
Cupertino Amateur Radio Emergency Service

Topic: Voice and Packet Field Deployment

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Event: Cupertino ARES meeting, Orientation Training

Voice and Packet Field Deployment



Topics

- *The Ideal deployment*
- What might we really expect
- What to expect for the drill

Activation...

The ideal deployment 😊

- Large earthquake with plenty of damage – all CARES members have minimal if any property damage.
- 80% of the membership immediately come up on the CARES emergency net (the rest are out of the area).
- The Preliminary Safety Assessment is performed and the City EOC has a snapshot of the city within 45 minutes.
- All CARES members volunteer for a field assignment.

Staffing...

The ideal deployment

In the EOC, we have staffed...

- Radio Room operator on the CARES message net
- Radio Room operator on the County Message net
- Shift Supervisor
- Resource Net Control Operator
- Message Net Control Operator (probably remote)

Total: 5 per shift

Staffing...

The ideal deployment

In the Field, at the (6) Arks

- Field Responder on the (voice) message net, qty 6
- Packet Radio operator, qty 6
- Other CARES members are staffing ARC ICS positions
- There is no need County MAC responders; all positions, shifts are staffed

NOTE: we would also monitor FRS for any ark-deployed teams

Total: 12 per shift

Staffing...

The ideal deployment

In the Field, Infrastructure Safety Assessment

- Field Responder on the (voice) message net, qty 3
- Buddy, qty 3

NOTE: Assumes a one-time ISA. For significant aftershocks, may need to repeat the ISA.

Total: 6, one time?

Operations...

The ideal deployment

Voice Traffic

- There is no interference from Foster City RACES (we share 147.570 with them).
- SUVs are quickly brought up to speed and successfully deployed to cover field positions.
- Everyone passes messages in 5 word blocks and there are no requests for repeats!
- Ark ICS teams understand what we do and we are integral to the success of the activation.

Packet Traffic

- Every Ark has a functioning packet station
- All packet messages get through on the first try

Activation...

What we can expect (worst case) ☹️

- Large earthquake with plenty of damage – CARES members are not exempt. We struggle with the basics of family and home recovery just like everyone else.
- Only a handful of members immediately come up on the CARES emergency net.
- The Preliminary Safety Assessment takes several hours to complete.



Staffing...

What we can expect (worst case)

In the EOC

- Only a Shift Supervisor and Radio Room operator are at the EOC for a several hours/
- Net Control Operator (probably remote) covers both the resource and message net.

In the Field

- Not all Arks have a Field Responder on the (voice) message net
- CARES members are staffing ARC ICS positions
- Packet Radio coverage is on a best-effort basis
- There are no resources available for the ISA
- There are no County MAC responders available since their own cities are just as badly hit

Operations...

What we can expect (worst case)

Voice Traffic

- Foster City RACES is booming into Cupertino on TAC 1. Even turning on tone-squelch does not work well.
- SUVs or inactive CARES members come up on our frequencies and have no clue what we are doing or how we do things.
- There are plenty of SUVs wanting to help, but not enough CARES members to get them trained up. The SUVs get frustrated.

Packet Traffic

- Every other city comes up on packet with their 3 to 6 hams (each) who are also on packet, and message throughput drops.

Operations...

What we can expect (worst case)

Others?

- ...

How do we realistically respond?

1. Staff the critical positions first – EOC, Prioritized Ark sites.
2. *“Leverage the license”* of CARES members in Ark ICS positions
 - FCC-licensed ICS staff act as control operators for a non-hams
3. Dedicated packet kits at each Ark – the plan, not there yet!
4. Field Communications handbook – used by CARES (refresher) and SUVs (training manual) for how we respond.
5. Deploy an emergency PBBS for city-wide packet traffic.
6. Understand the rules... FCC Part 97.403:
No provision of these rules prevents the use by an amateur station of any means of radiocommunication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available.

What does this mean today?

- Whenever the event occurs, we respond...
 - from where we are,
 - with what we have, and
 - with what we know.
- Your participation ensures we will have a positive impact on the City's response to an event.
- The value of Drills:
 - Improves what we have... skills, expectations
 - Improves what we know (and don't know)... procedures, environment, partners
- In short, every drill is a good drill!

