

Creek Watch Refresher

October 1, 2026

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CARES mission

The mission of Cupertino Amateur Radio Emergency Service (CARES) is to maintain and train Amateur Radio volunteers capable of providing professional emergency communications, increasing the City's emergency response effectiveness, and speeding the recovery effort.



Creek Watch — What is it?

The CARES Creek Watch is when we deploy responders to specific locations throughout Cupertino to report on changing creek conditions before those conditions create or worsen a public-safety problem. We essentially are the *eyes and ears* for the city.

Why do we care?

- Last month we talked about why the water may come.
- Tonight we're talking about what do we do when it does come.



California has always swung between drought and flood

Timeline

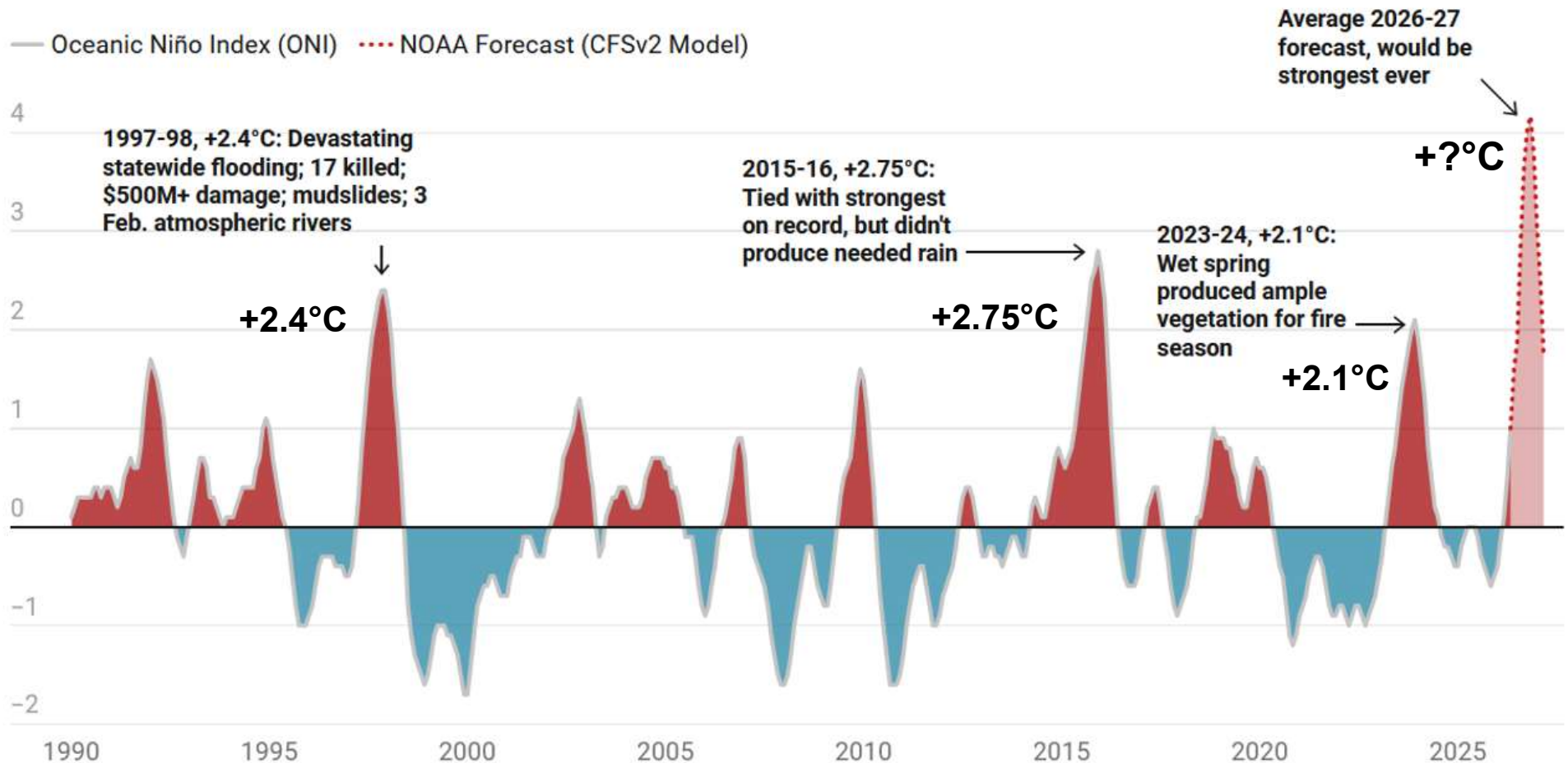
- 1861-62 The Great Flood
- 1906-07 Major floods
- 1955 Northern California floods
- 1964 Christmas Flood
- 1982 Bay Area storms
- 1986 Flooding
- 1997 New Year's Flood
- 1998 Strong El Niño
- 2017 Oroville spillway
- 2023 Atmospheric Rivers
- 2026-27? Current forecasts

The point:... California doesn't have "normal." It swings!



The coming super El Niño could be the strongest in generations, if not ever

The Oceanic Niño Index measures the sea surface temperature anomaly in a region of the eastern equatorial Pacific. Threshold for El Niño is +0.5 degrees Celsius on the Oceanic Niño Index.



