ATTACHMENT 1

Watershed Sampling and Monitoring Presentation

Council Chambers

March 3, 2026

Watershed Sampling and Monitoring

- A joint venture between the City of Napa, Napa County, and Napa Resource Conservation District (RCD)
- Goal of monitoring inflow to drinking water reservoirs to protect the source waters
  - establish baseline data as land use changes occur within the watersheds
  - detect water quality anomalies which may impact the reservoirs and drinking water safety
  - forecast water quality conditions in wet & dry years
  - identify areas of concern so they can be addressed through BMP modification
  - inform potential necessary improvements to the corresponding water treatment plants

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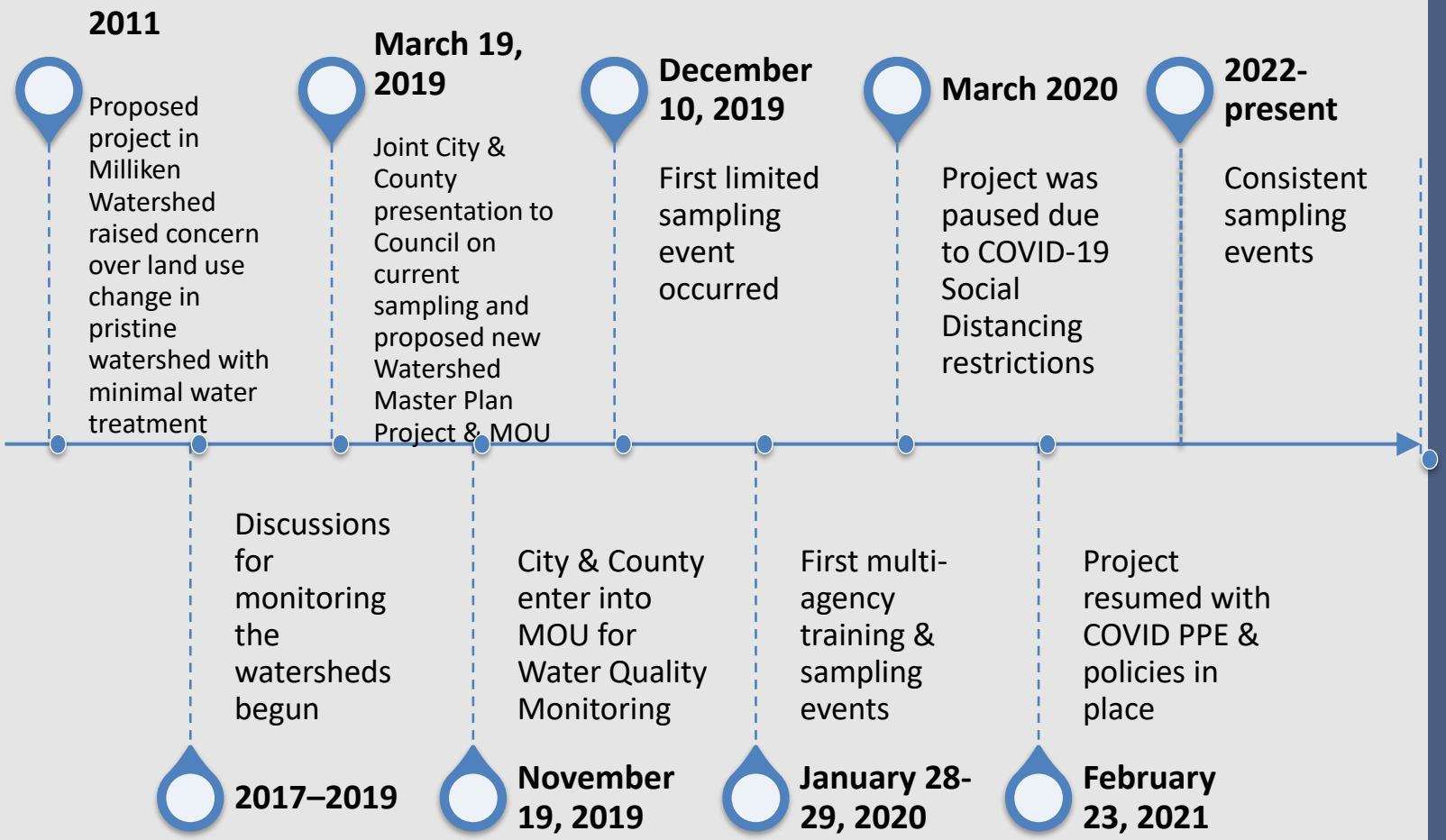
Project Development



