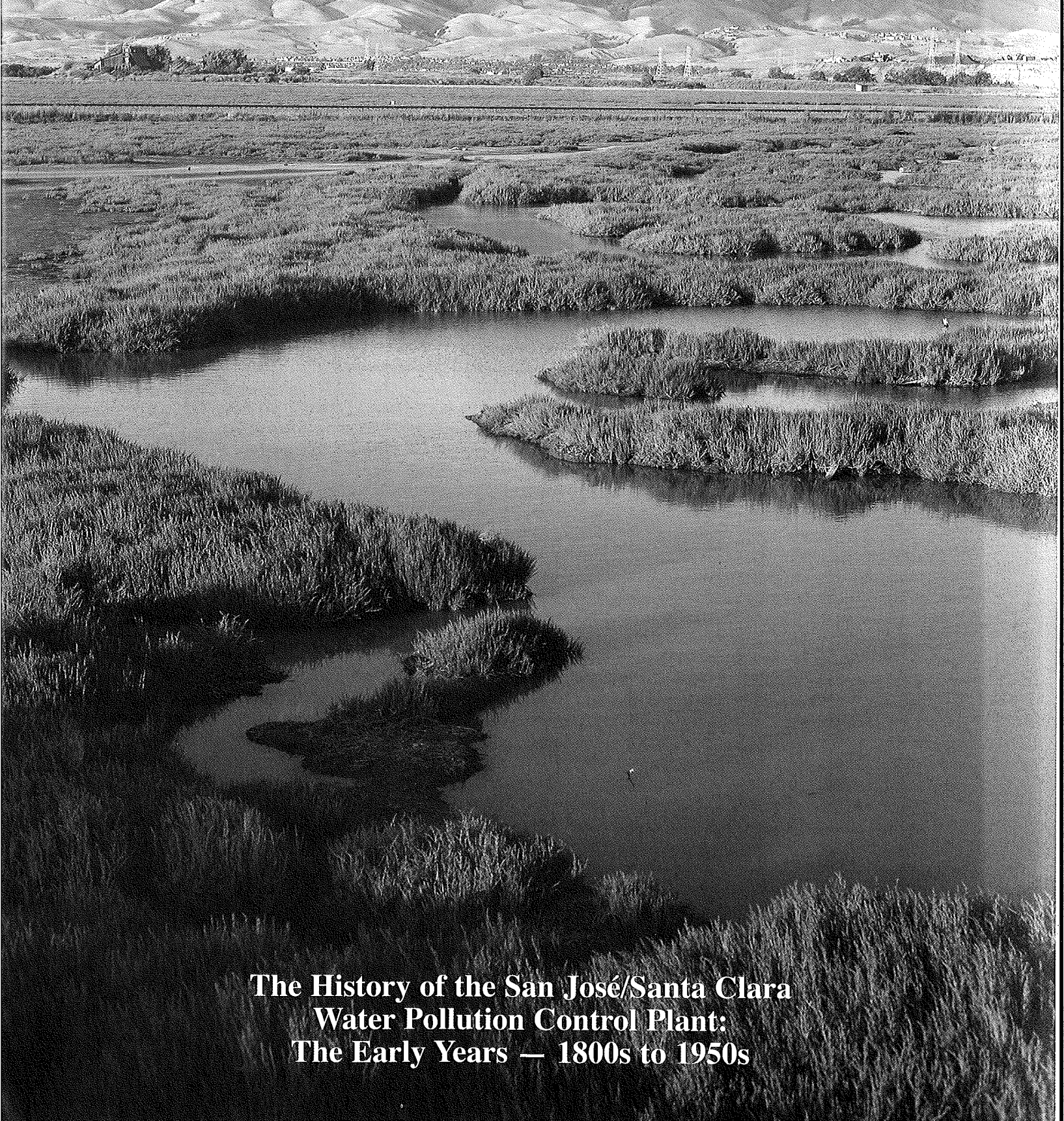


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**The History of the San José/Santa Clara
Water Pollution Control Plant:
The Early Years — 1800s to 1950s**

The History of the San José/Santa Clara Water Pollution Control Plant: The Early Years – 1880s to 1950s

By Amy Fonseca and Paul Prange

The following is an excerpt from a manuscript tracing the history of the South Bay's Water Pollution Control Plant completed under the aegis of the City of San José's Environmental Services Department. It documents an area of regional history oftentimes ignored but that is of tremendous consequence. How a region creates its infrastructure, including its system of waste disposal, helps determine its economic course and provides insights into its political history. We have included the first part of the document in this issue of The Californian. CHCF is currently working with the City of San José to publish the complete manuscript in book form as part of CHCF's Local History Series.

