

# After Action Report

## Communications Outage Exercise



Cupertino  
ARES/RACES

### 1. Overview

**Description:** Communications Outage  
**Event Date:** 21-Nov-2015  
**Report Date:** 4-Dec-2015  
**CARES Event:** CUP-15-26T  
**RACES Event:** CUP-15-26T  
**Control:** Cupertino ARES/RACES  
**Report Revision:** 1.0, **FINAL**  
**Submitted by:** Jim Oberhofer KN6PE

### Requirements for Reporting<sup>1</sup>

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.

**CCC:** Cupertino Citizen Corps; the City's umbrella organization for CARES, CERT, and MRC.

**CERT:** Community Emergency Response Team; trained members who can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help.

**CuSD:** Cupertino Sanitary District, a CARES Served Agency.

**DOC:** Department Operations Center. Manages the overall field CCC deployment; aggregates data to be passed to the EOC. Advises EOC Staff on CCC capabilities, readiness, and activities.

**IP:** Improvement Plan; includes the key recommendations and corrective actions to be taken as a result of this exercise.

**ISA:** Infrastructure Safety Assessment, a CARES Process. The focus for this drill.

<sup>1</sup> <http://www.caloes.ca.gov/cal-oes-divisions/planning-preparedness/after-action-corrective-action-reporting>;  
<http://temp.caloes.ca.gov/PlanningPreparednessSite/Documents/01%202450.pdf>

|                |                                                                                                                                                                                                                                                                                                                                        |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MRC:           | Medical Reserve Corps; volunteers who are practicing or and retired physicians, nurses and other health professionals, as well as other citizens interested in health issues, who are eager to volunteer to address their community's ongoing public health needs and to help their community during large-scale emergency situations. |
| NCO/NCS:       | Net Control Operator / Net Control Station. The control function that ensures the efficient passing of messages between stations on the frequency.                                                                                                                                                                                     |
| PSA:           | Preliminary Safety Assessment, a CARES Process.                                                                                                                                                                                                                                                                                        |
| RRO:           | Radio Room Operator. The position that originates and receives messages for exchange with field responders.                                                                                                                                                                                                                            |
| SCVWD:         | Santa Clara Valley Water District                                                                                                                                                                                                                                                                                                      |
| SJWC:          | San Jose Water Company, a CARES Served Agency.                                                                                                                                                                                                                                                                                         |
| Served Agency: | An agency, special district, or other recognized organization with which CARES has a signed Memorandum of Understanding to assist in time of need.                                                                                                                                                                                     |

### Introduction

The City of Cupertino supports testing the community emergency response plans and ongoing disaster preparedness readiness as an essential component to a successful community disaster response. One aspect of disaster preparedness is the on-going evaluation of risks that the City may encounter and plans and processes that are developed to respond to and mitigate the risks. This report describes the exercise results in response to such a risk.

In 2015, the *Cupertino Communications Risk Report*<sup>2</sup> was developed and delivered to the City that outlined several risks to city communications, one being the loss of telephone service and the inability for city residences to dial County 911 Emergency Services. While the probability of events leading to such a situation is low, it is a plausible risk that warrants a plan on how to deal with it in the event it does occur.

The purpose of the Communication Outage Exercise was to test some of the initial ideas and processes on how Cupertino Citizen Corps and the City's Public Safety partners would respond and handle an extended loss of two-way public communication services including commercial telephone service (POTS), cellular phone, and/or Internet connection to public safety services.

The City of Cupertino authorized this drill with training activation number CUP-15-26T. This report covers the activities undertaken by CARES and the findings from that drill.

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## ii. Type / Location of Event / Drill / Exercise

Event Type: City of Cupertino, CARES Training Activation  
 Event Identifier: CUP-15-26T  
 Event Name: Communications Outage  
 Location: City of Cupertino

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## iii. Description of the Event / Drill / Exercise

CARES drill objectives:

1. Exercise message passing and message net procedures.
2. Exercise the amateur radio equipment and procedures at the SCC Fire Stations located in the City.
3. Exercise full end to end (Field to Dispatch) emergency message delivery.
4. Exercise Comm Van to DOC information handoffs.
5. Manage information using OES documentation procedures and tracking methods.
6. Run the EOC on emergency generator power for 4 hours.