Multi-Agency Coordination

- City of Napa staff
  - Provide annual sample collection training
  - Set sample collection events & dates
  - Coordinate with the sub-laboratory for sample containers & data reports, verify/prepare coolers and reporting documentation
  - Determine the number of locations to be collected for each event (Flow based)
  - Collect samples at limited & open access locations
  - Verify & process data into the City's database
  - Provide data to Napa County & one participating property owner
- Napa County Staff & RCD Staff
  - Attend trainings
  - Collect samples at open access locations

Sampling Events

Each Event

- 27 established locations
- Occurs on the last Wednesday of the month
- Occurs when 10 or more locations have flowing water
- Involves all three agencies
- Collects ≈10 liters of water from each location
- 141 individual analytes for each location

Event Averages

- 17 samples collected per event
- 4 sample collection groups per event
- 48 hours of work per event
- 7 separate events occur each year

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Pre Sampling Event Tasks

- Confirm the number of sample locations with flowing water
- Order sample containers
- Confirm sampling event to County and RCD participants
- Pick up, label, and sort containers
- Prepare all required documentation (COCs, route maps, field logbooks)
- Morning of the Event
  - Calibrate field analysis equipment/meters
  - Collate all sampling equipment from storage and stage for individual agency pick up
  - Fill up and transport ice bags for sample preservation.

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Sampling Locations

Sampling Location Comparison

Dry Winter Conditions

Wet Winter Conditions

Custom Sampling Equipment

Designed and built by City staff to enhance the safety, accessibility, uniformity, and speed of sample collection.

Tested with equipment blanks to verify sample results are not altered with design.

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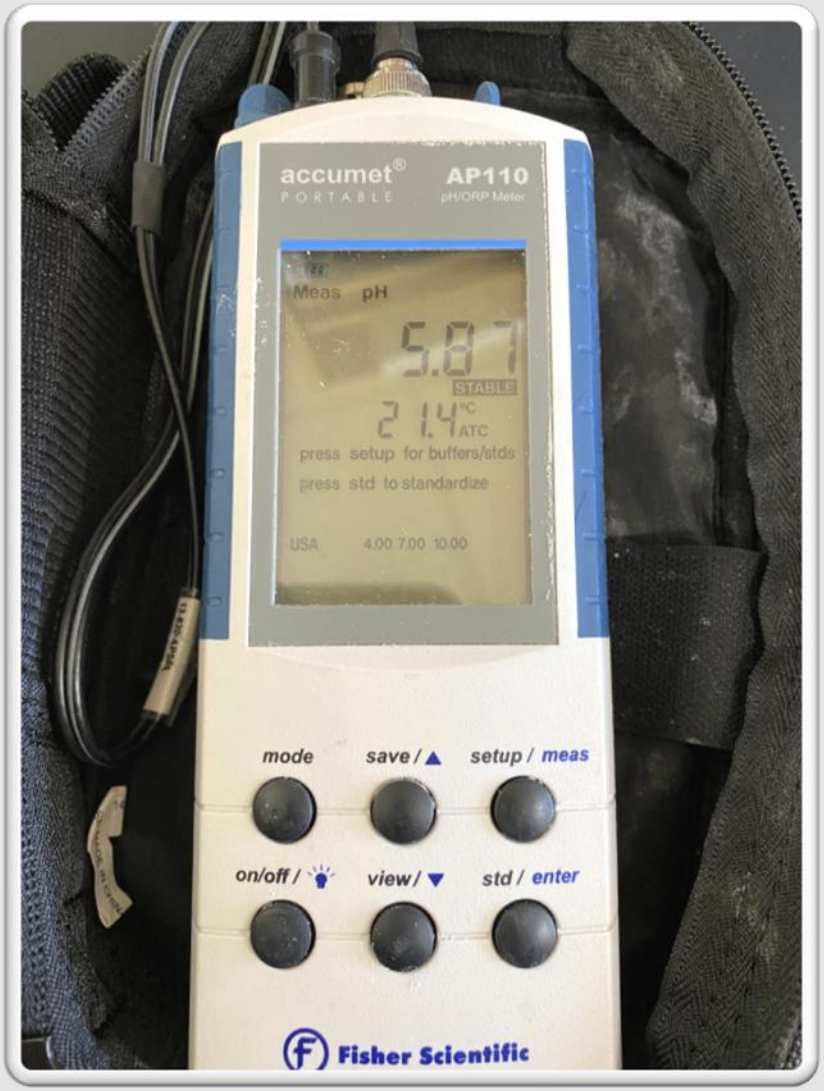
Field Analysis Instrumentation

Used for analysis which must be made in the field at the time of sample collection.

