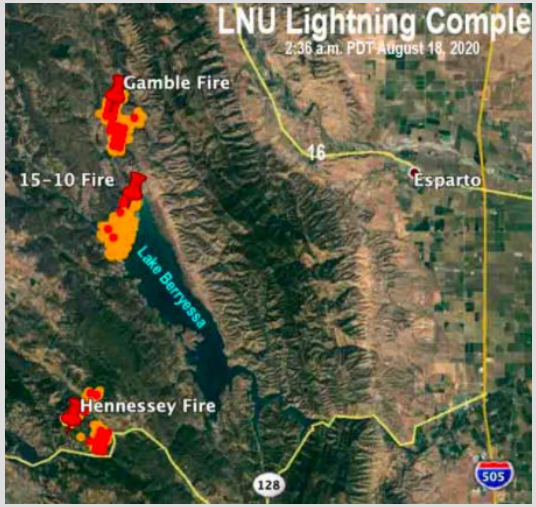
ATTACHMENT 1

Municipal Reservoir Watersheds after the Hennessey and Glass Fires

City Council
January 5, 2021

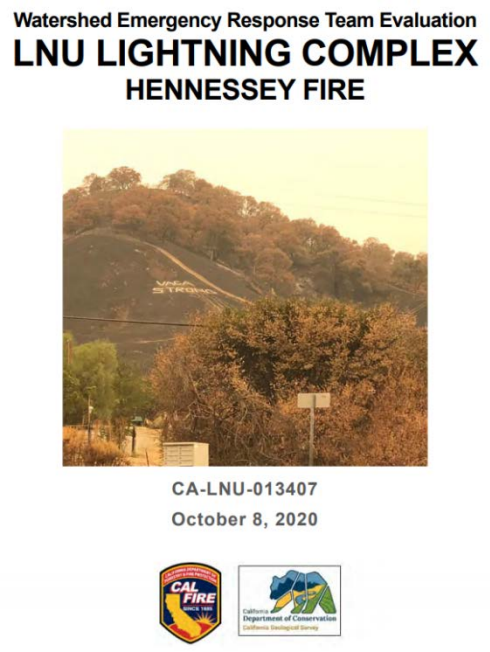
Joy Eldredge, Deputy
Utilities Director

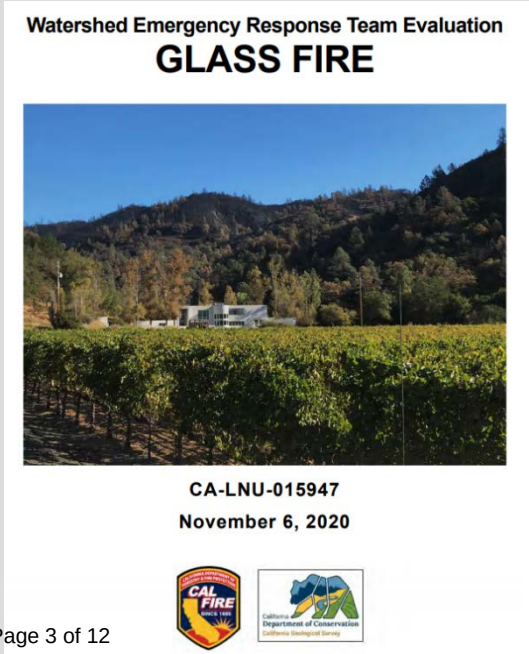
- Lake Hennessey Watershed - 32,800 Acres
- 9,000 Acres burned
  - 34% of fire low, very low burn 3,200 acres
  - 28% of fire moderate burn 2,520 acres
- 31,000 AF storage reservoir

