After Action Report
2014 Saratoga Gap Fire Comm Drill

Cupertino
ARES/RACES

1. Overview

Description:	Saratoga Gap Fire Communications Drill
Event Date:	17-May-2014
Report Date:	29-June-2014
CARES Event:	CUP-14-14T
RACES Event:	CUP-14-14T
Control:	Cupertino ARES/RACES
Report Revision:	1.1, **REVIEW**
Submitted by:	Jim Oberhofer KN6PE

Requirements for Reporting
Completing an After Action Report is part of the required SEMS reporting process. The Emergency Services Act, Section 8607 (f) mandates that the Office of Emergency Services (OES) in cooperation with involved state and local agencies complete an After Action Report within 120 days after each declared disaster. Section 2450 (a) of the SEMS Regulations states that, "Any city, city and county, or county declaring a local emergency for which the governor proclaims a state of emergency, and any state agency responding to that emergency shall complete and transmit an after action report to OES within ninety (90) days of the close of the incident period as specified in the California Code of Regulations, Title 19, s2900(q)."

CARES will follow this requirement for reporting the results and recommendations for this Training Event.

i. Introduction and Background

Terms

CARES:	Cupertino Amateur Radio Emergency Service, ARES/RACES organization supporting the City of Cupertino; provides backup and emergency communications to the City.
CCC	Cupertino Citizen Corps; the Cupertino OES designation for the volunteer pool made up of members from Cupertino ARES, CERT, and MRC.
DOC	Departmental Operations Center.
EOC	Emergency Operations Center; the central command and control facility responsible for carrying out the principles of emergency management, or disaster management functions at a strategic level in an emergency situation, and ensuring the continuity of operation of the City.

Introduction
The City of Cupertino's disaster preparedness program involves iterative cycles of outreach, planning, capability development, training, exercising, evaluation, and improvement. Successful exercises lead to process improvements. This report is intended to assist the City to move toward preparedness proficiency by analyzing exercise results and:

- identifying strengths to be maintained and built upon,
- identifying potential areas for further improvement, and
- recommending exercise follow-up actions.

The purpose of this exercise was to provide CARES with the opportunity to practice field-based communications and message handling through a field deployment, using a wildland fire threat to the City as the enabling scenario. The expected outcome was to identify additional training, planning and supply needs. The CARES response included a full EOC Comm Van, Field, and DOC Deployment.

The City of Cupertino authorized the drill under training activation number CUP-14-14T. This report covers the activities undertaken primarily by responding CARES members and the findings from that drill.

ii. Type / Location of Event / Drill / Exercise

Event Type: City of Cupertino, CARES Training Activation
Event Identifier: CUP-14-14T
Event Name: Saratoga Gap Fire Communications Drill
Location: City of Cupertino

iii. Description of the Event / Drill / Exercise

CARES drill objectives:

1. Exercise resource net concepts and procedures.
2. Exercise message net concepts and procedures.
3. Exercise emergency voice and packet communications message handling procedures, all message priorities between deployed field units and the EOC/Comm Van.
4. Exercise Comm Van to DOC information handoffs.
5. Manage information using OES documentation procedures and tracking methods.

Event resources came from the following organizations:

1. Cupertino ARES/RACES: Responsible for responding to the CRES Activation, checking into the CARES emergency net, field deployment, and transmitting observations and reports to the Cupertino EOC Staff. Sixteen (16) CARES members participated in the test.

Name	Call Sign	Assignment
Chris Capener	AI6CC	Communications Lead (Shift Supervisor)
Mark Taylor	AG6CL	Ember Watch, Lindy Lane
Judy Halchin	KK6EWQ	Ember Watch, Lindy Lane
Steve Hill	KK6FPI	Base Camp
Allan Wu	KK6FSV	Ember Watch, De Anza Parking
Sunny He	AG6GR	Ember Watch, Cupertino HS Bleachers
Dick Sherman	N6IK	Ember Watch, De Anza Parking
Darryl Presley	KI6LDM	Radio Room Message Operator
Jim Oberhofer	KN6PE	Message Net Control Operator
Janet Motha	KF6PUQ	Base Camp
Ken Ericksen	KI6SYY	EOC Staff, Simulator
Fari Aberg	KF6UVS	Ember Watch, Cupertino HS Bleachers
Skip Stevens	WA6VFD	Blackberry Farm
Bob Cascone	KJ6WBF	EOC Staff, DOC
Gerd Goette	KI6WEJ	EOC Staff, DOC
Lloyd Dickman	AF6XM	Blackberry Farm

2. Others: The following individuals were present to observe the exercise.

Name	Call Sign	Position, Organization
Ken Foot	KR6CO	Observer: Senior Planner, Santa Clara County OES, WebEOC Eval.
Dana Reed	no call sign	Observer: Director, Santa Clara County OES

The drill was initiated with a series of pre-defined emails describing the simulated conditions leading up to the event. Additionally, a Cupertino Alert System (CAS) notification was issued to all CARES members with instructions on how and where to respond.

Performance against Objectives:

1. Exercise resource net concepts and procedures

Results: **SATISFACTORY**. CARES members were directed to check into the CARES Emergency Resource Net when traveling from (i) their home to the EOC, (ii) EOC to their assignment, and (iii) their assignment back to the EOC. The net accounted for all resources in transit at all times and followed the Santa Clara County resource net protocol.

2. Exercise message net concepts and procedures

Results: **SATISFACTORY**. The CARES Net Control Operation procedures were followed. While all field responders came up on the Message Net, some did not check into the net on arriving at their assignment.

3. Exercise emergency voice and packet communications message handling procedures, all message priorities between deployed field units and the EOC/Comm Van

Results for voice messages: **SATISFACTORY**. Forty-five (45) messages were passed between the Field and the EOC over a 2 hour period.

1. Teams of 2 CARES members were deployed in accordance of the City's 2-man rule policy. This was an artificiality for some of the field assignments where, in reality, a CARES member may have been in the presence of other responders or at a staffed assignment.
2. All participants passed voice traffic in reasonable message transmissions with very few requested repeats.
3. The some field scenarios called for 3rd party message traffic (formal) to be passed. These messages were passed correctly and efficiently.
4. The field scenarios also described many observations that a field responder could see. Observational messages (informal) were developed and passed efficiently.

Results for packet messages: **INCONCLUSIVE**. Packet was not deployed as part of this exercise due to the participation level and number of field teams that were deployed.

4. Exercise Comm Van to DOC information handoffs.

Results: **SATISFACTORY**. Voice communications was established between the Comm Van and the DOC for coordination and information handoffs.

5. Manage information using OES documentation procedures and tracking methods

Results: **SATISFACTORY**. Good details were provided on submitted EOC and Field forms.
See form specimens in the Section ***viii Logs, Attachments***

The drill ran for 3.5 hours.

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iv. Chronological Summary of Event / Drill / Exercise

CARES ran this exercise under activation number CUP-14-14T. The following is a summary of the activities as reported on ICS-214s that were submitted after the event. All times listed here are in local time. The following is a very high level summary.

Time	Description, Notes, Comments
0725	Comm Van at City Hall (AI6CC)
0734	CARES Emergency Resource Net was activated, TAC-1 (147.570)
0800	Resource Net secured; briefing for responders at the EOC.
0830	All field assignments were made. Radio Room Operator assignment made. Activated the Emergency Net, TAC-1 (147.570)

Time	Description, Notes, Comments
0834	Resource Net Operational; tracking field responders to their field assignments; TAC-1 (147.570)
0853	Activated the message net; TAC-2 (146.460)
0900	IP link and VoIP telephone connectivity established between Comm Van and DOC
0935	Shifted message net from TAC-2 to TAC-3 (440.150+, W6TDM Repeater) due to poor simplex coverage with 2 field stations.
0930	Health and Welfare Check, all ok
1000	Health and Welfare Check, all ok
1025	Broadcast message to all field stations, used a pacing station. Confirmation check also used as the Health and Welfare Check, all ok.
1056	Started recall of field responders
1111	Last drill message sent. Secured the Message Net.
1132	All field responders back at the EOC; Full debrief at City Hall
1230	Finished debrief
1326	Comm Van back at City Corp Yard

v. Response at SEMS Levels (as appropriate):
Include a summary, conclusions, the field response, and other local, operational area, regional, state or federal response.

Participating CARES members responded from their home to the EOC for the event briefing and assignments. The following specifics are noted here:

- The Two-Man Rule (buddy system) was in effect for all field responders.
- Five field teams were deployed, each passing up to to 8 observational or 3rd party messages.

EOC engagement was simulated by the DOC.

No other organizations or entities participated in this drill.

vi. Interacting Systems, Agencies, and Programs:
Include mutual aid systems (law enforcement, fire/rescue, medical, etc.); cooperating entities (utilities, American Red Cross, Sheriff's Office, City Departments, etc.); telecommunications and media interactions.

Radio Systems
TAC-2. We experienced interference on TAC-2 (146.460) from County Fire Dispatch. Whereas we believed the relocation out of the City Hall radio room to the Comm Van would alleviate this situation, this has not been the case.

TAC-3 / W6TDM repeater. Because of the TAC-1 and TAC-2 intermod and poor TAC-1 coverage at distant stations like Monta Vista Fire Station, CARES moved the Message Net to the W6TDM repeater. The repeater coverage was reported as very good for all participating stations.

Unincorporated Area coverage. One member located in the vicinity of Stevens Canyon Road was not able to make direct radio contact with the repeater. With the successful test of a cross-band repeater during the October 2013 drill, CARES needs to evaluate whether cross-band repeater at some high level on the western ridge will extend our coverage to remote areas.

VanNet to DOC Connectivity
With the inception of the DOC concept and the deployment of the Comm Van, better information hand-offs and connectivity between these 2 operating positions have been a goal for the last 2 years. With this drill, we took the first step toward meeting this goal that included the following:

1. Extend the Comm Van LAN into the EOC using a 5GHz wifi link.
2. Installed a Linux server that hosted a SIP Server.

3. Deployed a PBX system to host a 3 station VoIP phone system with locations at the DOC, Comm Lead (Van), and Situation Status (outside the Van) positions.

Having direct telephone contact between the DOC and the Communications Lead was viewed as a huge leap forward in closing the gap between the people who collect the information and those who need the information. While this was a good first step, there are other applications that we want to deploy before we can say this item is done, including enhanced message handling, Chat, File Sharing, and linkage to the City network.

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vii. Improvements, Conclusions, Recommendations:
As applicable, include a description of actions taken, assignments, associated costs or budget, timetable for completion or correction, and follow-up responsibility.

The following is a summary of the key Conclusions and Recommendations.

What worked

- Communications was easier with the repeater.
- Encounters with the community were positive.
- All three Ember Watch locations offered reasonable views of the city.
- We quickly got into the rhythm of message handling.
- Excellent connectivity between the van and DOC. Impressive amount of information was passed.

What didn't work / needs improvement

- At Monta Vista Park, plenty of RVs impacted reception until the field unit moved away from them.
- Availability of hardhats.
- No contract with a remote member who tried to check in. This would have been a good opportunity to deploy a cross-band repeater.
- Could have used a pad of message forms.
- For message time stamps or event references, need to use absolute time (e.g.: 9:47 AM) vs relative time (e.g.: ½ an hour ago).
- Need clocks at each operating station in the van.
- With progress made with Van/DOC connectivity, need to work on message content; i.e.: what information is relevant for the van only vs. what needs to be passed to the DOC?

Recommendations

<u>Community Outreach</u>

One team encountered neighbors who were suspicious of their presence until they understood the drill, and then they were relieved and thankful for us being there.

1. Develop an informational post card that can be handed out explaining who we are, what we do, and where to go for more information.

<u>Cupertino TIS Intermod</u>

Whereas we have experienced interference from County Fire on TAC-1 (154.250 minus 4th harmonic of Cupertino TIS 1.670 = 147.570), we experienced the same on CARES TAC-2 (146.460). Whereas we can continue to move the van further away from City Hall to determine the point where there is no interference, we need a different approach to resolve this issue.

2. Develop a plan to characterize the strength of the harmonic components at incremental distances away from the EOC. Take measurements and determine the distance where interference is no longer present. Determine the location where the Comm Van would be placed for optimal radio performance.

<u>Message Passing Practice</u>

Message handling by the participants was every effective. However, we do not do this often enough to give the membership sufficient practice.

3. Schedule a series of message simulations that benefit both the NCS/RRO side and the message origination side of the message exchange.
4. Include more repeater practice to get familiar with the squelch tail (when the last person is done), and key-up procedures (ensure time for the repeater to fully come on line).
5. Develop a standard message form for field and EOC deployment. Consider a 8.5" x 5.5' pad (half pages).

DOC Operations

The DOC was able to receive 45 messages from the NCO in the Comm Van in a little over 2 hours, a very good result. However, DOC operations should be optimized to quickly and efficiently extract the relevant information from the messages, and to record and visualize e.g. for presentation to the EOC.

6. Establish procedures to enter relevant information into WebEOC.
7. Select a mapping application, possibly the one offered by WebEOC, for visualization of field responder locations and incidents.

Wildland Fire Scenario Follow-up

1. Practical Lookout locations The responders assigned as ember watches did report that the locations worked well. However, there are other locations in Cupertino that may provide a better view of the city. Investigate these options:

8. Vista Arroyo Court, Saratoga. Excellent overlook of the city from the south looking north. This was declined as an option since it will require CARES responders to travel outside of the city.
9. City Center Twin Towers. Stevens Creek and DeAnza. These are the tallest buildings in Cupertino. With the City's endorsement, approach the Building Manager on the feasibility to get access to a south-facing high floor in the event of an emergency.
10. Cypress Hotel, Stevens Creek and DeAnza. This is the next tallest south-facing building in Cupertino. With the City's endorsement, approach the Hotel Manager on the feasibility to get access to a south-facing room on a high floor in the event of an emergency.

2. Situation Status. The current CCC SitStat form COES-106 is focused on the PSA roll-up. In the event that this scenario actually occurred, we do not have a form for the kind of data that may be needed.

11. Evaluate the FEMA ICS-209 Situation Report for relevance to CCC and this event, or develop our own.

3. EOP Annex, Wildland Fire. Similar to the Dam Plan, a formal documented response description may be warranted to address such a scenario.

12. Present this need to the Disaster Council for their support for such an Annex.
13. If approved, work with the appropriate city department staff and/or agency to contribute to develop the annex.

Marginal radio coverage of some areas

The nature of this scenario requires positive contact with Amateur Radio Resources in unincorporated areas within Cupertino's jurisdiction. Because we confirmed that the repeater will not address this situation, the following action should be taken:

14. Cross-Band Repeater. Determine suitable locations where a CARES-member or portable cross-band repeater can be deployed, such as in the vicinity of Regnart Road, or Montebello Road. Develop a coverage map for these locations.

VanNet & DOC Connectivity

With the first deployment of VanNet confirmed, the following are the next steps to be developed.

Phase 2

1. Add Chat. This was called out as part of the CCC Technology Roadmap and adds Instant Messaging to more stations. Peer to Peer chat (Pidgen and Bonjour) was confirmed a year ago. Investigate the a server-based solution as well.

2. File Sharing. Another CCC Technology Roadmap component. A file share can host Cupertino, EOC, and CCC documentation, as well as passing larger files for transmission as required. Options include: use Samba on the Van's RPi Linux server installed, or nominate a PC to share a directory.

Phase 3

3. VanNet / CityNet integration. The Phase 1 and 2 implementations uses on the Van's router for DHCP and wireless services, meaning that it does not have Internet access. This step investigates how the Van would connect to the CityNet in a seamless manner. Work with City IT and Networking to make this happen.

Phase 4

4. Message Management. The ultimate goal is for the DOC to create and deliver a message to and a reply back from the Comm Van for passing by voice and packet. With the network in place, evaluate the long-term means for message management.

Acquisition List

The following parts and supplies should be purchased:

1. 17" tool box for field phones, remote nanobridge.
2. Velco straps (instead of tie-wraps) to attach nanobridge to the van.
3. Cable hooks; to coiled LAN cables below position #1.
4. Power Strip, to be mounted in the printer box.
5. Minimum 2 folding chairs for exterior workstation.

Incidental Action Items, To-Dos

1. Configure RPi Linux server to static IP.
2. Reset all phones to point to the new SIP server (RPi).
3. Complete Access Point CAT5/Power wiring.
4. Remount RPi with screws.

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viii. Logs, attachments:

As applicable, include a description of actions taken, assignments, associated costs or budget, timetable for completion or correction, and follow-up responsibility.

The following reports are attached:

1. ICS 214 Event Unit Log, Comm Lead
2. COES 201 Net Control Station Log

End of Report.