

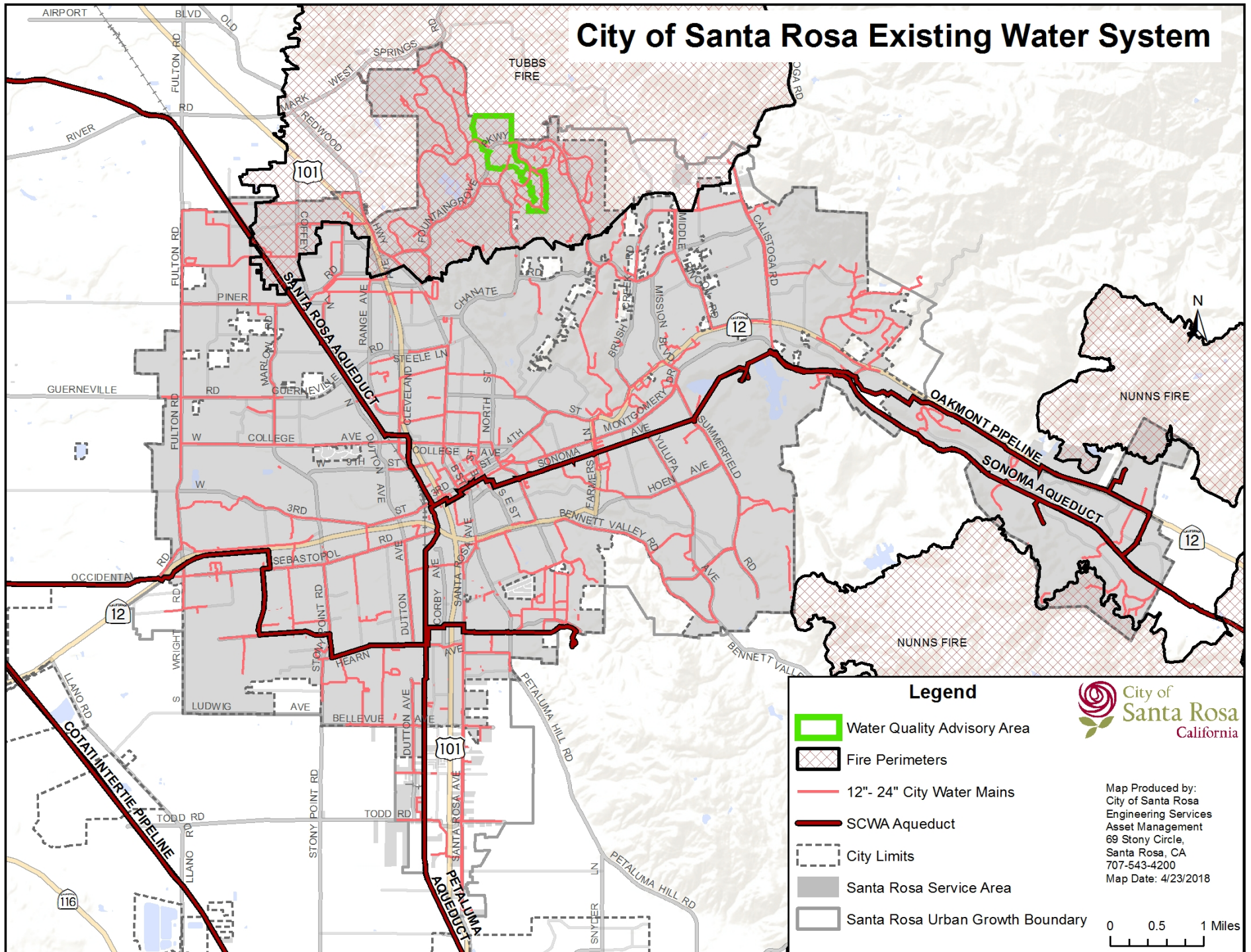
Santa Rosa Post Fire Water Quality Contamination