In January 2007, the *British Medical Journal* polled medical experts and thousands of doctors around the world on what they believed to be the greatest medical breakthrough since the journal began publication in 1840. Of the hundred nominations, sanitation won the vote: By reducing the spread of infectious diseases and improving standard living conditions, sanitation helped to increase the average human lifespan by an impressive 35 years within the twentieth century.¹

Residents in the south San Francisco Bay Area (South Bay) rarely think of sewage after the toilet is flushed, unaware that the San José/Santa Clara Water Pollution Control Plant (Plant) has protected the health of the southern San Francisco Bay (Bay) and local residents for more than 50 years. Prior to its construction in 1956, local cities, like those throughout America, simply dumped sewage into the nearest body of water; in this case the southern Bay. Wastewater in the Santa Clara Valley (Valley) was especially problematic because canneries, the Valley's largest industry at the time, also dumped wastewater full of fruit byproducts directly into the southern Bay from late summer through the end of fall. Because of the southern Bay's relatively slow circulation, much of the waste remained untreated and continued to rot until it was finally washed out with the rains in November. The sewage was not only unsightly and odorous, but it also created unsanitary conditions and had the potential to spread infectious diseases throughout the Valley. With its construction in 1956, the Plant reversed the deplorable condition of the southern Bay thereby improving and maintaining a quality of life for area residents and marine life.

The Plant has also played a direct role in the growth of the City of San José (City), much of the South Bay, and its economy. To grow and properly function, a city's infrastructure must be able to successfully support it. City planners were well aware of this in the 1950s. With a wastewater treatment plant, they could attract business,

About the Authors

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development, and land annexations to the City by offering lower sewage disposal and connection fees than other South Bay cities. To achieve their quest to transform San José from a quiet agricultural town into a large and robust city, planners encouraged residents to fund a state-of-the-art sewage treatment plant. Early on, the residents and food processing industry resisted allocating money to build the Plant, but eventually came to see that it served a necessary and important service. When the City was threatened



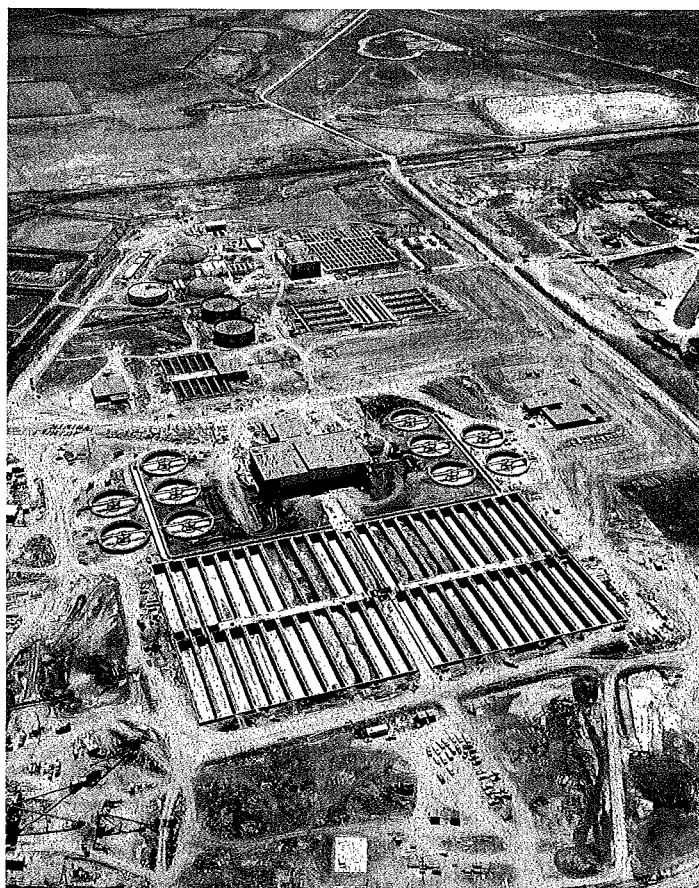
April 18, 1955 ground breaking ceremony with Mayor George Starbird (pictured center with shovel), City Manager "Dutch" Hamann (pictured second from the left), and other city officials. Courtesy of Environmental Services.

with a moratorium on development because the Plant reached maximum capacity in the early 1980s, businesses and developers advocated expansions. In 1981, the President of the Santa Clara Manufacturing Group called the Plant “the cornerstone on which everything else is built.”²²