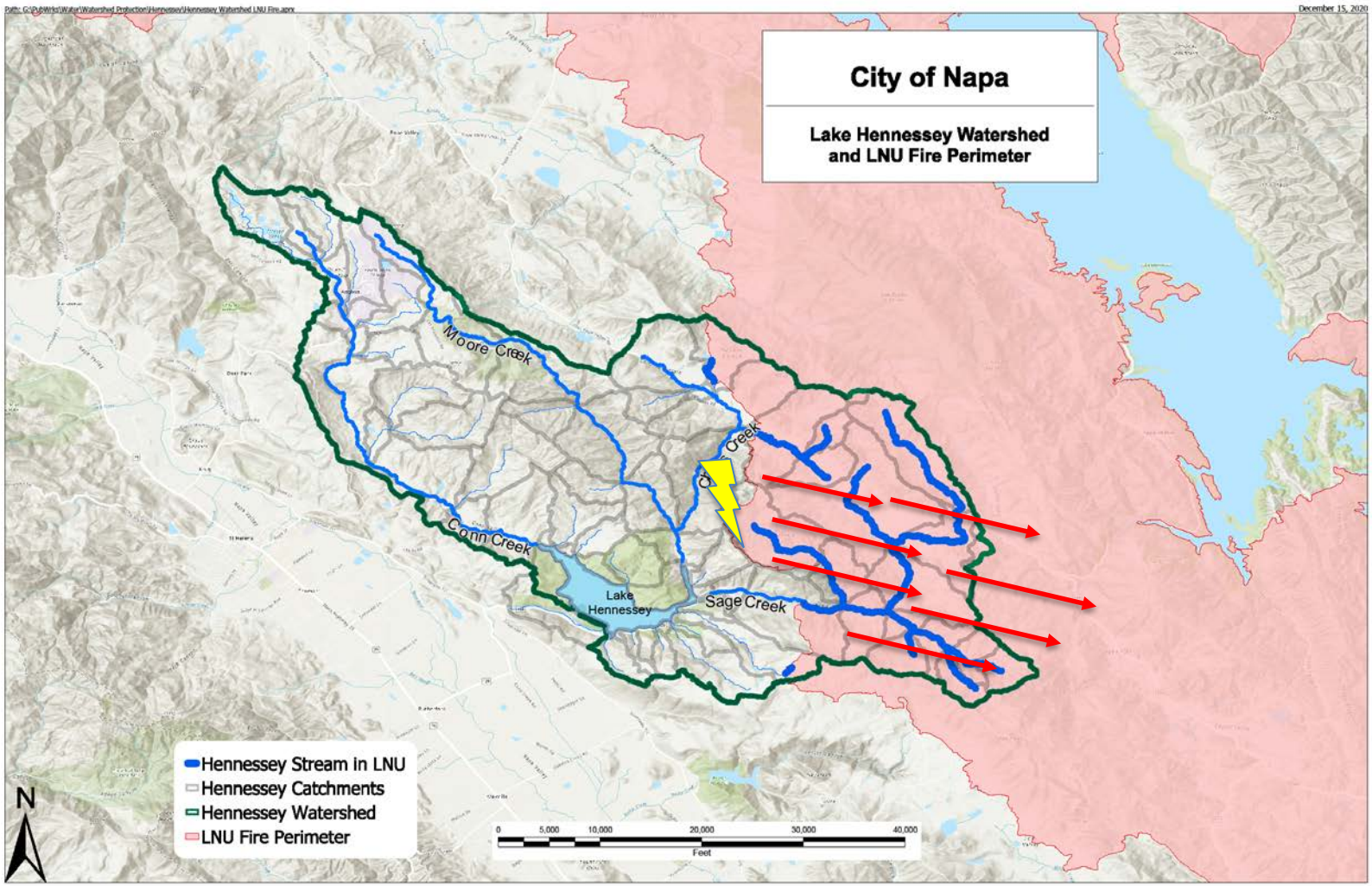


- Milliken Reservoir Watershed - 6,000 acres
- 800 acres
  - 13% low burned 800 acres
  - 1,400 AF storage reservoir

- LNU Complex Hennessey Fire started August 16, 2020
  - Burned 305,920 acres
- Glass Fire started September 27, 2020
  - Burned 67,500 acres