WaterReuse N. CA Chapter Meeting
May 18, 2018



OUR FUTURE IN EVERY DROP

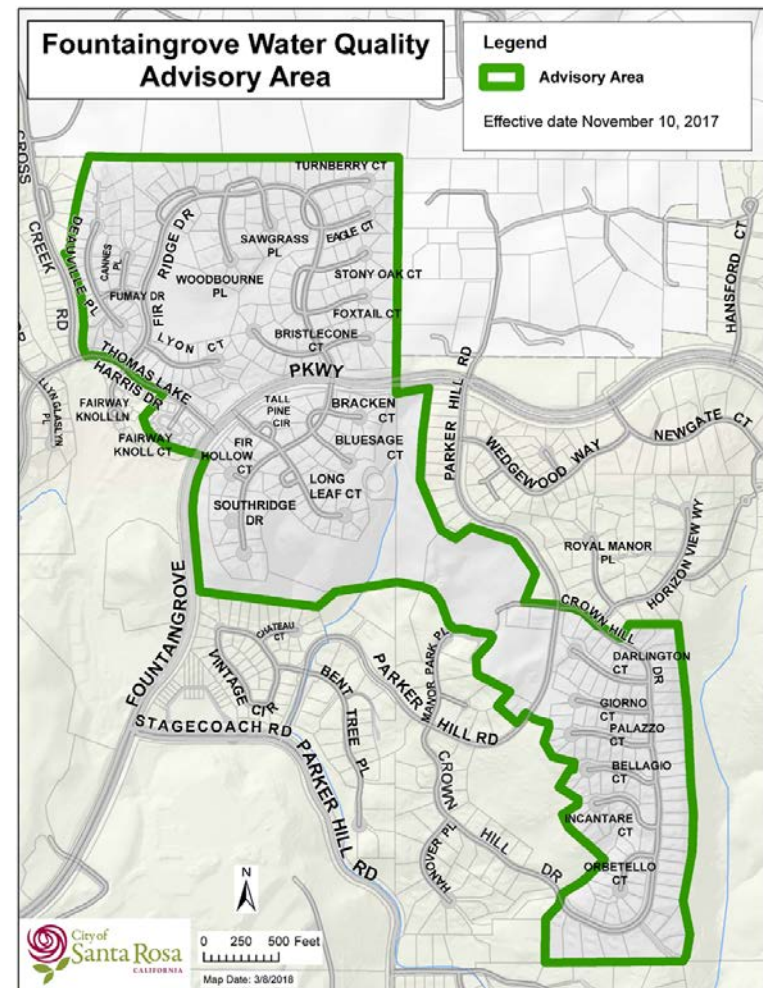
City of Santa Rosa Existing Water System



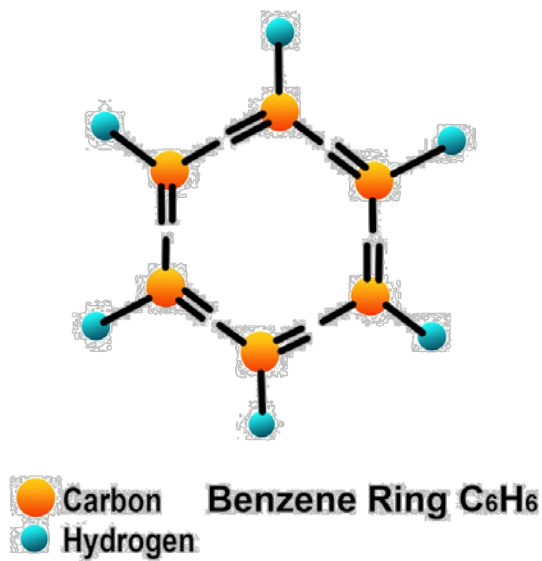
Post-fire Water Quality Advisory

Fountaingrove Area

- Odor complaint 11/08/2017
- Issued advisory 11/10/2017
- Additional precautions issued 1/23/2018



Water Contamination



- Benzene - indicator chemical for post-fire contamination
- Range of contaminants related to fire damage

Benzene	California State Maximum Contaminant Level (MCL)
State Water Resources Control Board Regulatory and Water Quality Levels	1.0 ppb

Initial Action

- Notified customers
- Isolated advisory area
- Notified the California Division of Drinking Water
- Developed an action plan for sampling and flushing
- Reached out to partner agencies and experts

