



Using GIS Tools in Emergency Response and Planning

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Fire Captain
Santa Clara County Fire Department

Santa Clara County: By the Numbers

- 2 million people
- 1,300 square miles
- \$340 billion GDP
- 10 fire agencies
- 86 fire stations



Major Recent Events

- Santana Row Fire (Structure Fire, 2002)
- Metcalf Sniper Attack (Infrastructure sabotage, 2013)
- Super Bowl 50 (2016)
- COVID-19 Pandemic
- SCU Lightning Complex (Wildfire, 2020)
- Dell Avenue Fire (Structure Fire, 2022)
- Home Depot Fire (Structure Fire, 2022)





Addressing Complexity

Two big questions:

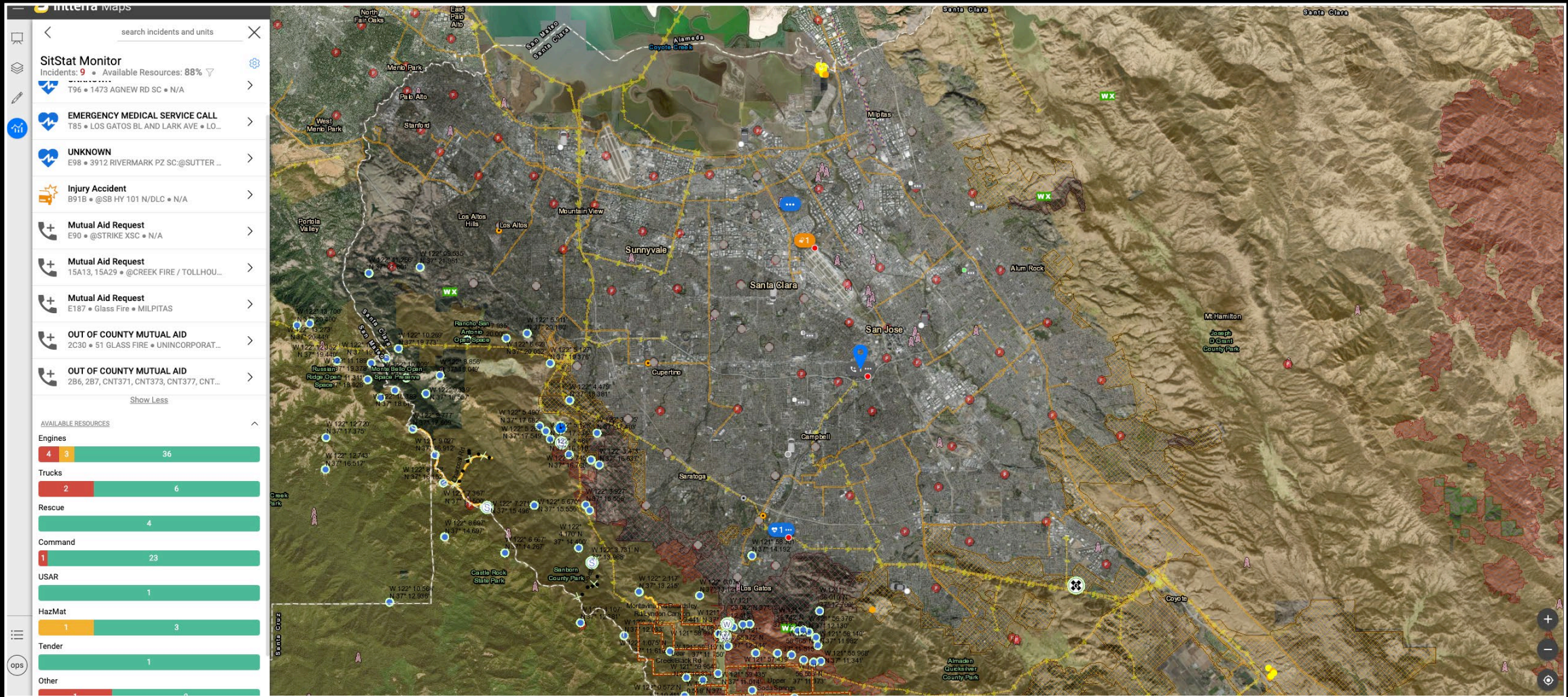
How do we enable first responders from different disciplines and jurisdictions to work together better?

How can we execute evacuations that are timely, accurate, and easy to understand?



Interagency Collaboration

- Largely, this is being accomplished with the use of a web-based platform called Intterra.
- Intterra layers traditionally disparate data sources into a single view.
 - Interoperable feeds
 - Situational awareness driven
 - "Common Operating Picture"
- Types of data displayed:
AVL, ARL, fire history, jurisdictional boundaries, critical infrastructure, remote sensing, fire mapping, orbital thermal imaging, airborne thermal imaging, evacuations, population density, flood maps, traffic, and much more.



Building a common "picture"
 (It's worth a lot more than 1,000 words)

Interra Maps

search incidents and units

ACCIDENT WITH INJURIES
LOS ALTOS AV AND LOS ALTOS COURT • LOS ALTOS • ...

ASSIGNED UNITS (1)

E75 OnScene • Updated just now

DESCRIPTION
ACCIDENT WITH INJURIES

Alarm	8:09:10
Dispatch	8:09:21
Response	8:10:06
Arrival	8:11:51

CAD Code **ACCINJ**
Incident ID **C202880016**
Lat/Lng **37.383, -122.1195**
Address **LOS ALTOS AV AND LOS ALTOS COURT**

Call Back Number **[REDACTED]**

3 items in the proximity

NARRATIVE

08:09:17: VEH VS PED ON A BIKE

08:10:44: veh hit bicyclist [REDACTED] C+ B+ (pq)

VEH VS PED ON A BIKE

08:10:44: MPDS Dispatch Code: 29D02 (HIGH MECHANISM (K through t))

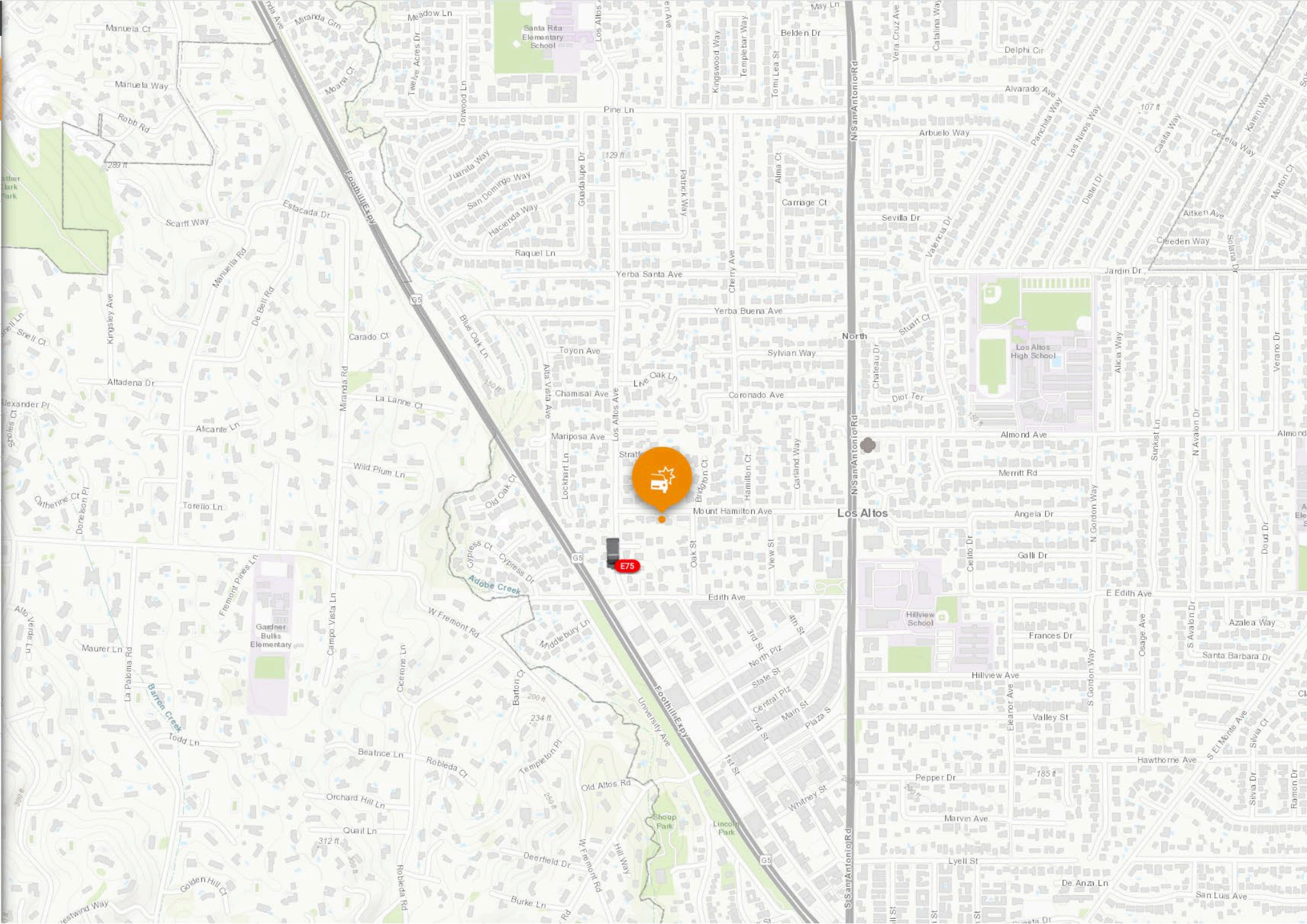
Chief Complaint: TRAFFIC/TRANSPORTATION ACCIDENTS