Completed in 1956, the Plant had an original capacity to treat 38 million gallons per day (MGD) of wastewater and served a population of approximately 100,000. Since then, the Plant has expanded and grown along with the South Bay. Today it serves approximately 1.4 million residents across eight cities and can treat 167 MGD³. Many of the Plant’s expansions were dedicated to the treatment of organic wastes from the canneries; because of this, it could well handle the growth in population over the years as the local industry transitioned from one dominated by food processing to the high-tech industry that dominates today. As a southern Bay discharger, the Plant is subject to the San Francisco Bay Regional Water Quality Control Board’s (Regional Board) stringent regulations. Due to the slow movement of water in the southern Bay, the Plant has ensured that the effluent discharged into the Bay is as clean as possible. This helped to make the Plant one of the largest and most advanced wastewater treatment facilities in the nation. City and Plant staff are dedicated to limiting the effluent discharge’s effect on the delicate ecosystem. In 2006, the Plant and its staff celebrated 50 years of continuous operation, and it is the City’s intention to continue offering quality wastewater treatment. Former Environmental Services employee JoAnna DeSa believes: “[The Plant] is the guardian of the environment. Without it, the Bay would be a cesspool that couldn’t be enjoyed by the people.”²⁴

In the Beginning

In the late 1880s, many large cities in the United States, including San José, constructed simple sewage systems that channeled untreated wastewater from residential and industrial sites directly into local rivers, creeks, or any large body of water.⁵ The upturn in the economy, especially after World War II, improved the standard of living for many. By the late 1940s, 55 percent of Americans had indoor plumbing, which generated more wastewater from showers, baths, and toilets.⁶ Technological advances increased the number of home appliances that used large quantities of water such as washing machines, dishwashers, and garbage disposals. In between the years of 1900 and 1950, the volume and content of the nation’s wastewater could only intensify as the population of the U.S. increased from 76 million to 151 million, and industrial capacity grew by an astonishing 700 percent.⁷ Wastewater from residents increased in volume and complexity to such an extent that it became inconvenient for urban residents to



Aerial view southeast of primary treatment plant ca. 1959 (center right), including plant expansion construction (center), Zanker Road, neighboring hog farm (center bottom), and orchards and the Diablo Range foothills in the distance. Courtesy of Environmental Services.

rely on decentralized septic tanks for sewage disposal.⁸ The nation’s waters suffered as a result of all of these combined intensified water uses.

Early History of Water Pollution Control

In 1946, Congress passed the Water Pollution Control Act in response to the increasing volume of industrial and residential wastewater contaminating the nation’s waters.⁹ The law aimed to “restore and maintain the chemical, physical and biological integrity of the Nation’s water.”¹⁰ It was the first federal law to regulate water pollution, which Congress had earlier deemed a state issue. With many states either refusing to create water pollution control standards or failing to enforce them, Congress felt it necessary to intercede. The 1946 law authorized the Surgeon General to fund research on wastewater treatment in an effort to create federally

uniform standards for water quality in interstate waters.¹¹

While the federal government was busy, the State of California's (State) Assembly Committee on Water Pollution reassessed its regulation of water quality. At the time, local counties and municipalities regulated their own waters, but overlapping jurisdictions, regional industries, and interest groups made enforcement difficult. Compounded with the increase of waste being dumped in California's waters, the State recognized the growing need to consolidate disparate water pollution control standards.¹²

In 1949, the state legislature enacted the Dickey Water Pollution Act that created the State Water Quality Control Board and nine regional boards, including the San Francisco Bay Regional Water Quality Control Board (Regional Board).¹³ The Dickey Act went beyond the standards previously created by the State Health Board by curtailing water pollution that created a nuisance from odors or unsightliness.¹⁴ Failure to comply with regional or State water quality laws resulted in fines and/or criminal or civil suits for any parties involved.¹⁵ With increasing regulation, Bay Area cities realized that they would have to clean up their methods of disposing wastewater or face years of heavy fines.