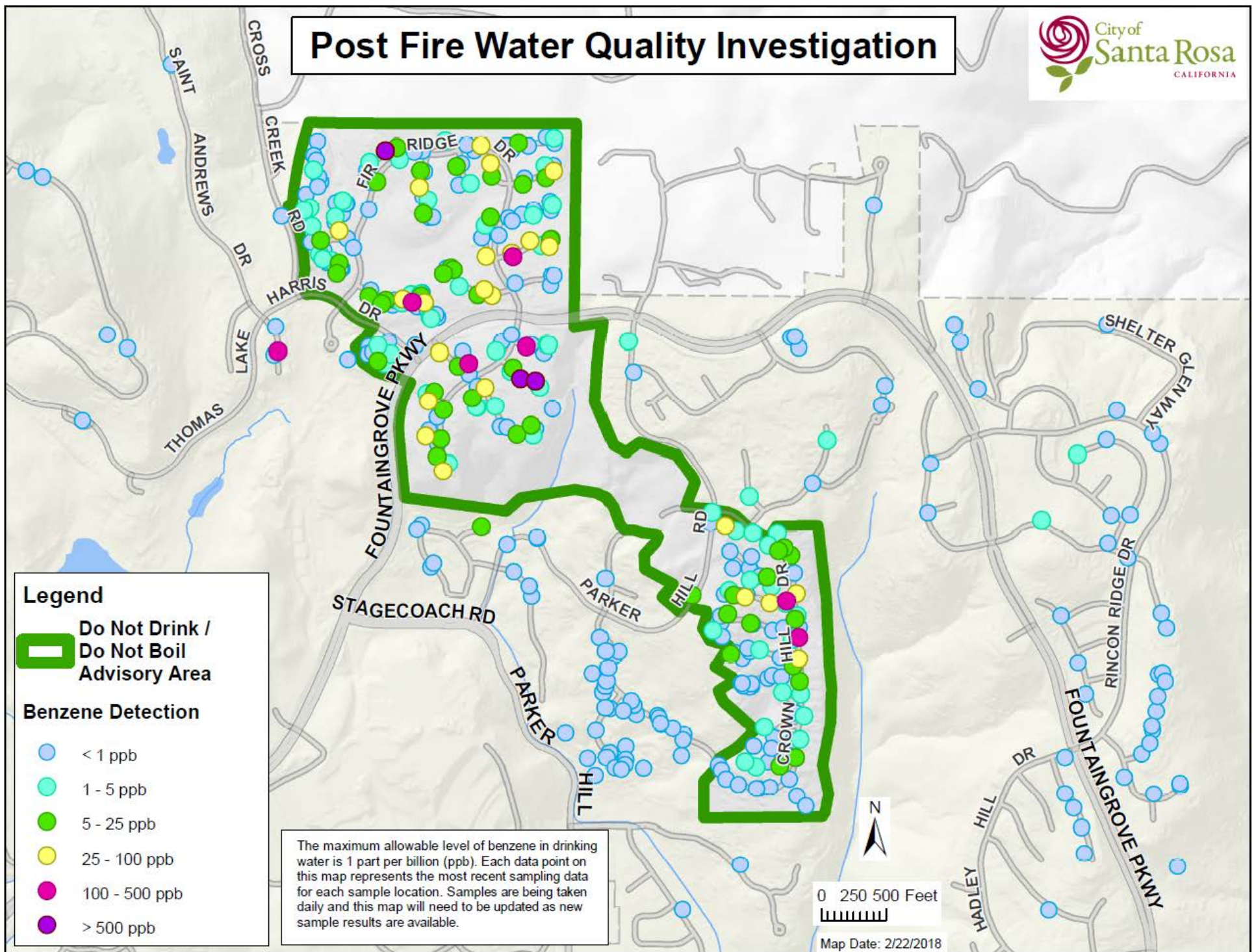


Expanded Investigation

- Extensive sampling throughout advisory area and the entire water system
- Additional health advisories issued 1/23/2018
- Providing bottled drinking water
- Adjusting water bills