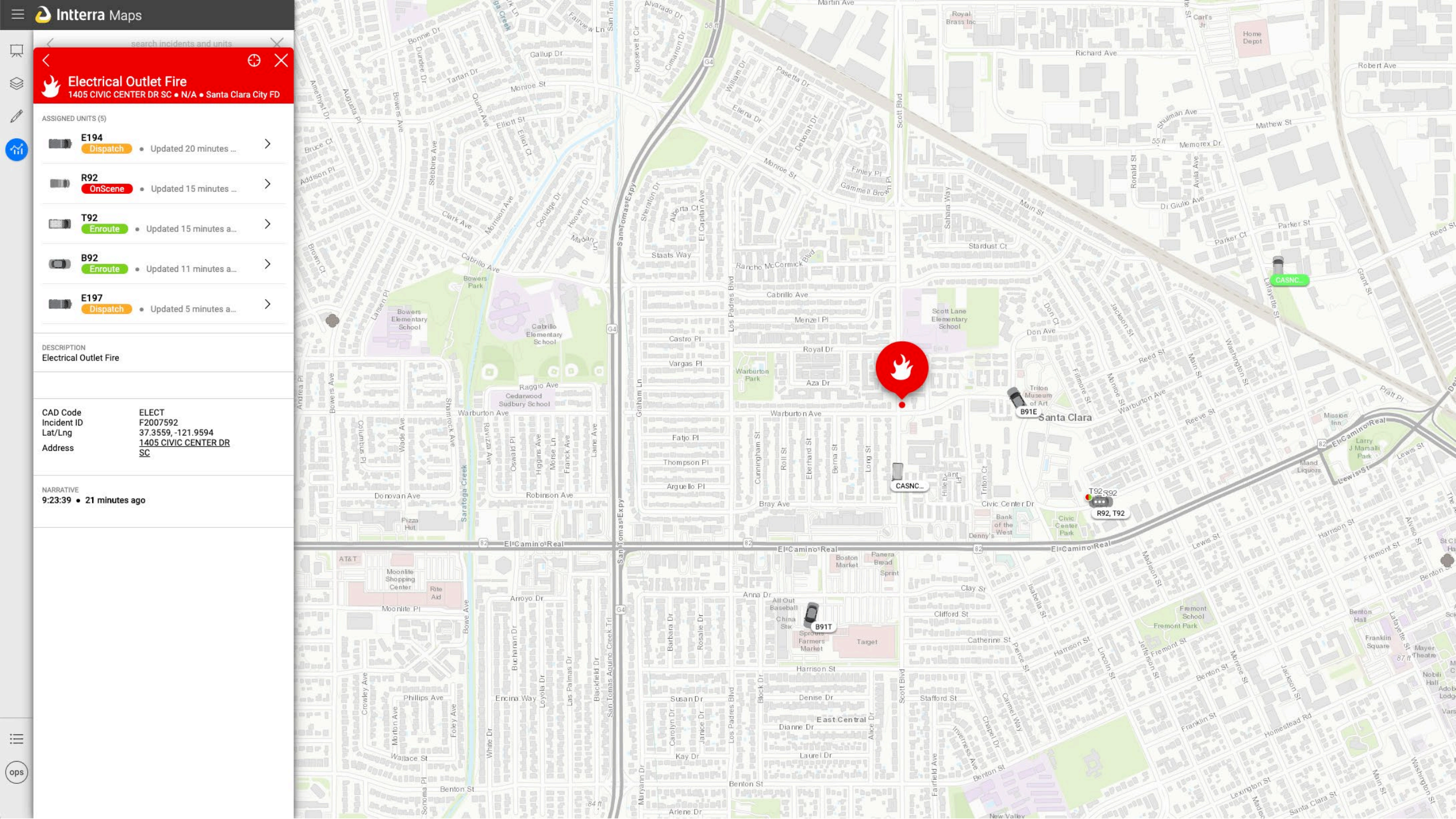
Chief Complaint: Traffic / Transportation Incidents

Response Text: Code 3 Fire - Code 3 ALS

MED PQA Key Questions Answers:

1. The incident involves an auto vs. bicycle.





search incidents and units

Electrical Outlet Fire

1405 CIVIC CENTER DR SC • N/A • Santa Clara City FD

ASSIGNED UNITS (5)

