



BOOM WITHOUT THE BUST:

MANAGING DEMAND CHANGES ON WATER INFRASTRUCTURE CAUSED BY SAN FRANCISCO'S MASSIVE DEVELOPMENT BOOM

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OVERVIEW

San Francisco's Development Boom

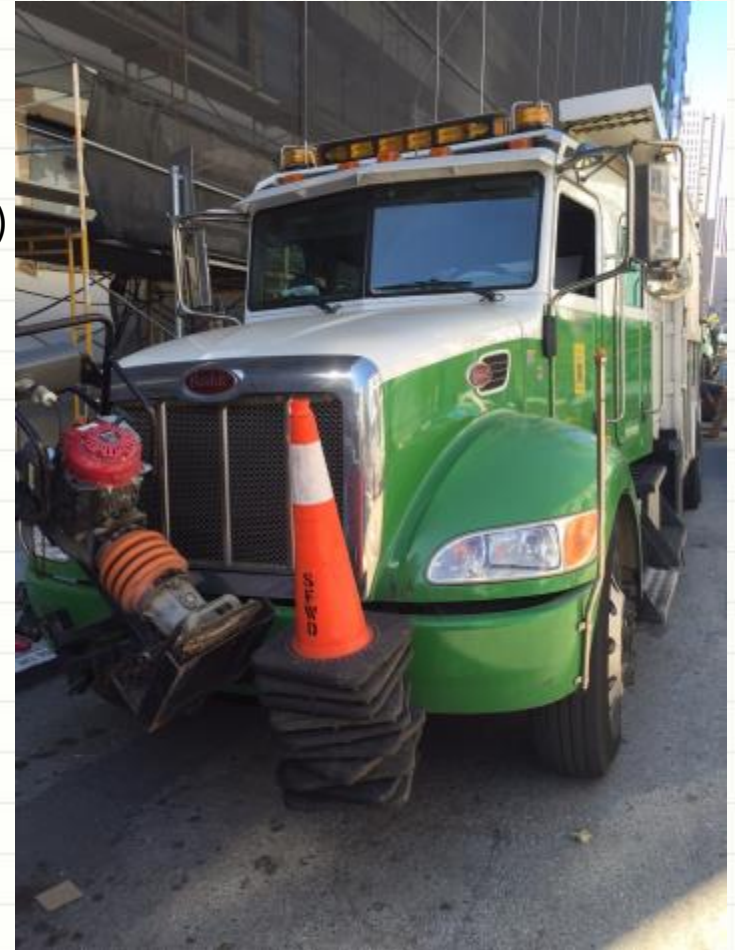
- San Francisco Water Dept.
 - Our past...to where we are now...
to our future
- Unique Challenges
 - In an ever changing environment
- Overcoming Challenges
 - Lessons learned – moving forward



SAN FRANCISCO WATER DEPARTMENT

Our past to where we are now

- 1835
 - 78,000 residents
 - Streams, springs, wells, barrel distribution
 - Bensley Company (San Francisco Water Works)
 - Sausalito Water and Steam Tug Company
- 1858
 - 100,000 residents
 - Spring Valley Water Works
 - Laid pipes for water distribution
- 1930
 - 634,000 residents
 - San Francisco Water Department
- 2015
 - Over 800,000 residents
 - San Francisco Water Department



SAN FRANCISCO WATER DEPARTMENT

Who we are now – D5 system

- **Operations and Maintenance**
 - 3 systems: Potable, recycled water, and Auxiliary Water Supply System (AWSS)
 - 1,200 miles of potable mains, 10 reservoirs, 6 tanks, 9 pump stations, 24 pressure zones
 - 4 miles of recycled water mains
 - 150 miles of Auxiliary Water Supply System mains (high pressure fire fighting), 1,500 HPH, 8,500 LPH, 172 cisterns
- **Emergency response**
 - 24/7 on-call staff for main breaks, fires, earthquakes, water quality issues, and any other unforeseen event
- **Capital Improvement Projects**
 - Main replacement goal of 15 miles per year
- **New Water Services and Installations**
 - Domestic, fire, reclaimed, and irrigation services
 - Approximately 400 installations per year
- **Mega Development Projects**
 - 2 nearing completion, 7 currently in construction, and 9 in planning and design
 - 30,000 new and rehabilitated housing units by 2020