History of Pollution in the Bay and the Planning of the Plant

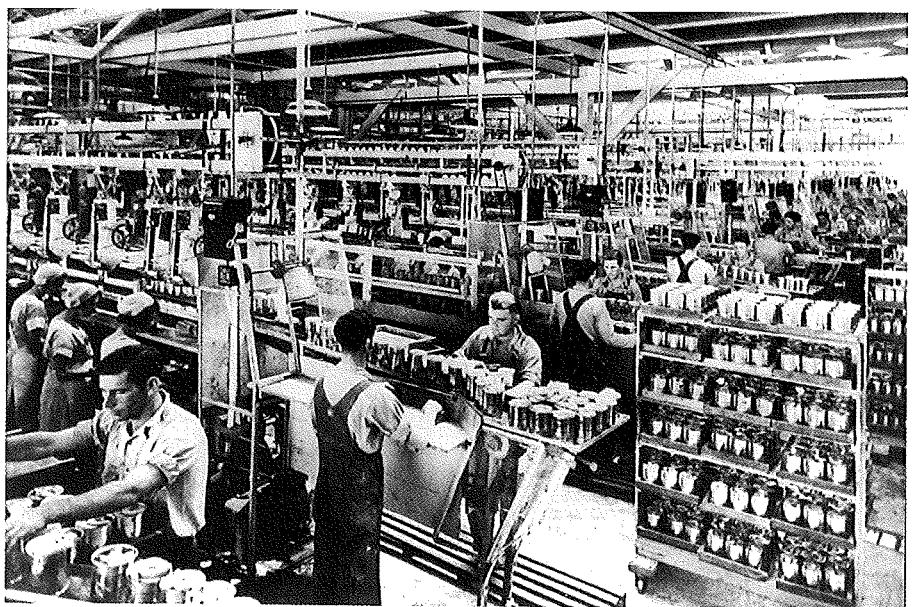
Planning for a wastewater treatment plant began in 1946 when the County of Santa Clara (County) commissioned the *Santa Clara County Sewage Disposal Survey Report Upon the Collection, Treatment and Disposal of Sewage and Industrial Wastes of Santa Clara County California*.¹⁶ Instead of each city dealing with its own sewage problems, the County wished to consolidate all sewage treatment into one treatment plant. San José's existing sewer system consisted of concrete pipes that pumped untreated sewage and storm water from downtown and north San José into the Bay.¹⁷ The pollution of the southern Bay had become so intolerable that the State Board of Public Health enacted the Resolution Against Disposal of Raw Sewage into the Waters of the State without Appropriate Sewage Treatment in 1946, which included a review of sewage disposal permits.¹⁸

During World War II, local regulations on wastewater became extremely lenient.¹⁹ Food processing, a major industry in the South Bay, was the most visible contributor to water pollution. Canning production during the war was vital. To speed up production, the canneries removed screens from their sewer connections,

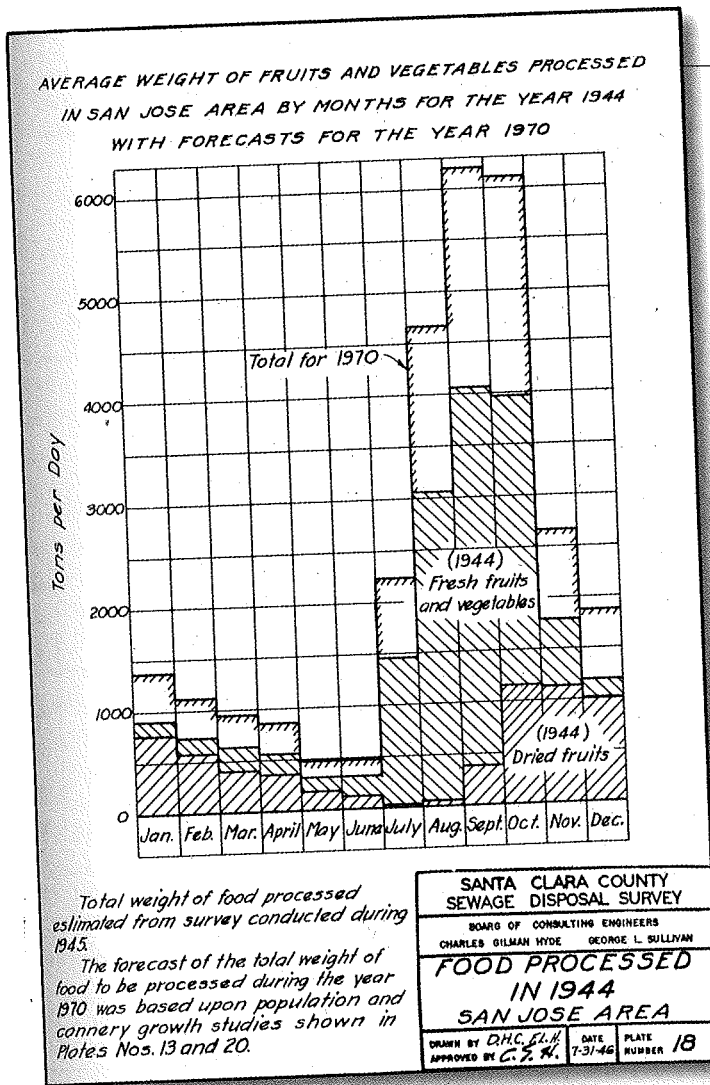
resulting in massive amounts of organic wastes being dumped into Coyote Creek, which flowed into the southern Bay. Food processing and industrial wastes, along with raw sewage became so intolerable, that as the war ended, the State began reversing its neglect of water quality in the Bay.²⁰

Adding to the concentration of pollution, many natural freshwater streams flowing into the Bay that should have aided in decomposition and dilution of wastewater were being diverted for local agriculture and to Southern California.²¹ The Bay itself had been slowly shrinking as a result of industrial land filling from construction, such as airports, highways, bridges and salt ponds that further concentrated Bay waters.²²