Post Fire Water Quality Investigation



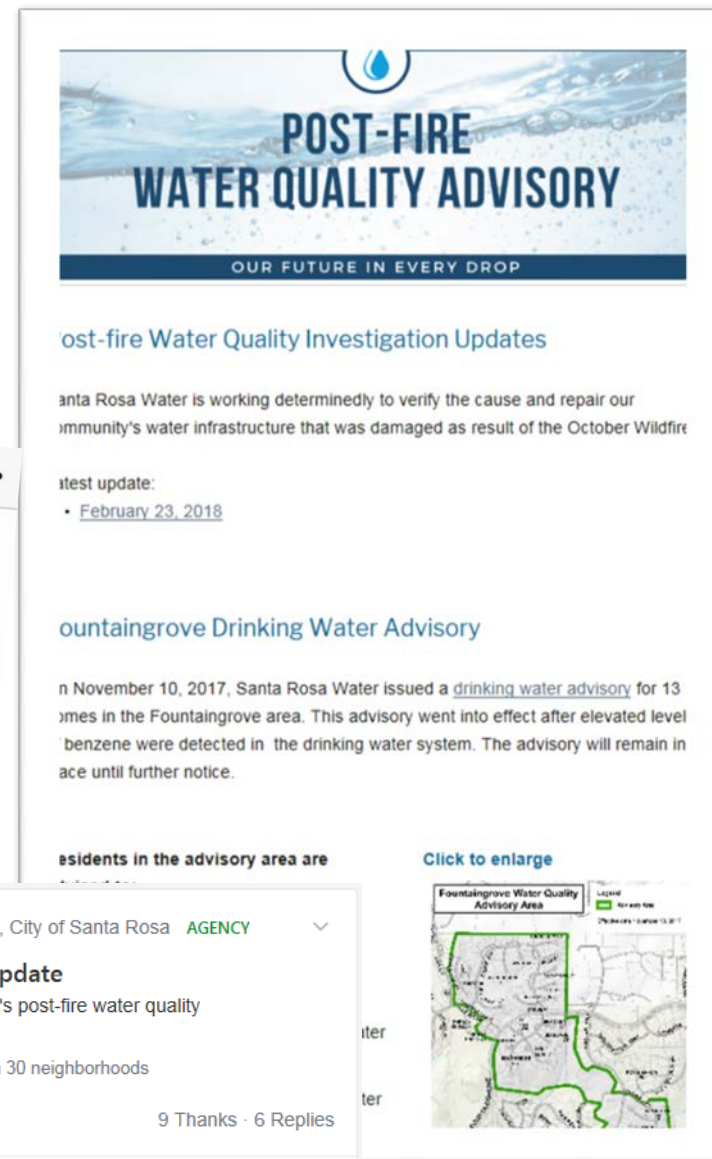
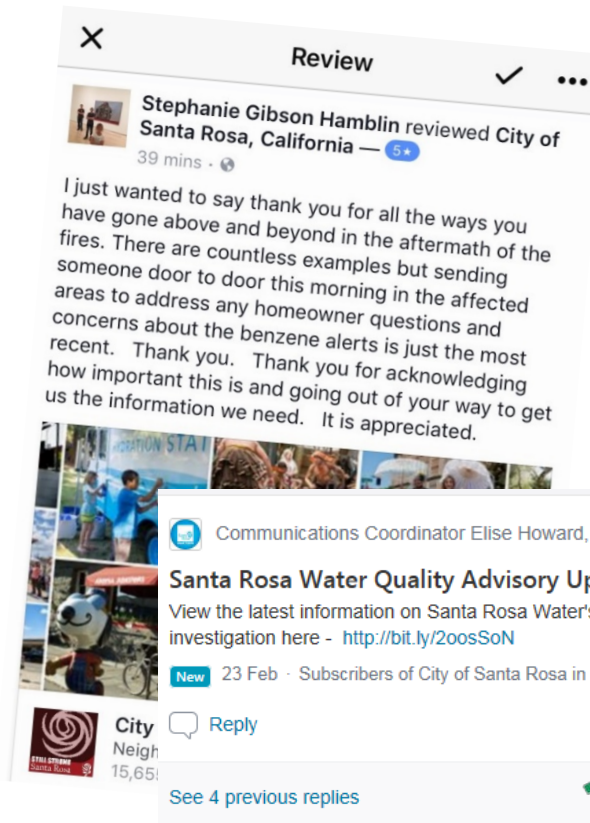
Water Quality Advisory

- Do not drink, cook, or brush teeth with tap water.
- Do not let pets consume tap water.
- Limit shower time, use lukewarm water, and ventilate the area.
- Limit use of hot water
- Use a dishwasher to wash dishes
- Wash clothing in cold water
- Do not take baths
- Do not use hot tubs or swimming pools

Communications



- In-Person
- Door Tags
- News Release
- eNewsletter
- Social Media
- Website



OUR FUTURE IN EVERY DROP



Santa Rosa Water Post-fire Water Quality Investigation

Santa Rosa Water

Water Quality Advisory Sonoma County Recovers



Map Legend

Water Quality Sampling Results

- Sample Station
Samples taken at sample stations are representative of drinking water quality supplied to homes and businesses in the area.

