

APPENDIX A

Previous Master Plans

Appendix A contains a summary of the three previous master plans that have been developed and executed by the City of San Francisco. Three previous master plans have been implemented in San Francisco's history. This Sewer System Master Plan (SSMP) will be the fourth master plan to be developed. An overall timeline of the city's wastewater system history is outlined in [Figure A-1](#).

1899 Master Plan

The boom town development of San Francisco, as a result of the California Gold Rush in 1848, propelled the city into a period of rapid growth, transforming San Francisco into the largest city on the West Coast at the time. To support this burgeoning population, the original sewer system was designed to carry combined wastewater and stormwater flows to the shoreline, and by 1899, over 300 miles of these combined sewers had been completed. At this point, the city's first real coordinated sewerage plan was developed (Grunsky 1899) as summarized on the following page.

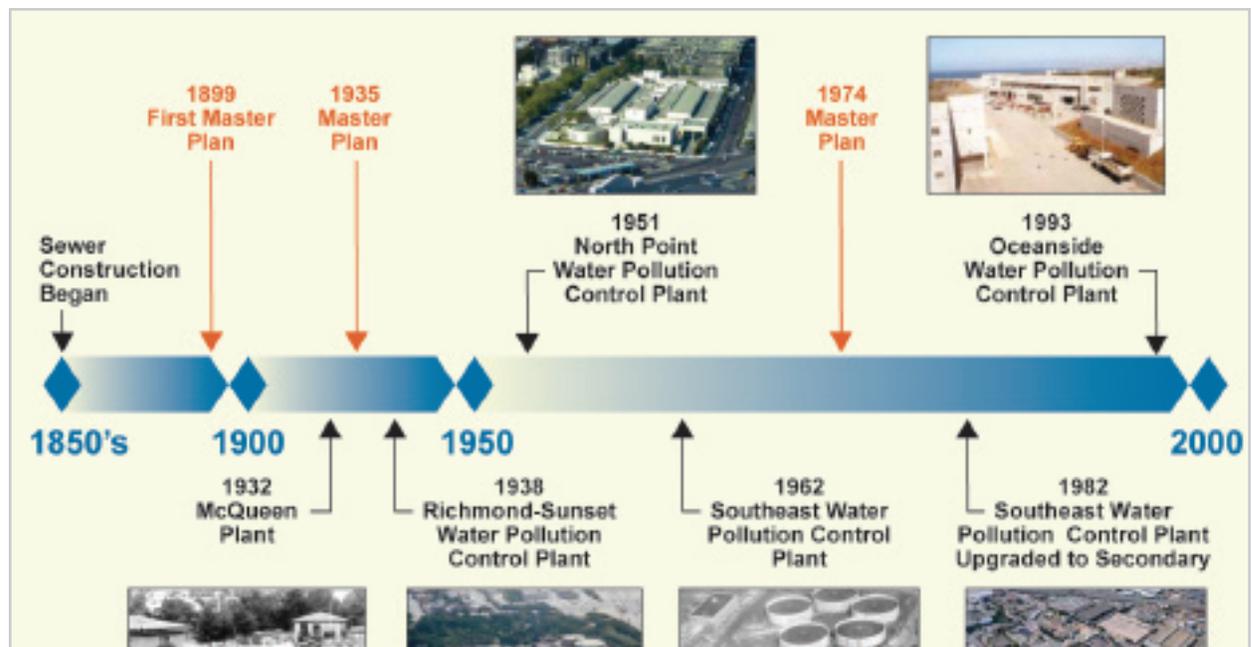


Figure A-1. SFPUC Wastewater System Development Timeline

Problems Addressed

- Public exposed to unsanitary conditions
- Death from infectious diseases
- Backflow and flooding
- Foul waterfront and shorelands

Goals

- Protect public health
- Improve sanitary conditions
- Reduce spread of diseases

Recommendations

- Continue use of the combined sewer system
- Exploit excellent natural drainage features to collect wastewater
- Dispose of flow through deep-water outfalls

Main Accomplishments

- Standardized coordinated sewer design (effective drainage)
- Pump stations
- Consolidated discharge (eliminating onland discharges)
- 700 miles of combined sewers

These policies were followed until 1935, when another plan was developed (Eddy, et al. 1935).

