

File No. 160265

Committee Item No. 1

Board Item No. _____

COMMITTEE/BOARD OF SUPERVISORS

AGENDA PACKET CONTENTS LIST

Committee: Government Audit and Oversight

Date: February 7, 2018

Board of Supervisors Meeting:

Date: _____

Cmte Board

- | | | |
|-------------------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Motion |
| <input type="checkbox"/> | <input type="checkbox"/> | Resolution |
| <input type="checkbox"/> | <input type="checkbox"/> | Ordinance |
| <input type="checkbox"/> | <input type="checkbox"/> | Legislative Digest |
| <input type="checkbox"/> | <input type="checkbox"/> | Budget and Legislative Analyst Report |
| <input type="checkbox"/> | <input type="checkbox"/> | Youth Commission Report |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Introduction Form |
| <input type="checkbox"/> | <input type="checkbox"/> | Department/Agency Cover Letter and/or Report |
| <input type="checkbox"/> | <input type="checkbox"/> | MOU |
| <input type="checkbox"/> | <input type="checkbox"/> | Grant Information Form |
| <input type="checkbox"/> | <input type="checkbox"/> | Grant Budget |
| <input type="checkbox"/> | <input type="checkbox"/> | Subcontract Budget |
| <input type="checkbox"/> | <input type="checkbox"/> | Contract/Agreement |
| <input type="checkbox"/> | <input type="checkbox"/> | Form 126 – Ethics Commission |
| <input type="checkbox"/> | <input type="checkbox"/> | Award Letter |
| <input type="checkbox"/> | <input type="checkbox"/> | Application |
| <input type="checkbox"/> | <input type="checkbox"/> | Public Correspondence |

OTHER

- | | | |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>SFPUC Presentation - March 17, 2017</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>Referral FYI - March 21, 2016</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | _____ |

Prepared by: John Carroll

Date: February 2, 2018

Prepared by: _____

Date: _____



Emergency Firefighting Water System Government Audit & Oversight Committee

Anthony Rivera, SFFD, Assistant Deputy Chief
David Briggs, SFPUC
David Myerson, SFPUC

March 15, 2017

SUBMITTED
100965



San Francisco Fire Department – Emergency Firefighting Water System

- Partnership with SFPUC for co-managing Emergency Firefighting Water System memorialized in MOU (2015) following transfer to the SFPUC (2010).
- Performance standards formalized:
 - SFPUC maintains engineering standards, seismic performance of components must be same or greater.
 - Other parts of MOU outline coordinated emergency response and maintenance expectations.
 - SFPUC funds 50% of SFFD position to monitor the system.



SFPUC Management / Stewardship

Enhance readiness of Emergency Firefighting Water System

Work to date:

- Improved operability of Seawater Pump Stations
- Increased storage refill capacity (10 times higher)
- Reduced leakage by 500,000 gallons/day
- Reduced backlog of deferred maintenance
- Capital upgrades / repair with ESER bond funding

Adhere to MOU requirements related to system, operations & maintenance, performance specifications, etc.



SFPUC Management / Stewardship

Inventory management:

- Ensure availability of components to accommodate expansion and development.
- Immediate availability to conduct repairs.
- Refurbish/re-use older inventory when possible.

Design standards:

- Updating standards with oversight by 3rd-party seismic experts.
- Same or better design criteria.
- Increase available suppliers.
- Eliminate use of pipe connectors utilizing lead.



San Francisco
Water
Power
Sewer

Bond Funding

- 2010 Earthquake Safety & Emergency Response (ESER) bond measure approval included \$104.2 million for system
- 2014 ESER bond measure approval included \$55 million for system



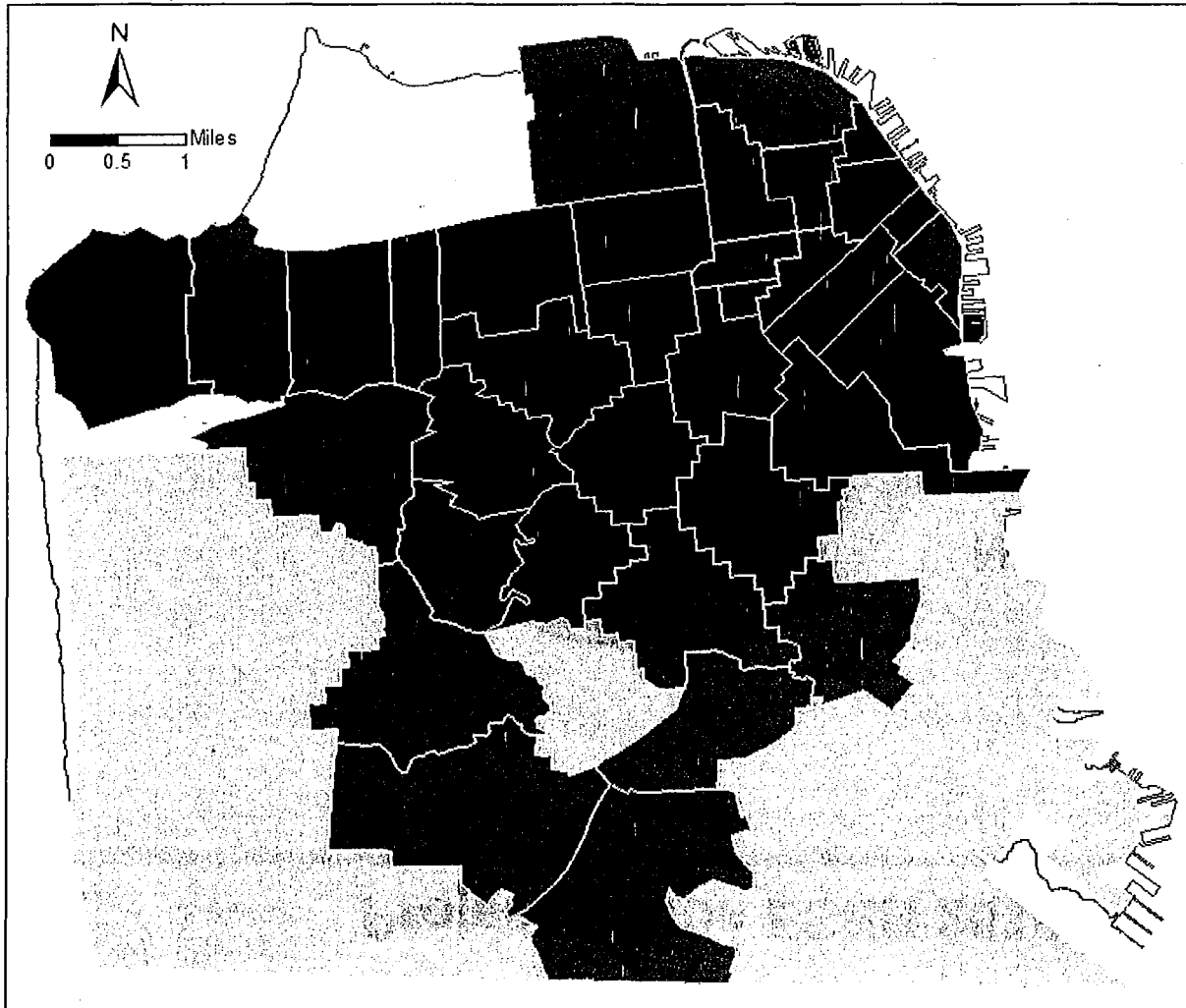
Technical Advisors

- **ESEER 2010**
 - Thomas O'Rourke, Cornell University
 - Charles Scawthorn, U.C. Berkeley
- **ESEER 2014 Pipeline Assessment**
 - Jack Baker, Stanford University
 - Michael O'Rourke, Rensselaer Polytechnic Institute
 - Thomas O'Rourke, Cornell University
 - Charles Scawthorn, U.C. Berkeley
- **ESEER 2014 and future bonds**
 - Charles Scawthorn, U.C. Berkeley