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<sup>2</sup> <http://www.cupertinoares.org/docs/CupertinoCommRiskReport.pdf>

Event resources came from the following organizations:

1. Cupertino ARES/RACES: Responsible for staffing the EOC, DOC, Communications Van, and Field Responder locations. Twenty-one (21) CARES members participated in the exercise.
2. CERT: Responsible for staffing the Field Responder locations. Seven (7) CERT members from Cupertino, San Jose, and Campbell participated in the exercise.

**Table of Volunteer Responders**

| <b>Name</b>          | <b>Call Sign</b> | <b>Assignment</b>                   | <b>Organization</b> |
|----------------------|------------------|-------------------------------------|---------------------|
| Blaine, Dick         | K6ODK            | Field Responder, Seven Springs      | CARES               |
| Blaine, Sharon       | --               | Field Responder, Seven Springs      | CERT                |
| Bluhm-Stieber, Hella | KJ6OHF           | Field Responder, Hyde Middle School | CARES               |
| Capener, Chris       | AI6CC            | Field Responder, Senior Center      | CARES               |
| Cascone, Bob         | KJ6WBF           | DOC                                 | CCC                 |
| Dreyer, Stacia       | --               | Field Responder, Sears              | CERT (San Jose)     |
| Finnegan, Kenneth    | K6KWF            | ISA Rover Team 1                    | CARES               |
| Frieson, Doug        | KJ6LLY           | Field Responder, Post Office        | CARES               |
| Goette, Gerd         | KI6WEJ           | DOC                                 | CCC                 |
| Gontang, Allan       | KD6QPP           | Shift Supervisor                    | CARES               |
| Gyger, Walt          | K6WGY            | Field Responder, Main Street        | CARES               |
| Halchin, Judy        | KK6EWQ           | Message Net Control Operator        | CARES               |
| Hill, Steve          | KK6FPI           | 911 Net Control Operator            | CARES               |
| Kagawa, Masa         | NW6UP            | Field Responder, City Center        | CARES               |
| Kaplan, Gale         | --               | Field Responder, Monta Vista Ark    | CERT (Campbell)     |
| Klein, Bill          | KD6TQJ           | Radio Room Operator                 | CARES               |
| Levine, Jeff         | --               | Field Responder, Main Street        | CERT (San Jose)     |
| Levine, Rick         | KK6WHJ           | Message Net Control Support         | CARES               |
| Levine, Sue          | KK6WHI           | Field Responder, Monta Vista Ark    | CARES               |
| N, Anasago           | --               | Field Responder, Post Office        | CERT                |
| Oberhofer, Jim       | KN6PE            | Event Monitor                       | CARES               |
| Sherman, Dick        | N6IK             | Field Responder, Cupertino Fire     | CARES               |
| Steiber, Marcel      | AI6MS            | ISA Rover Team 1                    | CARES               |
| Stephens, Skip       | WA6VFD           | Field Responder, Cupertino Fire     | CARES               |
| Tang, Grace          | --               | Field Responder, City Center        | CERT                |
| Tanner, Brian        | AG6GX            | Field Responder, Sears              | CARES               |
| Yang, Judy           | KI6WEF           | Field Responder, Hyde Middle School | CARES               |
| Yon, Dean            | --               | Field Responder, Senior Center      | CERT                |

3. City Staff: Additionally, City Staff members were present and responsible for the following:
  - a. EOC Simulation. One staff member simulated all EOC interactions.
  - b. Public Works. One staff member managed the emergency generator operations.
  - c. Public Affairs. Two staff members were on hand to monitor IT and City Channel communication systems during emergency generator operations.

The drill was initiated as a pre-announced event with Citizens Corps members knowing to respond to the EOC at the appointed time.

#### **Performance against Objectives:**

##### **1. Exercise message passing and message net procedures.**

Results: **SATISFACTORY.** Message Net Control procedures were in place and handled 52 messages passed over 2 hours: 26 of the messages were addressed to the EOC, the other 26 were passed on the 911 Net.

On average, it took about 2 minutes to pass each message over the message net. However, the scripted rate of message origination was about a message every 1.5 minutes. As a result, a backlog of messages developed and

message queuing was put in place. Additionally, with message hand-offs intended for both the Radio Room on the main message net and the 911 Net on a different frequency, a message handoff process modification was made.