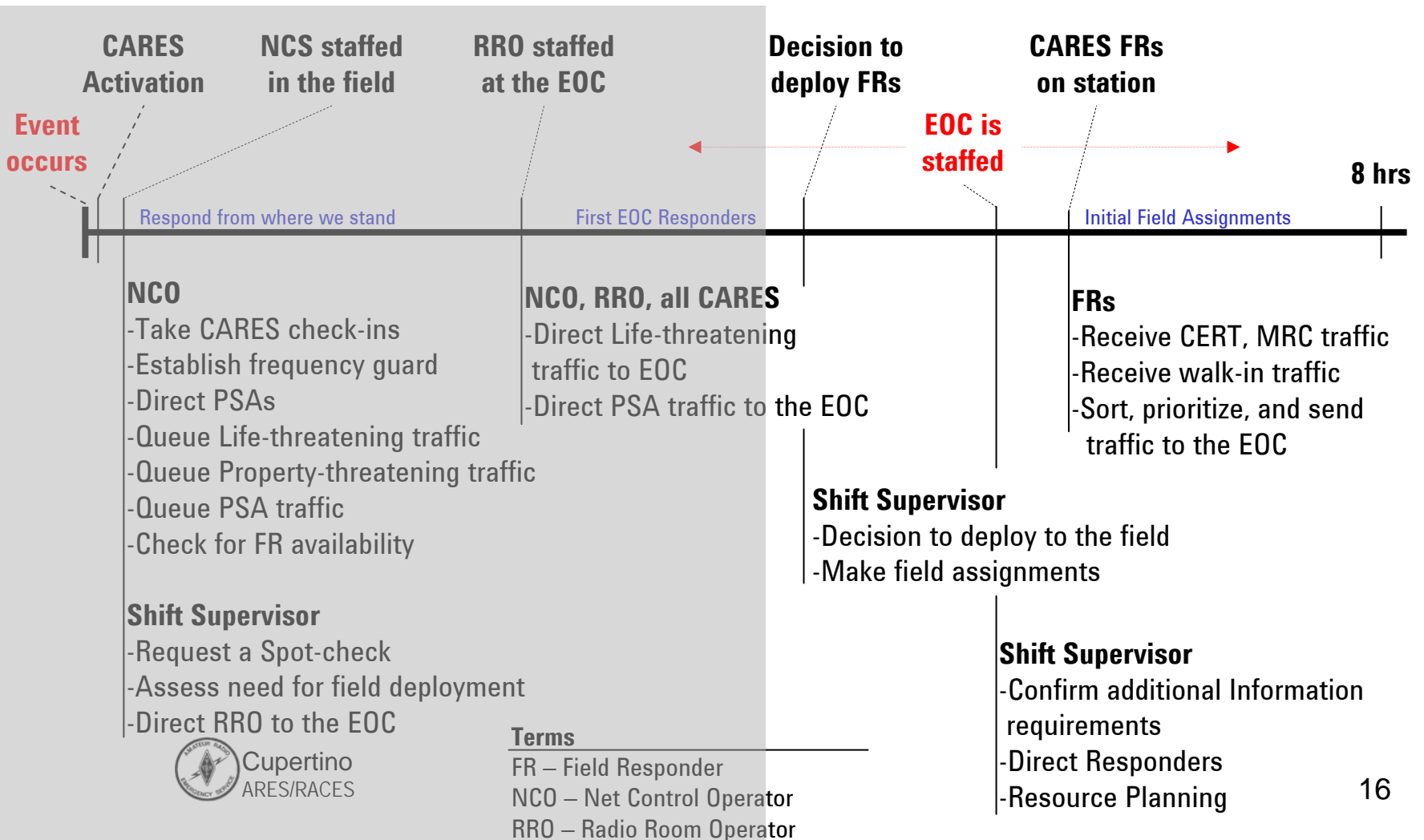
14-May, 8:00am

Where are we in the life of this event?

- 7.5 Earthquake 15 miles east of Cupertino 2 hours ago (6:00am).
- CARES members are on the Emergency Net (Tac 1).
- EOC Radio Room is staffed.
- PSAs were just completed.
- EOC polls for availability for a Voice or Packet field assignment.
- Field Assignments are about to be made.

Message Handling

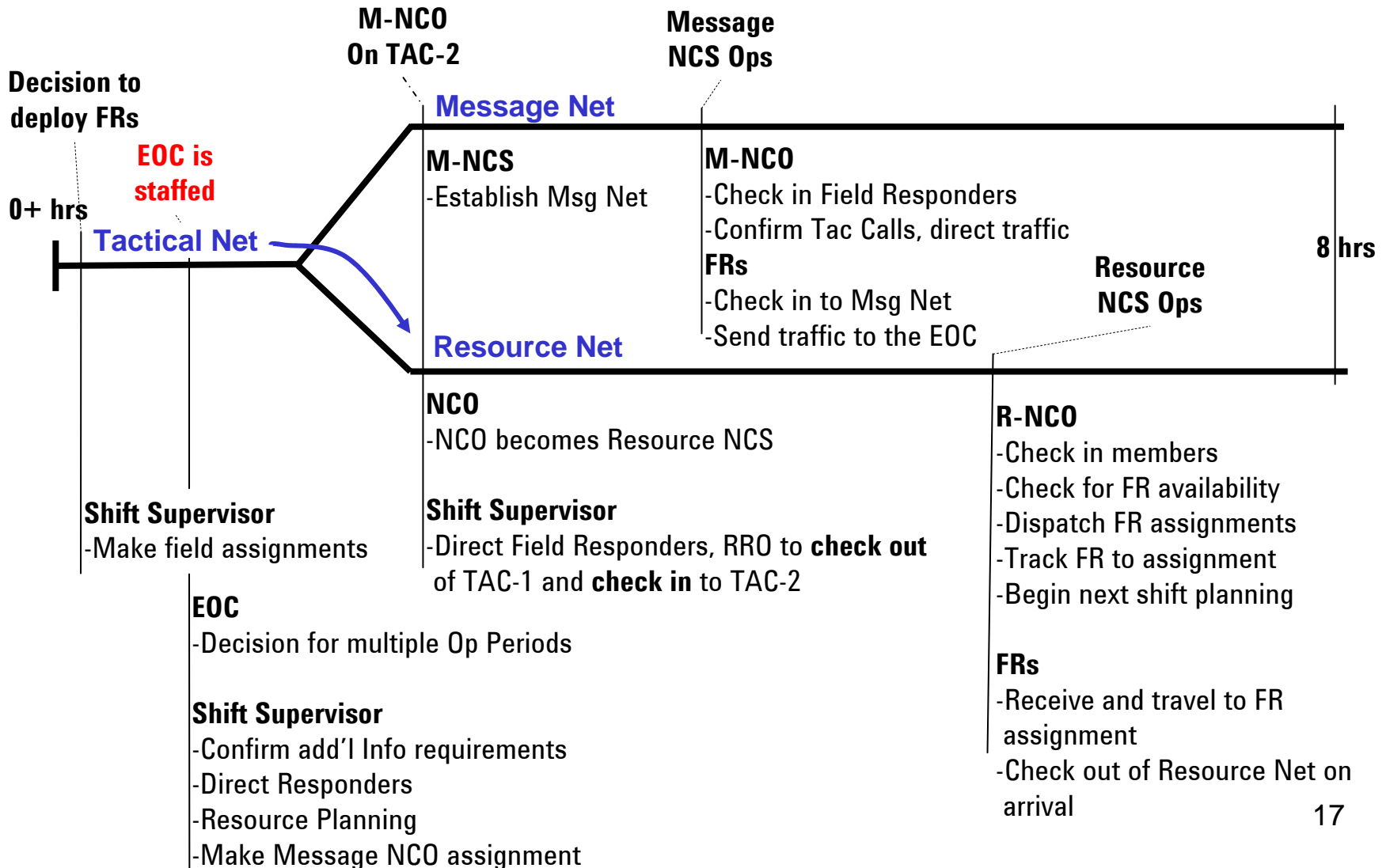
no Extended Response Ops



Cupertino
ARES/RACES

Net Transition

Extended Response Ops – Tactical, Message, and Resource Net



The Life of a Field Responder

... getting to the assignment

The Resource NCO...

- checks responders into CARES Resource Net
- determines responders' qualifications and interest for a field assignment (Cupertino/DSW card holder, CARES certifications, equipment and personal readiness, etc.)
- makes field assignment based on direction from the Shift Supervisor (Comm Team Lead)
- tracks responder from their point of origin to the assignment location

The Responder...

- on arrival at the assignment, call the Resource Net and checks out, and then checks into Message Net

Once you get there...

Message Net

- Your objective:
 - Pass the messages as requested. Some will be formatted, some will be free-form, some you will have to create yourself.
 - Respond to requests from the EOC
 - Make up the answers as appropriate
- Because this is NOT a CERT drill, we will assign 2 people to each location (buddy – 2 man rule).
- There will be voice net scenario sheets that describe things that you see or people you encounter.
 - Some will be messages from the ICS Staff to the EOC
 - Some can be messages that you can self-originate based on what you see...

The Situation (example)

Message Net



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The following is provided as general information for your consideration during this drill.

Location	Seven Springs Fire Station
General Situation	<ul style="list-style-type: none">• Power has been out since Friday 12:00pm. No estimate as to when the power will be restored.• ISO reports that several attempts to bring the Western Power Grid back on-line were unsuccessful and that the power system will continue to be unavailable for another 12 to 24 hours.• Delays in Phone service continue. Cell Phone coverage is non-existent as some cell tower battery backup systems run down.• There were two sewer spills over night. Cupertino Sanitary District (CuSD) has been operating all night to ensure their pump stations keep ahead of the demand.• 42 people died over night throughout the County due to heat stroke over the night, 3 were in Cupertino.
Weather:	Hot. The temperature at 11:30pm last night was 88 degrees. Now, it is 82, with temperatures planned to be in the low 100's.

What you “see” (example)

Message Net

The following are the things you observe on your arrival at your assignment. These are things you see and interactions that you have with the people around you.

Local Situation on your arrival... this is what you observe.	<ul style="list-style-type: none">• The fire station appears empty. No equipment or personnel are seen• A few lights are on in the building, and you can hear a generator running.
9:30am	<ul style="list-style-type: none">• Looking west into the hills you see a column of white smoke.
9:40am	<ul style="list-style-type: none">• You hear a loud crash that sounds like an auto accident. It seems to come from the direction of <u>Budd Road</u>.
9:50am	<ul style="list-style-type: none">• A person drives in and asks if there is anywhere to go to get out of the heat.
10:00am	<ul style="list-style-type: none">• Looking north from the station, you see a column of black smoke. It appears to be several blocks away.
10:15am	<ul style="list-style-type: none">• A car arrives at the station. The driver asks if there are firefighter who can help her. In the front seat her husband appears pale and sweaty.
10:30am	<ul style="list-style-type: none">• Someone drives up and asks if there is any place where he can buy gasoline.
10:45am	<ul style="list-style-type: none">• A pickup truck pulls up. The driver says his wife is on medical equipment at home. The batteries only have a few more hours. Can the city help him find a <u>generator</u>.
11:00am	<ul style="list-style-type: none">• Engine 2 returns to the station. The captain asks if you if you have heard what the weather report is.
11:15am	<ul style="list-style-type: none">• Someone drives up and asks if you know where he can buy some gasoline.
11:30am	<ul style="list-style-type: none">• Secure the drill

Cupertino Packet

Tying into the Santa Clara County packet network

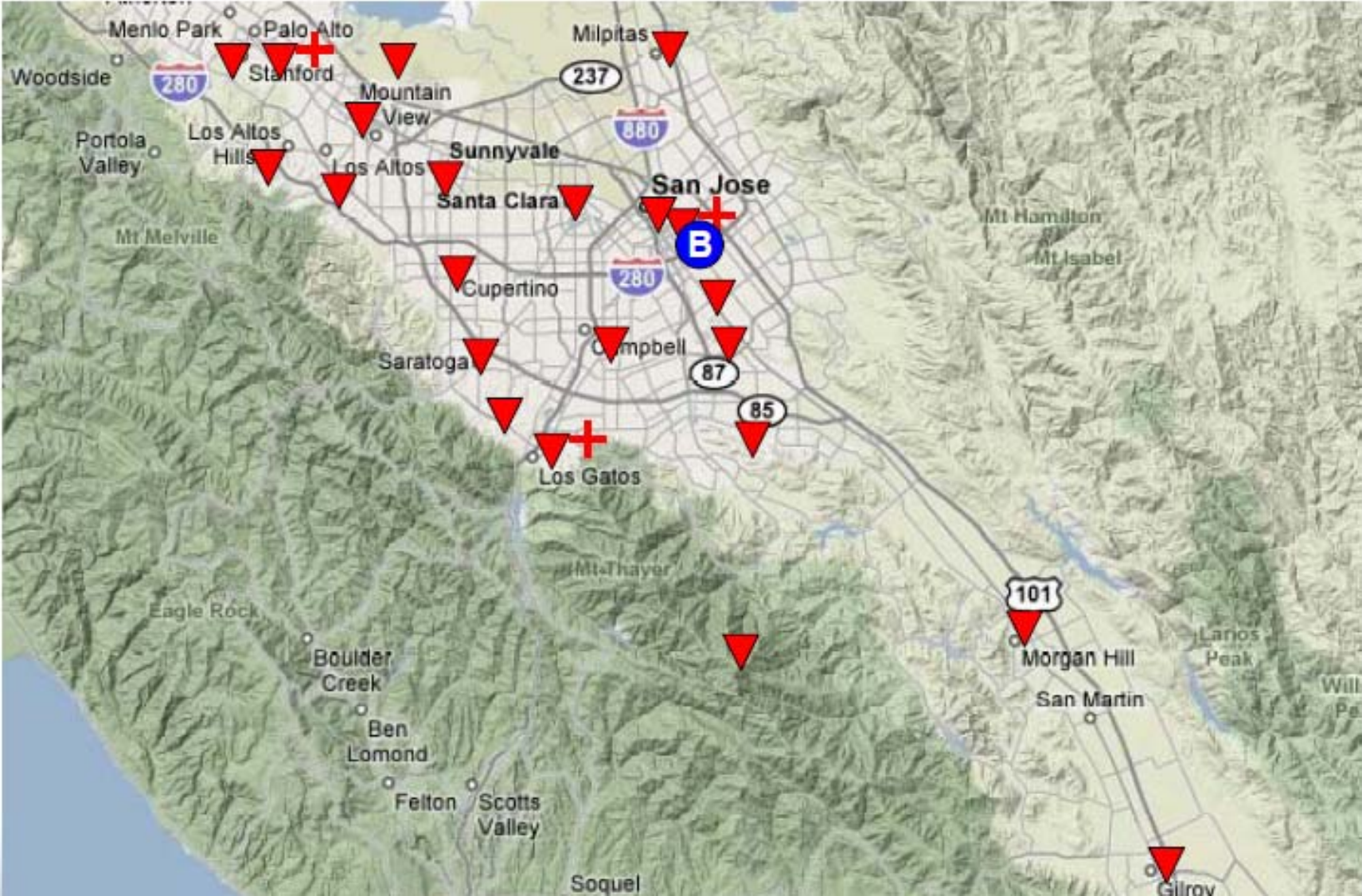
The SCCo Packet Mission:

Provide Santa Clara County emergency communications responders with a reliable, efficient, and effective digital messaging environment that meets the needs of our served agencies

- Reliable – a system that will stand the test of an infrastructure-impacting event
- Efficient – optimize the packet environment within the constraints of the technologies used
- Effective – enhance our Served Agencies ability to focus on the job of disaster stabilization and recovery

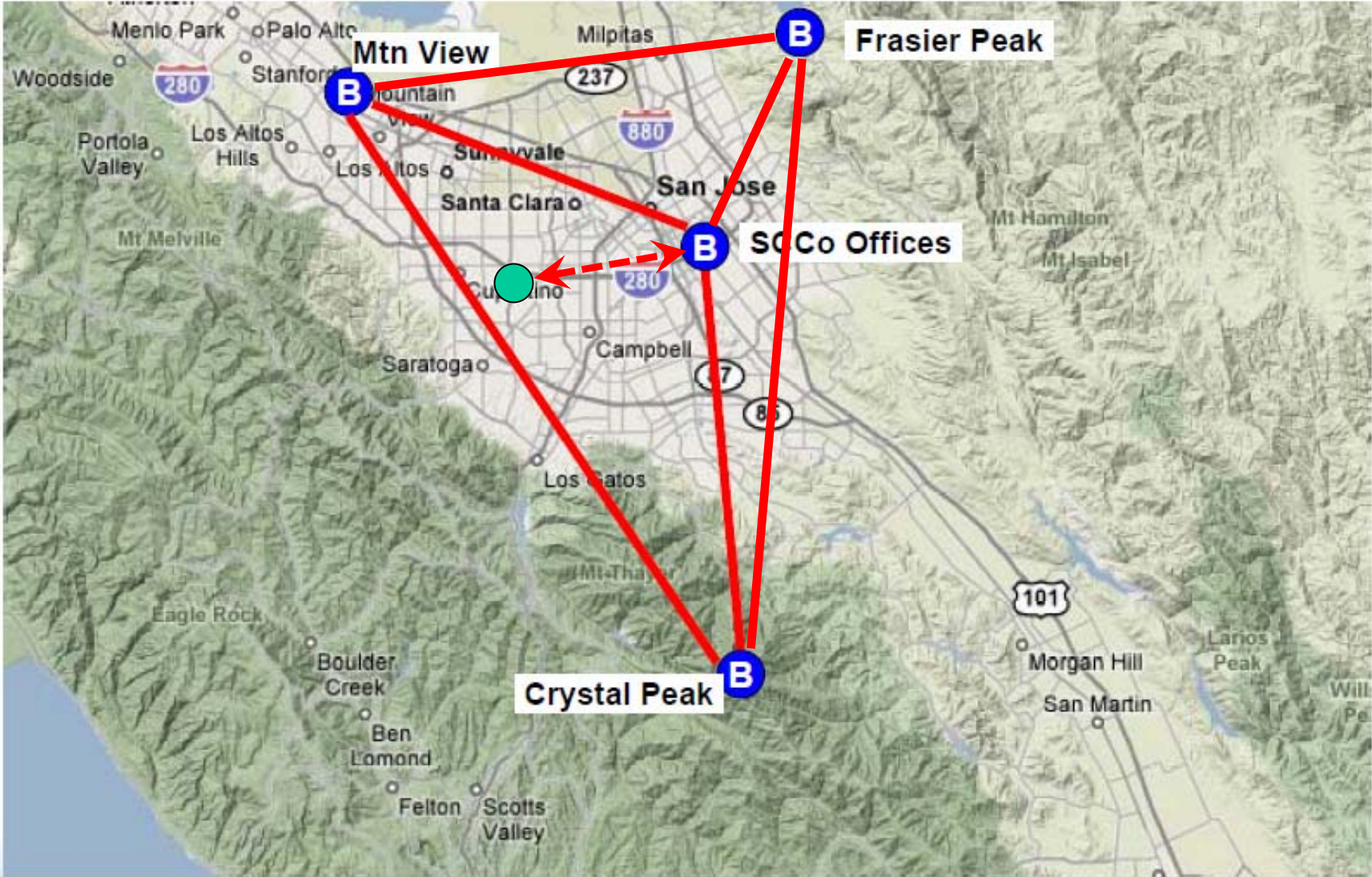
County Packet

Current participating cities & served agencies



SCC Packet

Current BBS Configuration



SCC Packet

City/Agency BBS Assignments

Node Name	SCCo Office	Crystal Peak	Mountain View	Frasier Peak
BBS	W6XSC-1	W6XSC-2	W6XSC-3	W6XSC-4
2m Freq	144.990	145.730	144.310	145.690
220 Freq	223.620	-- none --	223.540	223.560
Assigned Cities	<ol style="list-style-type: none"> 1. Campbell 2. County Comm 3. Cupertino 4. Loma Prieta 5. Los Gatos 6. Milpitas 7. Monta Sereno 8. San Jose 9. San Jose Water 10. County OES 11. SCVWD 12. Saratoga 13. Sunnyvale 	<ol style="list-style-type: none"> 1. County DEOC, all hospitals 2. Morgan Hill 3. Gilroy 4. San Benito County 5. Santa Cruz County 	<ol style="list-style-type: none"> 1. Los Altos 2. Los Altos Hills 3. Mountain View 4. NASA/AMES 5. Palo Alto 6. Stanford 	To be assigned

