long-term Capital Improvement Program known as the Clean Water Program to rebuild and upgrade the entire facility and ensure it's continued service to Sunnyvale residents and the protection of the San Francisco Bay ecology well into the future.



**Did you know?**  
1 million gallons = 50 swimming pools of water

## Who we are.

Some 60 talented employees from various backgrounds keep the Plant running and in service. A skilled team of **Operators** work diligently 24 hours a day and continually monitor all treatment processes, while specialized **Maintenance Mechanics** ensure equipment and instrumentation reliability in a critical utility setting. **Support Service** staff form the backbone of the Plant workforce by assisting the general public, vendors, and other City staff, and providing administrative support.



As part of the Pollution Prevention Program, a dedicated group of **Environmental Compliance Inspectors** work closely with a wide variety of businesses to ensure that the composition of their wastewater is in compliance with City requirements and does not compromise the integrity of the Plant or the sewer collection system. Such businesses range from aerospace to semiconductor manufacturers and dental offices to restaurants. **Lab/Field Technicians** support the Inspectors by routinely collecting on-site wastewater samples that are analyzed for pollutants.

To ensure wastewater gets to where it's going, the **Water and Sewer System Division** is comprised of a team of individuals who vigilantly inspect and clean the collection system, perform repairs and upgrades, and support the Environmental Compliance Inspectors.

**Environmental Outreach** staff engage the community on water pollution prevention, conservation, and watershed stewardship. Staff work closely with schools and educate businesses and industries, and the community.

The Plant boasts an on-site laboratory, in which **Laboratory Chemists** analyze a variety of samples using sophisticated equipment capable of detecting minute concentrations of pollutants. Wastewater samples include those collected from businesses as well as the various treatment processes throughout the Plant. In addition to testing the wastewater samples, Chemists test the drinking water for the City of Sunnyvale, conduct research projects and prepare sample tests for regulatory agencies.

**Did you know?**  
Operators are present 24 hours a day, 7 days a week

# Sunnyvale Water Pollution Control Plant History

1956

Plant begins operation at 7.5 million gallons per day (MGD)

1962

Expansion to 15 MGD

1978

Tertiary treatment added; capacity up to 22.5 MGD

1960s

Oxidation ponds added: 115 and 325 acres

1972

Clean Water Act established

1980s

Present capacity reached 29.5 MGD



## How the Plant Works

While "wastewater treatment" may sound simple, it involves a number of physical, chemical and natural biological process steps and "stations" to get the job done. The three major treatment levels are primary, secondary and tertiary treatment. By the time the treatment process is complete, the water is clean enough to meet all standards for either recycled water uses or discharge into San Francisco Bay. The Plant currently produces and delivers an average of 250 million gallons of recycled water per year. Throughout the treatment process, the Plant focuses with great attention on safety, compliance, efficiency and cost effectiveness.

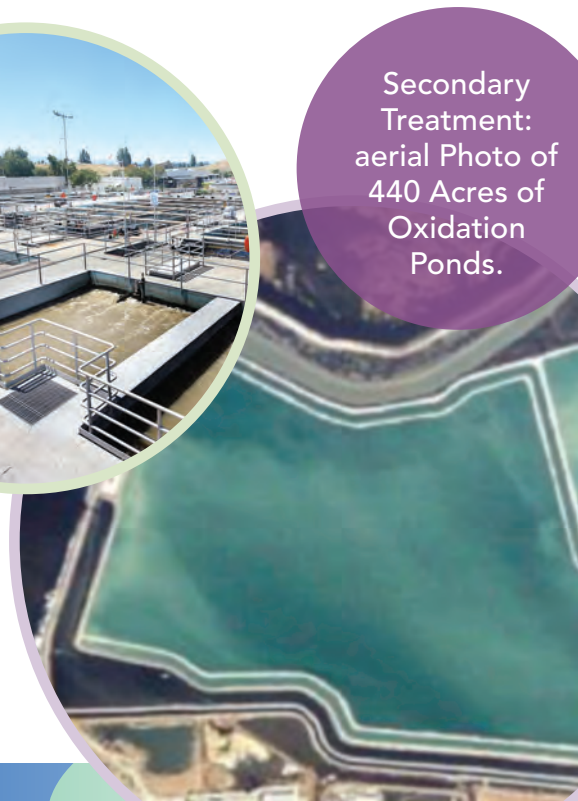
## Primary Treatment

Solids removal using influent screening/grinding, raw sewage pumping and metering, grit removal and primary sedimentation. During primary treatment, roughly 60% of influent solids are removed.



Preaeration tanks and primary sedimentation basins.