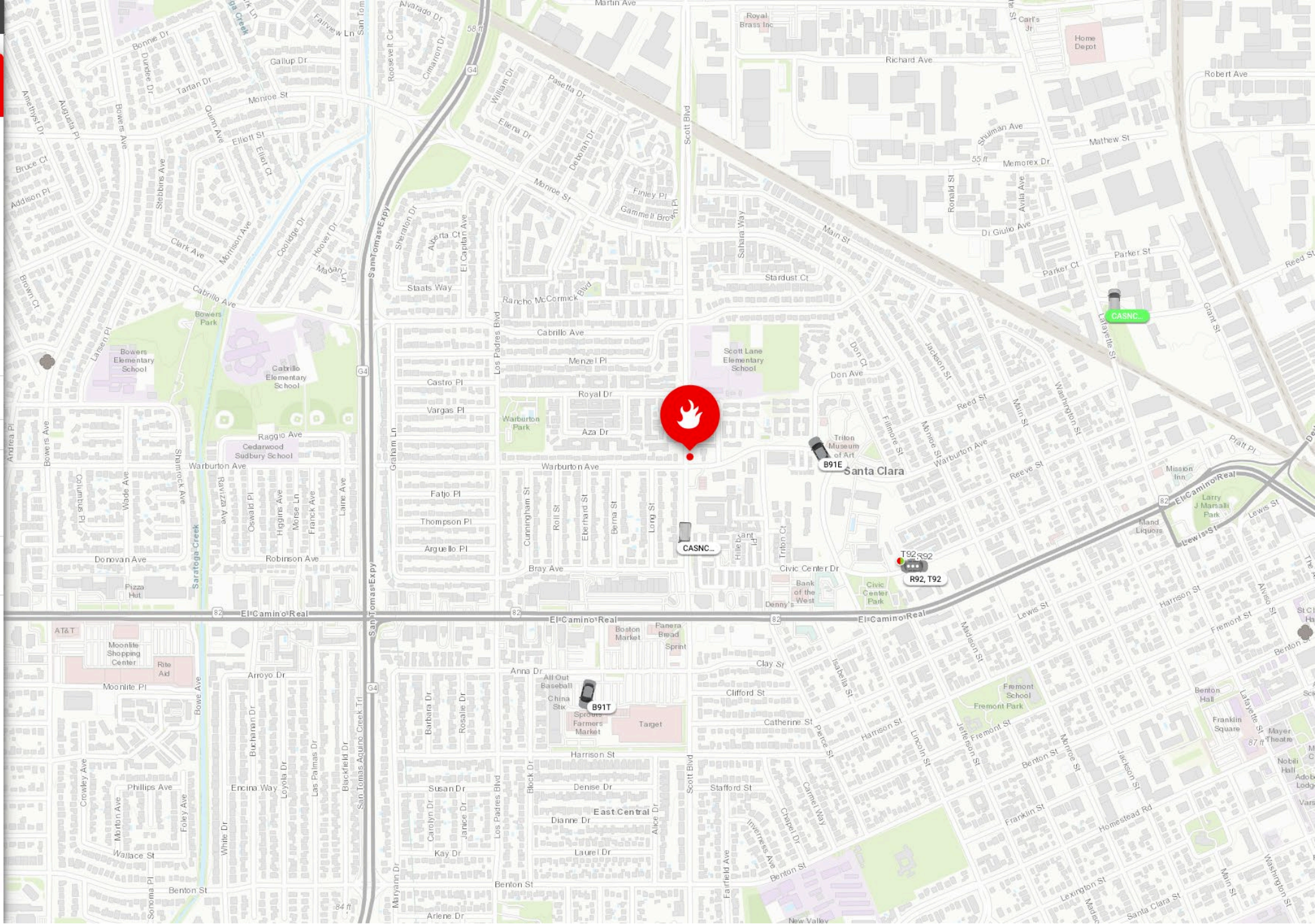
- E194** Dispatch • Updated 20 minutes ...
- R92** OnScene • Updated 15 minutes ...
- T92** Enroute • Updated 15 minutes a...
- B92** Enroute • Updated 11 minutes a...
- E197** Dispatch • Updated 5 minutes a...

DESCRIPTION

Electrical Outlet Fire

CAD Code ELECT
Incident ID F2007592
Lat/Lng 37.3559, -121.9594
Address 1405 CIVIC CENTER DR SC

NARRATIVE
 9:23:39 • 21 minutes ago



BRUSH FIRE NOT ENDANG STRUCT

 15741 ROBLES DEL ORO • UNINCORPORATED • Sant...

Enroute • Updated just now

E679

 Enroute • Updated just now

E78

 OnScene • Updated just now

DESCRIPTION

BRUSH FIRE NOT ENDANG STRUCT

Alarm	7:18:00
Dispatch	7:18:12
Response	7:19:47
Arrival	7:21:39

CAD Code	BRUSH
Incident ID	C211960007
Lat/Lng	37.2389, -122.003
Address	15741 ROBLES DEL ORO

Call Back Number 408-8881784

NARRATIVE

07:18:41: FPDS Dispatch Code: 82C03

Chief Complaint: SMALL BRUSH/GRASS FIRE

FIRE PQA Key Questions Answers:

At loc (1st pty).

BRUSH/GRASS fire.

SMALL area.

Fire rptd by caller as not extinguished.

Not threatening anything.

07:18:41: sees smoke and fire in bushes in backyard, unk cause ⁢pf>

07:19:56: FPDS Dispatch Code: 82C03

Chief Complaint: SMALL BRUSH/GRASS FIRE

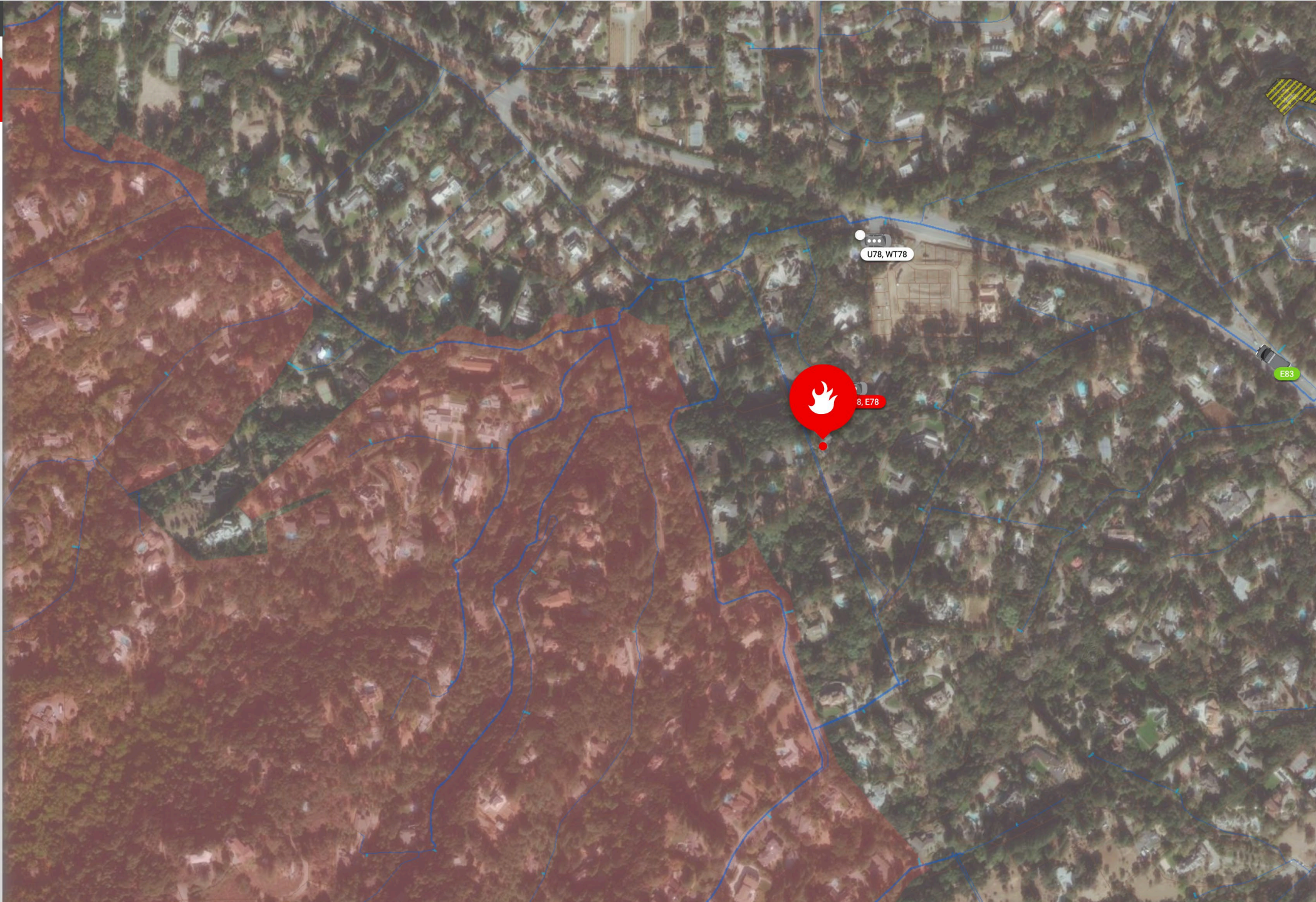
FIRE PQA Key Questions Answers:

At loc (1st pty).

Caller states no hazmat pres.

