

PUC Liaison Fire Commission Presentation April 28, 2021

Assistant Deputy Chief Tom O'Connor

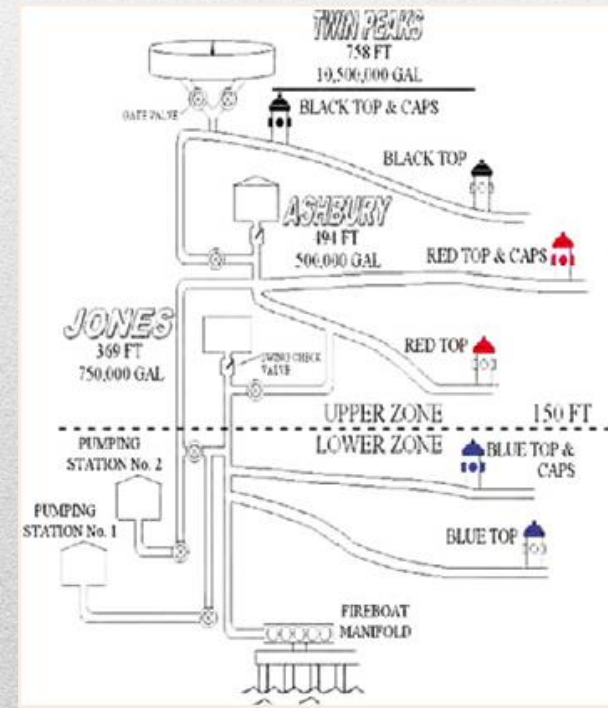


- **The 1906 Earthquake put to rest the debate over the construction of an emergency firefighting water system.**
- **After the loss of over 28,000 buildings and 3,000 San Franciscans, Chief Dennis Sullivan's vision for fire safety would be finally realized.**
- **In 1908 the citizens of San Francisco approved a \$5.2 million dollar bond to construct the Auxiliary Water Supply System (AWSS).**
- **That commitment to fire safety and infrastructure continues to this day with the recent passage of ESER 2020**



The birth of the Auxiliary Water Supply System in 1908

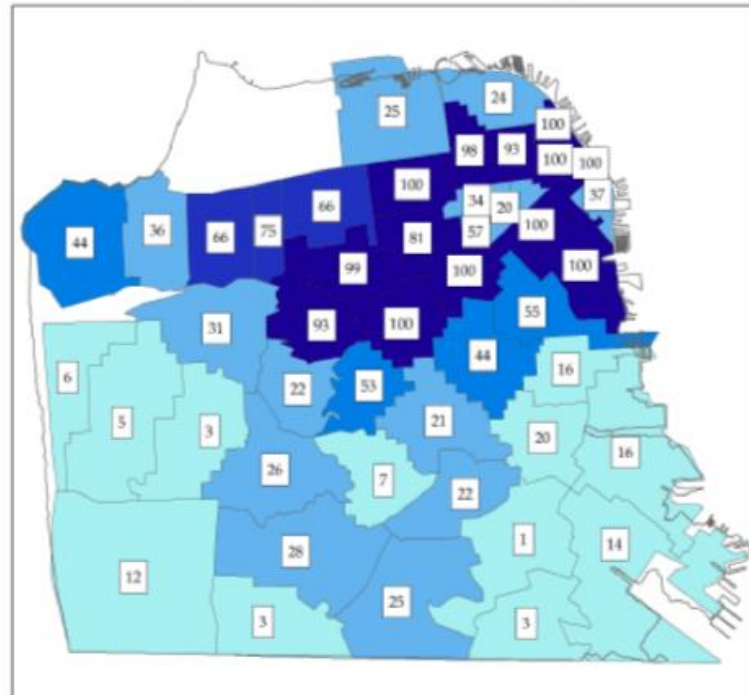
- **The AWSS consists of the following components:**
 - **Core Facilities**
 - **Twin Peaks Reservoir (10.5 mil gallons)**
 - **Ashbury Heights Tank (500,000 gallons)**
 - **Jones St. Tank (750,000 gallons)**
 - **Pump Station 1 (10,000 GPM)**
 - **Pump Station 2 (10,000 GPM)**
 - **135 miles of pipe**
 - **1600 High Pressure Hydrants**
 - **229 Cisterns**
 - **52 pipeline connections along Northeastern Water front**
 - **5 Manifolds for Fire Boats**