Analytes include:

- Temperature
- Dissolved Oxygen
- pH



Sample Containers

Includes:

- Unpreserved Plastics
- Amber Glass
- VOAs
- Acidic Containers
- Sterile Containers
- Specialty Containers

Sampling Events

Sampling Events

Sampling Events

Post Sampling Event Tasks

- Delivering samples to sub-laboratory
- Processing field logbooks and COCs
- Sampling equipment cleaning, maintenance, and repair, if needed
- Data entry and report & invoice processing
- Minor data analysis

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Findings To Date

- Distinct water profiles for each watershed
  - 3 main contributing creeks (Hennessey)
  - 1 main contributing creek for Milliken with uniform profile
- Relatively stable water profiles
- Low level, transient detections of pesticides, herbicides, roadway contaminants, and plasticizers in the Hennessey Watershed
- Persistent detections of PFOA & PFAS compounds in upper Conn Creek
- Used in post-LNU fire water quality monitoring for robust assessment of potential fire impacts

Findings To Date

Transient hits of 10 unregulated compounds in 9 locations from 2020 - 2025.

No consecutive hits from one event to the next event

(no demonstrated persistence > 30 days).

bis(2-Ethylhexyl) phthalate – plasticizer	• Detected 6 times at 5 locations
diethylphthalate – plasticizer	• Detected 1 time at 1 location
Phenol – plastics and consumer products	• Detected 1 time at 1 location
Indeno (1,2,3-cd)pyrene – combustion emission	• Detected 3 times at 3 locations
Dibenzo(a,h)anthracene – combustion emission	• Detected 1 time at 1 location
Benzo(g,h,i)perylene – road tar byproduct	• Detected 2 times at 2 locations
Fluorene – road tar byproduct	• Detected 1 time at 1 location
2,4,6-Trichlorophenol - pesticide	• Detected 1 time at 1 location
Naphthalene – pesticide	• Detected 1 time at 1 location
Phenanthrene – pesticide	• Detected 1 time at 1 location

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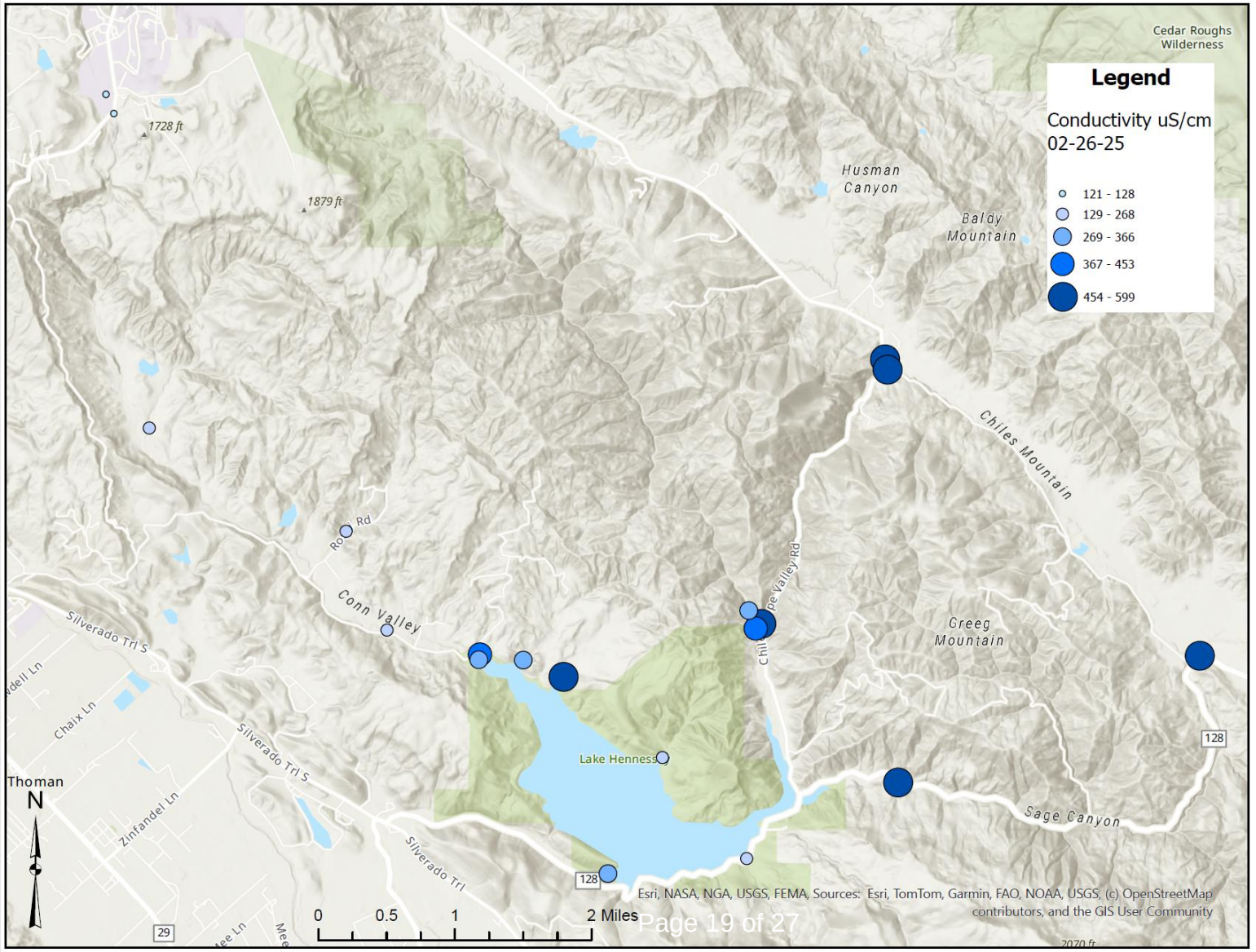
Potential Sources of Contaminants