The war also indirectly contributed to increase in wastewater flowing into the Bay by way of population growth. War industries brought military personnel to the Bay Area who concentrated in coastal areas with harbors, many of whom decided to stay permanently.²³ The main goal for building a wastewater treatment plant in the southern Bay was to improve the quality of life in the area. The amount of organic wastes in the southern Bay attracted potentially dangerous vectors such as rats and insects that had the potential to spread infectious diseases such as cholera and typhoid. They lived in and fed off of the waste and brought raw sewage in contact with people living in the area.²⁴ Sewage bond pamphlets stressed that these contagious diseases were not confined to the residents of Alviso, but extended to the greater South Bay.²⁵ The agricultural industry also attracted seasonal workers



Libby, McNeill & Libby cannery factory floor; Sunnyvale, 1930. Courtesy Sunnyvale Historical Society.



Graph of "total weight of food processed estimated from survey conducted during 1945" (by months) from Santa Clara County Sewage Disposal Survey, by Charles Gilman Hyde, George Leonard Sullivan, and Board of Consulting Engineers, 1946, plate 18. (Please note forecast for 1970.)

whose short-term dwellings did little to keep out these unwanted pests. City planners warned that the children put their lives at risk everyday when they played in or around the southern Bay. Over the years, San José's sewer system became a kind of rat "super-highway" and granted easy access into homes and businesses via storm drains and manhole covers in the streets. The County Board of Consulting Engineers suggested the County build two separate sewage systems for storm water and wastewater in order to reduce the amount of wastewater requiring treatment and to reduce the number of rodents living in the storm drains and sewers which were attracted by the sewage.²⁶

The waste in the Bay was not only dangerous, but unsightly. In March 1950, Joel Y. Rickman of the *Palo Alto Times* described the condition of the Bay: "In short, San Jose has two sides—her good side and her bad side. Her good side, of which the Municipal Rose Gardens is part, is one she presents to the outside world for flattering plaudits. Her bad side, the bubbling, stagnating filth of the Alviso outfall, is the one she keeps locked behind high iron fences."²⁷ The southern Bay was so unattractive, that the then separate cities of San José (City) and Alviso could not attract development in the areas near the Bay, which had been a popular harbor in earlier decades. The hydrogen sulfide produced by the cannery waste turned buildings with lead-based paints gray a few days after the start of canning season.²⁸ Surveyors out in the marshes often reported that silver coins in their pockets would turn brownish gray in a matter of minutes.²⁹ The City hoped that a wastewater treatment facility could turn this situation around. Ideally, the sewage could be treated well enough to allow residents to engage in leisure activities, water sports, and fishing in the southern Bay without risk to their health.³⁰

The Old Sewage System

San José's original sewer system simply dumped raw sewage into the Bay. According to author John Young, the City Council devised the existing sewer system in 1871 as part of the City's Master Plan.³¹ In the late nineteenth century, former City Surveyor and Civil Engineer Charles Pieper designed the combined storm water and wastewater sewer to serve a maximum 10,000 residents and 3,750 acres. Construction began in 1880 and was funded through bond money totaling \$250,000.³² Most of the sewer pipes were made of glazed stoneware and were relatively small in diameter to minimize costs, prevent the drying up of effluent in the summer, and because the population of the area was not expected to increase. Once completed, the main outfall sewer measured 60 inches in diameter and was made of brick and redwood. It ran from downtown through Alviso and discharged into the Mallard Slough, just one mile south of the existing Plant. As the City's sewage system ran through Alviso, then an independent city, San José had to purchase the right-of-way for the sewer from local orchard owners and grant them the right to tap into the wastewater for irrigation during the dry season.³³ In 1930, the outfall line was extended 2.5 miles further into the Bay.³⁴ Frank Belick, P.E., who assisted the County Board of Engineers and later served as Plant Manager from 1956 until 1980, remembers the outfall being noisy and clumsy looking.³⁵

As development increased, the City simply connected more pipes to the existing system. In fact, the residents of a small neighboring town called Willow Glen voted for their incorporation into

San José in 1936 because of this very sewer system. Until this time, residents of Willow Glen relied on individual septic systems that quickly proved to be inefficient by the 1930s. Annexing itself to San José was a quicker and more cost effective means of dealing with the small town's sewage dilemma.³⁶

Throughout the years, however, the sewage system and its outfall experienced numerous breakdowns. The system was not designed to accommodate the increasing population and industry, especially canning, and wore down with age. By 1923, the red-wood box sewer had rotted and was replaced with concrete pipes.³⁷ The combined wastewater and storm water system meant that the pipes proved too small to hold any large amounts of storm water during floods, which was increasing due to massive paving and development that prevented runoff from being absorbed into the ground. On the other hand, the pipes were too large to prevent

the sewage and cannery wastes from drying up in the summers.³⁸ In the late 1940s, breaks in the pipes became more frequent, adding to the push to redesign the entire system.