SMALL area.

Direction fire spreading: towards the right, down the slope\



SitStat Monitor

Incidents: 11 • Available Resources: 84%

INCIDENTS

PRE CREATED FROM PQA
H72 • 10147 BONNY DRIVE • CUPERTINO

SERVICE OR AID REQUEST
R83 • 15965 LOS GATOS BLVD • LOS GATOS

SERVICE OR AID REQUEST
E72 • 19503 STEVENS CREEK BLVD • CUP...

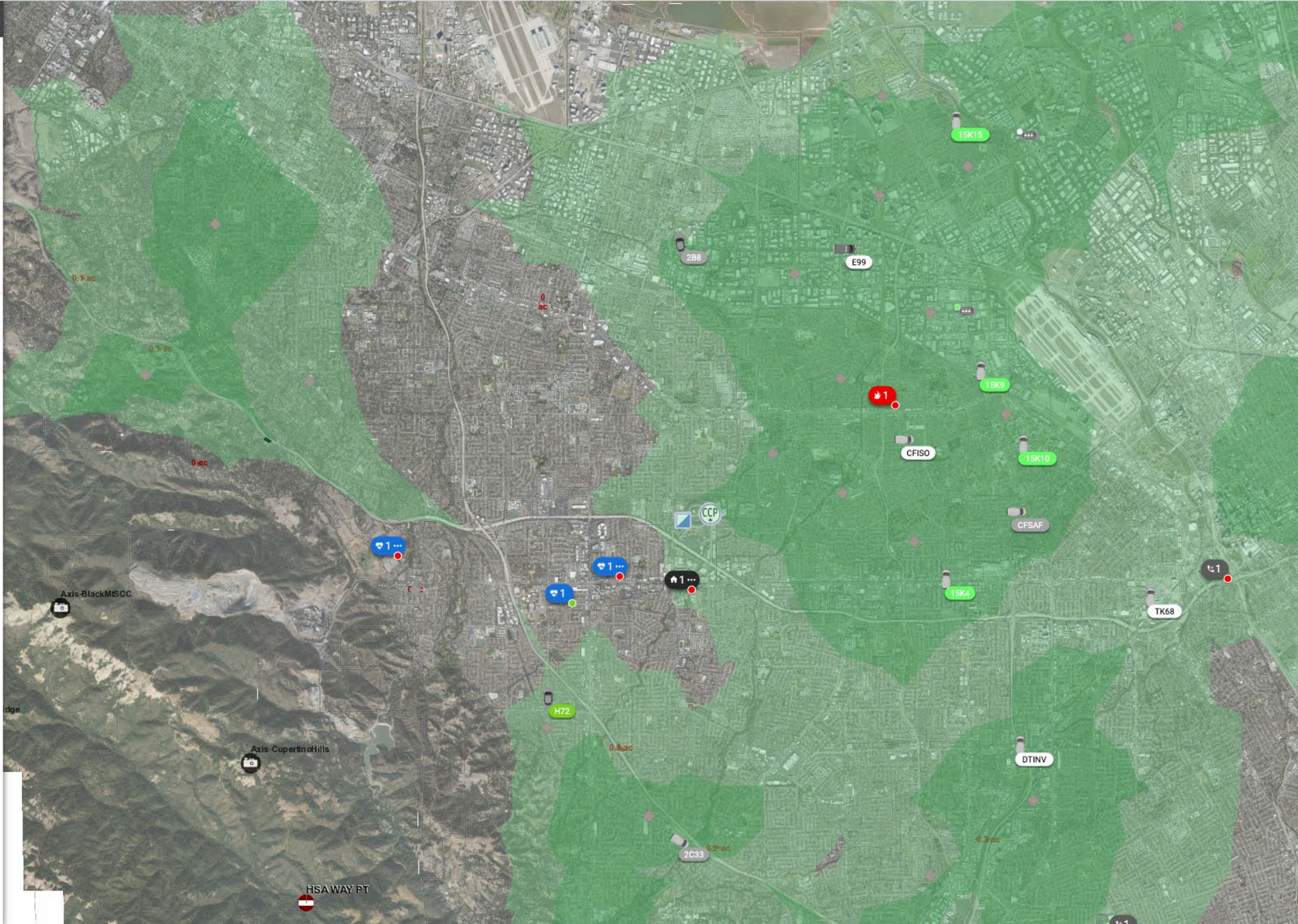
EMERGENCY MEDICAL SERVICE CALL
T71 • 10191 VISTA DRIVE • CUPERTINO