1935 Master Plan

The 1935 Master Plan led to the construction of the first treatment plants, including the Richmond-Sunset Plant in 1938 and, on average, resulted in only 16.1% of the total annual flow (6 billion gallons) of combined sewage being bypassed to the bay and ocean annually. The construction of the North Point Water Pollution Control Plant and the Southeast Water Pollution Control Plant (SEP) was delayed until 1951 by World War II. The North Point Water Pollution Control

Plant, located on the shoreline north of Coit tower, was the facility for the northern drainage basin; the SEP, near Islais Creek, served the southeastern part of the city. As a side note, in 1932 the city built a small secondary treatment plant, the McQueen Plant, in Golden Gate Park as a source for irrigation water. Revised standards for recycled water, however, required the suspension of daily operation of this facility in 1978.

The 1935 Master Plan is summarized below.

Problems Addressed

- Shore waters polluted by untreated wastewater
- Beaches dangerous and unanaesthetic for public recreational use

Goals

- Return beaches and coastal waters to a safe and attractive condition

Recommendations

- Divide San Francisco into three drainage basins, each with its own sewage treatment plant
- Divert to the treatment plants all dry-weather flows and all storm runoff from light rainfall (storms of intensities up to 0.02 inches of rainfall per hour)
- Continue use of the combined sewer system

Main Accomplishments

- Sewer district consolidation
- Three primary treatment plants
- Offshore deep-water effluent outfalls.
- Wet-weather only overflows.
- 900 miles of combined sewers
- 56 diversion structures
- 35 miles of intercepting sewers
- 22 pump stations

1974 Master Plan

The 1974 Master Plan (Environmental Protection Agency 1974) was developed in response to the Federal Water Pollution Control Amendments of 1972 (33 U.S.C. §1251, otherwise known as the Clean Water Act) and led to construction projects that were implemented over an approximately 25-year period. These projects resulted in the construction of the city's transport/storage (T/S) structures (Chapter 4, [Section 4.2.2.1](#)); enlargement and upgrade of the SEP to secondary treatment for the entire Bayside Watershed dry-weather flow (Chapter 4, [Section 4.2.3.2](#)); development of the North Point Water Pollution Control Plant as a wet-weather facility – North Point Wet-Weather Facility (NPF) (Chapter 4, [Section 4.2.3.3](#)); and ultimately, the construction of the new Oceanside Water Pollution Control Plant (OSP), a secondary treatment facility that replaced the outdated Richmond-Sunset Plant on the west side of the city (Chapter 4, [Section 4.2.3.4](#)).

Problems Addressed

- New discharge standards of the Clean Water Act
- 40 to 80 untreated overflow events per year
- San Francisco Bay Water Board Cease and Desist Order

Goals

- Comply with new regulations
- Upgrade to secondary treatment
- Reduce wet-weather overflows

Recommendations

- Transfer dry-weather flow from northeast basin to SEP for secondary treatment
- Reduce wet-weather overflows to 10 or fewer per 1974 Stormwater Model basin area, depending on beneficial use

Main Accomplishments

- Secondary treatment of all dry-weather flow
- Construction of the OSP
- Upgrade and expansion of the SEP
- Southwest Ocean Outfall (SWO)
- Expanded wet-weather treatment
- 17 miles of T/S structures providing up to 197 MG of total storage (including both T/S structures and connecting large sewers)
- On average, only 4.4% of total annual flow (1.6 billion gallons) which receives T/S structure decant treatment is bypassed to the bay and ocean annually through near-shore discharges during wet-weather.
- Major structures of the current wastewater system of the San Francisco Public Utilities Commission (SFPUC) are presented in [Figure A-2](#).



Figure A-2. Current SFPUC Major Facilities as a Result of the 1974 Master Plan

References

Eddy, H., Hyde, C., Kennedy, C., Reynolds, L. *Report on the Treatment and Disposal of the Sewage of the City and County of San Francisco, California*. 1935.

Environmental Protection Agency. *Final Environmental Impact Report and Statement, San Francisco Masterplan*. Prepared for the San Francisco Department of Public Works. 1974.

Grunsky, C.E. *Report upon a System of Sewerage for the City and County of San Francisco*. The Hilton Printing Co. San Francisco. 1899.