San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

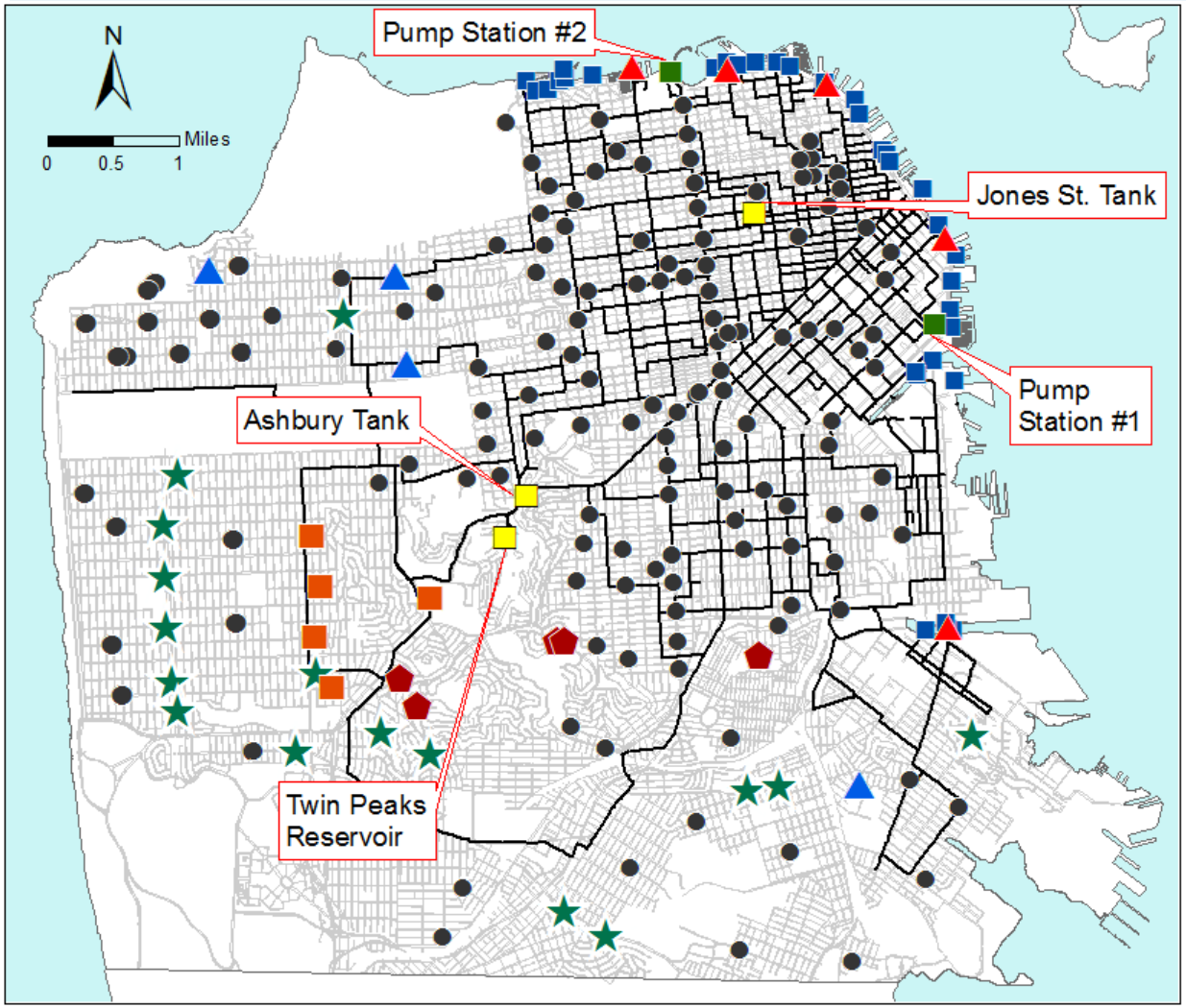
Emergency Firefighting Water System
Auxiliary Water Supply System
Flexible Water Supply System