Conductivity in Raw Waters



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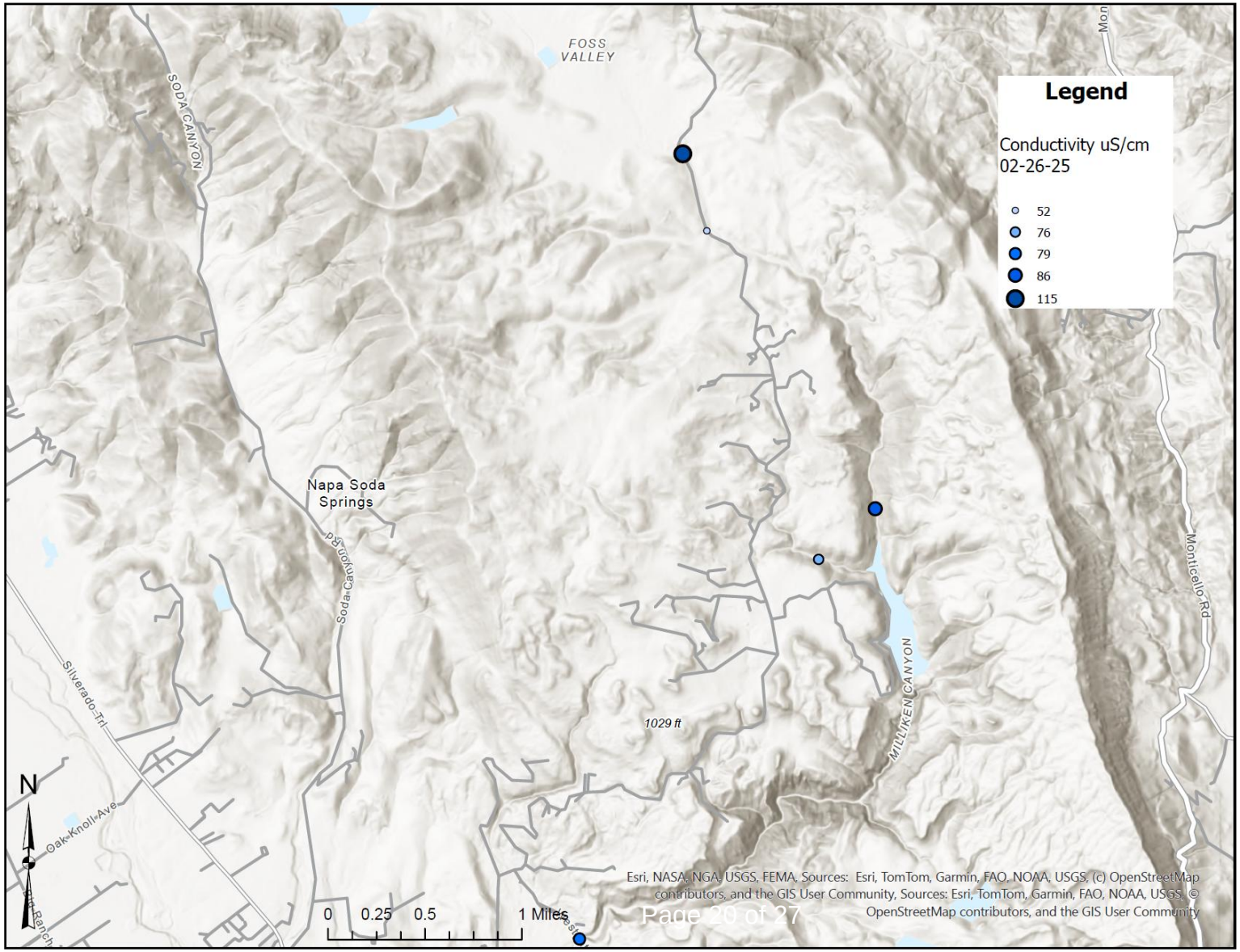
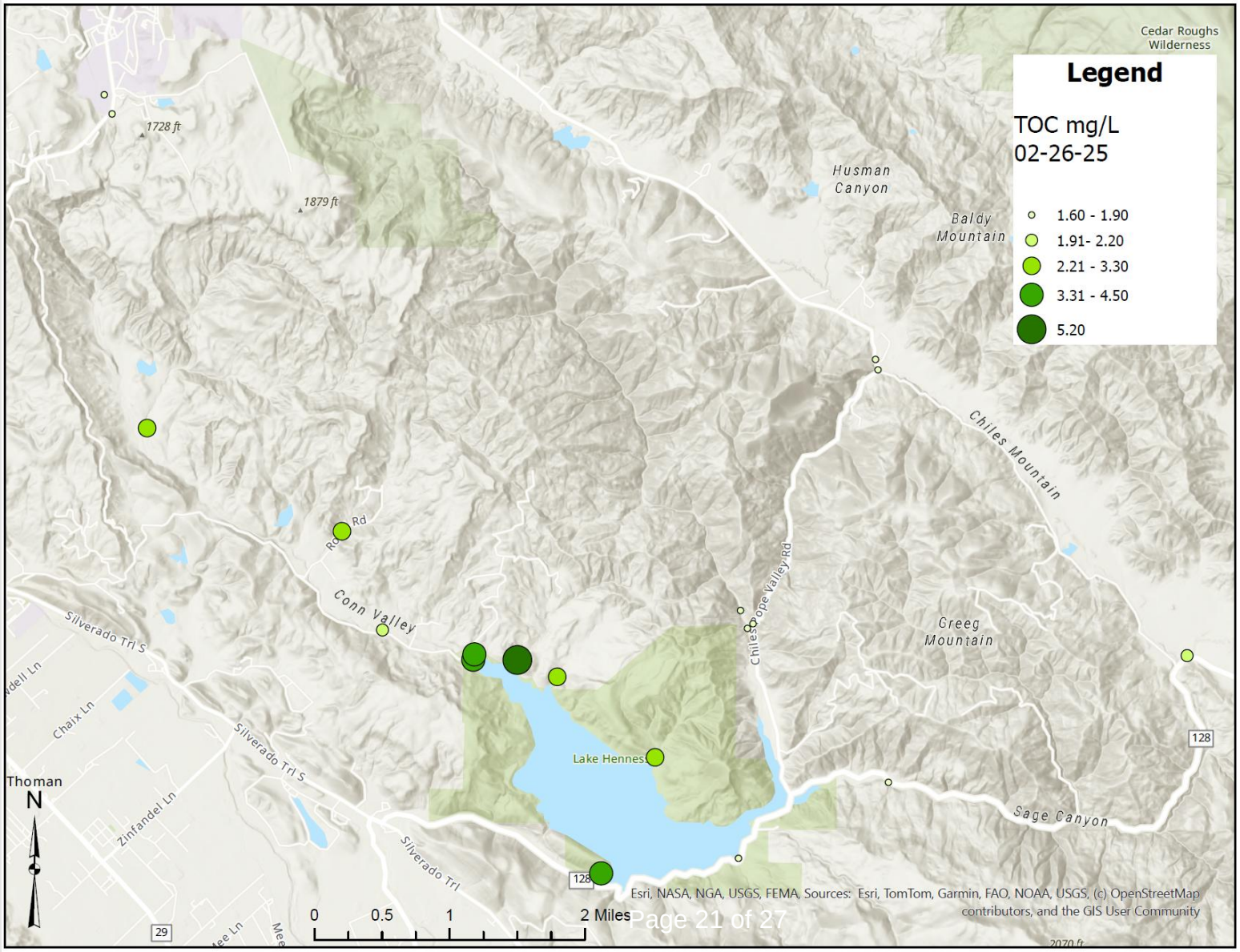
Conductivity in Raw Waters