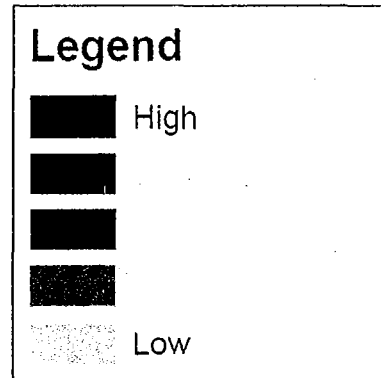
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Sewer

Fire-Fighting Reliability – Before 2010

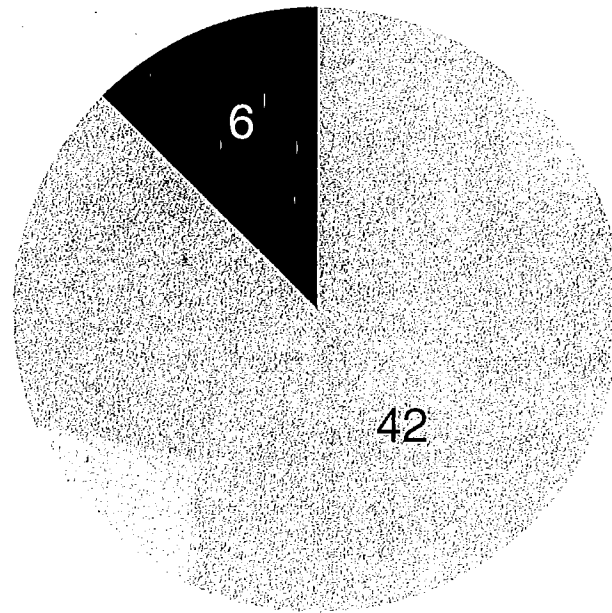


Citywide reliability
47%

27 FRAs below 50%



Project Status ESER 2010

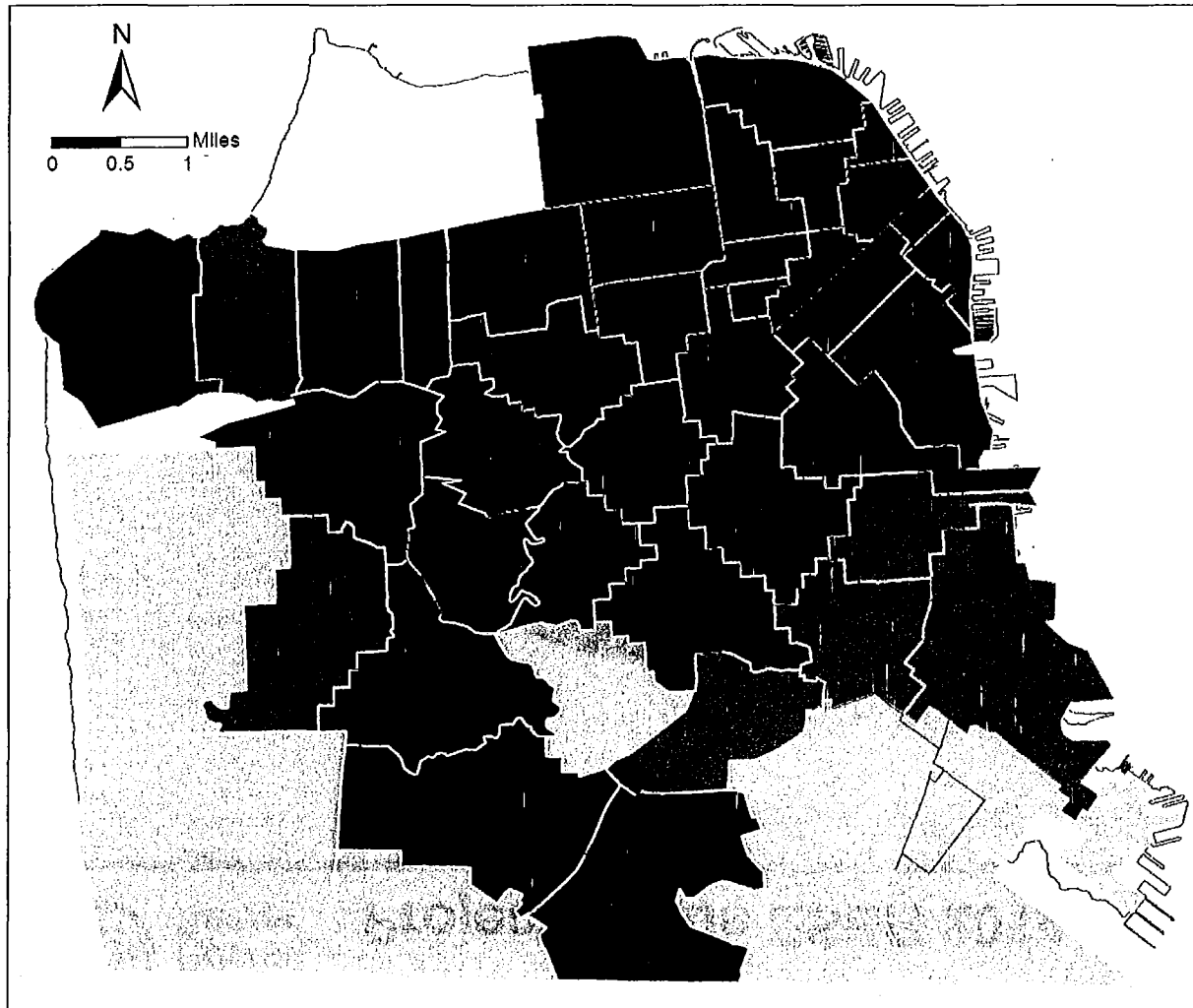


Number of Projects

- In construction or completed
- Design / bid

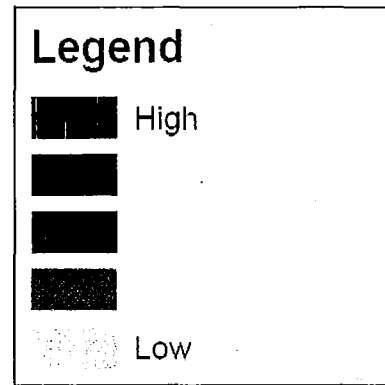


Fire-Fighting Reliability – After ESER 2010

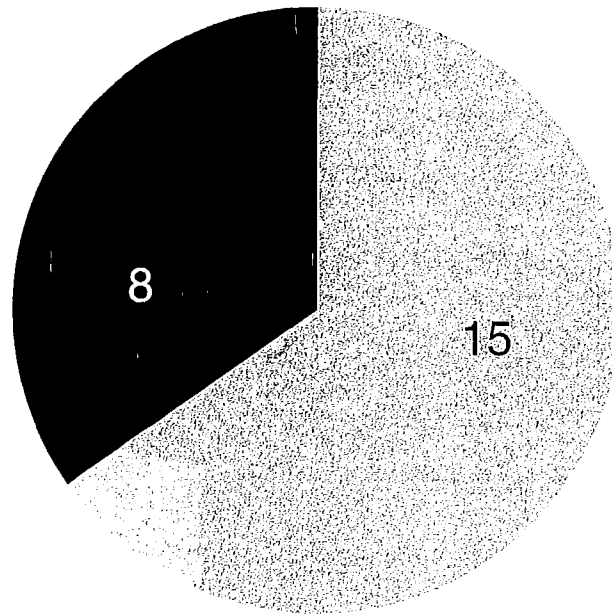


Citywide reliability
67%

16 FRAs below 50%



Project Status ESER 2014