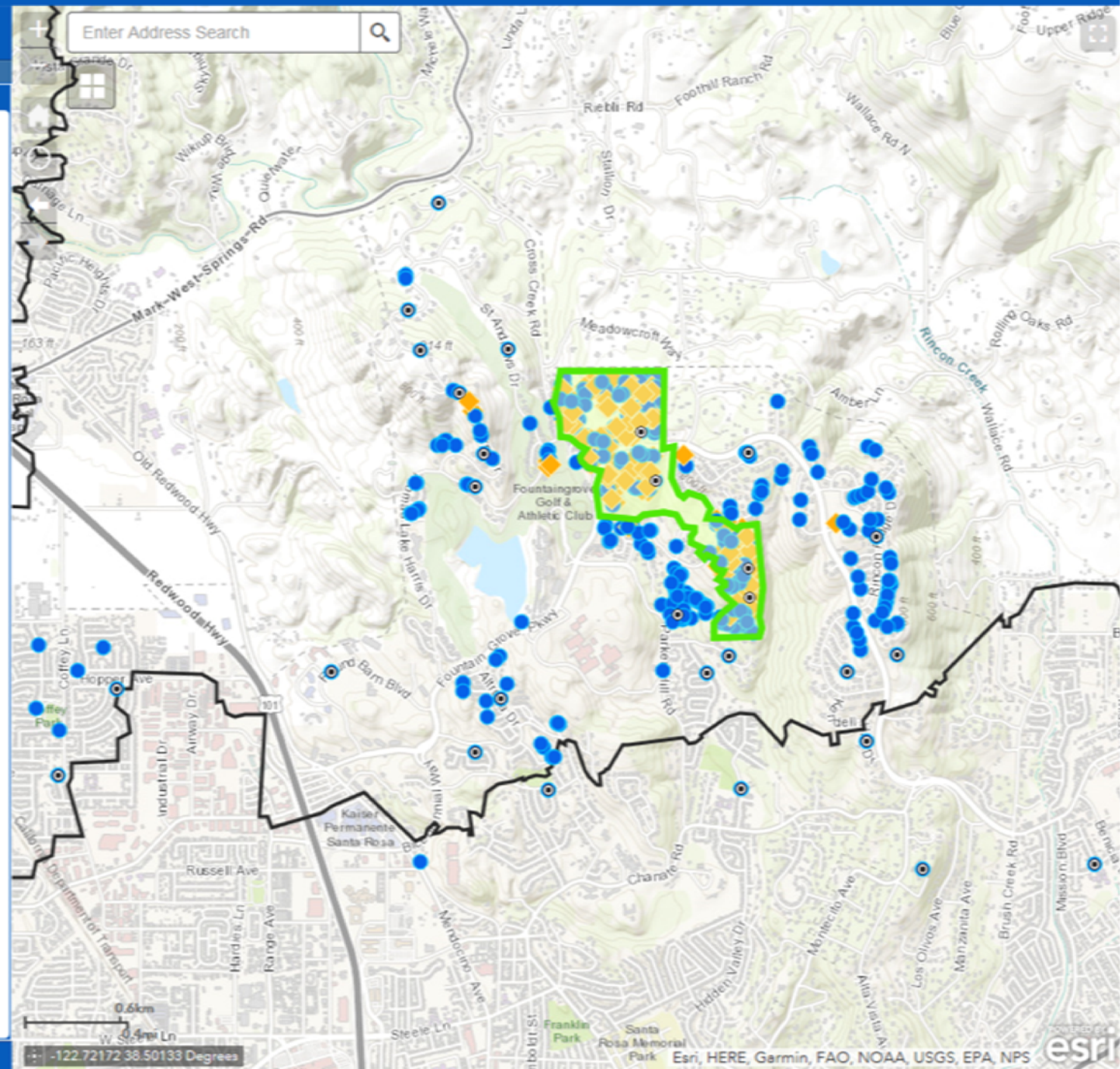
Investigative Sampling Results for Benzene

- Below MCL
- Above MCL
Water samples taken from water services are for investigative purposes and not representative of water quality in the area. Investigative samples are being used to help in the City's efforts to resolve the issue. Benzene is a regulated chemical with an established California MCL (maximum contaminant level) of 1.0 ppb (part per billion) for drinking water.