The years of constant use had weakened the pipes, especially those not covered by dirt, and breaks would occur during canning season. The problem was further exacerbated by land subsidence that gradually added to the instability of the pipes.³⁹ One of the largest reported breaks befell the sewer system in August of 1958, two years after the first Plant opened.⁴⁰ The main brick line, located just three feet below the surface, broke, spewing 1,000 gallons of sewage onto farmlands north of Trimble Road.⁴¹ To stop the leak, City workers buried the sewer line and once the flow had ceased, they dug it up for repairs. City Manager A.P. Hamann, one of the biggest supporters of renovating the entire sewage system, responded to the news by saying: "I told you so."⁴²



The San José/Santa Clara Water Pollution Control Plant has evolved to become one of the largest, most advanced wastewater treatment facilities on the West Coast, serving 1.4 million residents and 16,000 businesses in an eight-city area of the South Bay. The City of San José has been operating the Plant since its construction in 1956 and has managed it as an award-winning facility. However, the Plant is now more than 50 years old with many assets at the end of their projected life cycles. In addition to aging infrastructure, factors such as population growth, stricter regulations, and the availability of safer, greener technologies are driving the need to create a fresh plan for the Plant's operations. The Plant Master Plan is a three-year process that will engage the public, decision-makers, and green technology experts in charting a course for the Plant for the next 30 years. In addition to new technologies, the Master Plan will

consider new uses on some of the Plant's 2,600-acre property that includes open grasslands and an 850-acre former salt pond.

PLANT MASTER PLAN INFORMATION & PLANT TOURS All interested residents and groups are invited to participate in the Plant Master Plan and/or take a Plant bus tour. The fall season of Saturday public tours of the Plant ends November 1, 2008, but will restart in Spring 2009. For more information on the Master Plan or Plant tours, visit: www.sanjoseca.gov/esd/plantmasterplan

PLANT MASTER PLAN CONTACTS City of San José Environmental Services Department operates the Plant and is overseeing the Plant Master Plan. For more information, contact:

(area code for all numbers: 408)

John Stufflebean, Director - 535-8560

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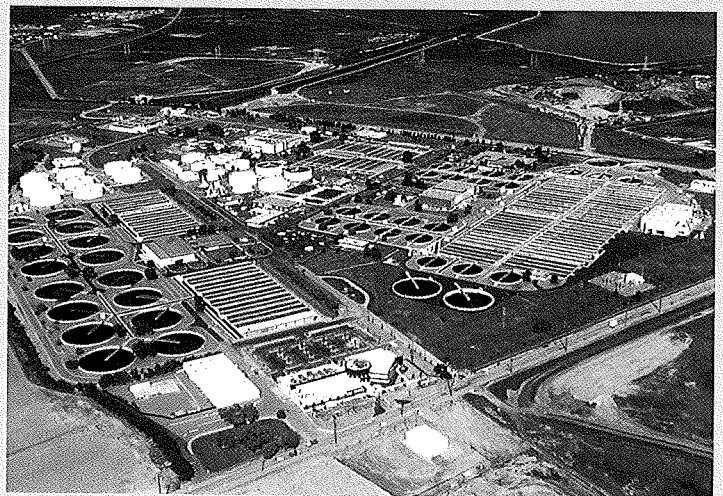
phone: 945-5182

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City of San José, Environmental Services

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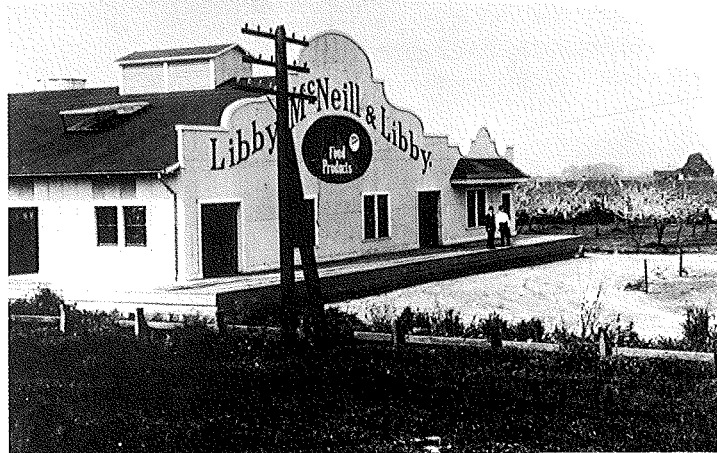
San José, CA 95113-1905