Refining the 2026–2027 El Niño event

3 September 2026



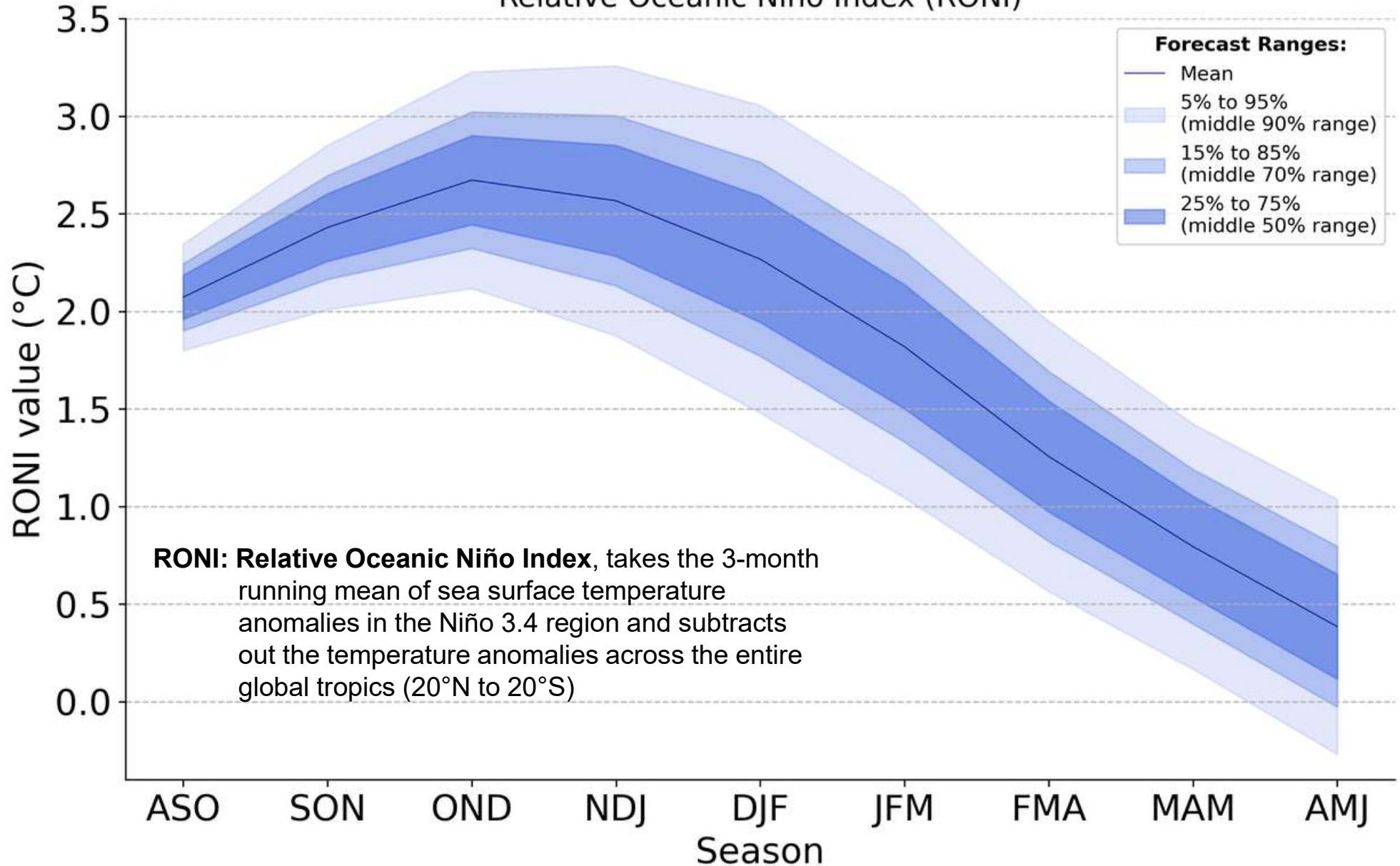
The [World Meteorological Organization](#) forecasts that the current 2026–2027 El Niño event will reach "very strong" status, peaking toward the end of 2026 with sea surface temperature anomalies **potentially reaching up to +3.5°C to +3.6°C** in benchmark monitoring regions like Niño-3.4 and the Relative Oceanic Niño Index.



NOAA Official ENSO Outlook

issued September 2026

Relative Oceanic Niño Index (RONI)



2026 Pacific Named Storms



Creek Watch — What is it?

Why do we care?

- Last month we talked about why the water may come.
- Tonight we're talking about what do we do when it does come.
- We have creeks, culverts, and bridges...

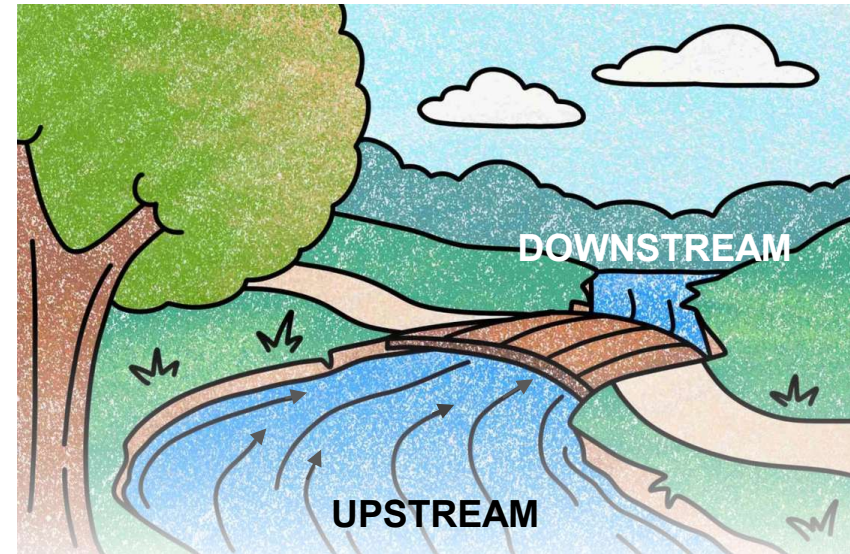


What do we care about?