2. Exercise the amateur radio equipment and procedures at the SCC Fire Stations located in the City.

Results: **SATISFACTORY.** SCC Fire Station communications equipment packs were on line in a limited basis at 2 of the 3 city stations. For these 2 stations, the equipment used to support the drill worked as planned with good signal reports from the EOC and the stations. See *Section vi Interacting Systems* for a specific reported problem.

3. Exercise full end to end (Field to Dispatch) emergency message delivery.

Results: **SATISFACTORY.** Due to drill preparation time constraints, CARES simulated placing a 911 NCS Operator at County Comm. One of the key elements of this exercise was the receipt of a message from a community member, recognizing it to be a 911 message, and then interacting with the NCS to be directed to the 911 Net for passing. With the W6TDM repeater assigned as the 911 Net, all field stations successfully passed at least 2 simulated 911 messages.

4. Exercise Comm Van to DOC information handoffs.

Results: **UNSATISFACTORY.** The Van-to-DOC network was brought up and made operational. While telephony service was established between all available VoIP phone locations, this did not exercise the full capability of what the network can support. Information management still needs attention. There is no defined process for moving messages and data between the EOC and the Comm Van that takes advantage of the network. This needs to be a priority for CARES and the DOC.

5. Manage information using OES documentation procedures and tracking methods.

Results: **SATISFACTORY.** All appropriate ICS and Cupertino OES standard documents were used. One of the enablers of this result was the explicit check for forms availability with field responders before their deployment. ICS-213, ICS-214, and ICS-309 forms were distributed to anyone who did not have a copy of the forms.

6. Run the EOC on emergency generator power for 4 hours.

Results: **SATISFACTORY.** The City Hall backup generator ran successfully from 9:00am to 11:30am without issues. Public Works, City Channel, and City IT reported all conditions normal for their respective systems. Operation of the generator appeared normal and was terminated after 2-1/2 hours consistent with meeting the exercise objectives.

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**iv. Chronological Summary of Event / Drill / Exercise**

The following is a very high level summary of the main activities that were submitted after the test. All times listed here are in local time.

| Time | Description, Notes, Comments                                                 |
|------|------------------------------------------------------------------------------|
| 0650 | Retrieve the Comm Van, Drive to City Hall.                                   |
| 0715 | Comm Van at City Hall.                                                       |
| 0730 | CARES Emergency Net was activated, monitoring.                               |
| 0800 | Field responders at City Hall, start exercise briefing, assignment handouts. |
| 0845 | Message Net on CARES TAC-2. 911 Net on CARES TAC 3                           |
| 0853 | City Center on station                                                       |
| 0856 | Sears on station                                                             |
| 0858 | Cupertino Fire on station                                                    |
| 0901 | Seven Springs Fire on station                                                |
| 0903 | Post Office on station                                                       |
| 0904 | Senior Center on station                                                     |
| 0906 | Hyde MS on station                                                           |
| 0910 | Main Street on station                                                       |
| 0912 | First Message passed on the 911 Net                                          |
| 0916 | MV ARK reported coverage problems; retrieving a Mag Mount from Senior Center |
| 0917 | First Message to EOC                                                         |
| 1100 | Field Operations secured, all stations recalled to the EOC                   |

| Time | Description, Notes, Comments                |
|------|---------------------------------------------|
| 1130 | Drill concluded; Full debrief at City Hall. |
| 1250 | Completed Debrief                           |

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**v. Response at SEMS Levels (as appropriate):**

Include a summary, conclusions, the field response, and other local, operational area, regional, state or federal response.

**Interaction with Santa Clara County Comm**

The 911 NCS operations will ultimately require RACES MACs to deploy and staff an amateur radio system at County Comm. This drill simulated that the 911 NCS was co-located at County Comm. No actual hand-off of 911 messages were passed to County Comm dispatch for their action (simulated or otherwise).

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**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.

**Field Operations Teams**

Nine Field Operations teams were deployed for this drill. These teams were made up of a CARES and CERT member. This partnership allowed us to deploy more field teams with communications capability than if we had to double-up with communicators. The role of each member was as follows:

1. CARES: radio facing; maintained radio contact with the EOC; passed and retrieved all messages; made all required communications log entries as necessary.
2. CERT: community facing. Was the first point of contact with an approaching community member to take their report; engaged the public as necessary. SIMULATED community request scenarios were scripted and the CERT team member evaluated the immediacy of the request and determined the essential elements of the request to be conveyed by formal radio messages to SIMULATED served public safety agencies.

This pairing of CARES and CERT allowed each individual to bring specific strengths and skills to the assignment. In some cases, in-field conversations were held on clarifying the roles that each performed.

**911 NCS Process**

The process for passing traffic on the 911 net was a prototype at best given the limited time to define the process. This 911 NCS process must be fully developed, reviewed, tested and evaluated before final adoption. Not too much of a surprise, the performance against a preliminary list of critical success factors points to plenty of room for improvement. For this drill, the following was concluded:

1. Field Operations Teams can differentiate a 911 request from a general request.  
**Results:** Inconclusive for this drill; scripted scenarios were presented to the Field Operations teams with guidance as to whether the message should go to the 911 net or on the city's message net
2. Field Operations Teams can distill community requests into succinct messages to be passed on the 911 net.  
**Results:** Insufficient training was provided on how to glean the relevant elements of the request and develop an effective message that can result in a successful Public Safety dispatch event. Transmitted messages were at different levels of consistency.
3. Field Operations Teams correctly interacted with the Message Net and were handed off to the 911 net.  
**Results:** Very Good. The use of a repeater for the 911 net ensured there was a common understanding on the state of the 911 traffic being sent at any given time. The passing of SIMULATED non-911 messages on the Message Net tended to bog down the identification and redirection of higher priority 911 traffic by the Message Net NCS.
4. 911 NCS received and recorded all incoming 911 requests.  
**Results:** Insufficient training was provided on the use of the County Comm "manual mode" data collection form. This process needs input from County Comm to ensure we get the data correct the first time. However, for this drill, one NCS operator was able to manage the message queue and received 26 911 messages.

5. 911 NCS handed off all incoming 911 requests to County Comm for dispatch.  
**Results:** Out of scope for this drill. This aspect of the process will be tested once the process is defined and validated.

**Communications Systems**

1. CARES activated the message net on VHF TAC-2. It was apparent that Comm Van Position 3 had radio receiver problems when compared with Comm Van Position 1 (both positions have their antennas on the same mast). All stations could be heard by Position 1, but not by Position 3.
2. The UHF repeater was used for the 911 net. Coverage and use was reported as satisfactory.
3. CARES negotiated for access to the Sunnyvale ARES K6SNY repeater as the CARES Command channel. No substantial use of this repeater was required.
4. Radio interference on both the 2M Message Net and the 440 911 Net were observed at the Cupertino Fire Station and was attributed to local digital public safety radio repeater transmissions by the observing fire station shift commander.
5. The VAN-to-DOC network was activated and worked as planned. The only application used on this network was the VoIP telephone system. This network is under-utilized and applications need to be fully defined and deployed.

**CCC Department Operation Center**

The CCC DOC was staffed. The following specifics are noted here:

- Interactions with the EOC: received messages were passed by paper hardcopy net and telephone to the DOC.

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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**

- Comm Van has good simplex coverage reported from almost all stationary Field Operations Teams.
- Those who had external antennas had excellent coverage.
- Good W6TDM UHF repeater coverage throughout the City.
- Interactions and teamwork between CARES and CERT field members.
- NCS adapted to the hidden transmitter problem; started polling for traffic.
- 911 Net switching; didn't lose anyone.
- CERT comments: "excellent experience", "an eye-opener".
- Fire Station equipment worked flawlessly.
- Good rapport with fire station personnel. Fire staff commented on the high degree of professionalism displayed by assigned Citizen Corps volunteers.

**What didn't work / needs improvement**

- Hidden Transmitter. Some field locations could not hear some stations; could not tell if the frequency was clear.
- Message NCS could not hear all the traffic; radio problem?
- Poor AM Radio reception was reported at the Cupertino Fire Station.
- Two field stations had similar names – City Center and Senior Center – was sometimes confusing.
- Insufficient utilization of the Van-DOC network for moving information between these 2 locations.
- Incoming message formats were inconsistent. Some messages could have been shorter.
- Drill message volume was too much, resulting in NCS becoming a 2 person job.

**Recommendations**

See Section A: Improvement Plan

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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. Corrective Action Plan

End of Report.

**A. Improvement Plan**

This IP has been developed specifically for CARES as a result of 2015 Communications Outage Drill (CUP-15-26T) conducted on 21 November 2015. These recommendations draw on the After Action Debrief. The IP has been formatted to align with the Corrective Action Program System.

| Capability             | Observation Title | Recommendation                                          | Description                                                                                                               | Capability Element | Responsible Agency | POC         | Start Date | End Date |
|------------------------|-------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|-------------|------------|----------|
| 1. 911 Message Process | Delivery Method   | 1.1 Test a Packet Delivery model                        | 1.1.1 Run a similar drill with all messages passed over packet. Include County Comm in this drill.                        |                    |                    | Jim         |            | May 2016 |
|                        | 911 Plan          | 1.2 Refine the Plan                                     | 1.2.1 Confirm impacted West Valley Cities; introduce the Risk and start the dialog on the proposed solution.              |                    |                    | Jim         |            |          |
|                        |                   |                                                         | 1.2.2 Review drill findings with County Comm.                                                                             |                    |                    | Jim         |            |          |
|                        |                   |                                                         | 1.2.3 Review state of the County Comm amateur radio equipment.                                                            |                    |                    | Jim         |            |          |
|                        |                   |                                                         | 1.2.4 Introduce the Risk to County RACES and start the dialog on the proposed solution.                                   |                    |                    | Jim         |            |          |
|                        |                   |                                                         | 1.2.5 Define relevant elements of a 911 request and modify form 213 or create a custom field form to list these elements. |                    |                    |             |            |          |
|                        |                   | 1.3 Training Plan                                       | 1.3.1 Develop and deliver 911 message creation training.                                                                  |                    |                    |             |            |          |
|                        |                   |                                                         | 1.3.2 Develop and deliver 911 "manual mode" form training.                                                                |                    |                    |             |            |          |
|                        |                   |                                                         |                                                                                                                           |                    |                    |             |            |          |
| 2. Field Operations    | Field Readiness   | 2.1 Confirm organization readiness for field deployment | 2.1.1 Go-Kit Reviews; include Forms, mag mounts                                                                           | Planning           | CARES              | Allan, Judy |            |          |
|                        |                   | 2.2 Message Handling                                    | 2.2.1 Develop, deliver training on creating messages from unstructured incoming information.                              |                    | CARES              | Judy        |            |          |
|                        |                   |                                                         |                                                                                                                           |                    |                    |             |            |          |

| Capability             | Observation Title   | Recommendation                   | Description                                                                                                                         | Capability Element | Responsible Agency | POC             | Start Date | End Date |
|------------------------|---------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|-----------------|------------|----------|
| 3. Comm Van Operations | Networking          | 3.1 Network applications         | 3.1.1 Define information requirements; buy/build VAN/DOC network apps (Message passing, SitStat tracking, Field Coordination, etc). | Planning           | DOC                | Gerd, Jim       |            |          |
|                        | Audio Performance   | 3.2 Radio Reception              | 4.1.1 Investigate, resolve Pos#3 receive sensitivity performance.                                                                   | Planning           | CARES              | Marcel, Kenneth |            |          |
|                        |                     |                                  |                                                                                                                                     |                    |                    |                 |            |          |
| 4. SCCFD Ops           | Receive Performance | 5.1 Radio sensitivity            | 5.1.1 Check TM-V71A function to reduce sensitivity for intermod.                                                                    | Planning           | CARES              |                 |            |          |
|                        | Mounts              | 5.2 SCCFD Radio Mounts           | 5.2.1 Revisit SCCFD Comm Pack radio mounts                                                                                          | Planning           | CARES              |                 |            |          |
|                        | Buildout            | 5.3 Monta Vista Station Buildout | 5.3.1 Complete station work: antenna cabling, radio programming                                                                     |                    | SCCFD, CARES       |                 |            |          |
|                        |                     | 5.4 Volunteer Program            | 5.4.1 Complete the volunteer program definition. Develop training plan.                                                             |                    | SCCFD              | Tony            |            |          |
|                        |                     |                                  | 5.4.2 Hold training. Certify responders.                                                                                            |                    | SCCFD, CARES       |                 |            |          |
|                        |                     |                                  |                                                                                                                                     |                    |                    |                 |            |          |