The Auxiliary Water Supply System

- **In 2010, the AWSS was transferred to the San Francisco Public Utilities Commission (SFPUC)**
- **Initial assessment of system demonstrated only 47% of San Francisco had reliable water supply to fight fires after a 7.8 earthquake**
- **ESER Bonds begin to improve and strengthen system**

Figure 1. Existing AWSS Reliability Scores (47% Citywide Reliability)



Transfer of the AWSS

- **Vast bodies of research demonstrating vulnerabilities of urban areas to fire following earthquake**
- **Greatest issue is failure of water supply systems in post earthquake suppression activities**
- **Planning for both fire and water emergencies is often haphazard and incomplete**
- **2011 study by Dr. Charles Scawthorn “Water Supply in regard to Fire Following Earthquake” called for greater liaison between fire departments and water departments**
- **Communication and coordination between fire and water agencies would lead to the greatest success post disaster**

PUC Liaison



- **Oversee and facilitate all efforts related to PUC's management of AWSS**
- **Coordinate all efforts with PUC in regards to ESER 2020 projects and expansion**
- **Manage the Portable Water Supply System assets**
- **Lead Strategic Planning efforts with all related committees and workgroups**
- **Represent Department at meetings and events**



PUC Liason Duties and Responsibilities

- **Shared goal of the SFPUC and SFFD is to improve and expand the AWSS**
- **ESER 2010 provided \$102.4 mil to AWSS strengthening and expansion**
- **ESER 2014 added an additional \$54 mil to these efforts**
- **Work completed so far:**
 - **Reliability upgrades to Twin Peaks, Ashbury and Jones St Tanks**
 - **Replacing engines and remote control at Pump Station 1**
 - **Construction of 30 new cisterns**
 - **6 Pipeline and tunnel projects**
 - **Seismic upgrades to Pump Station 2**
 - **Lake Merced Pump station upgrades, capable to feed into AWSS in the future**
 - **University Mound Reservoir connection to AWSS**



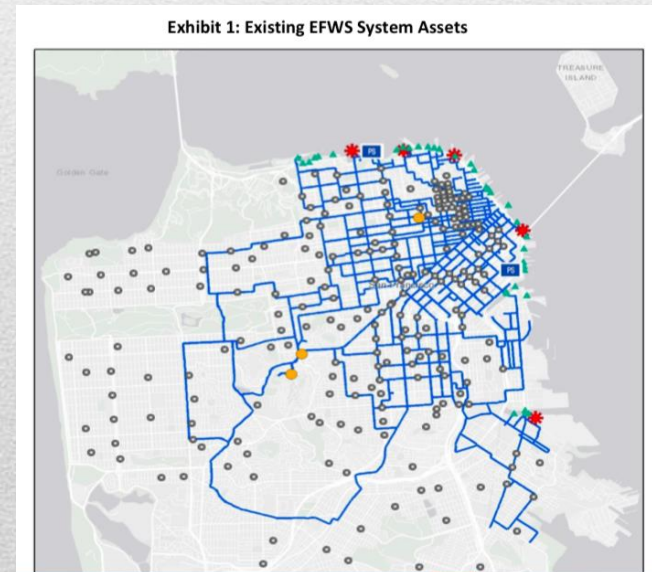
ESER Bond Improvements to the AWSS

- **“Act Now Before It Is Too Late: Aggressively Expand and Enhance Our High Pressure Emergency Firefighting Water System”**
- **Civil Grand Jury found that despite improvements, large swaths of San Francisco were still without adequate water supply in the event of a disaster or earthquake**
- **Civil Grand Jury made the following recommendations:**
 - **Aggressively develop high pressure water system throughout all parts of San Francisco**
 - **As interim measure, expand Portable Water Supply System (PWSS or Hose Tenders)**
 - **Research saltwater pump stations on West side of City (6/30/21)**
 - **Present more detailed analysis of emergency firefighting water needs by neighborhood (6/30/21)**
 - **Full EFWS plan to be presented to Board of Supervisors (12/31/21)**
 - **Budget and Legislative Analyst to study issue through equity lens**
 - **Interagency drill to be conducted by SFFD and SFPUC**

2018-19 Civil Grand Jury Report

- **ESER 2020 was largely a response to the Civil Grand Jury**
- **Board of Supervisors put bond on ballot**
- **\$623.5 mil in funding, \$153.5 mil for AWSS**
- **Projects for funding:**
 - **Westside Potable Emergency Firefighting Water System**
 - **Fort Mason Manifold**
 - **Pier 33 Manifold**
 - **Saltwater Pump Station Analysis**