Number of Projects

- In construction or completed
- Design / bid



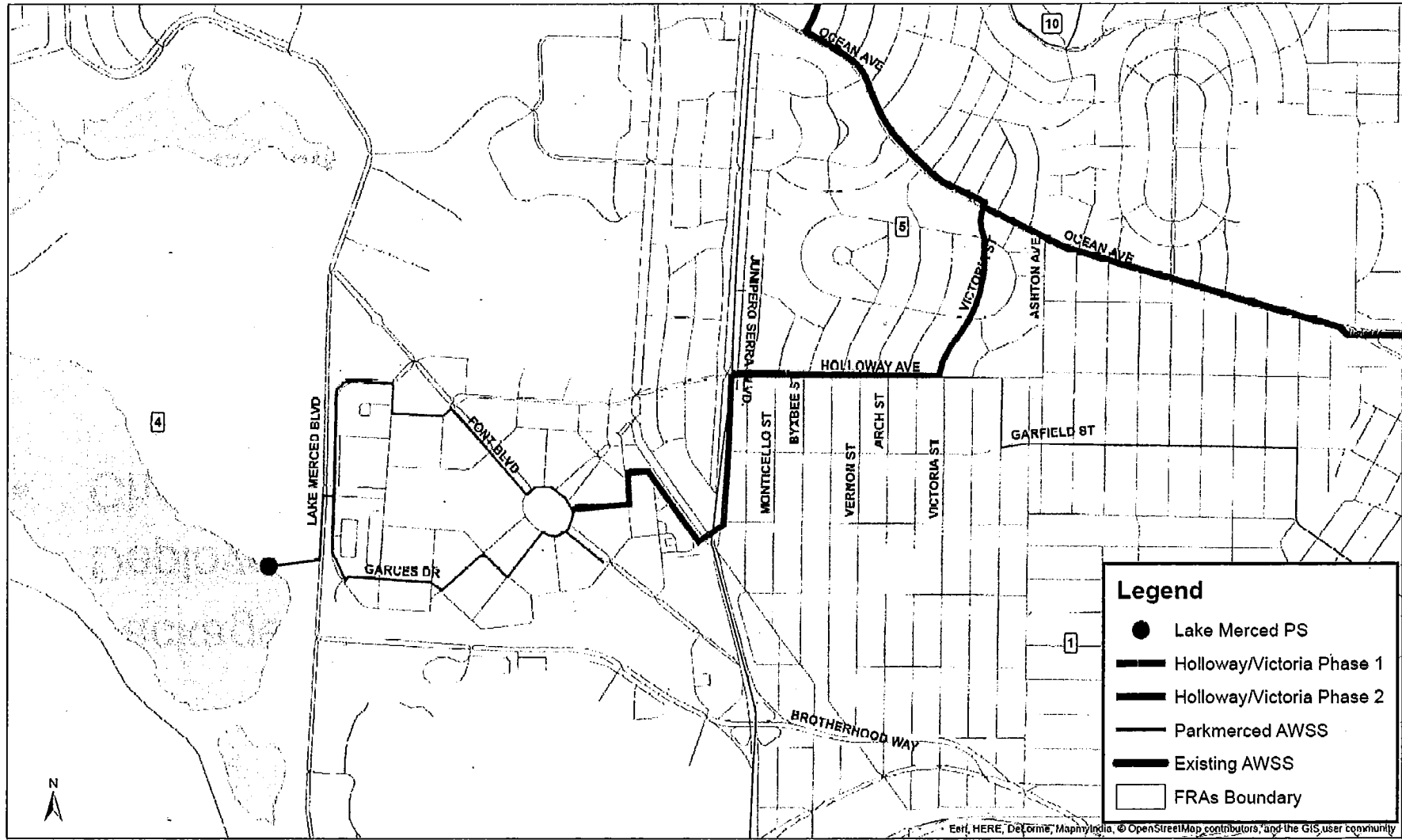
Flexible Water Supply System (FWSS)

- Packaged pump units and hose units (12" diameter)
- Deployed after an earthquake where needed
- Challenges
 - Deployment And Response Time
 - Storage - No structures funded, limited space at McLaren
 - Maintenance
 - Hose testing and replacement
 - Effectiveness
- Implement New Projects:
 - AWSS pipeline – Victoria Street / Holloway Avenue
 - Potable co-benefits pipeline – Sunset & Richmond areas