Creeks

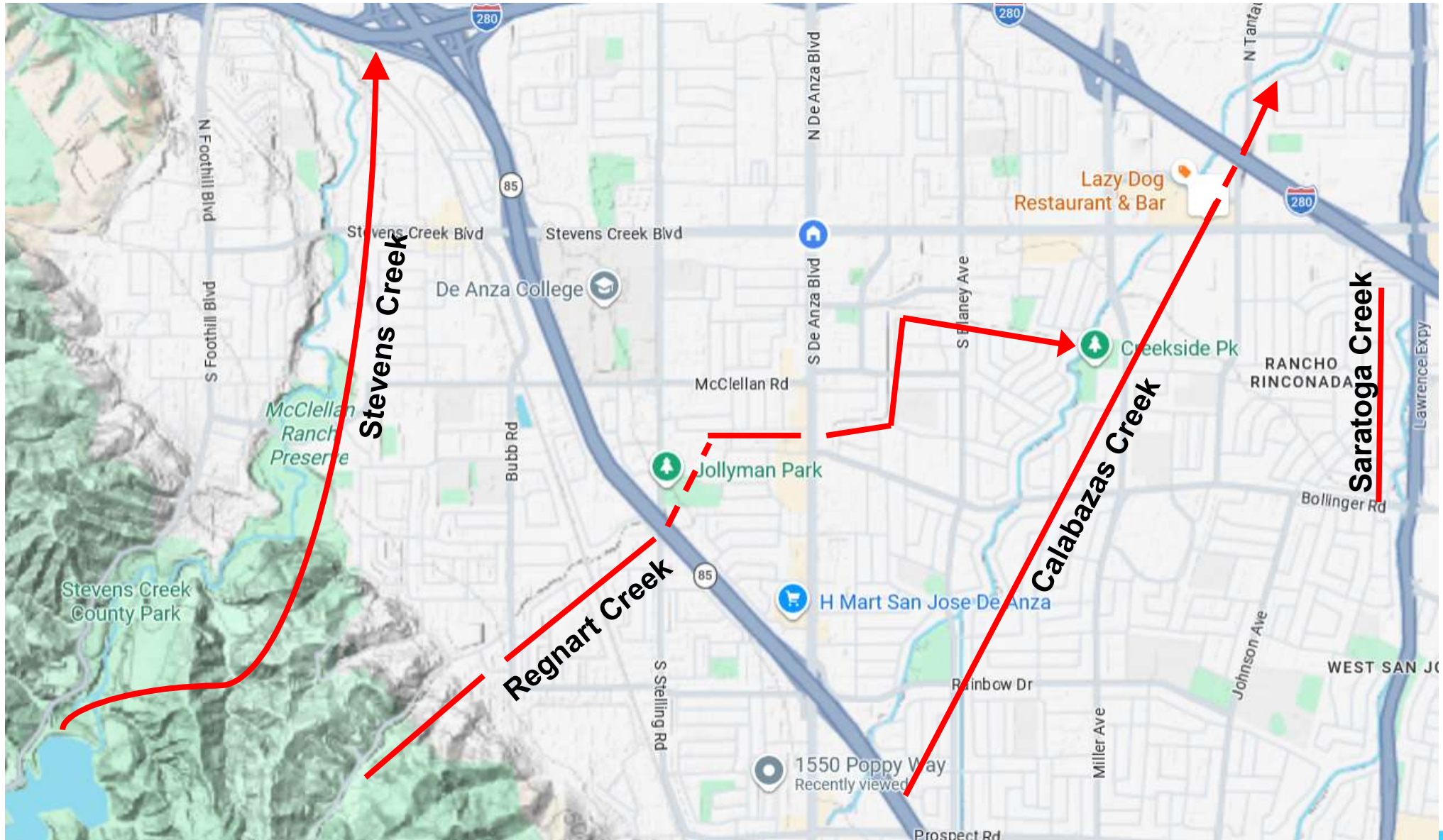
Definition: “A creek is a natural stream of water that is smaller than a river and larger than a brook.”

It typically features a defined bed and banks where water flows, often as part of a watershed or tributary feeding into larger bodies of water.



Creeks in Cupertino

Creeks of interest



Stevens Creek... and Dam

- **Owner:** Valley Water (the Santa Clara Valley Water District)
- **Purpose:** Stevens Creek Reservoir was primarily constructed for water conservation and managing local runoff rather than flood control. Valley Water performs controlled releases to help maintain downstream channels, support local ecology, and facilitate percolation.
- **Requirements:** Valley Water operates under a variety of environmental and regulatory local, state and federal agreements & permits, that govern water releases and stream maintenance into Stevens Creek.
- And it is a county park as well!