Show More

AVAILABLE RESOURCES



connected • updated at 03:10:39 pm



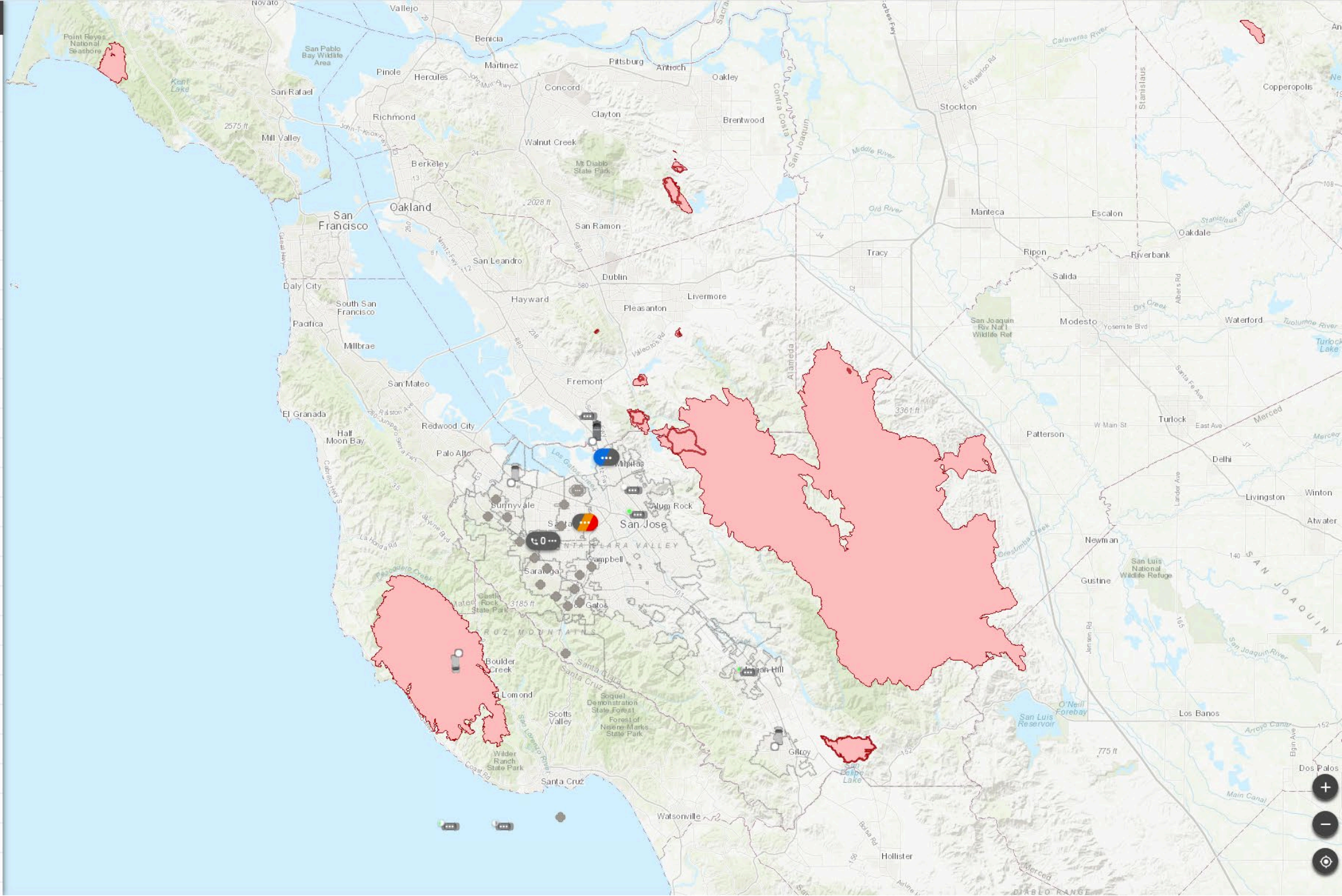
find layers & places



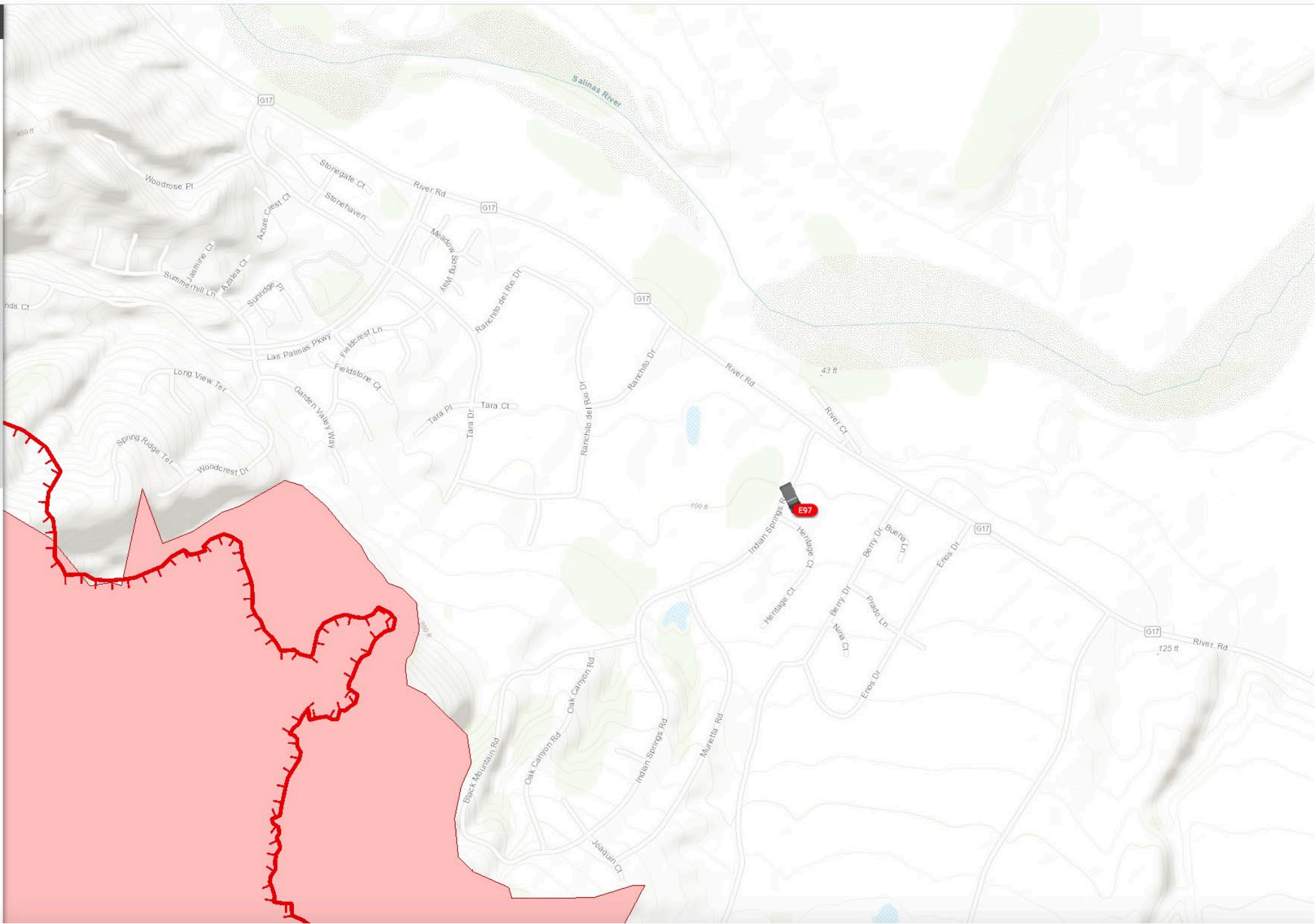
Layers



- Units
- Manage the Incident
- Manage Information and Access
- Manage Wildfire
- California AVL (Display CA)
- Fire Models
- California National Incidents (NIS) - Approved
- California National Incidents (NIS) - All
- Manage HazMat
- Manage SAR
- Manage Natural Hazard
- Manage Critical Infrastructure
- Manage Law and EMS
- California ASHER
- California Structure Preplans
- California Wildfire Preplans
- Fire Hydrants
- Manage Damage Assessments
- Manage Structure Triage
- Structures
- California Event - In Progress
- California Wildfire Incidents (IRWIN)
- Fire Resources (NWCG)
- Temporary Flight Restrictions
- Fire Perimeters (GeoMAC)



- find layers & places
- Layers**
- COVID Response
 - Mobile Units
 - Manage the Incident
 - Manage Information and Access
 - Manage Wildfire
 - California AVL (Display CA)
 - FIRIS Fire Models
 - Display National Incidents (NIS) - Approved
 - Display National Incidents (NIS) - All
 - Manage HazMat
 - Manage SAR
 - Manage Natural Hazard
 - Manage Critical Infrastructure
 - Manage Law and EMS
 - Display ASHER
 - Display Structure Preplans
 - Display Wildfire Preplans
 - Edit Hydrants
 - Manage Damage Assessments
 - Manage Structure Triage
 - Edit Structures
 - Special Event - In Progress
 - Alerts
 - Active WF Incidents (IRWIN)
 - Active Resources (NWCG)
 - Temporary Flight Restrictions
 - Active Fire Perimeters (GeoMAC)