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Sewer**

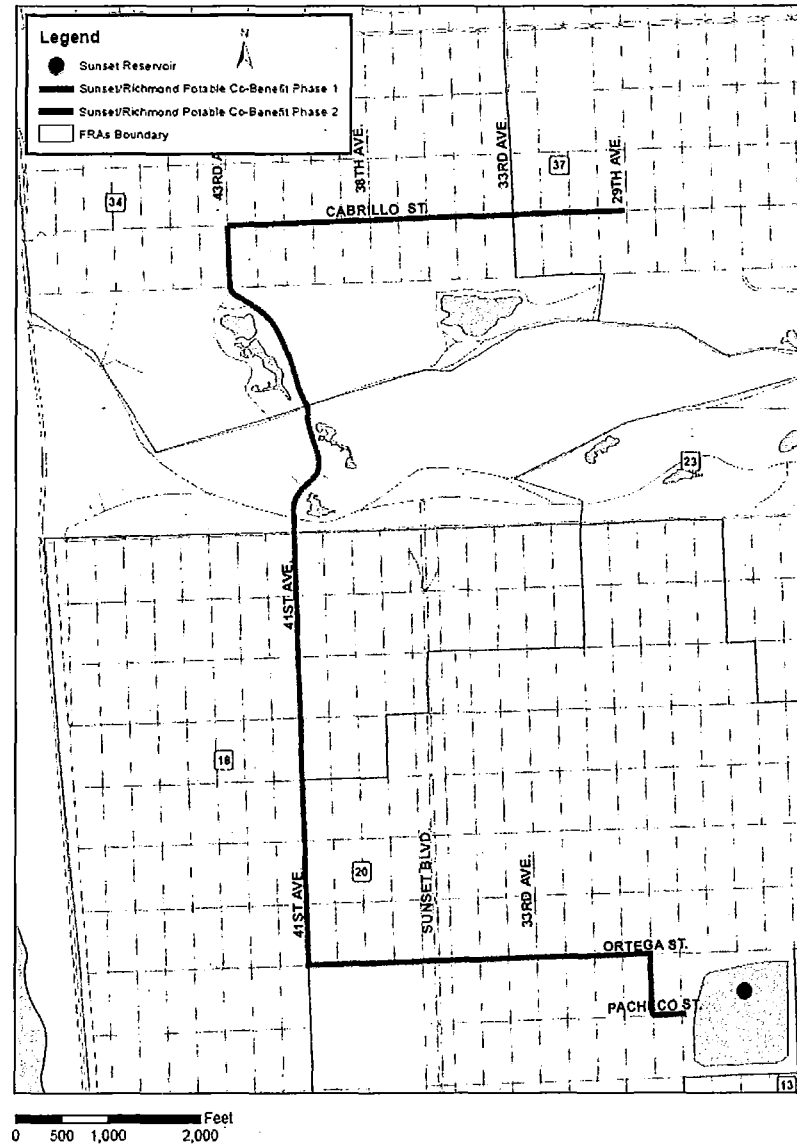
Holloway/Victoria AWSS Pipeline



0 500 1,000 2,000 Feet

Esri, HERE, DeLorme, Mapbox, OpenStreetMap contributors, and the GIS user community

Sunset/Richmond Potable Co-Benefits Pipeline





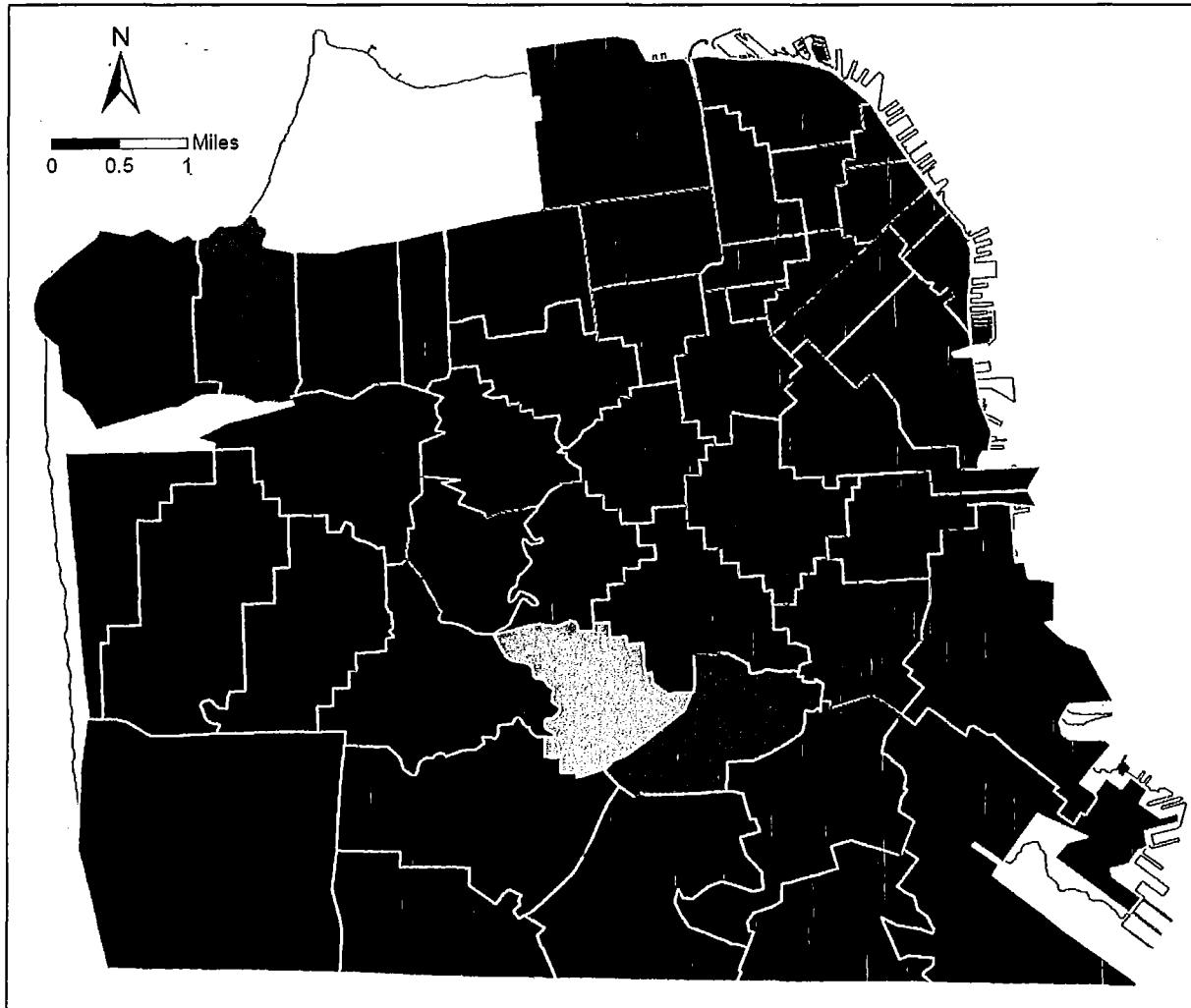
Potable Co-Benefits Pipeline

- Pressure in the seismically-resilient main pipeline and hydrants can be increased for improved fire suppression;
- Automatically isolates the main pipeline from service connections after an earthquake;
- Delivers potable water to residences and businesses daily;
- Allows leveraging of resources from both bond funding and water rates
- Less underground space requirements than separate pipelines



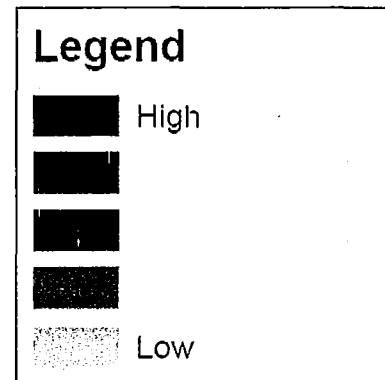
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Fire-Fighting Reliability – after ESER 2014