Sage Creek is the smallest of our 3 tributaries

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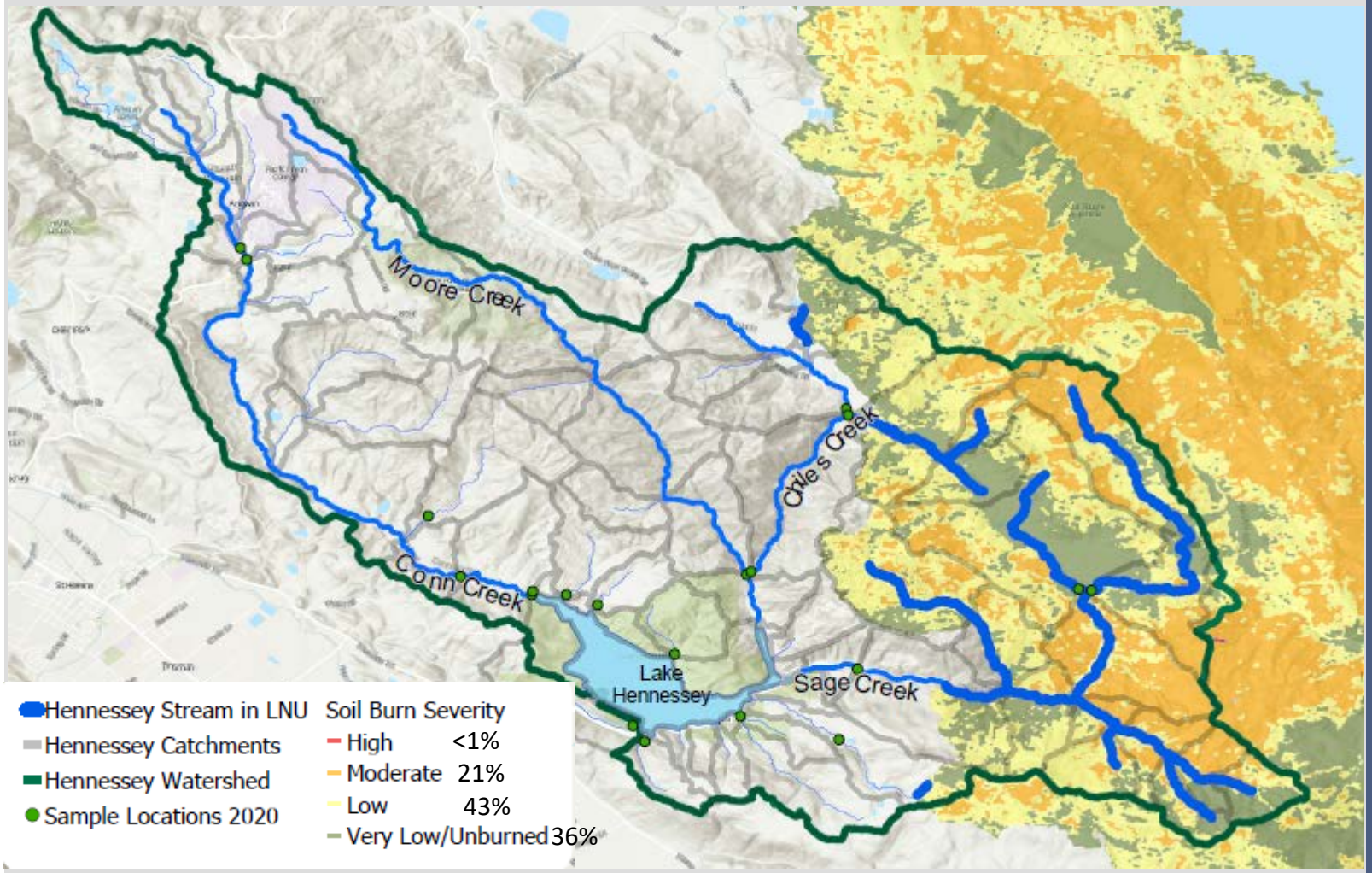
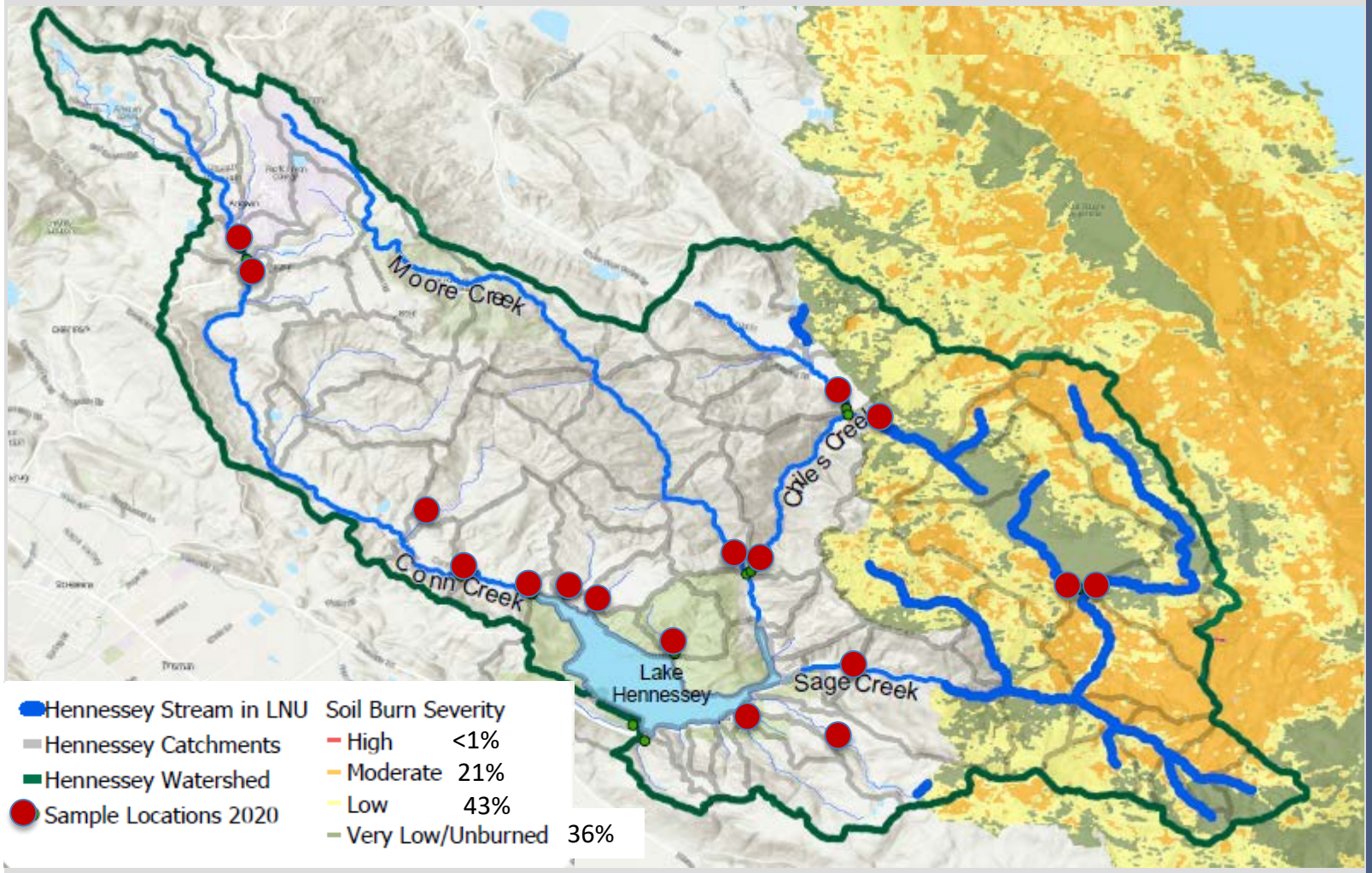


Sage Creek drainage area very low to moderate burn severity



Burn Severity largely corresponds to surface erosion potential

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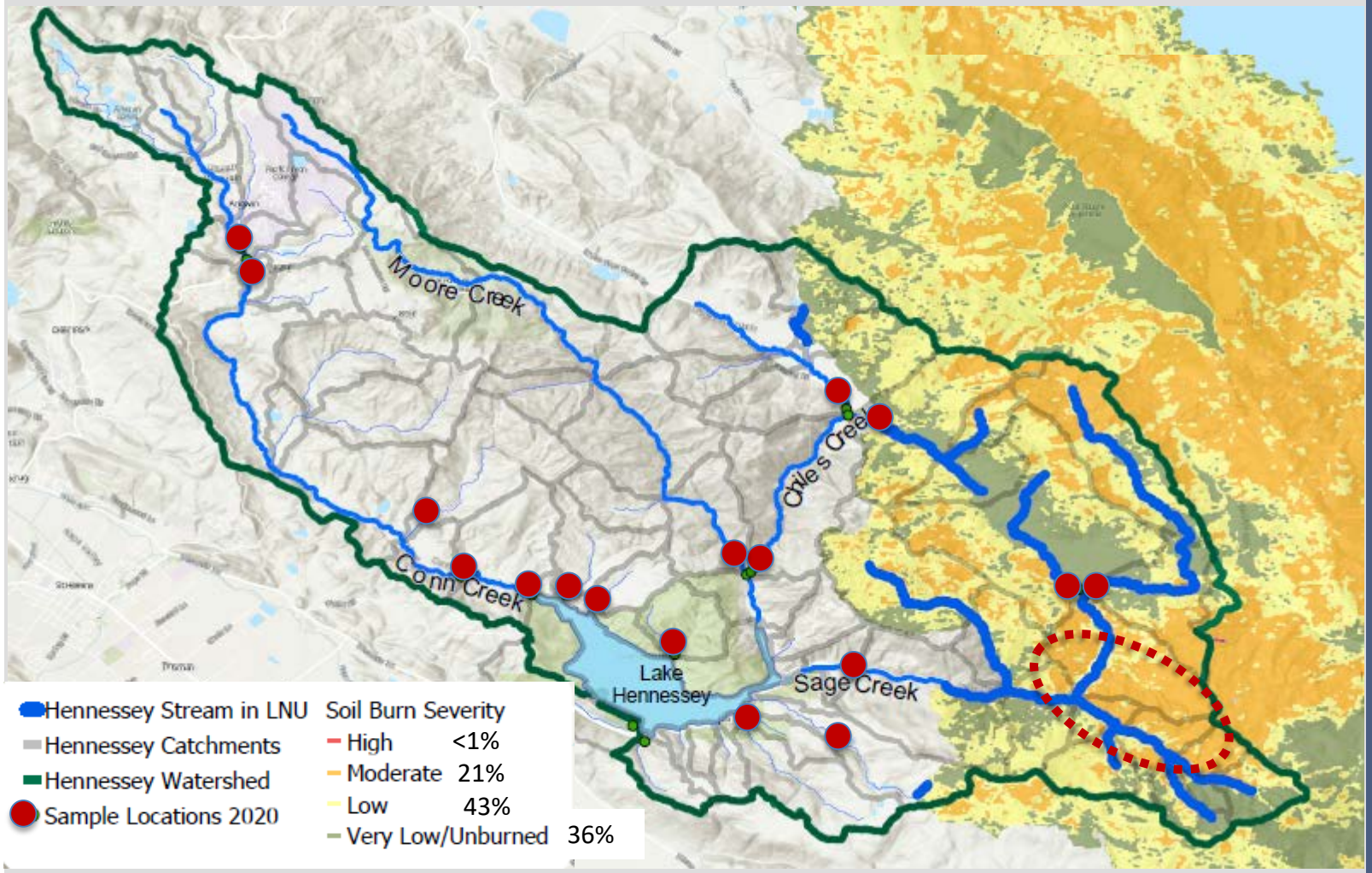
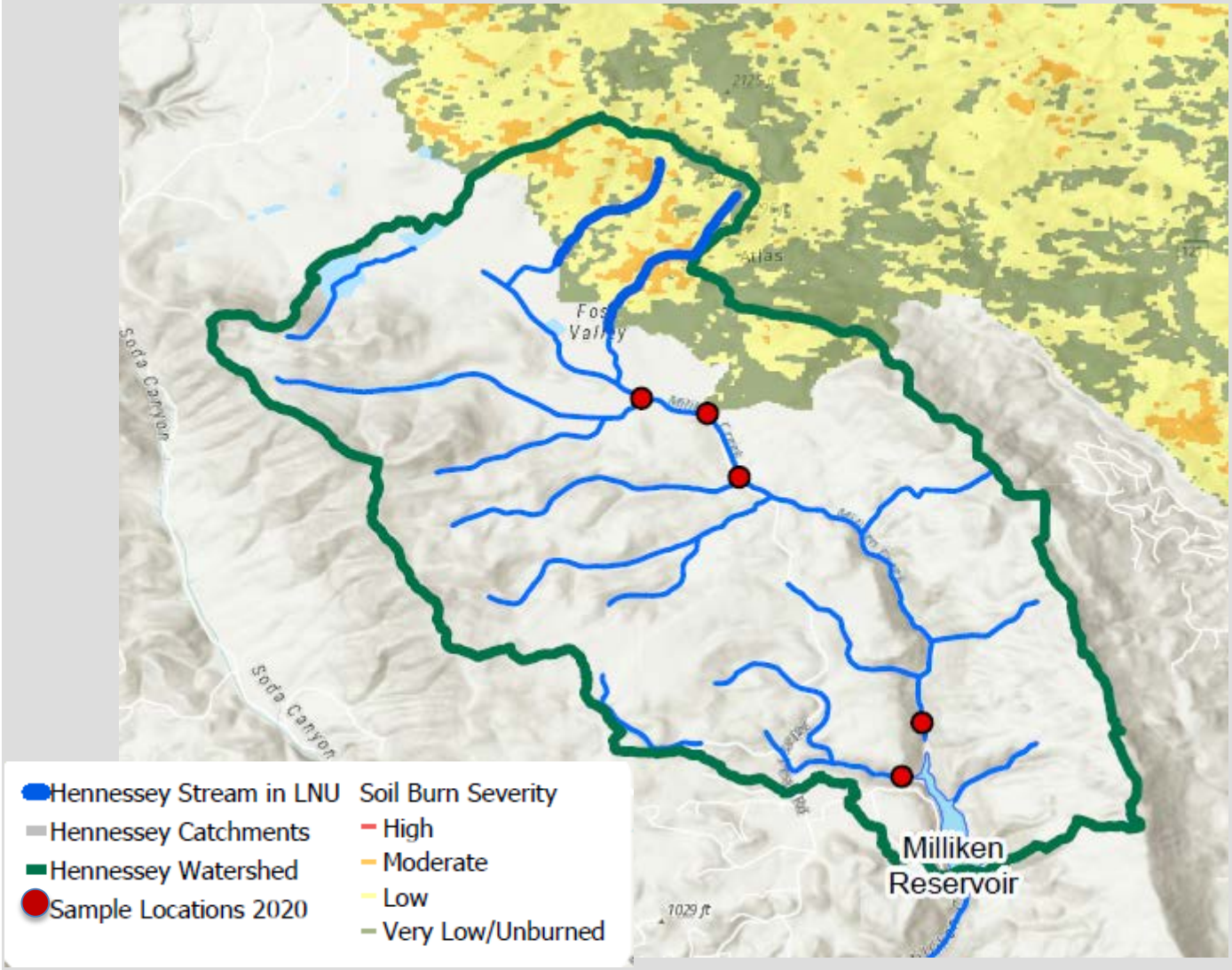
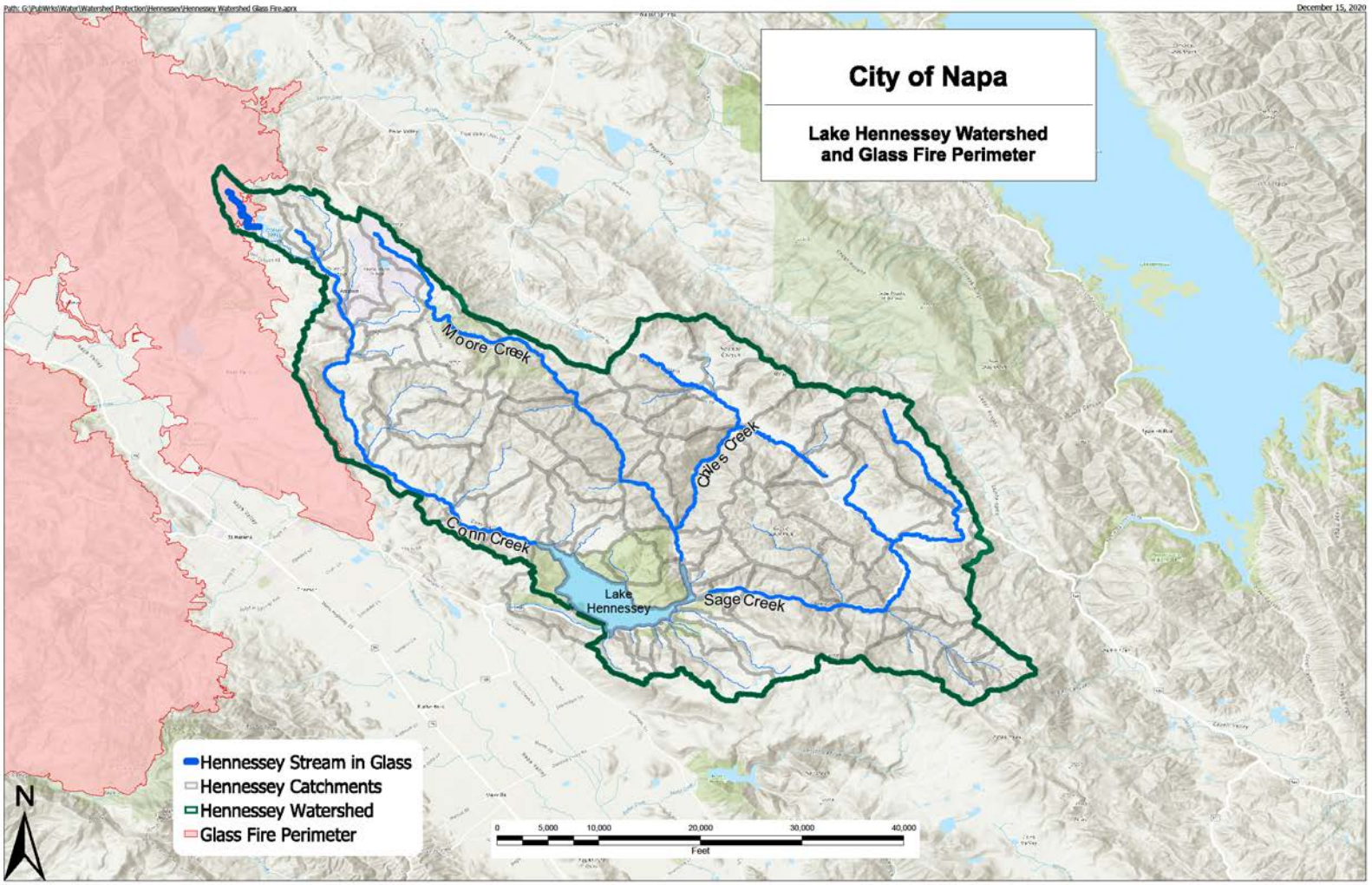
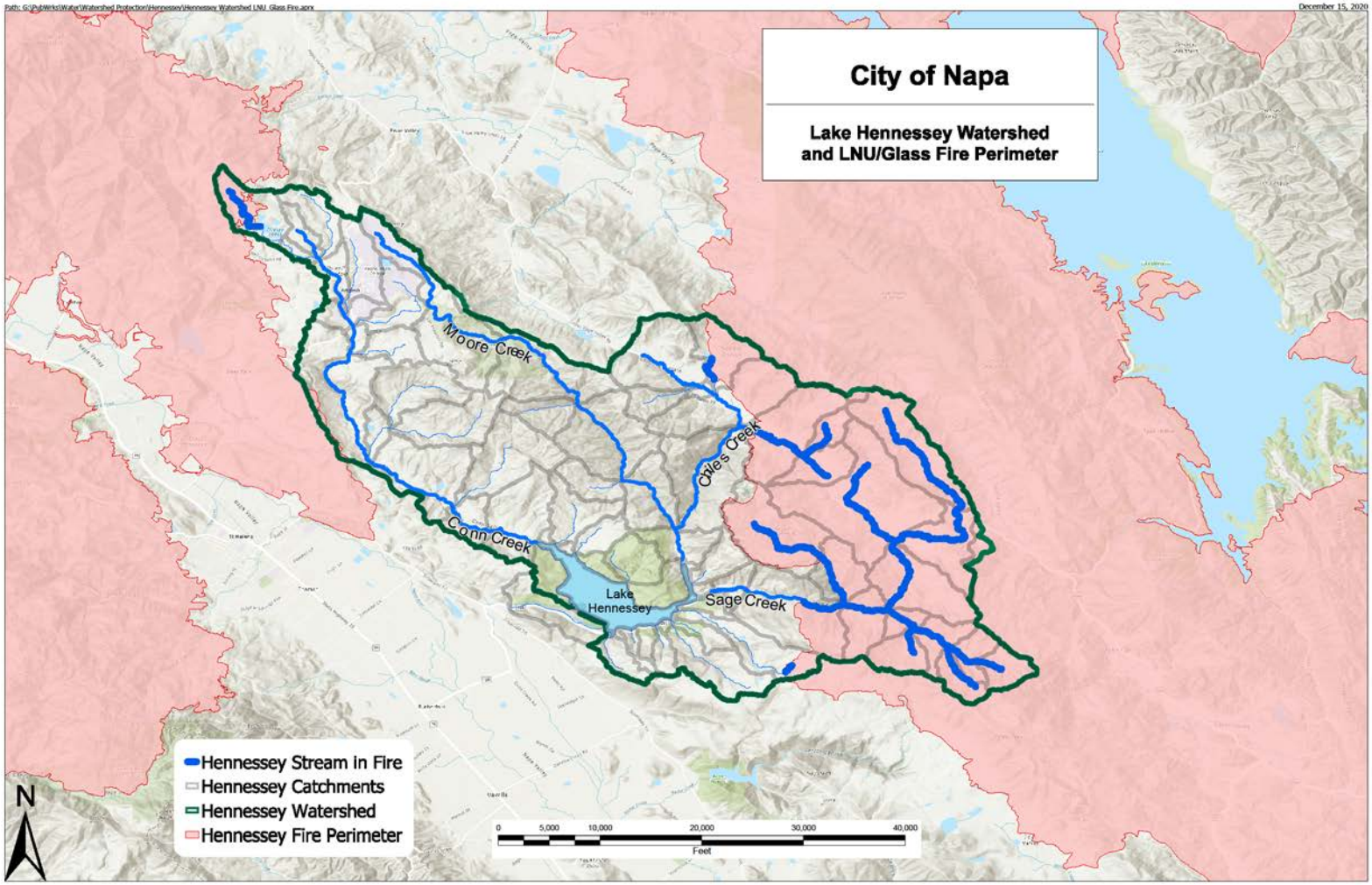