ESER 2020



- **Hybrid solution to AWSS**
- **Designed to meet robust standards of SFFD**
- **Utilizes same or better earthquake resistant pipes**
- **Main benefits:**
 - **Adequate high pressure water supply**
 - **Additional source of drinking water after disaster**



Westside PEFWS

Westside Potable Emergency Firefighting Water System Conceptual Alignment

Legend

Existing AWSS Pipes

Pipe Diameter

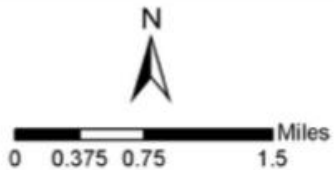
24"

36"

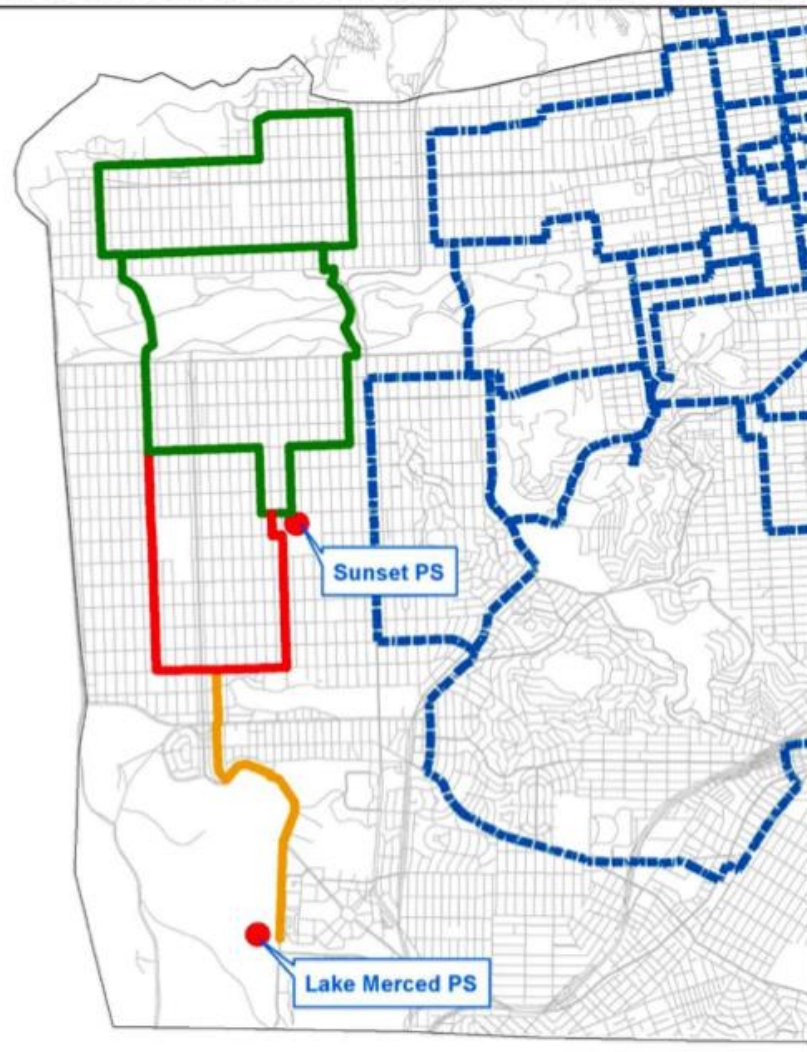
42"