Citywide Reliability
87%

5 FRAs below 50%





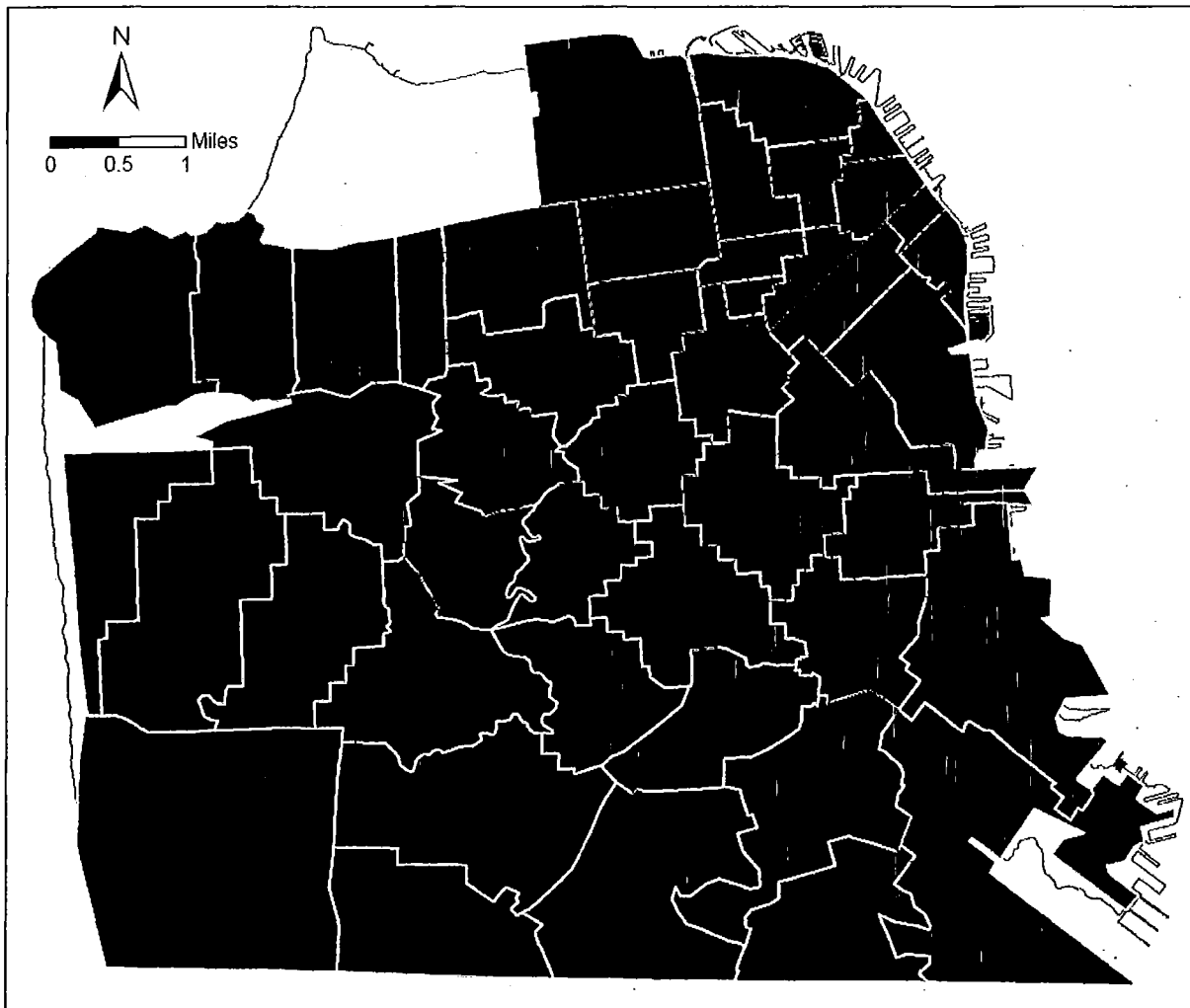
Future Projects (\$ millions)

	Project Cost	Water Rates	Developer	Future Bonds
AWSS High Pressure System				
Existing pipeline improvements	TBD			TBD
Pipeline – Diamond Street	4			4
Pipeline – Holloway/Victoria Phase 2	11			11
Pipeline – University Mound West	11			11
Structural Improvements – Physical Plant	TBD			TBD
Other Projects				
Land development projects	TBD		TBD	TBD
Potable Co-Benefits Pipeline				
McLaren	51	38		13
Richmond	22	16		6
Total	99 + TBD	54	TBD	45 + TBD



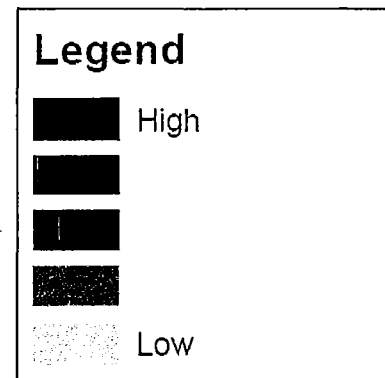
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Fire-Fighting Reliability – after Future Projects



Citywide reliability
96%

0 FRA below 50%





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Sewer**

Questions?



Operated by the San Francisco Public Utilities Commission

Government Audit and Oversight Committee

April 7, 2016

Item #3:

San Francisco Public Utilities Commission Emergency Water Supply System

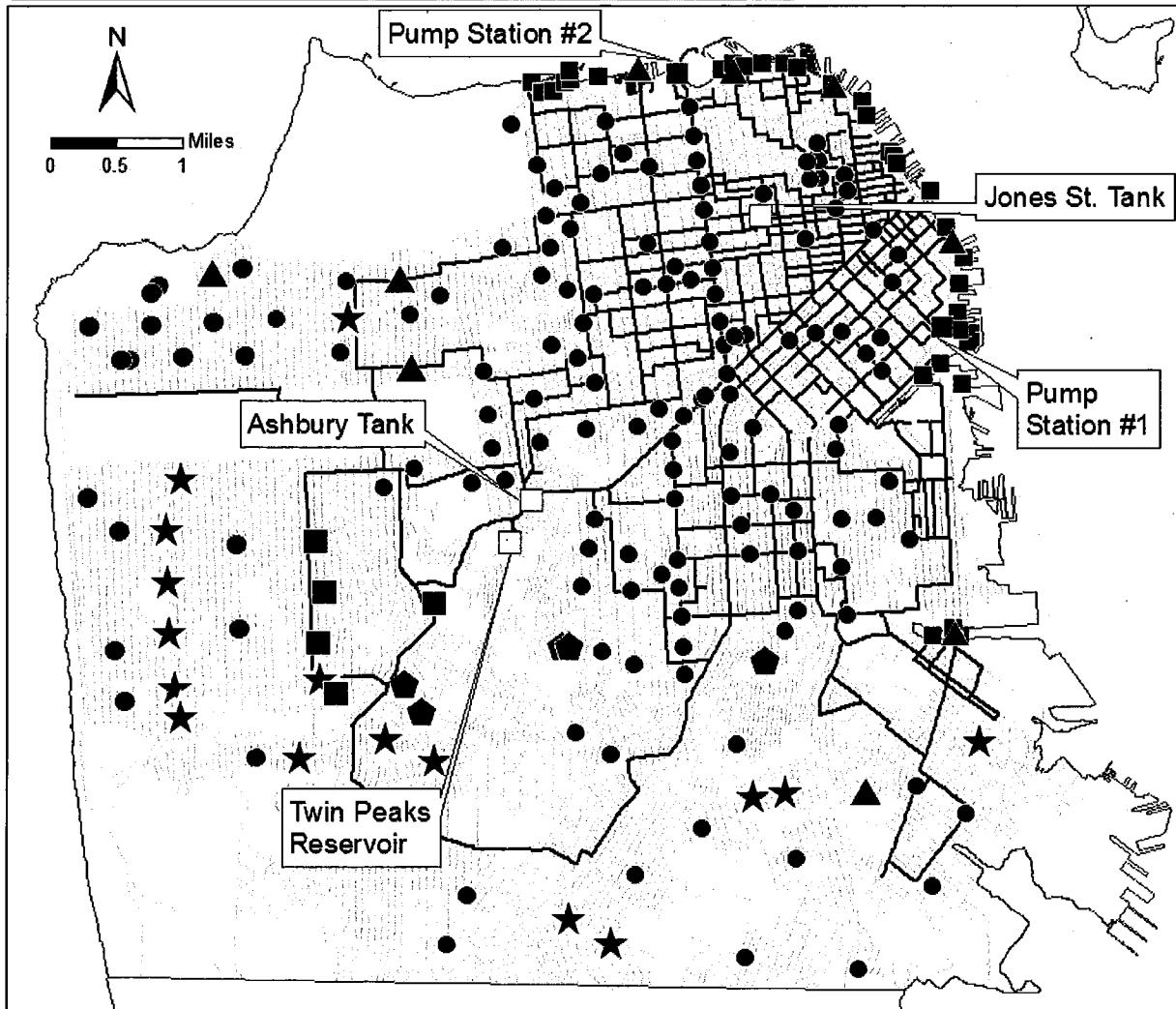
City Hall, Committee Room 263

David A. Briggs
SFPUC



1602605
SUBMITTED + VERIFIED

Auxiliary Water Supply System – Sept 2015



Legend

- Tanks and Reservoir
- Pump Stations
- ▲ Fireboat Manifolds
- Suction Connections
- AWSS Pipes

Cisterns

- ★ Completed 2010 Bond Cisterns
- ⬠ Construction 2010 Bond Cisterns
- Contract E Cisterns
- ▲ Contract F Cisterns
- Existing Cisterns

AWSS Overview

- Auxiliary Water Supply System (AWSS) approved/built following 1906 Earthquake
 - 135 miles of pipelines and 1,575 hydrants, 135 cisterns.
 - 3 reservoirs/tanks, 2 saltwater pump stations, & real estate
- Independent water system - at the time built to higher seismic standards compared to potable system.
 - Complements domestic/potable system - Reservoirs and supply lines to City already seismically upgraded, City distribution pipelines part of CIP.
- Assets transferred to SFPUC in 2010 following passage of first capital bond measure.
- MOU (2015) between SFFD and SFPUC outlines O&M expectations, engineering standards, coordination during emergencies, and requires proceeds from surplus AWSS assets to be re-invested into system.



Comprehensive Planning Study for the AWSS System

- Developed metrics to measure firefighting performance in each or 46 Fire Response Areas, especially in vulnerable areas
- Multi-year, multi-department, public process used to evaluate best way to improve fire protection. Included City Capital Planning Committee, SFFD, SF Public Works, and SFPUC

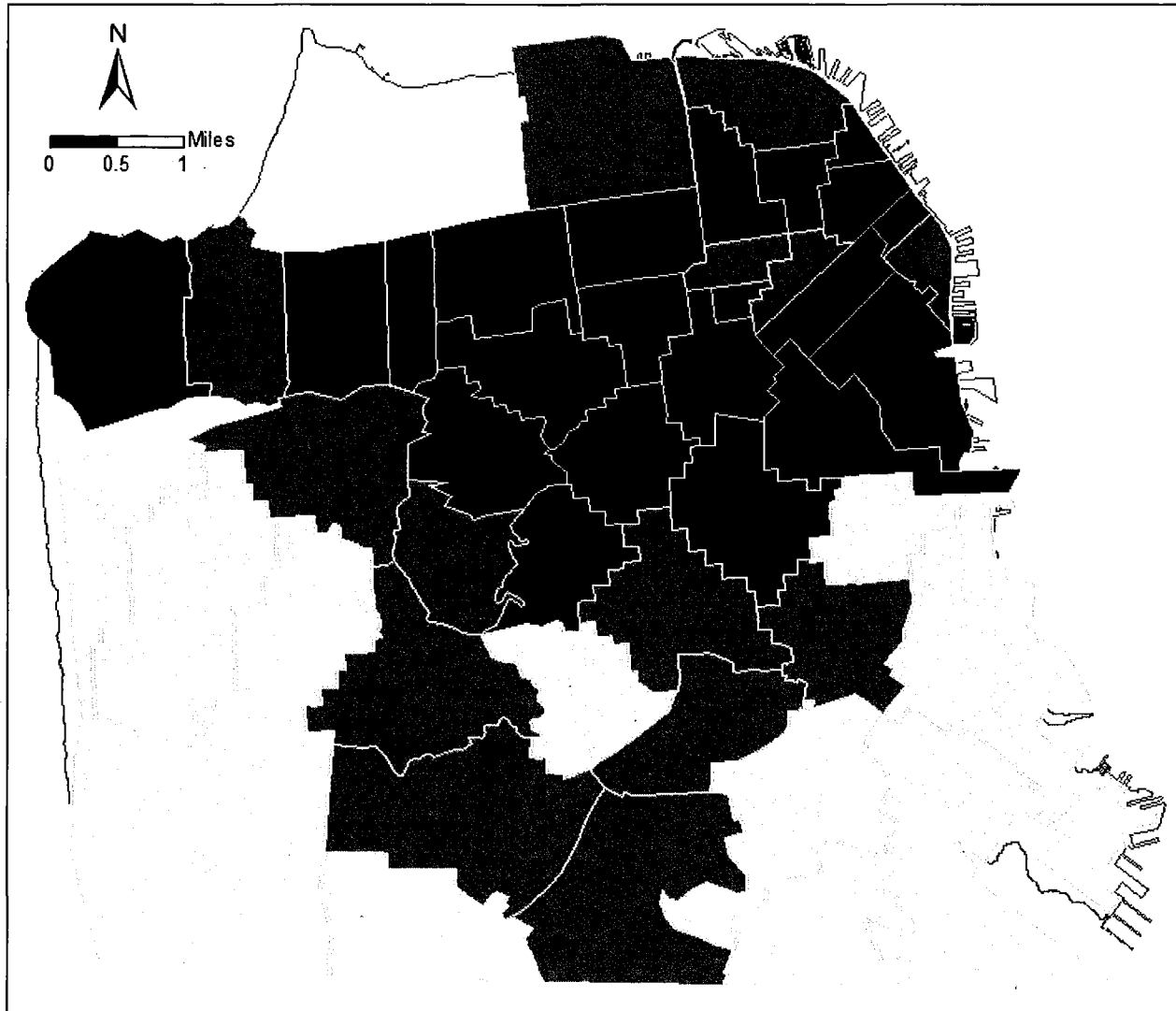
Study findings:

- Use of AWSS pipeline exclusively deemed cost prohibitive and improvements could be achieved using other strategies.
- Above-ground flexible hose systems very desirable to SFFD because of independence and ability to deploy in numerous locations.
- Greater use of seismically upgraded potable pipelines and facilities to improve firefighting reliability

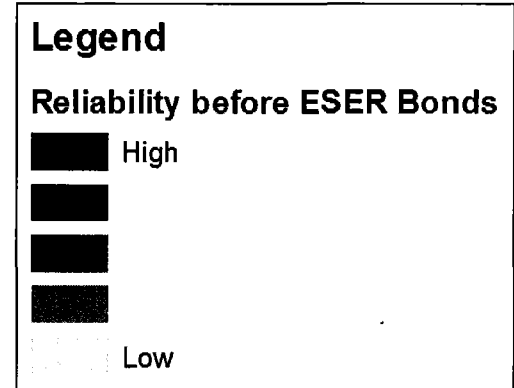


Hetch Hetchy
**Regional
Water
System**

Reliability before ESER Bonds



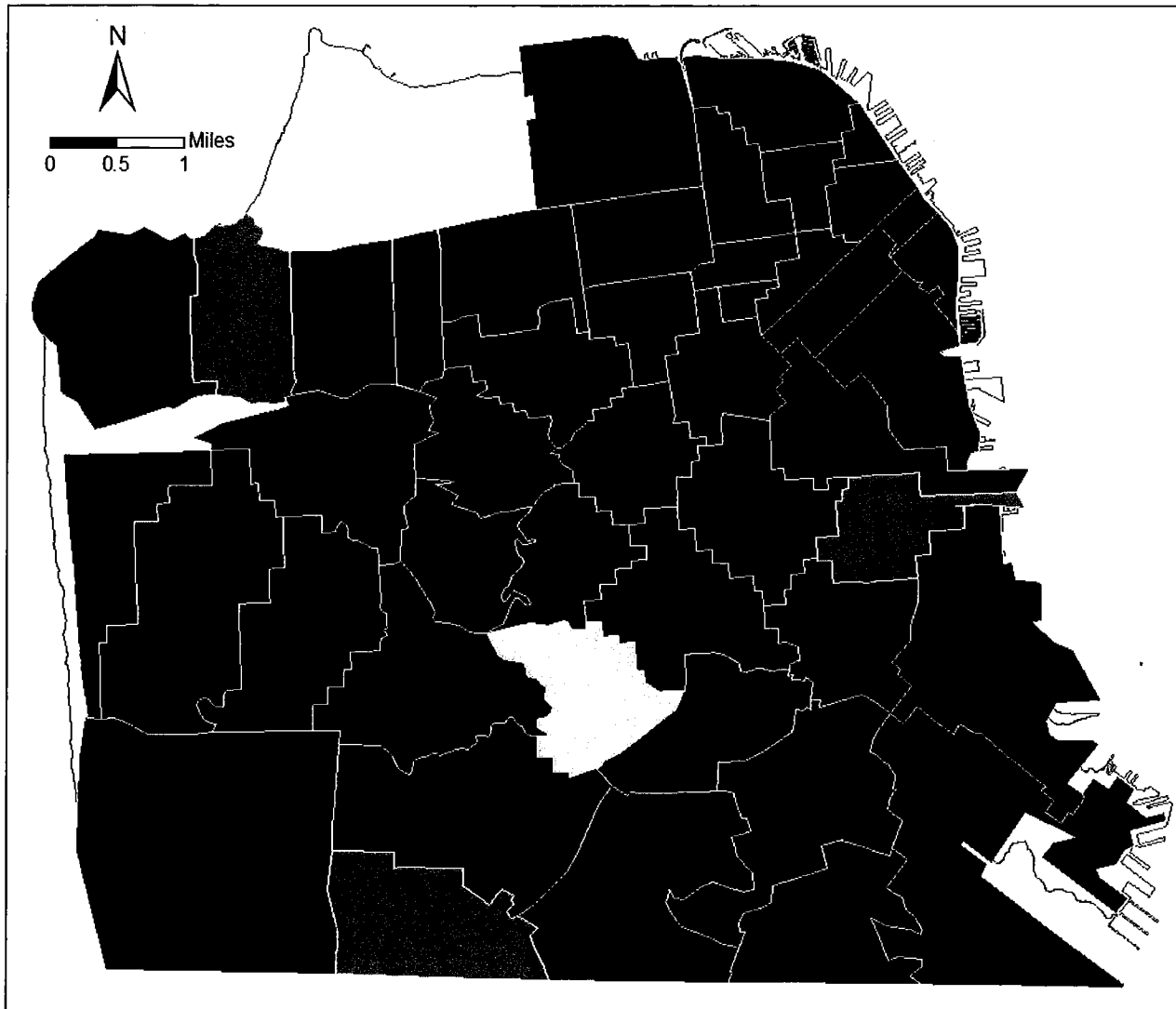
Citywide reliability
47%





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Reliability after ESER 2010 & 2014