Capital Planning Committee

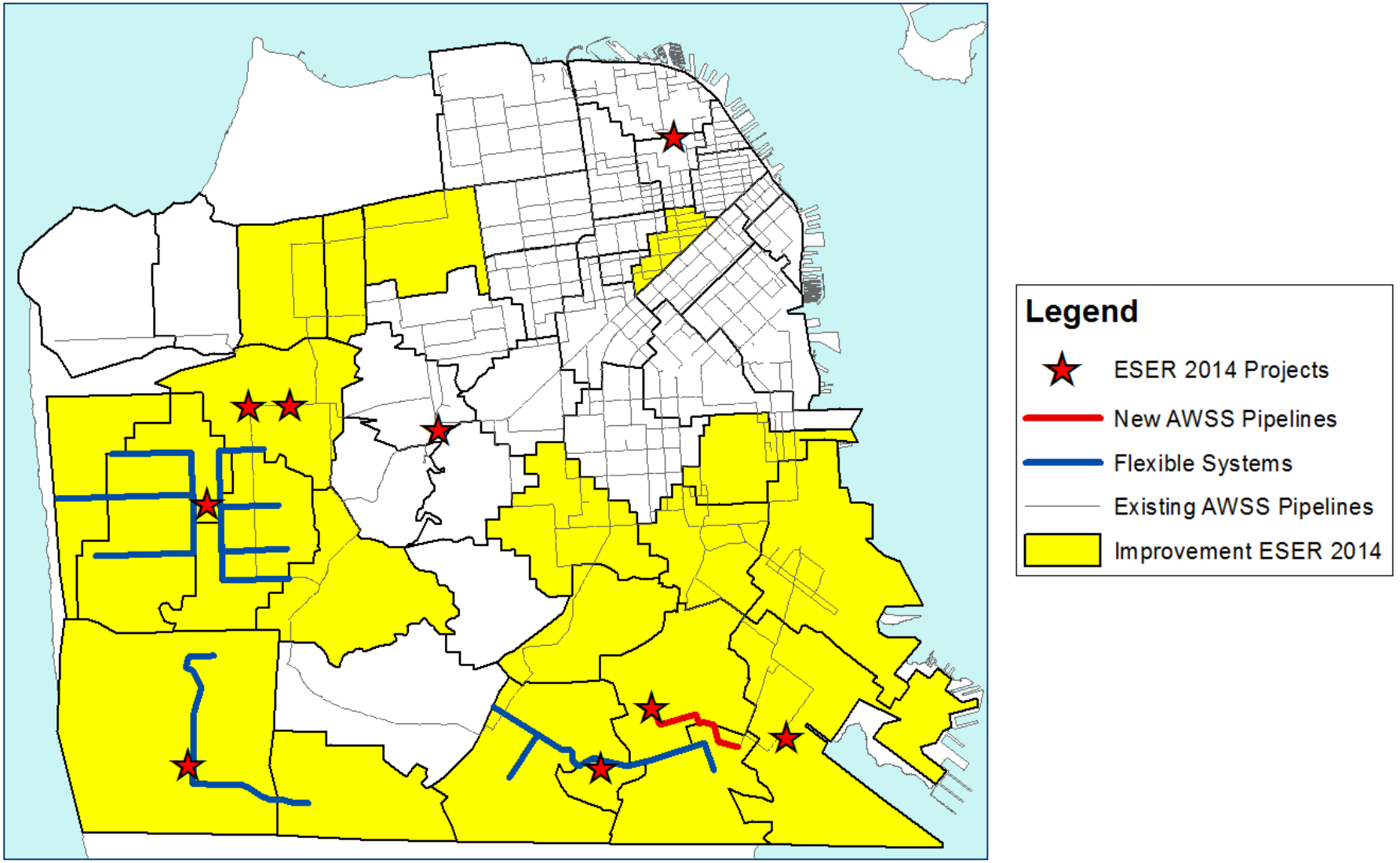
October 19, 2015

David Myerson, Project Manager
Project Management Bureau, Infrastructure, SFPUC

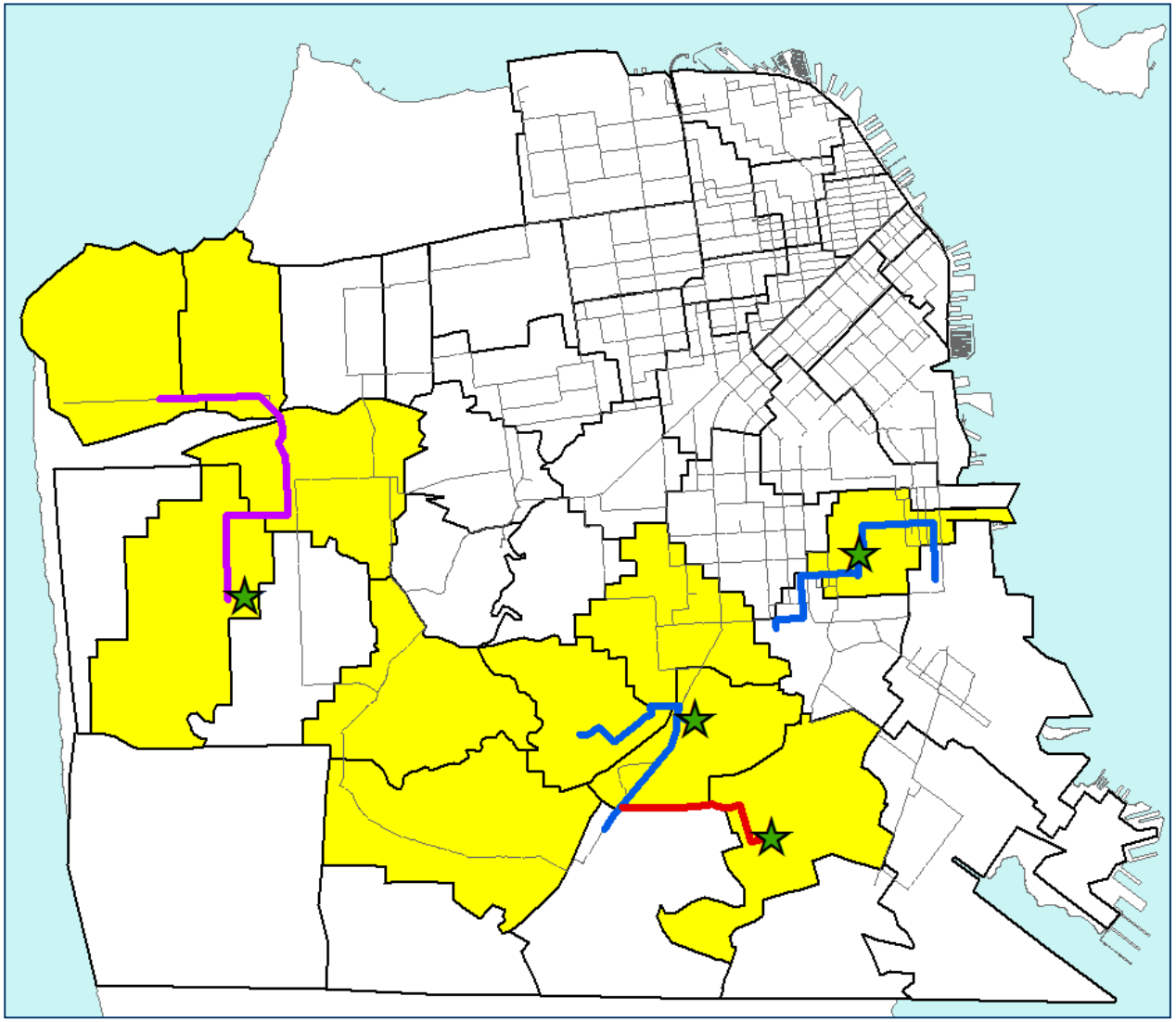
AWSS Map – September 2015



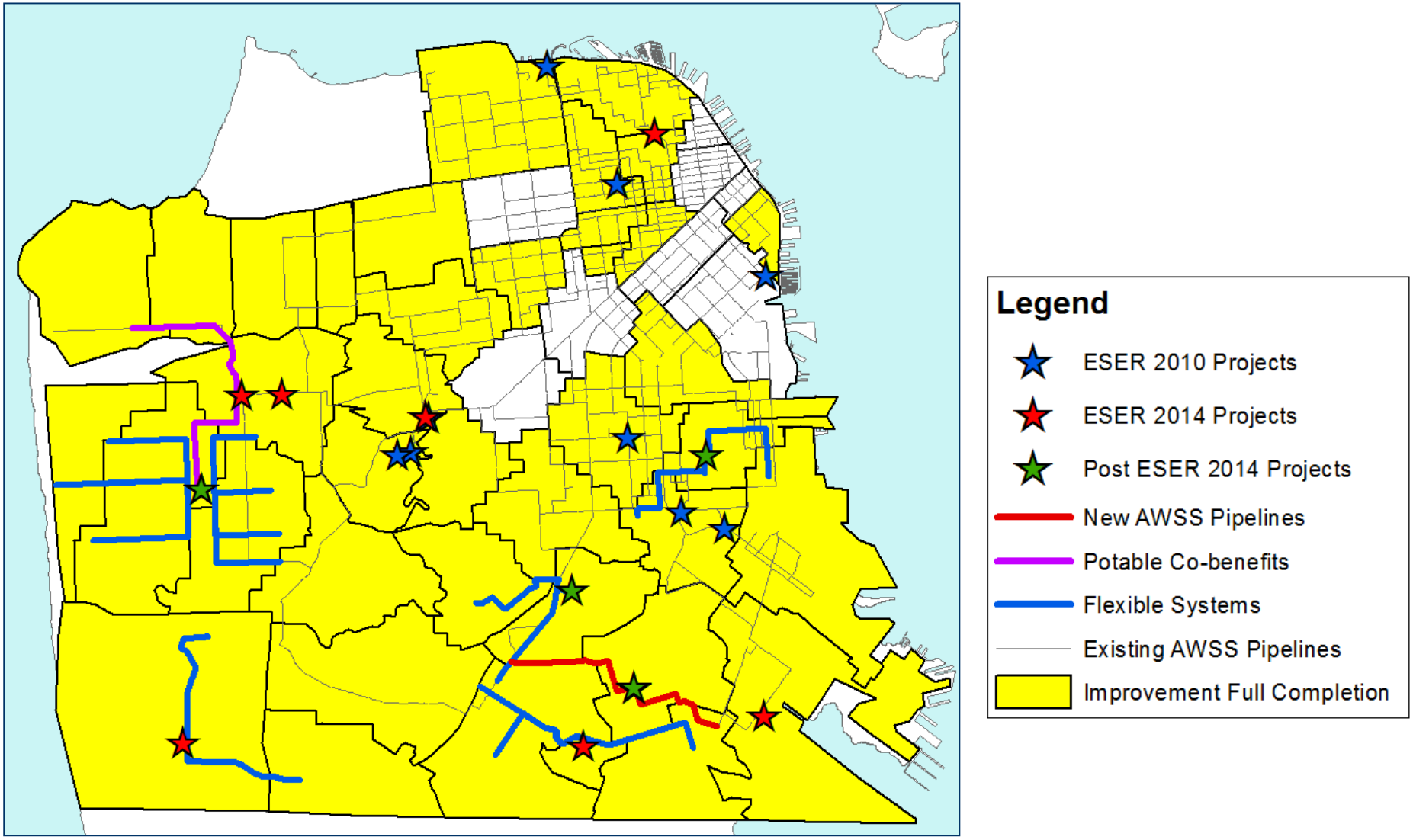
ESER 2014 Projects



Post-ESER 2014 Projects



ESER 2010, 2014, & Post-2014 Projects



ESER 2014 & Post-2014 Projects ($ millions)

Project	Full Implementation		ESER 2014	Water Revenues	Developer	Post-ESER 2014 (2015 $)
AWSS Pipeline – Ashbury Connections	1.4		1.4	-	-	-
AWSS Pipeline – Columbus Avenue	1.0		1.0	-	-	-
AWSS Pipeline – Repair & Abandonment	4.1 + TBD		4.1	-	-	TBD
AWSS Pipeline – University Mound East	7		7	-	-	-
AWSS Pipeline – University Mound West	11		-	-	-	11
AWSS Pump Station – U-Mound Reservoir	17.5		-	-	TBD	17.5 - TBD
ESER 2014 Initial Projects	20		20	-	-	-
Flexible System – College Hill Reservoir	6.5		-	-	-	6.5
Flexible System – Lake Merced	4.6		3.1	-	1.5	-
Flexible System – McLaren Park Tank	8.3		7.1	-	1.2	-
Flexible System – Potrero Heights Reservoir	4.5		-	-	-	4.5
Flexible System – Sunset Reservoir	11.3		11.3	-	-	-
Potable Co-Benefits Pipeline – Richmond	45.3			34	-	11.3
Facility & Tunnel Improvements	TBD					TBD
Total (rounded)	**143+**		**55**	**34**	**3+**	**51+**

ESER 2014 Projects

Project		($ millions)
AWSS Pipeline	Ashbury Connections	1.4
	Columbus Avenue	1.0
	Repair & Abandonment	4.1
	University Mound East	7.0
Flexible Water Supply System	Lake Merced (plus pipe)	3.1
	McLaren Park Tank	7.1
	Sunset Reservoir	11.3
Initial Projects	Candlestick Point	1.0
	Facilities Assessments & Spending Plan	1.3
	Irving Street &19th Ave.	8.0
	Pumping Station 1	9.0
	Twin Peaks Reservoir Joint Sealing	0.7
Total		**55**