UNIQUE CHALLENGES

In an ever changing environment

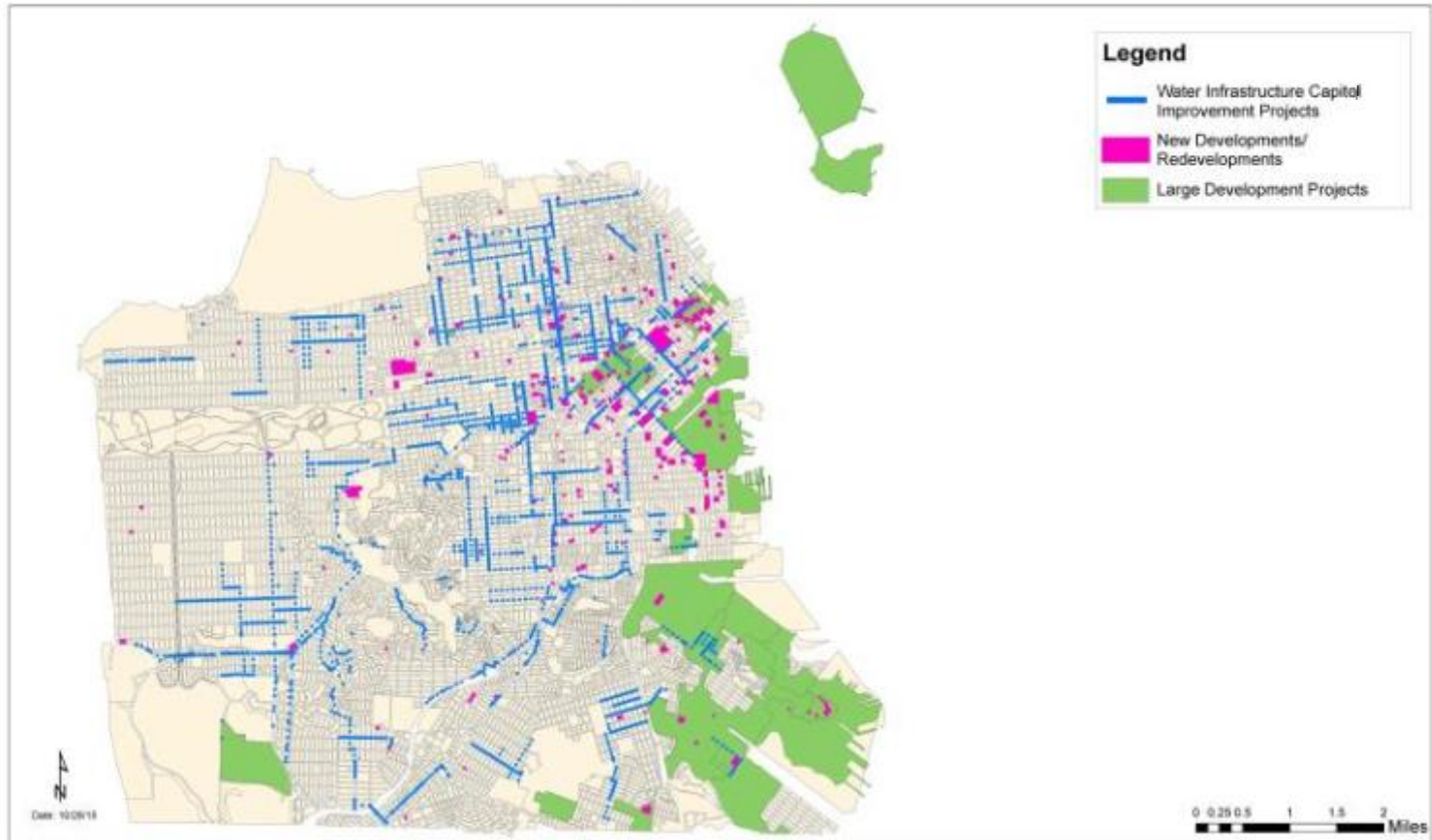
- Competing for limited resources
 - Staffing challenges
 - Hydraulic analysis
 - Project management
- Horizontal vs Vertical Infrastructure
 - Streetscape and paving requirements
- Code and regulatory requirements
 - Fire suppression
 - Public safety and water quality