Citywide reliability
85%

Legend

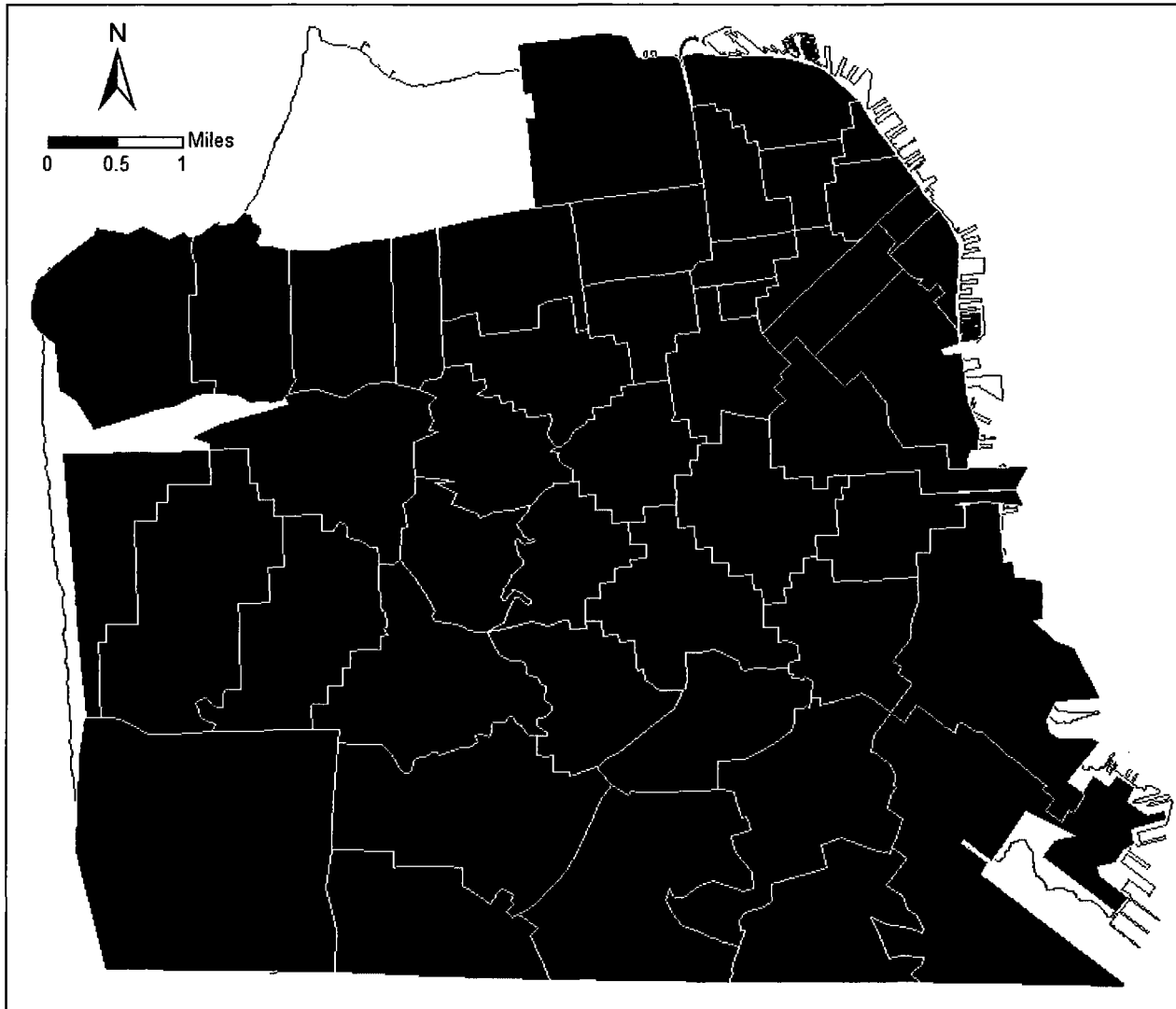
Reliability after ESER 2014

	High
	Low

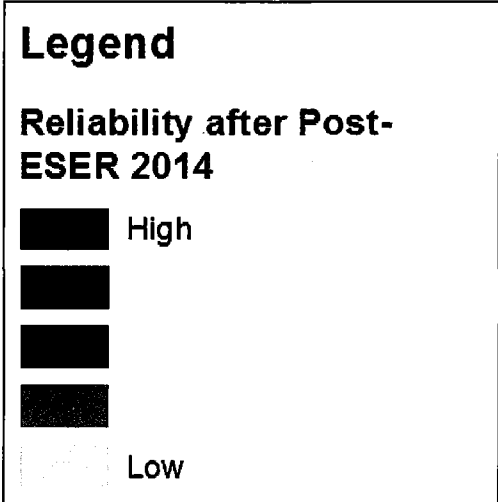


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Reliability after Post-ESER 2014



Citywide reliability
93%





Improved Domestic and Firefighting Water Operations and Maintenance

- Pipeline inspection and assessment underway.
- Saltwater pump stations capability improved.
- AWSS system re-fill capacity significantly increased.
- Leak detection and repair (approximately 700,000 g/day saved).
- Ensure protection of below-ground infrastructure with streetscape and development projects.
- Support SFFD in AWSS design for new subdivisions.

Domestic system also upgraded, particularly for in-City water reservoirs

- \$4.8B Hetch Hetchy Water System Improvement Program
- Ongoing capital and R&R projects



AWSS Inventory

- AWSS Parts purchased in 1980s envisioning buildout of AWSS pipeline system.
- Over 100 different items, mostly pipe connection pieces, hydrants, miscellaneous items.
- Presently stored on 0.5-acre lot near the Bayview.
- Approximately 30% of inventory is surplus (after accounting for repairs and planned expansion)
 - Less buried pipelines
 - New engineering standards and current capital program render portions of the inventory obsolete.
 - SFPUC/SFFD may not want to waive warranty in certain cases.



Unnecessary costs can be avoided

Avoided costs through surplus sales:

Cost to re-locate: \$ 125,000 (1 time)

Cost to store: \$ 90,000 / per year

(assume \$1.5/sf/month lease)

Savings are used for additional maintenance/ R&R improvements.



Hetch Hetchy
**Regional
Water
System**

BOARD of SUPERVISORS



City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

MEMORANDUM

TO: Joanne Hayes-White, Chief, Fire Department
Harlan Kelly, Jr., General Manager, Public Utilities Commission

FROM: Erica Major, Assistant Committee Clerk, Government Audit and Oversight
Committee, Board of Supervisors

DATE: March 21, 2016

SUBJECT: HEARING MATTER INTRODUCED

The Board of Supervisors' Government Audit and Oversight Committee has received the following hearing request, introduced by Supervisor Peskin on March 15, 2016:

File No. 160265

Hearing on the operations and maintenance status of the City's emergency water supply system since taking it over from the Fire Department in 2010, and receiving an update on plans to dispose of spare parts deemed no longer useful or necessary to the ongoing functions of the system; and requesting the San Francisco Public Utilities Commission to report.

If you have any comments or reports to be included with the file, please forward them to me at the Board of Supervisors, City Hall, Room 244, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102.

cc:
Kelly Alves, Fire Department
Juliet Ellis, Public Utilities Commission
Donna Hood, Public Utilities Commission

Introduction Form

By a Member of the Board of Supervisors or the Mayor

Time stamp
or meeting date

I hereby submit the following item for introduction (select only one):

- 1. For reference to Committee. (An Ordinance, Resolution, Motion, or Charter Amendment)
- 2. Request for next printed agenda Without Reference to Committee.
- 3. Request for hearing on a subject matter at Committee.
- 4. Request for letter beginning "Supervisor [] inquires"
- 5. City Attorney request.
- 6. Call File No. [] from Committee.
- 7. Budget Analyst request (attach written motion).
- 8. Substitute Legislation File No. []
- 9. Reactivate File No. []
- 10. Question(s) submitted for Mayoral Appearance before the BOS on []

Please check the appropriate boxes. The proposed legislation should be forwarded to the following:

- Small Business Commission Youth Commission Ethics Commission
- Planning Commission Building Inspection Commission

Note: For the Imperative Agenda (a resolution not on the printed agenda), use a Imperative Form.

Sponsor(s):

Supervisor Aaron Peskin

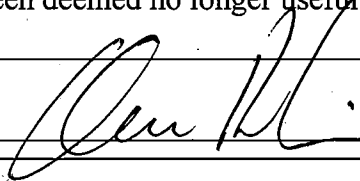
Subject:

Hearing on the SF Public Utilities Commission emergency water supply system

The text is listed below or attached:

Hearing with presentations by the San Francisco Public Utilities Commission on the operations and maintenance status of the City's emergency water supply system since taking it over from the SF Fire Department in 2010, and receiving an update on plans to dispose of spare parts that have been deemed no longer useful or necessary to the ongoing functions of the system.

Signature of Sponsoring Supervisor: _____



For Clerk's Use Only: