

Santa Rosa Creek Flood Study and FEMA Physical Map Revision Project



**City Council Study Session
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Santa Rosa Creek



Local Flooding History

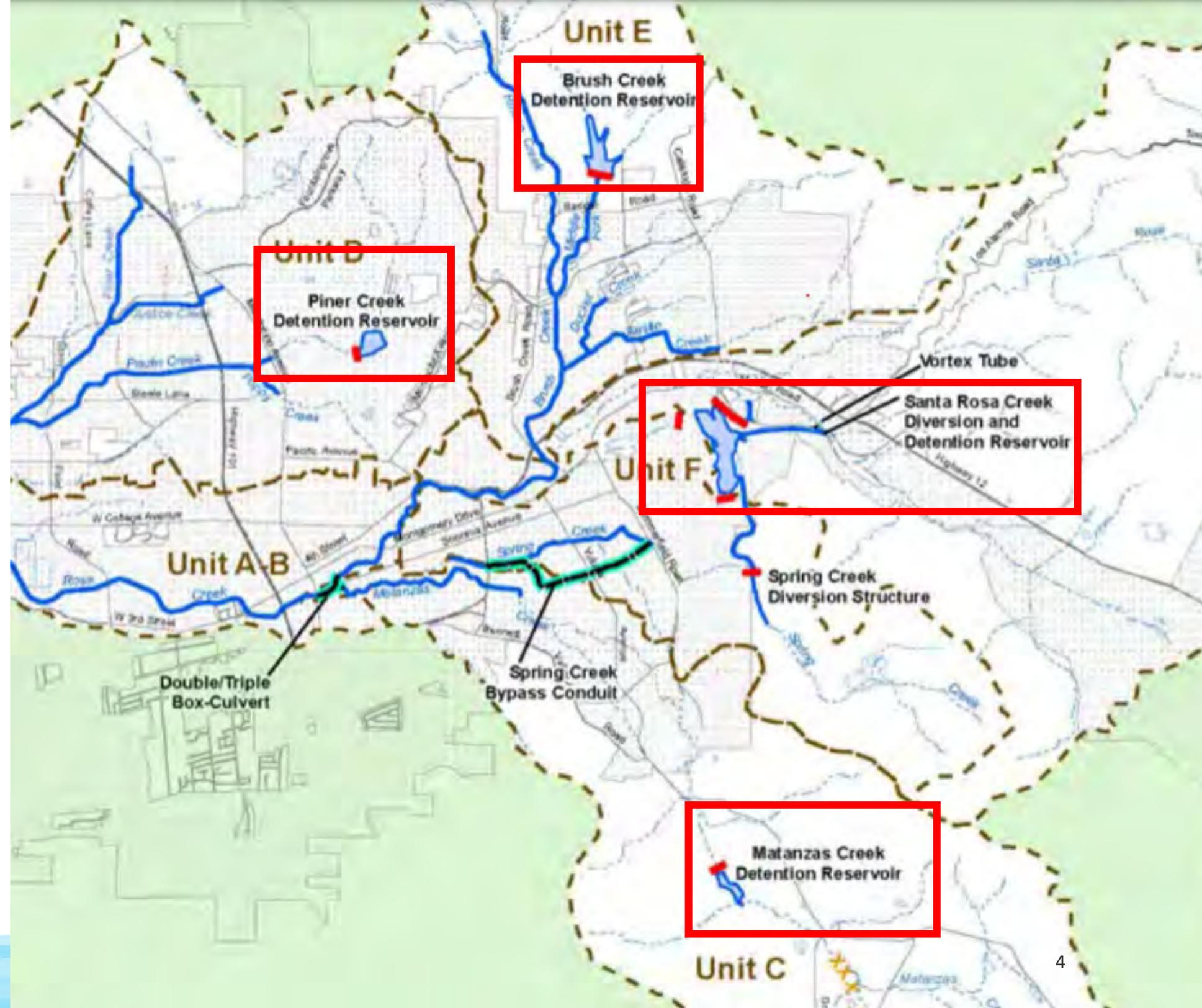
- Historic Flooding
- Central Sonoma Watershed Project



Local Flooding History

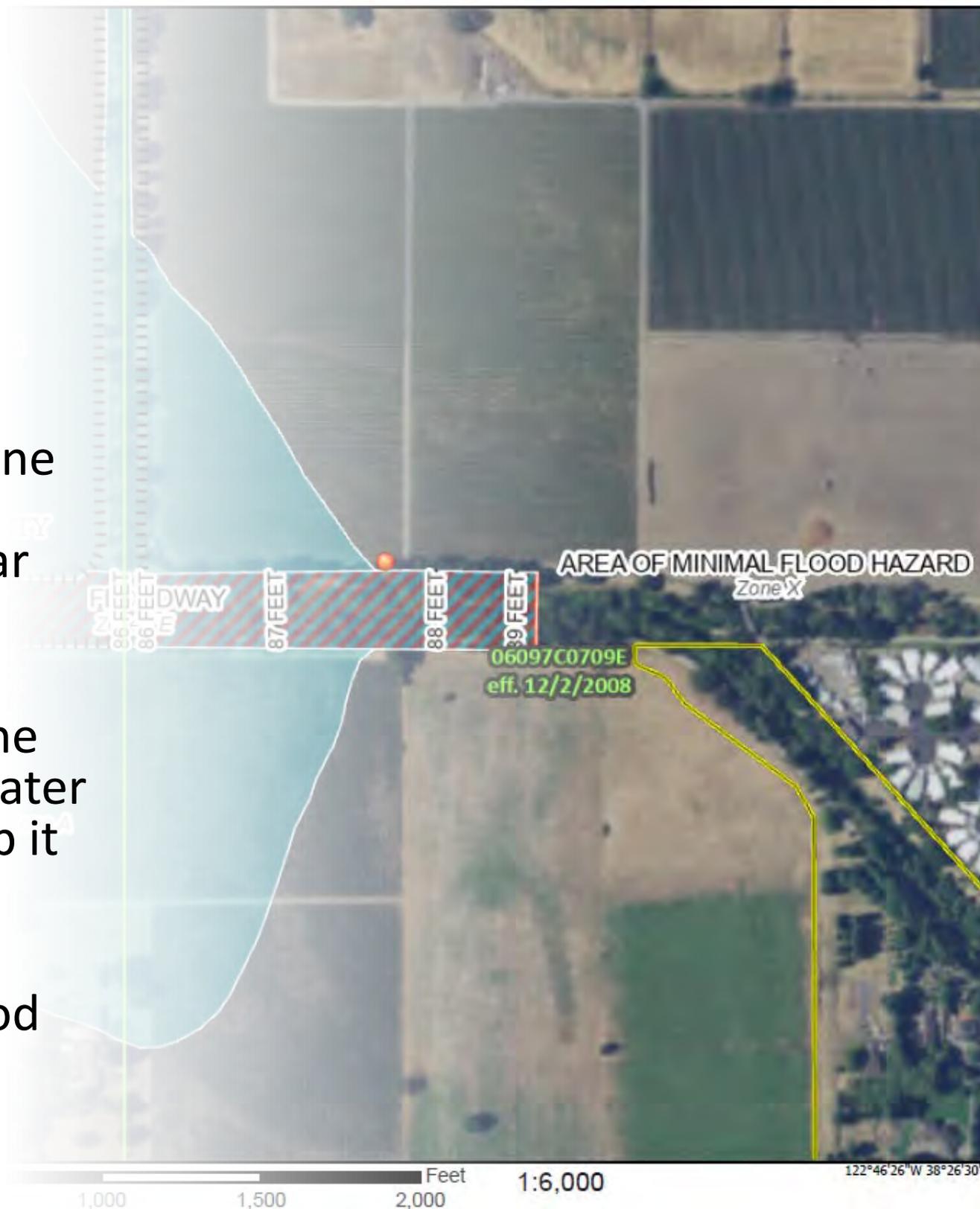
Central Sonoma Watershed Project reservoirs

- Santa Rosa Creek (Spring Lake)
- Matanzas Creek
- Piner Creek
- Brush Creek Middle Fork



What is Flood Mapping?

- Uses models to determine how much flow will be generated by a particular storm (hydrology)
- Uses topographic information to determine where resulting flood water will travel and how deep it will be (hydraulics)
- Flood Hazard Mapping maps the extents of flood impacts to adjacent properties



SEE THIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, AH, VE, AR Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levee. See NOTES. Zone X Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	20.2 Cross Sections with 1% Annual Chance Water Surface Elevation 17.5 Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS	Digital Data Available No Digital Data Available Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/2/2021 at 12:06 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Design Storm Year Events

- A 1% annual chance storm/flood event (aka 1% or 100-year flood event) is an event that has a one percent chance of being equaled or exceeded in **any** given year
 - Is **not** an event that happens once every 100 years. The term of “once every 100 years” is a statistical probability and can occur more often.
- A 1% flood event inundates land that would be considered and designated as a “Special Flood Hazard Area”
- Is not a worst-case scenario
- Determined using multiple metrics (rain totals, intensities, streamflow, antecedent conditions, etc.)

October 24, 2021 Storm Event

- 24-hour rainfall totals ranged from 6.86 inches to 8.75 inches [10% annual chance (10-yr) to 0.05% annual chance (200-yr) storm event]
- 1-hour intensities closer to 50% (2-yr) to 10% (10-yr) annual chance of occurrence
- Antecedent conditions accommodated water storage
- Observed impacts were anomalous given the antecedent conditions and timing in the water year



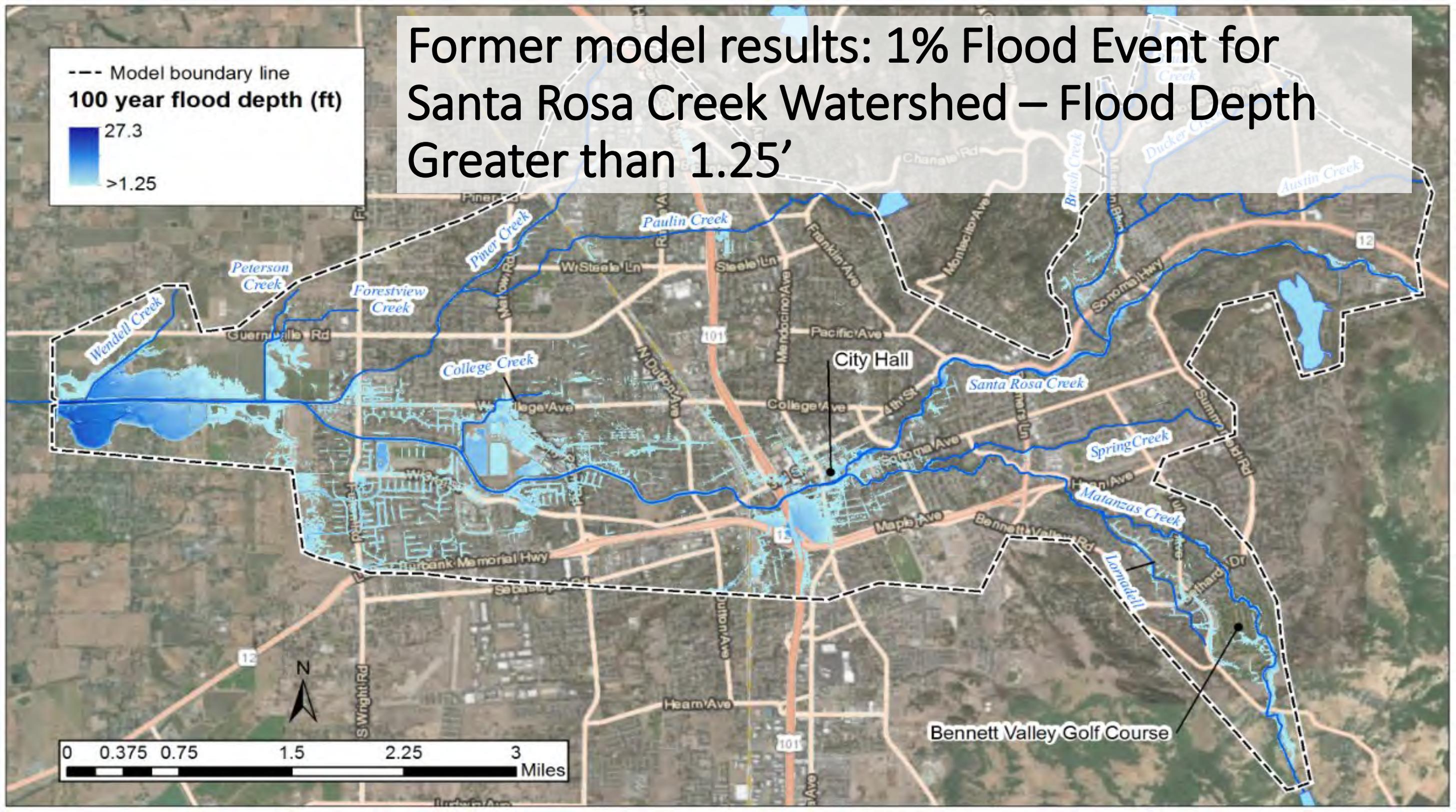
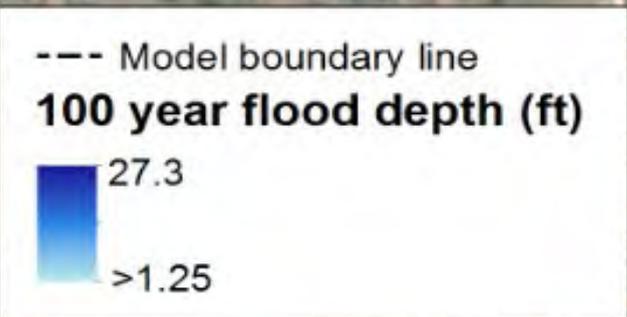
Project History and Background

- 2017: Draft inundation maps of Santa Rosa Creek

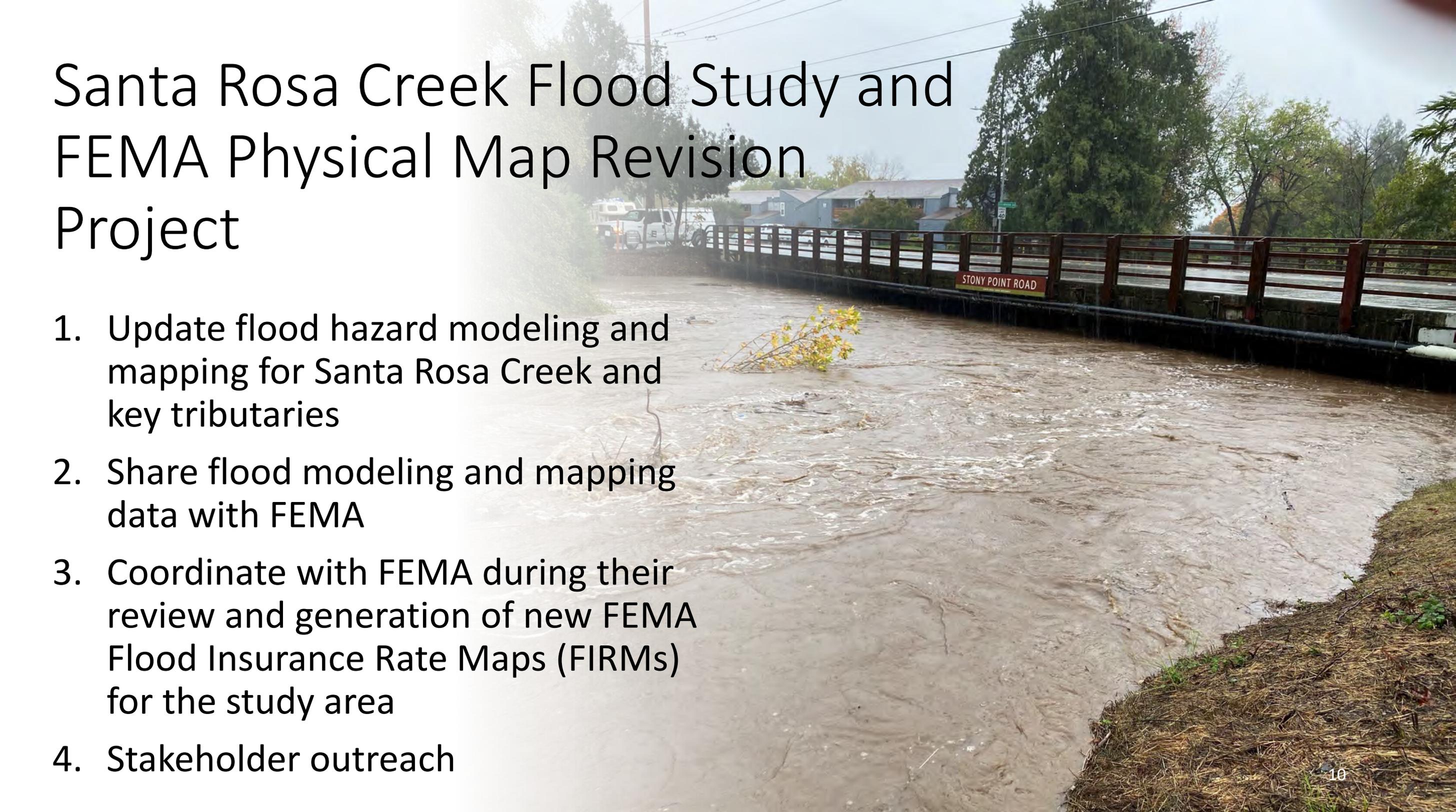


Santa Rosa Creek - Prince Memorial Greenway 12/31/05

Former model results: 1% Flood Event for Santa Rosa Creek Watershed – Flood Depth Greater than 1.25'



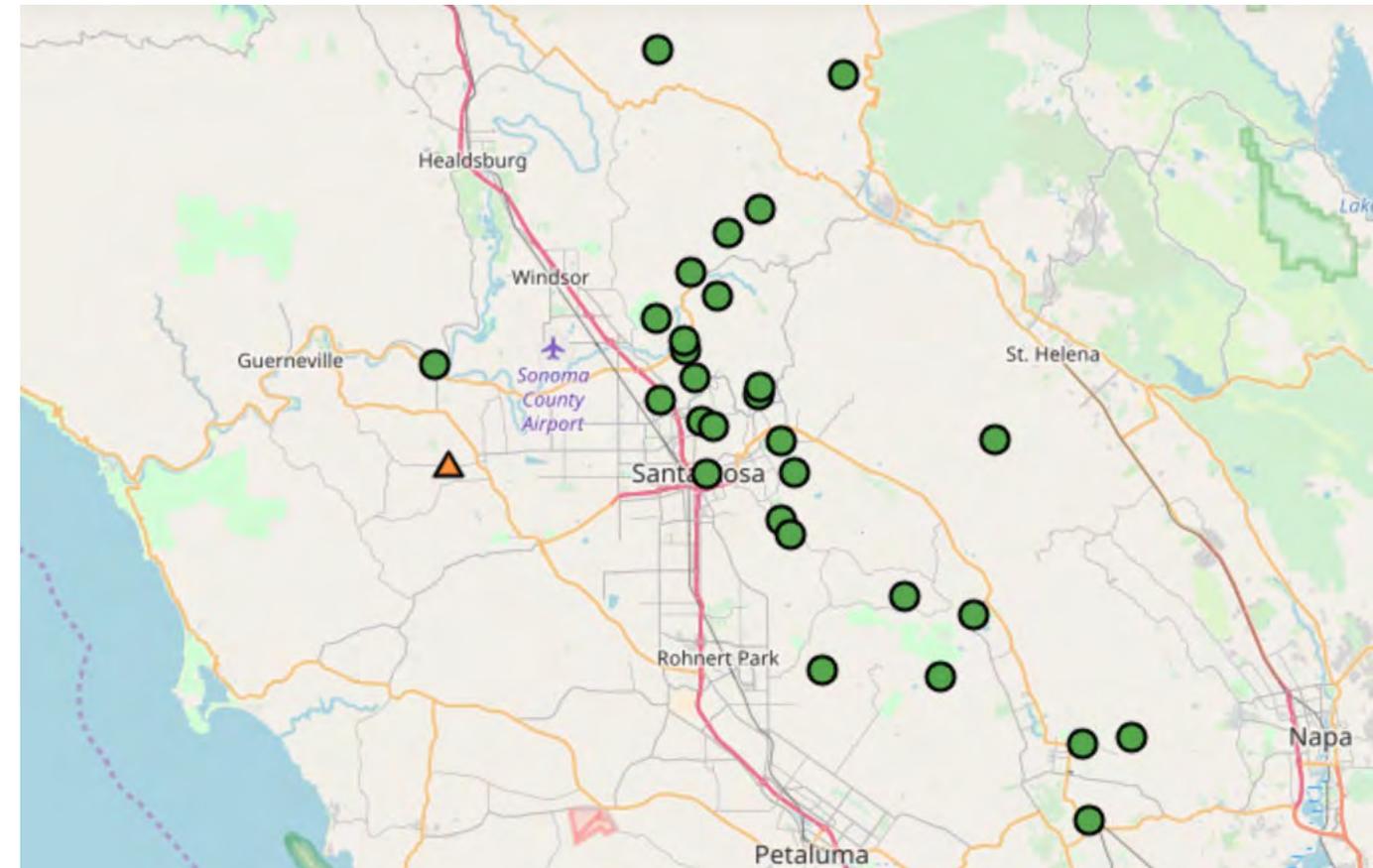
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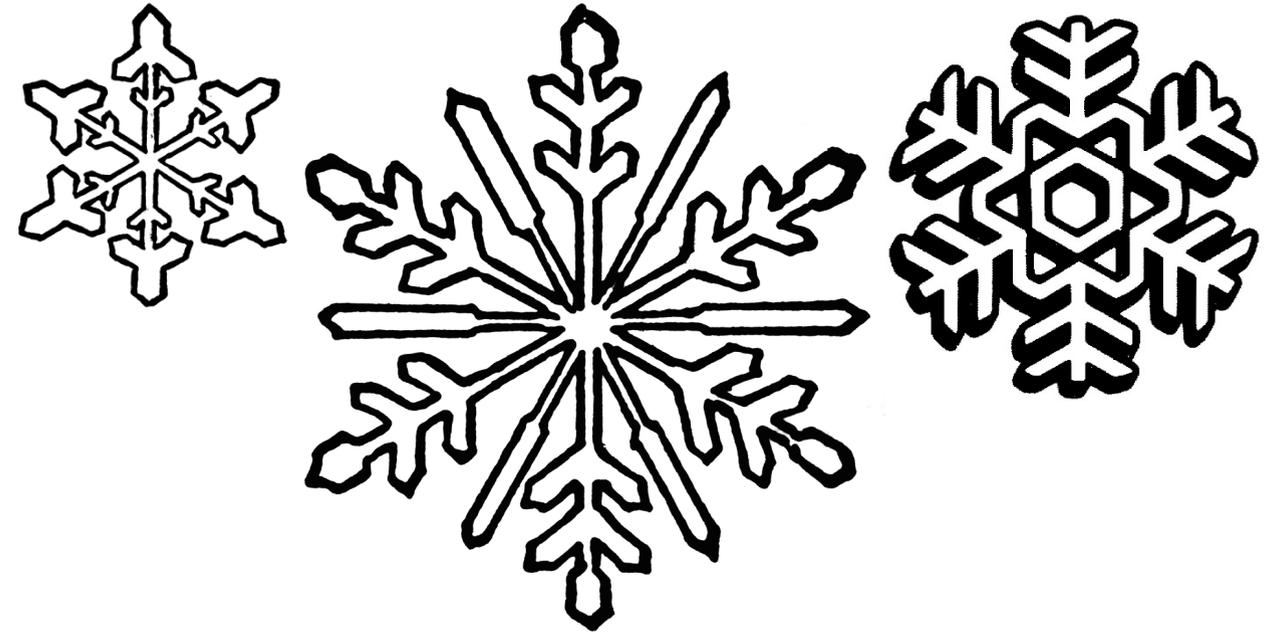
1. Update flood hazard modeling and mapping for Santa Rosa Creek and key tributaries
2. Share flood modeling and mapping data with FEMA
3. Coordinate with FEMA during their review and generation of new FEMA Flood Insurance Rate Maps (FIRMs) for the study area
4. Stakeholder outreach

Models Update

- Prior work completed April 2017
- Need for selected refinements identified
- New data available: e.g., 30 ALERT rainfall, streamflow, and stage gages added
- Model update in Matanzas Creek watershed just concluded; additional model refinements just beginning



Floodplain Mapping



- Every rainfall event is different
- Every runoff event is different
- The same storm event will have very different effects in different watersheds
- Actual events differ from design flood events
- Floodplain studies like this one use specific design events, coupled with the best available data and tools, tested against actual event conditions, to represent the anticipated effects of storms and flood events



Benefits to the Community

Increasing property owner knowledge and awareness of potential risks

Better informed decision-making for community development and planning

Improved planning for protection of infrastructure and floodplains/ waterways

Improved protection and planning for preservation of life and safety

Ability to access funding and grant opportunities to address and mitigate flood risks



Impacts to the Community

- NFIP flood insurance required
 - Additional costs to affected property owners
 - Increase demand on design community
- Increased restrictions on developments
 - In-depth hydrology and hydraulic analysis
 - Municipal impacts

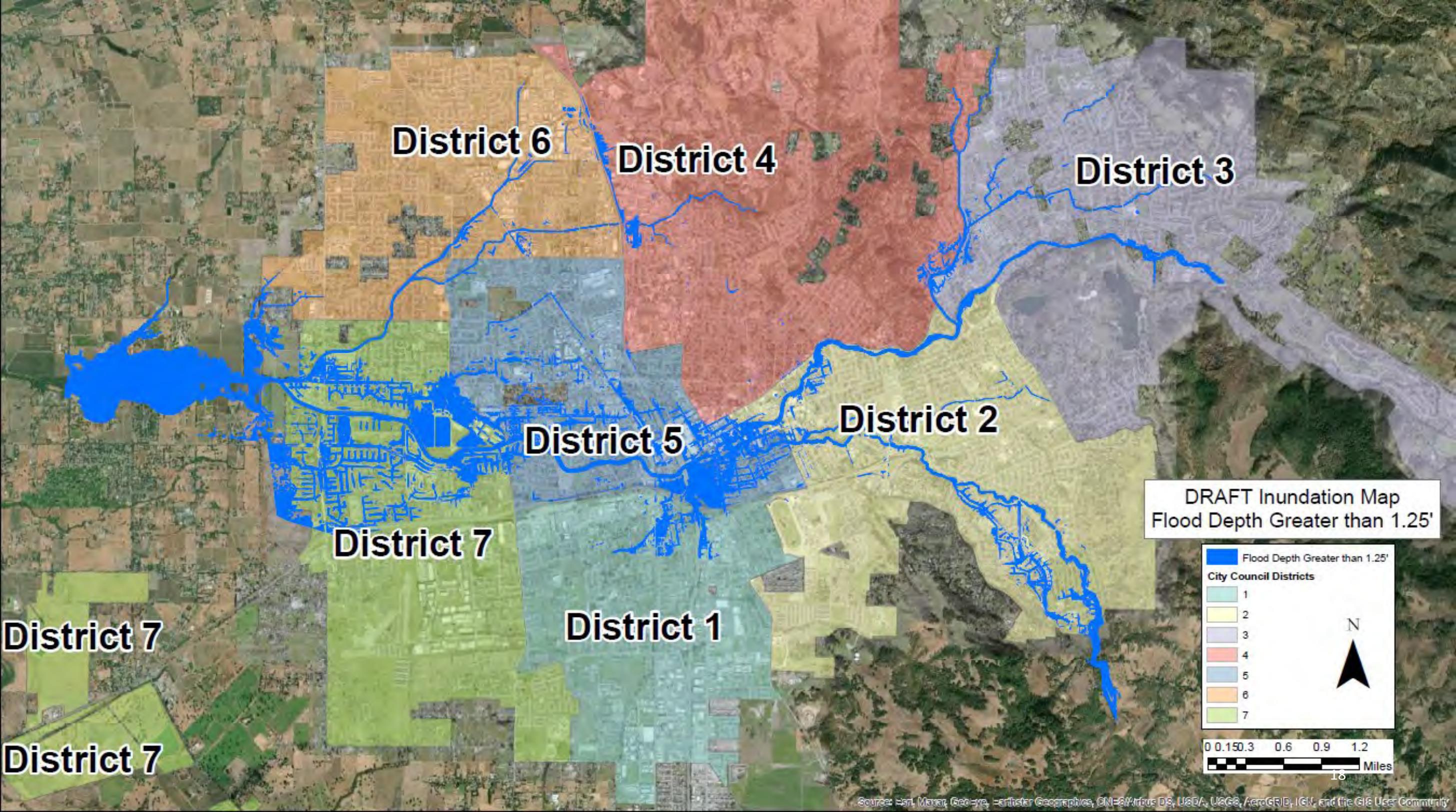
Project Schedule

Q1 2022 – Q2 2023	Model updates; submittal of model, data, and draft maps to FEMA
2023	FEMA reviews mapping submittals, prepares preliminary FIRMs and FIS
Q4 2023 – Q3 2025	FEMA releases preliminary FIRMs and FIS; FEMA due process period
Ongoing	Community outreach, with an increased focus ahead of the release of the preliminary FIRMs and FIS, and during FEMA's due process period



Next Steps – Community Outreach

- Community outreach meetings
 - Public meetings in impacted council districts
 - Waterways Advisory Committee meetings
- FEMA due process
- Outreach materials and support
- Website: srcity.org/SRCreekFloodStudy



Next Steps - Mitigation

- Updates to City Emergency Operations Plan/Emergency Preparedness
- Mitigation Strategies
 - Storm Drain Master Plan
 - Future Project Planning





Questions?