Regnart Creek

- **Source and Path:** Originates in the Santa Cruz Mountains foothills, flows through Cupertino residential areas, and connects to Calabazas Creek.
- **Shared Maintenance:**
 - Valley Water
 - City of Cupertino
 - Individual landowners whose property lines extend into or abut the creek bank are legally responsible for routine maintenance.



July 2023, Valley Water workers installed boulders to address erosion on Regnart Creek upstream of Antoinette Drive in Cupertino.



Calabazas Creek

- **Source and Path:** Originates in the Santa Cruz Mountains on Table Mountain in Saratoga, coursing through Saratoga, San Jose, Cupertino, Santa Clara, and Sunnyvale before emptying into the San Francisco Bay.

*Calabazas Creek at Miller Ave
in Cupertino.*



What do we care about?

Culverts

Definition: *“A culvert is a tunnel-like or enclosed conduit structure installed beneath a road, railway, or trail to channel and allow water to pass safely underneath.”*

Built under the ground level and completely surrounded by soil or embankment material, they are typically used for smaller streams or drainage ditches with spans usually under 20 feet (6 meters).



What do we care about?

Bridges

Definition: *“A bridge is a raised structure built to carry human, vehicle, or train traffic over a physical obstruction like a body of water, canyon, or road.”*

Supported above the ground or water by columns, piers, or abutments, bridges leave an open space underneath for unobstructed airflow or water flow and generally span greater distances (lengths exceeding 20 feet) than culverts.



Calabazas Creek Miller Ave by Vicksburg Dr



Creek Watch — What is it?

Why do we care?

- Last month we talked about why the water may come.
- Tonight we're talking about what do we do when it does come.
- We have creeks, culverts, and bridges... that historically have flooded and can flood again.



Flooding? In Cupertino?

History

During the winter of 1998, Cupertino creeks and streams overflowed their banks at several locations:

- **Calabazas Creek at Prospect Avenue** (in Saratoga). Flooding proceeded north into the intersection of Prospect Avenue and DeAnza Blvd.
- **Calabazas Creek at Miller Avenue.** Runoff from heavy rains overwhelmed the creek's capacity and spilled onto Miller Avenue flowing north onto Stevens Creek Blvd. Water was up to 2 feet deep in some locations. Minor flood damage occurred to the Gardens of Fontainbleu (now Sonter) Apartments next to the creek.
- **Calabazas Creek at Stevens Creek Blvd.** Flooding also occurred at this location. Depressed parking areas across from JCPenney's at Vallco were under water.
- **Stevens Creek at McClellan Road.** Due to heavy spillage from the Stevens Creek Reservoir, the Stevens Creek overflowed at the Golf Course and Black Berry farm. McClellan Road was inundated and impassable in the vicinity of the creek crossing.

Flooding? In Cupertino?

History

In previous years, other flooding events included:

- Overbanking at Calabazas Creek at Miller Ave: 1978, 1980, 1983, and 1986
- Extensive street flooding at Calabazas Creek at Miller Ave: 1983 and 1986
- Street flooding at Calabazas Creek at Bollinger Avenue in 1986 and 1998
- Street flooding at Stevens Creek at Stevens Creek Boulevard in 1986

Flooding? In Cupertino?

History

- **Population Affected**

During the 1998 winter floods, some City residents with properties fronting overflowing creeks voluntarily left their homes. However, no shelters were established and residents returned to their homes within hours.

- **Adjacent Affected Jurisdictions**

The bulk of Cupertino creeks and streams flow north into Santa Clara. Earlier flooding from the Calabazas Creek continued and overflowed its banks at Pruneridge Avenue between Tantau Avenue and Lawrence Expressway.



Valley Water Assessment

History



Report on Flooding and Flood-Related Damages in Santa Clara County February 2 to 9, 1998, Santa Clara Valley Water District (link on the reference page)

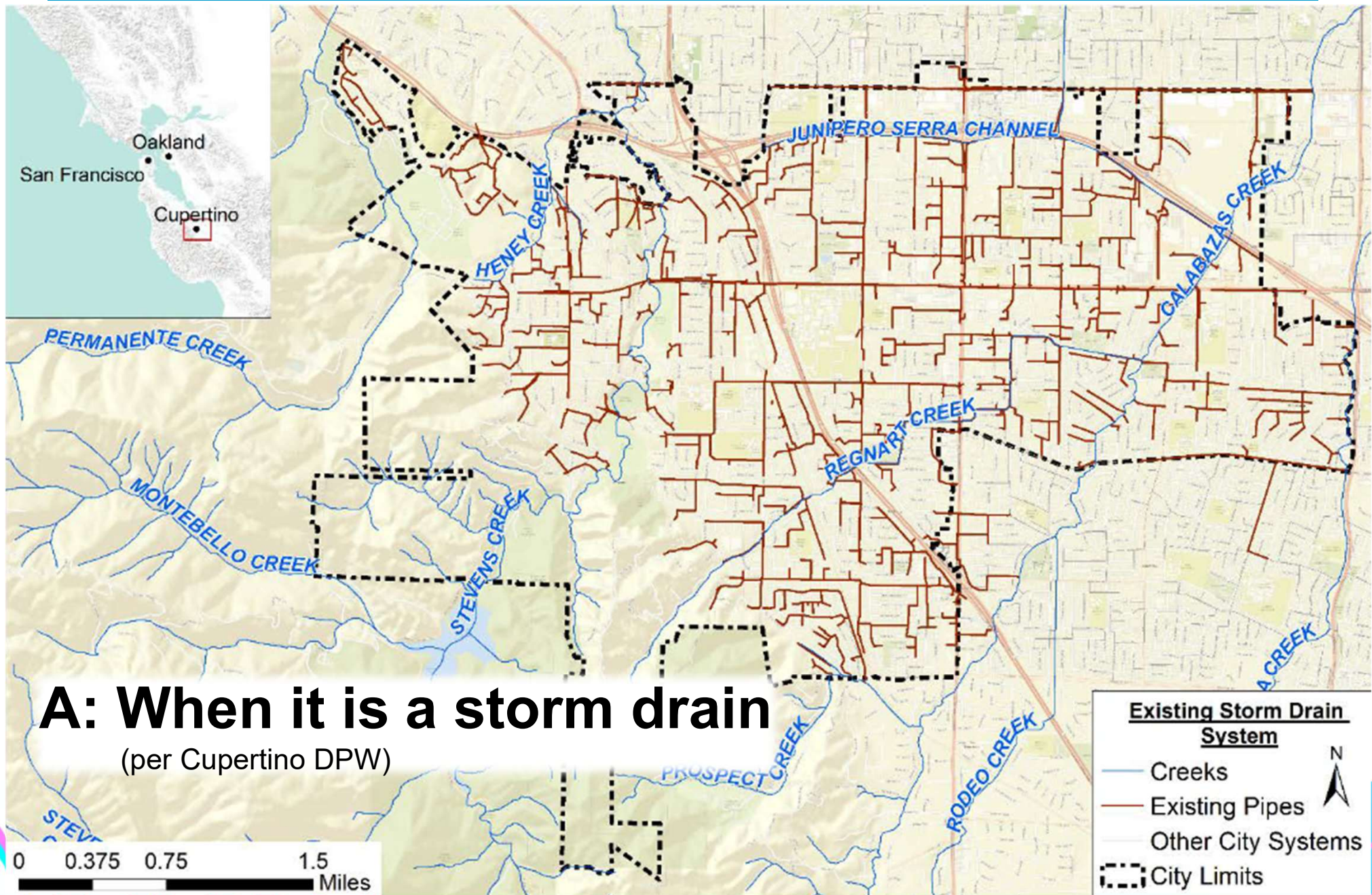
NORTH CENTRAL ZONE

Calabazas Creek

Calabazas Creek overtopped its banks twice in February. Overbanking occurred February 2 to 3 at the following bridges: Southern Pacific Railroad, Saratoga-Sunnyvale Road, Bollinger Road, Miller Avenue, Tantau Avenue, Pruneridge Avenue, and Monroe Street. Flooding on February 2 to 3 appeared to be more severe than flooding which occurred on February 7. On February 3, at least seven apartments at the Gardens of Fontainebleau Apartment complex were damaged by water and mud. Several homes in the East Estates neighborhood were also flooded. Three people from the Simms House, a home for low-income residents owned by the City of Cupertino, were evacuated. Water flowed down Stevens Creek Boulevard, flooding lower parking levels at Vallco Fashion Park and entering several businesses. Sears department store suffered some damage. Off of Foothill Boulevard, the Sunny View Retirement home was flooded, and damage was reported at the Foothill Apartments where nine families requested assistance.



Q: When is a creek not a creek?



Valley Water Actions

History

- **Probability of Occurrence**

The Santa Clara Valley Water District assessed the 1998 winter flooding as a “75 year” flood. Driven by El Nino’ storms, that winter was considered unusual.

- **Action Taken**

- **1998:** *“Report on Flooding and Flood-Related Damages in Santa Clara County February 2 to 9, 1998”* Santa Clara Valley Water District
- **1998–2008:** SCVWD undertakes a series of stream/street-crossing improvements.
- **2000:** documented \$6.75M Calabazas Creek “Reach 4” project from Homestead Road to Miller Avenue.
- **2011:** Additional Calabazas flood-protection improvements continued, culminating in the large Miller-to-Wardell project.
- **2024:** Regnart Creek improvements between Bubb Rd and Festival Dr



Flooding and CARES

History



A few years after the 1998 flooding and storms, CARES developed the Creek Watch to provide observation and reporting capability to the city.



**Car moved by Calabazas Creek flood waters
Miller Avenue in Cupertino
2-8-98 (S5212-12)**



Types of Culverts



Q: When is a Culvert not a Culvert?

A: When it is classified as a bridge

It stops being a Culvert:

1. When it is longer or wider
... greater than 20 feet is legally and structurally categorized as a bridge (FHWA)
2. When it doesn't have soil fill on top
3. When it carries non-drainage traffic exclusively as a dry underpass

Or it is a tunnel... A large or long culvert can function as a tunnel



(Water) Bridges in Cupertino



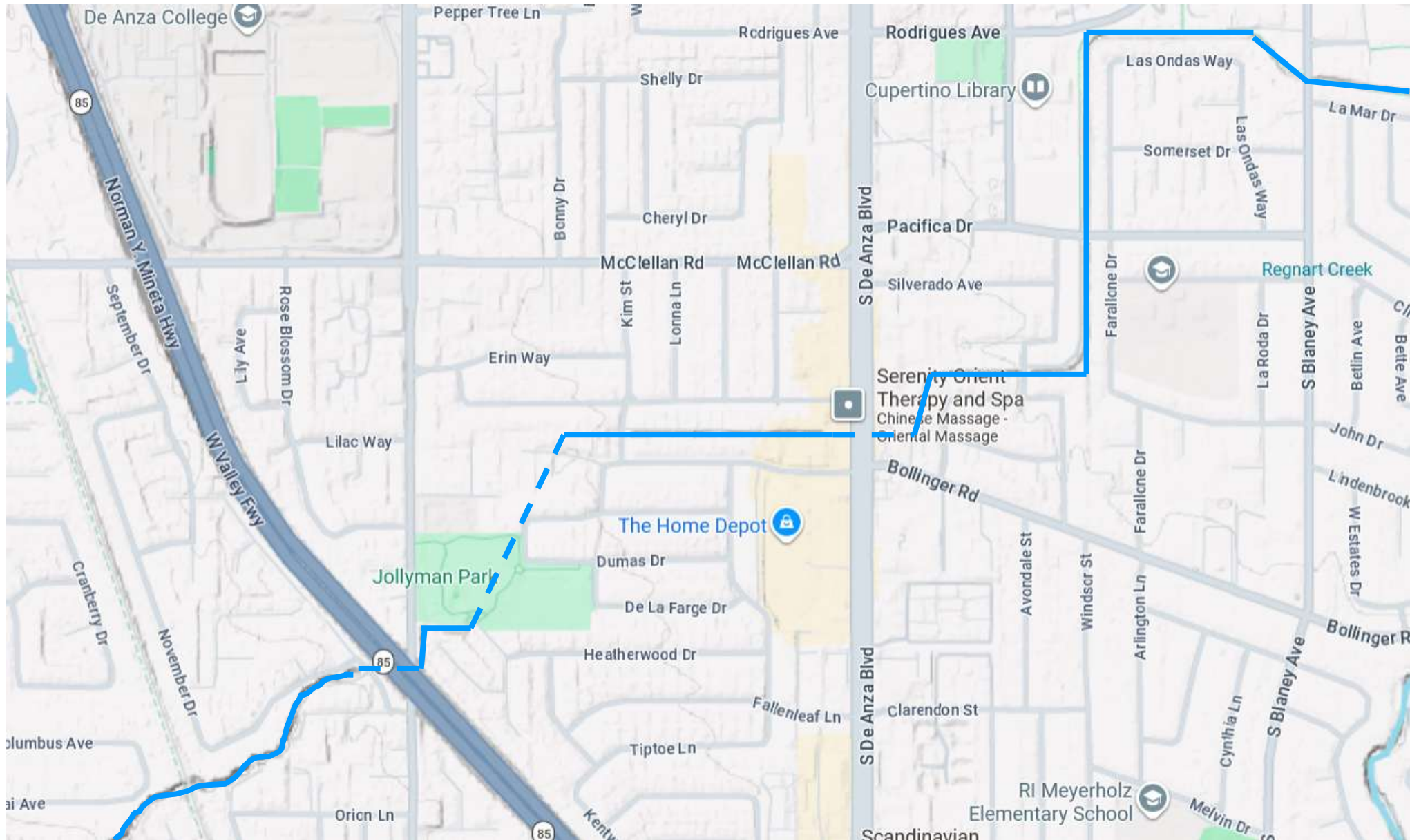
Calabazas Creek Miller Ave by Vicksburg Dr



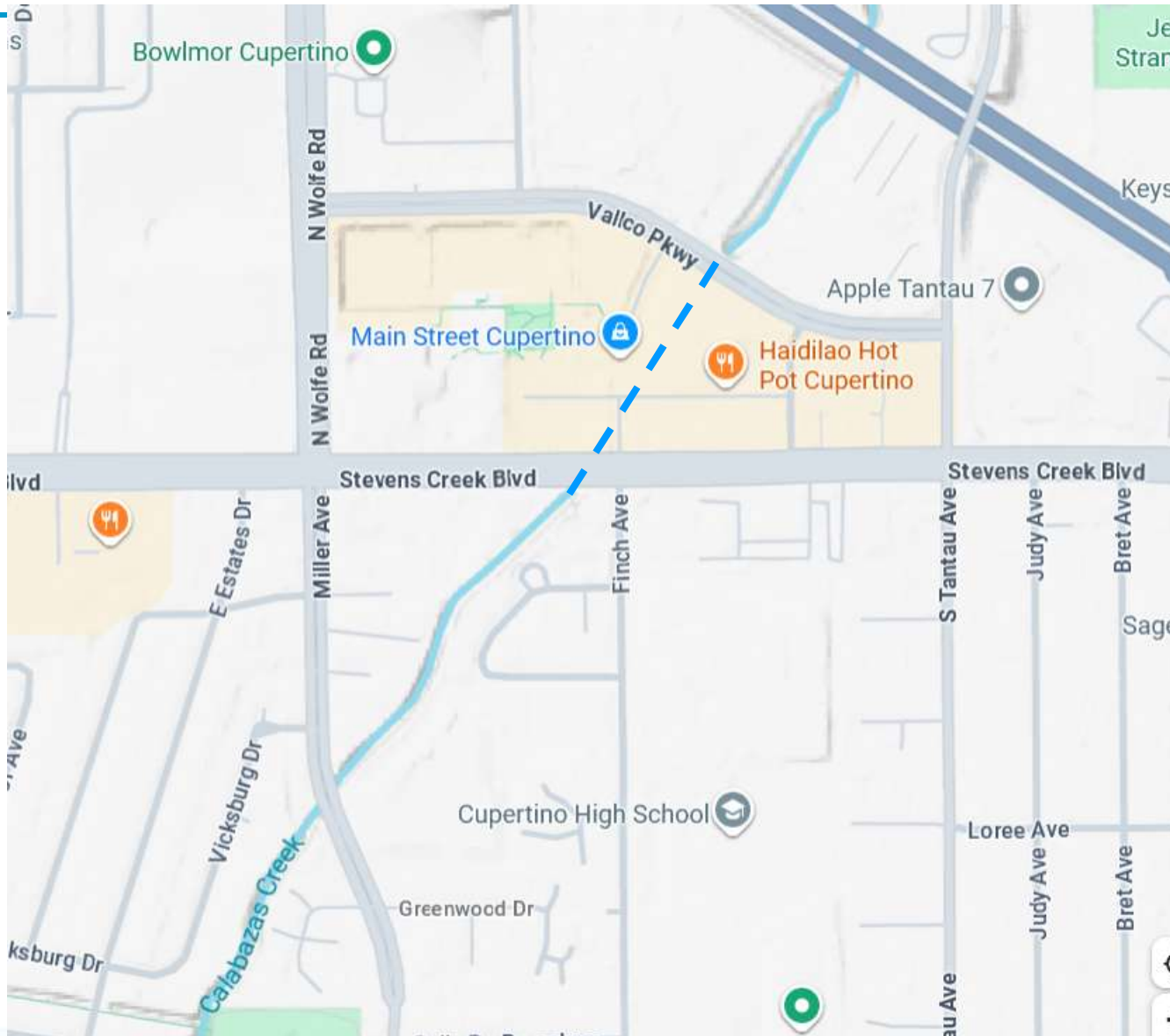
Calabazas Creek under Tantau by Apple



Tunnels for Regnart Creek



Tunnels for Calabazas Creek

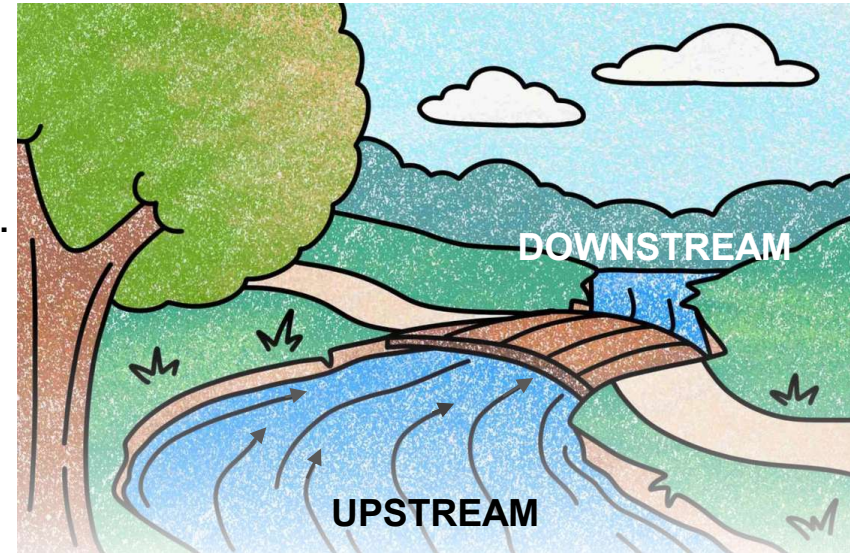


Creek Watch...

What are we actually looking at?

The Terms:

- **Channel** -- the normal path that carries the creek.
- **Banks** -- the sides that contain the creek; useful reference for how high the water has risen.
- **Normal flow** -- what the creek looks like under ordinary conditions.
- **Upstream / downstream** -- especially important when describing where a condition exists.
- **Culvert / bridge opening** -- the opening available for water to pass beneath the roadway.
- **Waterline / height marker** -- a fixed reference for reporting water level and change.
- **Debris accumulation** -- branches, vegetation, trash, etc. that may restrict the opening.



Creek Watch reports should describe what we can observe and measure — not what we think might happen.



Read the Creek: What Has Changed?

When on watch, think through four questions

1. **LEVEL** — Where is the water now?
Relative to the height marker, bank, culvert opening, or another known reference.
2. **TREND** — Is it rising, falling, or holding steady? Compare with the previous observation. *How quickly* it is changing may be more important than the absolute level.
3. **FLOW** — Is water moving normally through the crossing? Look for backup upstream, unusual turbulence, or a significant difference between upstream and downstream conditions.
4. **OBSTRUCTION** — Is anything restricting the flow? Note debris collecting against the culvert or bridge opening — observe it, don't attempt to clear it.



What are we watching for?

1. rising water level
2. rate of rise
3. water approaching the top of a culvert/opening
4. debris collecting against the opening
5. water backing up upstream
6. water beginning to leave the channel
7. roadway flooding
8. erosion or bank failure
9. unusual flow direction
10. and anything presenting an immediate life-safety hazard.

Don't just report “the creek is high.” Report what you can actually observe.

Creek Watch...