Hennessey water quality monitoring


Hennessey Stream in LNU
Hennessey Catchments
Hennessey Watershed
Sample Locations 2020
Soil Burn Severity
High
Moderate
Low
Very Low/Unburned
Soda Canyon
Soda Canyon
Milliken
Reservoir
1029 ft



Threatened, but spared Conn Creek our largest tributary



Surrounded our watershed, but largely unaffected major drainage areas

- Sample Analyses
  - Jan 29, 2020
  - Feb 25, 2020
- Parameters Tested

PARAMETER
Hardness, total
Calcium
Alkalinity, Total (as CaCO3)
Hydroxide (as CaCO3)
Carbonate (as CaCO3)
Bicarbonate (as CaCO3)
Sulfate
Chloride
pH (field)
Specific Conductance
TDS
TSS
VSS
CBOD
Turbidity

PARAMETER
Ammonium
Dissolved Oxygen (field)
Water Temperature (field)
Air Temperature (field)
ortho Phosphate as PO4
Nitrate + Nitrite as N
Total Kjeldahl Nitrogen
Soluble Kjeldahl Nitrogen
Ammonia
DOC (Dissolved Organic Carbon)
TOC (Total Organic Carbon)
Total Phosphorus as P
Dissolved Phosphorus as P
11 Regulated Synthetic Organic Chemicals (SOC)
Regulated Volatile Organic Chemicals (VOC)
83 Organic Chemicals

- Facility hardening and defensible space
- Continue winter monitoring throughout watersheds
- Build data trends
- 5-10 year trend will show recovery or lasting effects
  - Sediment transport
  - Increased total organic carbon (TOC)
- Rain and reservoir recharge
  - Gentle, consistent rains
  - Soak surface, spur regrowth of vegetation
  - Allow natural settling and filtration before reaching reservoir