Water Quality Advisory Area



Fire Perimeter



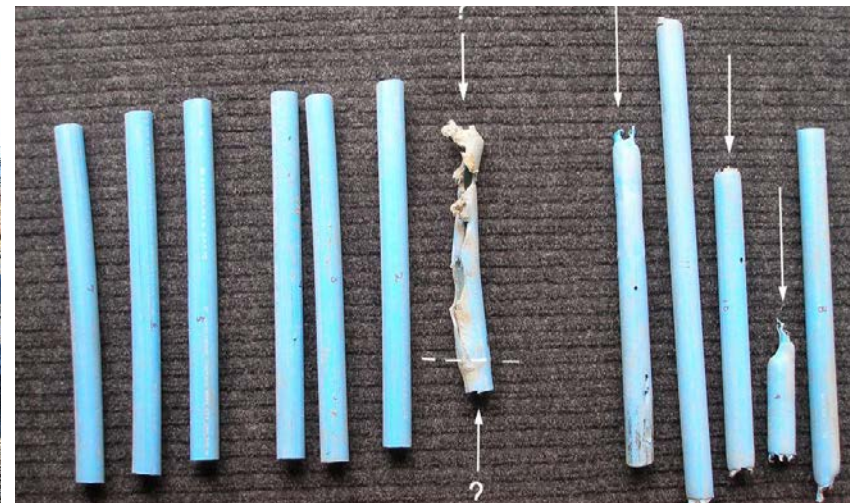
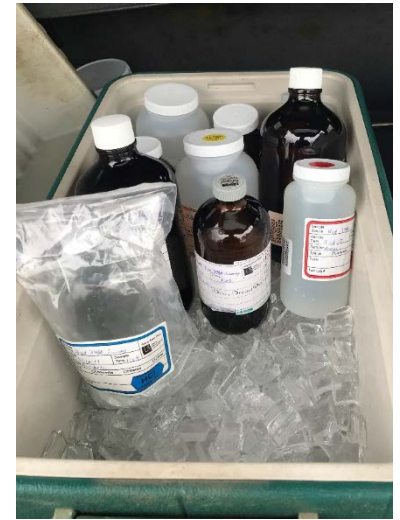
The Investigation

- What are the Possible Sources?
- Steps taken to Identify the Sources
- What Sources can we Rule Out?
- What is the Source of Contamination?
- What is the extent?
- What are the options for restoring the system?



Samples and Testing

- Over 4,000 water samples
 - 200 samples analyzed for over 70,000+ chemicals
- Soil samples
- Material samples and analysis



Chemical Testing - Leachability



- Determination of leach potential of piping and ancillary equipment
- Identification of contaminants and byproducts leached from materials impacted by fire damage
- Samples are placed in ultrapure water for a minimum of 69 hours using a zero headspace extraction (ZHE) vessel to prevent loss of volatile compounds during leaching
- The leachate is then analyzed for organic compounds including benzene

Sources of Contamination

- Leaching from Plastics
- Backflow of
 - Burned/Melted Plastics
 - Soot/Ash/Fire Debris