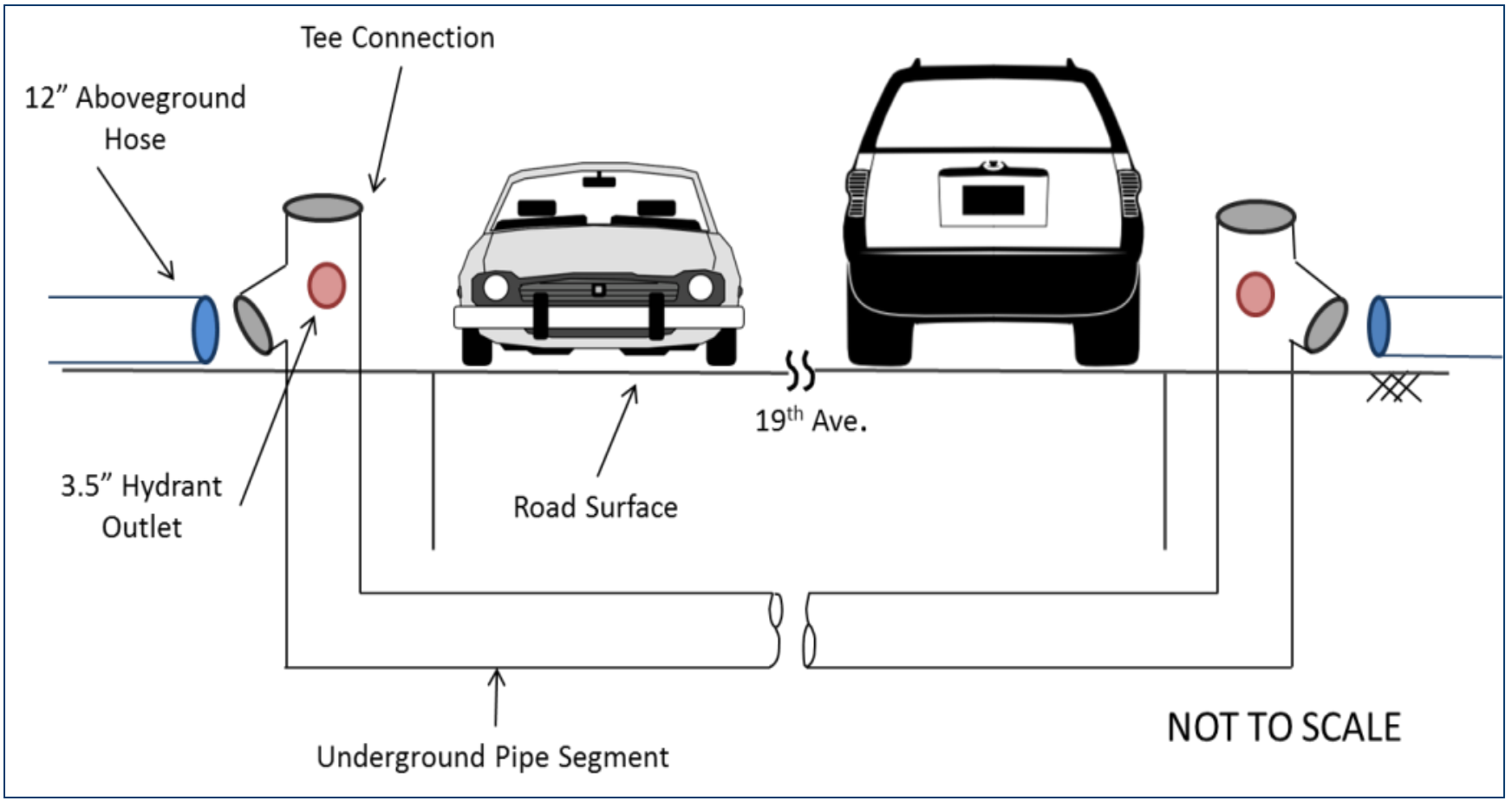
Flexible Water Supply System

Funding	Project	Hose Unit Quantity	Pump Unit Quantity
ESER 2014	Lake Merced	2	1
	McLaren Park Tank	2	2
	Sunset Reservoir	2	2
Post-ESER 2014	College Hill Reservoir	1	2
	Potrero Heights Reservoir	1	1
Total		**8**	**8**

Flexible Water Supply System

- Lake Merced, McLaren Tank, Sunset Reservoir
- Below-grade pipe crossings for selected streets