Secondary Treatment: aerial Photo of 440 Acres of Oxidation Ponds.





**2000**  
Expanded recycled water to 8 MGD



**2016**  
Sunnyvale Clean Water Program

**4**  
Capacity  
d:  
MGD



**2008**  
Strategic Implementation Plan (SIP) initiated

## Secondary Treatment

The goal of secondary treatment is to remove most of the remaining dissolved and suspended solids, and to convert ammonia to nitrate. After most of the heavy solids have been removed during primary treatment, the water flows by gravity into 440 acres of oxidation ponds. From there it is pumped to the fixed growth reactors, and then to dissolved air flotation tanks. Following secondary treatment, 92% of influent solids will have been removed and nitrate will be the dominant form of nitrogen.

## Tertiary Treatment

Effluent from the dissolved air flotation tanks is pumped to the tertiary treatment facilities, which includes effluent filtering, chlorine disinfection and dechlorination prior to discharge. Following tertiary treatment, 96% of influent solids will have been removed.



Rotating arm of fixed growth reactors distributing pond effluent over plastic growth media.



Chlorine contact channels treating effluent prior to discharge to the San Francisco Bay.

# What's in those purple pipes?

Water is arguably the most precious resource on the planet, without which life would cease to exist. Since 2002, the Plant has been diverting up to 10% of the wastewater it receives to the production of **recycled water** that meets or exceeds the stringent requirements contained in Title 22 of the California Code of Regulations. Recycled water produced at the Plant is distributed through "purple pipes" to more than 100 users throughout Sunnyvale. In a given year, the Plant produces roughly 250 million gallons of recycled water to offset potable water that would otherwise be used for irrigation of private and public landscapes, parks and golf courses; for use in decorative ponds; and for other approved uses. In response to California's ongoing drought, the Plant has partnered with the Santa Clara Valley Water District to expand the scale of recycled water production and enhance the reliability and efficiency of its delivery.



RECYCLING  
GETS  
A BOOST

**Did you know?**  
There are more than 100 recycled water users in Sunnyvale



## Where do biosolids come from?

**Biosolids** are a natural product produced at the Plant through a process known as "anaerobic digestion," in which tiny microbes breakdown organic matter and remove harmful pathogens in wastewater. The finished product resembles dark soil and has a rich nutrient content, which makes for a great fertilizer. In fact, the majority of the biosolids produced at the Plant are hauled off-site and applied to agricultural fields. As if that wasn't enough, the microbes also produce "biogas," which is captured and utilized for its methane content by generating engines to produce all the power the Plant needs to operate.

# SUNNYVALE CLEAN WATER PROGRAM

## We're rebuilding what has worked so well.

The Water Pollution Control Plant handles wastewater treatment for more than 149,000 residents and business people who don't have to think twice about it. Since 1956, the Plant has protected the health and well-being not only of its human customers but also the southern San Francisco Bay. With decades of operation under its belt, some components of the Plant are nearing the end of their useful lives and much of the aging infrastructure needs replacing.

Fortunately, the City is well into its planning for the future. While age is a major driver for the City's Water Pollution Control Plant Master Plan, other factors include the need for operational reliability, increased capacity, emerging regulations and innovative technology that will guide the Plant rebuild over the next 20-plus years. All of these improvements are encompassed in the **Sunnyvale Clean Water Program** (Program), which is the City's long-term capital improvement program to renovate the Plant through a series of projects and upgrades.

## What the Sunnyvale Clean Water Program will do.

- ① Minimize capital and operational costs for rate payers by selecting the best and most cost-efficient technologies that meet our needs.
- ② Meet current and future regulatory standards for water and air quality.
- ③ Provide a more reliable power supply through renewable energy produced by the Plant.
- ④ Enhance safety measures and maximize the use of existing space at the facility.
- ⑤ Extend the useful life of existing facilities where practical to get maximum benefit.
- ⑥ Ensure projects are designed and built to adapt to future financial and regulatory changes.
- ⑦ Employ innovative technologies that improve operational efficiency.
- ⑧ Protect against flooding and risks associated with sea level rise.

**The Clean Water Program** is a long-term capital improvement program to renovate Sunnyvale's aging wastewater treatment infrastructure through a series of construction projects

For more information visit us at  
[Sunnyvale.ca.gov](http://Sunnyvale.ca.gov)  
[Sunnyvalecleanwater.com](http://Sunnyvalecleanwater.com)  
Phone: 408-730-7260

**Did you know?**

There are a total of 37 wastewater treatment facilities serving the Bay Area

**Did you know?**

There are more than 280 miles of sewer pipes in Sunnyvale