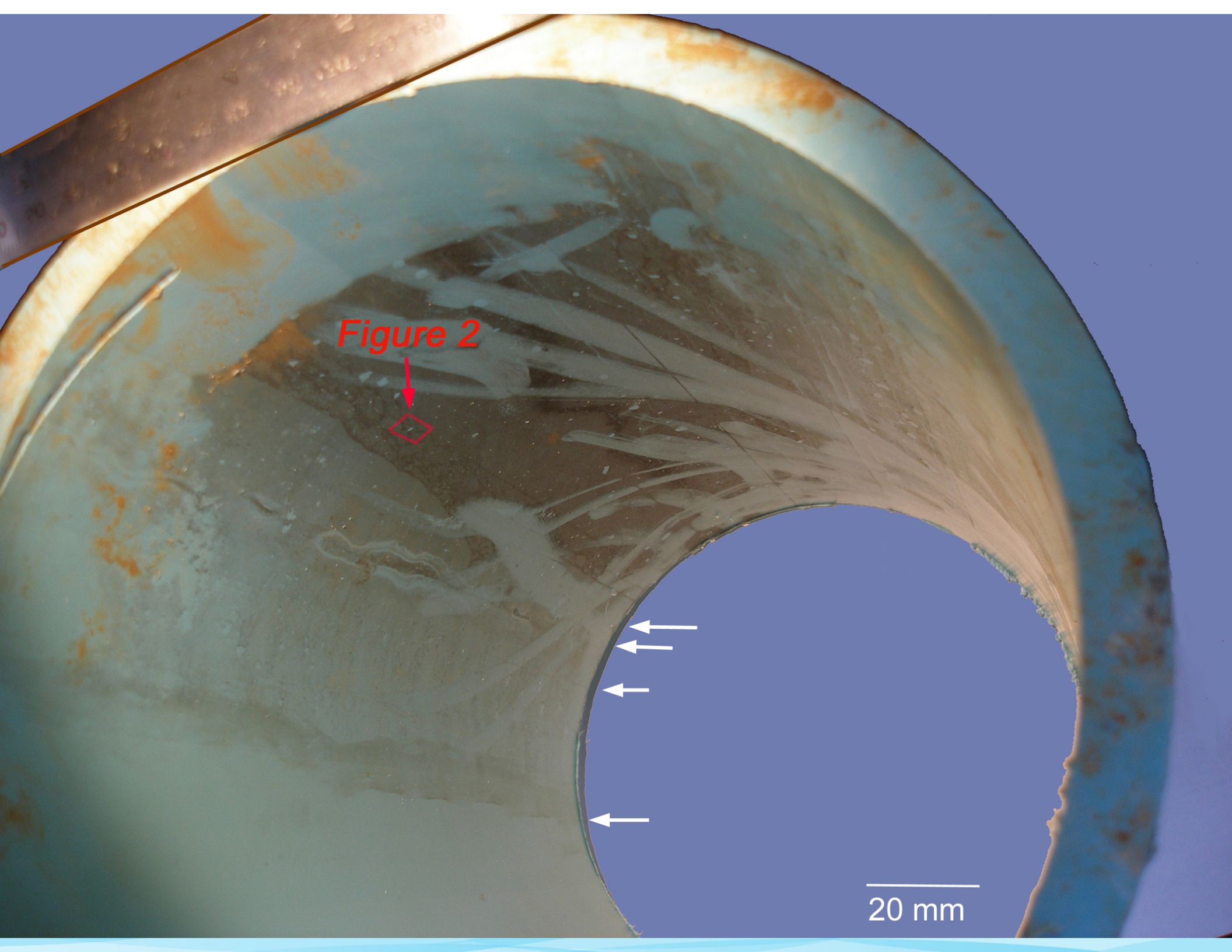


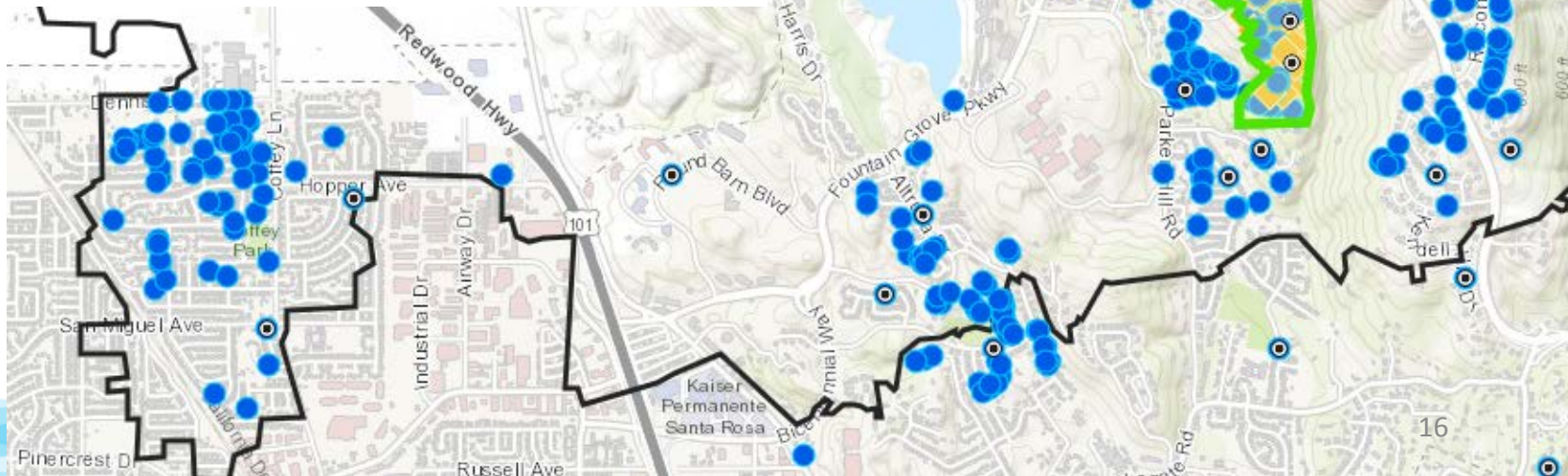
Figure 2



20 mm

Extent of the Contamination

- Outside the Advisory Area
 - In Some Service Lines
 - Not in the Mains
- Inside the Advisory Area
 - In All Service Lines
 - In Mains



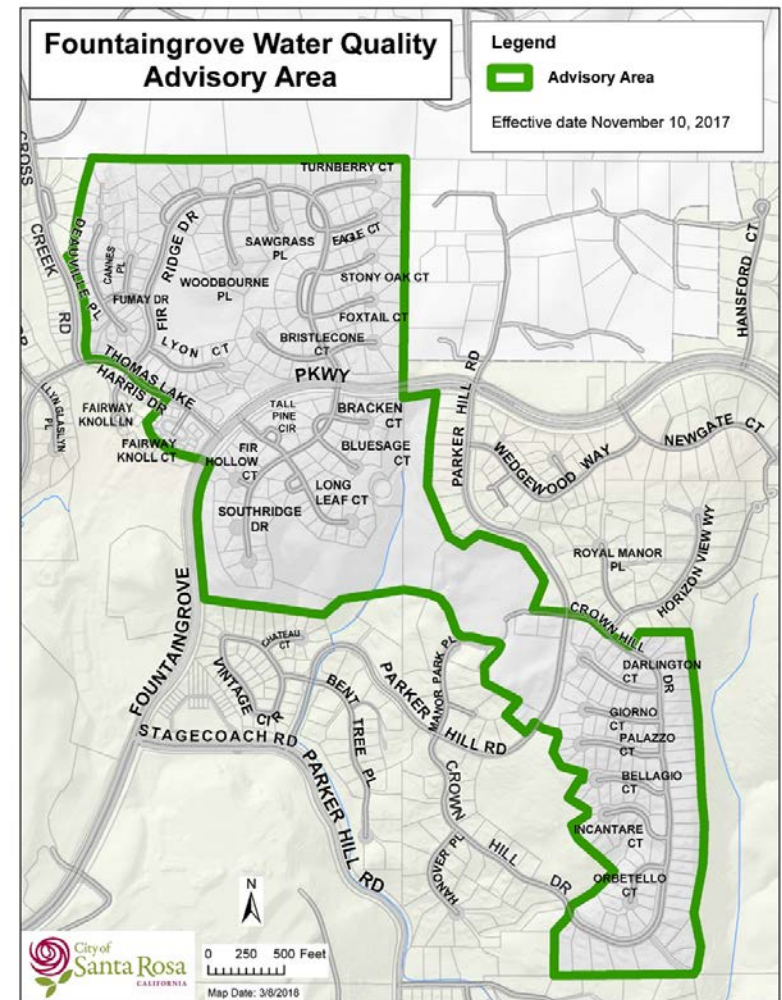
Options for restoring the system

- Flushing
- Pigging
- Surfactants
- Treatment/Filtration
- Partial Replacement
- Full Replacement



IF Full Replacement

- Construction Challenges
 - 5 miles of water main
 - 350 service lines
 - 70 fire hydrants
 - 210 valves
- Rebuilding Challenges
 - Timeline for rebuild
- Funding Challenges
 - Est Costs \$30-40 million



Where we are today

- Finishing investigation
- Temporary on-site options to facilitate re-building
- Exploring options to expedite construction
- Exploring funding options

Questions?

THANK YOU!

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VISIT: SRCITY.ORG/WATER



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