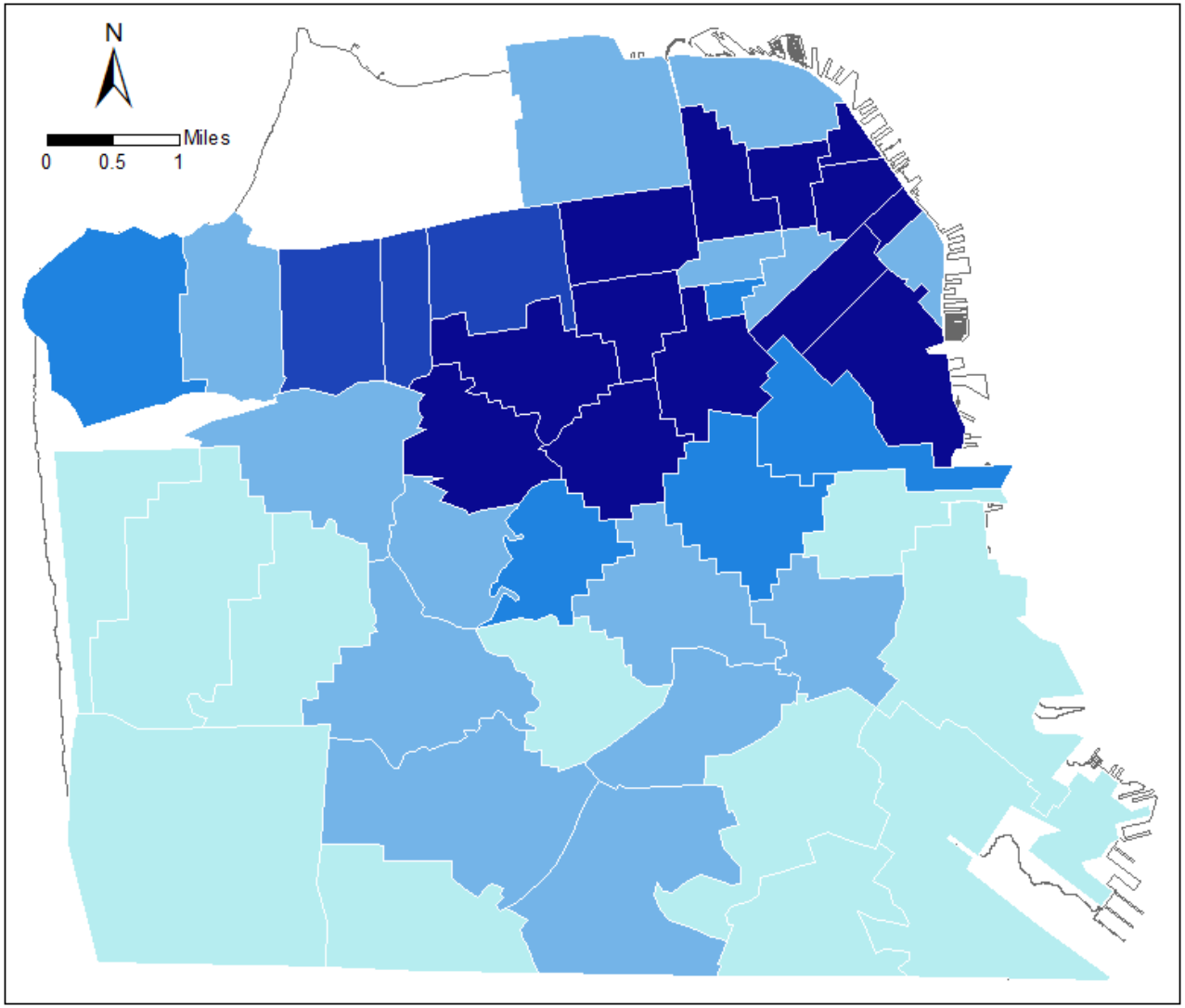
FWSS Crossing Schematic



Proposed FWSS Crossing Locations

Street 1 (On)	Street 2 (Crossing)	Water Source
24th Ave.	Moraga St.	Sunset
24th Ave.	Noriega St.	Sunset
24th Ave.	Ortega St.	Sunset
24th Ave.	Taraval St.	Sunset
28th Ave.	Moraga St.	Sunset
28th Ave.	Noriega St.	Sunset
Lawton St.	19th Ave.	Sunset
Lawton St.	Sunset Blvd.	Sunset
Ortega St.	41st Ave.	Sunset
Ortega St.	Sunset Blvd.	Sunset
Pacheco St.	19th Ave.	Sunset
Santiago St.	19th Ave.	Sunset
Santiago St.	Sunset Blvd.	Sunset
Ulloa St.	19th Ave.	Sunset
Brazil Ave.	Mansell St.	McLaren Park
Brazil Ave.	Mission St.	McLaren Park
Vienna St.	Persia Ave.	McLaren Park
Brotherhood Way	Lake Merced Blvd.	Lake Merced
Middlefield Dr.	Lake Merced Blvd.	Lake Merced
Mission St.	Richland Ave.	College Hill
Mission St.	Silver Ave.	College Hill
Randall St.	Mission St.	College Hill
Randall St.	San Jose Ave.	College Hill
20th St.	Pennsylvania Ave.	Potrero Heights
22nd St.	Wisconsin St.	Potrero Heights
23rd St.	Potrero Ave.	Potrero Heights