UNIQUE CHALLENGES

Competing for limited resources

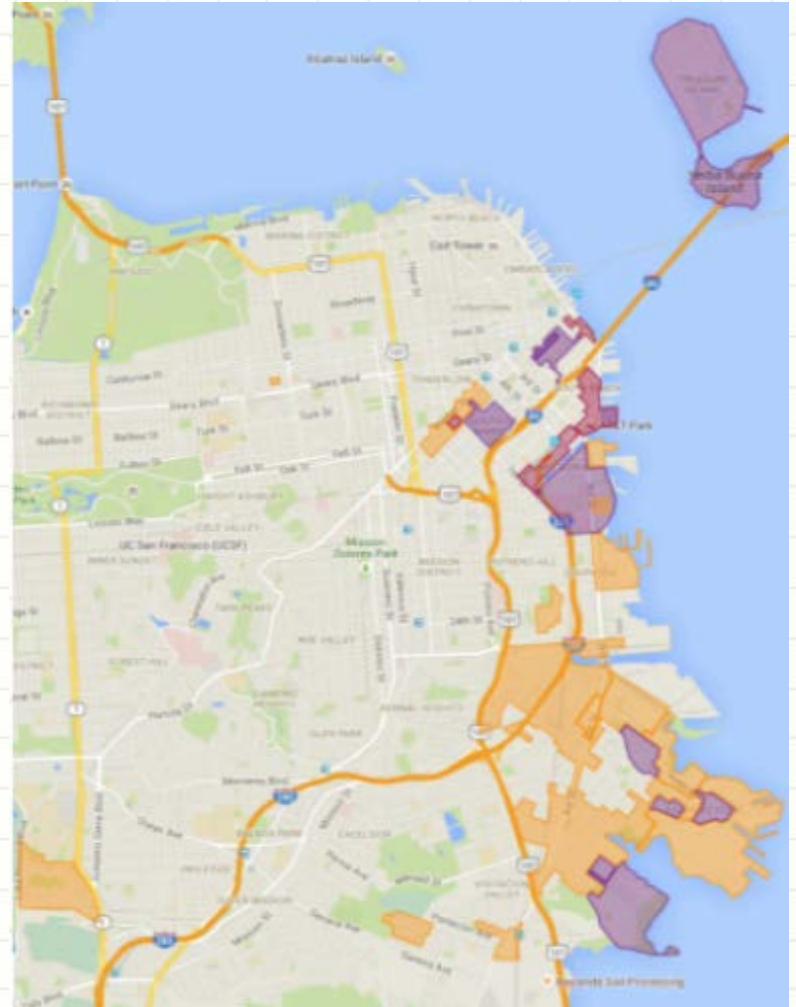
SFPUC- City Distribution Division Water Work



UNIQUE CHALLENGES

Competing for limited resources

- Nearing Completion
 - Rincon Point
 - South Beach
- In Construction
 - Alice Griffith – low income
 - Candlestick Point
 - Hunters Point Phase I
 - Hunters Point Phase II
 - Hunters View – low income
 - Transbay Terminal
 - Treasure Island
- In Planning and Design
 - India Basin
 - Mission Rock
 - Parkmerced
 - Pier 70
 - Potrero Terrace and Annex
 - Sunnydale
 - Visitation Valley
 - Warriors Stadium
 - Westside Courts – low income



UNIQUE CHALLENGES

Horizontal vs Vertical Infrastructure



UNIQUE CHALLENGES

Code and regulatory requirements

- Mission Bay Fire
 - March 11, 2014 at 5pm
 - 172 unit building, \$227M apartment complex
 - 150 firefighters on scene and >10M gallons
- Code change
 - New fire safety requirements
 - Active standpipe for construction > 40 feet
 - PreFire Plan and fire watch



OVERCOMING CHALLENGES

Lessons Learned – Moving forward

- Competing for limited resources
 - Staffing challenges
 - Justify more positions
 - Hydraulic analysis
 - Cumulative analysis
 - Project management
 - Coordination and communication
- Horizontal vs Vertical Infrastructure
 - Streetscape and paving requirements
 - Phasing
- Codes and regulatory requirements
 - Fire suppression
 - Aware of constantly changing codes
 - Public safety and water quality
 - Recommend standards and procedures for private developers to follow AWWA



REVIEW

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QUESTIONS?

**TIME LAPSE CREATED BY CATHERINE MCCRIMMON
IMAGES TAKEN FROM GOOGLE EARTH
OTHER IMAGES PROVIDED BY SFWD STAFF**

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