Total Organic Carbon in Raw Waters



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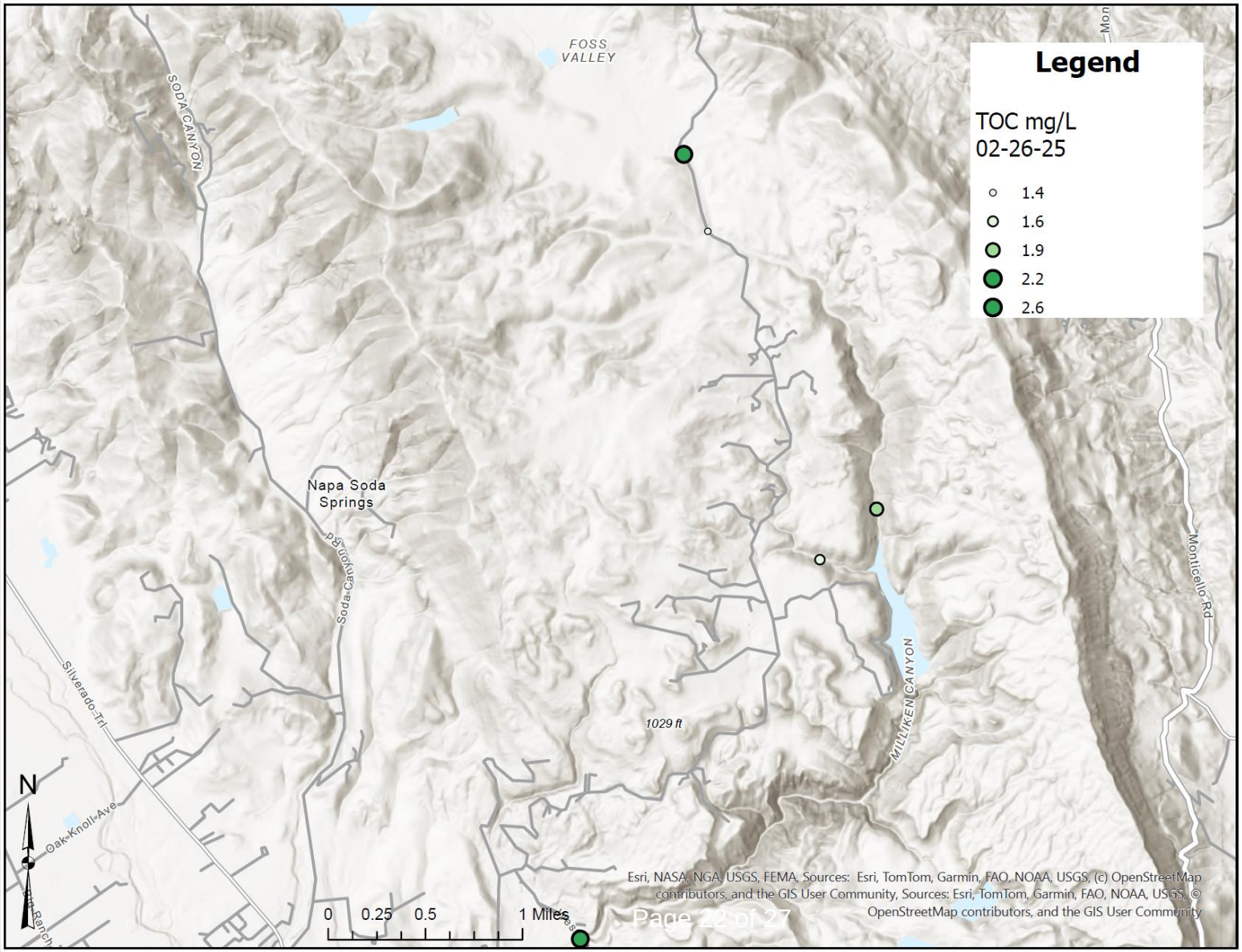

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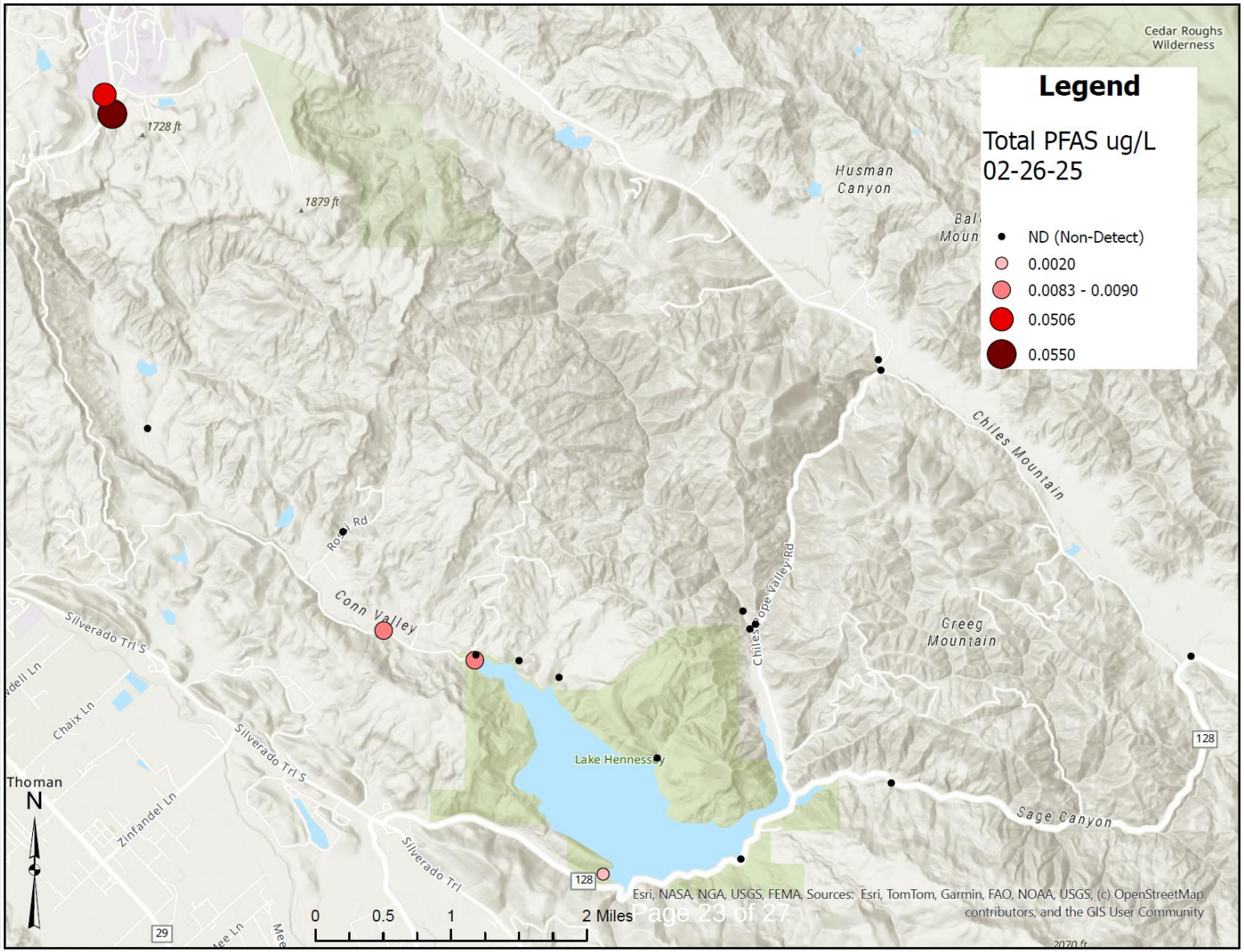
Total PFOA & PFAS Compounds in Raw Waters



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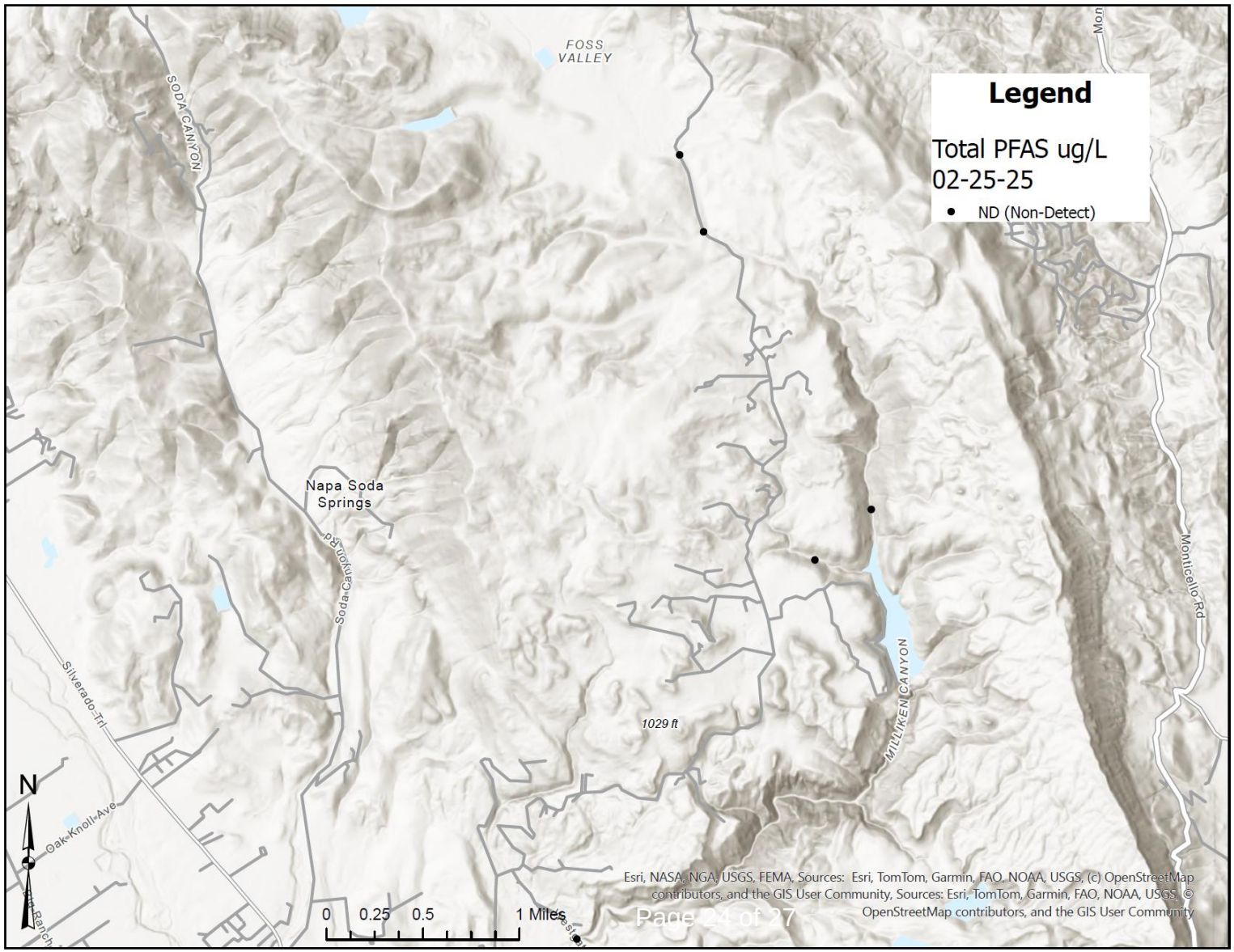

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Watershed Master Plan Project Summary

- Impeded Start in 2020 / Functional Start in 2021
- 41 Sampling Events to date
- 680+ Individual Samples Collected
- Data justifies continued, ongoing monitoring for contaminants
- Continued collaboration between the City, County, and RCD is key to continued success

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Future Plans

- Monitor incoming water quality to optimize watershed & reservoir management, invasive species suitability, and potential watershed & water treatment responses
- Continue sampling events to calibrate the model for wet versus dry water year comparisons – more data needed to establish patterns
- Utilize the data collected so far to inform BAT decisions for the Hennessey Water Treatment Plant upgrade

→**An ounce of prevention is worth a pound of cure**.

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Comments & Questions