Reliability before ESER Bonds



Citywide reliability
47%

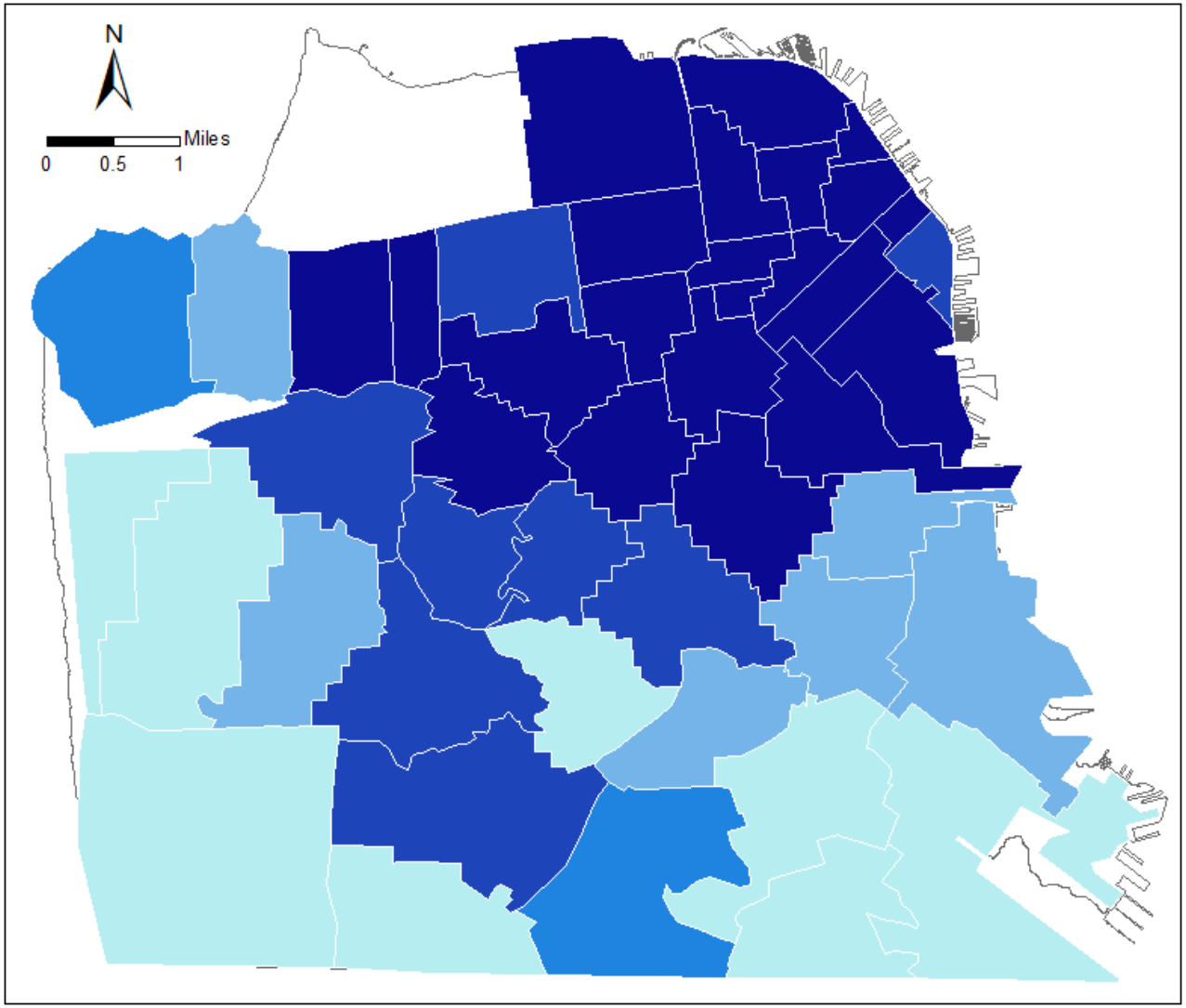
Legend

Reliability before ESER Bonds

High

Low

Reliability after ESER 2010



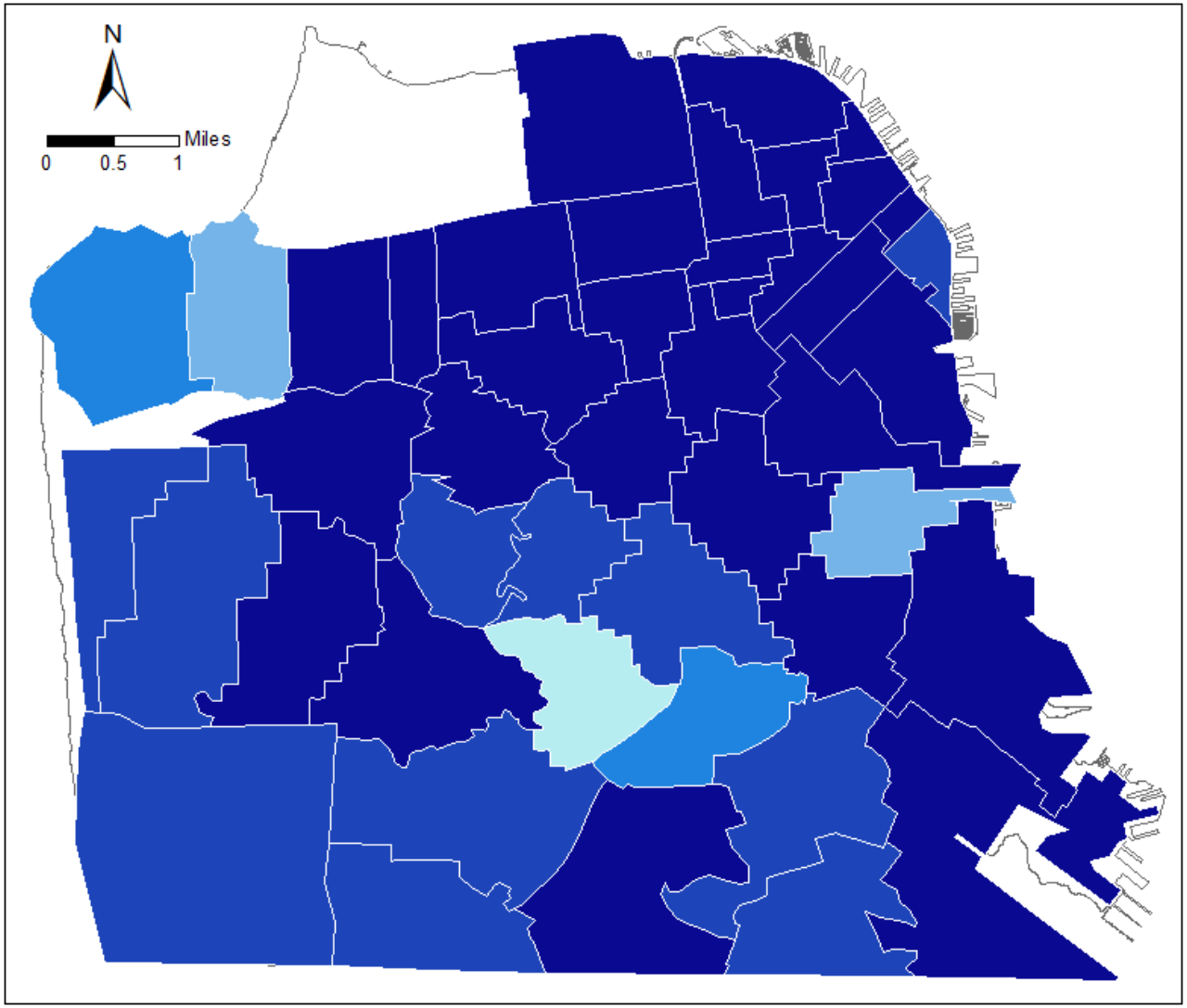
Citywide reliability
67%

Legend

Reliability after ESER 2010

- High
- Low

Reliability after ESER 2014



Citywide reliability
85%

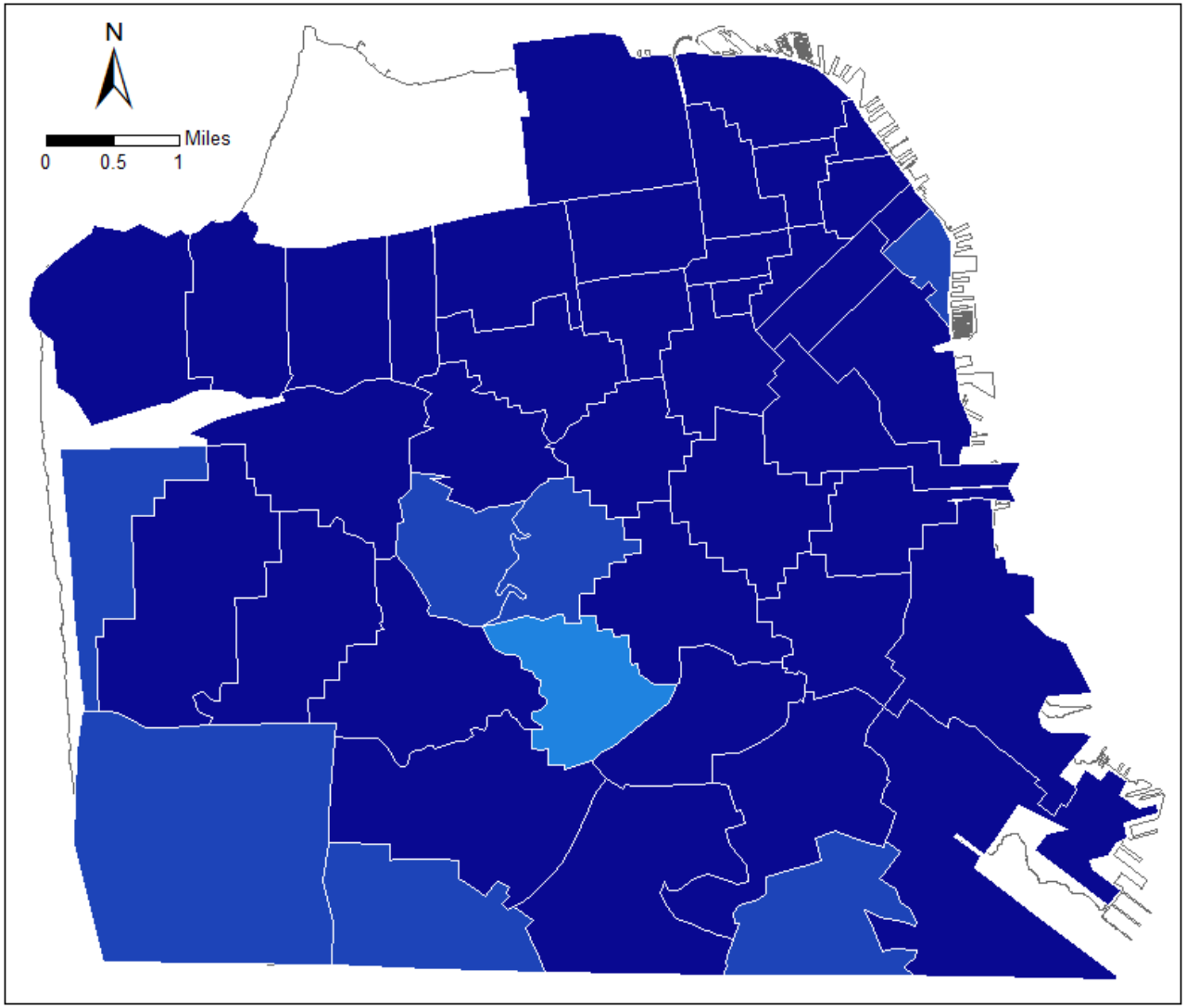
Legend

Reliability after ESER 2014