The bottom line

Observe → Compare → Report

- *What do I see now?*
- *What changed since my last observation?*
- *What does Net Control need to know?*



Cupertino creeks and their road crossings

Stevens Creek

From: Stevens Dam

1. McClellan Road near McClellan Ranch
2. Stevens Creek Blvd
3. I-280 near Creston Dr
4. Homestead Road

To: Sunnyvale

Regnart Creek

From: Santa Cruz Mtns

1. Regnart Road near Lindy Lane
2. Bubb Road near Regnart Rd
3. Union Pacific Trail
4. Tunnel: Festival Dr, Rt85 to S.DeAnza
5. Antoinette Dr
6. Pacifica Dr
7. S. Blaney Ave
8. E. Estates Dr

To: Calabazas Creek

Calabazas Creek

From: San Jose

1. Bollinger Rd
2. Flow in from Regnart Crk
3. Miller Ave
4. Tunnel: Stevens Creek Blvd to Vallco Pkwy
5. I-280 near N.Tanau Ave
6. N.Tanau Ave
7. Pruneridge Ave

To: Santa Clara City



What's next?

- 5 November – CARES General Meeting, Drill Prep
- 7 November – CARES Field Communications Exercise



Thank you

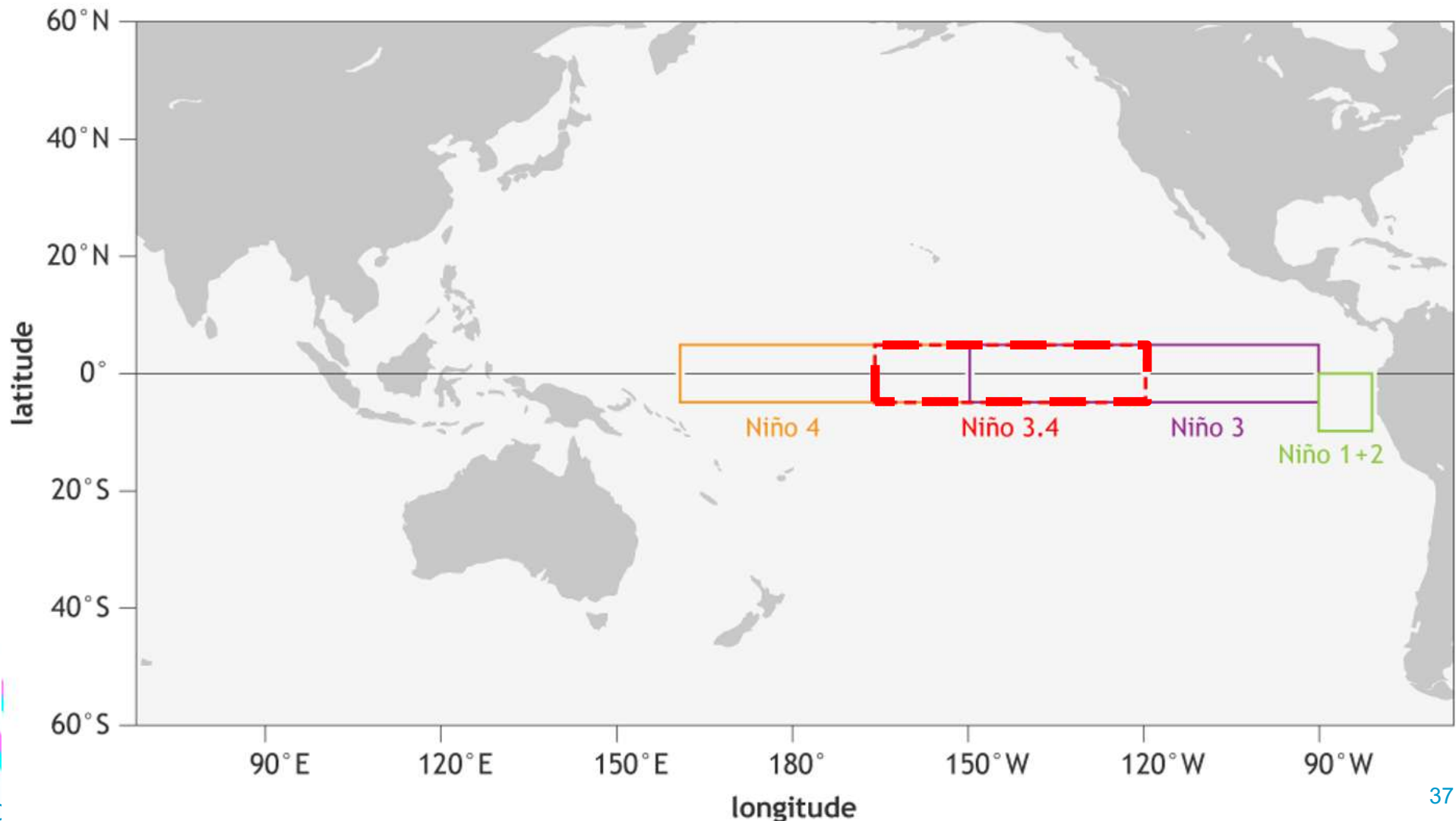
Any Questions?



And where is Niño-3.4?



The Niño-3.4 region spans the central part of the Pacific Ocean from the International Date Line to the South American coast area, specifically defined as 5°N to 5°S latitude and 120°W to 170°W longitude.



References



- <https://www.columbia.edu/~mhs119/ElNino-LaNina/>
- <https://wmo.int/news/media-centre/el-nino-set-become-very-strong-raising-risks-of-extreme-weather-2027>
- <https://www.mvr.usace.army.mil/missions/flood-risk-management/understanding-flood-risk/>
- <https://assets.valleywater.org/files/1998%20Flood%20Report.pdf>, Pics on pgs 66-thru 72