Rebalancing pending

CARES Tactical Calls

Packet Operations

Facilities

CUPBBF Cupertino Blackberry Farm
CUPCRE Creekside Park
CUPDPW Cupertino Corp Yard
CUPEOC Cupertino EOC
CUPJOL Jollyman Park
CUPMEM Memorial Park
CUPOPS Field Operations
CUPPOR Portal Park
CUPQLN Quinlan Community Center
CUPWVS West Valley Service Center

Public Safety

CUPCSO County Sheriffs station, west side
CUPCUF Cupertino Fire
CUPMVF Monta Vista Fire
CUPSSF Seven Springs Fire

Arks

CUPDZA DeAnza College
CUPGGA Garden Gate School
CUPHYA Hyde Middle School

CUPLSA Larsen School
CUPMVA Monta Vista
CUPSSA Seven Springs Ark

CUPSCA Stevens Canyon Ark
CUPMBA Montebello Ridge Ark

Services

CUPMED Cupertino Medical Center
CUPSJW San Jose Water in Cupertino
CUPSAN Cupertino Sanitary District

SCC Packet

Extended Addressing

Call Sign	Host.domain	2 meter	220	Location
W6XSC-1	w6xsc-1.ampr.org	144.990	223.620	Santa Clara County Offices
W6XSC-2	w6xsc-2.ampr.org	145.730	-none-	Crystal Peak (So County)
W6XSC-3	w6xsc-3.ampr.org	144.310	223.540	Mountain View
W6XSC-4	w6xsc-4.ampr.org	145.690	223.560	Frazier Peak (above Milpitas)

City	Tactical Call	Primary BBS	Secondary BBS
Cupertino	CUP	W6XSC-1	W6XSC-3

SCC Packet

Extended Addressing

Addressing messages to CARES

- All messages addressed to **any** CARES Tactical call from **anywhere** on the network automatically will be routed to W6XSC-1
 - Address TO: format: CUPEOC

Addressing messages to a user on a different BBS

- Include the domain address. Example:
 - K6FSH checks W6XSC-3 for his messages
 - If you connect to W6XSC-3, you only need to enter “K6FSH”
 - If you connect to W6XSC-1, you need to enter the address “k6fsh@w6xsc-3.ampr.org”
- When in doubt, include the domain address

Once you get there...

Packet Operations

- Your objective:
 - Pass the messages as requested. Some will be formatted, some will be free-form, some you will have to create yourself.
 - Ensure you get a delivery receipt for all messages sent.
- Because this is NOT a CERT drill, we will assign 2 people to each location (buddy – 2 man rule).
- There will be packet net scenario sheets that describe the messages that you need to pass.
- Packet Operations on:
 - Frequency: 144.990
 - BBS: W6XSC-1
 - Tactical Call: see the Packet Handbook, or pmail the EOC at “CUPEOC”
- There will be one message to be left at a different BBS and frequency. Instructions will be in the packet net scenario sheet.

The Life of a Field Responder

... returning from the assignment

The Responder...

- checks out of Message Net when relieved, and checks into Resource Net
- states his/her intentions for returning to their point of origin, standing by, or checking out completely

The Resource NCO...

- tracks responder from the assignment location back to their point of origin
- checks the responder's availability for a future shift
- checks the responder out of the CARES Resource Net when requested by the responder

CARES Field Comm Drill

Instructions: 14-May, 8:00am

Preparation

1. Forms – have the following forms or means to create them...
 - ICS 214 ... Unit Log
 - ICS 213 ... Message Forms
 - ICS 309 ... Communications Log
 - COES 105 ... PSA Log
 - COES 106 ... PSA Rollup Log

Participate

2. The CARES emergency net opens at 8:00am, 147.570.
3. State your availability to respond, indicate if you can operate packet.
4. Respond to your field assignment, and get instructions where to find the drill scenario sheets.
5. When done, we will have a debrief at City Hall; please submit all forms and logs.



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