Plans for Wastewater Treatment in the Santa Clara Valley

By 1948, the County of Santa Clara recruited Sanitary Engineers Charles Gilman Hyde of the University of California, Berkeley and George Sullivan of the University of Santa Clara to serve on the Santa Clara County Board of Consulting Engineers (Board of Engineers) and report on the status of the County's existing sewage systems.⁴³ The team also included Sanitary Engineer Frank Belick who assisted in the surveying. The Board of Engineers published the *Santa Clara County Sewage Disposal Survey Report* in 1946, recommending one large primary sewage treatment facility for most of the County.⁴⁴ The County contained five sanitary districts, of which the City of San José made up Sanitary District One. According to Belick, under the federal Water Pollution Control Act and the State Dickey Act, the County was ordered to build a sewage treatment facility, but was not given a deadline for completion and received only partial funding to design and build the plant.⁴⁵ The County paid for the sewage disposal survey with money from a "rainy day" State reserve created during the war to finance projects related to environmental protection. Due to the small budget allocated to the report, the County recruited local residents to assist in the surveying and paid them to take water samples using their own boats.⁴⁶ Belick now believes that the County made a wise move, as the cost of the report would have surged had the County delayed.⁴⁷

Belick recalls that as their first attempt to curb pollution in the Bay, the County encouraged industry to cut back on wastewater



Libby, McNeill & Libby, a Chicago meat-packing company, opened its first fruit cannery in Sunnyvale in 1907, and soon after became the largest employer in the area. By 1922 this facility had also become the world's largest cannery. Courtesy Sunnyvale Historical Society.

and pay for their own wastewater treatment and disposal. The canneries refused, arguing that the cost of waste disposal would be too high and would lead to smaller profits and fewer jobs.⁴⁸ Since this plan for water pollution control was not feasible, the Board of Consulting Engineers recommended building a sewage treatment plant to provide primary and secondary treatment, including oxidation ponds.⁴⁹ The County planned to start building the plant in 1948. Once the proposed construction commenced, the project would take 18 months to complete and the \$3 million in costs would be financed through revenue bonds and by cities within the County.⁵⁰ Unfortunately, Belick explains, the County's plans proved overly optimistic, as it was unable to get all of the cities to agree or commit to the project.⁵¹ It seems no one was eager to put up their own dollars to fund the badly needed plant. Since the federal and State authorities had not set any dates for counties to comply with water pollution control standards, the County and its cities simply put it off.

San José Pushes Forward with a Treatment Plant

Tired of waiting for the County to build a sewage treatment plant, San José struck out and began making plans to build its own plant. By this time, numerous other cities, such as San Francisco, Pleasanton, Irvington (now Fremont), Mountain View and Sunnyvale, were building or planning for their own treatment plants.⁵² Palo Alto was the first Bay Area city to construct a plant in 1934.⁵³ In March of 1949, the City paid the Hyde-Sullivan consulting firm \$166,000 to study sewage treatment options for the City.⁵⁴ With a limited annual budget, the City paid for most projects through bonds because it had no means of raising taxes.⁵⁵ It received federal and State grants to build a plant, but these funds only covered a small portion of the total costs.⁵⁶

The sewer bond initiative of 1949 faced many opponents. The canneries and anti-growth committees proved to be the loudest objectors. The City's 22 canneries, at the time the largest industry, employed almost half of San José's work force and had a lot of lobbying power.⁵⁷ They contended that the City did not need a sewage treatment plant or oxidation ponds. Belick well remembers the canneries' objection to the sewage bonds. He feared going anywhere, especially to City Hall, because protesters from the canneries would follow City employees and spend the day in the City parking lot shouting that they would lose jobs if the plant was built. They blamed the City and refused to acknowledge that it was just trying to follow the law.⁵⁸

In the 1949 general election, the treatment plant and sewer bonds failed to receive the two-thirds majority needed to pass.⁵⁹ By 1950, the State Department of Health denied the City a permit to dump sewage, and issued a cease and desist order to San José and

numerous other entities in the Bay Area to stop dumping sewage into the Bay.⁶⁰

In response, A.P. "Dutch" Hamann and his pro-growth associates in the Citizen's Committee, headed by Fred J. Fletcher, reached out to churches to help campaign for all of the City's proposed bond issues.⁶¹ As a City Manager, Hamann was heavily invested in the growth of San José from the 1950s through the 1960s.⁶² Under his term as City Manager, Hamann pushed for the annexations of areas lying outside of the City's limits to fund its growth, maintain dominance in the South Bay, and generate tax revenue to pay for the infrastructure needed to attract industry and developers.⁶³ According to authors Philip Trounstine and Terry Christensen, between 1950 and 1970, Hamann and his "Panzer Division" helped gain the City Council's approval of 1,391 annexations, adding 132 square miles to the City's limits.⁶⁴ The annexations contributed to the doubling of San José's population between 1952 and 1957. This was all part of Hamann's dream to make San José the "Los Angeles of the North."⁶⁵ The new sewage treatment plant and the sewer system became a focal point for facilitating this growth by enticing residents in outlying areas to approve annexation into San José.⁶⁶