Intterra Maps

Display National Incidents (NIS) - Approved

Layer
 DISPLAY TEXT
 Display National Incidents (NIS) - Approved

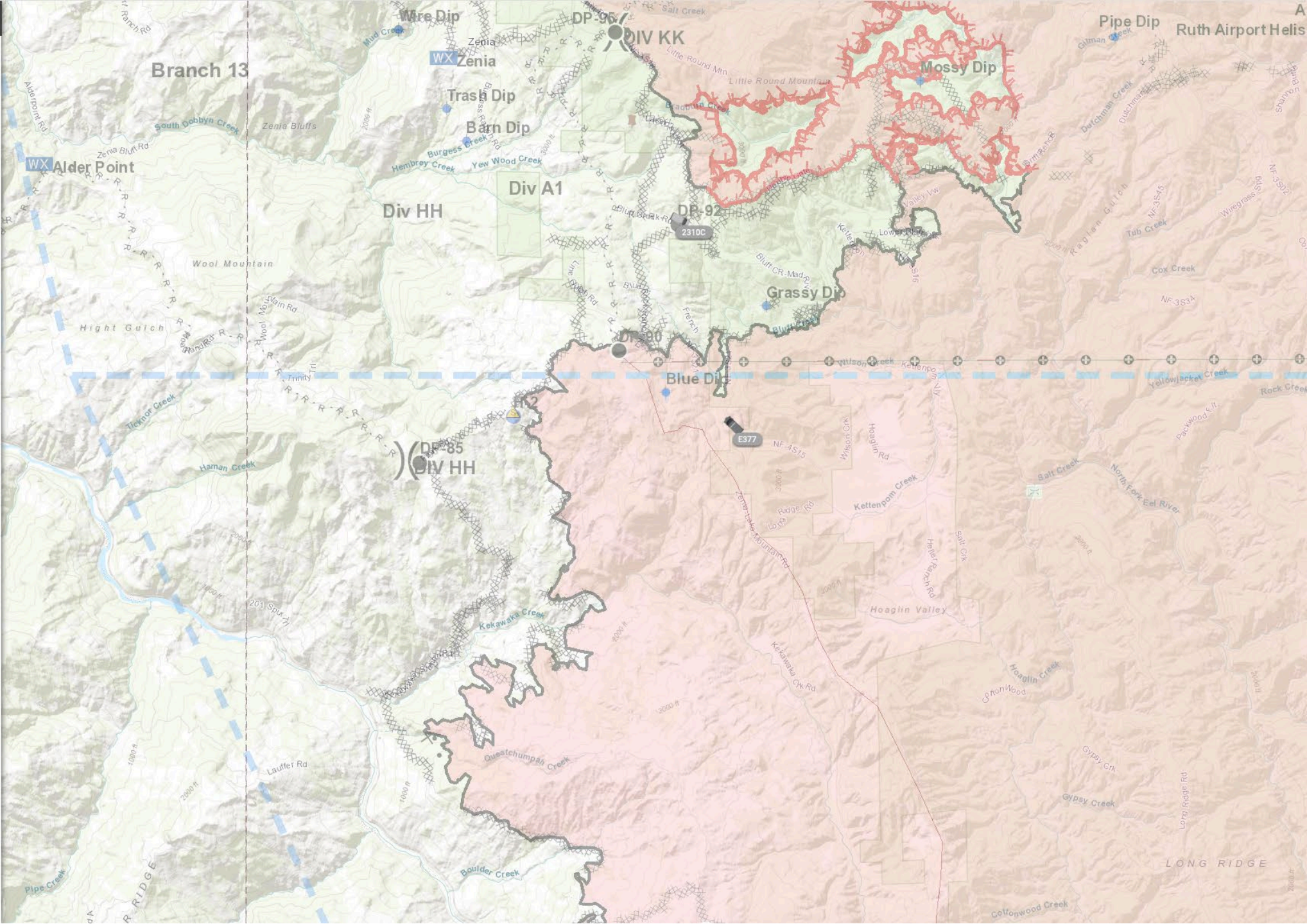
LAYER SOURCE
https://egp.nwcg.gov/arcgisim/rest/services/IMT/Event_Pla

LAYER OPACITY

KEEP IN ALL WORKSPACES

Sub-Layers

- Label Point
- Accountable Property
- Event Point
- IR Point
- Event Line
- IR Line
- Event Polygon
- IR Polygon





Evacuation Management

- Where we came from
 - Paper
 - "On the fly" collaborative decision making
 - Describing evacuation areas by landmarks
 - "North of Junipero Serra Freeway, south of Foothill Expressway, east of Magdalena Avenue, West of Hoffman Terrace."
- Where we are now
 - Digital
 - Pre-determined evacuation zones
 - Easy to visualize protective actions
 - All-hazard tool: fire, flood, earthquake, active shooter, bomb threats, hazmats, police actions, etc