Potential Pump Station

Streets



April 1st, 2019

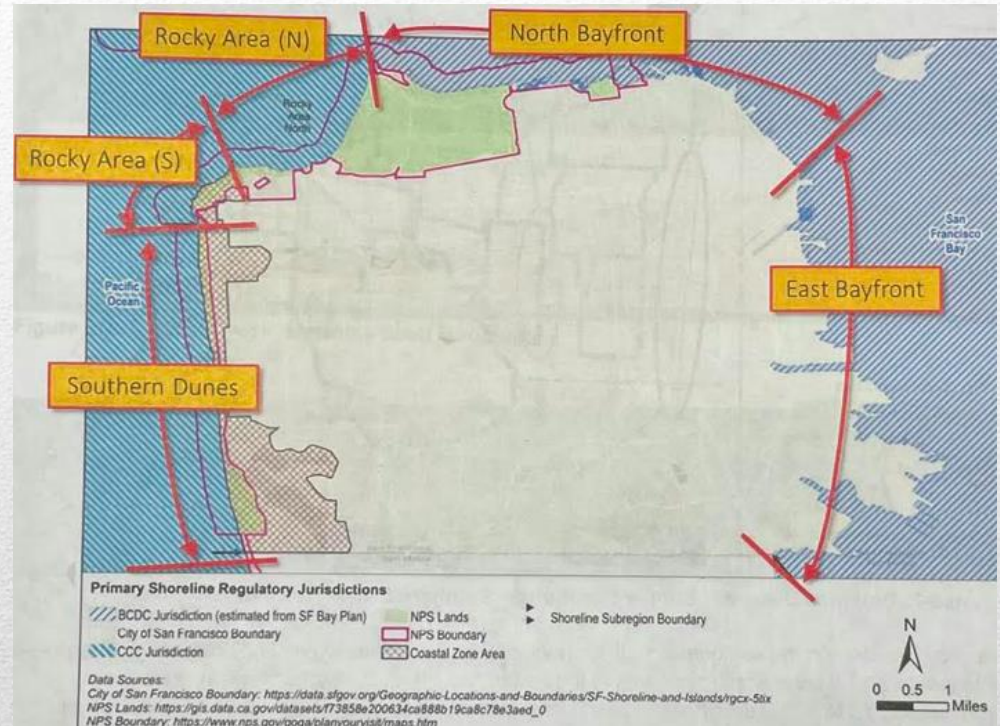


Conceptual Alignment for Westside EFWS

- **Four Connections to water sources at two locations:**
 - **Lake Merced Pump Station (30,000 GPM)**
 - **Hetch Hetchy 60" transmission main**
 - **Lake Merced (1-2 Billion gallons)**
 - **Sunset Reservoir**
 - **Pump Station connects to North Basin**
 - **Pump Station also connects to Hetch Hetchy Regional**

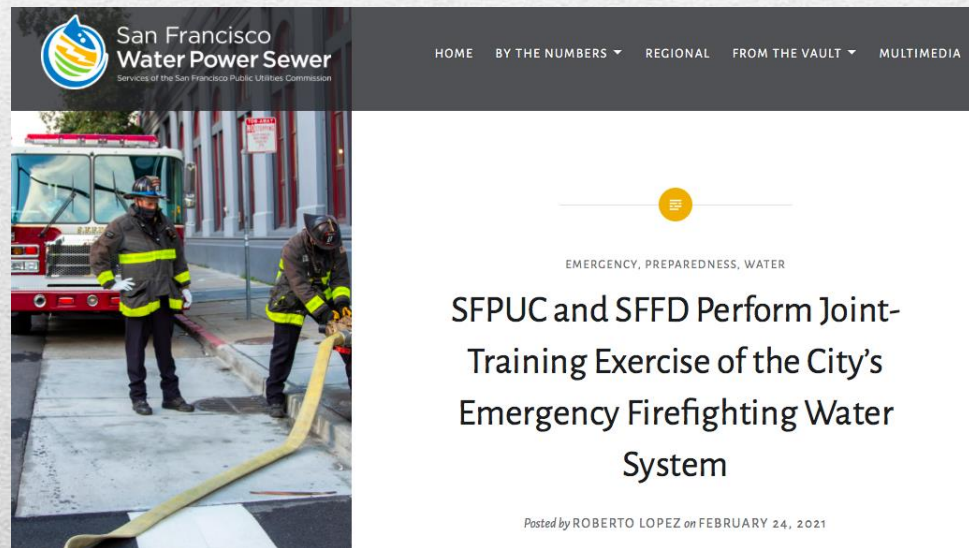
Water Sources for Westside EFWS

- **Completion of EFWS Saltwater Pump Station study (6/30/21)**
- **Completion of more detailed Neighborhood Demand analysis for water needs**
- **Develop comprehensive EFWS Citywide plan by 12/31/21**
- **Analyze whether to present another ESER bond**
- **Secure additional hose tenders as bridge to full EFWS**



Upcoming SFFD/SFPUC Projects

- **Exercise Pump Station 1**
- **Hose Tender/EFWS Demonstration in D11**
- **Hose Tender Demonstration in D1**
- **Tabletop exercise with SFFD/SFPUC**
- **Upcoming demonstrations of EFWS citywide**



Interagency Coordination and Drills



Questions