In 1950, the City put up sewer bond issues for the second time. That year there were numerous bonds to fund the City's pro-growth infrastructure such as overhauling the sewage system, expanding the airport, and improving streets.⁶⁷ The City altered the new sewage bond issues to include the new plant location in Alviso and to separate the storm sewers from wastewater sewers. By separating the sewers, the City would reduce the amount of wastewater that needed treatment and could thus build a smaller plant.⁶⁸ City officials warned voters that if the sewage bonds did not pass, the economy and new development would be halted.⁶⁹ Delaying the passage of sewer bonds would only cost the taxpayers more in the long run as the City accrued more non-compliance fines.⁷⁰ Residents passed the sewer bond issues in May of 1950 and the canneries finally accepted the construction of the Plant as inevitable.⁷¹

Despite the passage of bonds, the City still did not have enough funds to build a modern sewage treatment plant with secondary treatment and the capacity to accommodate anticipated growth. Officials therefore chose to build a primary treatment plant large enough to satisfy water quality laws and left the secondary facilities for a later date. Hamann offered neighboring cities sewage treatment capacity if they assisted in financing. The cities refused, citing that San José's canning industry was the main source of the region's problematic wastewater.⁷² Despite this brief setback, Hamann was able to find other funds for the sewage disposal system while at the same time supporting his pro-growth agenda.

Trounstine and Christensen argued that San José's sewage monopoly proved to be its "greatest weapon in the annexation wars" and served as an effective tool to entice developers.⁷³ For example, Public Works built new sewers larger than needed in anticipation of growth and annexations. Residents of unincorporated areas were enticed to join San José with subsidies for sewage connections without having to pass bonds to pay for capital improvements. The City Council further enhanced this method when in 1951 it banned outside links to San José's sewage system.⁷⁴ City planners also designed the extension of the sewage system around developers' interests. With each inquiry from a prospective developer, planners placed pushpins into a map. When any area on the map received enough pins, the City simply built a sewer line without being asked.⁷⁵ As an additional incentive, San José supplemented developers and businesses with lower sewer connection and disposal fees than neighboring cities.⁷⁶ Eventually, argues the late historian Leonard McKay, "the sewage disposal plant proved to be one of the major attractions for new businesses and San José became Silicon Valley." But first, San José had to build the Plant.

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⁶ King College Library, "American Cultural History in the Twentieth Century: 1940-1949 [online];" available from: <http://kclibrary.nhmccd.edu/decade40.html>; Internet; accessed 9 April, 2008.

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¹² California Environmental Protection Agency, "The History of the California Environmental Protection Agency [online];" available from: <http://www.calepa.ca.gov/About/History01/swrcb.htm>; Internet; accessed 6 December, 2007.

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- ¹⁸ Hyde and Sullivan, 1.
- ¹⁹ *Ibid.*
- ²⁰ *Ibid.*
- ²¹ Doug Haydel, "Regional Control of Air and Water Pollution in the San Francisco Bay Area," *California Law Review*, Vol. 55, No. 3, (August 1967) [online]; available from: <http://links.jstor.org/sici?sici=0008-1221%28196708%2955%3A3%3C702%3ARCOAW%3E2.0.CO%3B2-T>; Internet; accessed 7 December, 2007, 713.
- ²² *Ibid.*
- ²³ *Ibid.*, 38-40.
- ²⁴ *Ibid.*, 4-6.
- ²⁵ City of San José, "Questions and Answers for Sewage Bonds," *City of San José: Sewage Bonds*, (21 April, 1950).
- ²⁶ *Ibid.*, 2-4.
- ²⁷ Joel Y. Rickman, "San Jose's Inadequate Outfall Sewer Brings Filth, Odor, Disease," *Palo Alto Times*, 13 March, 1950, 4.
- ²⁸ Franck Belick, Interview by Amy Fonseca, digital voice recording, San José, CA, 12 December, 2007.
- ²⁹ Belick, interview, 2007.
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- ³¹ Young, 1.
- ³² *Ibid.*, 1-4.
- ³³ *Ibid.*, 2-5.
- ³⁴ City of San José, *San Jose/Santa Clara Water Pollution Control Plant: Brief Historical Background*, San José/Santa Clara Water Pollution Control Plant File Archive.
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- ³⁶ Willow Glen History, "Willow Glen History [online];" available from: <http://www.willowglen.com/history/>; Internet; accessed 10 November, 2007.
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