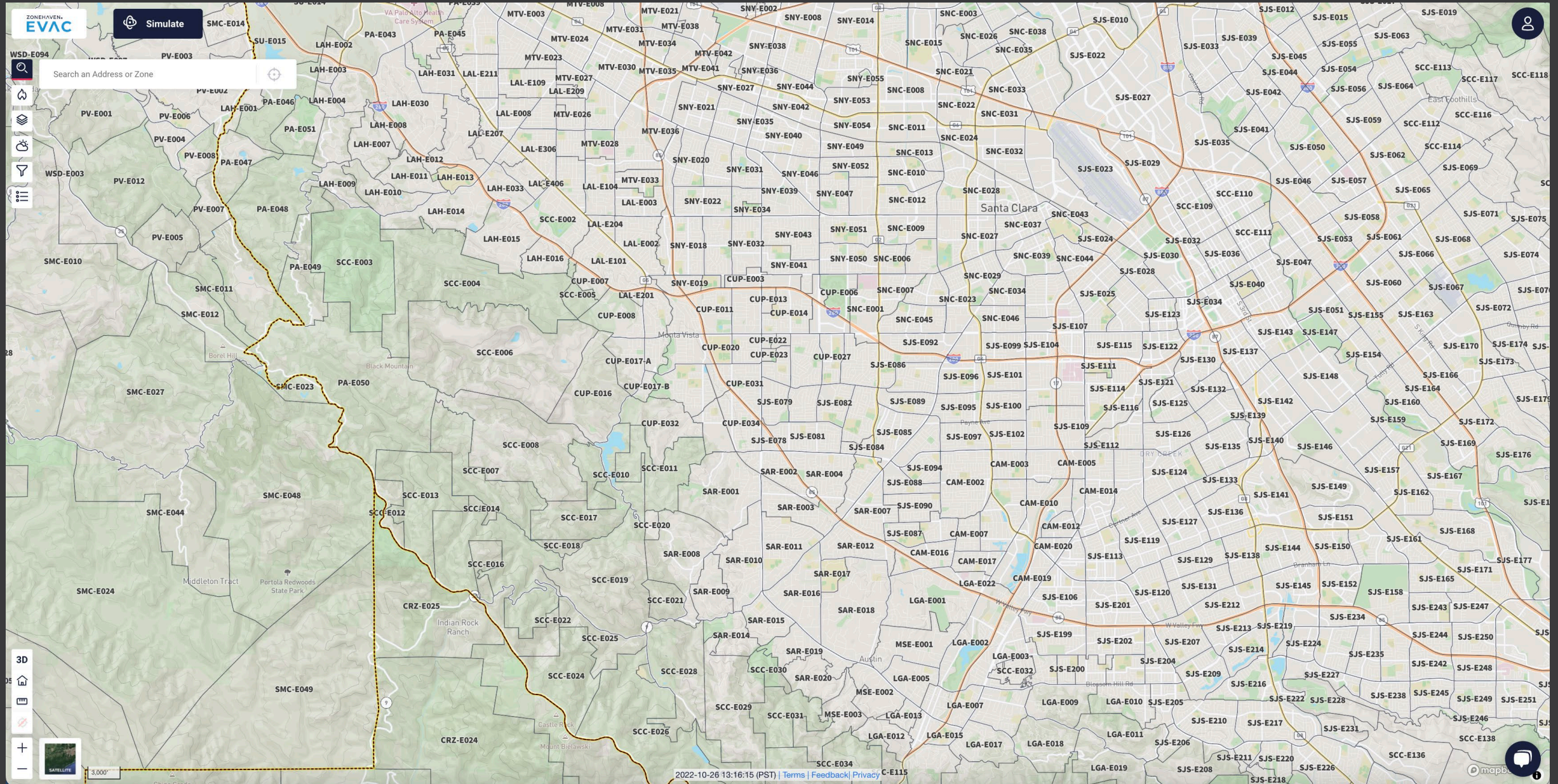


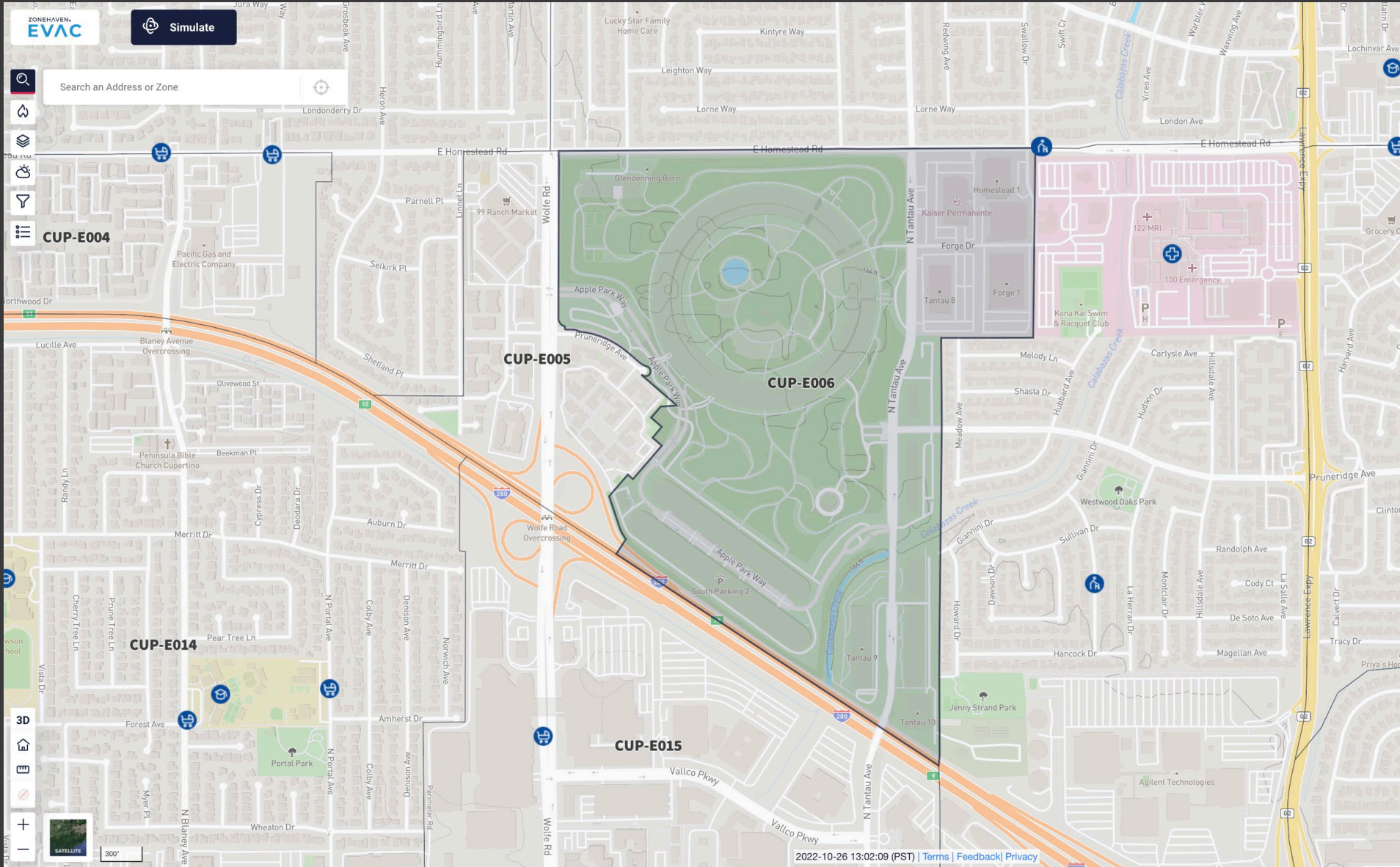
ZONEHAVEN: EVAC Simulate

Search an Address or Zone

3D

2022-10-26 13:06:28 (PST) | [Terms](#) | [Feedback](#) | [Privacy](#)





1 Zone selected

Hide zones list Update status

US-CA-XSC-CUP-E006 Normal

Summary

	POPULATION	11	🌙	19
	VEHICLES	27	🌙	54
	AREA	219 acres		
	STRUCTURES	39		

Download PDF Booklets

General info Evacuation details

COMMONLY KNOWN AS
Apple Park

- ZONE BOUNDARIES**
- NORTH of Junipero Serra Freeway, Howard Drive
 - SOUTH of East Homestead Road
 - EAST of Wolfe Road, Pruneridge Avenue, Apple Park Way
 - WEST of Swallow Way, Melody Lane

English Spanish Chinese (Simplified) Chinese (Traditional)

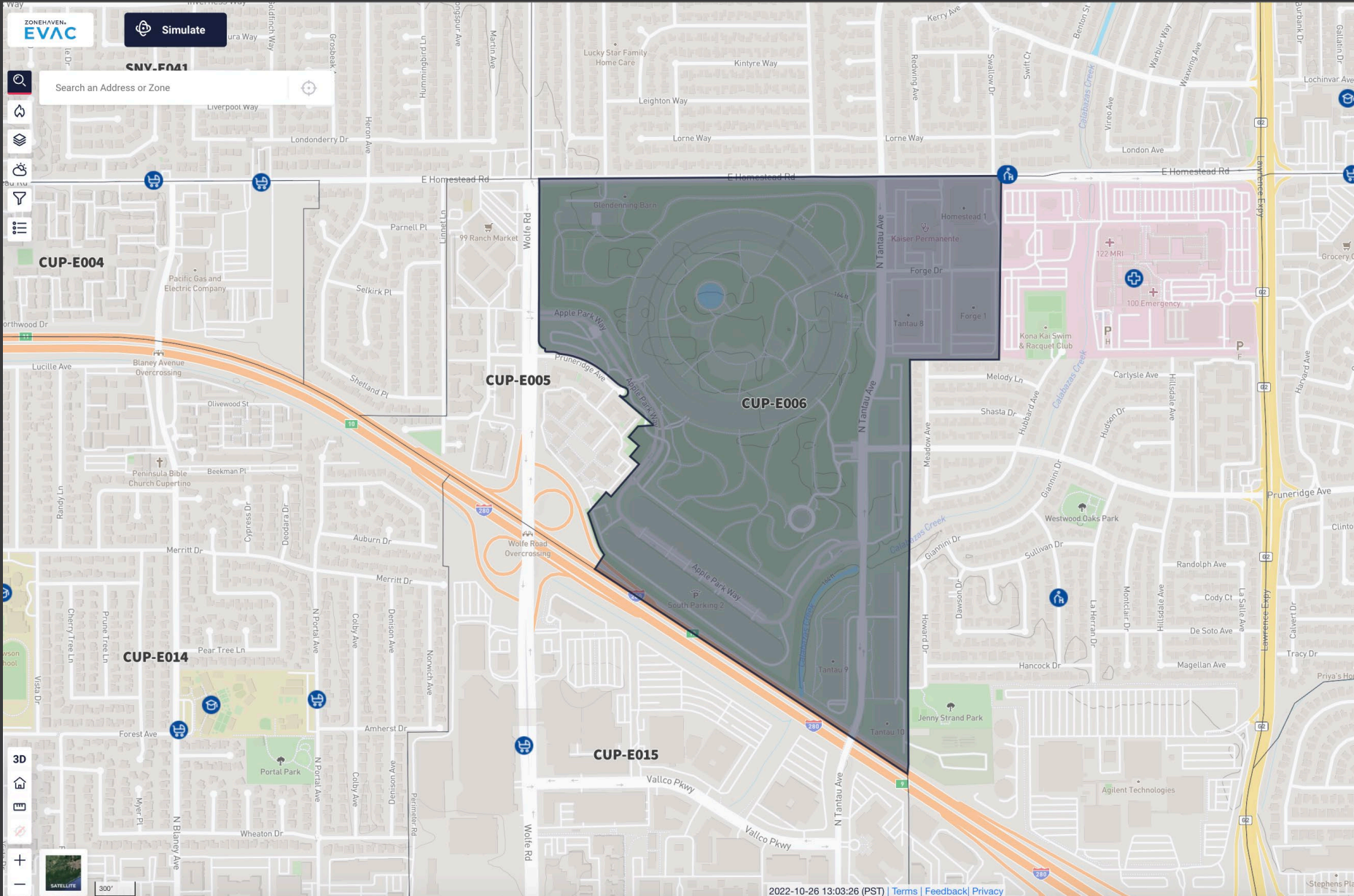
SPECIAL CONSIDERATIONS
Add special considerations...

Jurisdictional Responsibilities Edit

- | | | | |
|--|-----------------------|--|-------------------------------|
| | FIRE | | LAW |
| | SANTA CLARA COUNTY FD | | SANTA CLARA COUNTY SHERIFF... |

Zone Approval Status

Published



Update Status

US-CA-XSC-CUP-E006
Normal

- Normal
- Shelter in Place
- Training

CALIFORNIA AND COLORADO SPECIFIC

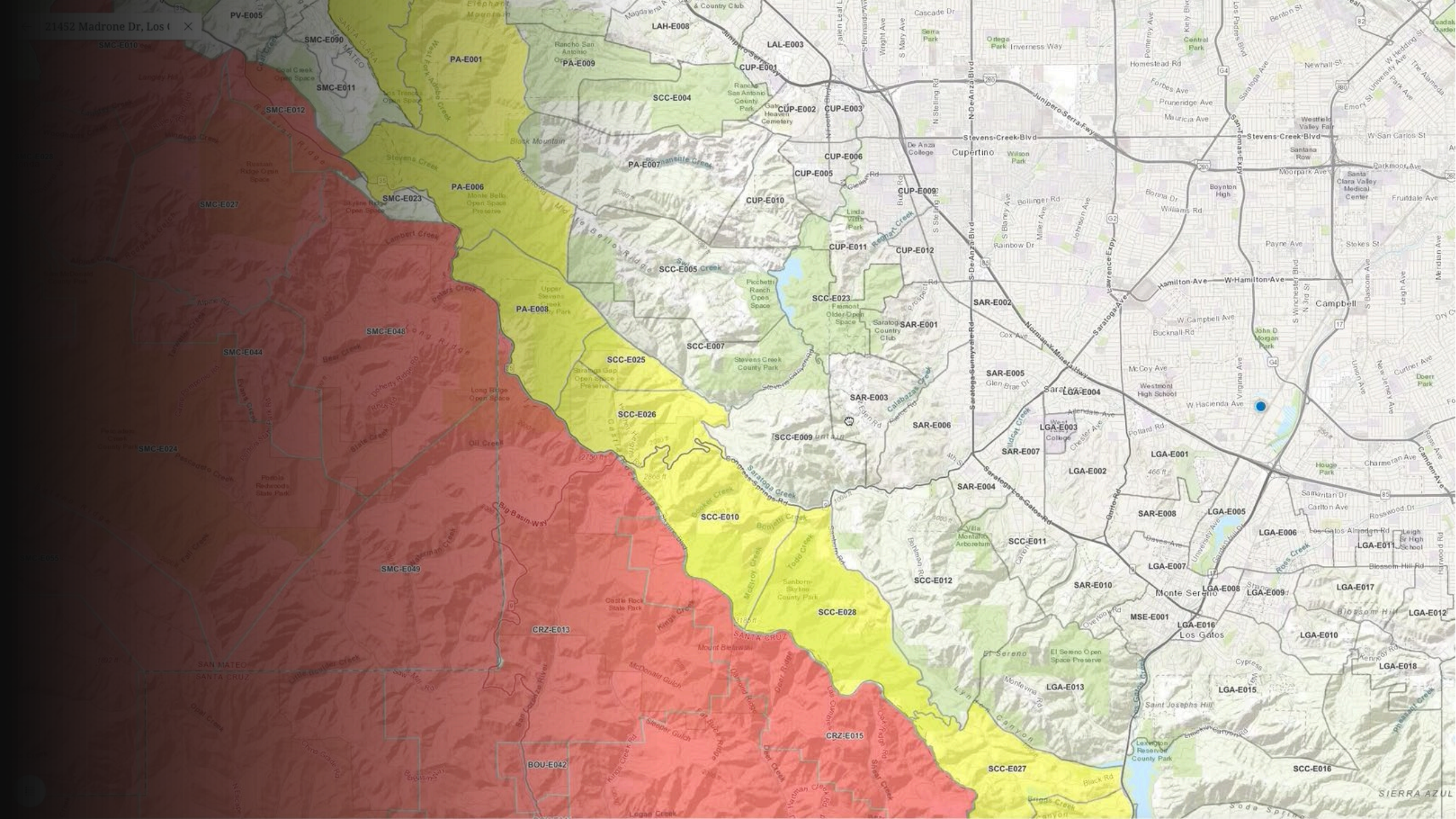
- Advisory
- Evacuation Warning
- Evacuation Order
- Evacuation Order Lifted

0/300

[Manage road closures](#)

Cancel

Update Status



Thank you!

Open to questions now or in the future:
Justin.Stockman@sccfd.org



Questions	Answers
<p>what's the backend tool structure? database connections and GIS infrastructure? and this is the real-time? and this is for internal use only?</p>	<p>With our current contract, this tool is internal only. Intterra is built around ArcGIS Enterprise with custom configurations as add on service, such as CAD integration. Yes, real-time.</p>
<p>Is Intterra being used by dispatchers or specifically by the first responders?</p>	<p>Intterra is functional for all first responder disciplines - Fire, EMS, Law and Dispatch. Our Dispatchers do have some access to Intterra, but there is much more use potential than we are currently taking advantage of. It's difficult to overstate how much context and integrated information would be brought to the dispatch center by the full implementation of a common operating platform.</p>
<p>According to their website, Intterra's target audience seems to be towards fire departments.</p>	<p>Intterra has had a great deal of success with Fire Departments, this is true. Our operations and commitment to the Incident Command System make the fire service natural early adopters of situational awareness platforms like Intterra. With that said, I do believe that situational awareness and common operating platforms are needed equally across first responder disciplines and beyond. I come to this conclusion based on my own firsthand experience responding to an active shooter incident. During this response, many responding units lacked access to event pre planning (gates, access, emergency plans), resource locations (vehicles, personnel, and force protection), and evolving intelligence (shooter location, hot/warm zones, staging areas). A common operating platform like Intterra could have provided near frictionless information sharing between fire, law and EMS as we flooded in from surrounding jurisdictions and counties. This information sharing would have made us both safer and more efficient.</p>

Q & A

Questions	Answers
Please clarify "Interra as Scout for State of California"	California has been working to deploy a Situational Awareness and Collaboration Tool (SCOUT) for some time. As California faces larger, more frequent and more destructive emergencies, the need for interagency collaboration and interoperability is only becoming more important. Next Generation (NG) SCOUT is a deployment of the Intterra platform as a statewide solution. A collaboration between CalOES, CalFire, FIRESCOPE, and local governments throughout California, NG SCOUT stands poised to significantly aid Californias readiness and response to all hazard incidents. Please reach out directly if you would like more info!
I did not like amount of control given to ZoneHaven overuse of my data	<p>I would like to understand more about your concern. From the community member point of view, very little information is exchanged with Zonehaven. There is no account creation involved, location sharing is decided at the device level, and there is no need to provide Zonehaven with phone number, email or any other identifying information. Zonehaven will obviously collect user information based on visits to their website in the same sense that any website does, however it is increasingly easy (and important) for individuals to employ systems to defeat tracking of website visits.</p> <p>From an agency point of view, the amount of Zonehaven asks for is substantially less than most other digital tools. For example, Zonehaven does not require or ask for computer aided dispatch (CAD) integrations, access to records management systems, or personnel info. Setting up and deploying Zonehaven mostly revolves around development of individual evacuation zones, which is typically a collaborative effort between the agency having jurisdiction and Zonehaven. Providing Zonehaven with specific GIS data can make this collaboration faster and more effective, but is not strictly required.</p> <p>Can you specify which data being shared with Zonehaven is leaving you concerned? I do believe privacy is as central to democracy as speech, and insist on it for myself and for the communities I serve.</p>

Q & A

Questions	Answers
Great presentation!	Much appreciation. I've got to say I'm very impressed by the event that was put together and the amazing people that made it happen. One of the most important things we do together is share information, and this event was a big mission accomplished from my point of view.

Q & A