High

Low

Reliability after Post-ESER 2014



Citywide reliability
93%

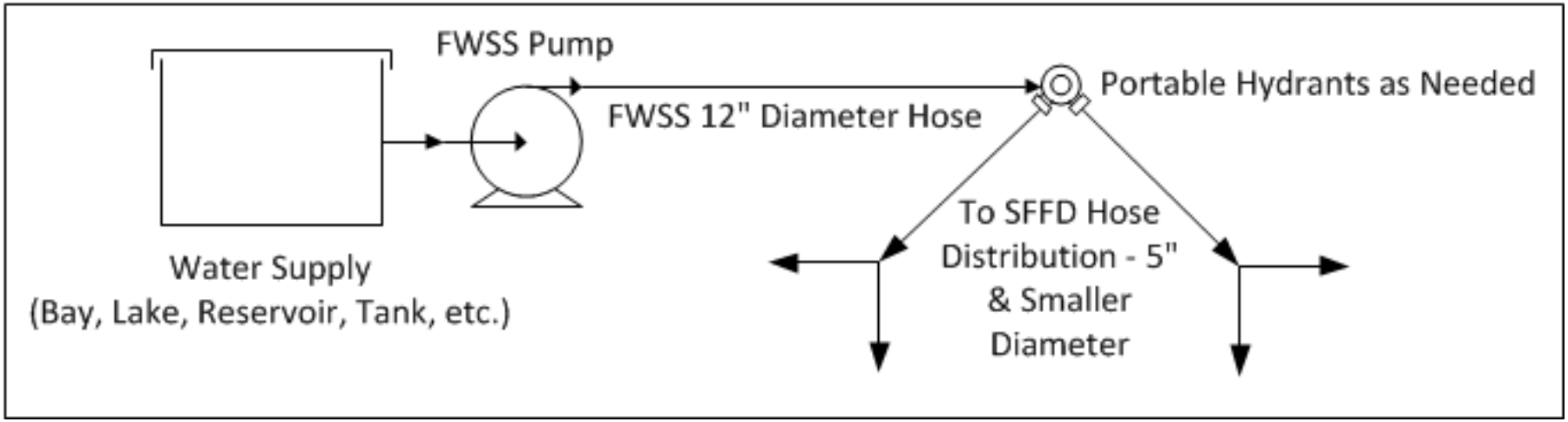
Legend

Reliability after Post-ESER 2014

High

Low

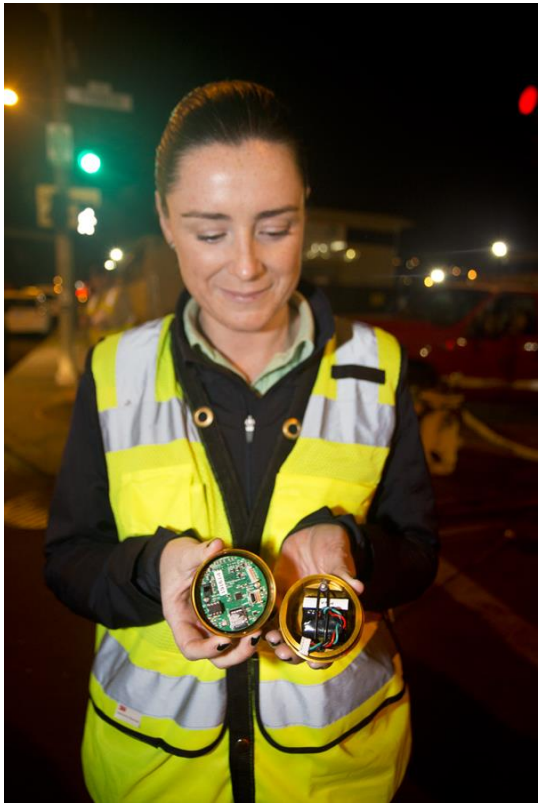
FWSS Schematic

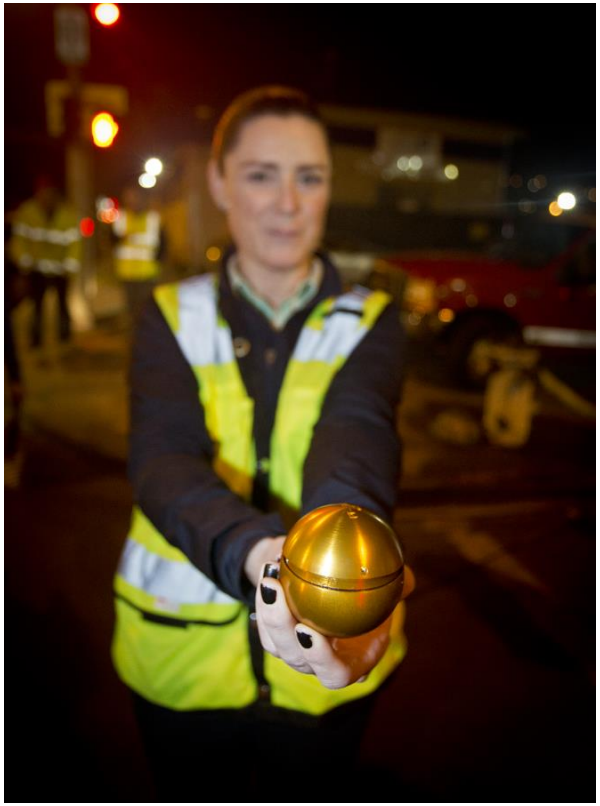


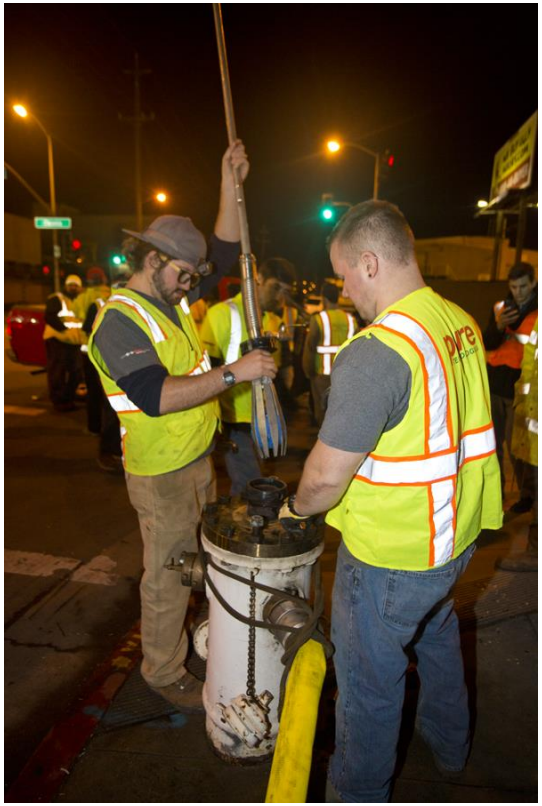
Pipeline Assessment Program

- Planning study assumed pipeline in original condition and properly installed, but subject to earthquake damage
- Pipeline condition affected by ground displacement, corrosion, interfering utilities, installation, internal pressure, external loading, etc.
- Pipeline analysis
  - Likelihood of failure
  - Consequence of failure
  - Probabilistic and mechanistic analyses
- Goal: capital improvement recommendations
  - Repair
  - Replace
  - Abandon
- Implement capital improvement program

Pipeline Assessment







Pipeline Assessment